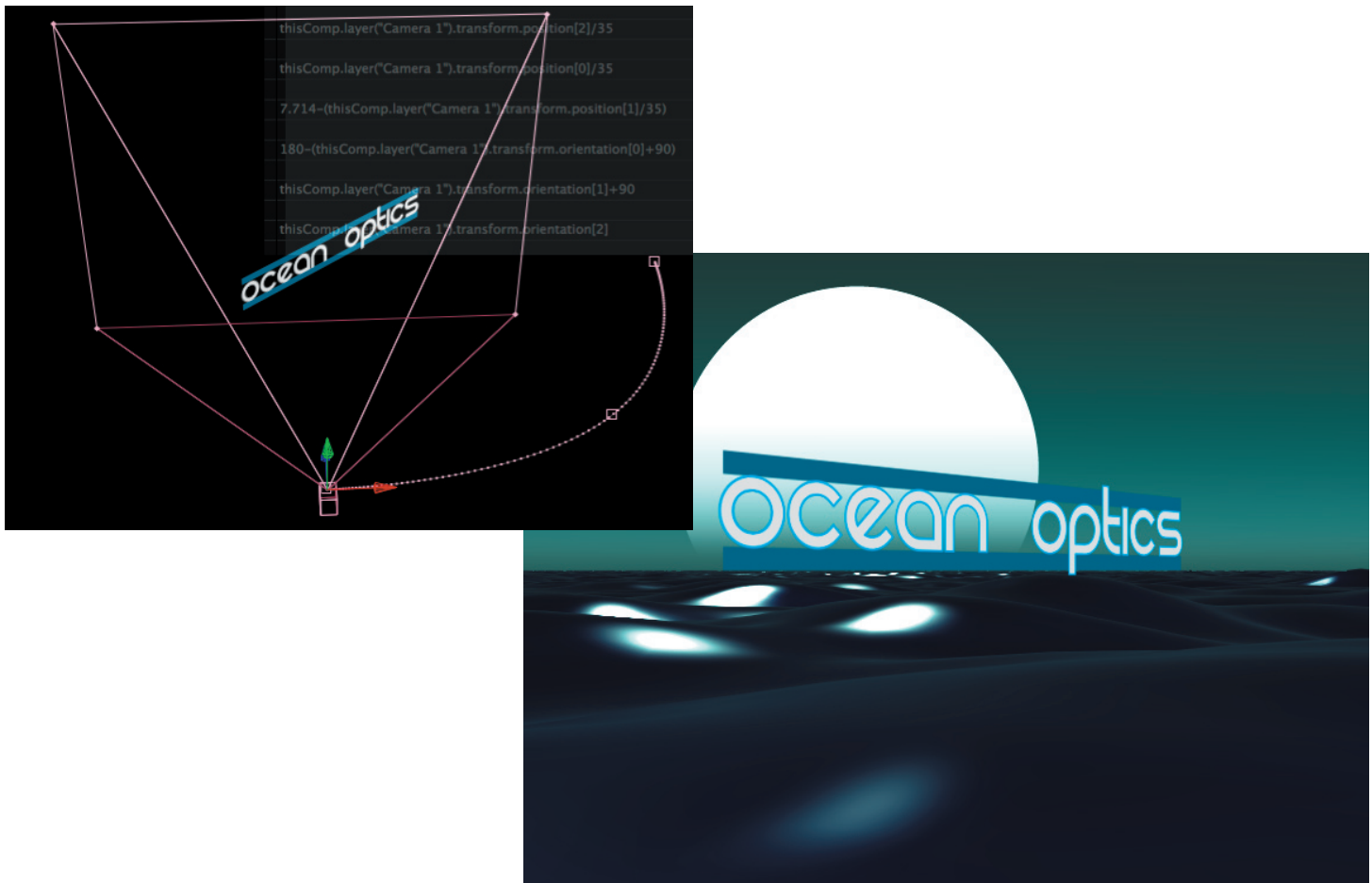




Linking the Psunami camera

Use expressions to link Psunami to a comp Camera



[from: Digital Anarchy]
f/x tools for revolutionaries

Psunami: Camera Linking

This tutorial will go over how to link the Psunami camera to an After Effects comp camera using simple expressions. This is ideal for artists who are compositing text, additional artwork, or 3D elements into the Psunami water scene and want to match the water up to an animated camera move.

step 1: create a composition

In After Effects, create a new composition. For this tutorial, we will use a 720x540 NTSC Square Pixel composition, but this can be adapted to a composition of any size.

If you are importing 3D graphics with a 3D camera move that you want to match, make certain that the After Effects composition matches your 3D scene settings, and be sure of your 3D camera's Field of View.

step 2: create a camera

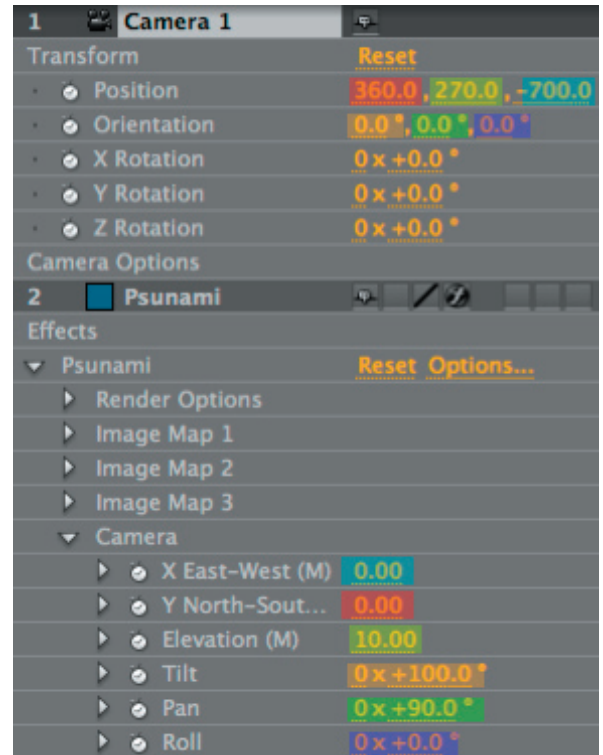
Create an After Effects camera by going to Layer> New> Camera. You can animate the camera as necessary before or after this tutorial; the linking expressions won't hinder the animation.

It's worth noting that the Psunami camera starts off relatively close to the water surface in relation to the initial central origin of After Effects' 3D space. Depending on your outcome, it might be worth raising the camera and 3D element a bit before linking. This can be handled quickly within the expression we are about to go over, but keep the idea in mind when planning your camera and scene.

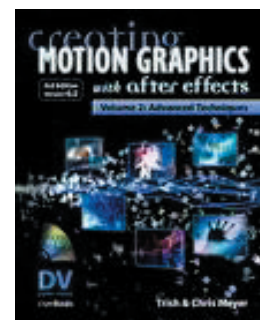
step 3: create layers, apply psunami

Create a new Solid layer by going to Layer> New> Solid. Make sure the Solid is the same size as your comp. With this layer selected in the Timeline, hit F3 to bring up the Effect Control window. Apply Psunami by going to Effect> Digital Anarchy> Psunami.

Create a 3D Text layer above the Psunami layer. Type the words 'Ocean Optics'. Make the layer 3D by clicking its 3D switch in the Timeline.



A color-coded guide for expression linking.



TIP: If you are importing 3D scene and camera data from an outside 3D app such as Maya or 3D Studio Max, check out Trish & Chris Meyer's "Creating Motion Graphics with After Effects Volume 2: Advanced Technique". This book has a great section on how to import camera data from various 3D apps.

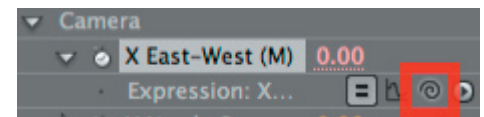
step 4: prep the palettes

Twirl down the Psunami layer in the Timeline, then twirl down the Psunami Effects. Open the Psunami Camera parameters in the Timeline. Twirl down the actual Camera layer as well, to expose its transformation information.

Now expand the Timeline window until you can see both the Psunami camera controls and the AE Camera controls at the same time. This makes the expression linking much easier. Alright, let's get to 'whipping' our parameters into shape!

step 5: pickwhip your position

Under the Psunami camera section, Option+Click (Mac) or Alt+Click (Win) on the little keyframing clock next to the X East-West parameter. A section called 'Expression: X East-West' will open directly underneath. This contains the buttons for our expressions.



Circled in red, the pickwhip button.

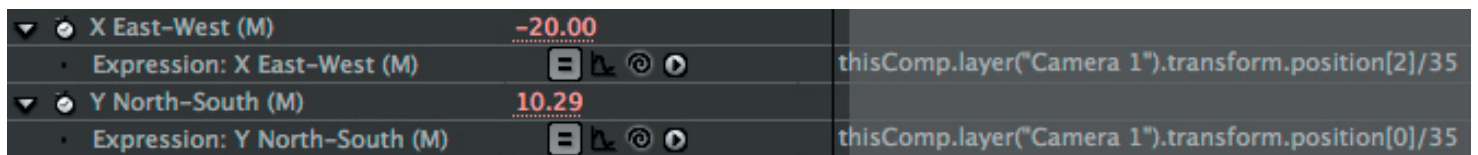
Left-click and hold down the pickwhip button (the little spiral) and drag the resulting whip line to the Position parameter for the AE Camera Z-axis. An expression will generate in the layer area of the Timeline that looks like this:

```
thisComp.layer("Camera 1").transform.position[2]
```

Once you let go of the pickwhip and this text appears, its text field should be active and ready for text entry. We need to divide all of the Position parameters by 35 in order to translate them into the Psunami camera space. You can adjust this value later if you feel that you aren't getting good results, but 35 is a good approximation to start with. Add "/35" after the recently created expression in order to divide it by 35. Your text should look like this:

```
thisComp.layer("Camera 1").transform.position[2]/35
```

Continue this process for the Y North-South and Elevation parameters. Option/Alt+Click on the keyframing clock next to Y North-South and pickwhip it to the AE Camera's X-Axis Position. Divide this by 35 as we did with the X East-West expression.

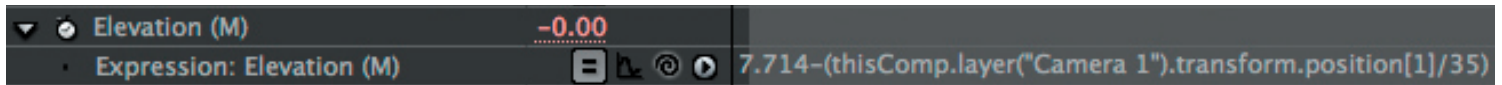


step 6: special whip for position

Now pickwhip the Elevation parameter to the AE Camera's Y-axis Position. There's a little more math to this particular expression than just dividing it by 35. In our particular comp, the expression for Elevation should look like this:

```
7.714-(thisComp.layer("Camera 1").transform.position[1]/35)
```

The 7.714 comes from dividing the height of our comp by 2, then dividing that result by 35. So $(540/2)/35$. You will need to recalculate this number and adjust the expression accordingly when using a different composition size.



Why do we need to do this? The reason is that After Effects sees '0' as being at the top of the screen, but Psunami sees '0' as being in the middle of the screen. The Psunami unit equation is: **Vertical Center of screen = (Height of Comp/2)/35**

step 7: pickwhip the rotation

'Round and 'round we go! Now that we have the Camera position linked up, we need to hook up the Rotation. Option/Alt+Click on the keyframe clock next to the Psunami Camera Tilt parameter. Pickwhip this parameter to the AE Camera X Orientation.

Tilt needs a bit of math added to the resulting expression. Add 90 to the AE Camera orientation, and subtract that result by 180. Be mindful of the parenthesis in this expression. It should look like:

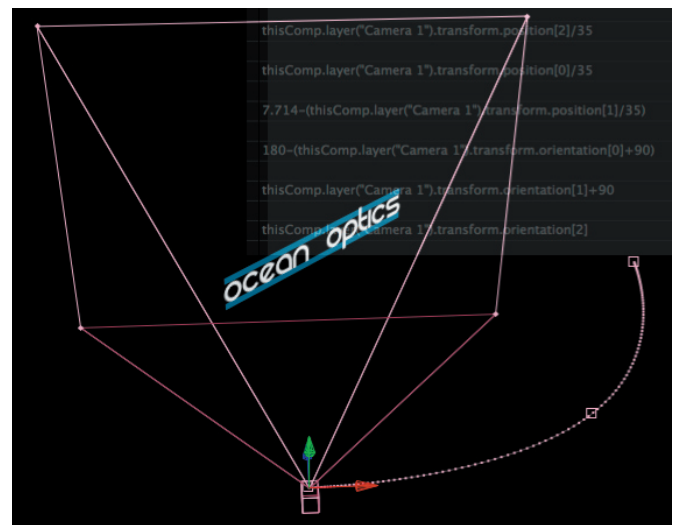
`180-(thisComp.layer("Camera 1").transform.orientation[0]+90)`

Pickwhip the Pan parameter to the AE Camera Y Orientation. This expression only needs to have 90 added to it, so it should look like:

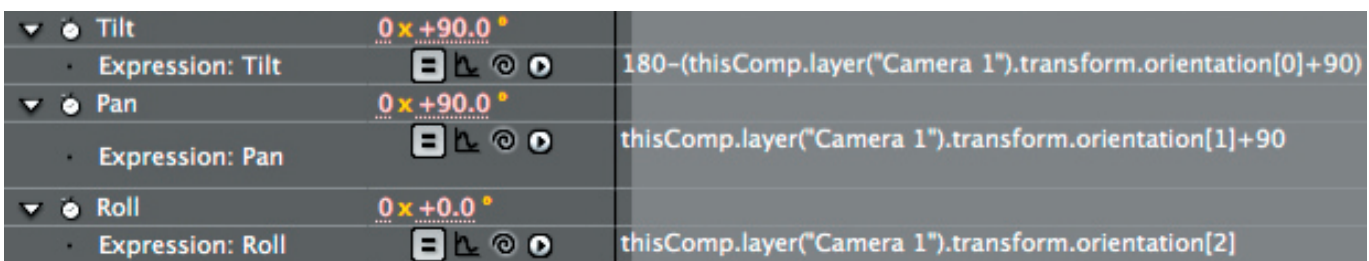
`thisComp.layer("Camera 1").transform.orientation[1]+90`

Pickwhip the Roll parameter to the AE Camera Z Orientation. No additional math is necessary on this expression. It should look like:

`thisComp.layer("Camera 1").transform.orientation[2]`



In this graphic, you can see the expression code manifesting itself as the overbearing burden of humanity on the soul of the camera path, juxtaposed with black to create a sense of wonder and awe at what lies beyond the tutorial...um... Oh wait. This is a screenshot of the camera's path animating around the ocean optics graphic, along with a composite of the expression code.



If your animated camera isn't using the Orientation parameters for motion, you can substitute the Rotation parameters for them. Tilt links to X Rotation, Pan links to Y Rotation, and Roll links to Z Rotation. All of the math added to the Tilt and Pan expressions still applies.

step 8: tweak the code

And that's it! With all of these expressions in place, your Psunami scene will move around as you adjust the AE camera. Again, all of these expression can be applied before or after you animate your AE camera. They can also be applied after you load in external camera data from a 3D application.

The initial expression for the Camera Elevation might prove to be too low for your composition. You can either raise the AE camera and your 3D elements before or after you pickwhip the expression, or you can add numbers to the Elevation expression yourself.

For example, let's say that we want to raise the Psunami camera 50 units (that is, lower the water surface away from the camera). To this, you can add 50 to the Elevation expression that was created in Step #6:

```
7.714-(thisComp.layer("Camera 1").transform.  
position[1]/35)+50
```

step 9: a real world example

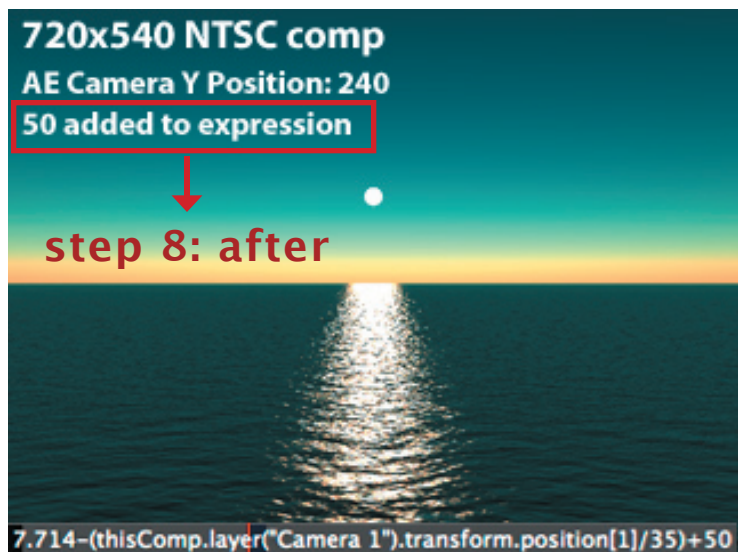
To finish off this tutorial, you can download a QuickTime movie and After Effects project file. These files show a simple but 'real world' example of Psunami camera linking.

If you haven't already, download this Zip file to follow along:

http://www.anarchyunderground.net/tutes/psunami_camera-link.zip

The AE project file is a 720x540 NTSC Square Pixel 5-second composition.

The Text & Bars pre-comp contains the animated text and decorative bars. Collapse Transformations has been turned on in the Final Comp, allowing it to update in its own 3D space while the AE Comp camera is being animated.



The AE Comp Camera is animating in a clockwise arc around the text. The 'Ocean Optics' text itself was animated using the built-in text animation features present in both After Effects 6.5 and After Effects 7.0.

In the final comp, Psunami has been linked to the AE Comp Camera using the settings found in this tutorial. The comp camera and the text have been raised to give the AE Camera "clearance" over the water.

Have questions about this tutorial? Just email Marco at marco@digitalanarchy.com. Thanks!



Our Psunami Camera composition.