TerraDome3 is a unique way for you to do landscape rendering in Iray. This edition has been built from the ground up to be used in Daz Studio's Iray render mode! What sets the TerraDome apart from static landscapes... TerraDome3 is a dynamic morphing terrain with reactive shaders, real water, and real atmosphere. This is the largest and most detailed TerraDome set to date!

The Basics: What is TerraDome?

TerraDome3 for Daz Studio Iray is a morphing terrain and environment system that allows you to add landscape elements and styles to your render possibilities. Lets look at the "pieces" or Props that make up the TerraDome3 System:

The A Zone: Think of this as the "Center Stage" It is a huge circular mesh that has a number of morph targets to shape it into various styles of terrain.

The B Zone: This is the "Backdrop" piece – for chunks of terrain that are in the background.

Water: The Water in Terradome is a true volume, so the water is not just a flat plane, but a full 3D cylinder that contains the water in the scene.

Atmosphere: Again, this is a true atmospheric volume that is comprised of a morphing sphere – it allows for a whole range of mists, fog, haze, sand & dust storms, etc.

Terrain Morphs Targets.

Both the Azone and the Bzone contain sets of terrain morph targets that shape the landscape of TerraDome 3. The Azone contains 12 main landscape morph targets and the Bzone contains 8 background morph targets.

All morphs can mixed together to a certain degree. Their ultimate setting is 100% but when mixing morphs on the same zone it is advisable to limit the intensity of each one as setting each to 100% may give undesirable results.
The Azone can be rotated 360 degrees on the Y axis so you can view and render the terrain from any angle.

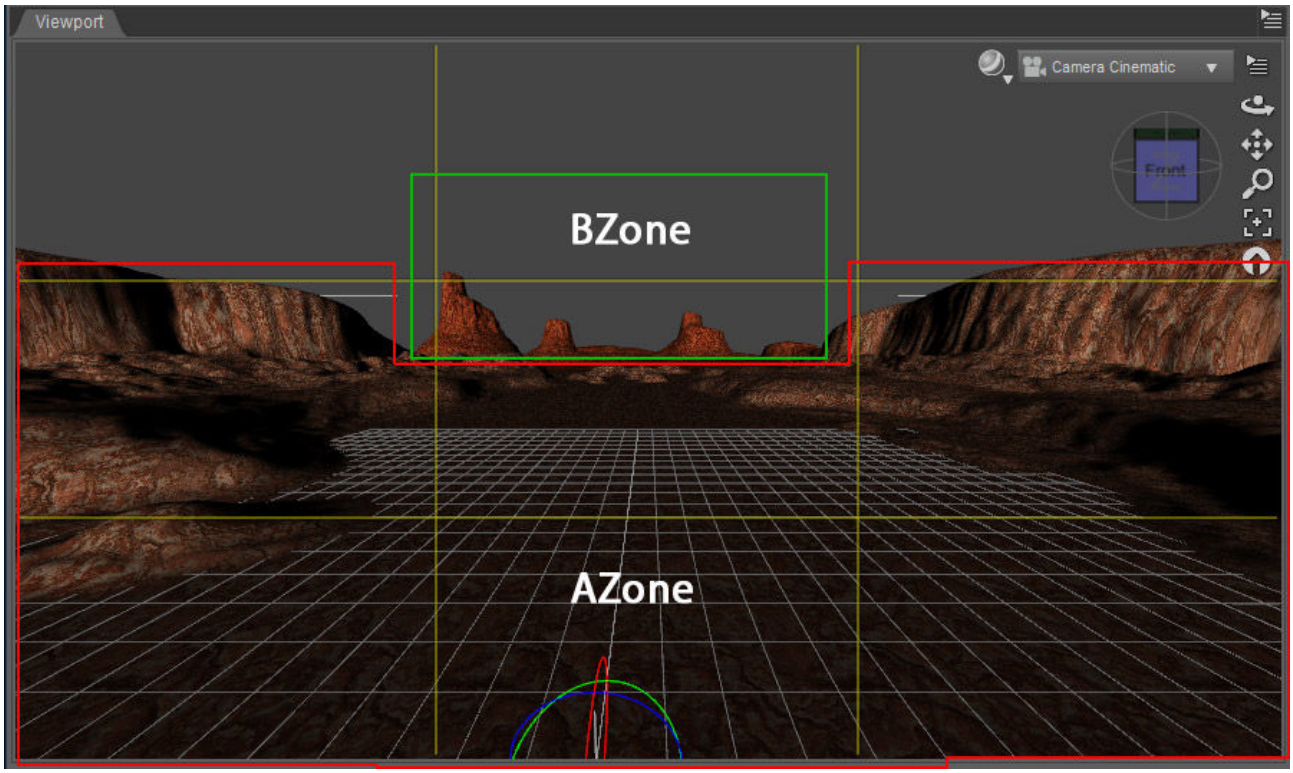

Image: AZone and BZone
Artistic Images Showing the A Zone, B Zone, and the Atmosphere


TERRA
DOME
DAZ STUDIO IRAY EDITION


TERRA
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DAZ STUDIO IRAY EDITION
Phone


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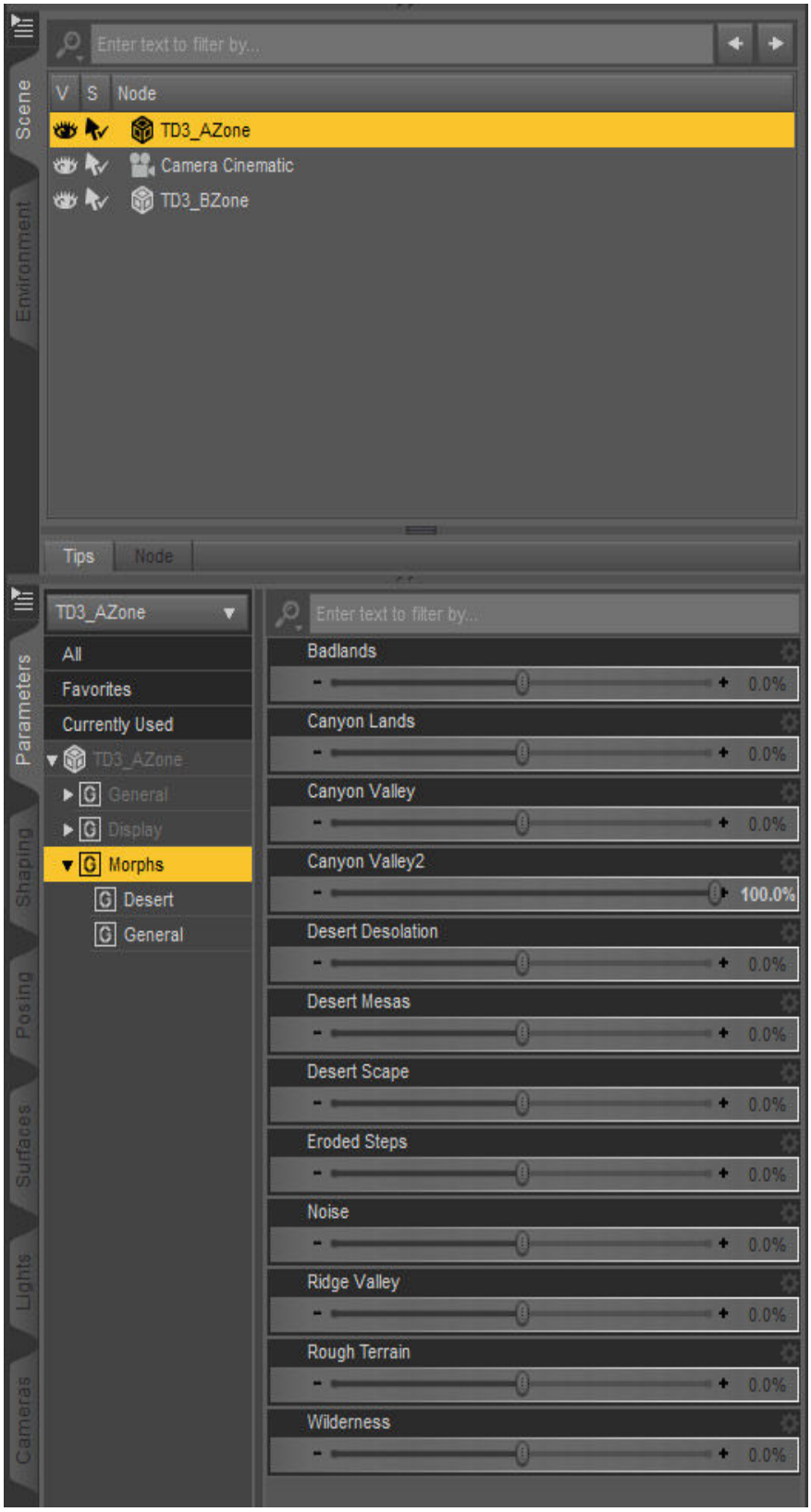
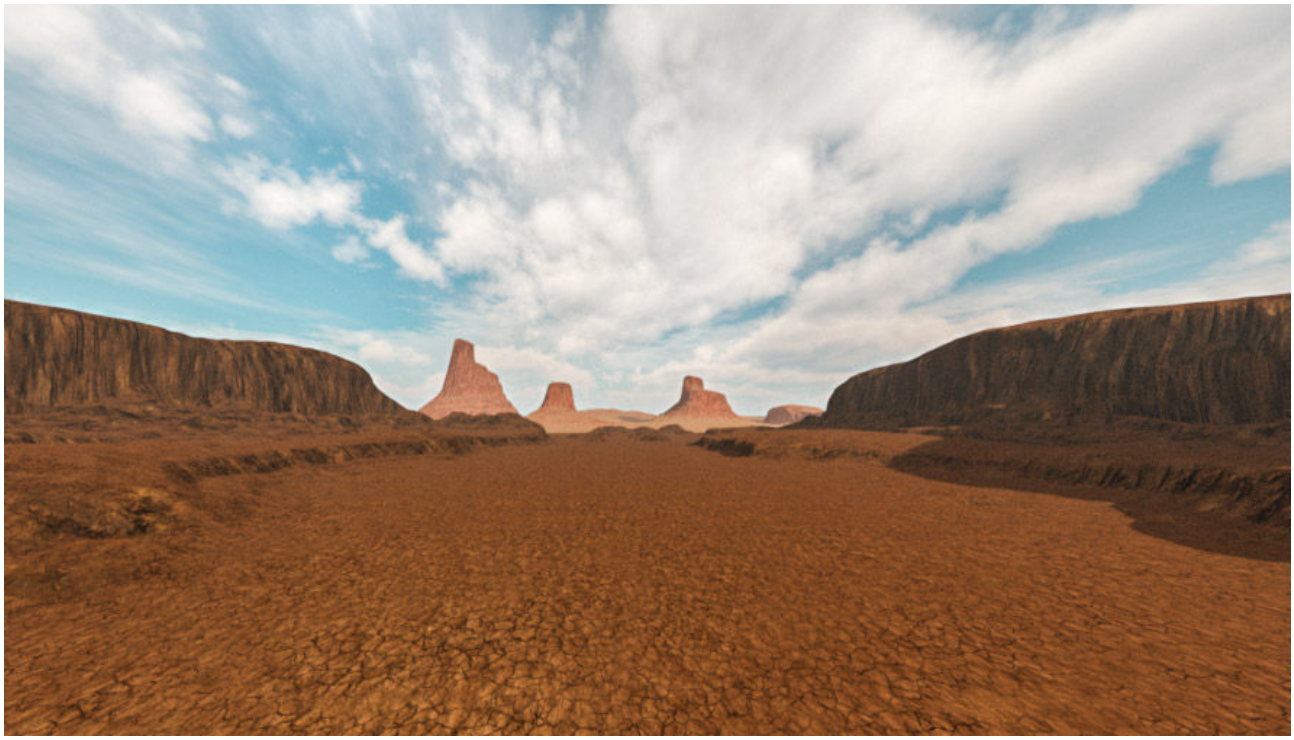


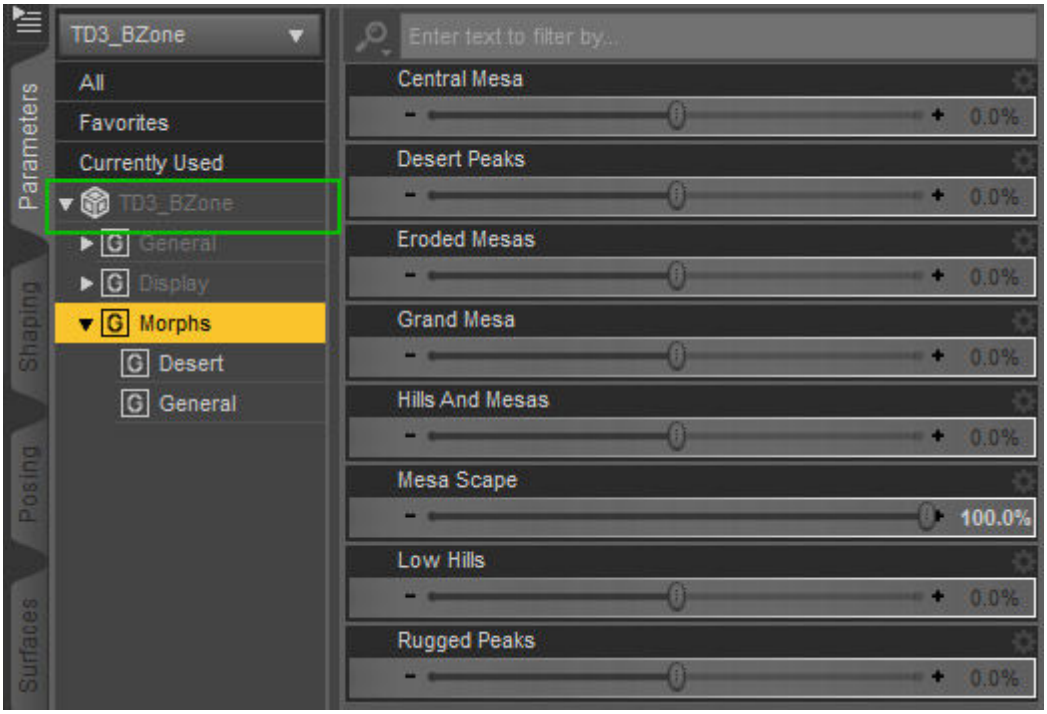
Morph Target set on Azone:

The Bzone is mainly used for background terrain features such as distant mountains, hills and mesas. This works extremely well with the built in atmosphere shader and will give a very realistic impression of distance as the Bzone terrains will be shrouded in haze or fog while the Azone terrain will be mainly clear of atmosphere.



Showing Azone and Bzone, morphed and rendered with medium haze atmosphere.

The Bzone can also be rotated 360 degrees allowing the background terrains to be placed in the desired position.



Morph Target set on Bzone.

Material Presets & Shaders:

Shader presets have been pre-applied to the Azone, Bzone, Atmosphere, and Water – this means that all of the Material Presets found in Environments/TerraDome 3/Materials can be applied by selecting the element from the hierarchy and applying it. You do not need to apply these in the Shader tab. As long at you have it selected, it will apply.

Terrain Shaders:

These work on both the A and the B Zones. TerraDome3 terrains use a complex shader system that allows two sets of textures (Diffuse, Spec, Bump, Normal, and Displacement) to be mixed together based on the geometry of the terrain. There are a large number of presets available in this package, and in the "Advanced Guide" below we will get into those shaders a little deeper.

Water Shaders:

Again, the Water base shader is a complex shader that has been pre-applied to the water geometry. There are two types of presets – Reflective and Refractive..... Reflective is "Fake" water – best for large scenes where you don't need to see into the water. It renders a lot quicker, and has a realistic look despite the lack of transparency.

The Refractive water is true water, we have done our best to work in all of the features of realistic water into this shader.

Both shaders use a "Generated Bump" option that is better then a bump or normal map – again this is something better saved for the Advanced guide sections.

Atmosphere Shaders:

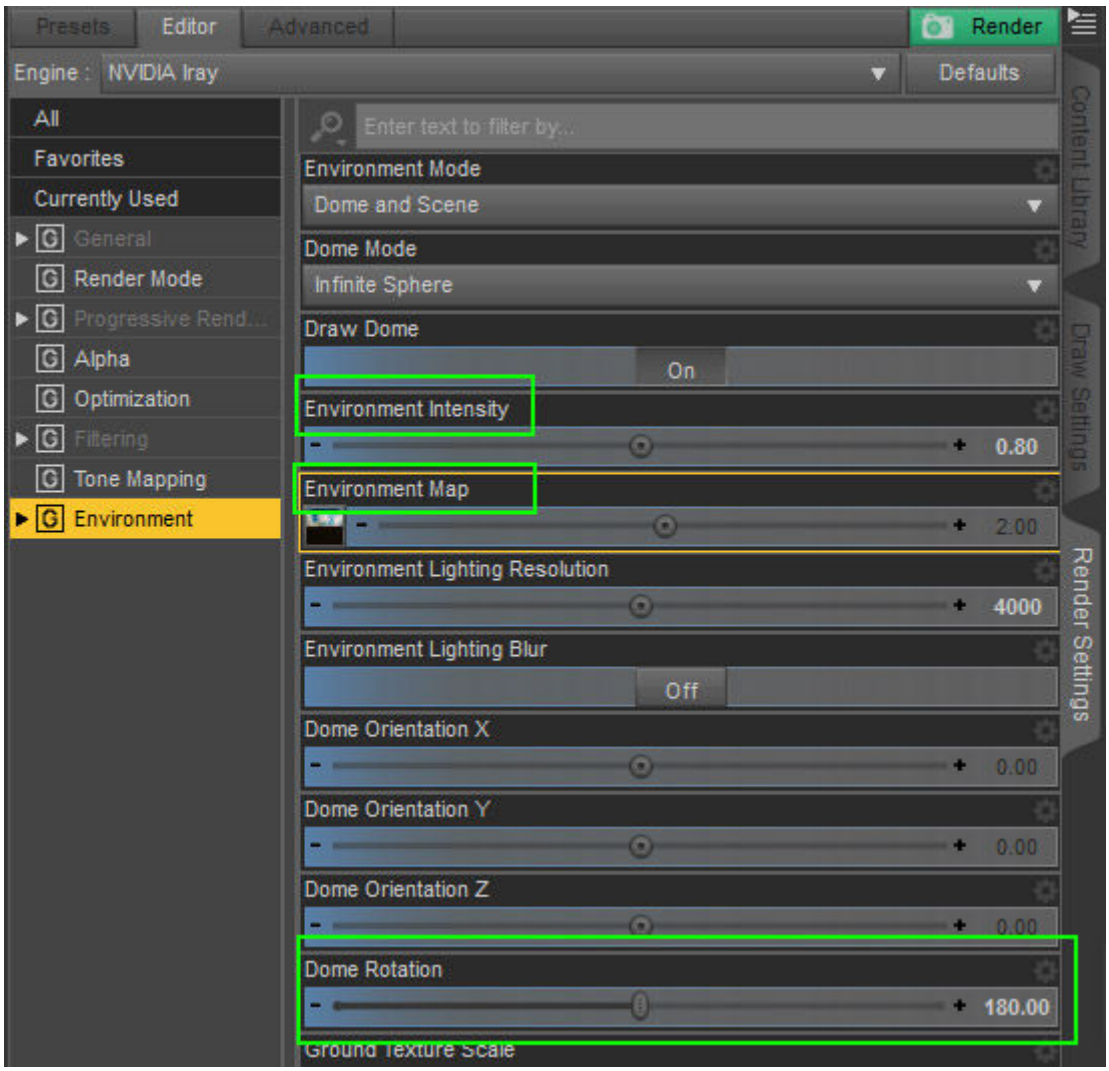
The base is preloaded on the Atmosphere geometry, you just apply the material preset that you want to use on the Atmosphere. We have included a number of realistic and fantasy/sci-fi options in there. This shader has been stripped down the just the basics for atmosphere..

HDR Environment Skies.

There are 8 skies included in TerraDome 3. Each sky loads the complete HDR environment. After loading the HDR sky it is important to correctly set the Dome Rotation dial in the Render Settings/Environment tab to the desired position. The dial will rotate the sky environment through 360 degrees.

Rotating the dome between 80-250 degrees in most cases will give you bright sunlight with harder shadows. Outside of that range will give you much softer diffuse ambient light.

The Environment Intensity dial can be used in small increments to increase/decrease the light intensity. However setting it too high can result in a 'blown out' sky. Between 0.80 and 1.20 seems to be the ideal range. The 'Environment Map' dial can work in a similar way between 2.00 and 2.20.



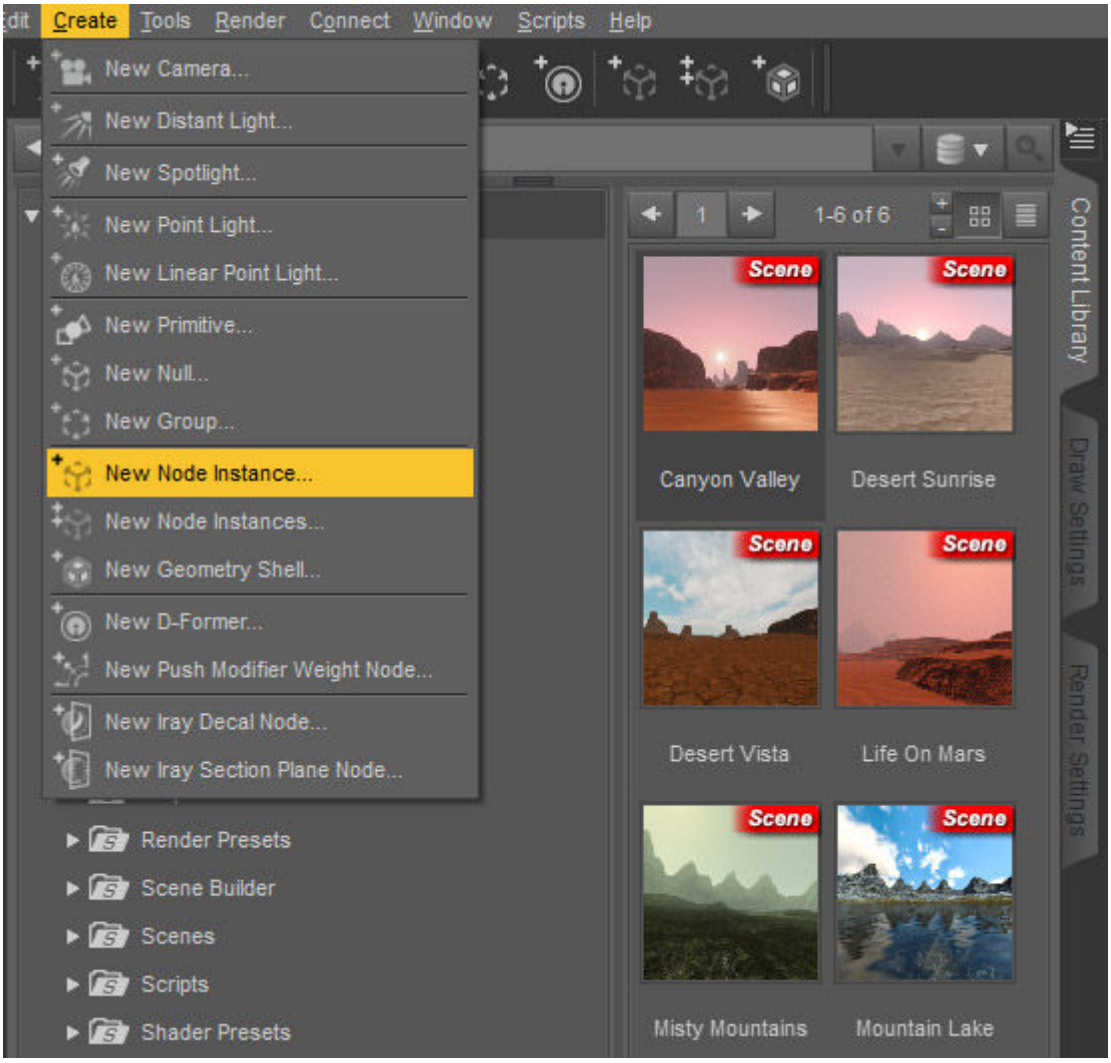
Setting the Environment Intensity.

Cameras.

There are 10 Camera presets that are aimed from roughly the center of the scene. These range from a standard head camera and body camera for figure close-ups to ultra wide angle cameras. Be aware that in any of the wide angle cameras, placing figures close to the camera itself will cause distortion just like with a real camera and wide angle lens.

Scenes.

There are ten preset scenes. All scenes are ready to render and you can customize them to your own needs and preferences. At least one on the scenes, 'Canyon Valley' has two instances of the Bzone included. These are copies of the Bzone that are placed behind the main Bzone to give more detail and distance to the render.



TERRADOME TIPS & TRICKS

Previewing your Scene: Because there are no lights used in TerraDome3 scenes, unless you add them yourself – the scene will preview dark or black in the Texture Shaded Draw Style. We use **Hidden line mode** to work with the scene until we are ready to render. This gives you a clean grid view that is not as jumbled as the other wire frame and mesh views.

The Preview Light: If you don't want to change over to Hidden Line mode, we have

included a Preview Light that will allow you to work in Texture Shaded mode. This is to be turned off or hidden when you render! It is not a representation of the lighting in the scene, it is mearly a tool so that you can see what you are doing.

Location Location Location

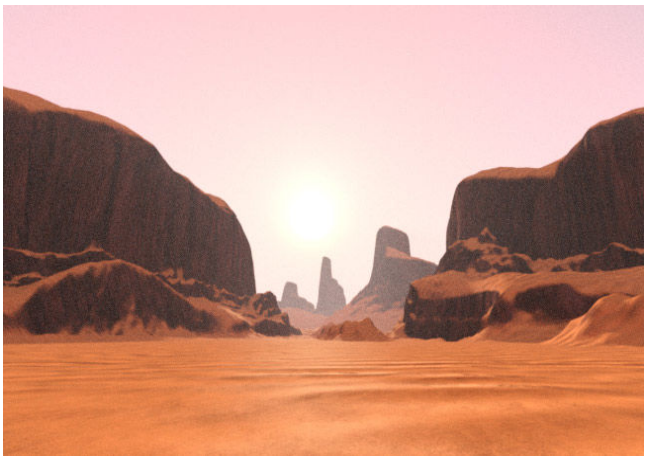
Remember that you have the freedom in TerraDome3 to move terrains, water, and atmosphere about! Because you are not locked under a sky dome – you can scale, move, and rotate things to your hearts content! Want a mountain taller? Scale the Zone on the Y. Want to raise or lower the water level? Y Translate it. In this edition you have more freedom then ever before on where you use the Terrain pieces.

EIA's

Adjusting the Intensity of the sunlight with 'Environment Intensity Adjusters (EIA). Included in TerraDome 3 are a set of EIA's that will effectively brighten or darken the sunlight that is projected from the HDR sky. Not all skin shaders and textures are the same, so the sunlight may need to be adjusted to compensate for darker or lighter skin characters.

The EIA's are especially useful when using atmosphere in your scenes. The generated atmosphere in TerraDome 3 will block a certain amount of light from the sun. The more atmosphere you use the darker your scene will render. Depending on the thickness of your atmosphere you may want to use an EIA pre-set that is much higher than the default setting of 1.0. The EIA pre-sets range form 0.5 (Dark) to 3.0 (Very bright). The range between 1.5 and 3.0 is usually sufficient to give enough gain in the sunlight when **using an atmosphere.** These values when using the atmosphere will also diffuse the sunlight, making the edge of the sun disk much softer which would be more desirable in renders where the sun is visible. If you see a sharp edge to the disk of the sun start by using an EIA of 1.5. If that is not enough use a higher EIA pre-set until the disc of the sun softens and diffuses. A general rule of thumb is the thinner atmospheres will require around 1.5 and the very thick atmospheres will require as high as 3.0.

BEFORE (Harsh Line in Sun)



AFTER (More Diffuse Blend)

Instances.

To create a new instance of the Bzone (Or Azone!). Make sure that the Bzone is selected in the Scene tab. In the 'Create' menu select 'New Node Instance'. In the dialogue window give the instance a name and click 'Accept'. The instance will now be in your scene tab. Use the translate/rotate/scale dials in the 'Parameters' tab to position the new instance. You can not change the morph target of the instance. Because of the way Daz Studio works, these instances don't take up any additional resources in your scene, so with clever use of Instances you could extend your scene as far as you want to! Combine that with the “infinity” of the HDR sky dome, you really have a huge space to create in!

Real Time Rendering & Subdivision

Real time rendering with an Nvidia graphics card is possible in TerraDome 3. However due to the large mesh sizes, morph targets, large textures and environment skies you may find that moving and posing of items may be slow depending on how much you have in your scene. It is best to avoid any Sub Division rendering until you are ready for the final render.

Subdivision: Not just a place in the Suburbs...

You have probably heard the term before, but you may not understand what is happening “under the hood” when you use subdivision..... Well it's pretty simple. Basically the program you are using takes the mesh you are subdividing and turns each polygon into 4. Now it uses mathematical magic and formulas to get this done, but the basic premise is that FOR EACH LEVEL of subdivision you are taking the original polygon count and multiplying it by 4....

So lets say we have a mesh with 100,000 Polys

0 Subdivision = 100.000

1 Subdivision = 400,000

2 Subdivisions – 1,600,000

3 Subdivisions = 6,400,000

4 Subdivisions = 25,6000.000

See where it can get crazy quickly! All of this mesh is internally generated, and that means memory – either from your system or GPU.....

Please.... Subdivide Responsibly ;)

Why we bring this up is because Iray's displacement features are driven by subdivision. While for the most part the terrains and textures don't need the displacement, we have included displacement maps preloaded into every material. There are also utility materials to turn these features on and off, as well as tweak values for them. Just keep in mind when using them, that all of these elements combine into the memory load of a scene, and can at the very worse cause a crash. While you have to push the scene pretty far for that to happen , this will depend on what graphics card you have, how your system is set up, etc.

General Rendering Tips:

Most of us are used to rendering images from a portrait point of view, in many ways that is what Daz Studio was designed to do best. Does that mean we can't to landscape images or wide angle images? Not at all! It just means we have to change our perspective a bit when approaching setting up scenes with the TerraDome3.

"Unflatness": Flatness is the enemy! So what does that mean? Well the entire TD3 system, and especially it's Shader base is designed to not be flat. Although it starts out that way, it's not how it wants to be - or how it looks best. The key to making a convincing landscape is breaking up the visual lines in the terrain. When you look at a terrain in the real world, or look at a photograph, notice that there is very little of the terrain that you are looking at "Head on" or where your eyes are seeing the terrain at a 90 degree angle. Most of what you are seeing are "Glancing" views of the terrain:

The stick guy is your camera. Now the lines are the lines of sight. See how little of the terrain is 90 degrees to the eye? And most of these places will be using the "Side" texture - which are designed to be viewed that way. Most of the time you are getting a more "Compressed" view of the textures. As you tilt a plane with a tiled texture away from 90 degrees, you are effectively "compressing" the texture on the vertical (Well the "V" in UV) Your eye is seeing more texture in less space. SO what does that have to do with rendering, LOL Well all of this goes into the understanding of how to make things look more realistic in renders.

Layering: Ever notice in an old school cartoons that the landscape seems to have three layers to it... there is the Foreground, the Mid ground, and the Background - These three layers were put on three different clear sheets so that as the action moved, the three move at different rates - This gives the added illusion of depth. This is a trick you can easily use to add depth to your scene. Push back deeper into the scene with your terrain. Scale things up and move them back on the Z - there is no restriction of a DOME any more - there really is no limit now other then what your machine can handle (See instances) Your central area should turn into hills, which should layer into mountains, or other BZone shapes. The further into the scene that you can see, the more epic and realistic it gets!

Instancing: I cannot say how important this has become in using TD3! For the cost of very little resounces you get a second copy of the terrain you have dialed! Now while you cannot change the morphs to materials independently of the main terrain, you can scale, move, rotate, etc. I love making the instance smaller, scaling it on the Y, and using that to add detail to the scene. Once you have the "Detail" Instance, you can duplicate the instance and keep adding detail. Any time you can break up flatness of the overall scene, you are adding to the Depth and detail of the scene.

Noise Morphs: If you have a flat landscape, you can use the included Noise Morphs to "Rough it up a little" - You can also use the other morphs at low values to add more smaller features.

Tiling Values: Any time you need to adjust the scale of the texture tiles, you need to work with the Tiling Set. Traveler's General Rule of Tiling is: The further away you are from a terrain, the SMALLER the tile numbers (Visually - The textures are larger) The closer you are to a terrain, the LARGER the tile numbers. This can be difficult if your entire scene is one terrain or one and instances - so what can you do? Well in that case you can make an instance, scale it down to say 20% or less and use that as the "Stage" of your scene. As you scale the terrain down, you are effectively making the textures finer.

Aerial Shot Tiling: This is perhaps the most difficult tiling to control. TerraDome3 and really any Terrain system that is not procedural is built around using Tiled textures. There is no escaping it. No matter how perfect a texture is, tiled elements can show up. If you are at an angle where you are looking at a wide swatch of a flat terrain, you will no doubt notice tiling, repetitive elements. If you are doing a normal landscape shot, you wouldn't notice these as much because you are looking at the majority of the textures at a "Glancing" or side on view - this along with morphs and normal mapping helps break up any flatness and noticeable tiling. When you are up in the air, looking down - you have a lot less tricks you can use... BUT that doesn't mean you can't do something about it... Try changing the tile values to set them smaller, and making the textures larger. Noise morphs can help break up flat planes, and like I have mentioned above you can also set some of the other morphs at lower values to break up the flatness.

Re-Centering Your Camera:

This is a handy trick that I found while working on promotional images - so you have set up your scene and you are ready to add figures, props, etc. But when you bring one in.... they are LOST! Well this is probably because in your quest for an awesome view inside your scene, you have moved the camera way off the center load point. Instead of having to move everything into view do this:

-Parent all elements in your scene to the camera.
-Go to the Parameters or Camera Tab and set the Transforms all to 0. As long as you don't mess with the rotations, your lighting will remain the same, and now.... your scene & camera is centered! If you need to adjust your camera.... just un-parent everything.

Appendix 1:

ADVANCED SHADER GUIDE

Presets are cool, but what if you want to “get in there and muck about” ? Well you can! Below we will go though every setting on the three base shaders and tell you what they do. From there you can try your own maps, or just create new mixes with the base TerraDome 3 textures.

The Terrain Shader:

TerraDome Terrain shaders have always been the core of the system – it's one of the things that makes it unique, The DS Iray version is no different. The Terrain shader has been built from scratch to allow for a complex blending of two terrain texture sets based on the geometry of the terrain. So what does that mean? One common “look” for terrain is to have say grass on the “top” flat spaces, and dirt or rock on the areas that would be considered “sides” - Well with a standard uber shader, that would require special maps designed specifically for the morphs, and well.... just be a hassle... We have coded a shader that will do this blending style all on it's own.

Not only does this do this for the Diffuse maps, but every map required for a PRB surface! Add into that, a “Tile Breaker” system to lessen the repetitiveness of tiled textures, A global normal map that adds further diversity of the look, Displacements, and a whole host of user driven settings – this is the best Terrain Shader system made for Daz Studio Iray to date.

The Best Part..... you never have to go into the shader mixer. Like all DS shaders, you have a panel of options that are easy to change, mix, and save to use over and over again.

Settings and Values:

Base Color A (Sides) – The “A” set controls the texture/maps/effects for the sides of the terrain, This is the base/diffuse color and or map for the sides.
Base Color B (Top) – The “B” set controls the texture/maps/effects for the top of the terrain. This is the base/diffuse color and or map for the top.

Hard Edge Blend: On/Off On is the default. This gives you a sharpish edged blend at the border between the two material sets. Off is a very soft blend between the two.

Blend Settings:
Blend Min/Max
Blend Border Falloff (Hard only)
Blend Shift (Hard only)
Blend Shift Adjust

This block controls the blend between A and B. Min Max should generally be left at 0 and 1. You can get some neat effects by shifting the values one side or the other. Border-falloff is for making the hard edge blend a little softer of a transition. Though to see an effect you need to start at around 0.8. Blend shift allows “shifting” or weighting of one material or the other. 0.85 is default. Lower values will make the sides stronger over the top materials. Blend shift adjust is a finer tuned control of the same effect for both hard and soft blends. Negative values shift the material towards the A set, and positive values shift towards the B set. This

can be VERY useful when using a global normal or soft edges to restore balance between the two texture sets.

Glossy Settings:

Glossy Color
Glossy Weight
Glossy Color Effect
Glossy Specular

There are settings for the A and B sets so you can have two different specular profiles of each of the two materials of the terrain.

Bump/Normal/Displacement Settings:

Base Bump
Normal Map
Global Normals
Global Normal Tiling
Displacement Strength
Min-Max Displacement
SubD Displacement Level

This block controls the various bump, normal, and displacement options for the terrain shader. Most of this is pretty standard.

Global Normals – This is a feature specific to this shader. This is a normal map that gets applied over the entire surface. Unlike the A and B normal maps – this normal map DOES effect the blending – so this is very useful for adding a massive amount of detail and also helps break up the hard edges of the raw blend.

It has it's own tiling number, so you can make it as large or as fine as you like. (Larger number in tiling = smaller details)

Displacement: As mentioned above in the Sub-D section, you will want to be a little careful when using displacement. Unlike other non-pbr engines, Iray and PBR type engines require mesh and subdivision to do displacement. So in other words, Iray won't make mesh to displace, it will only use what is there or values you set to Sub-D.

We suggest not going above 3 for the Disp Sub-D level,. With 2 being optimal.

Tiling Settings:

A Tiles
A Tiles Offset
B Tiles
B Tiles Offset
Tile Offset Shift
Tile Mix Levels
Tile Mix Upper Threshold

Tile Mix Lower Threshold
Tile Mix Scale

This block has to do with the Tiling of the A & B as well as control the Tile-breaking feature. A and B tiles controls the tiling for the A and B material sets. These are separate, so you have more control over the scale of the texture sets – Higher values here = more tiling and smaller details.

A & B Offset is the tiling for the Tile Breaker. These should be around 5 higher or lower then the A&B sets.

Tile-offset shift is best at 0.5 – this controls the offset of the shifted tile-breaker set.

The Tile Mix set controls the way the Tile Breaker works. For the most part these have been fine tuned for the optimal results.

The Water Shader:

Like the Terrain Shader, the Water Base has been custom crafted to take full advantage of the realism that Iray has to offer. With the one base, you can have reflective water, true refractive water, you can use the internal Generated Bump system, Mapped bump and or normals, and even displacement!

On the surface, the water shader looks the most complex. This is because we have left the options for both reflective and refractive water available in the shader.

Settings and Values:

Reflective Water: This is a water like solid surface. It renders faster if you are in a situation where you don't need to see into the water. If you don't need to see something below the water in your render, then Reflective is your best bet.

Refractive Water: This is a true water volume, it has all of the real world features of water (Including occlusion at depths) It does take longer to render, but is a more realistic representation of water bodies.

Base Color: This should be kept in a dark range, it controls everything you see “underneath” the reflection. It has an effect on both reflective and refractive waters, but is more noticeable in the reflective.

Glossy Settings:

Glossy Weight
Glossy Color
Glossy Color Effect
Glossy Roughness
Glossy Anisotropy
Glossy Anisotropy Rotations

This controls part of the reflectivity of the overall look as well as the highlights from light sources. Weight can be tweaked to control the strength of the effect. Roughness controls the spread of highlights and sharpness of reflections.

Refraction Settings:

Refraction Weight
Refraction Index
Refraction Color
Refraction Roughness

This set controls the refraction element of the shader. For reflective only presets, the refractive eight should be set to 0. The default index is 1.36 which is good for lake, etc water. The refraction color should always be a very light tint of a color unless you want darker, murky water.

Mapped Bump: This is for a mapped bump map. You can use this in combination with the Generated Bump system (see below) Mapped bumps may show tile repetition in the distance. This is why we use the Generated Bump system.

Normal Map: Standard Normal Map Channel, can be used in combination with the Mapped Bump or Generated Bump for extra layers of detail.

Mapped Tiling: At the bottom of the shader panel. This controls the tiles for the mapped bump and normal. The Displacement map has it's own control.

Generated Bump Settings:

The Generated Bump system uses a 3D noise to generate bumps on the surface of the water. This has advantages over the mapped bump or normals in that you don't get the same repetitive look that you can get with mapped bumps, etc. The Generated Bump system in the water shader has two elements – a “High” and a “Low” - this will give you areas of calmer water over the entire surface. (Like real late/pond water)

GB Strength
GB Upper Threshold
GB Lower Threshold
GB Tiling
GB Levels
GB Billowing Appearance

Generated Bump (Low Spot) Settings:

GB Low Strength
GBL Upper Threshold
GBL Lower Threshold
GBL Tiling
GBL Billowing Appearance

GB and GBL Strength controls the strength or the height of the bump. If you use the same

value for both, you will get an evenly bumpy surface.

Upper and Lower Thresholds – These control the range of black to white in the bump if it was a mapped bump. Lower Thresholds control the "Valleys" in the bump, and the Upper controls the "Peaks"

GB and GBL Tiling – This controls the scale of the overall effect. Lower values = larger bumps. The GB Tiling should carry a lower value in the first slot over the other two – this gives you the wide wave forms. GBL can be whatever values you like. For both of these inputs the first space controls the X width, the second the Y, and the third the Z.

Billowing Appearance: Changes the noise to a cloudier pattern.

GB Levels: Controls the level of detail in the Generated Bump. Lower values means a smoother less detailed bump effect.

Top Coat Settings:

Top Coat Weight
Top Coat Color
Top Coat IOR (Index of Refraction)
Top Coat Roughness
Top Coat Reflectivity

The Top Coat is a second element of Reflectivity. This is set up on a Fresnel base, so you also get an IOR to effect reflections in a more natural way.

Thin Walled: Must be turned off for Refractive or Volumetric water.
Cutout Opacity: This can be used with Reflective water to be able to see into it. Suggested values would be 0.8 to 0.99

Displacement Settings:

Displacement Strength
Disp Tiles
Max Displacement
Sub-D Displacement Level

These control the displacement. Because the water is a lower density mesh then the terrains, you will need to use a Sub-D level on the water of at least 3-4 to get a smooth effect. We have included a number of maps for different displacements in the package.

Atmosphere Shader:

The Atmosphere shader is a custom version of the Uber shader – in that all of the non pertinent dials and settings have been hidden. We have also set up a useful range of values for all of the settings so that you get an atmospheric effect.

Settings and Values:

Backlighting Weight and Color – This is the Translucency set from the Uber shader. This only applies when light is shining through the volume. It is recommended that you keep these values at default.

Atmosphere Color: This is the primary color control. Do any of your tinting or coloring here.

Thinness: This is the SSS distances from the Uber. Lower values (to 0.001) are thickest, while values that are higher are thinner.

Particle Color: This is suggested to be lestat white. If you do choose to put a color in here use VERY light colors, anything darker will make the scene go very dark.

Particle Size: SSS Strength from the Uber. These should always be very small numbers, but the larger the value the heavier and noisier the effect will be.

Heaviness Modifier: If you get too heavy a fog, you can use a value like 0.95-0.99 here to lessen the effect.

Thank You for Purchasing TerraDome3!
Traveler, Colm, and Daz3D