

What's Wrong with This Picture?

An online chapter from Real World Bryce 2, by Susan A. Kitchens
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In This Chapter . . .

- How to tell that terrain resolution is okay
- How to tell when to adjust the noise rotation for your scene
- How to get rid of “grids” in your materials
- How to fix a scene by establishing a credible sense of scale
- How to fix Ambient problems
- When to reduce a too-bumped bump height

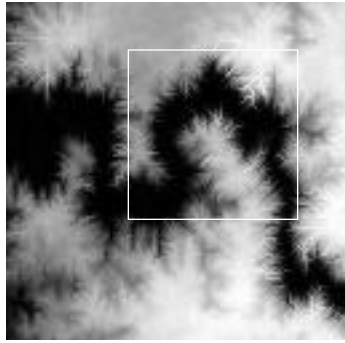
This chapter is a troubleshooting guide. No, it's not about troubleshooting the software—the technical support variety. It's about some common pitfalls in Bryce scene-making and how to handle them. If you've worked with a scene and said, “I know something here isn't quite right,” but you can't tell what is wrong, then take a look here. I show before and after images, analyze what went wrong, and how to fix it. So let's dig right in.

Terrain Resolution

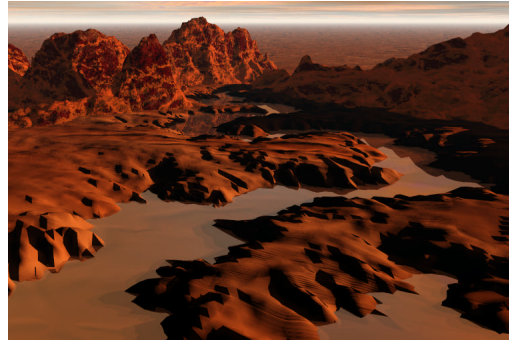
There's your beautiful scene. But you look at your terrain, especially that one in the foreground, and notice it has very odd, angular pock marks. See Figure 1 (Before). The pock marks are a sign that you don't have enough terrain resolution. To rectify this situation, select the terrain, go to the Terrain Editor, and increase the resolution. Edit the Terrain Editor and then test an area to see if this fix worked! Figure 1 (After) shows the outcome of increasing terrain resolution.

Other methods for solving this problem:

- Click the Smooth button, especially if you have added a lot of erosion to your terrain.
- If you have one terrain spread out in a large area, then consider making multiple terrains do the job your one big terrain is doing now.
- Augment the large terrain with additional terrains, making them either smaller in size as a result of resizing in the Edit Palette or making their resolutions higher.

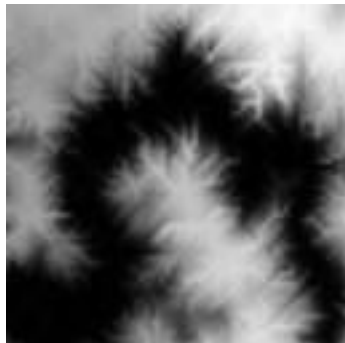


Terrain at 256

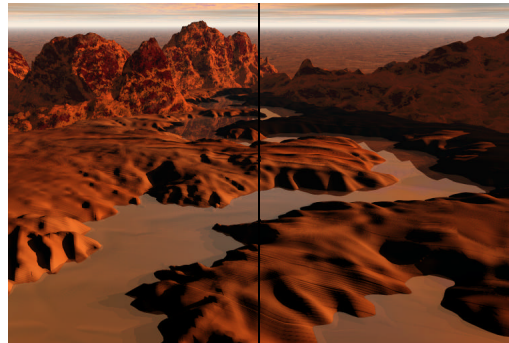


Before: Terrain has geometric artifacts

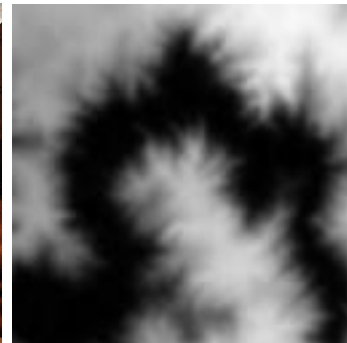
FIGURE 1
Increasing terrain
resolution to get
rid of geometric
artifacts.



Terrain enlarged to 512



After: Terrain with smoother surface



Terrain (512) plus smoothing

Ground with Horizontal Streaky Lines

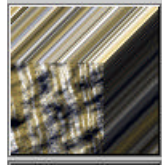
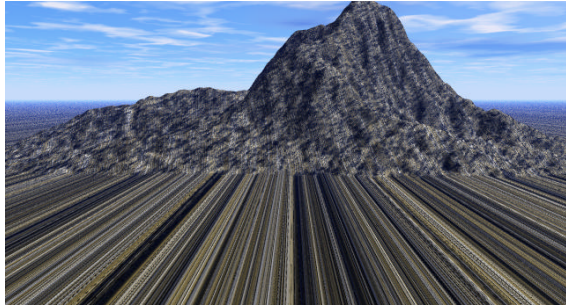
Figure 2 shows an image with a ground that has horrible streaky lines. The same material setting is used for the terrain as for the ground. Why does it work successfully on the terrain but not on the ground? Noise from the underlying 3D Solid Texture has only one or two dimensions to it. In addition, the noise is oriented to face “front” at the expense of facing “up.” When seen as a two-dimensional preview, the combination and the individual component noises are either one- or two-dimensional. See how the top edge of the cube just has stripes? So your flat ground has stripes as well.

The easiest way to fix it is to change the mapping from World Space to World Space Top in the Materials Composer.

If you want to get more technical about it, go to the Deep Texture Editor and rotate the noise so that it faces a different direction, thereby cutting through both the top and front surfaces.

Another method for solving the problem:

- Change the noise from one- or two-dimensional to two- or three-dimensional noise.



Reason: Texture is oriented toward the "front," and there is no noise detail along the top flat surface plane.

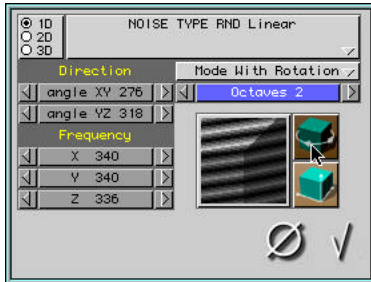
Before: Ground plane has horrible stripes.



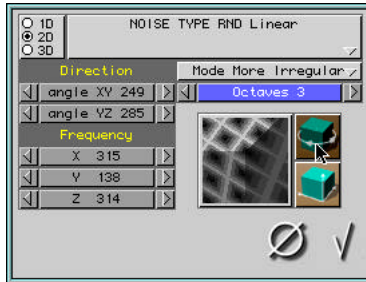
Component A: One-dimensional Noise



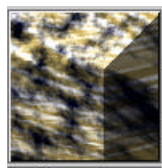
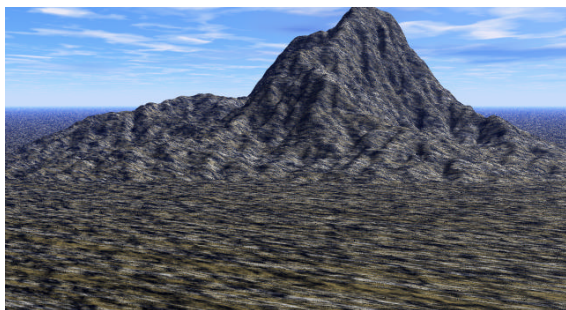
Component B: Two-dimensional Noise



Solution: Rotate noise



Solution: Rotate noise



After: Texture is now oriented to both "top" and "front" directions.

FIGURE 2 Getting rid of streaky lines in ground plane by rotating noise.

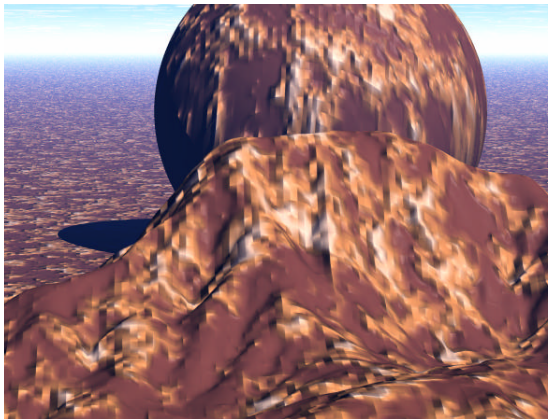
Grid Lock

You look at your object and you see something resembling a grid (see Figure 3).

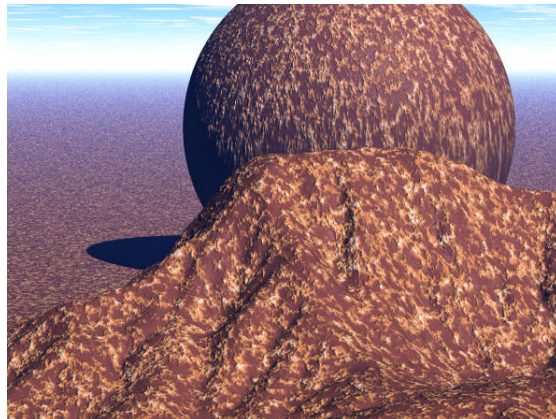
Here, the noise Frequency setting in the Materials Composer is set too low, in this case, at its lowest setting. There are more opportunities for the grid to show up at lower frequencies than at higher ones. So increase the Frequency settings.

Other methods for solving the problem:

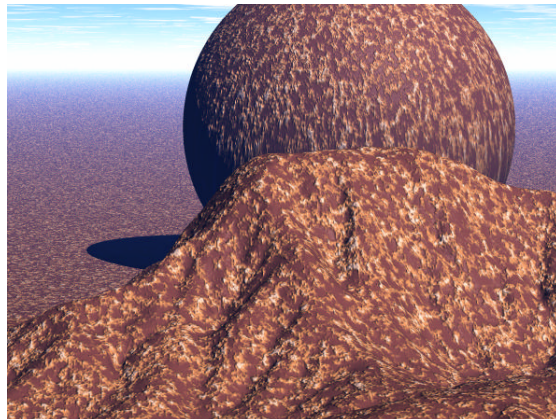
- In the Noise Editor of the Deep Texture Editor, change the mode to “with rotation” and increase the octaves setting.
- Change the noise to a three-dimensional noise.
- Add another texture component to interact with this gridded one.



Before: Object's textures have a visible grid.



After: Increase frequency in the Materials Composer.

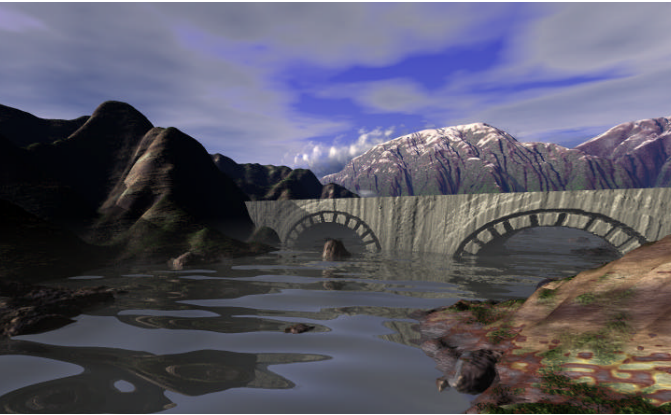


After: Change Mode to Rotation and add an Octave in the Deep Texture Editor.

FIGURE 3 Fixing a grid by increasing the texture's frequency or changing the underlying noise.

Frequency for a Sense of Scale

When you have different elements that don't seem to fit together, the problem may be one of scale. In Figure 4, the water does not "fit" the scale of the rest of the scene. The large waves belie the scale of the terrains, the bridge (made from terrains), and the distant mountains. The solution to this is simple: Increase the Frequency setting in the Materials Composer. A bit of reduction in bump gain helps, too.



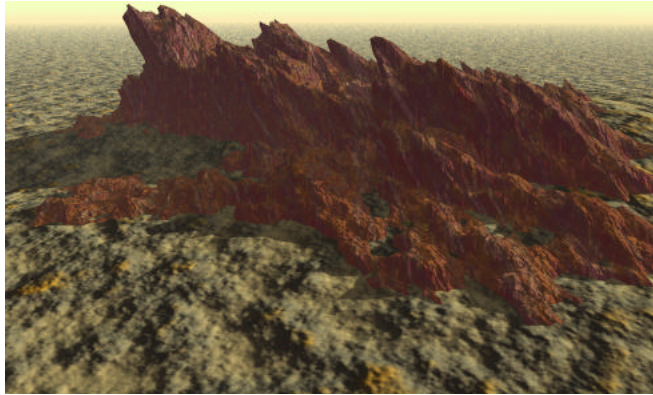
Before: Water waves are too large, thereby throwing off the entire scale of the scene.

Solution:
Increase the
frequency of the
water material
and slightly
reduce the
bump height.

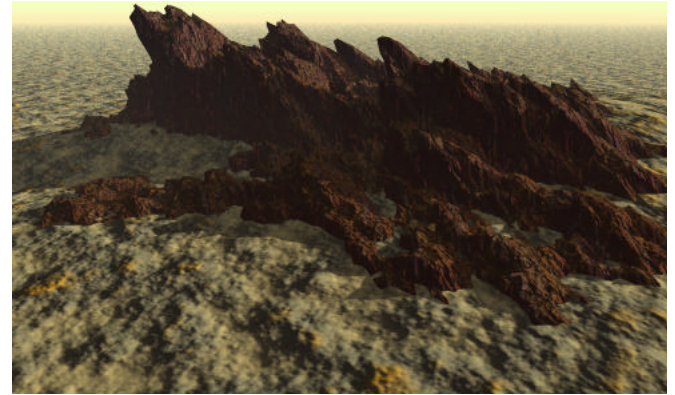


After: Higher frequency "waves" and lower bump give the image a sense of scale.

FIGURE 4 Adjusting the water so it fits the rest of the scene's scale.



Before: Rock object doesn't "fit" with ground



After: Rock object and ground with identical Ambient settings (Ground Ambient setting)

197	●	Diffusion
135	●	Ambience
56	●	Specularity

Rock
Ambient
setting

198	●	Diffusion
42	●	Ambience
14	●	Specularity

Ground
Ambient
setting

Reason: Rock object and ground have different Ambient settings. This is most obvious in shadow, when the darker object is as light as the lighter object's shadow.

FIGURE 5 Adjusting Ambient settings to make the scene appear cohesive.

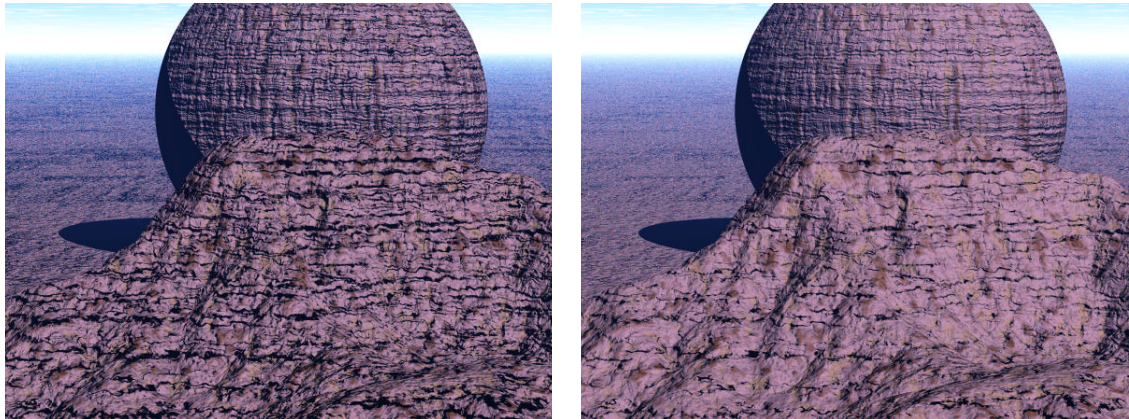
Ambient Conflict

In Figure 5, the rock that juts out of the ground doesn't look like it belongs there, for some reason. Look in the shadow areas where the two terrains meet. The protruding rock, although darker overall, is not darker in the shadow areas. This indicates the Ambient setting for each object is different. The two sets of Illumination channel settings confirm this. A higher Ambient setting "resists" shadows. Once you make the settings identical, the two objects "belong" together in a way they didn't before.

This problem is important to watch for, especially when you are stealing textures from another scene or when you are shopping for presets in the Materials Preset Library. The Ambient setting for that preset is left over from its previous life, when it was created for a previous scene. Make sure Ambient settings are all cohesive in the scene you are working on right now.

Excessive Bump

When a texture has small black lines that overpower the rest of the texture, the Bump Height setting is too high (see Figure 6). When you assign bump to an object, you are not “physically” changing it. Rather, you’re calling on Bryce to perform a custom “emboss” that creates shadows in the texture based on information from the Normale part of the 3D Solid Texture. When you have those black lines, you’ve asked Bryce to emboss too much. The solution is easy: Reduce the Bump Height setting. (You may also want to reduce the Shadow setting in the Sky & Fog Palette.)



Before: Black lines from extreme bump height. After: Reduced bump height.

FIGURE 6 Reducing the bump height setting to get rid of black lines.