Stacking Terrains

Using the Materials and Texture Labs, quite elaborate materials can be made for a landscape. This can be even improved if more than one terrain is used at the same location and each terrain is given another resolution and material.

The Idea

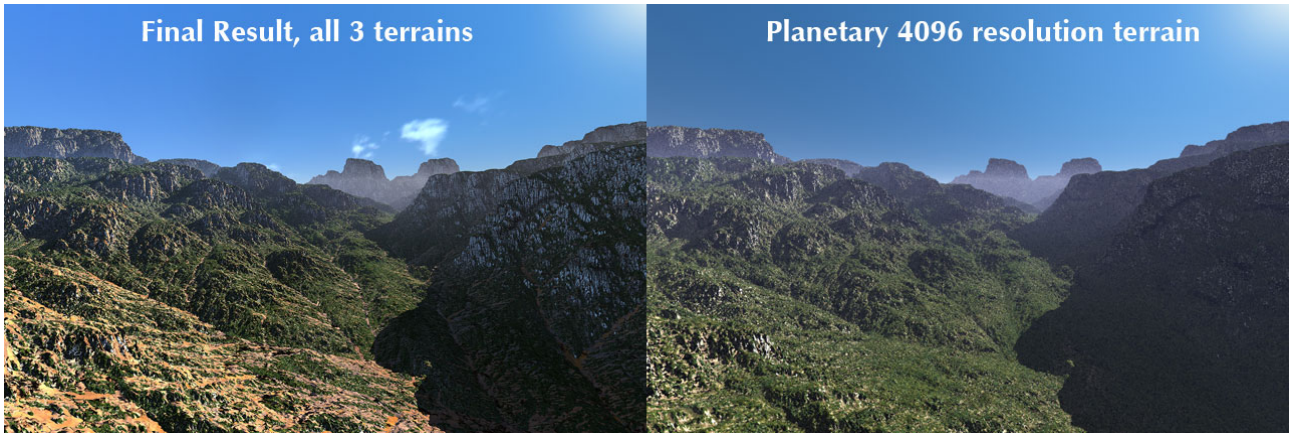
David Brinnen came up with the idea to stack terrains with different resolutions one above the other. I used this idea to have a bit of fun with one of our High Resolution Terrain Sets http://www.daz3d.com/bryce-7-1-pro-high-resolution-terrains-set-1 number one to be precise.

The results can be quite stunning. *Sparse Spot* is an example at left; moving the camera in the valley in the back and turning the camera to look down the valley and swapping out the HDRI from http://www.daz3d.com/bryce-7-pro-deep-space-hdri-2 resulted in this outlandish landscape of *The Eye in the Sky* shown at right.

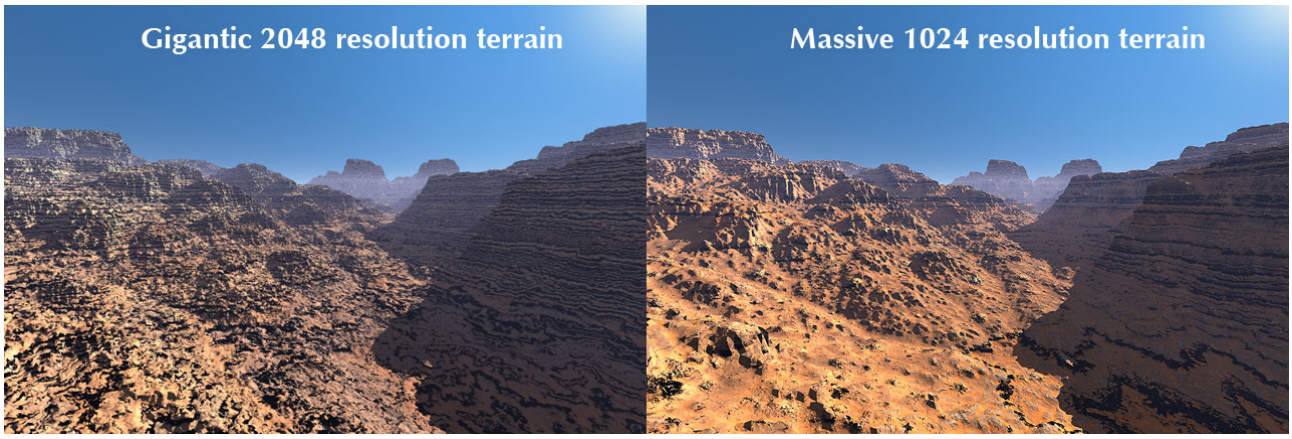
Yet another render using this method gave also a nice result: *Twin Peaks* below at left. And there is no cheating. All three renders are pure and single Bryce renders without any post production.

Here I have removed the HDRI and used a white Sky Dome colour to fake some ambient light. No distraction, just the terrains.

There are three *Highland* Terrains one above the other. The render below at right has only the planetary 4096 resolution terrain visible, the other two are hidden.

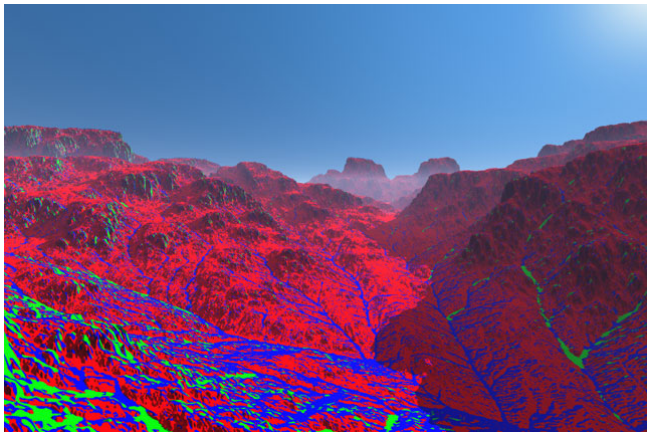


If the planetary resolution is hidden and the gigantic 2048 terrain made visible, we see a completely different landscape because there is another material applied as shown below at left.



Hiding the planetary 2048 terrain again and un-hiding the massive 1024 resolution terrain shows the material used on this one. So we have different materials on the different resolutions and the combination makes the result interesting.

Here at right are the three terrains as they were stacked. The red part is from the planetary 4096 terrain, the blue from the gigantic 2048 and the green from the 1024 massive one.

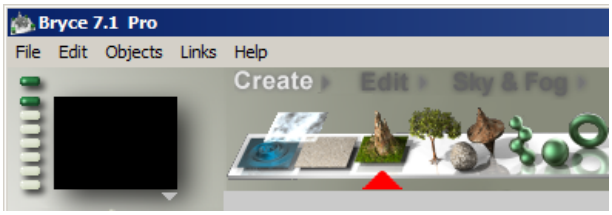


So, this is how the examples shown above were done.

Now the question is — does this also work using Bryce generated terrains? Yes, it does. And here is how it is done.

How it is done

Start Bryce and create a random terrain.

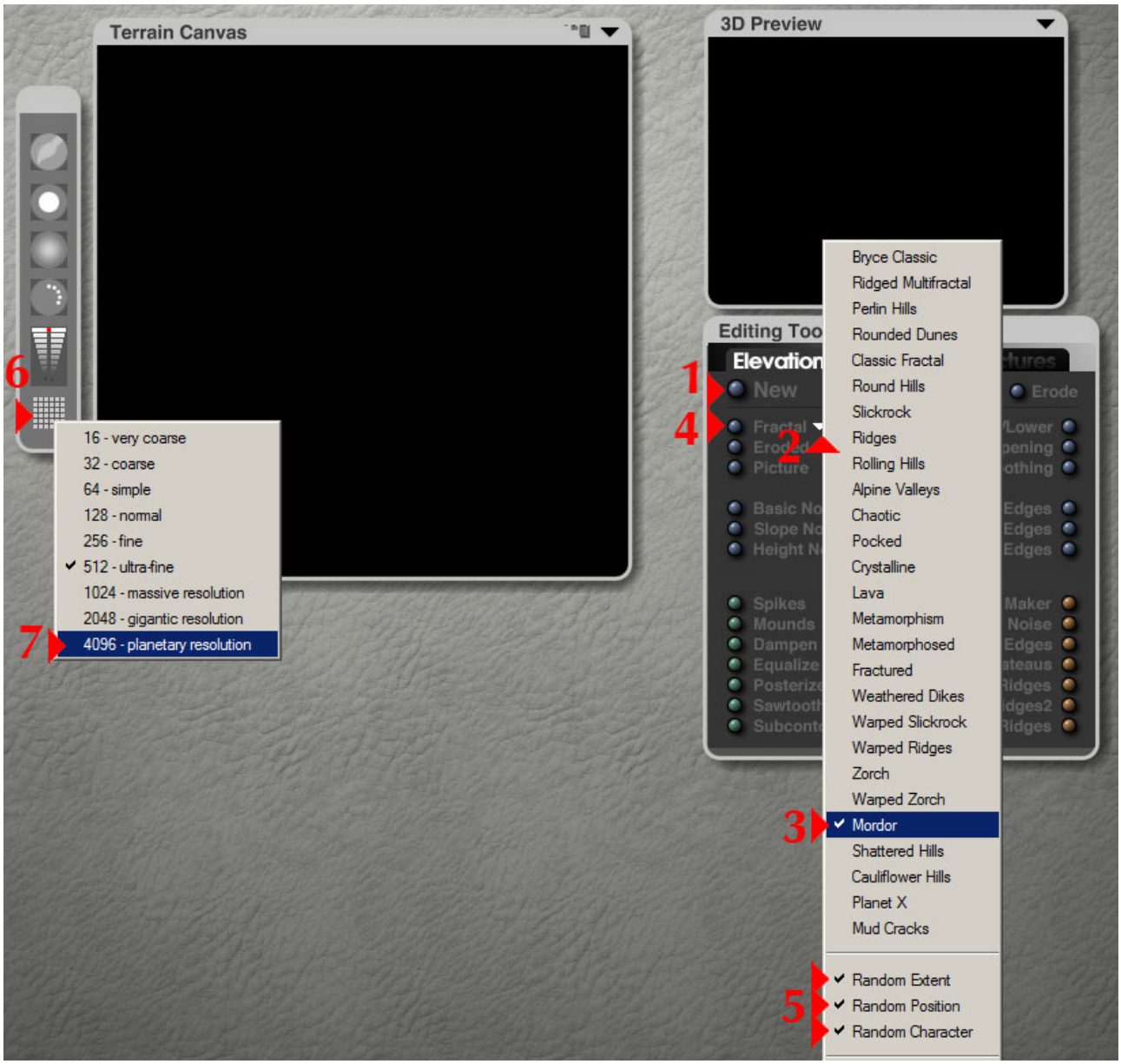


Hold down the [Control] key when you click on the terrain thumbnail on the Create shelf. You get a terrain in default grey.

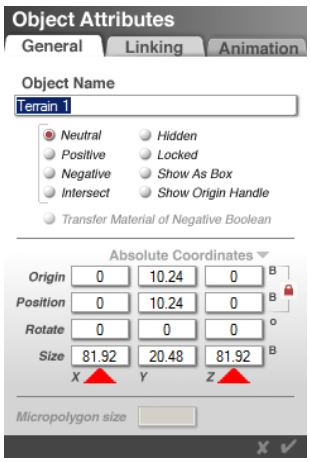
Now enter the Terrain Editor and click on New (1) to get rid of this terrain (refer to the picture on the next page).

Select a fractal procedure (2) you like, I used Mordor (3). Click on the Fractal button (4) until you get a terrain you like. This is fast because the default terrain is set to the 512 ultra-fine resolution.

Once you are happy with the terrain you've got, open the Fractal drop down (2) and disable Random Extent, Random Position and Random Character (3). Because it is tedious to do this three times, hold down the [Shift] key and click on any of the Random options to disable all three at once.



Now set the resolution (6) to Planetary 4096 resolution (7). Don't be hasty; it may take a few seconds. Then click once on the Fractal button (4). Wait and watch the preview. It takes several seconds until it updates. You can also hoover the mouse over the Accept button on the bottom right corner of the Terrain Editor. Once it animates, you can click on it. It will take again a few seconds until you have your terrain.



Open the Attributes dialog and make sure X and Z sizes are both exactly 81.920. This is also the moment to give it a sensible name. Then give the terrain a simple but distinctive material. I suggest making it just red.

Create another default terrain. In the terrain editor, click on New (1), select Gigantic 2048 resolution (7) and click once on fractal (4). You will get the same terrain because the random options are deselected.

But this terrain is generated for this resolution and will be slightly different in some details. It also takes a moment until you can exit the terrain editor.

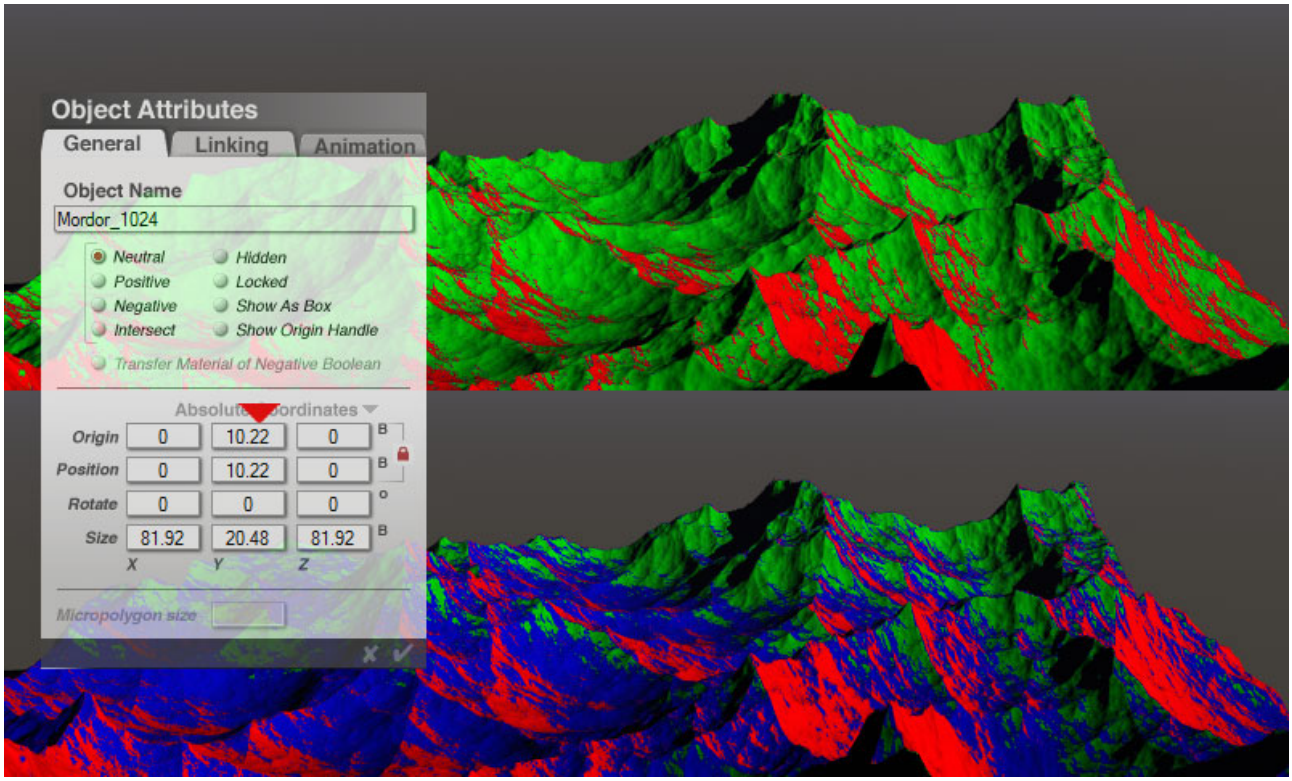
Open the Attributes dialog and make sure X and Z sizes are exactly 81.92. The terrain sizes vary a tiny bit between resolutions and we want exactly the same size. Don't forget to put in a more descriptive name than Terrain 2.

Give it a simple material or colour. I suggest just blue Diffuse.

Create again a new terrain, go into the Terrain Editor, clear this terrain by clicking on New (1), set resolution to massive 1024 (7) and click once on the Fractal button (4). This will be fast and you can exit the editor without delay.

In the Attributes, check again X and Z sizes and identify the terrain. Then give it a colour, green, for example.

Now render and look what you've got. The lowest resolution terrain (green) may be a bit overwhelmingly present.



Move it a tiny bit down and do it in the Attributes dialogue numerically. The other controls are too coarse. The example set it from 10.24 to 10.22. Render and if not happy, repeat adjusting until you are satisfied.

I recommend that you don't use the Directors camera but the Perspective one. You have more control over it.

Now, select all terrains and group them. Enlarge the terrain group. I used X and Z = 3500 and Y = 800 so the Y position can be set to 400 and the terrain is on the ground. Move the camera into the terrain group to a position that gives you a good view over the landscape you are going to build.

Light

A good idea at this stage is to set the sky and light approximately because materials are very dependent on the lighting. Go into the Sky Lab and select a sky. I used *Lazy Afternoon*, the first one in the *Installed* > *Daytime* folder.

In the Sun & Moon Tab disable Sun/Moon Visible, set Sun/Moon Shadows to 100, make sure Ambient is fully white and Sky Dome fully black.

In the Atmosphere Tab, set white Haze to Density 80 and Thickness to 5. These values can be tweaked later if desired. They give you a good start for this terrain size.

In the IBL Tab, select Use HDRI Image and Sky Dome only, and then click on Use Sky. Accept the size of 600. This will create an HDRI sky dome from the sky without sun and will give hugely better ambient light than the Sky Dome colour in the Sun & Moon Tab.

Enable Sun/Moon Visible again in the Sun & Moon Tab.

In the IBL Tab, disable Cast Shadows, set the Preview to render in scene. Adjust HDRI Effect to get good light in the shadow regions, farther away, the Haze brightens things up a bit. With this HDRI created from the sky, 25 is about right. Then Enable the Sun Light, which was deselected when the HDRI was generated.

Back in the Sun & Moon Tab, set Sun Diffuse to 200, though you may want to tweak this value later.

Materials

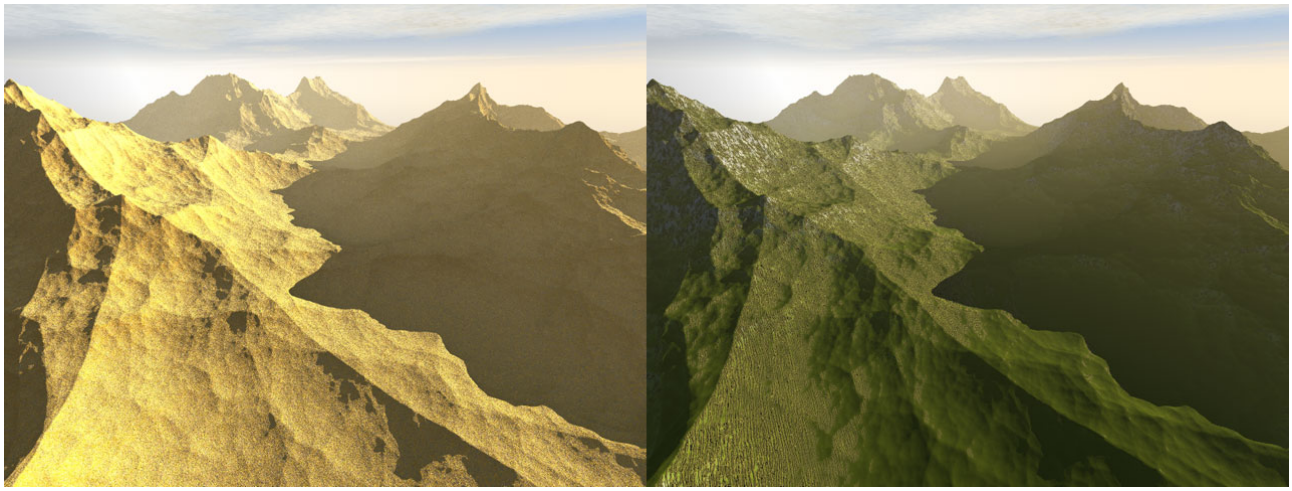
Now, we give the terrains their material.

Select the 4096 planetary resolution terrain and go into the Materials Lab. From the Materials Library, get *Terrain 02*, that's in *Terrains* > *Rocky* (row 4, column 2).

Select the 2048 gigantic resolution terrain, go into the Materials Lab and from the Materials Library get *Jungle 2* under *Terrains* > *Vegetation* (row 2, column 8).

Finally, select the 1024 massive resolution terrain, go into the Materials Lab and from the Materials Library select *Snow on the Heights 3* from *Terrains* > *Snowy* (row 2, column 5).

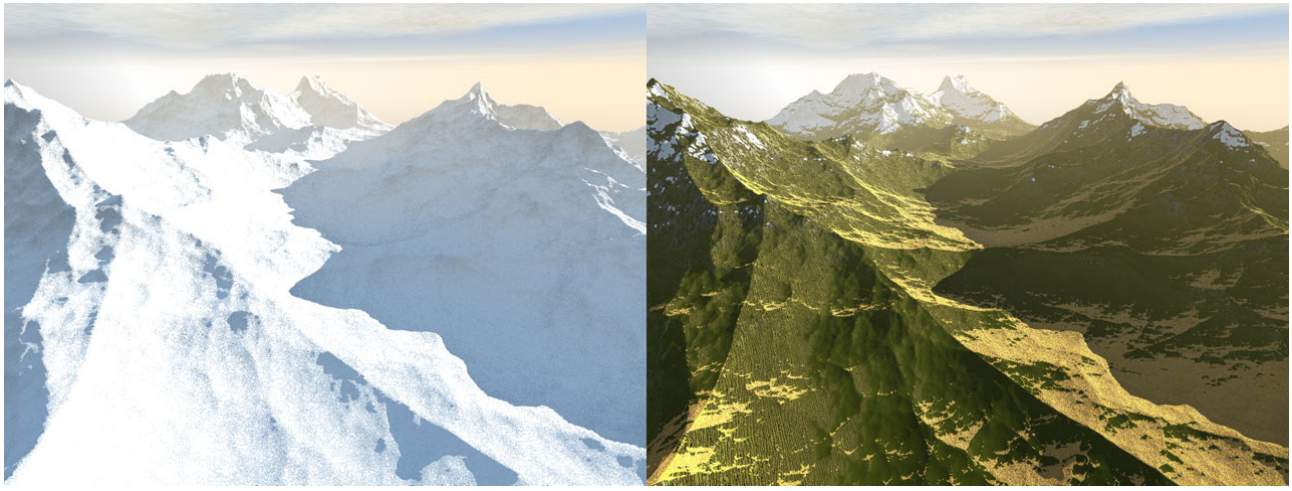
Hiding two of the three terrains and render gives you the following results:



Above at left the 4096 planetary resolution terrain only, at right the 2048 gigantic resolution one only.

Below, we have the 1024 massive resolution terrain only at left and at right, all three terrains are visible. This is the final result.

Please note that this example is not the same as the one in the video. I had used this one to test the concept and in the video, I set up the terrains anew and didn’t use the renders I did before.



This is a simple example. You may now start to use different materials on the terrains, change the light from the sky, the sun and reposition the camera.

Hopefully, this video will encourage you to give this “Stacked-Terrains” method a go. Bryce comes with everything you need; only a bit of patience is required from your side. Have fun.

David Brinnen kindly hosts the video *Bryce 7.1 Pro tutorial - Stacked Terrains — by Horo* on his YouTube channel:

http://youtu.be/itbMGRW308w — 13m 36s.