HD Instance 2.0

User Guide

Cute, lovable penguins rendered with HD Instance

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Introduction - *What Is Instancing?*

HD Instance is a plug-in for LightWave 3D that gives you the enormous power of instancing. Without instancing, rendering a lot of objects takes a lot of memory. You may have tried filling a forest with detailed trees only to find that your RAM was exhausted before you finished. With instancing, you can create clones of objects, called instances, that share their memory with the original object. This means you can render millions of instances without using up a lot of RAM.

One bajillion instanced teapots.
Note the ray traced reflections and shadows.

Not only does HD Instance allow you to render instances, but it also gives you many tools for placing instances in your scene in a way that's easy to use, and manageable.

For precise work, you can place individual instances using null objects, and the instances will take on the position, rotation, and scale of the null. For broader strokes, you can place instances over the points or polygons of an object, using weight maps to control their distribution, and lots of options for orienting the instances.

You can also instance objects that already have instances attached to them, for example you can instance a leaf to cover the branches of a tree with leaves, and then instance the tree to make a forest.

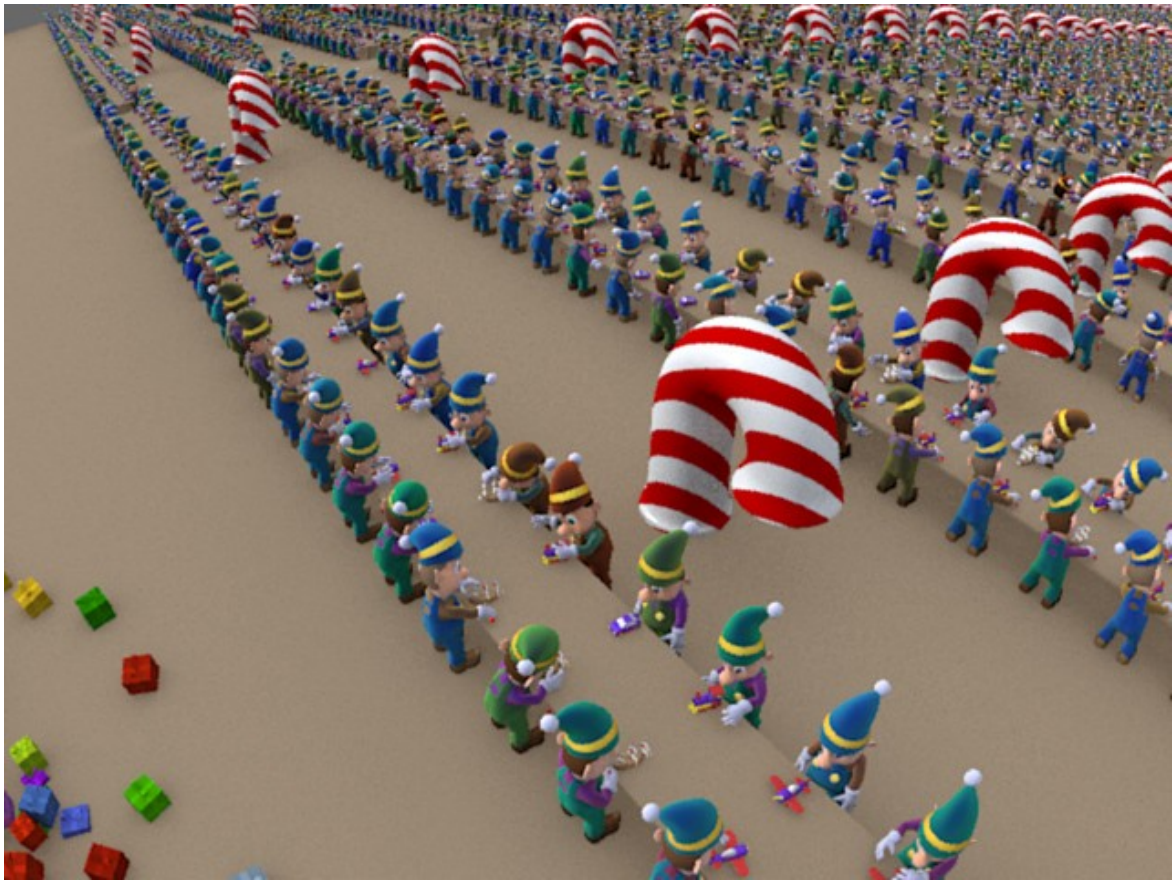
To save time, you can define several instance layers that clone different objects, and HD Instance will randomly distribute the objects based on your density settings. For example, you could create ten kinds of flowers and instance them over a garden patch, and HD Instance will do the dirty work of placing the individual flowers in a random-looking arrangement.

HD Instance goes beyond ordinary instancing when it comes to animation. You can tell HD Instance to randomly offset the animation curves of the instances, or change the speed of the animation. For objects that have animated deformations like bones or morphs, you can bake out a special motion file that lets HD Instance offset the animations even for these difficult cases. For objects that only move rigidly, you don't even need to bake out any files!

Busy elves rendered with randomized animation offsets and colors.

HD Instance is a true volumetric plug-in, so it shows up in ray-traced shadows, reflections, refractions, and radiosity. The instances look just like any other LightWave object, including node-based surfacing, procedural textures, gradients, UV textures, reflection, refraction, shadows, etc. There are a few rendering options that are not supported (see the section on Limitations) but these usually won't get in your way of creating outstanding 3D animations!

HD Instance is unreasonably cool. Read on to learn how to use it, and try the tutorials!

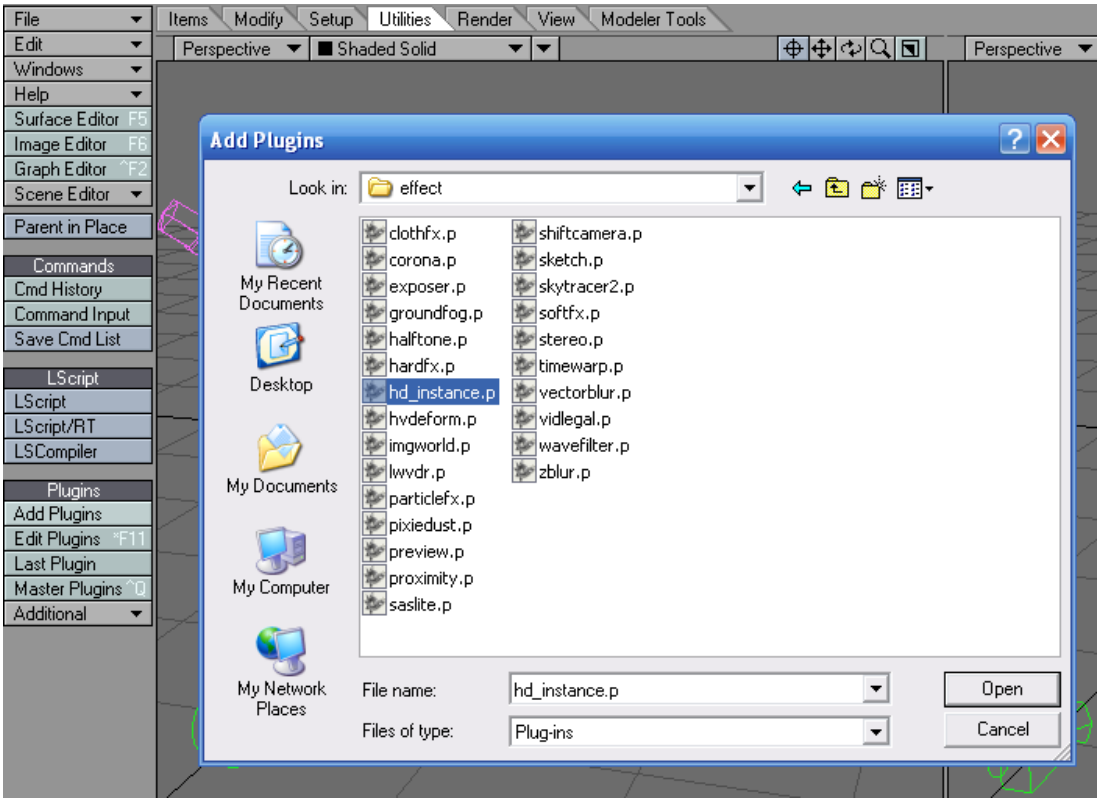


Installation - *Where Do I Put It?*

HD Instance is installed like most LightWave plug-ins.

Copy the “HD_Instance.p” file into your LightWave plug-in folder somewhere. Maybe you like to put this sort of thing in the “effect” sub-folder. Maybe you've got your own scheme. It's up to you. Put the “HD_Instance.key” file into the same folder.

Now, fire up Layout. Open the Layout->Plug-ins->Add_Plug-ins panel and add the HD_Instance plug-in that you copied above. A pop-up should appear that says "7 plug-ins have been found and successfully added." Exit Layout to save these changes.



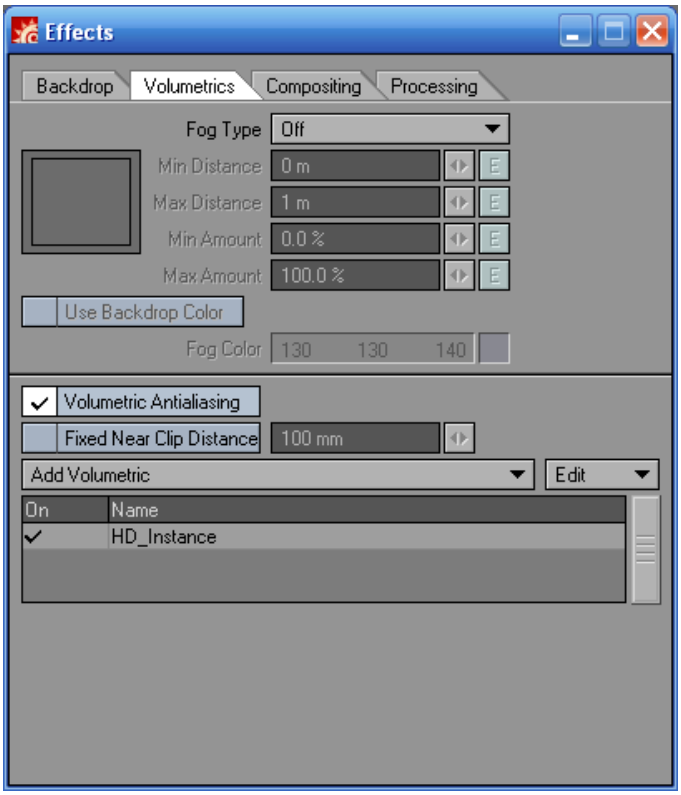
HD Instance is locked to your dongle using the “HD_Instance.key” file. If you purchased more than one license, the key file will contain keys for all your licensed dongles. This allows all the licensed computers to use the same “HD_Instance.key” file, which is handy if you run LightWave from a network.

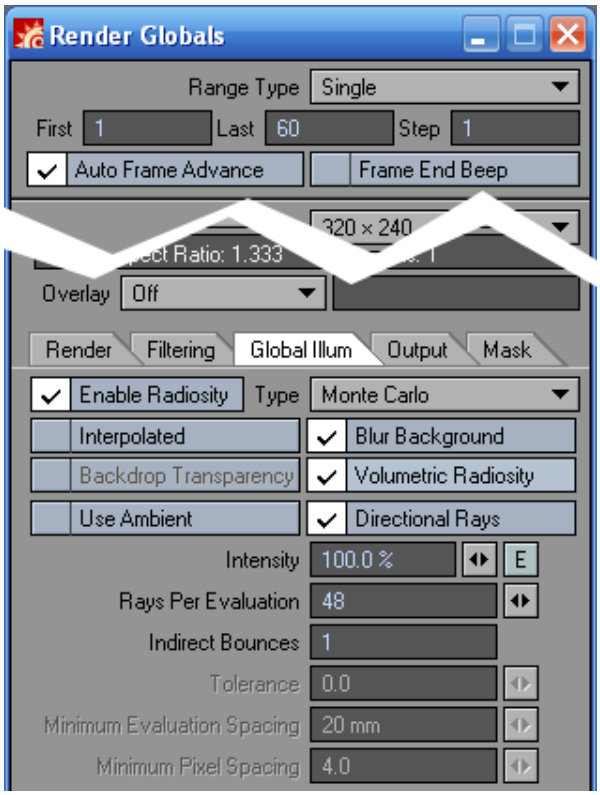
HD Instance does not require a license to render on ScreamerNet, so you can set up as many render nodes as you like.

Usage - *How Do I Use It?*

Applying The Volumetric Plug-in

The first thing you should do when working with HD Instance is to apply the volumetric plug-in. This is the plug-in that actually renders the instances. Go to the Scene->Volumetrics panel, and add the HD Instance plug-in using the "Add Volumetric" pop-up. There are no options for this plug-in.





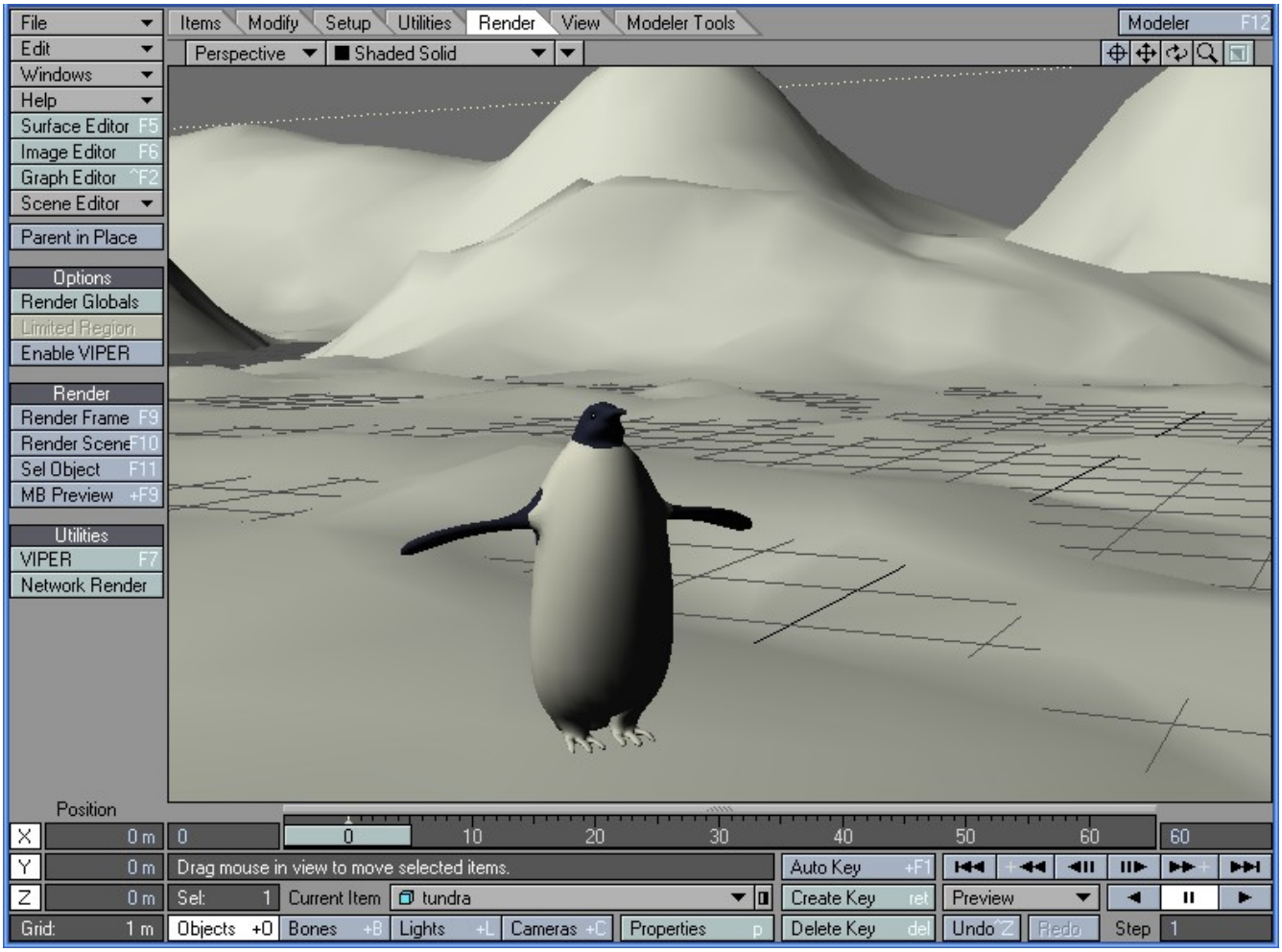
While you're in this panel, make sure the Volumetric Antialiasing check box is checked, or the instances will not be properly antialiased.

If you are using radiosity in your scene, be sure to also enable the Volumetric Radiosity check box in the Render Globals, so that the instances will work properly with radiosity.

How To Place Instances In A Scene

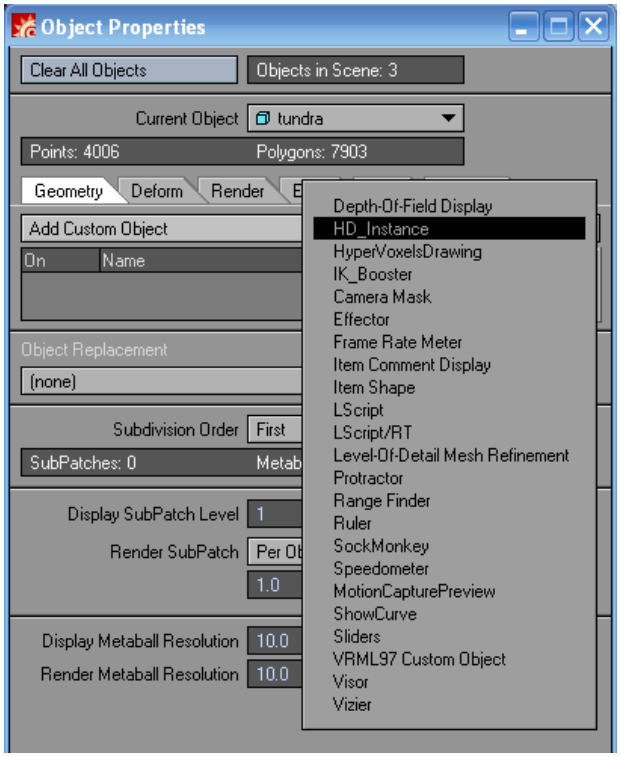
The basic idea of HD Instance is to clone an object (for example, a penguin) using another object (for example, the frozen antarctic tundra) to control the placement of the clones. The real power of HD Instance is that you can clone as many different objects as you want, using as many different placement objects as you want! For starters, let's just clone one object.

First you need an object that you want to clone. We'll use a penguin as an example. If your object has any child objects, they will be cloned along with it. This can be handy for vehicles and robots. If your object has other instances attached to it, they will also be cloned along with it. This can be handy for things like instancing leaves onto a tree, and then instancing the tree to make a forest. Anyway, back to the penguin. Load the penguin into Layout, as well as a nice snowy ground object. You can set the Dissolve level of the penguin object to 100%, so that only the instances will show up, and not the original object.



The basic idea of HD Instance is to clone an object (for example, a penguin) using another object to control the placement of the clones (for example, the frozen antarctic tundra).

To control the placement of instances, HD Instance uses a Custom Object plug-in. You apply the Custom Object plug-in to a placement object in order to attach instances to it. In our example, we have a frozen tundra landscape object. To apply the Custom Object plug-in, you select the object you want it applied to, then open its Properties window, then click on the Add Custom Object drop down menu and choose HD_Instance. Double click the HD_Instance plug-in to bring up the HD Instance interface.



You can set the Dissolve level of the placement object to 100% so that it does not show up in the render. However, this will also prevent it from being displayed in the view port, unless it is selected. Alternatively, you can go to the Render tab in the Object Properties panel, turn on "Unseen by Rays" and "Unseen by Camera", and turn off "Cast Shadow". That will make it invisible in the render, but visible in the view port.

Now then, there are several ways you can use the HD Instance Custom Object plug-in on a placement object to place instances:

Placing Instances Using Null Objects

This is so easy it's not funny. Simply add a null object to the scene. Then add the HD Instance Custom Object plug-in and choose your Object to Clone (the penguin). Now you can move the null, scale it, rotate it and animate it however you want. HD Instance will render a clone right on top of it! You can do this with as many null objects as you like, and they can all clone different objects if you want. This is good for precisely placing individual instances.

Placing Instances Using Partigons

Partigon placement works a lot like null object placement, except you get one instance on each Partigon. For this to work, you must put the HD Instance Custom Object plug-in after the FX Emitter Custom Object plug-in, and the object must be a Partigon object. Using FX Emitter on a null object will not work with HD Instance. It has to be a Partigon.

Placing Instances Using The Geometry Of An Object

You can place a whole bunch of instances at once using the geometry of an object. There are lots of options that determine how the instances are placed on the geometry. For example, you could go into modeler and use Spray Points to make a points object, then instance penguins on those points. Or you could create a bunch of polygons, and instance penguins on the polygons. We'll see more about these options in a moment. For our example, we'll use the polygons of the tundra object to place our penguin instances.

General Options

At the top of the HD Instance panel you will find the general options. These options affect every instance in the currently open HD Instance Custom Object plug-in:

Preview Type

The Preview Type determines how HD Instance shows the instances in Layout.

None results in no preview of the instances.

Axes shows the coordinate axes for each instance. The X, Y and Z axes are drawn as Red, Green and Blue lines, respectively.

Bounding Box shows a nice bounding box for each instance. The default is None.

Preview Limit

The Preview Limit sets the upper limit for the number of instances you want to see in preview mode. If there are more instances than this, they will not be drawn.

Random Seed

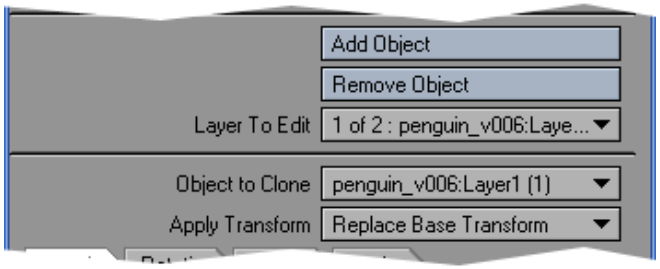
HD Instance has a lot of options that use randomization. Changing the random seed allows you to change the results of the randomization. You can also purposely use the same seed for multiple HD Instance Custom Objects, to get the same randomization. This can be handy, for example, to randomly instance some elves working in a workshop, but then randomly instance some tools to fit into the elves' hands, which will use the same random seed as the elves in order to line up properly. By default, each HD Instance gets a seed based on the ID of the object it is applied to.

Hide When Root

This check box tells HD Instance not to render the instances attached to the object unless the object itself is instanced. For example, let's say you are instancing leaves onto a tree, and instancing the tree to make a forest. All the original objects have their Dissolve level set to 100%. If we instance leaves onto the tree object and render a frame, we will see that although all the objects are dissolved, HD Instance still renders instances of the leaves on the dissolved tree. To prevent this, you can check the Hide When Root check box. Now the leaves will not render on the original dissolved tree, but they will render on instances of the tree.

Working With Instance Layers

Inside the HD Instance Custom Object interface, you can set up several Instance Layers with different settings, and HD Instance will randomly select from those layers when assigning instances to your points or particles or polygons. The buttons that let you edit the different layers are as follows:



Add Layer

This button adds an instance layer. If you want to have more than one object cloned randomly over your placement object, then this is the button you want to click. When you click it, it duplicates the currently selected instance layer, which can be helpful if you want most of the settings to be the same.

Remove Layer

This button removes the currently selected instance layer. There is no undo for this button, so take a little care.

Layer To Edit

This button selects the instance layer whose settings you want to edit. The layer names are based on the objects that the layers clone. This helps you tell them apart quickly. The layer names are numbered as well, for your convenience.

Layer Options

The following settings apply to the currently selected layer:

Object To Clone

This tells HD Instance which object will be cloned. Notice that the name of the object shows up in the name of the layer, as well. If the object has child objects, or if it has instances attached to it already, then all of those will be cloned along with it.

Apply Transform

The Apply Transform setting determines how HD Instance alters the transform of the placement object. There are two transforms at work here: the original object's transform (which includes its position, rotation, and scale) and the instance transform (which is different for every instance and is based on your layer settings).

After Base Transform tells HD Instance to apply the instance transform after the base transform. This is the most common case.

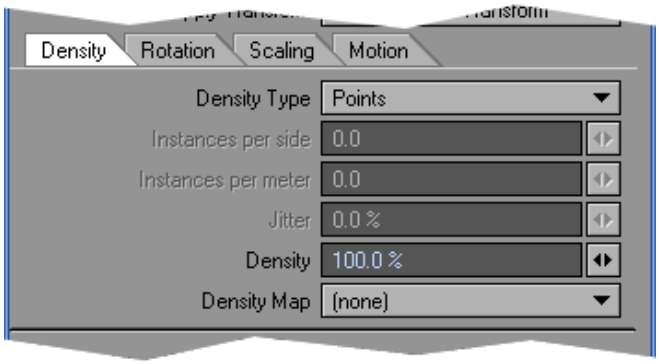
Before Base Transform tells HD Instance to apply the instance transform before the base transform.

Replace Base Transform tells HD Instance to replace the base transform altogether with the instance transform. The default is After Base Transform.

The rest of the layer options are divided into tabs on the interface, so they are documented in their own sections. These sections follow.

Density Tab

The Density options tell HD Instance where to place the instances for the currently selected layer:



Density Type

The Density Type determines how the placement object geometry is interpreted by the instances. **Points** tells HD Instance to place one clone at each point of the placement object.

Polygons tells HD Instance to place one clone at the center of each polygon of the placement object.

Surface (per side) or **Surface (per meter)** tells HD Instance to cover each polygon of the placement object with many instances. The default is Points. If the placement object is a null object, the density type is ignored and one clone is placed at the null object.

Instance Per Side

Only available if Density type is Surface (per side). HD Instance will try to cover each polygon of the placement object so that there are this many instances along each side of the polygon. For example, if you set this value to three, and you have a four-sided polygon in the placement object, then that polygon will get covered by nine instances (three by three).

Instance Per Meter

Only available if Density type is Surface (per meter). HD Instance will try to cover the placement object so that there are this many instances along each meter. For example, if you set this value to three, then each square meter of the placement object will be covered by about nine instances (three by three).

Jitter

Only available if Density type is one of the Surface modes. HD Instance will randomly jitter the positions of the instances based on this value. Setting it to low values (e.g. 0%) results in

an orderly appearance, while setting it to high values (e.g. 100%) results in a random appearance, which is usually best for vegetation and naturally occurring things.

Density

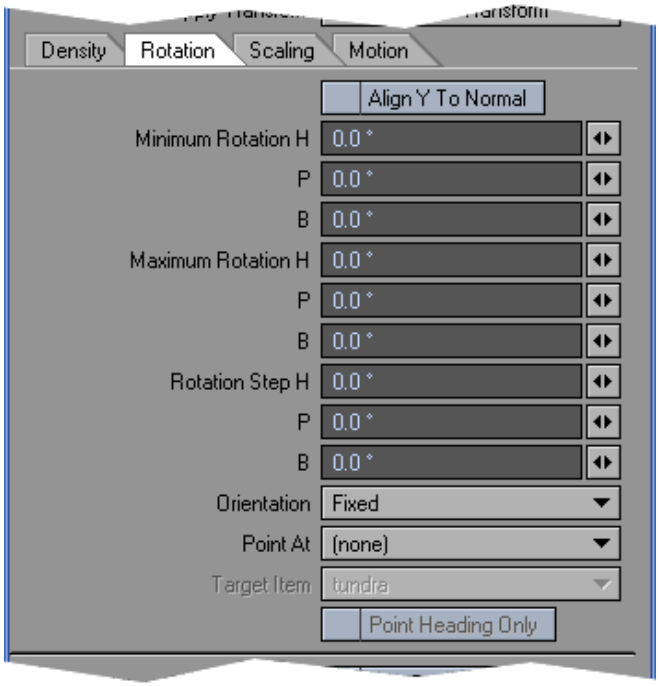
This value tells HD Instance what percentage of the instances will actually be rendered. For example, 100% will result in all instances being rendered, and 0% will result in no instances at all. You can use this to place flowers on a field, for example, or rocks over a landscape, or whenever you want the instances to be sparsely placed. If you have more than one instance layer, their distributions will be mixed, weighted by their densities.

Density Map

This allows you to modulate the density by a vertex map. You can literally paint a vertex map showing where your instances should go. For example, you could plan a garden by painting vertex maps where each species of flower should grow on the soil object, then set up the different species on their own instance layers using the corresponding density maps. Very handy!

Rotation Tab

The Rotation options tell HD Instance how to rotate or orient the instances for the currently selected layer:



Align Y To Normal

This check box tells HD Instance to orient the instances so that their “up” axis is aligned with the normal of the polygon that the instance is attached to. This only has an effect if the Density Type is set to polygon or surface mode. This orientation takes place before the other rotation options are applied.

Minimum Rotation / Maximum Rotation

These values tell HD Instance what range of rotation angles should be used. Each instance will be rotated a random amount that lies somewhere in this range. So if you want no randomness, set the minimum and the maximum to equal values. Or, for example, if you want the full range for H, set the minimum H to 0 and the maximum H to 360. The rotation of each instance will be random, but consistent. That means you can use HD instance in your animations and the instances won't jump all over the place.

Rotation Step

HD Instance will restrict the rotation values of the instances to integer multiples of the rotation step values. For example, setting the rotation step to 90 degrees and the random rotation range from 0 to 179.9 degrees will orient half of the instances to 0 degrees, and half to 90 degrees. The default is 0, which means there is no restriction on the values.

Orientation

This setting tells HD Instance how to apply the random rotation within the range of Minimum Rotation / Maximum Rotation.

Fixed tells HD Instance to use the angles directly.

Spinning (per frame) tells HD Instance to spin the instances, using the angles as an angular velocity, defined in terms of spins per frame.

Spinning (per second) is similar to Spinning (per frame), but the angular velocity is defined in terms of spins per second instead of spins per frame.

Point At

This setting tells HD Instance to orient the instances so that their front (-Z axis) points towards the selected direction.

None tells HD Instance to ignore this step.

Target Item tells HD Instance to point each instance towards a target item. For example, you can point the instances at the camera to get nice billboards.

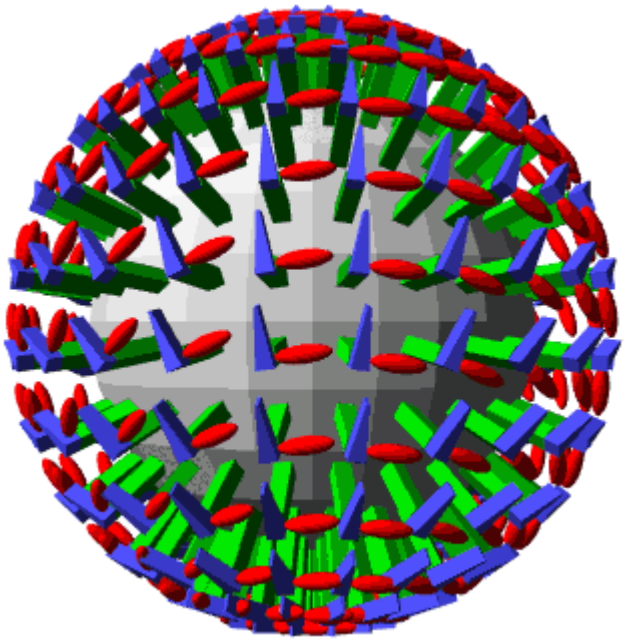
Particle Direction tells HD Instance to align the instances to the velocity of the particles. This only has an effect if the placement object is a partigon emitter.

Downhill tells HD Instance to point each instance downhill. This only has an effect if the Density Type is set to polygon or surface mode.

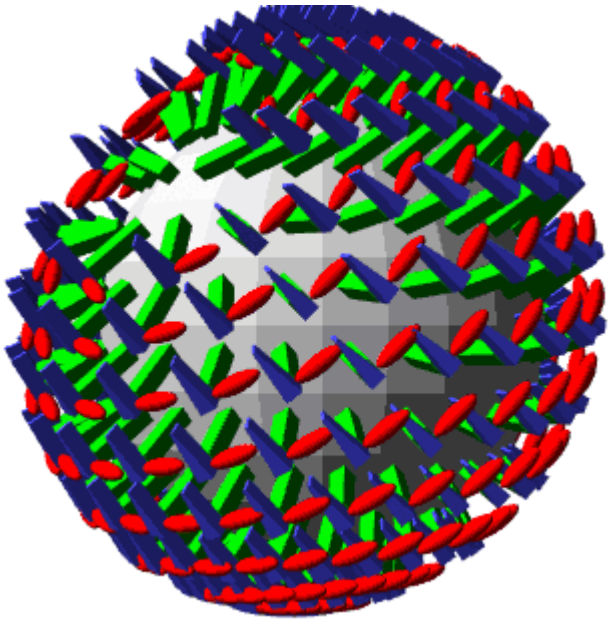
Shortest Edge tells HD Instance to point each instance towards the shortest edge of the polygon that the instance is attached to. This only has an effect if the Density Type is set to polygon mode.

Parking Lot tells HD Instance to point each instance towards one of the two shortest edges of the polygon that the instance is attached to, choosing the one that results in the orientation most pointing towards the Z axis. This sounds odd, but it is useful for creating parking lots full of cars, and works well in conjunction with a rotation step of 180 degrees in the Heading channel. This only has an effect if the Density Type is set to polygon mode.

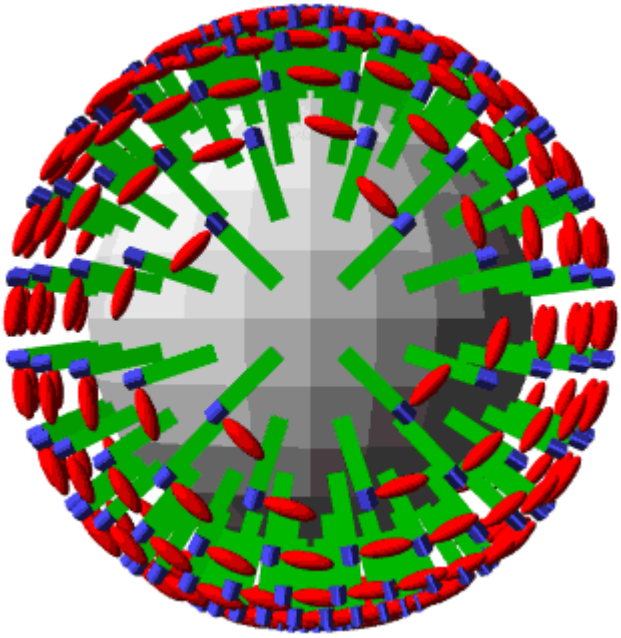
The following images illustrate some of the Point At options, using an object with a red blob pointing along the X axis, sitting on top of a green rectangle pointing along the Y axis, and also a blue wedge sitting on top, pointing along the -Z axis.



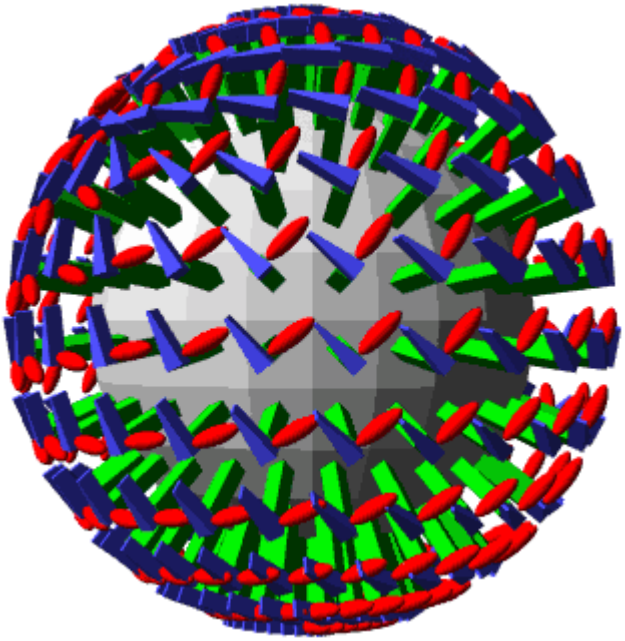
None: The instances are oriented to align with the normal of the polygons in a way that minimizes the change in orientation.



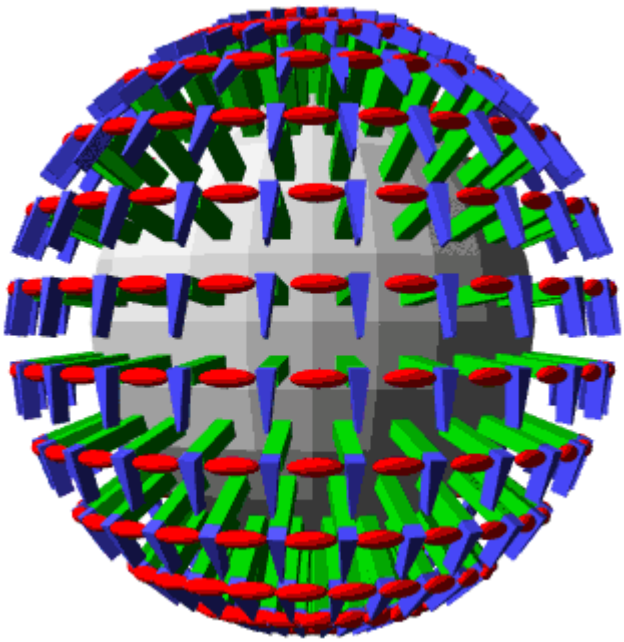
Target Item, with a light set as the target object. Notice that the -Z axis of each instance points towards the light.



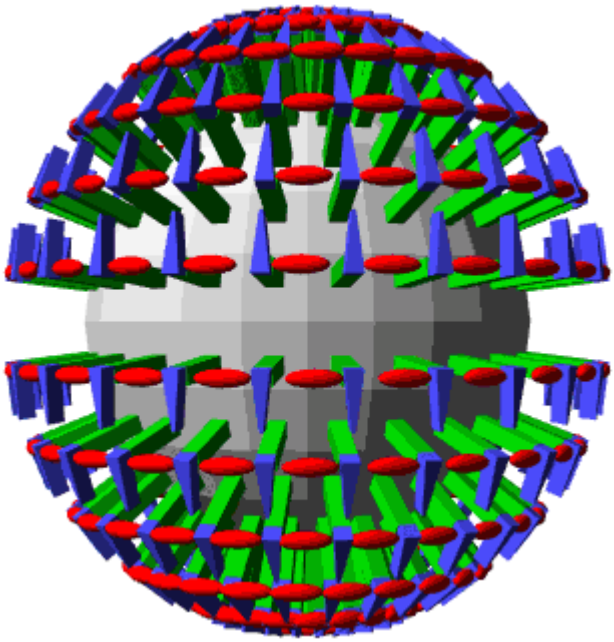
Target Item, with the camera set as the target object. Notice that the -Z axis of each instance points towards the camera.



Target Item, with a light set as the target object, and Point Heading Only enabled.



Downhill: The instances remain perpendicular to the polygons, and their heading is altered to point downhill.



Parking Lot:. The instances remain perpendicular to the polygons, and their heading is altered to point towards one of the two shortest edges of the base polygon, depending on which points more towards the Z axis.

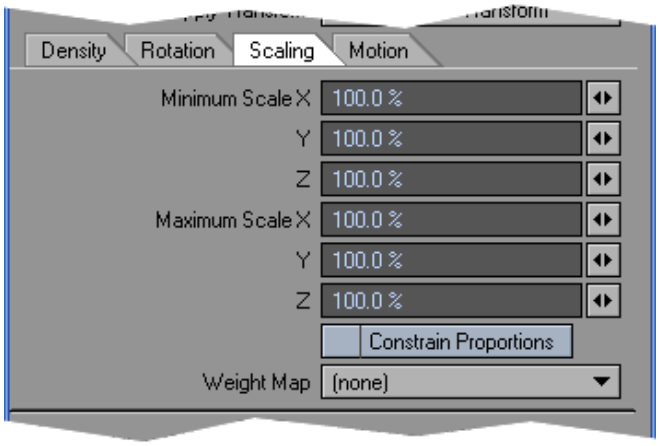
Target Item

If you have selected Target Item for the Point At setting, this pop-up list allows you to select which item in the scene the instances will point at.

Point Heading Only

This check box tells HD Instance to only adjust the heading of the instances when orienting them towards their target direction. This is useful for billboards that shouldn't be pitched, like trees. It's also useful for objects that logically only adjust heading, like cars or something.

Scaling Tab



The Scaling options tell HD Instance how to scale the instances for the currently selected layer:

Minimum Scale / Maximum Scale

These values tell HD Instance what range of scales should be used. Each instance will be scaled a random amount that lies somewhere in this range, for the X, Y and Z axes.

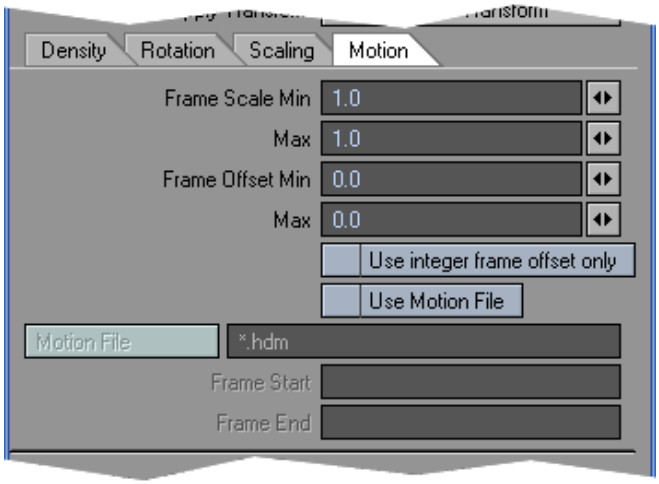
Constrain Proportions

This check box tells HD Instance that you want the X, Y and Z scale to be the same, thereby keeping the original proportions of the object.

Weight Map

This allows you to modulate the scaling by a vertex map.

Motion Tab



The Motion options tell HD Instance how to vary the motion of the instances for the currently selected layer.

Frame Scale Min / Max

These values tell HD Instance what range of frame scales should be used for rescaling the animation of the instances. The animation of each instance will be scaled a random amount that lies somewhere in this range. This allows you to speed up or slow down the animation of the instances in a per-instance randomized way. Leave it at 1.0, 1.0 for no scaling.

Frame Offset Min / Max

These values tell HD Instance what range of frame offsets should be used for rescaling the animation. The animation of each instance will be offset a random number of frames that lies somewhere in this range. This allows you to offset the animation of the instances in a per-instance randomized way. It can be combined with frame scaling if you wish. Leave it at 0.0, 0.0 for no offset.

Use Integer Frame Offset Only

This check box tells HD Instance to not allow fractional frame offsets. If you are using frame scaling, then this check box is not useful. If you have frame scale set to 1.0, 1.0, then this check box will guarantee that the instances' animations are all offset from the original by an integer number of frames. This can improve render times slightly, and in some cases fractional frame offsets may introduce interpolation artifacts for extreme motions, and this check box will minimize such artifacts.

Use Motion File

This check box tells HD Instance to read the instances' animation from a file. This is only necessary if you are using frame scaling or frame offsets, and the object has vertex deformation (for example, bones, morphs, or animated displacements) or if you want the instances to have different animation curves than the original object.

For example, most animated characters will require motion files because they have bones and morphs. On the other hand, rigid objects like space ships or falling rocks won't need a motion file, because they are only animated by position, rotation, and scaling. However, if you want several possible motion paths to choose from for your spaceships, you will again need motion files, but they can be “Rigid Motion Only” motion files, which are much smaller and faster to render.

Motion File

Only available if Use Motion File check box is checked. Click this button to browse for a motion file, or type in the filename by hand.

Frame Start / Frame End

Only available if Use Motion File check box is checked. This displays the frame range of the currently selected motion file.

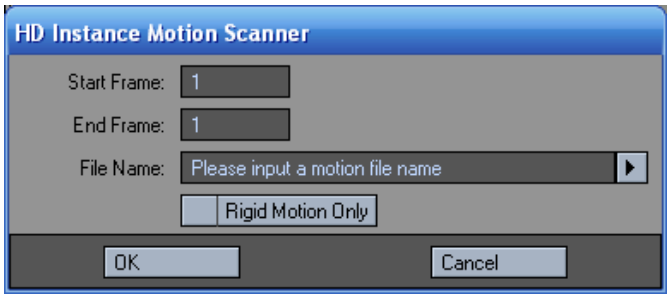
Exporting Motion Files

Remember, motion files are only necessary if you are using frame scaling or frame offsets, and the object has vertex deformation (for example, bones, morphs, or animated displacements) or if you want the instances to have different animation curves than the original object. If you simply want to offset the original animation, and the animation is rigid (there is no vertex deformation) then you do not need a motion file, and your render times will be faster!

To generate a motion file, use the HD Instance Motion Scanner plug-in. Many users might wonder why we cannot use a Motion Designer File. The reason is Motion Designer Files do not store vertex normals, which HD Instance needs. Luckily, the HD Instance Motion Scanner plug-in is easy to use.

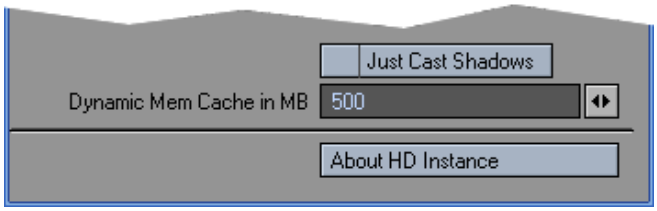
First, select all the animated objects that you want to have a motion file exported for. If you

select more than one object, each object will get its own motion file, with the names of the objects appended to the file names.



From the Utilities tab in Layout, go to Plugins->Additional, and select HD Instance Motion Scanner. The HD Instance Motion Scanner dialog will pop up. Input the Start Frame and End Frame numbers for the motion you would like to export. Type in or browse for a file name for the motion file. If you only want to export the animation curves and not the vertex deformation, check the Rigid Motion Only check box. Click OK to start the export.

Global Options



HD Instance has several global options, which affect every instance in the scene:

Just Cast Shadows

This tells HD Instance to only render the shadows of instances, and not render the instances themselves. This can be useful for rendering out shadow passes for compositing purposes.

Dynamic Mem Cache In MB

This tells HD Instance how much memory it is allowed to use for caching motion files and surface mode instances. This memory is above and beyond what gets used for the other types of instances, which do not require caching. Setting this to a high number will result in faster renders, unless the total memory used by LightWave goes over your actual RAM, in which case it will render slower or even crash. The default is 256 MB, which is not bad.

About HD Instance

This shows some information about HD Instance, including the version that is installed.

Tinting The Instances With Random Colors

HD Instance lets you add random coloration to the instances' surfaces. To randomize a surface's color, add the HD Instance Shader plug-in to the surface. Opening the shader's interface panel reveals a color gradient. Each instance randomly selects a color from this gradient, and tints (multiplies) the surface color with it. Any color on the gradient may show up on an instance. This is nice if you want to make some flowers that range in color from yellows to oranges to reds, for example. If you only want a certain set of colors, you can make parts of the gradient a single solid color by putting the same color on both ends of the range. This is easy to do by copying and moving the gradient's keyframes.

The Gradient Editor works as follows:

The gradient is defined using keyframes.
Each keyframe is represented by a keyframe gadget, consisting of a drag gadget (a little diamond on the top) and a color gadget (a little box on the bottom). There is always a keyframe at either end of the gradient.

To select a keyframe, click on the middle of its gadget, that is, somewhere between its drag and color gadgets. Click there again to deselect the keyframe. The currently selected keyframe will display its parameter value (from 0 to 100) in the middle of its gadget. The above diagram shows a selected keyframe with a parameter of 67.

To create a keyframe, click anywhere on the gradient where there currently is no keyframe. This creates a new keyframe at that location.

To delete a keyframe, shift-click its drag gadget.

To drag a keyframe, click-and-drag its drag gadget. Note that you can drag a keyframe right up to another one, such that they occupy the same parameter value. This lets you create sharp changes in the gradient. You can still drag the keyframe later to another position. It will not get "lost".

To edit a keyframe's color, click its color gadget to bring up a color dialog.

To copy a keyframe to a new keyframe, first select the keyframe. Then, shift-click the gradient where you want the new keyframe.

To copy a keyframe to an existing keyframe, first select the keyframe. Then, shift-click the color gadget of the keyframe that you want to copy to.

This concludes the gradient editor documentation.

Here we have some yellow flowers, tinted (multiplied) by a gradient from white to red using the HD Instance Shader.

Common Issues - *What Am I Doing Wrong?*

My Instances Are Not Rendering At All.

Make sure you have the HD Instance Volumetric applied to the scene. Also, check to see if you have the “just cast shadows” option turned on in the HD Instance panel.

I Get A Weird Error When I Try To Add The Plug-in.

Make sure your LightWave version is at least 9.2. Also make sure you have the plug-in for the correct platform installed.

What Is The HD Instance Pixel Filter For?

The HD Instance Pixel Filter is provided as a way to achieve some compatibility with other pixel filter plug-ins. It should not generally be used, as it has more limitations than the HD Instance Volumetric. For example, depth of field does not work properly with the pixel filter, and it only works with classic cameras and perspective cameras.

Radiosity Has Severe Artifacts On The Instances

Try upgrading LightWave to the latest version. Radiosity support for volumetric plug-ins was enormously improved in LightWave 9.3.1.

Limitations - *What Can't It Do?*

Speed Issues

After version 1.8, the speed of HD Instance was dramatically improved to match LightWave's native render engine. In recent tests we performed, HD Instance is sometimes a little slower than native LightWave, but sometimes faster.

Using the surface modes to place tons and tons of instances will slow down the render somewhat, compared to using the other modes. The surface modes are mainly intended for use when you need more instances than you can possibly get with point or polygon distribution alone. For example, it is quite suitable for covering a terrain with grass and flowers, which could easily number in the billions.

Using motion files to offset vertex animation will slow down the render somewhat, and the motion files can get quite large. This is a small price to pay for the ability to offset the animations of full-resolution characters! Offsetting rigid animations has little to no impact on render speed.

If you want to render lots of clones of heavy objects, or even millions of clones of whatever object you like within LightWave, HD Instance is the only way to render them. That's because HD Instance doesn't use extra memory to store all the clones. You can literally render scenes with trillions of instanced polygons using HD Instance. Don't be afraid to try!

Bugs That Cannot Be Fixed Due To Limitations In The LightWave SDK

Compatibility Issues

HD Instance does not work with F-Prime or Fiber FX.

Surfacing Issues

Shader plug-ins applied to surfaces will not be rendered by HD Instance.

Node-based surfacing works with HD Instance, but some of the more esoteric nodes may not work correctly.

Lighting Issues

Instances do not cast Shadow Mapped shadows. But they work with all ray traced shadows and radiosity, so no worries!

The “use transparency” global illumination option has no effect on instances.

In older versions of LightWave (before 9.6), interpolated radiosity does not refine beyond the initial sampling on instances, so you will need to use a smaller minimum and maximum pixel spacing to get good results. LightWave 9.6 resolved this issue.

Instances do not receive Shading Noise Reduction. But they work with interpolated radiosity and final gather, so no worries!

Instances can neither receive nor generate caustics.

Render Issues

Instances do not receive the Glow effect.

When using the HD Instance volumetric plug-in, the alpha channel of instances is always set to the object's opacity, and cannot be overridden by matte objects, etc.

Instances do not affect the render buffers.

When using Photorealistic Motion Blur, motion blur caused by camera movement will render correctly, but motion blur caused by motion in the instances themselves will be rendered in passes like Classic Motion Blur. In LightWave 9.6, only camera movement motion blur will affect instances.

Bugs That Will Likely Get Fixed Someday

Issues With Combining Instancing Modes (High Priority)

Animation offsets do not work properly for instances placed using the surface density modes unless a motion file is used. For example, if you instance a lot of falling rocks onto a mountain using surface density mode, then you'll have to use a motion file if you want to use animation offsets. If you try it, the instances may not render properly.

Instances cannot be placed on objects that are themselves instanced using motion file animation offsets. For example, if you instance a bunch of chickens using animation offsets, then you cannot instance feathers onto the chickens. If you try it, the feathers will follow the animation of the original chicken, and not the offset chickens.

Instances of instances are not re-randomized. This means that if you instance a crowd of soldiers with random offsets, then you make instances of the entire crowd, then each crowd will be identical to the others. This also affects scaling and rotation options, including non-random options like Target Item. This is sometimes desirable, and sometimes not, depending on the scene. A fix for this is planned, by adding a new option to re-randomize instances of instances if desired.

Somewhat Annoying Issues (Medium Priority)

Bump Dropoff is not supported by instances.

Minor Issues (Low Priority)

Smoothing on polygons with holes does not smooth properly around the holes.

Refraction in instances may look a little different than native LightWave refraction.

“Air polygon” based refractive objects do not render properly in HD Instance. Get rid of your air polygons. The volume stack handles the refraction correctly.

Bounding Box preview does not show the effect of motion files.

Bounding Box preview does not show the bounding boxes of instances that are again instanced.

Instances do not render edges. If you want edges for cell shading, for example, you'll have to use some kind of node-based edge effect.

Colored shadows of transparent objects can sometimes appear a slightly different color than LightWave's native render.

If you add an object to your scene, you must close the HD Instance interface panels before the object will show up in the Object To Clone or Target Item selection lists.

Tutorials - *Where Are They?*

Tutorials

Visit Happy Digital's web page for a variety of tutorial videos with voice-over instructions and step-by-step tutorials in HTML :

http://www.happy-digital.com/instance_tutorials.php

Product Information

You can send any comments, feature requests or bug reports via E-Mail:

graham@happy-digital.com

Or visit our website:

http://www.happy-digital.com