

**MultiScatter** is a plug-in for *3ds max* which works with *V-Ray* and *Mental Ray* rendering systems. It is possible to create complicated scenes with a huge amount of objects easy and quickly with the aid of this plug-in.

Usually scenes in *3ds max* with a great amount of even identical objects take a lot of space on HDD, consumes a lot of time for loading, and it is very hard to work with. *MultiScatter* is created to solve these problems. The scene containing 500 000 identical objects created with *3ds max 2008* occupies 1400Mb of HDD space. Now, if it is created with *MultiScatter* and still containing the same 500 000 objects the scene can take just 250Kb.

The most exciting feature of *MultiScatter* is a quick generation of an array of objects right before rendering. Those very 500 000 objects are created in only 2 seconds before rendering. Another outstanding *MultiScatter* ability is uploading and downloading from *VRayProxy* memory if needed (as and when necessary). This allows the application of polygon models without missing productivity and capacity of RAM.

Animated objects support and animated *VRayProxy* support allows creating huge amounts of animated objects. Now with *MultiScatter* it is possible to create the whole forest of wind-shaken woods.

The support of 64-bit systems and multi core processing allows *MultiScatter* to create and render, for example, forest or even a city in a blink of an eye.

*MultiScatter* includes integrated procedure map/card - *MultiScatterTexture*. This card helps to create uncountable amount of various tones to gain a more realistic appearance of the scenes with huge number of similar objects. There can be, for example, different tones of leaves in a forest or various colours of cars at the parking area. *MultiScatterTexture* is able also to define different tones for the mixing materials, cards, etc.

*MultiScatterTexture* may be applied both to the *MultiScatter* objects and to any other objects at the scene.

### **Main differences of MultiScatter in comparison to VrayScatter**

MultiScatter includes all VrayScatter features such as:

- Regular and random scattering of objects over any surface or along a spline.
- Unique control system for regular scattering with UVW coordinates
- Full control including randomisation of all transformations and scattering by masks or values.
- Control of scattering area by splines and full control of transformations of objects along the border.
- Collision control inside the single MultiScatter object or between multiple.
- Scattering control relative to the camera.
- Animation of parameters as well as scattering of animated objects.

- Special textures for randomisation and control of object colour and creation of complex masks.
- MultiScatter integrates these and many other features, and was created from scratch, allowing us to bring working with arrays to a new level.

The following additional features were added:

- Support for Mental Ray (including MProxy)
- Any geometry can be used for scattering (e.g V-RayScatter can only use V-RayProxy)
- Unlimited number of different objects within one MultiScatter.
- Probability texture allows clustering distribution of objects, controlling size of a cluster and density of its borders.
- Multi-core processing support at all stages of workflow including viewport render.
- Any object from the current scene can be chosen for scattering.
- Materials, properties, transformations and animations remain interactively linked between objects within MultiScatter and all related objects within the scene.
- *Help Pictures* will help new users to navigate through the interface; this can be switched on/off.
- Revolutionised Viewport mode *Points* allows viewing of the objects' geometry regardless of complexity and the quantity of objects in a scene.
- Optionally MultiScatter can show wirecolor or diffused colour of objects' materials.
- Collisions inside a MultiScatter can be seen in a viewport.
- A MultiScatter object can be converted into single geometry as well as copied across instances. This allows using MultiScatter as a modelling tool and other rendering engines can be used other than V-Ray and Mental Ray.
- MultiScatter utility allows the control of huge numbers of MultiScatter objects.
- MultiPainter object. This tool gives full control for object placement with a brush.
- And many other new features.

## Installation

### System requirements:

3ds Max versions: 2008, 2009, 2010, 2011, all 32 or 64 bit

3ds Max Design: all

V-Ray versions: V-Ray 1.5 (RC5 -no animated proxy, SP1- SP5) - 32 or 64 bit

OS: Windows XP, Windows Vista, Windows 7, all 32 and 64 bit

User must have local administrator rights with Windows XP to use MultiScatter.

on Windows 7 administrator rights needed only during installation

## Installation

Users are provided with the same installation file for both Workstation and Render node

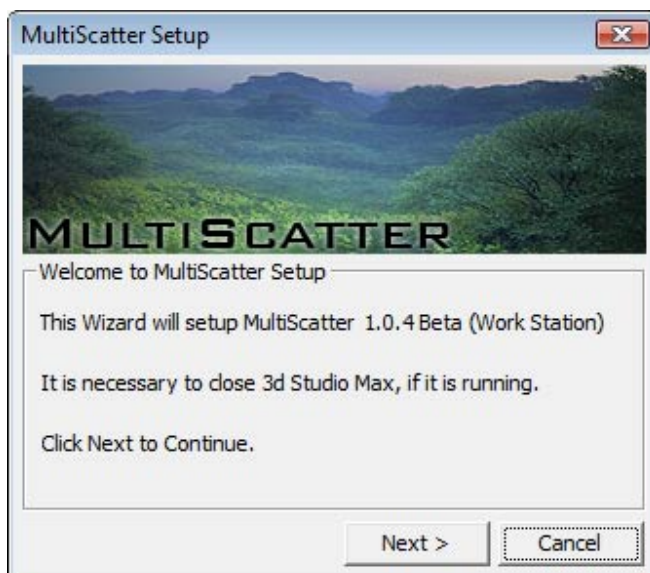
### MultiScatter.exe

Workstation can be used only when license is properly installed, and provides access to all *MultiScatter* options.

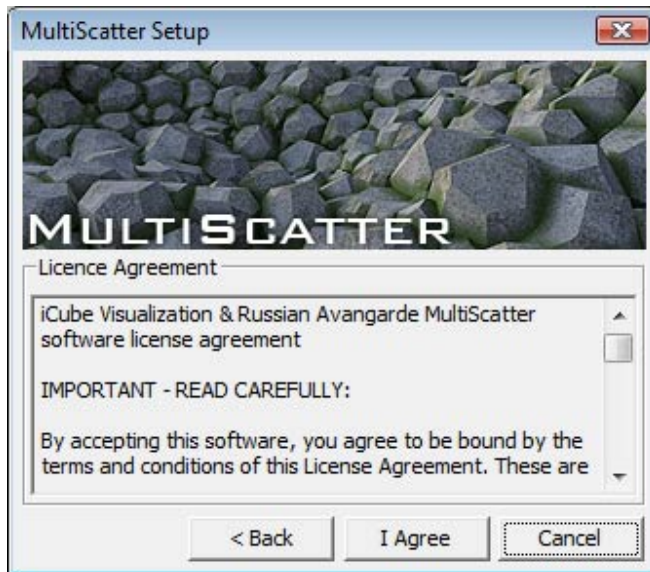
**If MultiScatter does not find license file it switches itself to rendernode mode and only can renders files created with *MultiScatter Workstation*.**

Rendering is available both locally and over network.

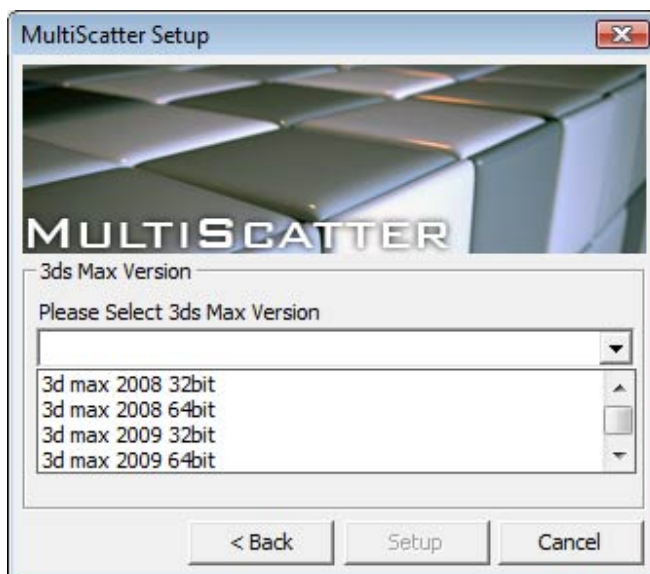
To install the program you need to run the *MultiScatter\_WS.exe* with the administrator rights.



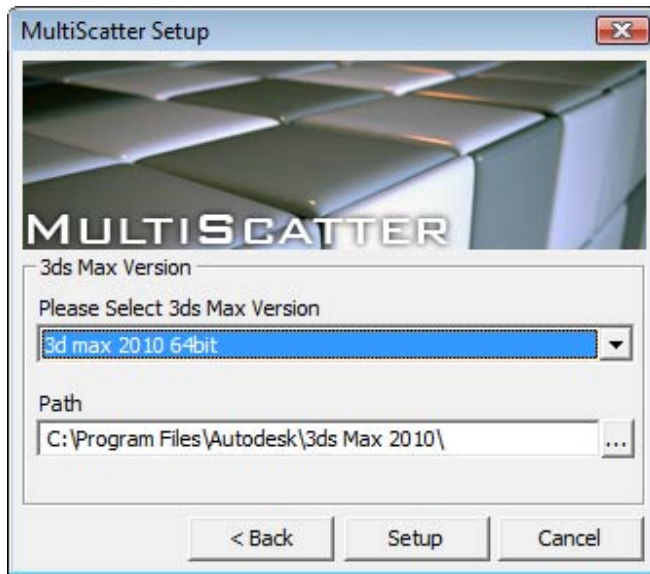
Don't forget to quit *3ds max* before you start the installation.



Read carefully the License Agreement. If you agree, click "I Agree", if not - press "Cancel"



Choose *3ds max* version you use.

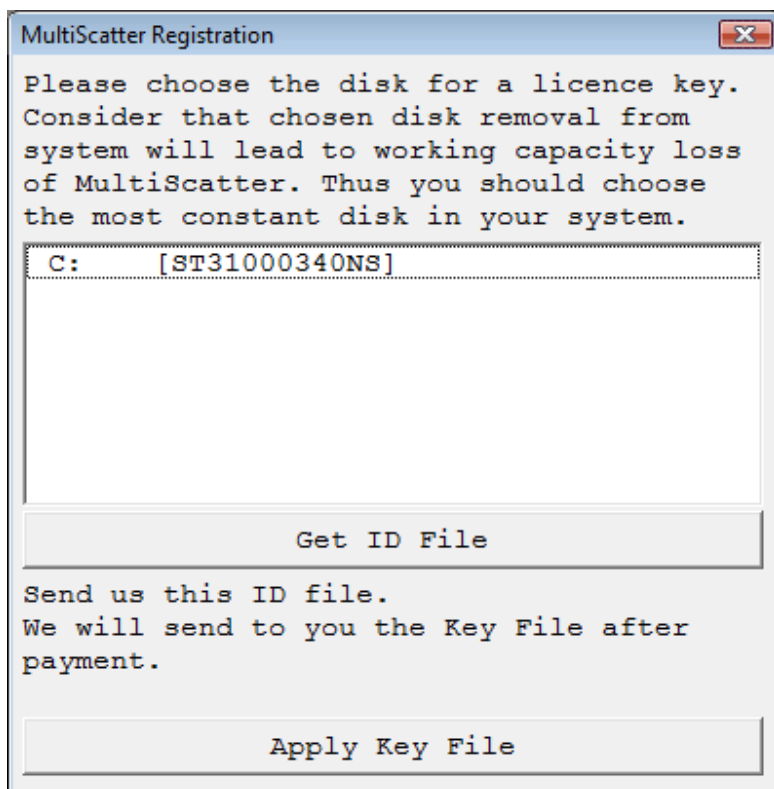


The setup wizard will automatically select destination folder for *3dsmax*. Check the path where 3dsmax is installed and correct it if needed.

Press “Setup” button.

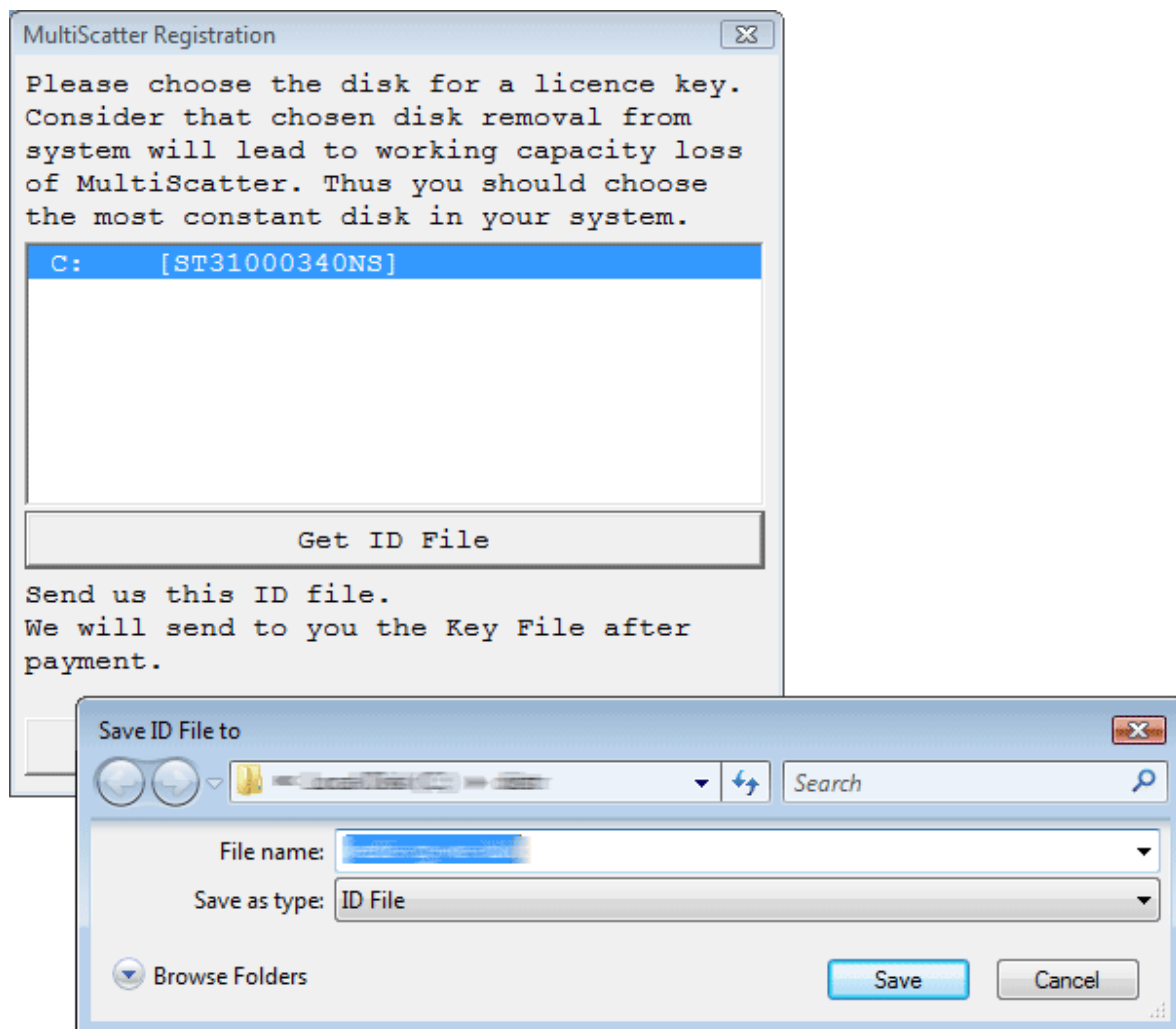
## Registration

Start the *MultiScatterRegistration32x.exe* or *MultiScatterRegistration64x.exe* utility (for 32-bit or 64-bit systems accordingly)



Choose the hard disk to be linked with the *MultiScatter* license (linking with external USB storage, Flash drives and network drives is not supported).

Press the «Get Your ID File» button and save \*.id file on your hard disk under any name you like.



Send this file to [mail@rendering.ru](mailto:mail@rendering.ru) (or your reseller). In the nearest time (usually within 24 hours) you will get an email from us (or your reseller) with \*.key license file attached. Save this file on your hard disk. Start again *MultiScatterRegistrationXXx.exe* utility and press the «Apply Key File» button.

In the dialogue box select the \*.key file you received from us. With this registration procedure is over.

In case of license malfunction and errors (which can be caused by disk formatting, reinstallation of the operating system or components replacement) you are free to address the developer at any time. Please make sure you download latest version from our forum and generate new \*.ID file. Send it to [mail@rendering.ru](mailto:mail@rendering.ru) to get your updated \*.Key file

However, in case of total replacement of a PC new license is not provided more often than once in half a year.

**ATTENTION!** Please always try to email from the same email address you used when you purchased the plug-in. If we can't find your e-mail address from which you sent the ID file in our database and there is no explanation and receipt or order number in you email, your request may not be processed!

Please always attach you receipt or order number to avoid any delays in communication.

## **Uninstall procedure**

To uninstall *MultiScatter* start the *Uninstall.exe* utility.

Choose the *3ds max* version for which the *MultiScatter* to be removed is installed. Press "Uninstall" button.

## **Installation for a network or distributed rendering**

For network rendering just install the same file *MultiScatter.exe*. Installation procedure is the same as for the Workstation, but skipping Registration process. Rendernode version does not require registration.

Submission for network or distributed rendering should be done from the PC with the registered Workstation version of *MultiScatter*. The rest of render nodes involved in the network or distributed rendering can have only Rendernode versions of *MultiScatter* installed.

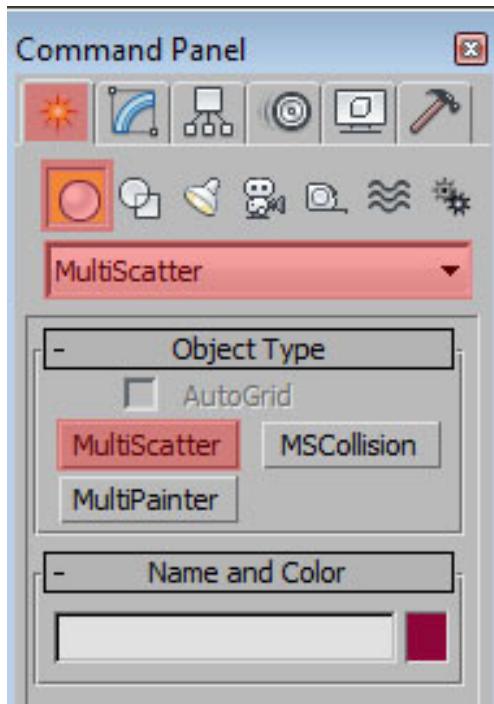
Each *MultiScatter* license comes with unlimited render nodes.

## ***MultiScatter* creation**

You can create *MultiScatter* within the panel:

*Create>Geometry> MultiScatter > MultiScatter.*

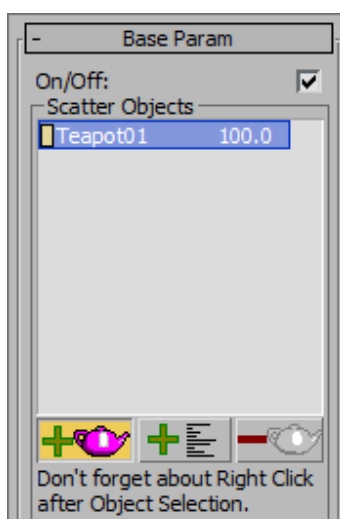




If any object was selected during the creation, *MultiScatter* will automatically use the surface of the selected object for the distribution over it.

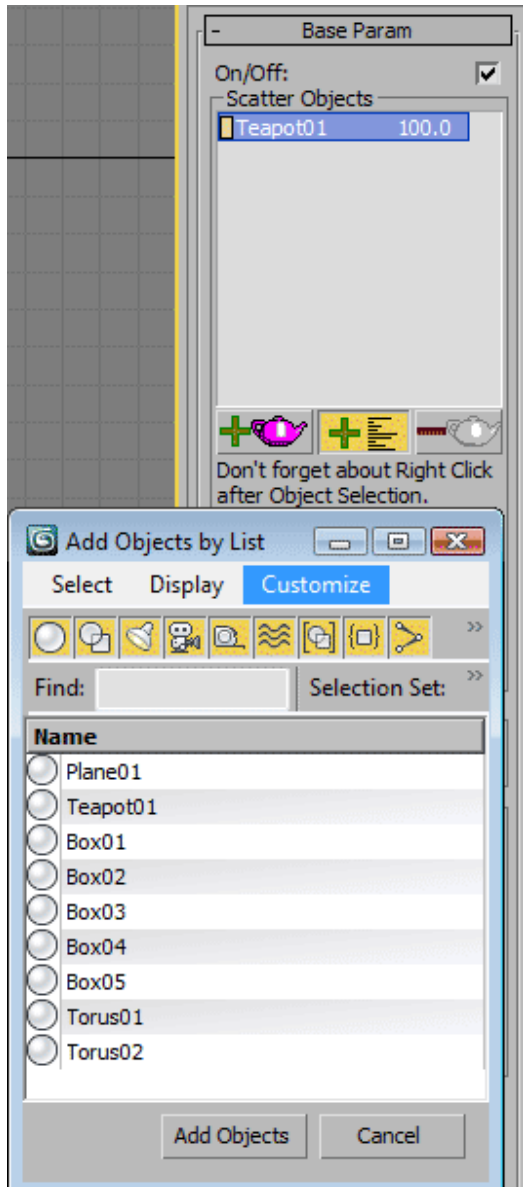
After the creation of *MultiScatter* it is necessary to switch to 'Modify' panel and select the objects for distribution at the scene. Press '+Teapot' button before the selection. The selected objects will be used for distribution. The object matter of the distributed objects corresponds with that of the original ones.

Do not remove original objects after their selection for *MultiScatter*. It is recommended to position them in a hidden layer, all objects inside MultiScatter inherit properties of the original.



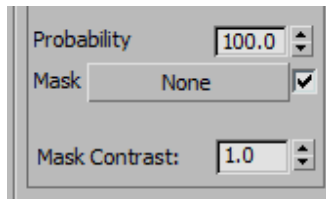
You can select any objects, *Vrayproxy* and *Mentalproxy* at the scene. After all required objects are selected press right button of the mouse or the '+teapot' button once again.

You can also add the list of objects by pressing the '+list' button



Selected objects can be removed from the list by pressing the '-teapot' button.

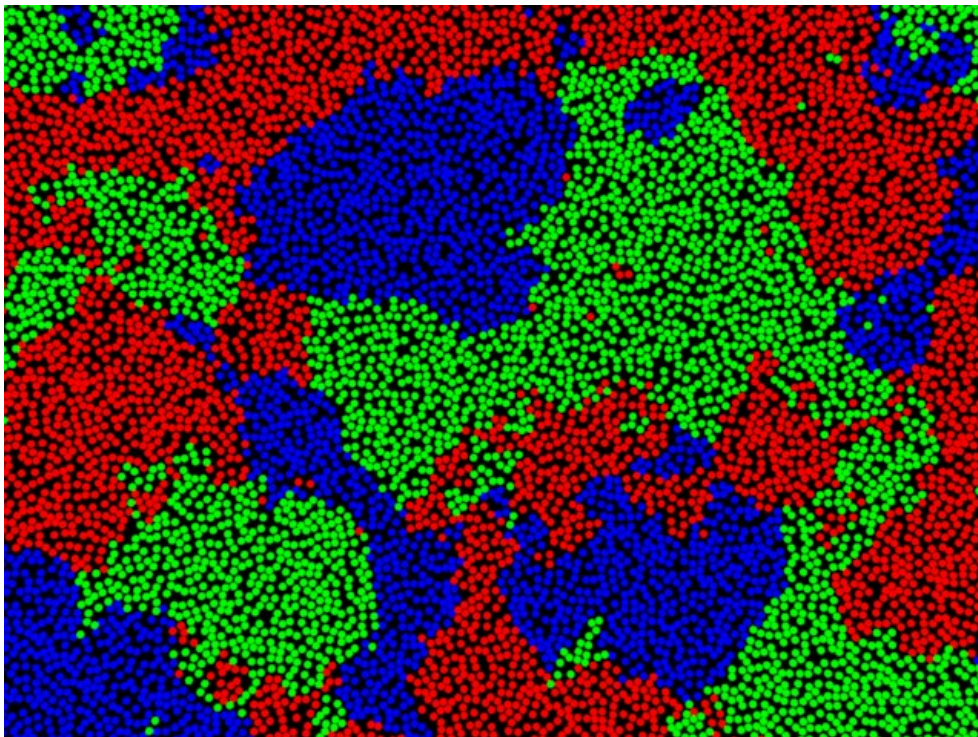
Each of the objects has the following options:



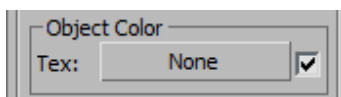
**Probability** is the probability of the object's distribution in regard to other *MultiScatter* objects

**Mask** is the probability mask. The brighter texture is the more probable this place is for the distribution of this type of objects.

**Mask contrast** controls the contrast value of the probability mask. High contrast value makes borders of object areas more defined. The example below presents distribution of three types of objects; for each of them noise maps with different phases are used as masks. Mask Contrast is set to 100. The borders of object areas are sharp due to the high contrast value.

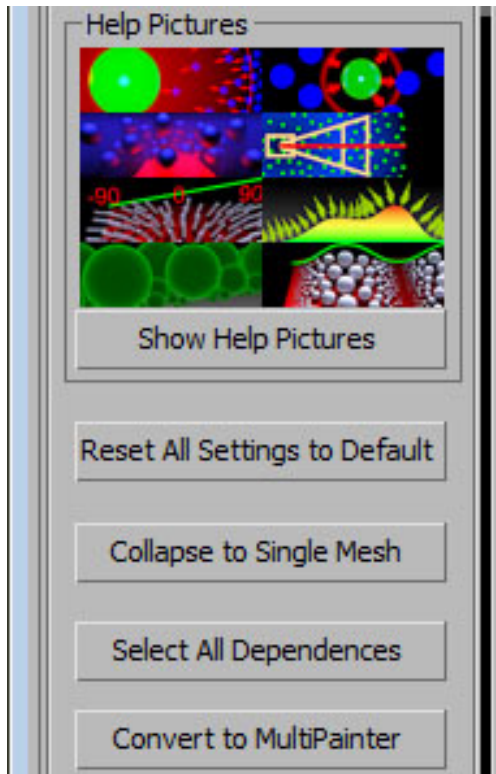


**Object color**



This setting is described in the *MultiScatterTexture* section

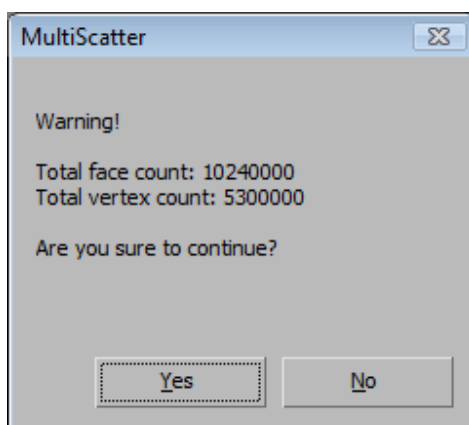
**Help pictures.**



**Show/Hide Help Pictures** button activates/deactivates helping pictures for *MultiScatter* interface.

**'Reset All Settings to Default'** button restores all *MultiScatter* settings to the default values.

**'Collapse to Single Mesh'** button converts *MultiScatter* into *Editable Mesh*. Since *MultiScatter* can contain very heavy geometry, the following warning window will be displayed before the creation of the resulting object.



This will help to judge the ability to create such object. If the amount of polygons is huge the process of conversion can take very long time or even fail.

'**Select All Dependences**' selects all objects in the scene used in MultiScatter (objects, surfaces, splines and border splines)

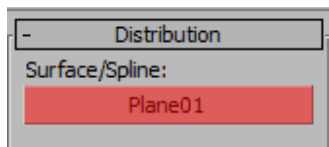
'**Convert to MultiPainter**' converts to MultiPainter

Please note that MultiScatter can quickly process many more objects than MultiPainter, and converting to MultiPainter may be impossible when trying to convert from MultiScatter with large amount of objects in it.

## Distribution

### Selection of surface or spline

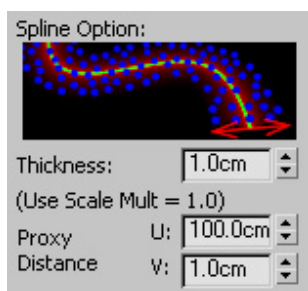
To define surface or spline for *MultiScatter* objects distribution you need to create *MultiScatter* while the object for distribution upon its surface or spline is selected. After *MultiScatter* is created you can select surface or spline by pressing "Surface/Spline" button.



Only one object can be chosen. If the objects are needed to be reproduced upon several surfaces or splines the last should be attached into one mesh or single spline.

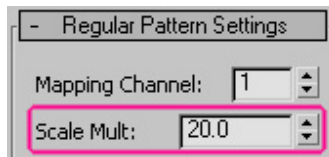
### Properties of distribution by spline

Spline distribution options are available if spline is selected as the object for the distribution over it.

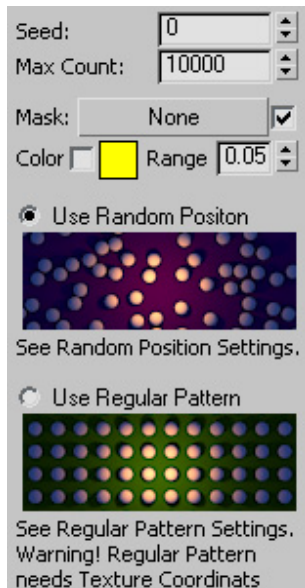


**Thickness** is the thickness of objects distribution in reference to spline (it is set in system measure units)

**Proxy Distance** is the length and width between the objects with regular distribution. **Be careful and attentive!** Regular pattern of spline distribution needs **Scale Mult** option of the **Regular Pattern Settings** section to be set as **1**.



**Distribution properties are common for distribution both by spline and surface.**



**Seed** - that is the option setting random object distribution. Any changes in this option lead to a new random redistribution of objects.

**Max Count** – that is the number of objects to multiply. It fixes the maximum number of objects possible. The resulting number of objects will be no more than set value.

**Mask** – that is distribution mask. Assuming that a monochrome greyscale mask is applied, objects will not be reproduced on black coloured areas. On white areas the density of objects remains unchanged. It is not recommended to use large surface with rear white mask areas as this will slow down generation. Try to crop surface so that it will contain less black coloured areas.

**Color** – you can use colour masks for object distribution if this option is set active. The nearby "Color Picker" allows you to select the particular colour on a mask over which further distribution will take place.

**Range** - it sets the objects scattering range beyond the borders of the selected coloured area when the colour mask is applied.

**Use Random Position** - it activates object distribution based on random algorithms which are set in 'Random Position Settings' section

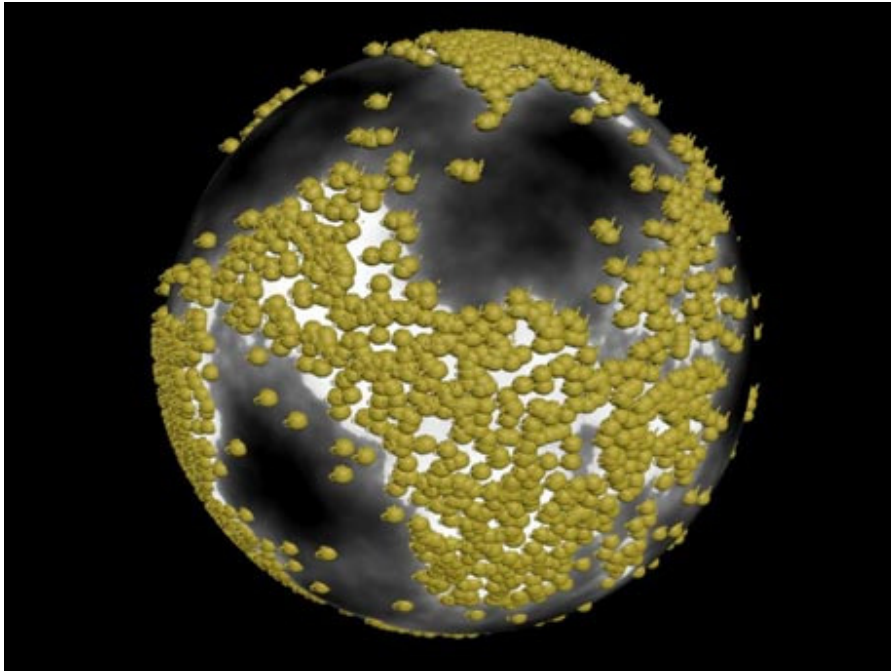
**Use Regular Pattern** – it activates regular object distribution which is set in 'Regular Pattern Settings' section

You can use Mesh or spline as surface.

The main distribution setting is the number of objects. It is set by **Max Count** value. If you are not satisfied with the current variant of random distribution, correct **Seed** setting. If you need the distribution to be done only over certain part of a surface (not over all surface area), you can use texture mask (**Mask**) for uneven distribution according to the texture. Black colour equals to zero density of objects and white colour is initial (100%) density.

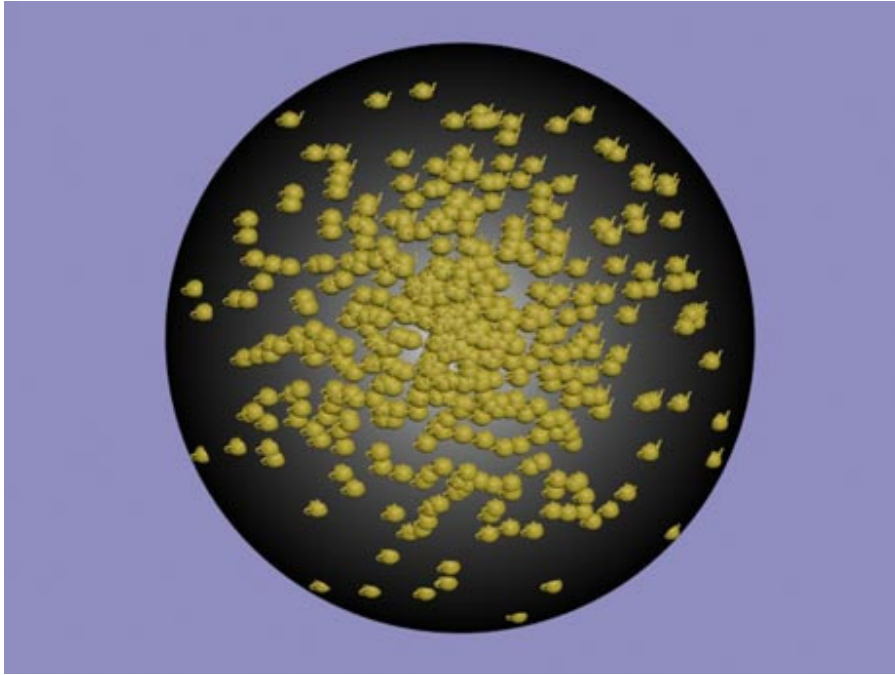
**Examples of different masks application:**

**Noise**

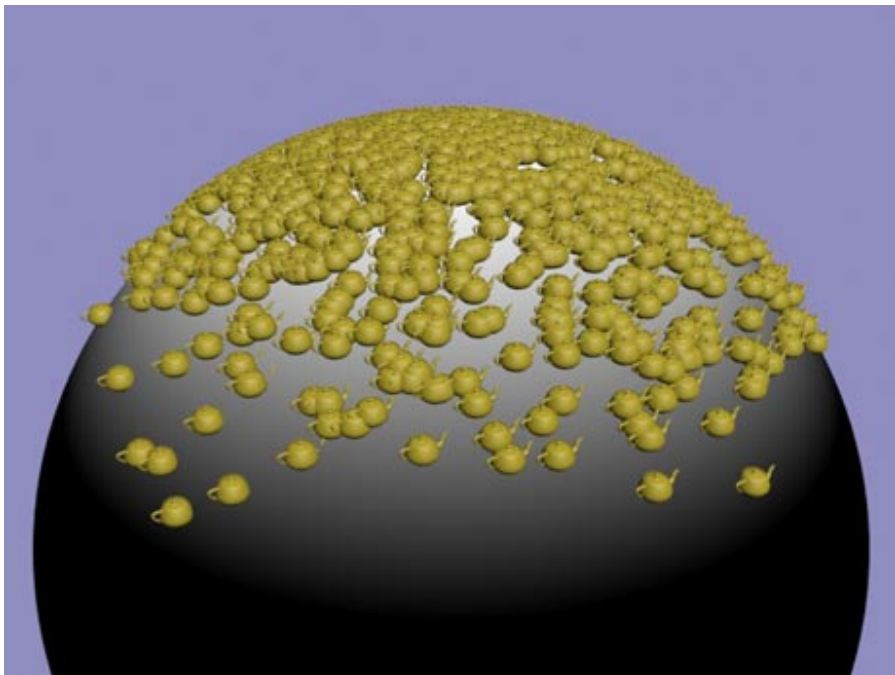


***Falloff*** towards the camera





***Falloff*** towards object Z-axis

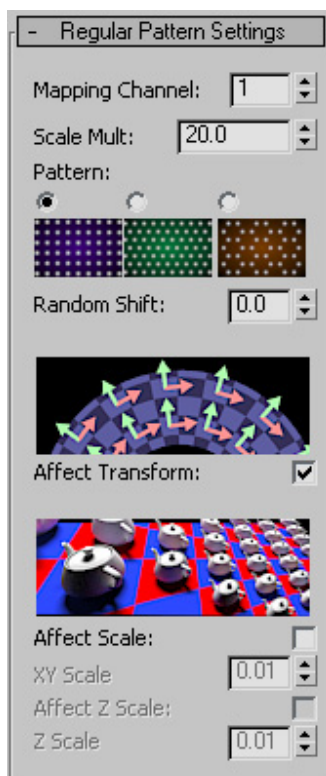




**Vertex Paint** (Important note! Use texture channels - for example the 2<sup>nd</sup> - for keeping colour parameters since the *MultiScatter Vertex Color* channel is not applicable due to certain peculiarities of scatter creating algorithms.)



### Regular Pattern Settings

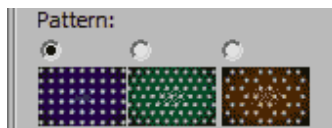


Regular distribution requires the presence of correct UVW Mapping of the object for distribution. You can control regular distribution with UVW Mapping as usual texture.

**Mapping Channel** sets the channel for UVW Mapping to be used for distribution

When regular pattern is selected for distribution you can get access to related options. You can vary density of the regular distribution with aid of **Scale Mult** option (**Attention!!!** For correct regular spline distribution **Scale Mult** setting should be fixed at 1).

### Pattern

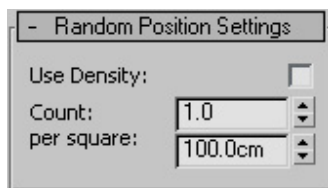


The following options are provided to change the type of regular distribution: Square (square grid), Triangle (triangular grid), Hexagon (hexagonal grid).

**Random Shift** gives an opportunity to add some randomness to regular distribution.

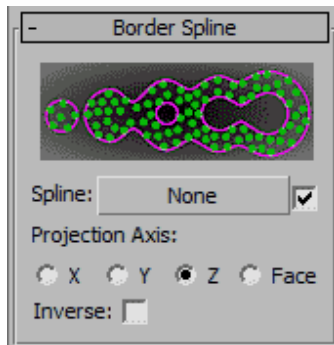
With default settings texture coordinates set only location of objects, but not their rotation and scale. Activation of **Affect Transform** option lets you set rotation of objects to UVW Mapping. For example, rotating UVW Mapping Gizmo, the objects will be rotating the same way following texture rotation. If you need to control not only rotation, but scale also then turn on **Affect Scale** option. With this, the scale of objects can be change suddenly. For controlling the scale use **XY Scale** and **Z Scale** options if necessary. With 'Affect Transform' option active, 'Use Normal' setting of the 'Rotate' settings should be set as 0.0.

### Random Position Settings



Random position settings include only one additional option - 'Use Density'. With it you can set the number of objects (**Count**) to be located at a single area unit (**per**). The resulting number will also be fixed with 'Max Count' option. The area is defined by system units. It means that in the case when centimetres being used in system units one single object will fall within 1 square meter.

### Border Spline.



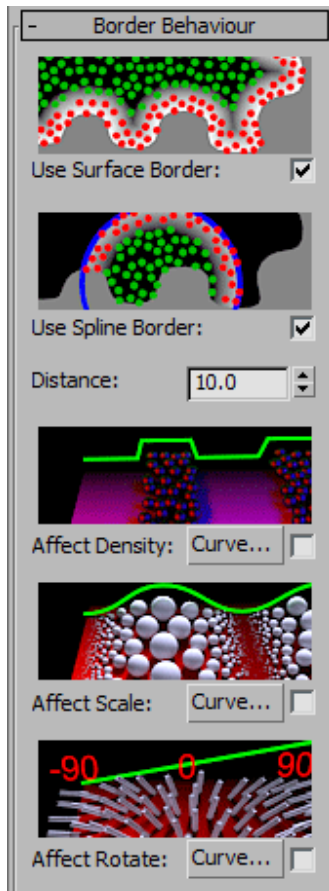
It is possible to limit objects disposition with spline. You can use only one spline. If you need to limit the disposition with several splines, then attach them first into one single spline.

You can use different projection axis of spline on surface. If your surface, for instance, is not horizontal (a wall of a building, for example), you can use X-axis or Y-axis depending on orientation of surface. The axis should be perpendicular to the surface. If the surface contains complicated relief and is not flat, then use **Face** projection.

Distribution inside spline is sensitive to its direction. Use **Inverse** command in spline properties to change the direction of spline.

It is recommended to use border spline around the surface.

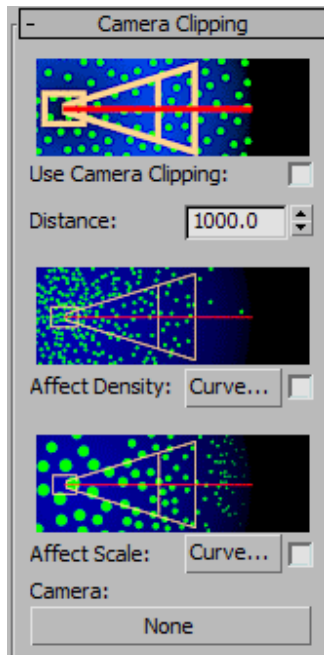
**Border behaviour.**



As a border you can use surface sides (**Use Surface Border**) and border spline (**Use Spline Border**). The impact of borders upon the object distribution can be controlled by density (**Affect Density**), scale (**Affect Scale**) and rotation (**Affect Rotate**). The depth of impact is set by **Distance**.

Using curves you can control different types of border impact by distance from the border. The left part of a curve sets behaviour closer to the border. The right part of a curve sets behaviour in a **Distance** of an object from the border.

### Camera clipping



**Use Camera Clipping** activates object distribution depending on their distance from the camera

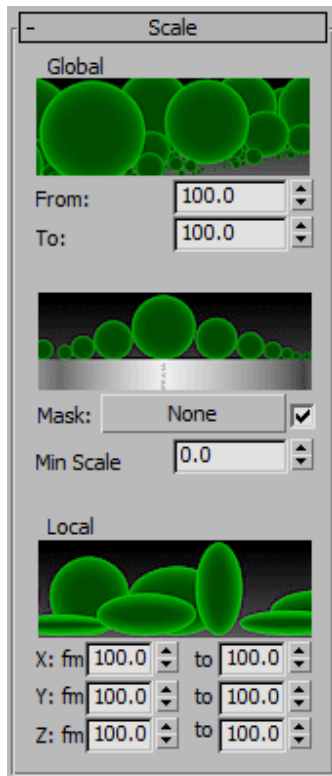
**Distance** sets the distance beyond which the objects will not be distributed.

For static shots it is convenient to control density (**Affect Density**) depending on the distance from the camera.

**Camera** sets the camera with regard to which the distribution will take place.

Density control is not suitable for animation (objects will appear suddenly in front of the camera). Scale control (**Affect Scale**) is more convenient for animation. It is recommended not to use **Collision** together with **Camera Clipping** for animation.

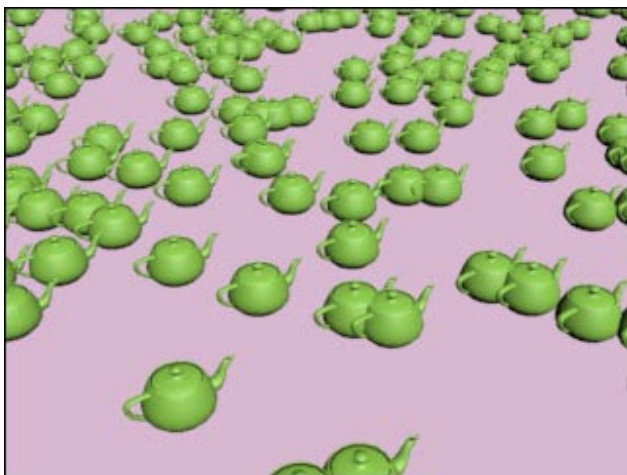
**Objects scaling**



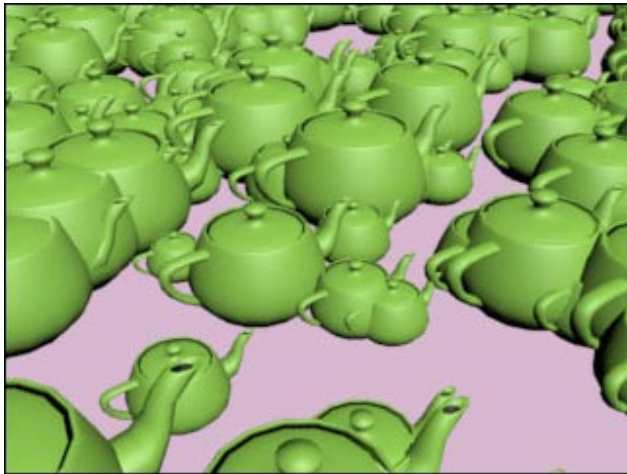
**Global** that is the scale control of objects at all axial directions – XYZ - proportionally.

**From** and **To** are to fix the variation limits of scale. If the scale should be equal for all objects, set these parameters equal to each other.

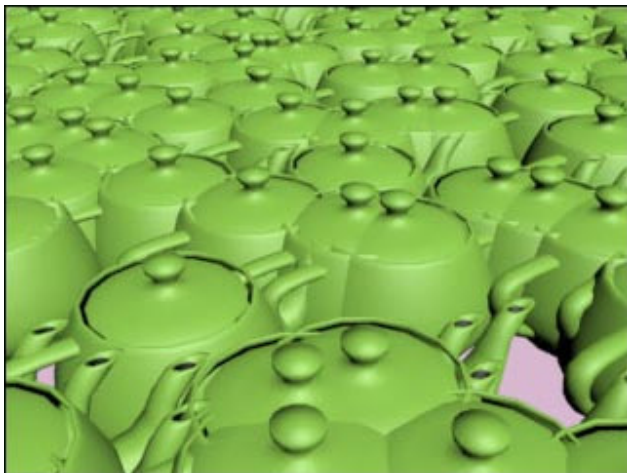
From = 100, To = 100.



From = 100, To = 300.



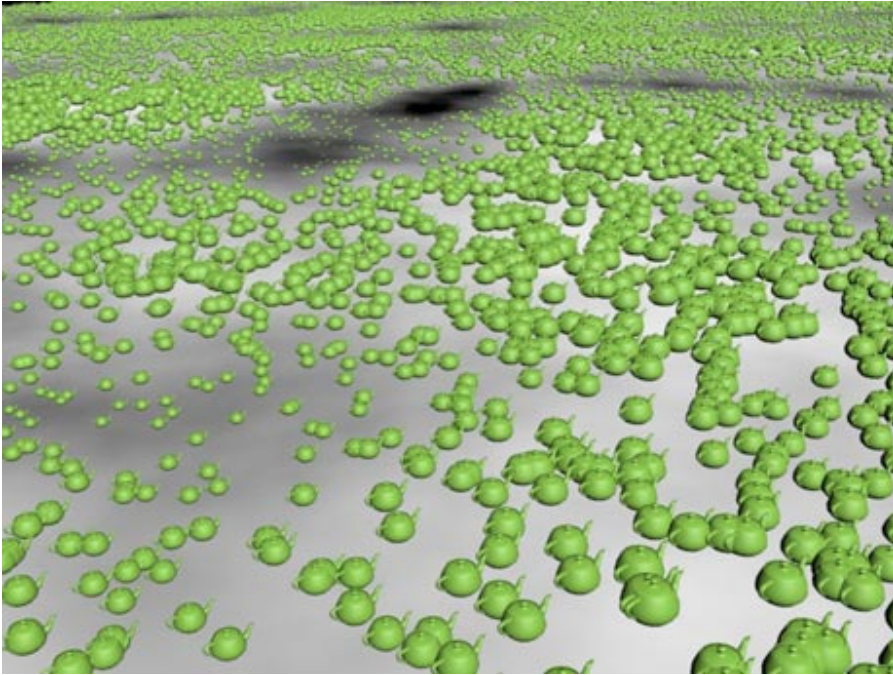
From = 300, To = 300.



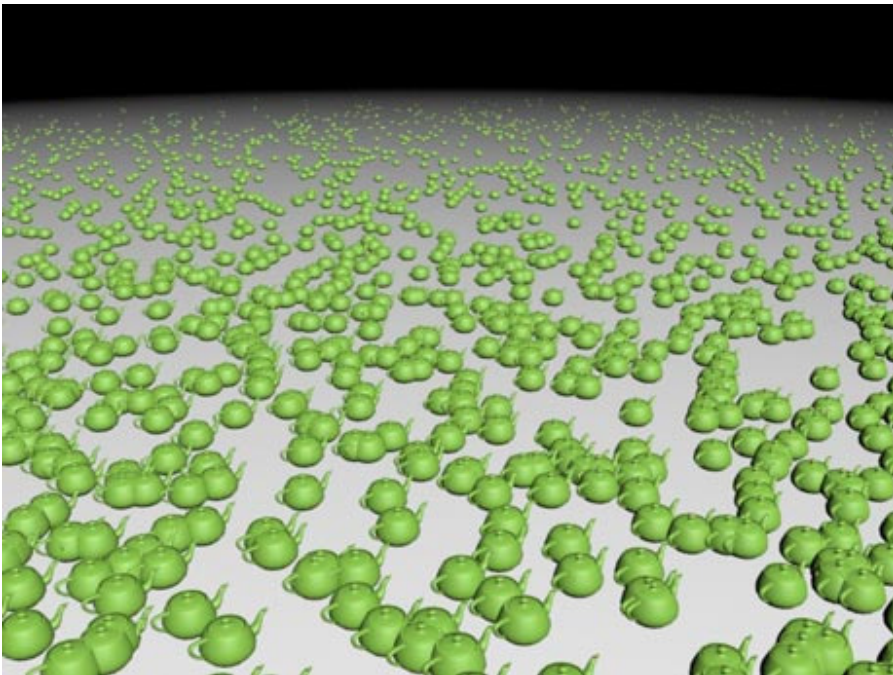
**Mask** sets scaling of objects upon the texture. Black colour equals to zero scale, white colour leaves the scale unchanged.

Using of 'Noise' within the scale mask.





Here is an example of 'falloff' application in 'distance blend' mode within the scale mask

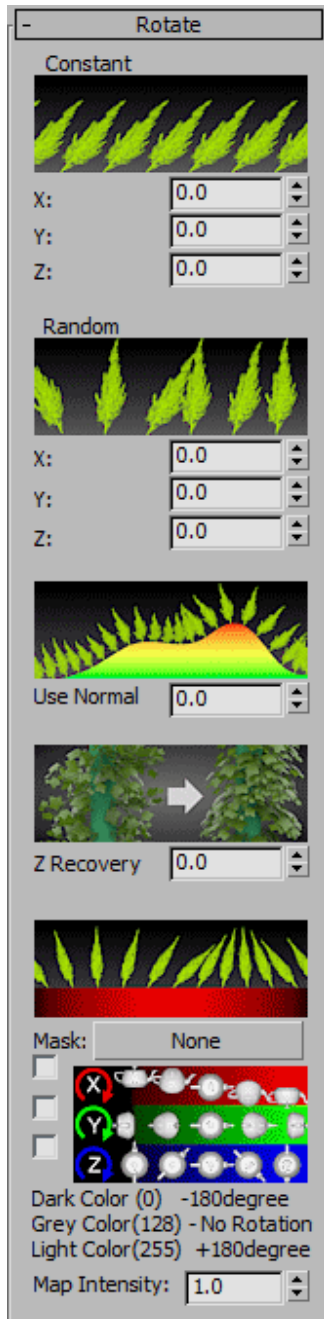


**Min Scale** sets the minimum scale of objects, which does not allow objects with less scale value to be represented. For example, it is required to fix appropriate minimum scale value for such objects as trees to prevent some of them from being presented smaller than bushes.



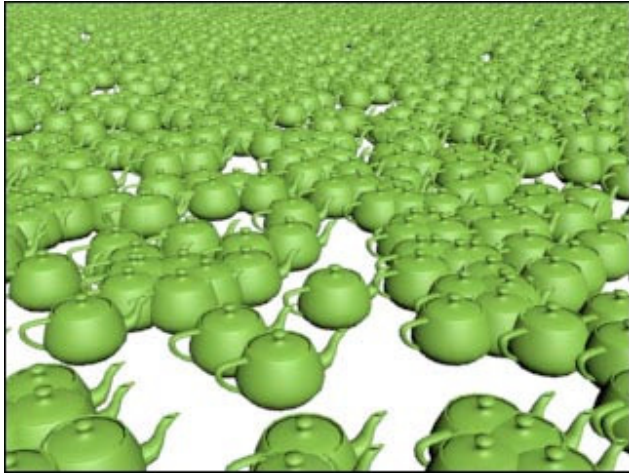
**Local** settings allow independent scaling of objects at each of the axes locally.

### Rotation.

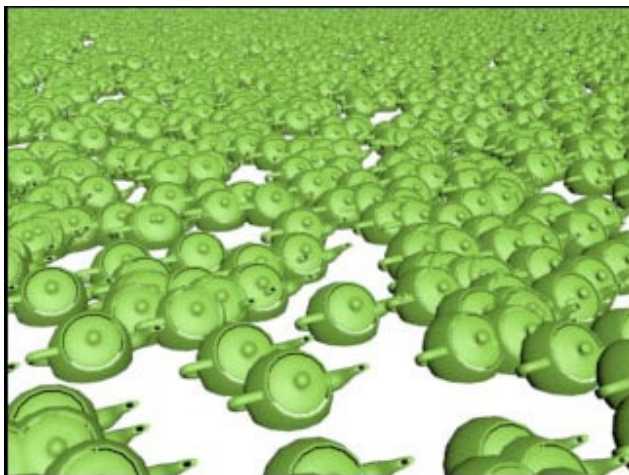


**Constant** settings make all objects rotate at the same angle.

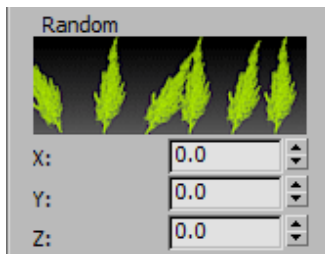
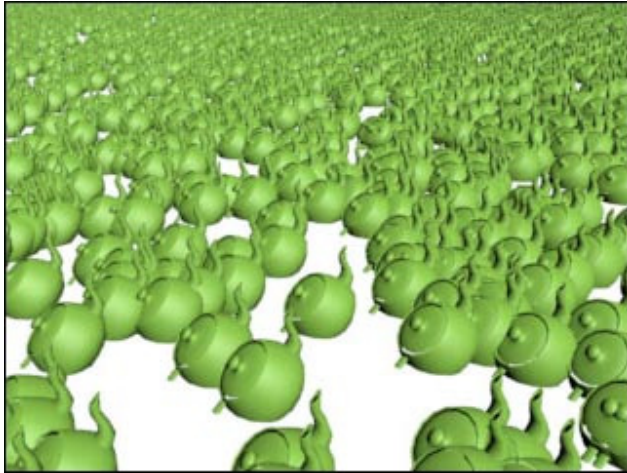
X = 0, Y = 0, Z = 0.



$X = 45, Y = 0, Z = 0.$

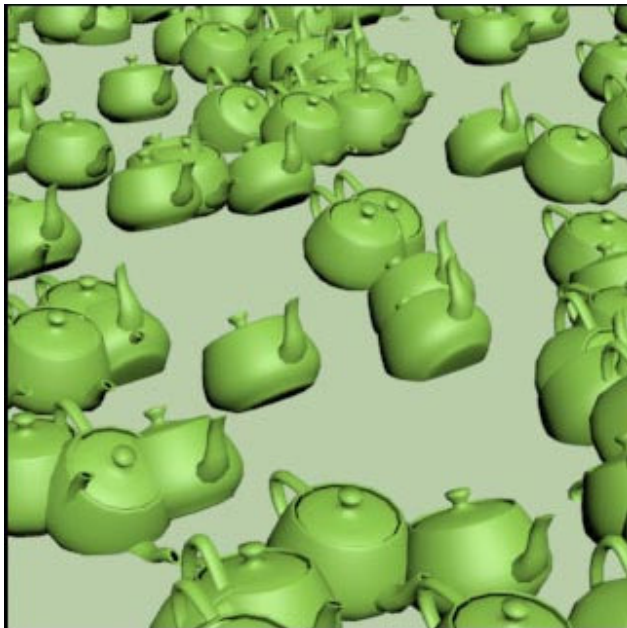


$X = 0, Y = -45, Z = 0.$

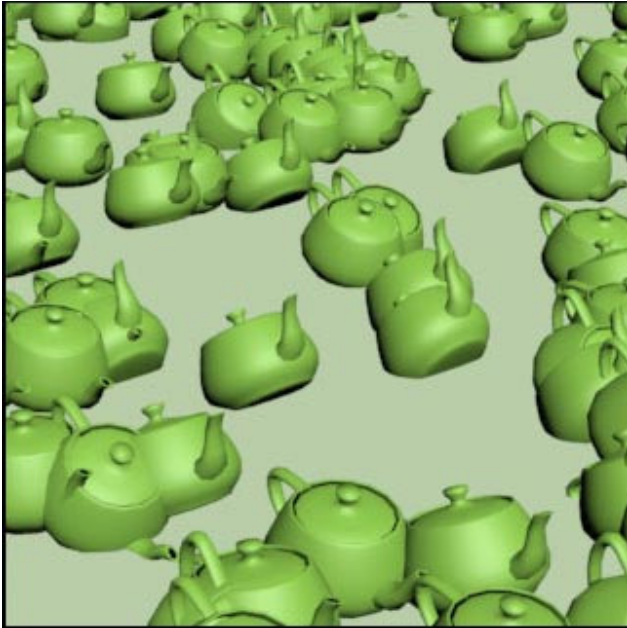


**Random** parameters set additional random rotation around each axis

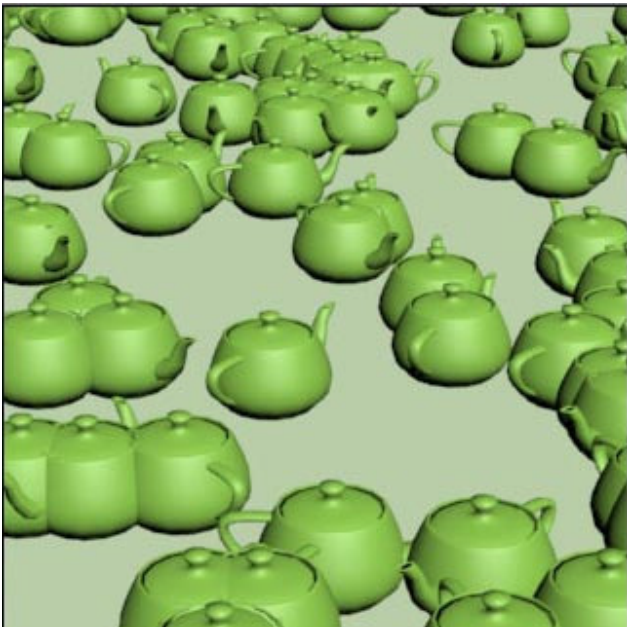
X=60, Y=0, Z=0.



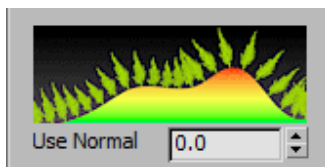
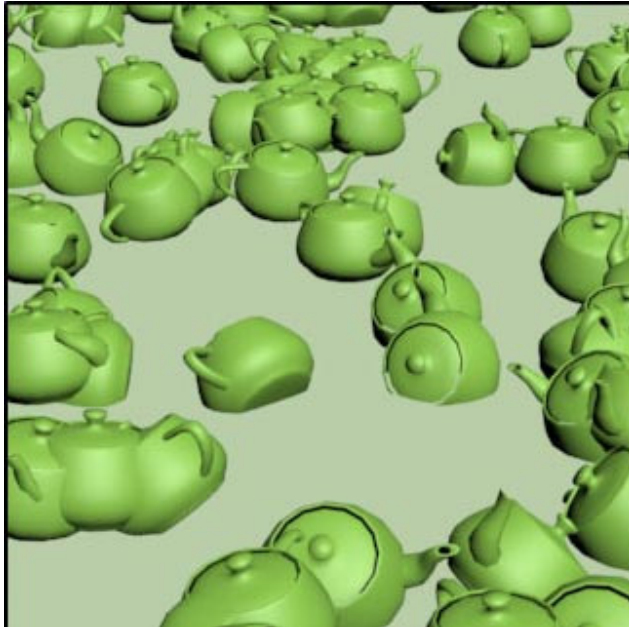
X=0, Y=60, Z=0.



X=0,Y=0,Z=360.

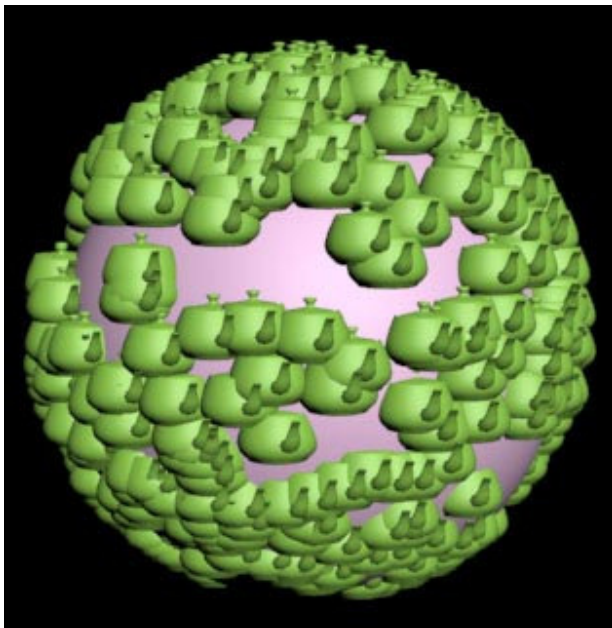


X=60, Y=60,Z=360



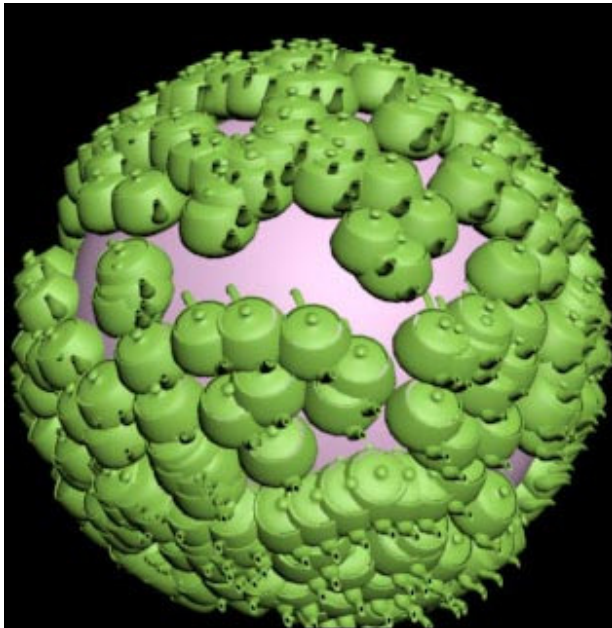
**Use Normal.** If the objects should be oriented along the normal towards the surface, set this at 1.0. Different values of this setting and the respective results are presented below:

Use Normal = 0.0

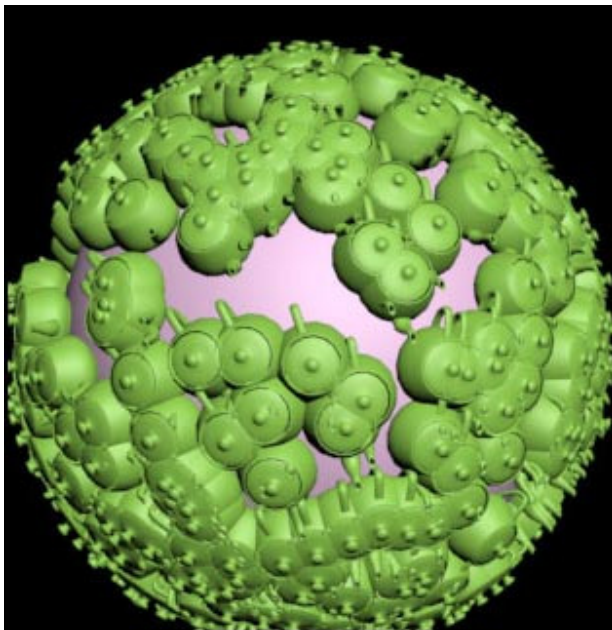




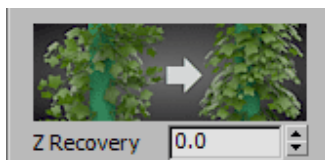
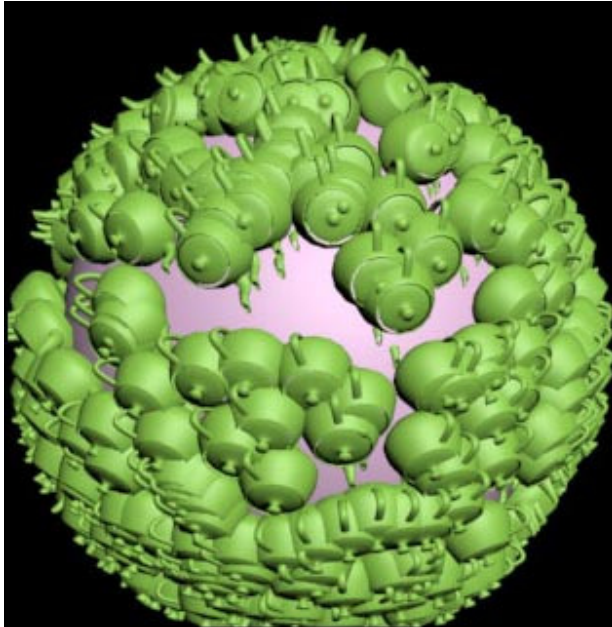
Use Normal = 0.5



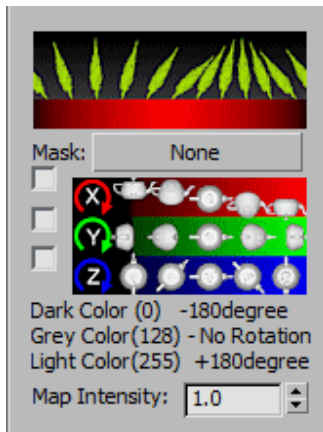
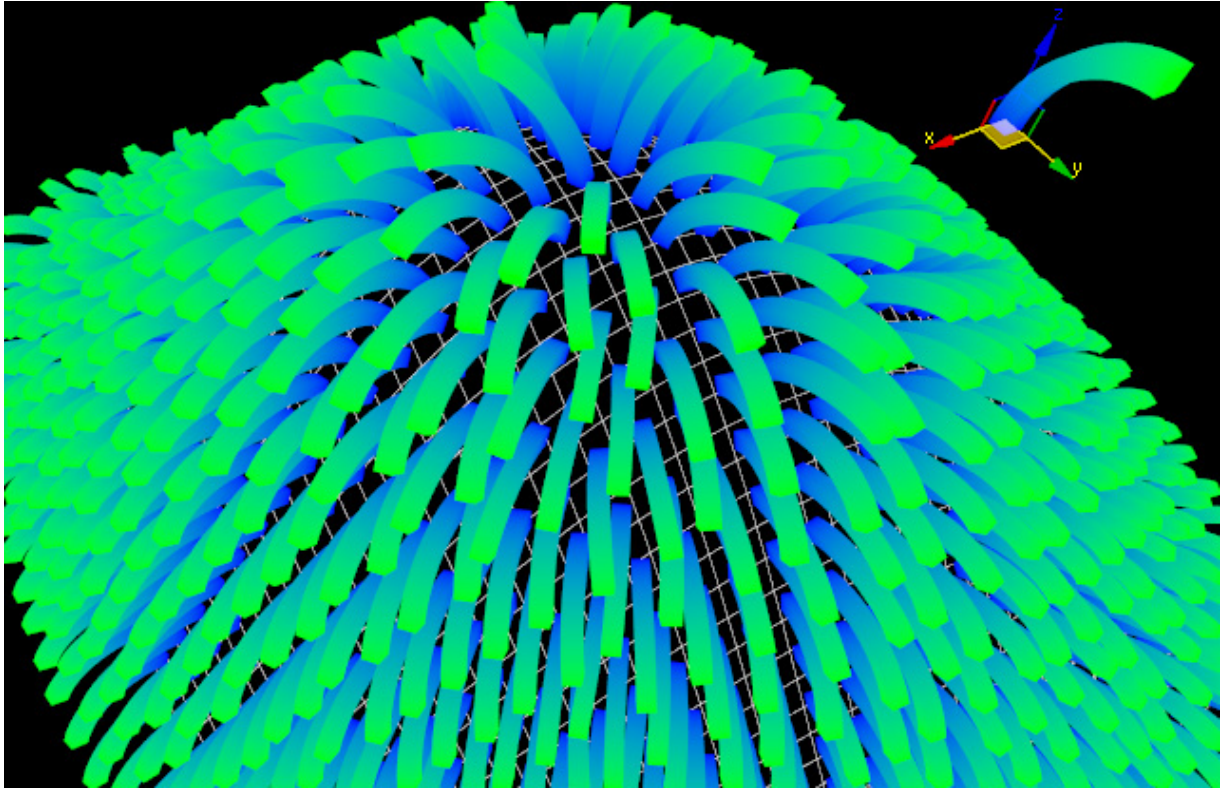
Use Normal = 1.0



Use Normal = 4.0



**Z Recovery** – this setting makes the object rotate so that its Y axis get the same direction as its Z axis deflection – like it is shown in the picture below:

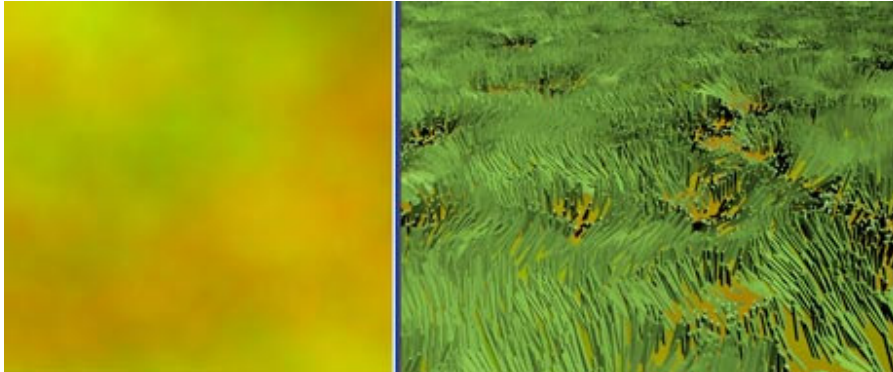


**Mask.** Rotation can be controlled by colour mask where each colour corresponds to its axial rotation. Red colour is responsible for X axial rotation, green colour is for Y axial rotation, and blue colour makes Z axial rotation. Colour value 0.0 equals to rotation of 180 degrees to one direction, colour value of 0.5 leaves the rotation state unchanged, colour value of 1.0 makes the rotation of 180 degrees to another direction. If some axial rotation is not needed just untick respected axis in the settings window.

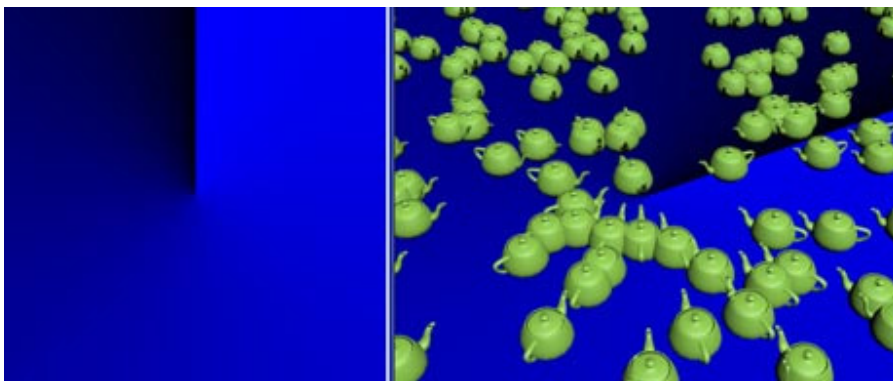


The use of various textures within the rotation mask

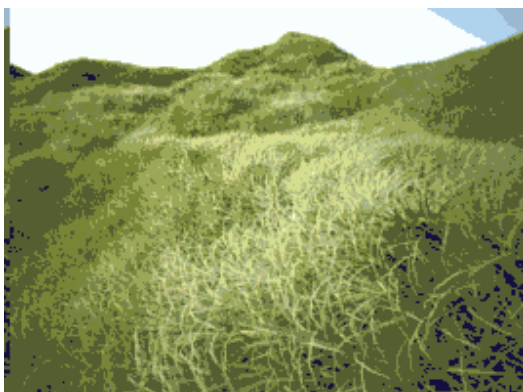
### Coloured Noise



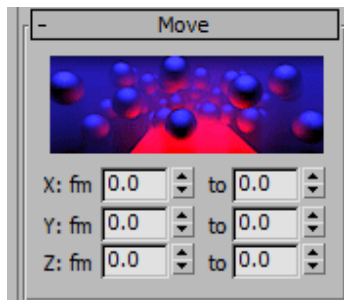
### Gradient Ramp



Rotation of objects upon animated texture can be used for creation of wind effect. In this case swinging range can be controlled by **Map Intensity** setting.

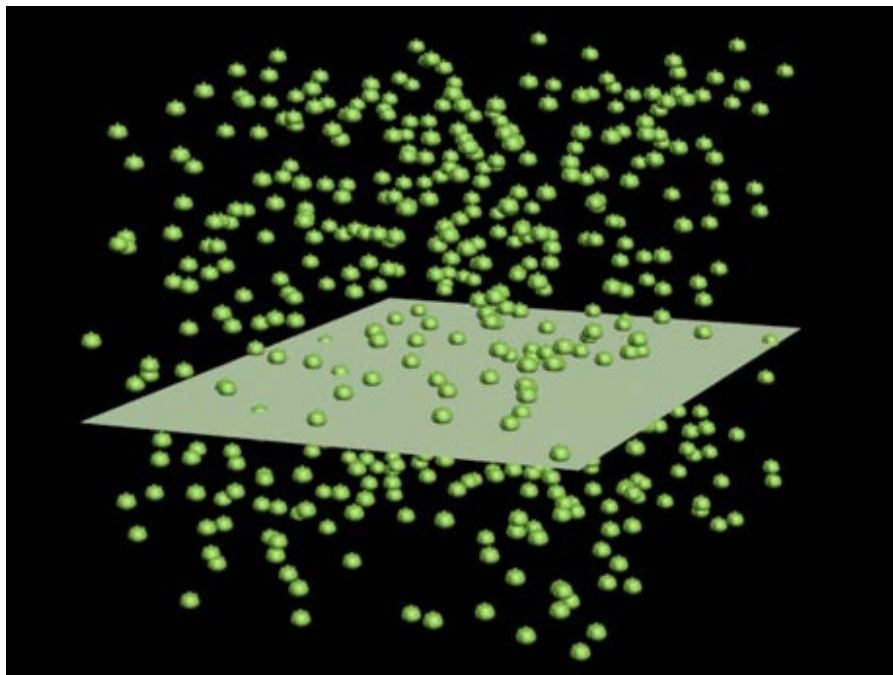


### **Movement with relation to the initial position.**

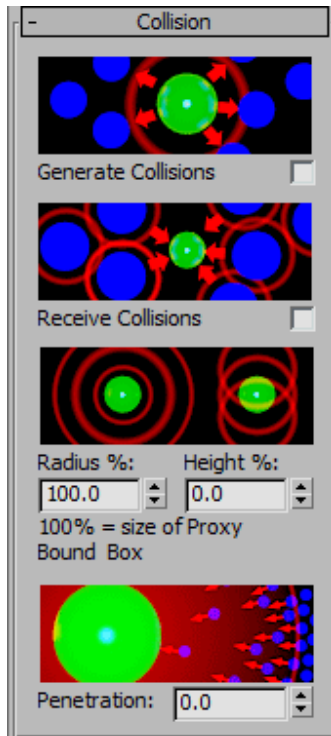


These parameters are applied in case of necessity of spatial spread of proxies. First column sets starting range of object displacement within the axial direction of the coordinates, second column sets the final range of displacement.

Below example presents Z-axis direction variation from -3000 to 5000.



### **Collisions**

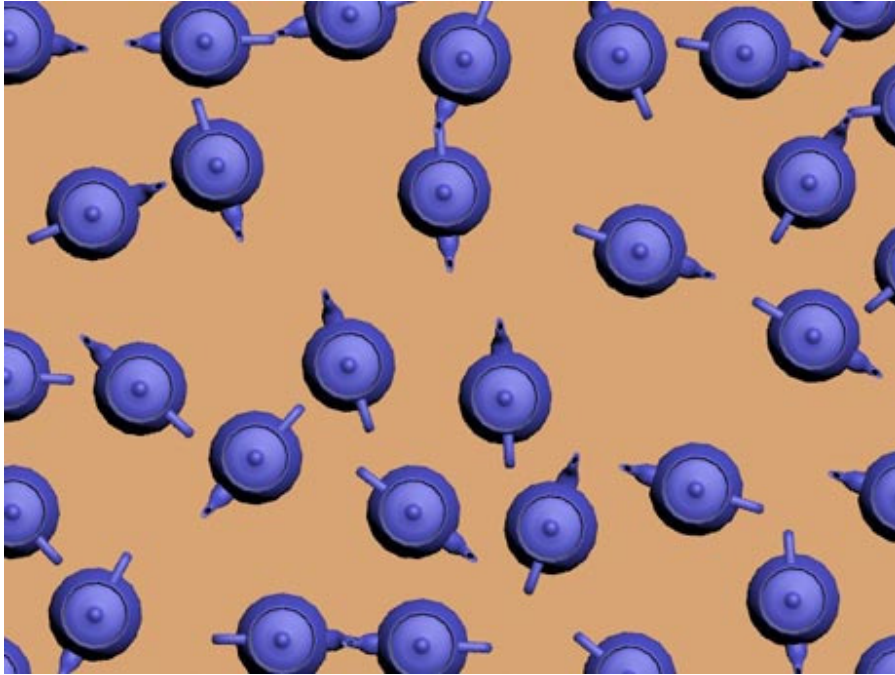


In case of creating some reasonably big objects, such as trees, any crossing of objects is not allowed. Use collisions to prevent the objects from crossover. Collision checking is based upon the creation of virtual sphere around each object and further distribution of objects with regard to crossing inability of these spheres. The sphere has its radius set and the height from its centre above the surface is also set. Each object can generate collisions so that they have influence to the rest of objects and can also adapt to the collisions generated by the other objects. The result of collisions of the objects belonging to the same *MultiScatter* is presented in viewport. The collisions of the objects belonging to different *MultiScatters* can be seen only during rendering.

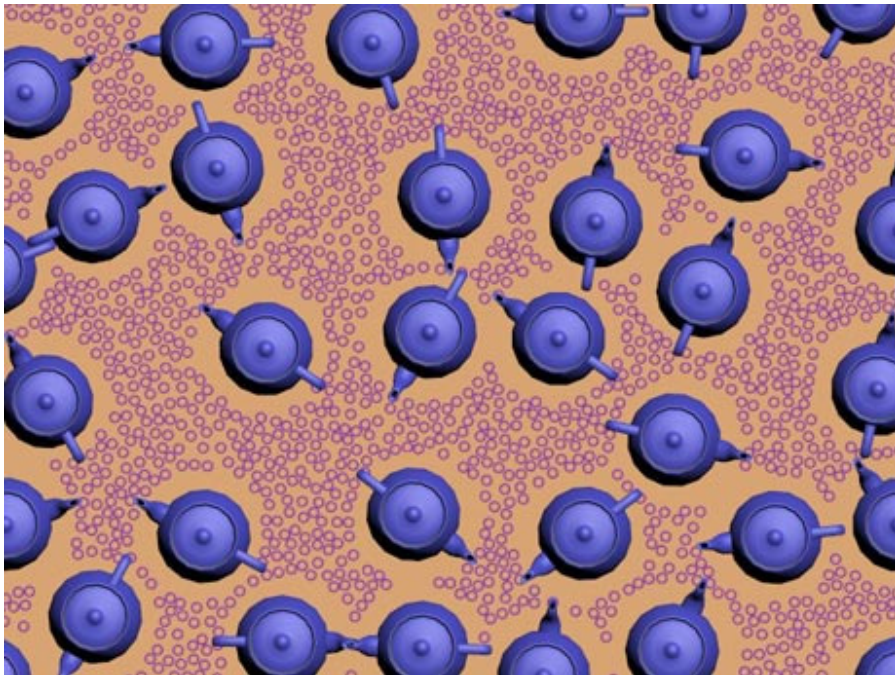
Tick on the **Generate Collision** and **Receive Collision** options. Set the 'Height' value at 0.0.

The radius of collisions default value is equal to 100% - that is corresponds to the object size.

The result after rendering will be as below:

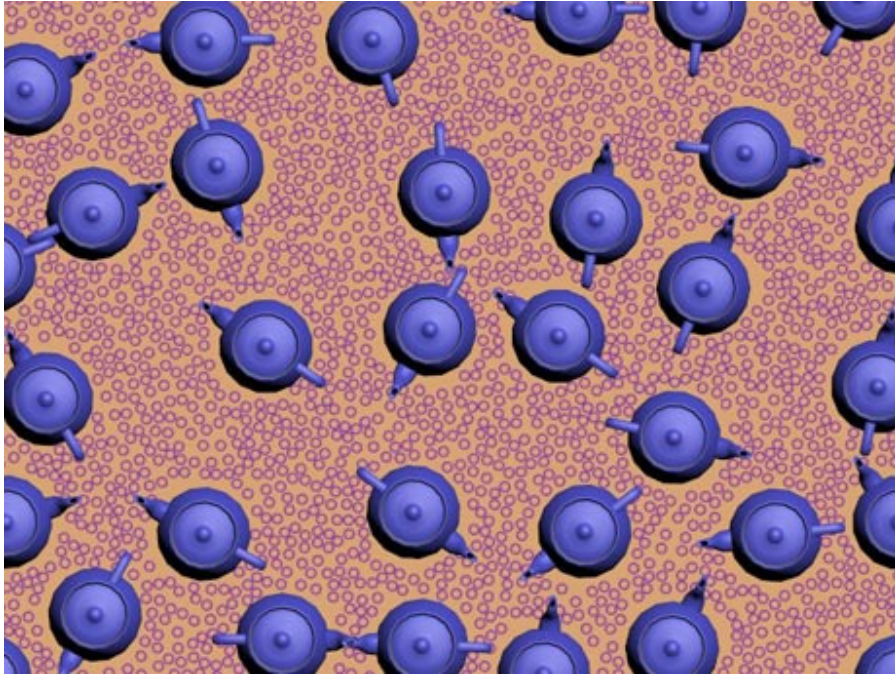


Let's add one more object type of smaller size.



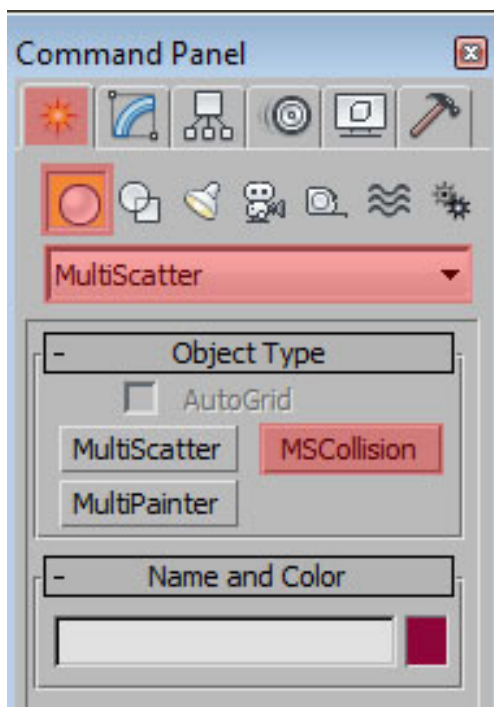
In case the distance between the bigger objects is preferable to be kept, but the smaller objects are desirable to be moved closer to the bigger ones, the collision spheres of the bigger objects may be placed a bit higher so that the smaller objects may be placed closer to them. Set the Height for the bigger objects equal to the half of the radius value or a bit higher





**Penetration** sets the blur of the collisions border areas.

**Collision object.**



You can create collision object from the panel: *Create>Geometry> MultiScatter > MSCollision*

**MSCollision** object is presented as Gizmo located at the scene, it generates collisions within itself and affects all *MultiScatter* objects in the scene with their **Receive Collision** option activated.

**Radius** sets the radius value for Gizmo.

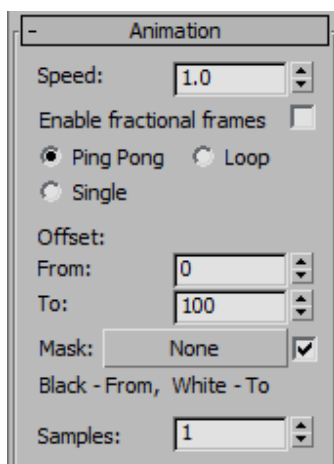
**Penetration** sets the blur of the collisions border areas

## Animation.

Please note that these settings only control animation of objects itself which are distributed over surface or spline.

The use of animated masks for distribution, scaling, rotation, etc., and also the application of procedure textures for masks, animation of splines and surfaces are free and available. Evidently, the results of combining all these animation types are not always predictable.

Animation section controls animated *VrayProxies* and objects. Animation of *mrProxy* is not implemented at the moment.

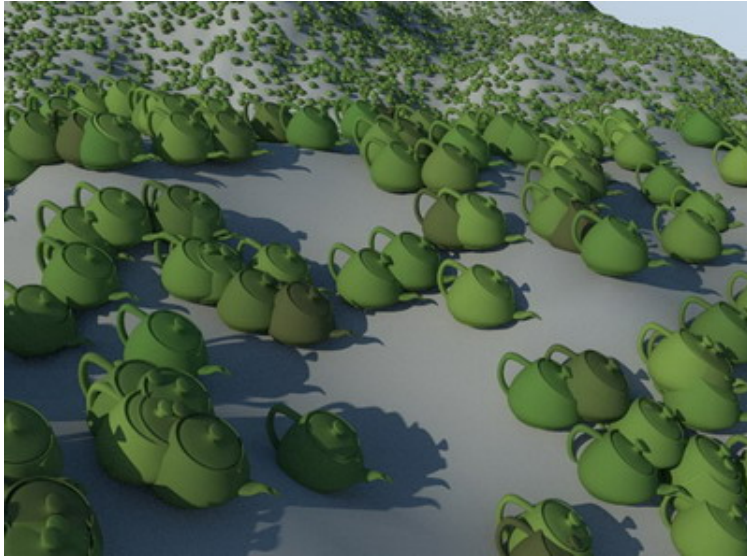


**Speed** sets the speed of animation. Animation speeds up if speed value is higher than 1 and slows down when the value is lower than 1.

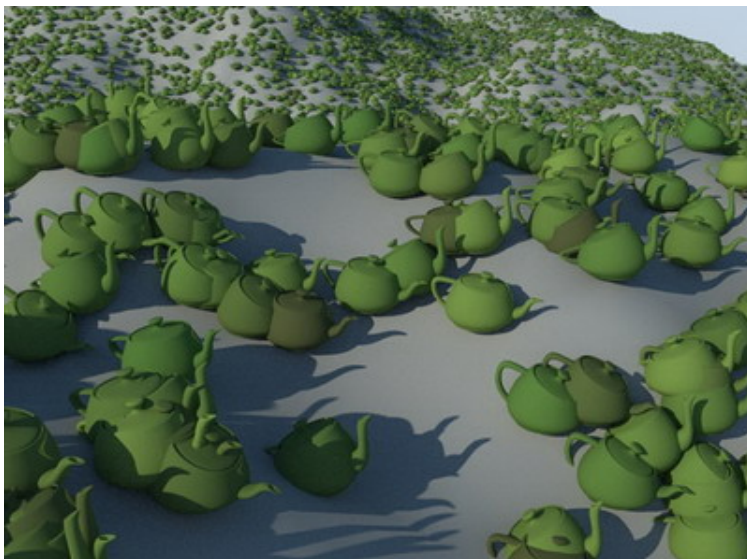
It is necessary to arrange animation time shift for each one of the reproduced animated objects so that to prevent them all from moving simultaneously. The creation of a unique time shift for each object is regarded as impossible due to the overwhelming exploration of the memory. Usually it is enough to confine to some fixed set of time shifts. The number of them is set by the **Samples** setting. If the animation speed is a fractional number then some fractional frame numbers can appear, which can sometimes lead to a faulty rendering. In case of any malfunction here just dismiss the activating tick next to the **Enable fractional frames** option. Dealing with looped animation of objects it is highly recommended to select the **Loop** animation

type. If the animation is not looped, then select the **Ping Pong** animation type. **Single** option makes a single animation of the object, without any repetition.

Samples = 1



Samples = 10

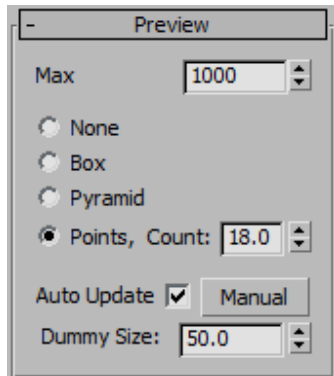


**Offset** lets set animation time shift within the limits of **From** and **To**.

The same setting can be also fixed within mask with aid of **Mask** option.

In this mask white colour corresponds to the **From** setting and black color corresponds to the **To** setting.

## Preview



User can specify the number of displayed objects by **Max** setting. You should be careful not to set the maximum value to avoid *MultiScatter* preview slowdown at view ports.

It is possible to select the type of object preview at view ports from bounding boxes (**Box**) to pyramids (**Pyramid**), or turn off preview at all (**None**).

Besides, a new revolutionary method of object preview is implemented (**Points**) – it presents the objects as the points distributed upon the surface of the multiplied objects. The setting of **Count** fixes the overall number of these points at view port and can be set depending on the capacity of your PC. The points are dynamically distributed in real-time mode upon the surface of objects depending on the angle of view and the perspective. This allows good presenting of the size and shape of objects as the closer the object is to the camera the more points are used to present it. In addition, the colour of the points correlates with the diffusive material colour assigned to the object.

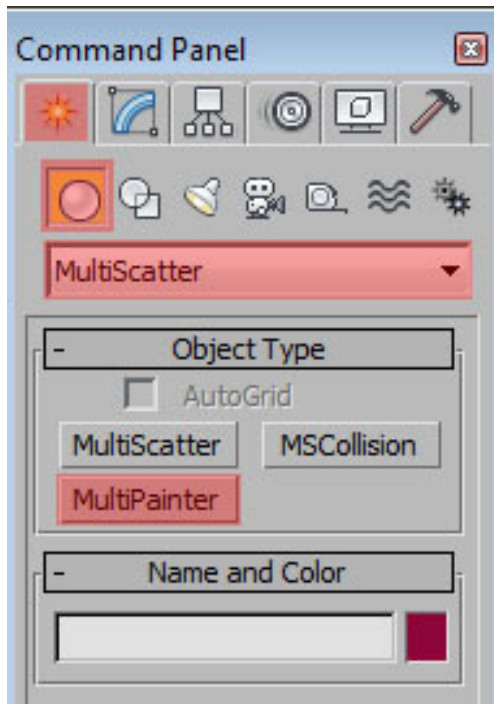
You can activate automatic updating of object preview (Auto Update) to get total control over the distribution of objects. With this option turned on every single change in *MultiScatter* parameters is previewed in real-time mode (except the number of objects during rendering and animation settings).

**Dummy Size** – sets the size of *MultiScatter* Gizmo at view port.

## MultiPainter object

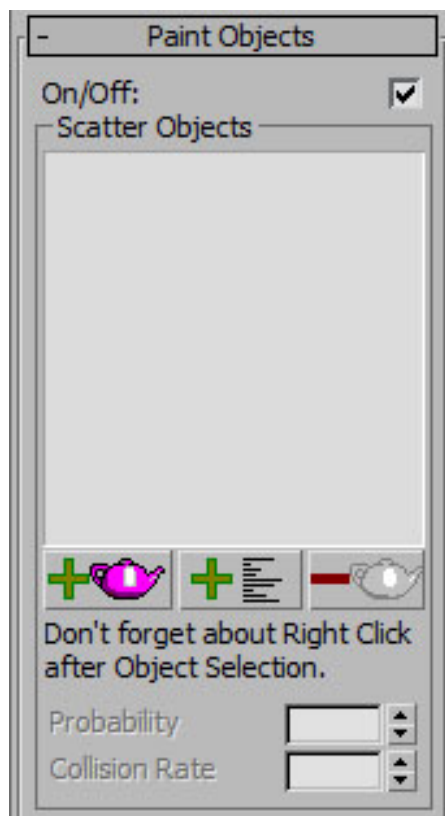
To create MultiPainter go to Create>Geometry> MultiScatter > MultiPainter





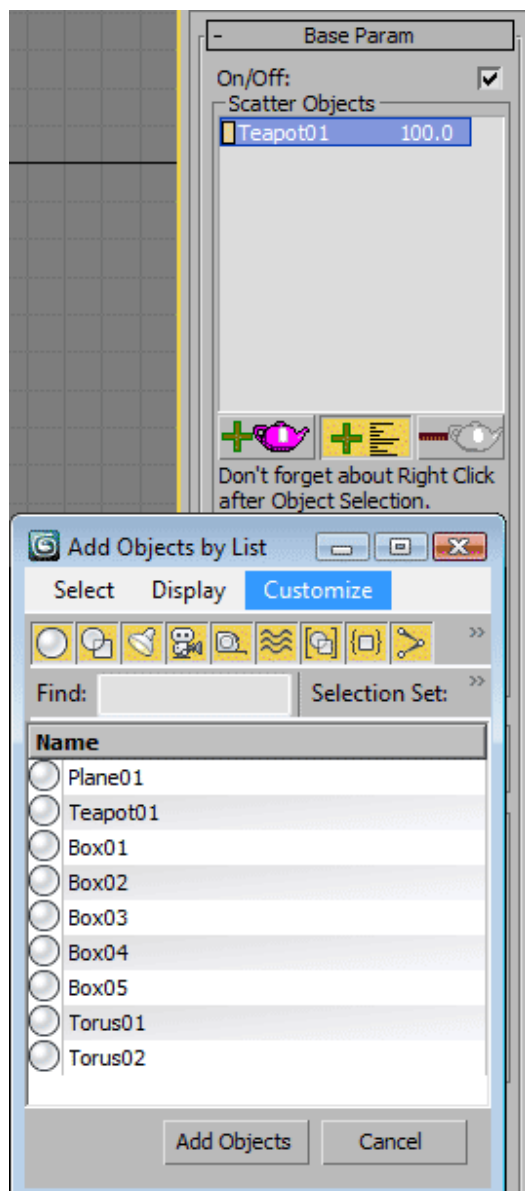
If any object was selected during the creation, MultiPainter will automatically use the surface of the selected object for the distribution over it.

After the creation of MultiPainter it is necessary to switch to 'Modify' panel and select the objects for distribution at the scene by drawing. Press '+Teapot' button before the selection. The selected objects will be used for distribution. The object matter of the distributed objects corresponds with that of the original ones. Do not remove original objects after their selection for MultiScatter. It is recommended to position them in a hidden layer, all objects inside MultiScatter inherit properties of the original.



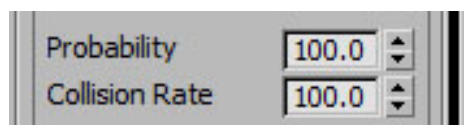
You can select any objects, *Vrayproxy* and *Mentalproxy* at the scene. After all required objects are selected press right button of the mouse or the '+teapot' button once again.

You can also add the list of objects by pressing the '+list'



Selected objects can be removed from the list by pressing the '-teapot' button.

Each of the objects has the following options:

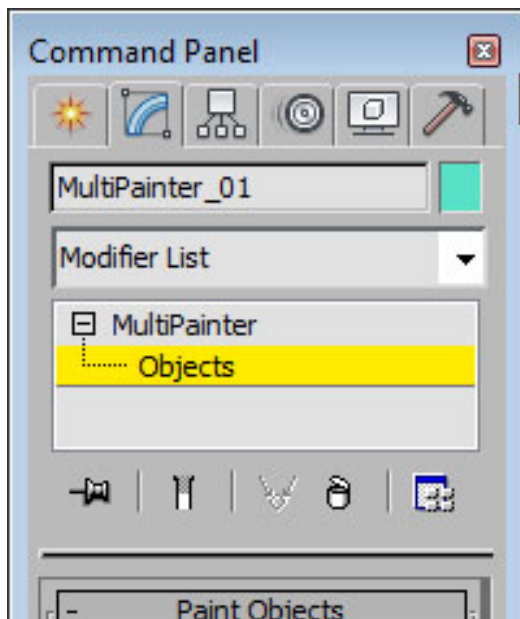


**Probability** - is the probability of the object's distribution in regard to other MultiPainter objects.

**Collision Rate** - Defines the possibility for objects intersection. If set to 0 - an object can be completely inside the other, at 100 - the objects do not intersect.

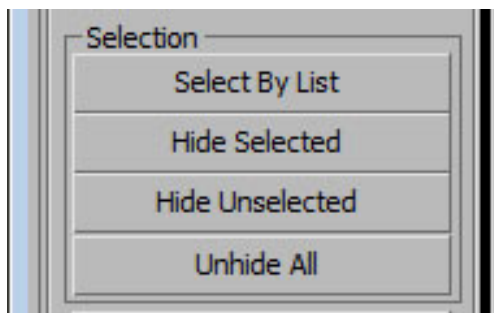
### **Selection.**

MultiPainter has the ability to manipulate (move, rotate, scale, copy) objects it contains. To do this, go to the sub-object level.



After that, you can select objects with the mouse and manipulate them just like regular objects in 3ds max.

When you are in sub object, menu **Selection** becomes available

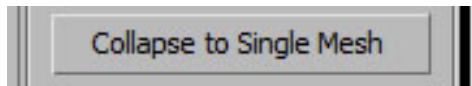


**Select by list** - highlights all sub-objects selected in the **Scatter Objects** list

**Hide Selected** - hides selected sub objects from the viewport

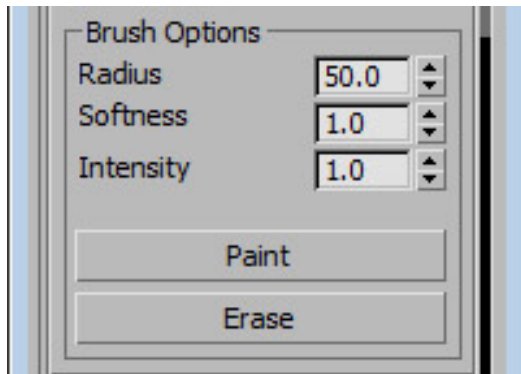
**Hide Unselected** - hides from the viewport not selected sub objects.

**Unhide All** - unhide all sub-objects.



**Collapse to Single Mesh** button converts MultiPainter into Editable Mesh.

### Placement of objects with a brush



**Radius** – brush size

**Softness** - the softness of edges of the brush

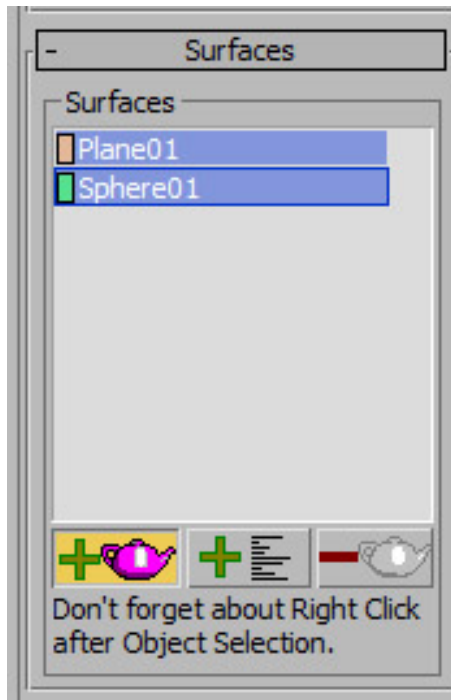
**Intensity** – the intensity, the density of the arrangement (depending on the settings of collisions)

**Paint** – turns on drawing mode

**Erase** - turns on erase mode

The process of scattering involves only the objects and the surface of the currently selected in the list of **Scatter Objects** and **Surfaces**. You can stop drawing any time, highlight or deselect the desired objects and surfaces and to continue drawing with the new settings.

### Surfaces



In the menu **Surfaces** you can select surface on which the arrangement of objects will be made. The interface is similar to **Scatter Objects**.

**Rotate**, **Scale** and **Animation** menu is completely the same as the corresponding menu in **MultiScatter**. It should be noted that the influence of objects positioning parameters is performed at the time of their positioning that ideologically distinguishes the setup **MultiPainter** from **MultiScatter**. All changes you make in these settings will affect the next "Drawing with a brush" session..



- Rotate

Random Rotate

X: 0.0

Y: 0.0

Z: 0.0

Use Normal 0.0

Z Recovery 0.0

- Scale

Global

From: 100.0

To: 100.0

Local

X: fm 100.0 to 100.0

Y: fm 100.0 to 100.0

Z: fm 100.0 to 100.0

- Animation

Speed: 1.0

Enable fractional frames ☐

☒ Ping Pong ☐ Loop

☐ Single

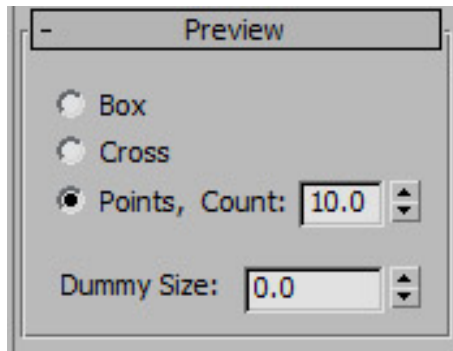
Offset:

From: 0

To: 100

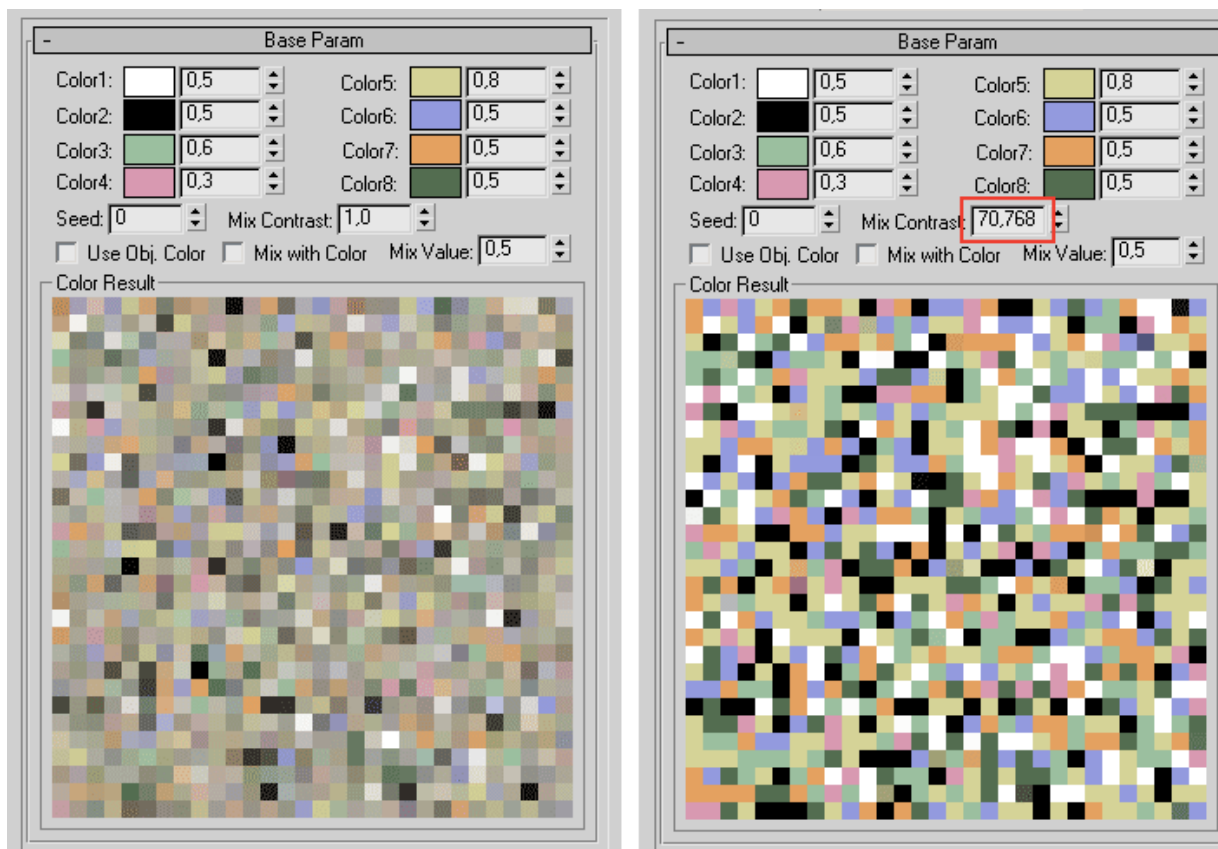
Samples: 1

**Preview** is similar to the menu Preview of MultiScatter, but has a different display mode **Cross**. In this mode, all objects are displayed as three-dimensional crosses.



## Application of MultiScatterTexture

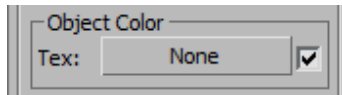
In spite of all possible random rotations and scaling the reproduced objects may look monotonous and alike. There is a certain lack of colour variety. **MultiScatterTexture** solves this problem.



Texture plate consists of 8 colours and each colour has tones. Final colour comes as the result of random mix of initial colours according to the established proportion. Change of **seed** value leads to the appearance of new random colour scheme.

**Mix Contrast** provides quick contrast control of the resulting colour scheme.

Let's return to the **Color** setting of *MultiScatter* properties:



Suppose you have got a bird eye view photograph of a valley, or the one obtained by means of air-photography. And now you would like your 3D valley to be alike this photo in the matter of colouring. Then, create a texture out of this photo. Set an appropriate textural mapping for your surface carrying the growing grass. Place the prepared valley texture in the **Color** section of the scatter settings. It is not necessary to set this texture for the surface itself. Apply *MultiScatterTexture* with the checkmark of the **Use Obj. Color** option for the grass texture processing. As a result the multiplied grass objects will be coloured in valley texture imitation.



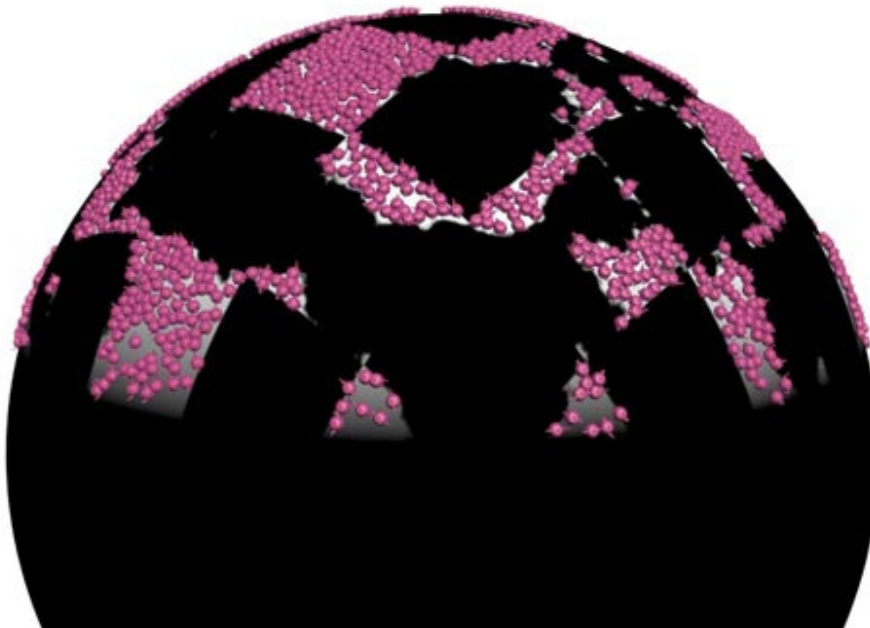
In case the additional variation of texture with random deviation is necessary you just need to checkmark the **Mix with Color** option. In this case you should better use colours of the grey scale which will not vary the initial texture greatly; otherwise the resulting colours may appear too saturated.

**Mix Value** provides the intensity control of the object's colour mix with the colours set in *MultiScatterTexture* option.

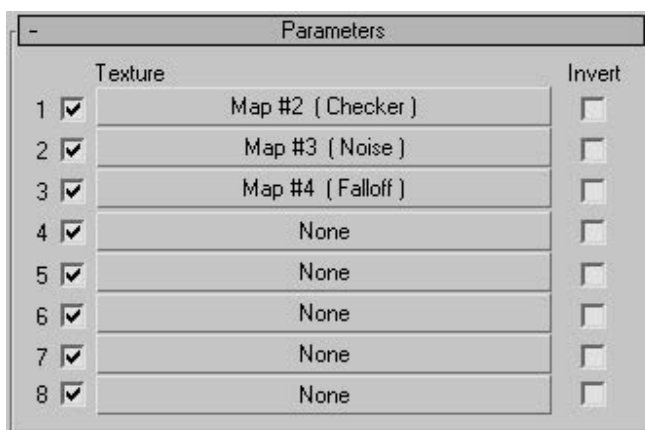
**Attention!** At the moment *MultiScatterTexture* works with any objects created with *Vray* and *MentalRay*, except *MentalProxy* objects. This is due to the peculiarities of the concrete implementation of *MentalRay* for *3ds max*.

### Application of MultiScatterMask

Imagine that you need to distribute objects upon the check board placing them only at the peaks of surface texture and omitting distribution upon the slopes. You need also to exclude several areas according to the predefined procedure map.



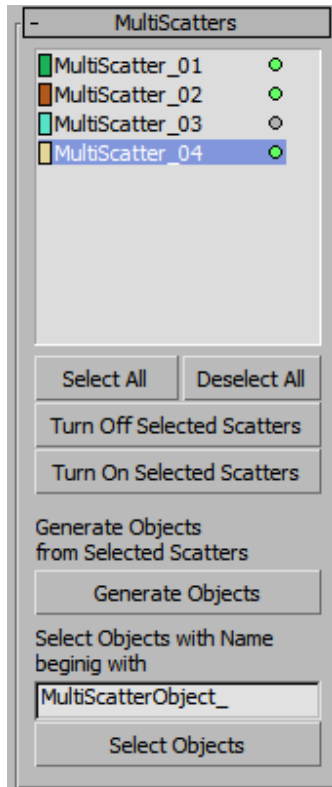
Application of standard *3dsmax* default tools requires the creation of a too complicated mix texture inconvenient to be operated with. To overcome such difficulties use *MultiScatterMask*.



This texture allows combination of several masks by means of their multiplication.

## MultiScatters management utility

You can run this utility from the panel: *Utilities>More...> MultiScatterTools*



In the upper part there is a window with the list of all *MultiScatter* objects at the scene.

Green circle next to the object name means that the object is active, so it is presented at viewport and while rendering. Grey circle means that this object is not active, so it is not presented at viewport and while rendering.

Use the mouse left button to select *MultiScatter* objects. Use the combination of *Shift* and *Ctrl* keys to select several objects at once.

**Select All** selects all *MultiScatter* objects at the scene.

**Deselect All** cancels the selection of all *MultiScatter* objects at the scene.

**Turn Off Selected Scatters** deactivates/turns off the selected objects.

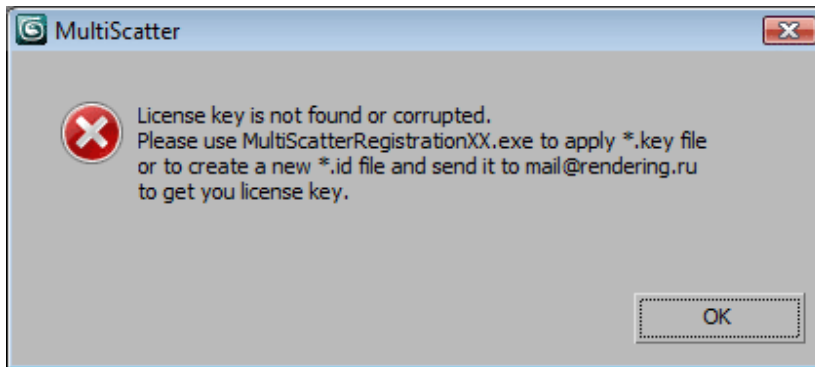
**Turn On Selected Scatters** activates/turns on the selected objects.

**Generate Objects** converts selected *MultiScatter* objects into arrays of instance objects. This allows the application of the generated objects with any render engine different from *V-ray* and *Mental Ray*.

**Select Objects** allows you to select all objects at the scene that are generated on the basis of the same *MultiScatter* object. Since the names of all these objects start with the name of their original *MultiScatter* object, you just need to enter this name in the appropriate panel/window.

## Troubleshooting.

### Possible license malfunction/errors.



In case of license malfunction and errors (which can be caused by disk reformatting, reinstallation of the operating system or components replacement) you are free to address the developer at any time by sending your request for a new \*.key file to the e-mail [mail@rendering.ru](mailto:mail@rendering.ru)

However, in case of total replacement of a PC by a new one new license is not provided more often than once in half a year.