

Nature Shader Documentation



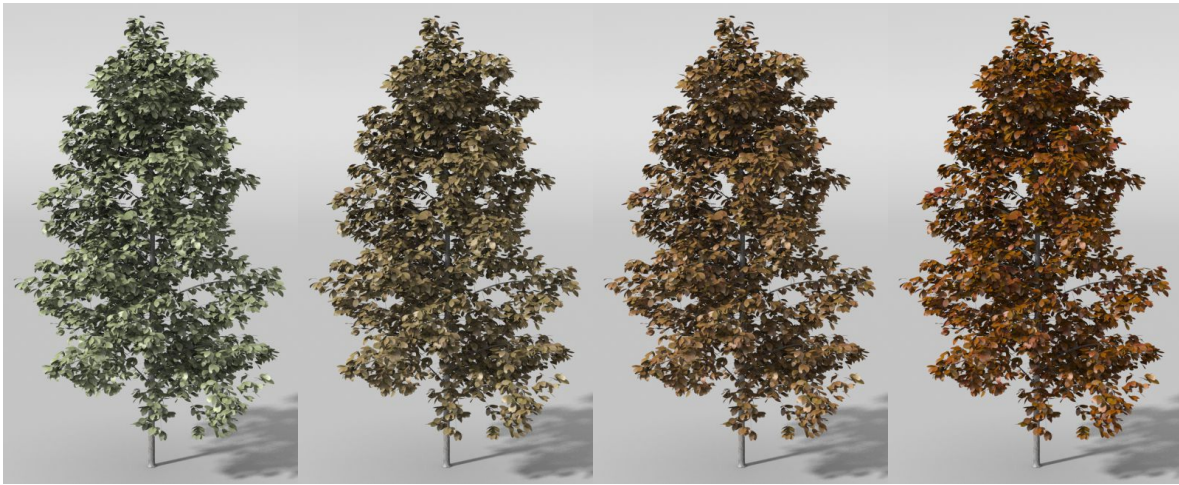
General Information

The nature shader is meant to add automatic variance to surfaces in your scene through two main features. A four color mixer allows you to add random differences in color between objects or within a single object, letting you make things like multicolored flowers easily. Similar random differences coming from opacity allow you to turn parts of objects invisible, letting you do things like trees missing portions of their leaves dynamically. Together these two features give you the ability take your outdoor scenery from Spring through Summer, onto Fall then Winter and much more. Blend your leaves from green to yellow, orange and red before mixing in opacity to make your trees bare. It's not a shader restricted to nature however, the color variation can also be of great use with things like candies or clothing!

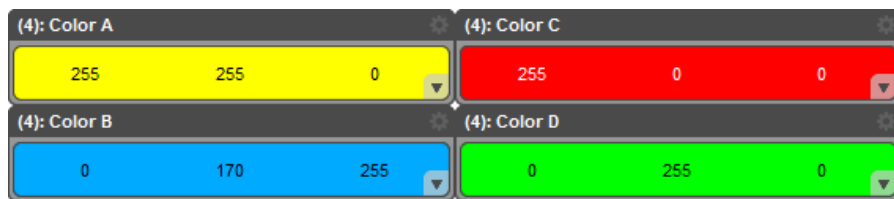
Color Noise Influence



This dial affects the amount of color coming from the variable color feature. When the value is set to zero all of the color will be coming from your diffuse texture, while values in between 0 and 1 will produce a blend of your diffuse texture and the color noise (Color A/B/C/D). A value of 1 will only use the color noise, but it is worth remembering the color noise uses your diffuse texture for detail. Even if you're not using any color from your diffuse texture, it will still maintain your diffuse texture's brightness and contrast.

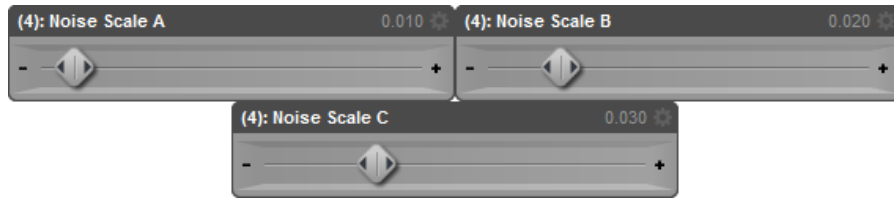


Color A/B/C/D



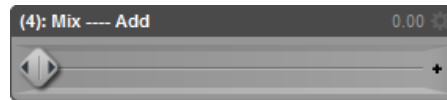
These are the four colors that will be used for variation. Color A is mixed with Color B and Color C is mixed with Color D. Colors A and B are then also mixed with colors C and D.

Noise Scale A/B/C

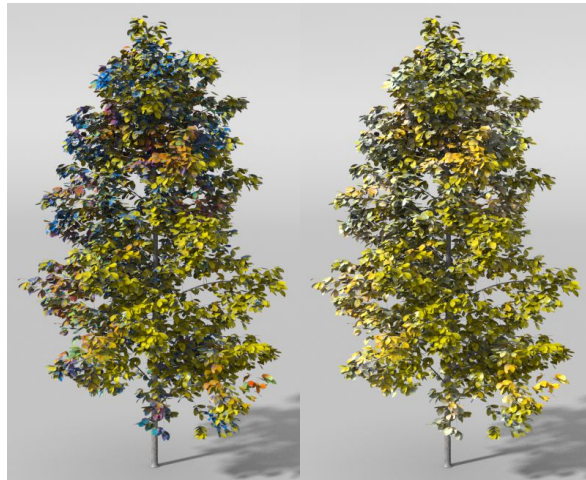


There are three separate mixers for the scale of noise used in color mixing designated to each step of the process. Noise Scale A affects the scale of noise mixing together colors A and B with colors C and D. Noise Scale B affects the scale used for mixing colors A and B together, while Noise Scale C does the same for colors C and D. This may sound confusing but I would suggest not worrying too much about the separate scales, setting them all around the same value works perfectly fine for the vast majority of cases (they produce different noise of the same scale when set to the same values). If you would like large scale variations set them all to low values, small scale variations will call for high values in each.

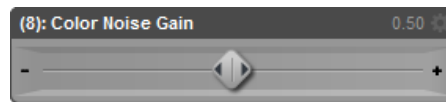
Mix ---- Add



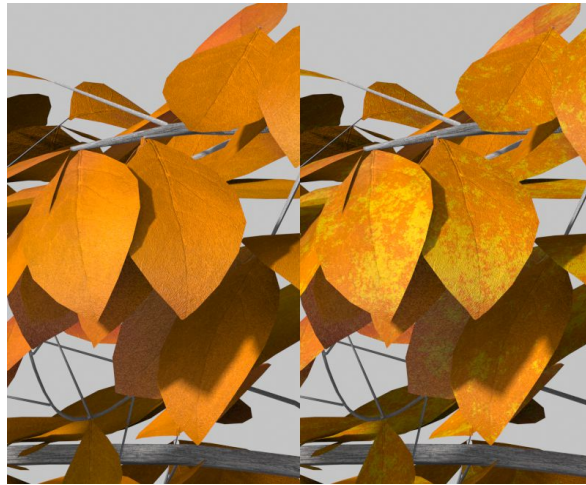
Values accepted for this dial are only 0 and 1. This allows you to switch between two blending modes for the color noise, mixing the colors with one another or adding them to each other. Mix (set this value to 0) will allow for greater contrast between colors but can produce darker results (depending on the brightness of your diffuse texture). Add (set this value to 1) will be brighter and the variations will be smoother but it will produce colors in between those you specify (add blue to yellow and it will return brighter green). These colors behave the way light does, so combining a wide spectrum may add up to white



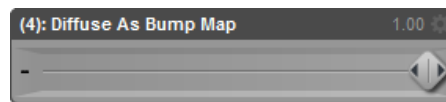
Color Noise Gain



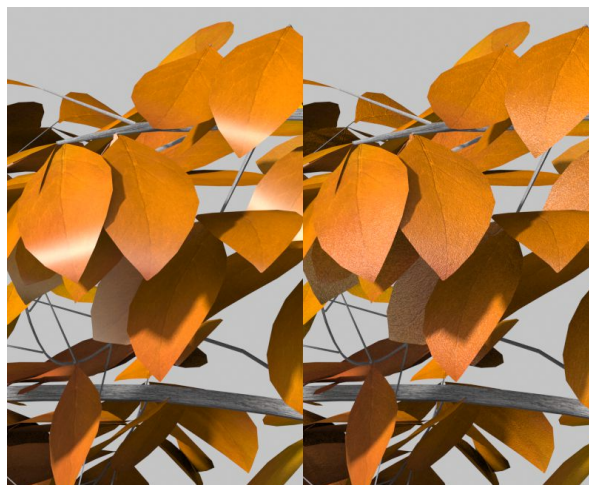
Here you can adjust the amount of “noise” coming from your variable color. Using low values will produce very smooth transitions between each color. High values however will add lots of speckled effects or different colored spots. This lets you add some extra variations to your details, some slightly yellow splotches on green leaves can greatly enhance realism.



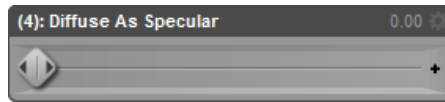
Diffuse As Bump Map



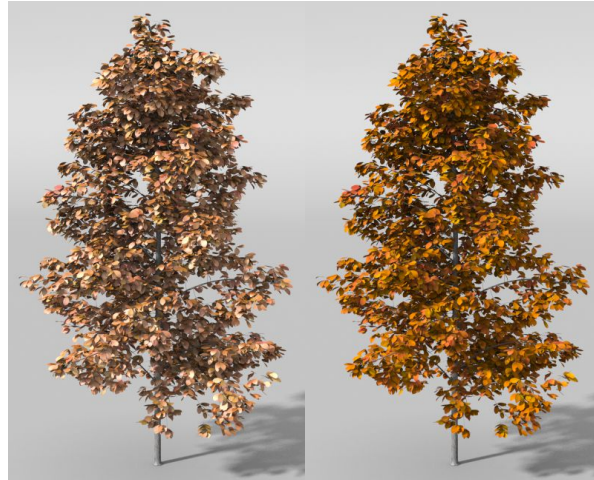
Values accepted for this dial are only 0 and 1. This feature is pretty straight forward and only stems from ease of use. Enabling Diffuse As Bump Map by changing it's value to 1 will use your diffuse map as your bump map texture (overriding any existing bump map). It's a quick solution for adding bump effects to surfaces which don't come with designated bump maps, and it allows you to create presets which take advantage of this for such surfaces.



Diffuse As Specular



Values accepted for this dial are only 0 and 1. Similar to Diffuse As Bump Map this value when set to 1 will replace your Specular Color. However this value takes your color variation into account, so the color produced by this effect will always match what your diffuse is. This is a great way to add variable specular highlights, but can also double as a secondary diffuse which is controllable by your Glossiness (giving you diffuse which is more dependent on direction of lighting).



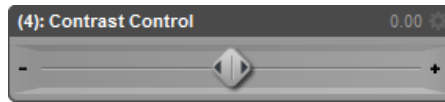
Enable Hard Contrast



Values accepted for this dial are only 0 and 1. When Hard Contrast is enabled by inputting a value of 1 the shader will remove all gradual mixing of variable color. Instead of blending from one color to the next, your surface will **only** use the exact colors specified. This is of great help when doing things like flowers where you don't want blending to be apparent between multiple flowers, enabling Hard Contrast will better separate your red flowers from yellow flowers. Use with Contrast Control to change the hard mixing point and alter color influence.



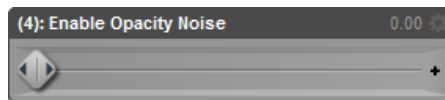
Contrast Control



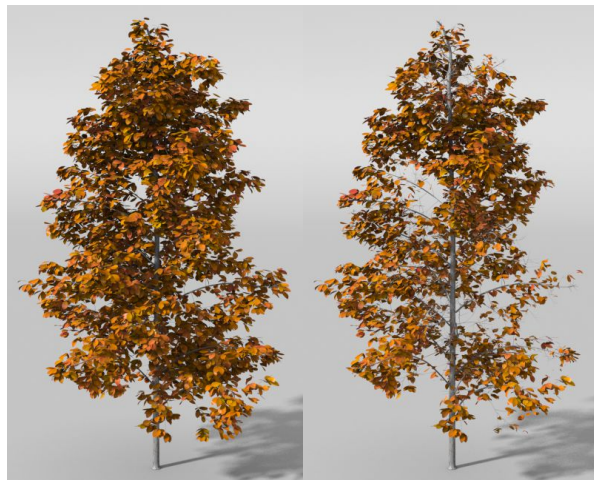
Values accepted here are between -2 and +1, with -1 being the default. Changing the value here will modify the contrast between colors used, effectively altering the presence of individual colors. When using Hard Contrast values used for Contrast Control should be between -1 and +1, a value of -2 will be out of range for Hard Contrast but provides extra range of modification when using the default blend mode. Using -2 with Hard Contrast will produce the same results as -1.



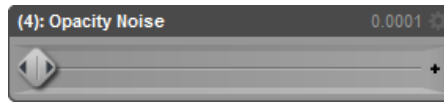
Enable Opacity Noise



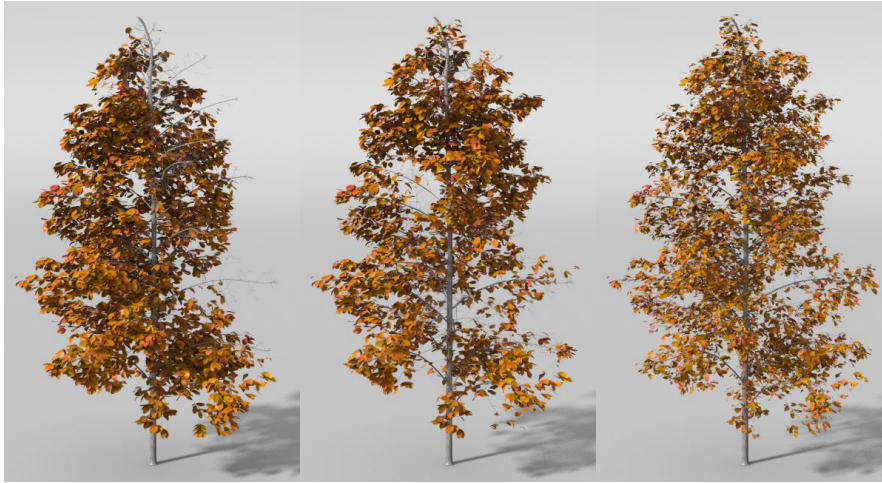
Values accepted for this dial are only 0 and 1. Enabling Opacity Noise by inputting a value of 1 will add variance in opacity to your surface. Opacity Noise does not produce any semi-transparency, results are either completely opaque or completely transparent. This is used to completely remove portions of the mesh using this shader, mostly intended for use on trees to create the effect that portions of their leaves have fallen off. The noise is controlled by the Opacity Noise and Opacity Coverage values.



Opacity Noise



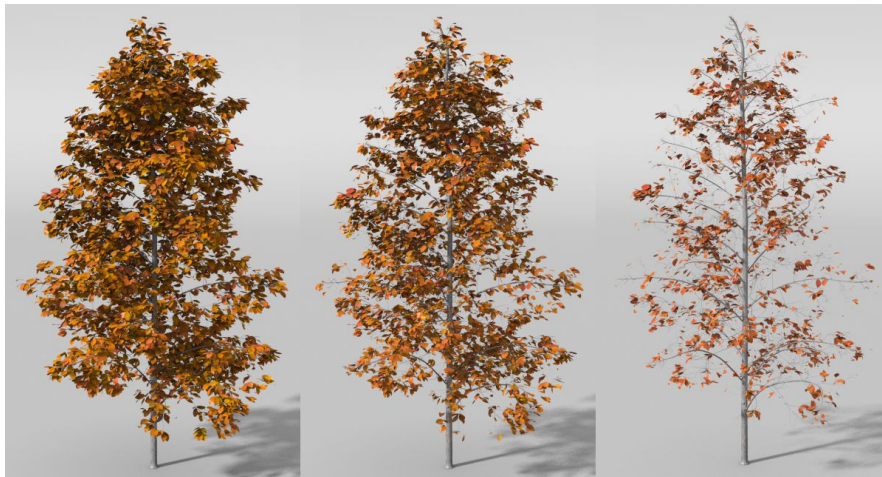
This affects the scale of the noise effect used when “Enable Opacity Noise” is set to 1. Lower values will produce very large scale variations, essentially removing all the leaves from one tree while removing none from another for example. High values will create small variations, which can be used for things like leaves partially eaten by bugs or to fake larger numbers of smaller leaves.



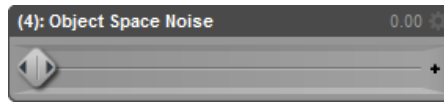
Opacity Coverage



This affects the influence of opacity if “Enable Opacity Noise” is set to 1. Values accepted here are between -1 and +1, with 0 being the default. The parameter here works the same way Contrast Control does, changing the hard mixing point or the ratio of solid white to solid black used for transparency. A value of -1 will produce no transparency at all, while +1 will be completely transparent. Any value in between will take the “Opacity Noise” value into consideration, using the specified scale of noise and making it more sparse or dense.



Object Space Noise



Values accepted for this dial are only 0 and 1. When enabling Object Space Noise by inputting a value of 1 you will disable world space for all noise functions (color and opacity). Object space restricts results to a single object, when you have more than one object using the same settings and Object Space Noise is enabled they will both look the same. World space restricts results to the entirety of your scene, so that noise functions can continue across separate objects (adding randomness to effects depending on the objects position in your scene). This is disabled by default, so the default mode is world space.

Notes

The shader is able to be flagged for use with Age of Armour's Advanced Lights in order to allow greater customization of rendering speed and effects. Since the shader has no Index of Refraction the only values able to be flagged are Diffuse Strength and Ambient Strength. I recommend using Ambient Strength as Diffuse Strength can be needed to adjust the brightness of diffuse results after going through color variations.

Included with the shader are two base presets labeled “DTNS-NatureShaderINJ” and “DTNS-NatureShaderDEF”, they both apply the nature shader but have slightly different functionality. The preset marked DEF loads the shader with all it's values set to default, completely removing the surface's existing settings and applying the Nature Shader in it's default state. Alternatively the preset marked INJ acts as an injection, using the surface's existing maps and matching values (carrying over Specular Strength and Diffuse Strength etc) while adding only the new features in their default state. Most likely the INJ injection preset will be used in the majority of cases, while the DEF shader default preset will only be used when a “clean slate” is desired.