

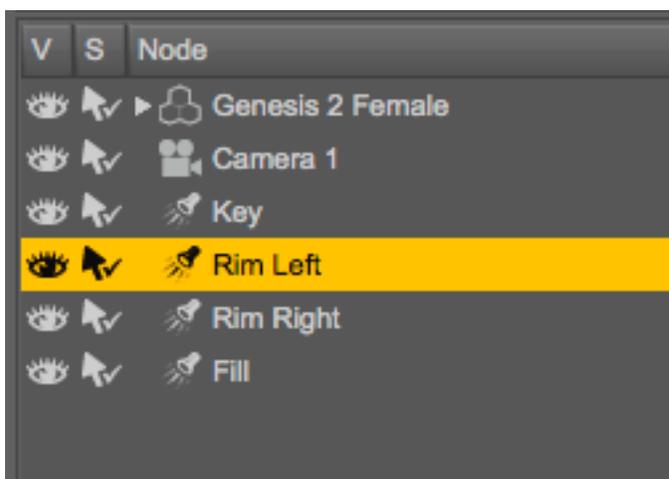
# Relighting with Iray Canvases



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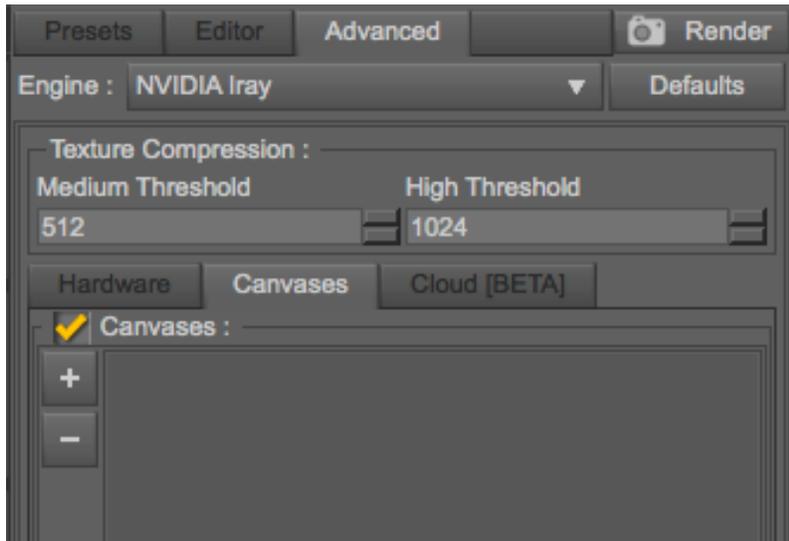
I felt it was time this subject got treated to a detailed explanation (with pictures), so I sat down and started making screen grabs. Presented here is what I've got so far, but there's still work to do to make this really usable. I present this in the hope that others will experiment and together we can fill in the missing pieces.

Some of the most impressive use of Iray I've seen so far is the use of Light Path Expressions (LPEs) to do advanced compositing in post. Rather than me explain the cool results, take a look here. I'm sure you've seen methods like this before, but Iray allows us to do it a bit differently. That was all done with a single render pass. I will grant that my 3D experience is rather sparse, being an engineer by trade, but I think that's seriously cool!



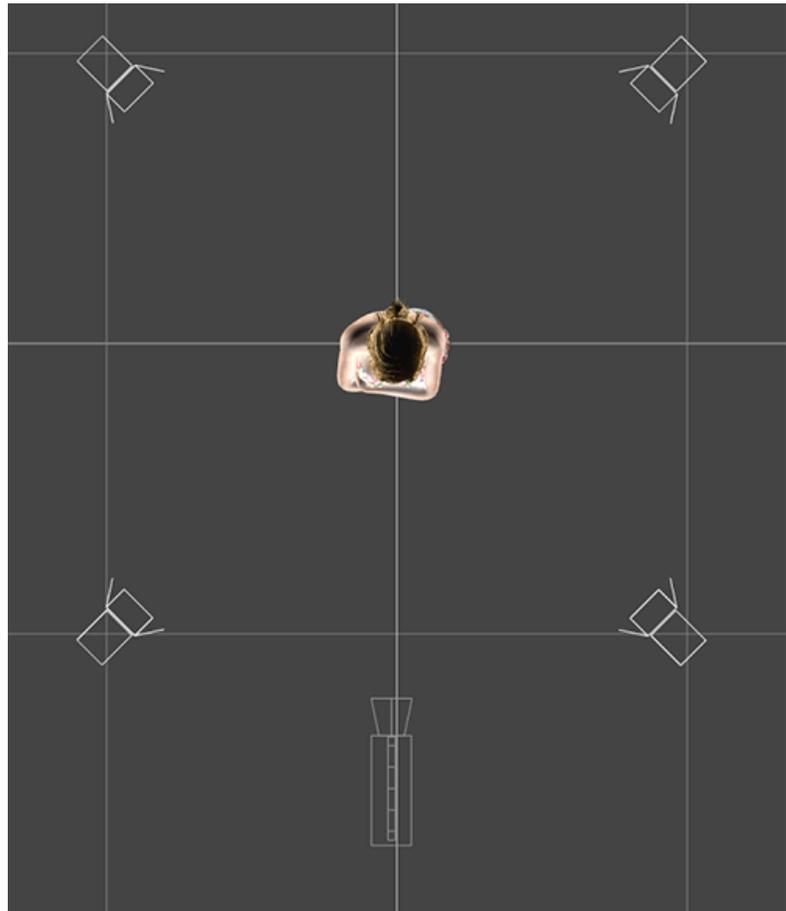
First, let's get a scene loaded. I started with a very simple one, G2F (clothed and posed), a camera directly in front of the character, and a 100cm Photometric Spotlight in each of the four quadrants pointed directly at G2F. On the lights, I set them all to 100x100

rectangles at 100,000 lumens each. No light has a larger contribution than any other.

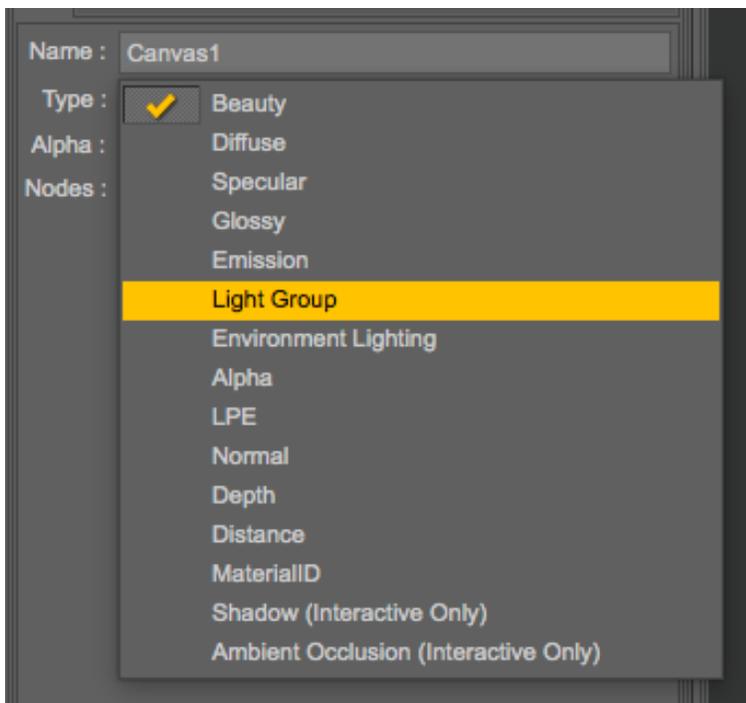


The render environment is set to Scene Only in this particular case, but It doesn't matter since we'll be getting separate files for each lights.

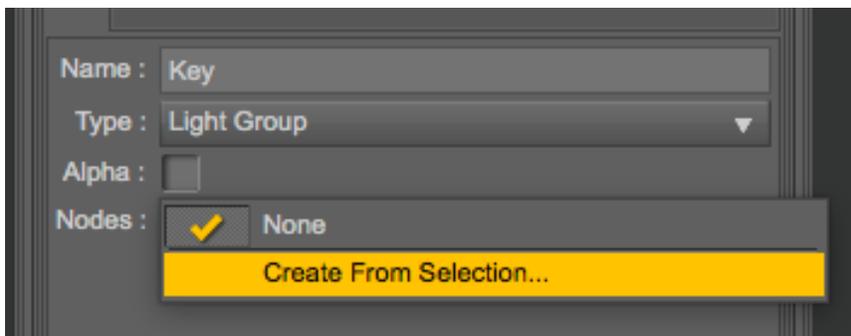
DAZ Studio exposes LPEs through the canvas functionality on the Advanced Rendering tab, and makes them much simpler than writing raw expressions as seen in NVidia documentation. By default, canvases are disabled. You turn them on by selecting the Advanced tab, going to the Canvases sub-tab, and turning on canvases.



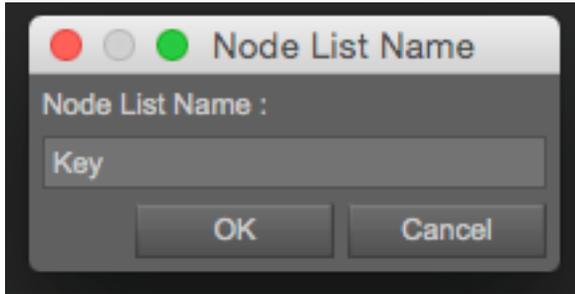
We start by creating a light group for each of the four lights, named "Key", "Fill", "Rim Left", and "Rim Right". Creating a canvas is done by clicking the "+" right below the check box that enables canvases. Adding a canvas creates a new entry named "Canvas1.Beauty". The beauty pass is what your normal render is created from, so if you don't have that canvas in the list of those you're rendering, you're normal output file will just contain a transparent background.



To create the light group canvases, click on the "Type" dropdown and choose "Light Group". I'd also recommend changing the canvas name to something meaningful, like the names of the light that will be in the group.



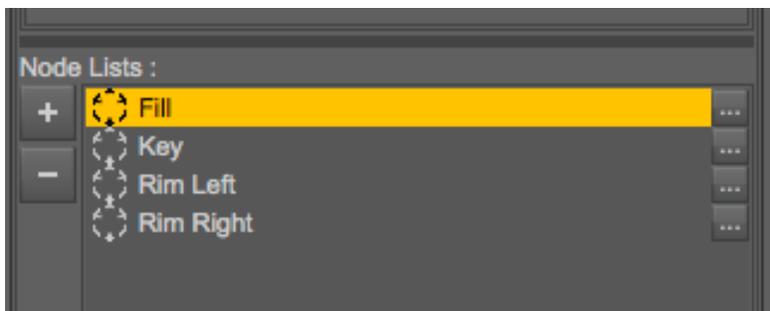
Now you have to choose the lights that will be in the group. From the "Nodes" dropdown, you can "Create from Selection..."



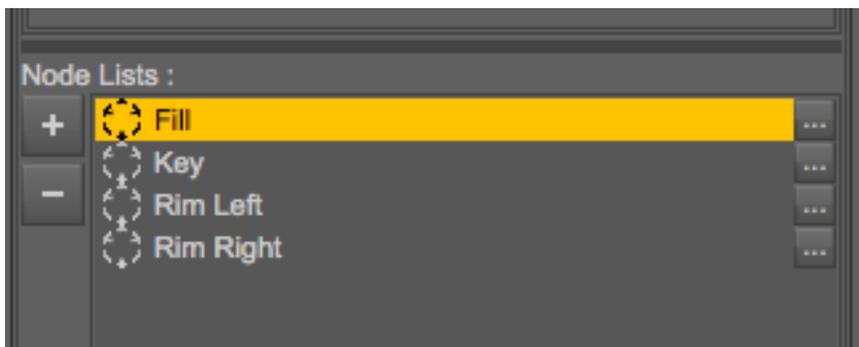
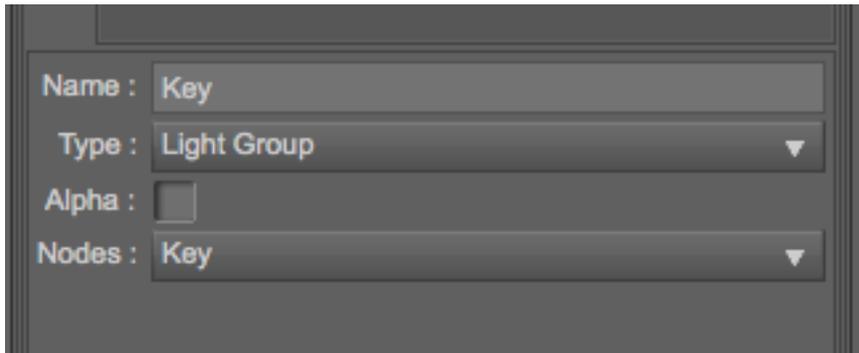
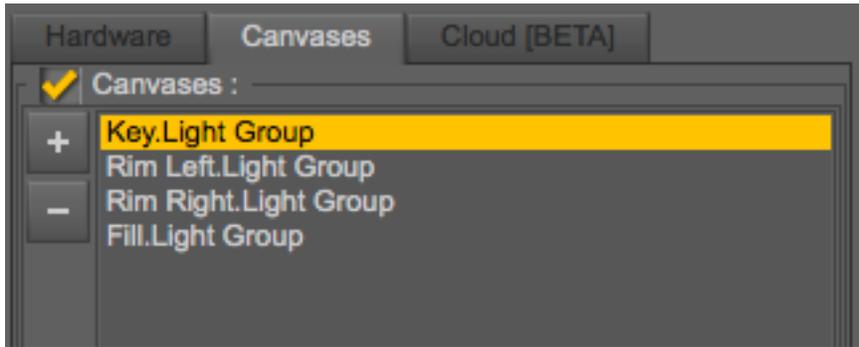
which will create a Light Group from whatever is currently selected in your scene tab.

You will be prompted for the light groups name.

Alternatively, you can create node lists separately and fill in the light group names later. I find this a bit easier, and at the very least it allows you to check your work when you're done.

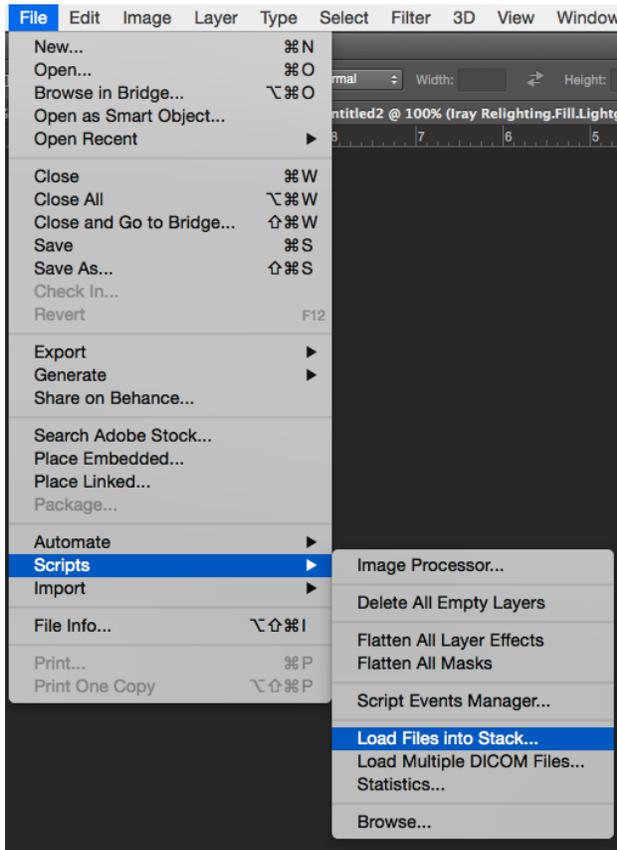


Here's the resulting Canvas panel (or sub-sub-panel) with the blank space removed.



Now, we're ready to render. You can render to a new window or directly to file. The canvases will be written when the render is done, or saved as the case may be. Strangely, I've found that if the render runs unnaturally fast, it usually means that I don't have enough light in my scene and the resulting canvases will have fireflies. Strangely enough, you can still get a decent looking low

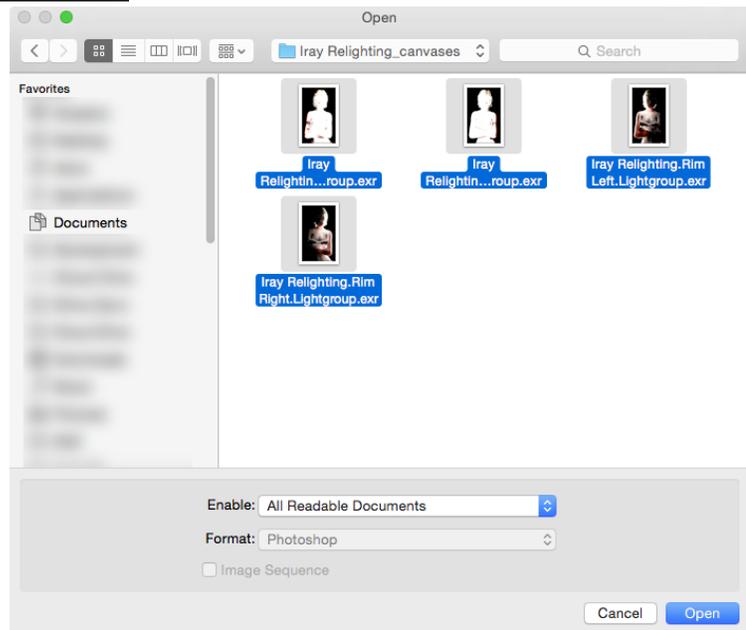
definition result (the PNG, TIF, BMP, JPG), because those are run through a firefly filter. The canvases, though will tell the tale.

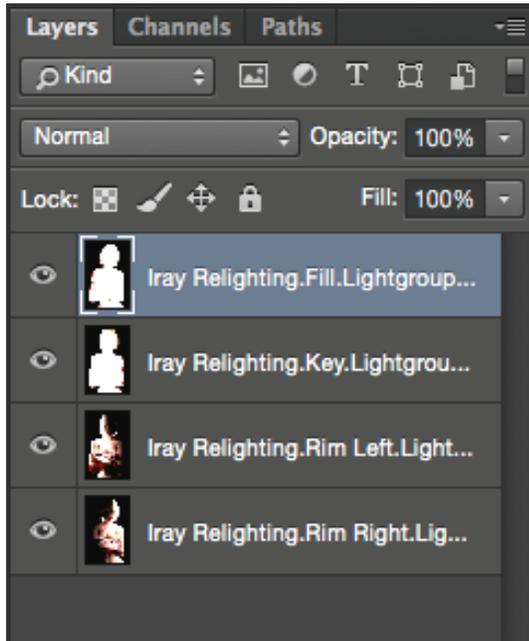


Once saved, your canvases should be in a directory named whatever you saved your results as with "\_canvases" tagged onto the end. In my case, that directory was "Iray Relighting\_canvases".

Now that that's done, we're ready to load the results into Photoshop. I'm running CC 2015, but anything recent should have the functionality we need. GIMP may be usable as well, but I haven't tested it. Either way, your workflow may vary slightly, but the result

should be all four EXR files loaded as layers in a single document. I used "File -> Scripts -> Load Files into Stack...", which comes with recent versions of Photoshop, but there are many other ways.





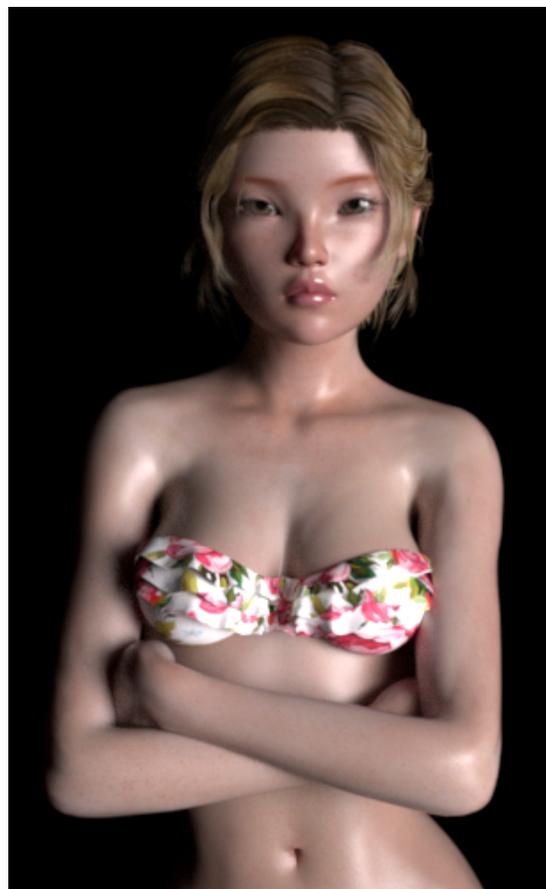
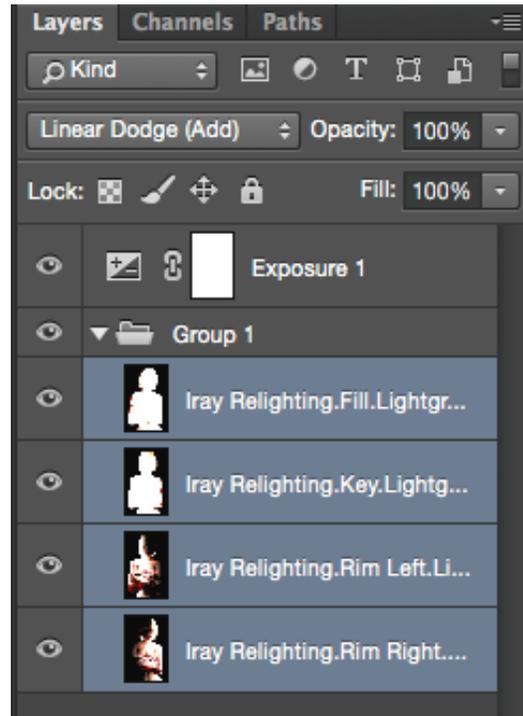
Once your layers are loaded, the Layers panel should look something like this, and your actual image should look pretty dreadful, no matter which layer is on top.



The order of the layers doesn't matter, just that everything is in one place. Now, before we do anything else, select all four of the layers with CTRL (on PC) or CMD (on MacOS) Click and group them with CTRL/CMD "G". Now with the group selected rather than the individual layers, we need to add an adjustment layer. This is done by clicking the little half-closed circle at the bottom of the Layers panel. We'll be adjusting exposure. You could also do the same by adjusting Curves, Levels, or Brightness/Contrast. Exposure works well enough in this case.

Adjust the exposure downward until things are within the realm of sanity (i.e. you can see your subject). You may need to toggle your individual layers on and off to make sure that they're all exposed correctly. When you are done with that, your layers panel should look like this.

And your individual exposures should look like this.





Now, reselect all your grouped layers with CTRL/CMD Click, and change the Blending mode from "Normal" to "Linear Dodge (Add)". This should result in a file that looks like the one below, very well lit, but rather flat. We create the illusion of 3 dimensions in 2D by how shadows fall. If everything is lit evenly, a subject will look flat.

What we do now is change the contribution of each individual layer to get the effect we want. In this particular case, I just wanted to fill in the shadows a bit and lightly outline the character with rim lights. To do this, I left Key at 100% opacity and reduced Fill to 31%, Left Rim to 37% and Right Rim to 13%. This gives us the resulting image as seen below.



One problem with this method is that with linear dodge, total contributions of the layers must add up to at least 100%, or the subject begins to become transparent. This can be solved by placing a layer filled with black at the bottom.



This may all seem pretty pedestrian at this point, but I spent zero time test rendering to work out the proper contribution of each light. I just blasted away and adjusted the exposure and balance using simple filters and changing layer opacity. With a little bit of Photoshop hackery we could change the color contribution of individual lights, mask them, or anything your imagination can come up with.

Give it a shot, and feel free to share your results and anything you learn along the way.