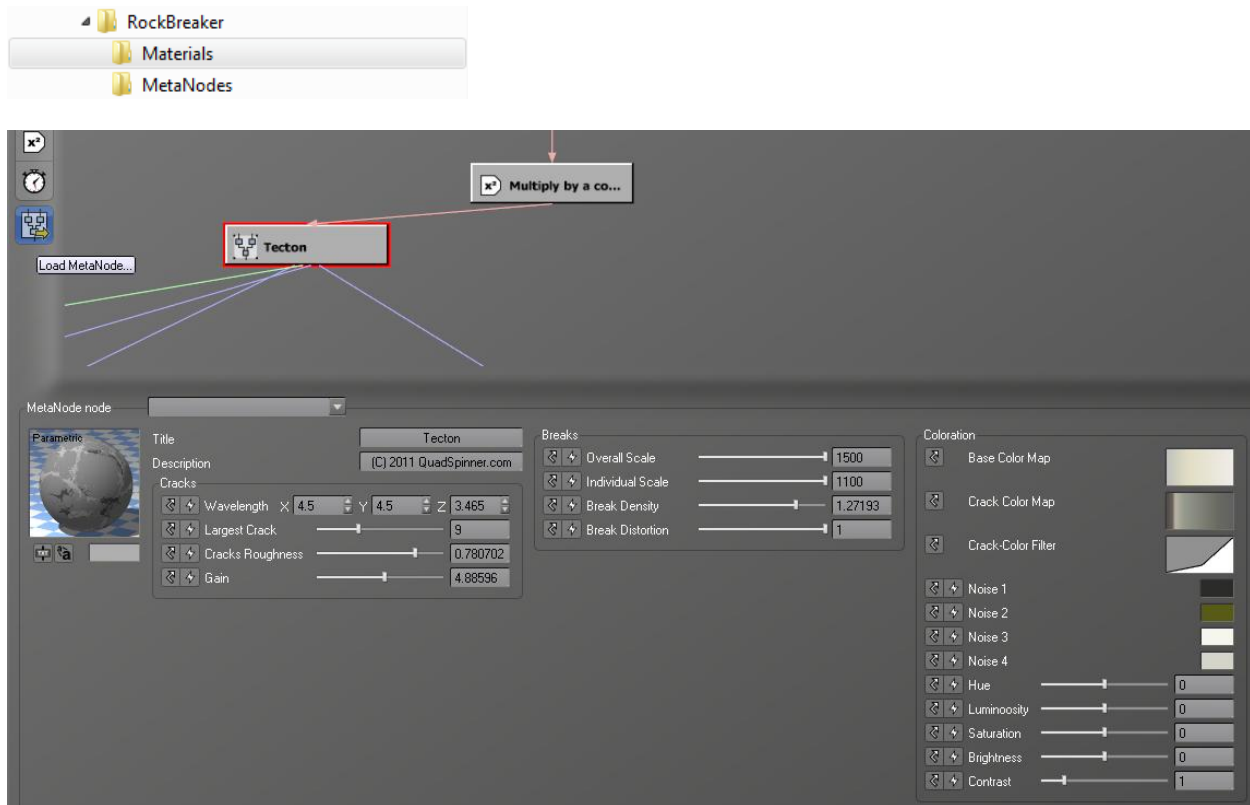


QuadSpinner



Installation & Usage

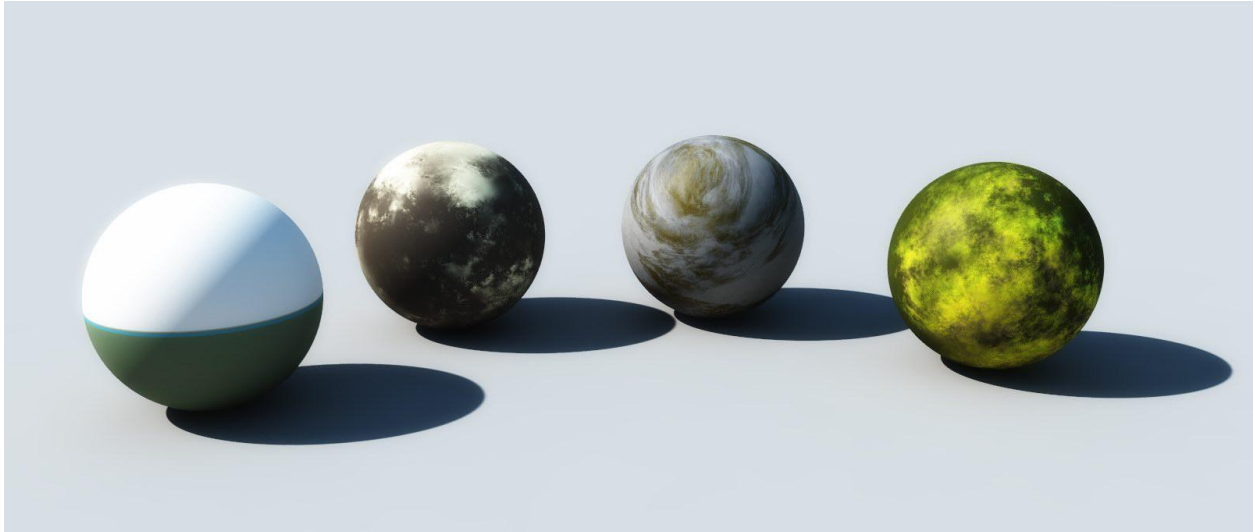
The QuadSpinner MDK 1.0 ships with 5 components with 2 sets of files for each – MetaNodes and Sample Materials.



The MetaNodes are MND files that can be loaded in the Function Editor as shown in the screenshots here. They can be connected to the appropriate Output Nodes/Channels. Each component page in this manual shows the compatible output types. Additionally, Convertors can be used to change numbers to colors or vice versa for using them on non-compatible channels.

Apart from the basic defaults the MetaNodes ship with, some additional Displacement and Effects settings, such as Origin and Rotation, can greatly help the usage of the MDK Components. The MAT files are material samples with such settings pre-applied. You can use them as starting points for your own materials.

Tincture



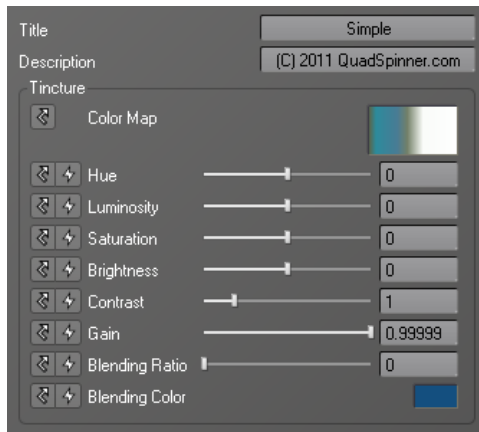
MetaNode Type

Color Map and Color Noise Production

Output Type

RGB/Color Values

Simple



Tincture's Simple MetaNode is the lightest MetaNode in the component. It can be used to replace the default Color Map node in the Function Editor. The main advantage of Tincture is the ability to modify or tweak the color map without having to add more nodes.

Color Map

This is the basic Color Map and can be edited just like any other Color Map. The color output from the Simple MetaNode is primarily dependent on this parameter.

Hue/Luminosity/Saturation

These parameters allow quick access to tweaking the color properties of the complete Color Map. The original colors in the Color Map remain untouched.

Brightness/Contrast

These parameters provide Brightness and Contrast control to the complete Color Map.

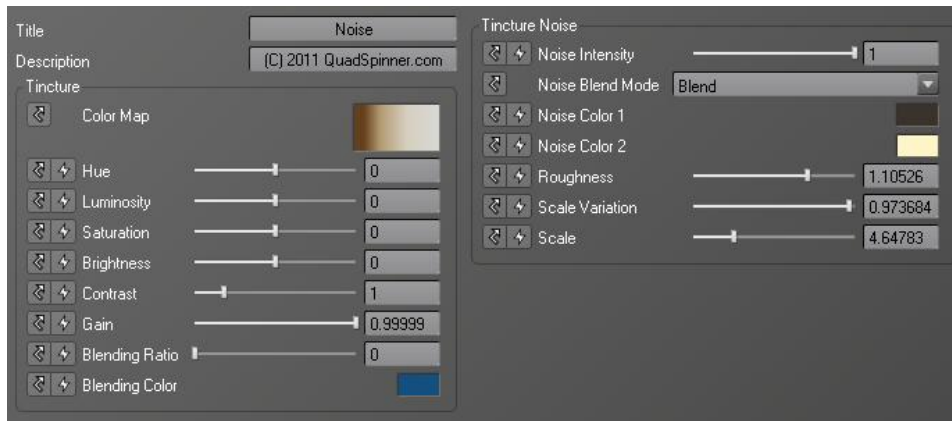
Gain

Apart from Brightness, Contrast, and Luminosity, the Gain parameter provides additional color control by tweaking the overall gain of the Color Map.

Blending Ratio/Blending Color

By selecting a Blending Color, the Color Map can be blended with a single color to achieve a certain amount of color uniformity. The Blending Ratio parameter can be used to control the ratio between the Blending Color and the original Color Map colors.

Noise



The Tincture Noise MetaNode adds a natural noise layer on top of the Simple MetaNode construct. The color output from this MetaNode creates a more believable color range as it mimics nature's randomness.

NOTE

For the Tincture color production properties group, see the Simple MetaNode documentation.

Noise Intensity

This parameter controls the intensity with which the original Color Map is infused with the Tincture Noise parameters.

Noise Blend Mode

Consisting of the standard blending modes such as Blend, Add, Subtract, Min, Max, Multiply, and Divide, the Noise Blend Mode parameter lets you define exactly how the colors of the noise production are mixed with the Color Map.

Noise Color 1 and 2

The two Noise Color parameters define the basic seed from which the rest of the colors are produced in the noise output. Somewhat contrasting color tones are usually recommended for best output.

Roughness

This parameter controls the intensity with which finer details and general complexity in the noise are produced. High values may create too much noise.

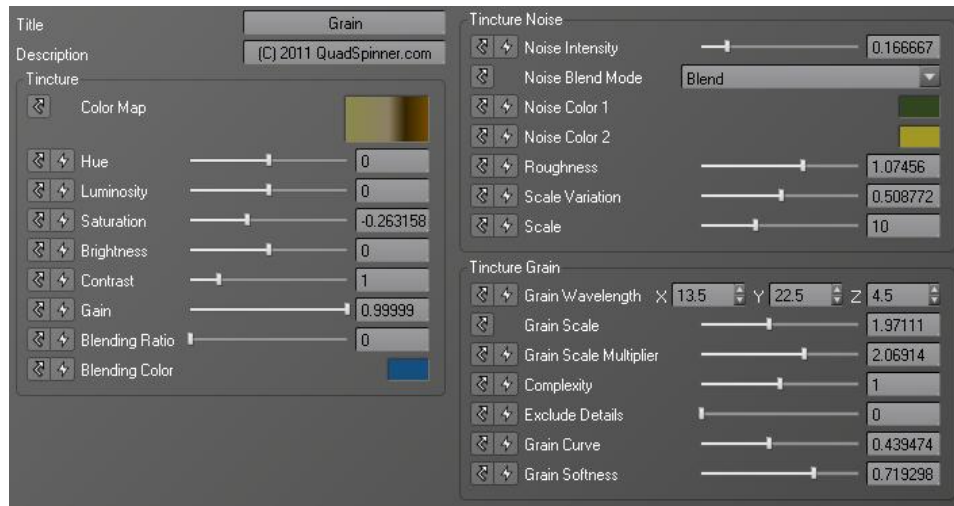
Scale Variation

This parameter defines the size in relative units (0.0 for none, 1.0 for maximum) for shape variations that will occur in the overall noise pattern.

Scale

This parameter controls the general size of the noise. The value may need to be altered depending on the size of the object hosting the material.

Grain



This complex MetaNode builds on top of both the Simple and Noise color nodes by adding a pattern producing Grain fractal based on multiple Perlin-type noises and a Grainy Fractal. Additionally, the Color Map is now routed through the Grain output to channel the colors to the shape of those fractals while adding a layer of randomized noise to maintain a natural feel.

NOTE

For the Tincture and Tincture Noise properties group, see the previous MetaNodes.

Grain Wavelength

The Wavelength is the main parameter that controls the overall size of the Grain. It works independently of the Scale parameters allowing you to upscale and downscale the fractal output size without altering the shape of the fractal. The Wavelength also allows you to independently change the scales of the three axes.

Grain Scale

This parameter controls the overall scale of the individual patches the fractals create.

Grain Scale Multiplier

This parameter defines the size of the multiple patches of different fractals that can be combined (each patch controlled by the Grain Scale parameter). This parameter gives better results when the value is at least double the value of Grain Scale.

Complexity

This parameter controls the complexity of the grain and the underlying fractals. Higher values result in more noise and often somewhat slower renders.

Exclude Details

This parameter allows you to shave off excess fine details you may not need. For example, distant objects that do not require additional details can have a high Exclude Details value to boost render performance.

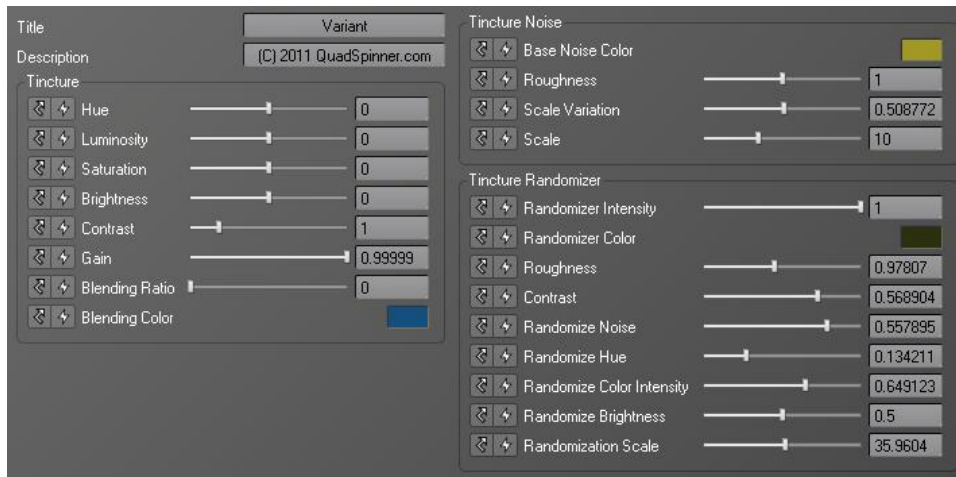
Grain Curve

This parameter controls the naturalized curving of the grain to simulate realistic flows and scrapes that occur in nature. The Color Map will flow into these shapes.

Grain Softness

This parameter allows you to add large scale soft patches where the Grain is smoothed out to create realistic terracing with open flat patches. The value of this parameter defines both the size and occurrence of such patches.

Variant



The most complex color production MetaNode in the Tincture component, Variant allows for realistic color production by mixing 4 different levels of noise for a visually sophisticated output. The major significance of this MetaNode is the ability to create large scale patterns with not only shapes but corresponding colors. This is also the only MetaNode in the Tincture component that does not rely on a Color Map; instead it creates multiple colors based on two simple color choices.

NOTE

For the Tincture color production properties group, see the Simple MetaNode documentation.

Base Noise Color

This is the essential noise that will govern the smaller patches of noise. This color does not have a high variance. That is, it will not undergo alterations in terms of color and will remain very close to the color you specify.

Roughness

This parameter controls the intensity with which finer details and general complexity in the noise are produced. High values may create too much noise.

Scale Variation

This parameter defines the size in relative units (0.0 for none, 1.0 for maximum) of the maximum shape variations that will occur in the overall noise pattern.

Scale

This parameter controls the general size of the noise. The value may need to be altered depending on the size of the object to which the material is being applied.

Randomizer Intensity

This parameter controls how intensely the Randomizer noise is mixed with the basic single color noise.

Randomizer Color

This is the base color the Randomizer will seed from. The color specified here is the starting point for all colors produced in the Randomizer.

Roughness

This parameter controls the intensity with which finer details and general complexity in the noise are produced. High values may create too much noise. The value here will multiply the Roughness of the Tincture Noise properties group above by a factor of 0.45 or 45%.

Contrast

This parameter controls the maximum contrast between the Randomizer Color and the most contrasting color produced for the entire noise. It will remain independent from the Base Noise Color, however.

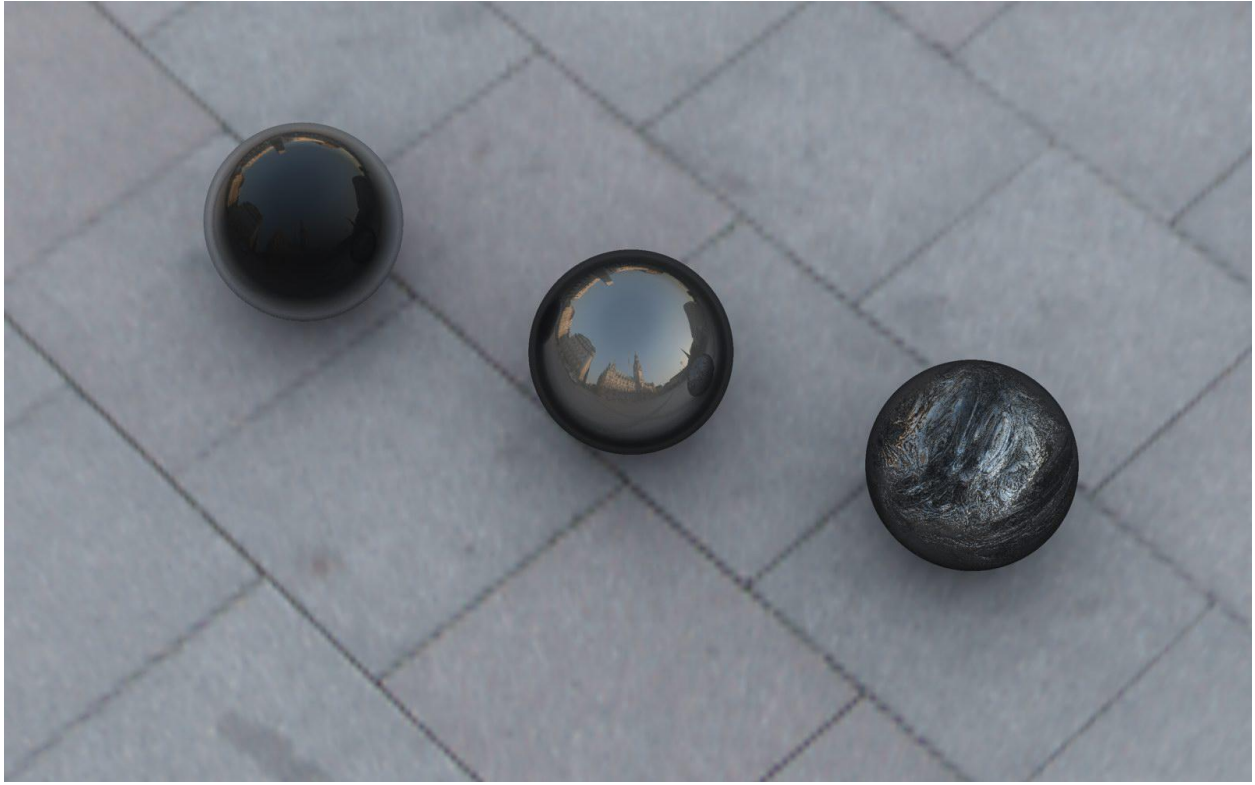
Randomize Noise/Hue/Color Intensity/Brightness

These parameters control the maximum amount of randomization each of the properties undergoes. Lower values cause less randomization while higher values cause broader randomization. Excessively high values may cause color artifacts, so use caution.

Randomization Scale

This parameter controls the size of the largest random patch produced from the parameters above. However, it works independently of the Tincture Noise Scale and Variation.

LightBender



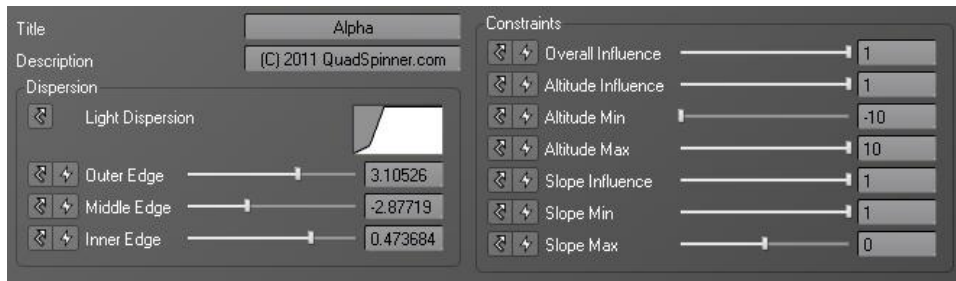
MetaNode Type

Edge Constraint/Relative Incidence Production

Output Type

Number/Double

Alpha



The LightBender Alpha MetaNode is an edge constraint and relative incidence node. In other words, it controls how Light, Color or any other Number based property is controlled from the outer edge of an object to the center. All LightBender nodes are designed to work with these Output Nodes/Channels in the Function Editor: Color, Highlights, Reflectivity, Transparency, Diffuse, Luminous, Backlight, etc. For color changes, the best method is using Diffuse and/or Luminous channels to alter the color.

Light Dispersion

This parameter is the heart of LightBender. The filter here controls how much light is dispersed from the edge (far right) to the center (far left).

Outer/Middle/Inner Edge

These Parabolic style parameters control the edges between the main central reflection, which is the hallmark of Alpha, and the far edges. High values create intense reflection, while lower values create less reflection as well as softness in the edges.

Overall Influence

This parameter controls the influence the Constraints put on the main Light Dispersion. A 0.0 value removes all influence, while a 1.0 value completely influences the material by overriding the Edge constraints of the Dispersion group. This parameter controls the overall inclusion of the Altitude and Slope Influence parameters below.

Altitude Influence

This parameter decides the influence the Altitude constraints provide to the overall effect.

Altitude Min/Max

In relative units, just like Material Layers or EcoSystems, these parameters control the Minimum and Maximum altitude where Light Dispersion is allowed.

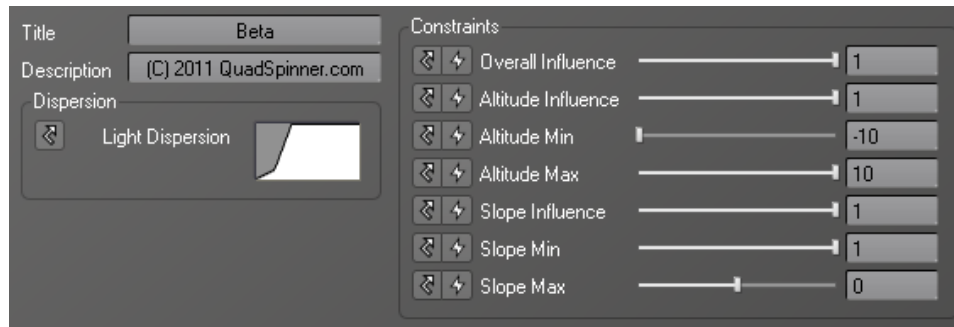
Slope Influence

This parameter decides the influence the Slope constraints provide to the overall effect.

Slope Min/Max

In relative units, just like Material Layers or EcoSystems, these parameters control the Minimum and Maximum altitude where Light Dispersion is allowed.

Beta



This is the simplest MetaNode in the LightBender component. As a result, Beta is the most efficient to render and can be applied to even large scale distributions such as a whole coral reef EcoSystem.

Light Dispersion

This filter controls how much light is dispersed from the edge (far right) to the center (far left). Unlike Alpha where the center of the object always has higher values, Beta is 'untouched' and the Light Dispersion filter allows you complete control over the distribution of high and low values.

Overall Influence

This parameter controls the influence the Constraints put on the main Light Dispersion. A 0.0 value removes all influence, while a 1.0 value completely influences the material. This parameter controls the overall inclusion of the Altitude and Slope Influence parameters below.

Altitude Influence

This parameter decides the influence the Altitude constraints provide to the overall effect.

Altitude Min/Max

In relative units, just like Material Layers or EcoSystems, these parameters control the Minimum and Maximum altitude where Light Dispersion is allowed.

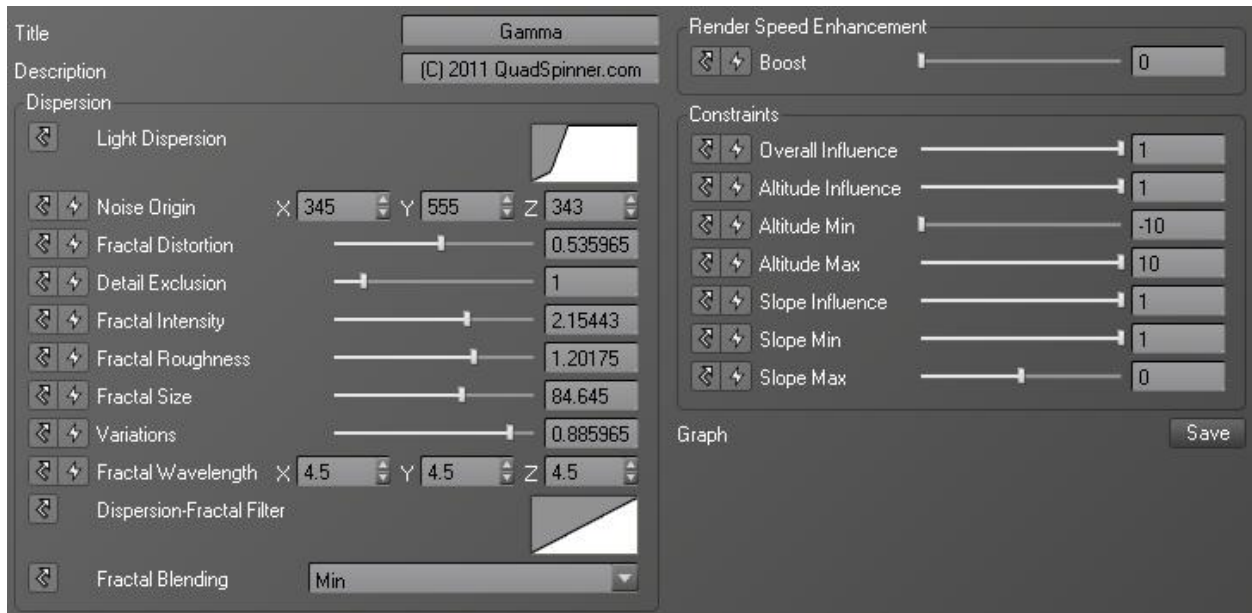
Slope Influence

This parameter decides the influence the Slope constraints provide to the overall effect.

Slope Min/Max

In relative units, just like Material Layers or EcoSystems, these parameters control the Minimum and Maximum altitude where Light Dispersion is allowed.

Gamma



LightBender Gamma is the most sophisticated LightBender MetaNode. It distributes Light Dispersion across a fractal, giving it a realistic yet strange, almost other worldly effect. This can be used to simulate distress patterns ranging from crumpled metal to solidified lava flows.

The Constraints group and Light Dispersion are the same as the Beta MetaNode.

Noise Origin

This parameter controls the origin of the fractal noise that creates the distribution pattern. By changing these axes' values you can 'move around' on the fractal map to find new shapes.

Fractal Distortion

The amount of distortion and warping of the overall fractal output is defined by this parameter.

Detail Exclusion

This parameter allows you to shave off excess fine details you may not need. For example, distant objects that do not require additional details can have a high Exclude Details value to boost render performance.

Fractal Intensity

This is the intensity with which the fractal is imbued into the general Light Dispersion.

Fractal Roughness

This parameter controls the intensity with which finer details and general complexity in the noise are produced. High values may create too much noise.

Fractal Size

This controls the scale of each individual feature or shape created by the fractal.

Variations

This parameter controls the size of the largest random smooth patch produced in the fractal.

Fractal Wavelength

The Wavelength is the main parameter that controls the overall size of the fractal. It works independently of the Scale parameters allowing you to upscale and downscale the fractal output size without altering the shape of the fractal. The Wavelength also allows you to independently change the scales of the three axes.

Dispersion-Fractal Filter

This filter allows you to shape the side/profile of the fractal where the dispersion mainly takes place.

Fractal Blending

Consisting of the standard blending modes such as Blend, Add, Subtract, Min, Max, Multiply, and Divide, the Noise Blend Mode parameter lets you define exactly how the fractal shapes are mixed with the overall Light Dispersion. By default, the Min value is selected for the crumpled metal look.

Boost

This parameter allows for sacrificing detail to boost the render speed. While it can go from 0 (full detail) to 10 (most fine and medium level detail removed), it can take any arbitrary value.

Supernoi



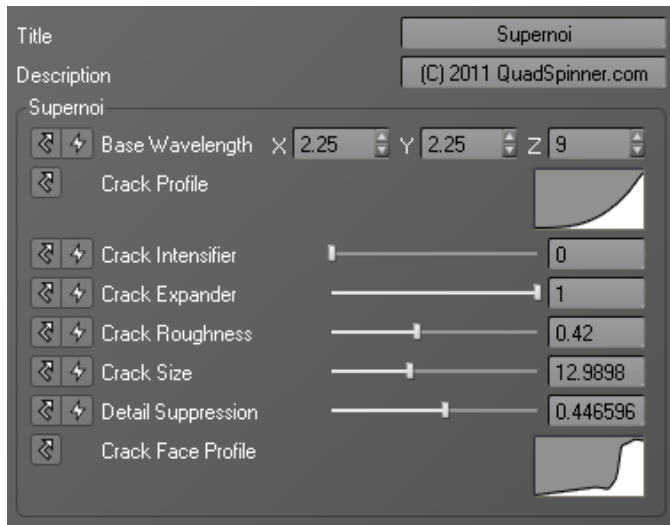
MetaNode Type

Displacement Production

Output Type

Number/Double

Supernoi



Supernoi is a very advanced Displacement and pattern creation MetaNode. It is comprised of fractals using the basic Voronoi structure – one of the most common breakage patterns found in nature – but refined through several different processes to produce realistic rock features. This MetaNode can be applied to textures (Bump), HyperTerrains (Displacement), and even Procedural Terrains.

Base Wavelength

The Wavelength is the main parameter that controls the overall size of the fractal. It works independently of the Scale parameters allowing you to upscale and downscale the fractal output size without altering the shape of the fractal. The Wavelength also allows you to independently change the scales of the three axes.

Crack Profile

This filter controls the shape of the cracks in Supernoi. By default, they are configured to be steep.

Crack Intensifier

This parameter allows for the cracks to intensify causing broader breakage and finer peripheral cracks to be born.

Crack Expander

This parameter takes the cracking further by expanding the 'valleys' created by the cracks.

NOTE

Crack Profile, Intensifier, and Expander work similarly and on some of the same features, yet when used in combination using a delicate touch, they can provide a great level of control over the details.

Crack Roughness

This parameter determines the intensity with which the basic cracks (low values) are further intensified by creating further cracking (high values) along the course of each basic crack as well as corresponding sides.

Crack Size

This parameter controls the size of the largest crack that occurs in the entire fractal. For overall sizing, changing the Wavelength is recommended.

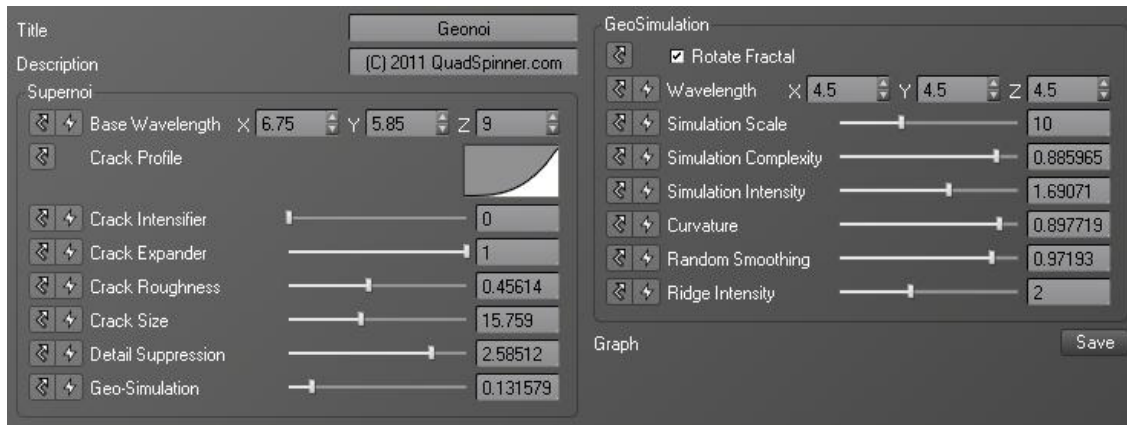
Detail Suppression

This parameter works just like Render Boost which allows you to sacrifice smaller details for an increase in overall render speed.

Crack Face Profile

While the Crack Profile allows you shape the side of the cracks, the Crack Face Profile allows you to shape the plateaus produced by the Supernoi fractals. The far right side controls the top flat face.

Geonoi



Geonoi expands on the classic Supernoi MetaNode by adding an overlay of generic geological simulation on the fractal production. Geonoi allows independent modification of the Supernoi and GeoSimulation parts of the MetaNode.

NOTE

For the Supernoi properties group, see the documentation for Supernoi.

Geo-Simulation

This parameter controls how much GeoSimulation is added to the Supernoi production. Unlike a normal blending process, at the maximum value of 1.0 (100%), GeoSimulation is still added on top of Supernoi and does not take away the main Supernoi fractal production.

Rotate Fractal

This parameter allows you to choose an inner rotation for the geological features. This is useful to add non-linear randomizations in the shapes.

Wavelength

The Wavelength is the main parameter that controls the overall size of the fractal. It works independently of the Scale parameters allowing you to upscale and downscale the fractal output size without altering the shape of the fractal. The Wavelength also allows you to independently change the scales of the three axes.

Simulation Scale

This parameter determines the biggest rock formation that can occur in the GeoSimulation overlay.

Simulation Complexity

This parameter controls the complexity of small rock formations that occur in the GeoSimulation overlay.

Simulation Intensity

This parameter controls the intensity with which the GeoSimulation overlay is merged with the Supernoi production. Higher values create more pronounced rock formation inclusions.

Curvature

This parameter controls how much curving and warping can occur in the GeoSimulation shapes.

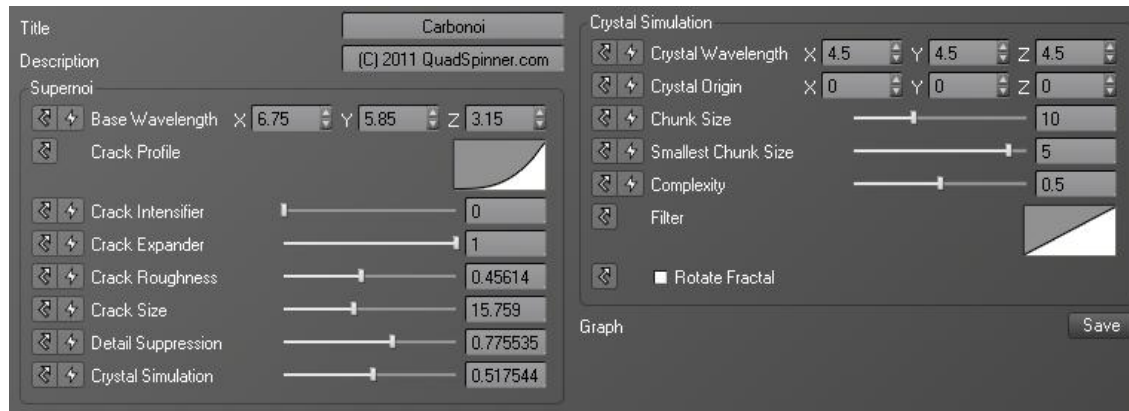
Random Smoothing

This parameter determines how many random patches in the GeoSimulation will be smoothed out.

Ridge Intensity

This parameter controls the height of the major ridges produced in the GeoSimulation.

Carbonoi



Carbonoi behaves in a very similar way as Geonoi; however, the generic geological simulation is replaced with crystalline simulation. This does not create sharp, refined crystals but rather the crystalline structures of sandstone, marble, and other crystal-structured geological components.

NOTE

For the Supernoi properties group, see the documentation for Supernoi.

Crystal Wavelength

The Wavelength is the main parameter that controls the overall size of the crystals infused into the Supernoi production. It works independently of the Size parameters allowing you to upscale and downscale the fractal output size without altering the shape of the fractal. The Wavelength also allows you to independently change the scales of the three axes.

Crystal Origin

This parameter determines the location on the 'fractal map' that is used for the Crystal Simulation. Changing these values allows you to move the shapes on your material.

Chunk Size / Smallest Chunk Size

These parameters control the chunk sizes of crystals that can occur in the Crystal Simulation.

Complexity

This parameter controls how complex the substructure of the crystal chunks can be in the Crystal Simulation.

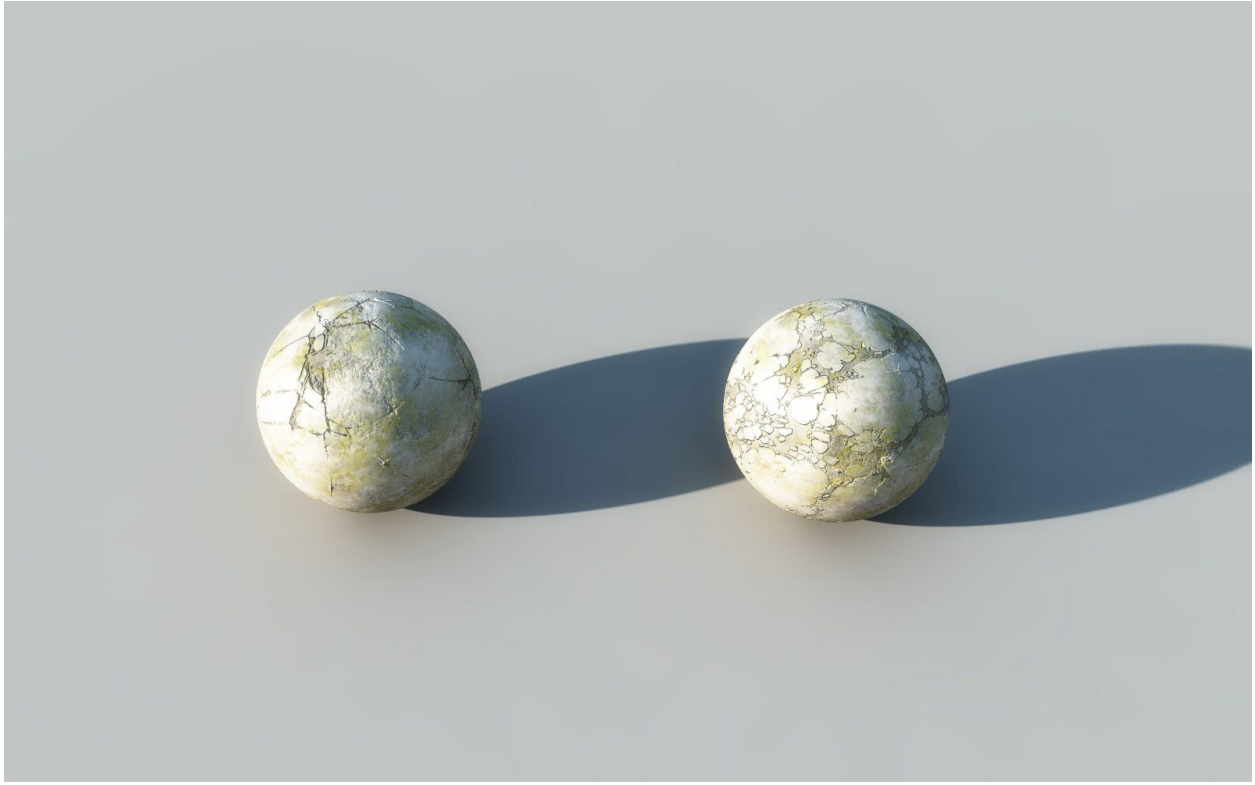
Filter

This parameter allows you to fine tune the output values (0.0 on the left, 1.0 on the right) of the Crystal Simulation without changing the base parameters.

Rotate Fractal

This parameter allows you to choose an inner rotation for the crystal chunks. This is useful to add non-linear randomizations in the shapes.

CrackMaker



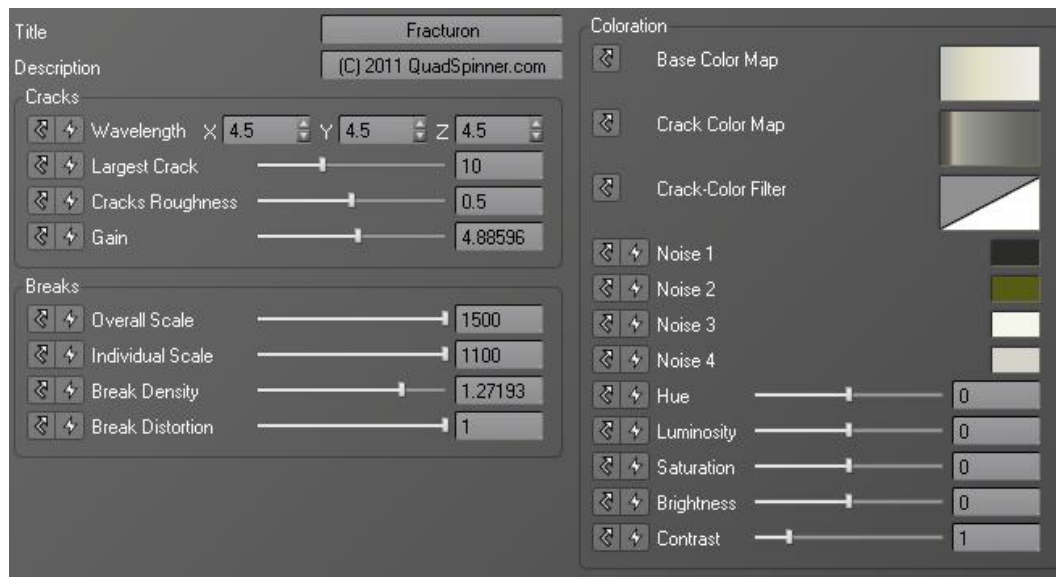
MetaNode Type

Bump/Displacement, Color Production

Output Type

Number/Double, Color

Fracturon + Tecton



The CrackMaker component contains two deceptively simple MetaNodes that can create magnificent textures and shapes. On the surface, both MetaNodes have an identical interface but the output of both is different. Most parameters work similarly for both, but some have additional or different impact which is outlined below.

CrackMaker uses a modified version of Supernoi in its internal calculations to create cracking patterns.

Wavelength

The Wavelength is the main parameter that controls the overall size of the cracks production. It works independently of the Size parameters allowing you to upscale and downscale the fractal output size without altering the shape of the fractal. The Wavelength also allows you to independently change the scales of the three axes.

Largest Crack

This parameter controls the size of the largest crack that can occur in the pattern.

Cracks Roughness

This parameter determines how much additional cracking occurs between major cracks. In Tecton, higher values will create additional 'islets' or peel-off shapes.

Gain

This parameter controls the intensity with which the cracks mar the surface.

Overall Scale

This parameter controls the size of the breakages that occur when crack intersections become so intense that a large area of the surface layer will fall away.

Individual Scale

This parameter determines the scale of individual breaks that may occur on intense cracks or two converging cracks. In Tecton, this also controls the spacing between 'islets'.

Break Density

This parameter controls how many breaks can occur next to each other. The value is relative and can accept higher arbitrary values than normally accepted by the slider.

Break Distortion

This parameter decides the overall warping that occurs when cracks intensify. In Tecton, these results in broader breakage that curves a little when larger areas fall away as a result of intense cracking.

Base Color Map

This color map is applied to the smooth surface with a randomized mix of the noise produced with the controls below.

Crack Color Map

This color map is applied to just the cracks and breakage that occur on the surface.

Crack-Color Filter

This filter can be used to fine-tune the application of the Crack Color Map onto the crack fractal patterns.

Noise 1-4

These four colors produce a complex noise pattern that is applied on top of the Base Color Map. Choosing colors close to the Base Color Map colors, but slightly contrasted, is often a good strategy.

Hue/Luminosity/Saturation

These parameters allow quick access to tweaking the color properties of the complete color output. The original colors in the Color Maps remain untouched.

These controls are often an easy way to change the color tone of the MetaNode output without having to modify the default color maps.

Brightness/Contrast

These parameters provide Brightness and Contrast control to the complete color output.

RockBreaker



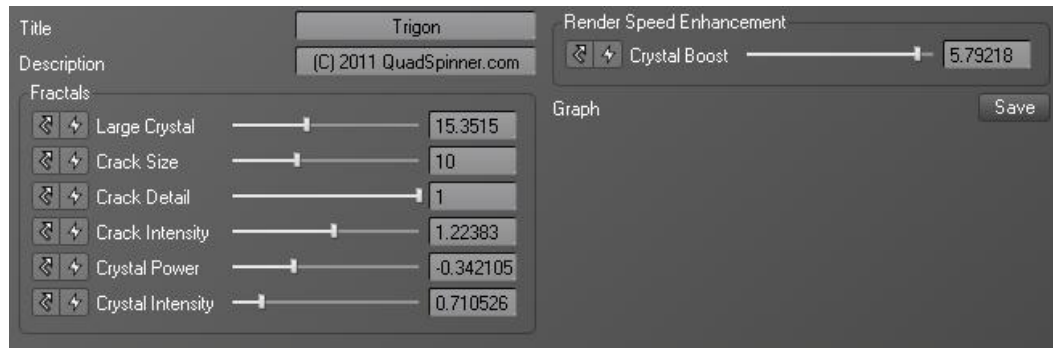
MetaNode Type

Bump/Displacement Production

Output Type

Number/Double

Trigon



The Trigon RockBreaker MetaNode is an ideal way to create large crystal like rock formations. This MetaNode can be combined with other fractals or RockBreaker MetaNodes to create broader displacement with Trigon serving as the base on which the other fractals add their details.

Large Crystal

This parameter determines the size of the larger crystals.

Crack Size

This parameter controls the size of the cracks that occur between crystal chunks.

Crack Detail

This parameter controls the smaller crack details between the crystal chunks and larger cracks.

Crack Intensity

This parameter decides how deep a crack can be. Crystal chunks can be pronounced by increasing this parameter's value.

Crystal Power

This parameter determines the prominence of the crystals. Higher values increase the shape creation intensity.

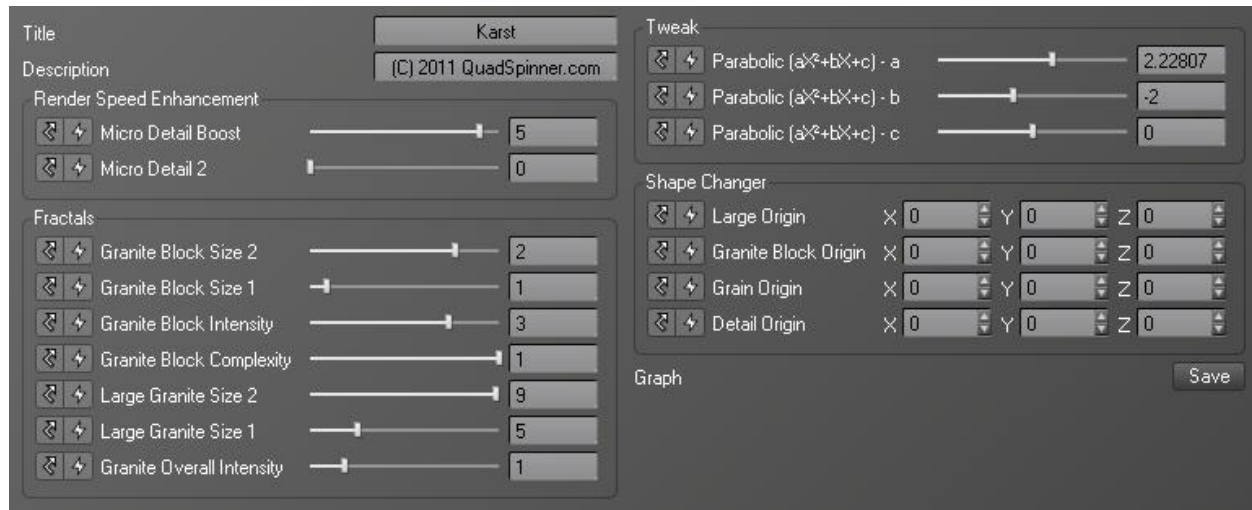
Crystal Intensity

This parameter controls how each individual crystal is extruded from the surface.

Crystal Boost

This parameter allows you to remove basic details and allow only the stronger crystal shapes which results in a massive render speed increase. This is very useful when using live displacement.

Karst



Karst is a powerful limestone rock formation displacement MetaNode. This Z-axis-heavy displacement component creates layered limestone slabs to simulate realistic rock formations. One of the major features of this MetaNode is the independent Origin control which allows for detailed fine tuning of the different shapes that combine to create the final output.

NOTE

Granite below is not a mineral type but a fractal type description. The overall production is based on limestone rock formations.

Micro Detail Boost

This Render Speed Enhancement excludes minor details of the first magnitude to increase render speed.

Micro Detail 2

This second magnitude Render Speed Enhancement excludes further details to increase render speed.

Granite Block Size 2/1

These parameters control the size of the two separate Granite Block productions that create the main slabs of granite.

Granite Block Intensity

This parameter determines how deeply engraved the Granite Blocks should be with the main body.

Granite Block Complexity

This parameter controls how complex the interlocking Granite Blocks should be. By default, this value is at the maximum value of 1, but it can accept arbitrary values that are higher.

Large Granite Size 2/1

These parameters control the size of the large granite formations that the interlocked Granite Blocks are applied to.

Granite Overall Intensity

This parameter determines the intensity with which the Granite Blocks are fused together.

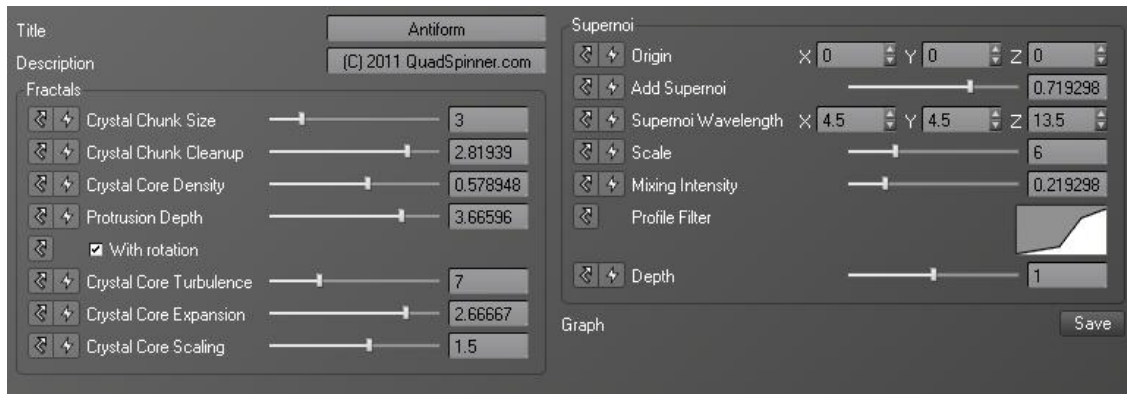
Parabolic Tweaks – A/B/C

These Parabolic parameters work like a standard parabolic filter in Vue. The parameters control how the edges of the limestone are carved in the main body.

Origins

The four origin parameters allow you to fine tune the placement of each of the four major fractals that produce the Karst output.

Antiform



Inspired by vertical sandstone rock formations, Antiform is an elaborate sandstone and generic rock production MetaNode. Antiform uses a modified version of Supernoi to create the sandstone slab separation. Antiform is crystal based - this does not mean sharp, refined crystals but rather the crystalline structure of sandstone.

Crystal Chunk Size

This parameter decides the size of individual crystal chunks.

Crystal Chunk Cleanup

This parameter removes smaller, unwanted crystal chunks to give more prominence and space to the larger formations.

Crystal Core Density

This parameter determines the density of the number of crystals in the overall sections of the output.

Protrusion Depth

This parameter controls how deep the sandstone protrusions can be.

With Rotation

This parameter allows you to choose an inner rotation for the geological features. This is useful to add non-linear randomizations in the shapes.

Crystal Core Turbulence

This parameter allows control over the turbulence (noise type) intensity that produces the core of the sandstone output.

Crystal Core Expansion

This parameter controls the rate at which the core of the sandstone expands to engulf the protruding crystals.

Crystal Core Scaling

This parameter determines the scale of the core features of sandstone.

Origin

This is the origin for the Supernoï overlay. Changing the axes' values can help you shift the Supernoï pattern without altering the base fractal output of the MetaNode.

Add Supernoï

This is the amount of Supernoï that is added on top of the main fractal output. At 1.0, Supernoï will take precedence over the main fractal; while at 0.0 Supernoï is completely ignored.

Supernoï Wavelength

The Wavelength is the main parameter that controls the overall size of the fractal. It works independently of the Scale parameters allowing you to upscale and downscale the fractal output size without altering the shape of the fractal. The Wavelength also allows you to independently change the scales of the three axes.

Scale

This parameter controls the overall size of the Supernoï output.

Mixing Intensity

This is the amount with which Supernoï shapes are imbedded into the main sandstone core.

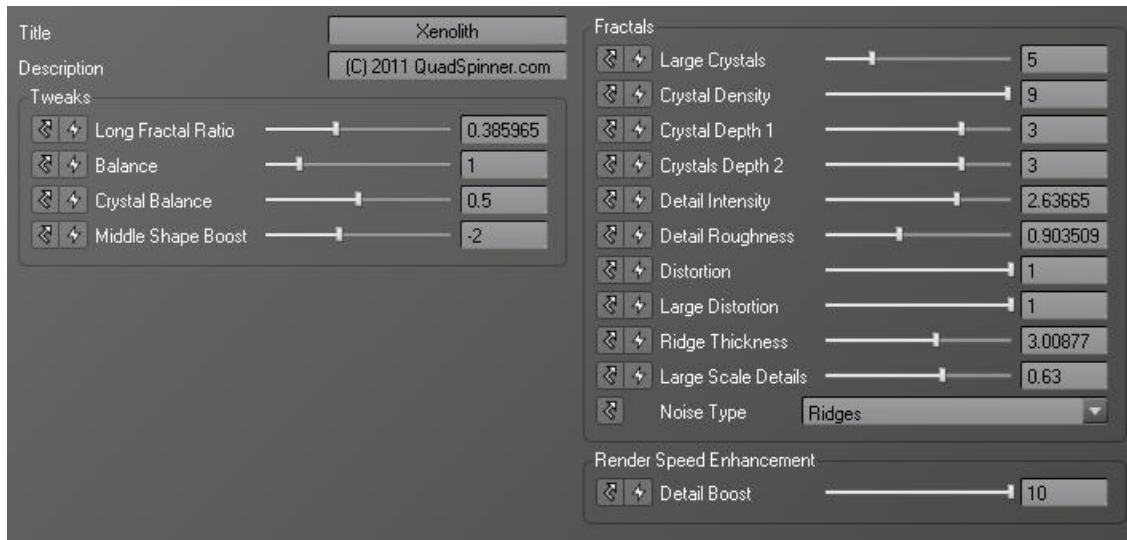
Profile Filter

This filter allows you to change the side/profile shape of the Supernoï cracks.

Depth

This parameter controls how deep the Supernoï overlay is.

Xenolith



Large Crystals

This parameter determines the size of the large crystals on the surface.

Crystal Density

This parameter controls the density the large crystals are created with.

Crystal Depth 1 + 2

These parameters control the depth of the two separate crystal production fractals.

Detail Intensity

This parameter controls the depth of the detail features of the fractal.

Detail Roughness

This parameter allows control over how much detail is put into the middle fractals.

Distortion

This parameter controls the warping of the main long fractal to create the unique Xenolithic shapes.

Large Distortion

This parameter controls a larger scale distortion that covers the entire fractal output.

Ridge Thickness

This parameter determines how thick the base of the ridge will be.

Large Scale Details

This parameter controls the size of the larger details that are produced in the output of this MetaNode.

Noise Type

This parameter provides a typical Terrain Fractal style Noise Type. By default, it is set to Ridges, but a Billow or other mixed forms can be also selected. The selection determines how the middle ridges of the fractal output are shaped.

Detail Boost

This Render Speed Enhancement will sacrifice minor details to boost the render speed.

Long Fractal Ratio

This parameter allows you to lessen the effect of the distortion fractal.

Balance

This parameter balances the distortion fractal with the large details fractal.

Crystal Balance

This parameter controls the balance between the two different crystal production fractals, favoring one over the other or keeping them evenly balanced with 0.5.

Middle Shape Boost

This parameter provides deep control over the middle distortion shapes.

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