

# Painting QTVR Panoramas with Nozzles

I really like painting QTVR panoramas. They are lots of fun and you can paint them pretty fast. All you need is a paint application with a sprayer tool and some good nozzles. Throw in your favorite terrain modeler and you've got the potential of something unique.

Most people think QTVR is for photography or 3D technology alone. In fact, the Apple site refers to QTVR purely within this context. Yet I find it equally adaptable to the digital art. In fact, painting QTVR panoramas is really simple if you're using Jungle Bundle nozzles.

When it comes to paint applications, Painter has the ability to wrap a brush stroke. That means it can paint as though you are painting on a cylinder rather than a rectangle which has a distinct left and right edge. To use this "wrapping" or "tiling" brush stroke feature, you simply choose Define Pattern and paint away. The brush stroke wraps from one edge to the other seamlessly.

Here's why the ability to wrap a brush stroke gives Painter the edge. QTVR panoramas work on essentially the same principal. With QTVR, however, the left and right edges are "stitched" together. This converts the rectangular image to a cylinder. Still, the two edges have to match "seamlessly." Otherwise, you'll see the seam and that destroys the illusion. So if the trick to QTVR is getting the right and left edges of the image to merge seamlessly, then having the ability to paint seamless edges is a great benefit.

Using Jungle Bundle nozzles to paint a QTVR panorama has obvious advantages as well. You're painting with coordinated images rather than simple line or color. That makes foliage nozzles perfect for hiding the seam. And it doesn't matter if the background is photographic or simply a bad 3D render. But that's a simple touch-up thing. The more provocative approach uses a terrain modeler to create a panoramic background. Then you can use nozzles to paint the foliage that completes the scene.

You don't have to use a terrain modeler like Bryce or World Builder. You can use nozzles all by themselves as I did with Marsh (right). Whichever you choose, you still have to end up with an image that has seamless edges and the correct proportions. That means an image whose width is divisible by 96 and whose height is divisible by 4. The preferred aspect ratio is 13 x 4.

Bryce can create a seamless background with the correct proportions done for you. All you need do is apply correct settings for your render, then place the camera somewhere within the scene. The camera has to have a 360 degree range of view, however. Otherwise the application can't create a seamless edge.

Unfortunately, I've found it's more difficult or time consuming to compose using that kind of camera position. The alternative is to choose the simpler "Panorama" setting. This setting lets you keep all of your landscape in front of the camera, within your field of view. The downside is that you'll have to make the left and right edge merge at some point. The upside to this downside is that nozzles and a tiling brush make the merger relatively easy.



## *Making Layers,*

The background terrain in Mescalero Country was rendered in Bryce using the Panorama setting. I wanted something for the web so the render size was set to only 960 x 292 pixels. Once I had the terrain rendered, I did a second mask render so I could convert the



terrain into a layer. Most 3D modelers can render a mask far more quickly and precisely than using a selection too. It's a very quick and precise way to create a mask of the terrain. The mask, in turn, lets you convert the terrain to a layer. That lets you use cloud nozzles on the sky without having to worry about overspray.

Though Painter will work too, I used Photoshop to make the terrain a layer. That's because PS let me open the mask file and drag the channel into the terrain file without having to worry about positioning.



Once you have a terrain layer, make a duplicate. It's important to have two, identical terrain layers because the second layer serves as a clean backup. You'll be using it later, and more than once. If you use Photoshop, then save the file and open it in Painter.



### *Painting a sky,*

The next step is to paint in the sky. Since you'll be working on the background, close the "eye" on one of the two terrain layers. Leave the top terrain layer's eye open so the layer remains visible. Now "deselect" both layers. Remember, it's important to deselect the terrain layers otherwise you'll be painting clouds on them instead of the background.

Leaving one terrain layer visible lets you see the horizon line as you paint. That helps you to control scale. Better yet, because the sky is behind the floater, you don't have to be conscious of vertical tiling. In other words, the only part of the tiling brush stroke that's visible is the part you want to see. Those are the strokes that tile off the left and right edges.

We'll talk more about tiling brush strokes in a minute, but first you need to "Fill" the background with a simple two-point blue sky gradation (light blue to very light blue). You have to apply the gradation from the dead vertical, top down 90 degrees angle otherwise the edges won't match. You control that angle by positioning the little dot on the wheel at the top of the gradation palette.

Here's why you use a 90 degree fill angle. The Fill tool can't make a tiling gradation without symmetry. If you're like me, you may want to vary concentration from left to right by using an angle either beyond or below 90 degrees. But, you'll have to use a cloning brush later to correct the mismatched edges.

Okay, once you've filled the background, select the Define Pattern command from the Pattern palette and load a small cloud nozzle. Start by painting below the horizon line working horizontally across the image. Make sure you begin your application above the bottom edge of the image. That keeps the small clouds from tiling into the top part of the image. Load progressively larger versions of the cloud nozzle being sure to use a "less-is-more" brush stroke. You're painting with images so brief dabs work better than long linear brush strokes.

Notice what happens when you paint off the left or right edge of the background? The nozzle continues to apply clouds on the opposite edge. It's making a seamless or tiling edge. That's what this tutorial is all about and that's why Painter works better than PhotoPaint or Paint Shop Pro when painting QTVRs.



Here's the reason for painting the sky first. You can combine the sky with the terrain on a single background. That adds both lighting and a spatial cues when you apply foliage to the terrain. Moreover, you don't want to paint foliage on a background that's different otherwise a halo will appear along the antialiased edge. This is how you avoid those nasty halos.

### *Preparing the palette,*

You want to paint onto the complete background image. That means you'll need to drop the terrain layer so it merges with the sky. Make a backup copy of the sky first, however. Mistakes happen and you don't want to retrace your steps unnecessarily. Since you already have a backup of the terrain, it only makes sense to save a copy of the sky as well.

To make the background sky a layer, make the terrain layers invisible (close the eye) and deselect them. Next, do a "Select All" (Cmd+A or Cntrl+A) and "Option or Alt+Click" on the sky using the Floater Adjuster tool. That makes the sky a layer. It also leaves the

original background sky image in place. Now move the sky layer to the bottom of the list on your Floater palette. "Group" the sky layer with the backup terrain layer. Name the group something like Land & Sky so you won't confuse them later. Close the eye and then deselect the Land & Sky group.

This layering stuff can get confusing so you better take inventory. You should have three layers in all. The original terrain layer should be at the top of the Floater List. The other two are in the Land & Sky group. The sky should still be visible as part of the original background. If everything's in order, Drop the top terrain layer so that it merges with the background sky as shown below.



My QTVR panorama was supposed to represent an arid landscape, kind of like I imagine the Mescalero Apache homeland to be. So, I needed to put in scrub trees on the background terrain. Because the terrain size is so small, you can use most any nozzle containing groups of leaves. In this case, I used a Jungle 2D nozzle named Bay Bush. Actually, I added this nozzle to my nozzle library first. That allowed me to scale the foliage to really small sizes. I think I scaled from 2% to 7% for the trees on the terrain.

Nozzle libraries also let you select the "To Selection" as the default setting for the nozzle. You do that by checking the "To Selection" checkbox before you select the "Add Nozzle to Library" command.

Making "To Selection" the default nozzle setting is really helpful. It lets you do some interesting things with nozzles. For example, you're can separate the foliage from a background and make it a layer. You could paint on a transparent layer instead, but by painting directly onto the Land & Sky image, you get a perfect match between the foliage and the background. In other words, you avoid those contrasting fringes or halos that can appear around the edge of a layer.

Here's another reason why you want "To Selection" turned on when you add the nozzle to the nozzle library. If you don't, you'll have to reselect the checkbox every time you change the Scale of the nozzle. I inevitably forget to do that and I always live to regret it. So save yourself some time and effort, make To Selection your default nozzle setting.

### *Painting foliage on terrains,*

Once you've added your nozzle to the nozzle library, paint the flora onto the terrain background. When you get something you want to keep, make the selection a layer. Then, when you're done painting the background foliage, group the layers together. I made four or five distinct layers to get the trees on right for my terrain.



If you make a painting mistake or decide you want to try again on a clean background, simply Select All and Delete. Open the Land & Sky group and make a copy. Drop the copy onto the background. You now have a clean background to work on. Just make sure to save the original backup in case you need to drop another later on. In all, I think I went through four or five Land & Sky backgrounds.



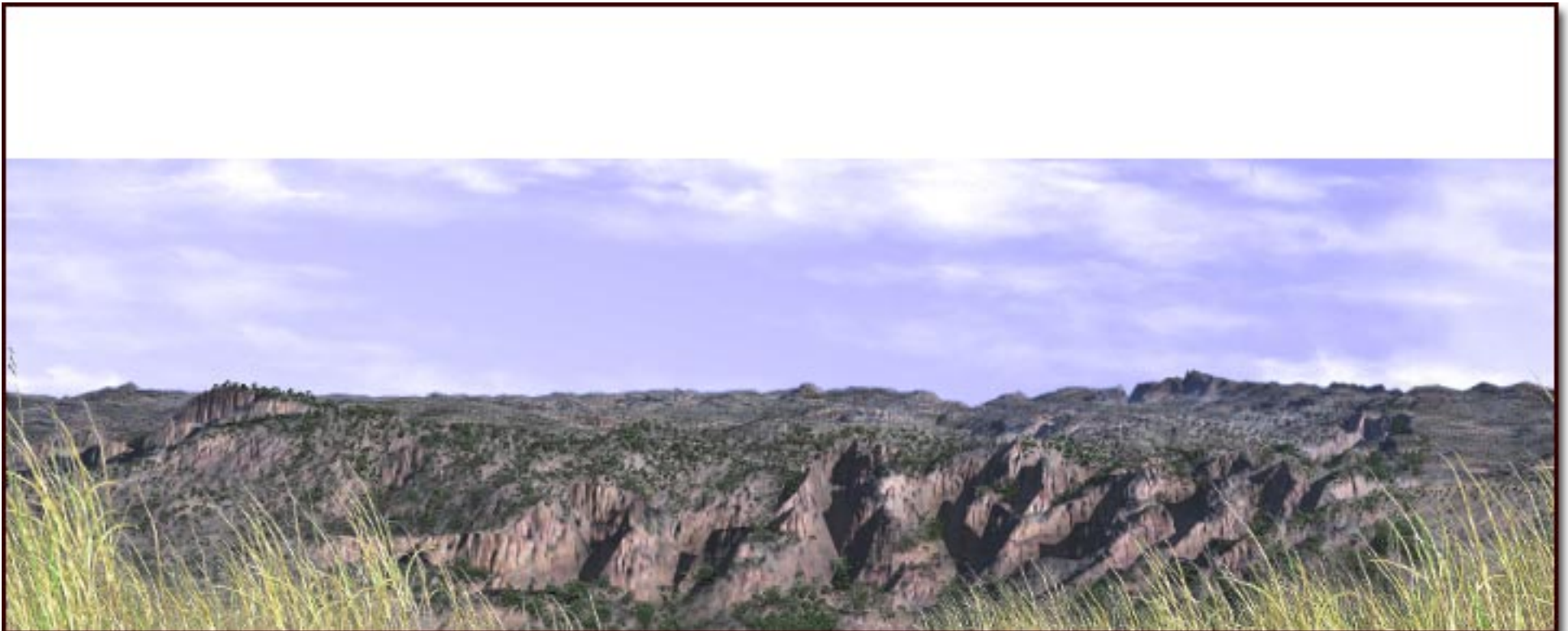
### *To Selection or not To Selection,*

Let's go back the To Selection thing for a moment. By using To Selection, you can paint onto your background image and then convert the nozzle application to a layer. That means you should be able to make a tiling layer, something Painter can't do otherwise (**Painter 6 can now tile brush strokes on a layer**). Sound interesting? It should because it has lots of value, especially for 3D modelers. Here's the how and why of making tiling layers.

Tiling layers mean you can paint foliage, make it a layer and then reposition it, in this case horizontally. Because the layer tiles, you don't have to worry about edges not matching. All you need to do is select Define Pattern, apply the nozzle and Option+Click to make the selection a layer. Remember, you can only get a tiling brush stroke when you paint onto a background image. You cannot tile a brush stroke using a transparent layer. Define Pattern doesn't work on Transparent Layers.

### *An ounce of prevention,*

All this tiling stuff is great, especially when it's works from right to left. The problem is, you also get vertical tiling. When you paint tall grass off the bottom of the image, it tiles into the sky at the top. Since the image is only 292 pixels high, painting large vertical grass off the bottom of the image creates real problems for the sky. Here's how to deal with it.



Working with the background canvas, select Canvas Size from the Canvas pull down menu and add 300 pixels to the top of the image. Now, when you spray off the bottom, the stuff coming down from the top won't go into your sky. Even if it does, you're still okay. Once you convert the grass to a layer, you can always erase the top part layer if necessary. Remember, you've still got the Land & Sky group in case you need to restore the original sky.

### *Painting the foreground,*

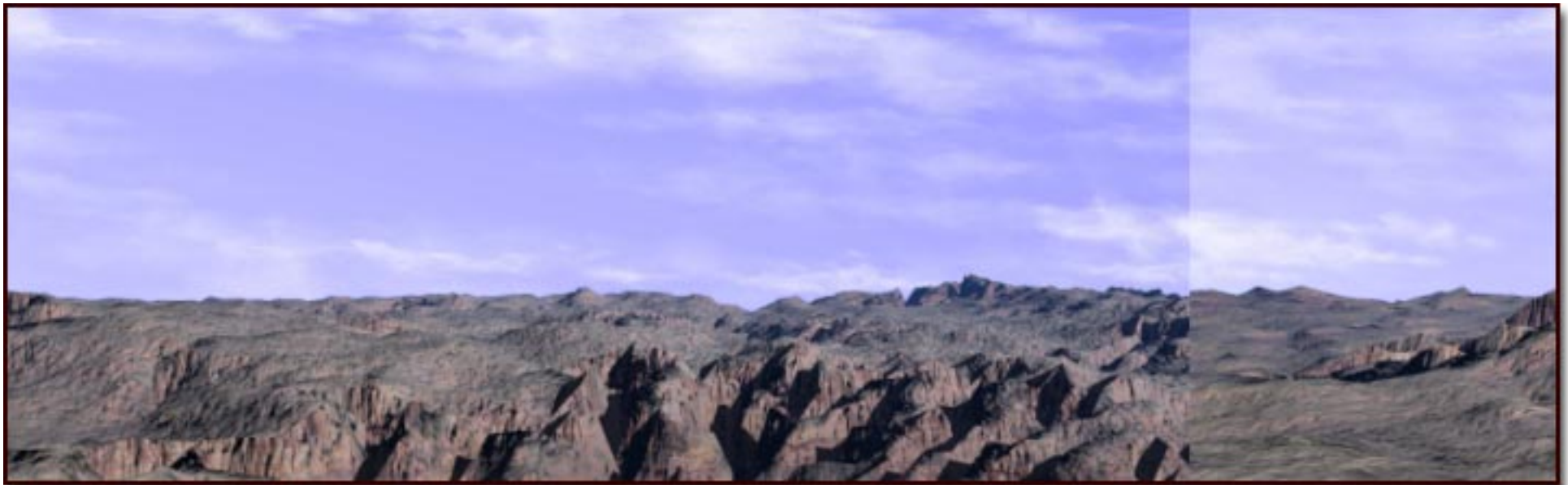
Selecting Define Pattern, I started painting in my grass. I wanted some perspective, so I started with a Scale setting near 60% and ended at 100% since that would give me the sharpest image. In other words, I worked from background to foreground making a layer for each section of perspective. I think there were three grass layers in all, not-to-large, large and pretty-darned-large. Because the background was set to tile, the grass wrapped whenever I went off the edge.



Now here's why To Selection and Define Pattern are so cool when used together. Select one of the grass layers. Now choose the Grabber tool while holding the Shift key down and move the layers to the left or right. Because you painted the grass with a tiling brush stroke, the layer tiles too. There's no horizontal seam to worry about and that means you can reposition the layer until you get the arrangement you want. You'll use this same feature to correct the terrain and sky seam below.

### *Cloning the blemishes,*

Turn off all of the other layers so they're invisible, then deselect them. Now make another copy of the Land & Sky group and drop it onto the background. Working with your new, clean background, choose the Grabber tool again. Hold the shift key down and click



and grab the background moving the image to the left until the terrain seam becomes visible. Select a Straight or Soft cloning brush. Make the tip small and lower the Opacity if you choose the Straight Cloner. Now do a Control+click (Mac) or Shift+click (Win) on a nearby area to establish your clone source. Paint away until the obvious parts of the seam are gone. Change the location of the clone source if necessary. When the worst of the seam is gone, move the terrain back into it's original position. You don't have to clone out all of the seam.

Because the grass layers tile, you could simply position them to hide the seam. In fact, you could have actually painted the terrain foliage as a tiling layer and used that to hide the terrain seam. You can also paint in a tree and use that to hide a seam. Since the tree is a layer too, you can leave the seam visible, drop the tree on it, and then move the seam back to make the tree wrap around the edge.

*Okay, about the tree,*

Here's a bit more about making a tree. Notice also that the tree is behind the grass as though growing from lower down the slope of the hill. That's because I painted only the upper half of the tree. What's more, because I was working small I was able to use the same Jungle 2D nozzle I used for the terrain foliage. The trunk and limbs also came from Jungle 2D, but leaf, trunk and limb nozzles are available with the Painting Trees tutorial, so use those if you don't have Jungle 2D or 3D. The Painting Trees tutorial will show you how to make the tree.



*You're almost done,*

Simply position your sky, terrain, grass and tree layers just the way you want them. Erase any grass that tiles into the sky. When you've got the composition you want, save a backup copy of the file in case you change your mind later. Apply any lighting, shadow or focus filters you need to create dimensional effects. For example, my terrain foliage layer had a drop shadow attached to it.

That's it. Select Drop All from the floater palette. You should have a flattened image that's 960 x 592 pixels. Use the Crop tool to remove those ugly 300 pixels from the top. The resulting dimensions should be 960 x 292 pixels. Save the file as a "pict" file.



If you're using PhotoVista, you're done. Just open the image as a "Panorama," choose your settings and Save As a QTVR Movie. Do your final movie sizing, streaming, and other adjustments using the Quicktime Player.

If you're using Apple's free "QTVR Make Panorama 2" utility, then you'll have to rotate the canvas 90 degrees counter clockwise before you save it as a Pict file. Drop the saved Pict file on the QTVR Make Panorama 2 utility and it will walk you through the conversion process. Have fun.

Painter 6 Errata: With the release of version 6, Painter now has the ability to tile brush strokes on a layer. When painting a tiling layer, first select a Layer from the Layer list menu, then choose Define Pattern from the Pattern menu.

It's my experience that the new layer carries the canvas color. That means your canvas color should be close to the color of your nozzle and somewhat darker. Otherwise, you may find the image has a halo or contrasting edge to it when the layer is positioned over a dark background.

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