Quick-n-Dirty Rendering in Eight Steps

This 5-minute procedure is for a quick rendering of a Creo model (asm or prt).

/s
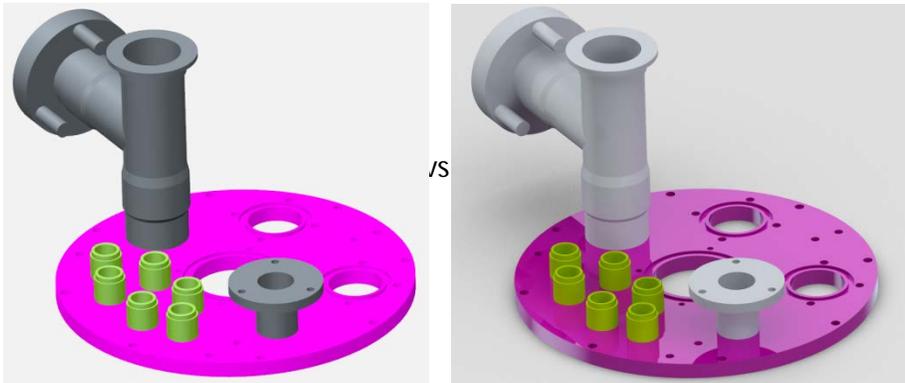
Pre-Step: You may wish to save your asm or prt BEFORE you render, as changes in color constitute a modification to the file. Also, once you get an orientation of which you're fond, SAVE it, so you can return to it should you have to adjust lights or rooms.

1) obtain a license of PhotoLux (see Get_PhotoLux.pdf if you don't know how)

2) in Creo, on the *Render* Tab, choose the *Render Setup* button
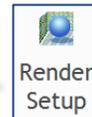
3) in the *Render Setup* Window, choose Photolux

   a. this is where one can set options: quality (set this to at least *High*) and dpi, whether you want to output to a file, want a watermark, etc.
   b. click the *Close* button
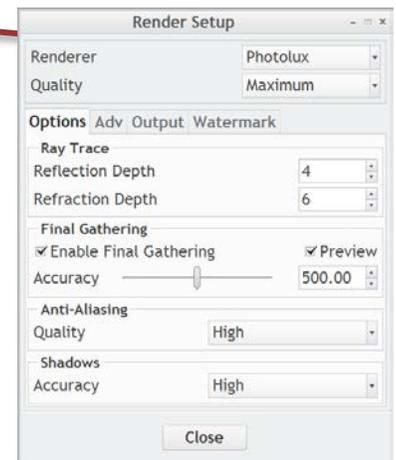
4) Click on the *Scene* icon, and in the *Scenes* Window, double-click a scene in the *Scene Gallery* area called PhotoLux-Studio-Soft or PhotoLux-Studio-Hard (the 'soft' and 'hard' have to do with the harshness of shadows)

5) still in the *Scenes* Window and under the "*Room*" Tab, only have the "*Floor*" checked and click the blue-ball button to place the floor just beneath your model [*See Addendum Note 2 and Floor sections for more information.*]

6) hit the *Close* button in the *Scenes* Window

7) under the *Render* Tab, hit the *Render Window* button

8) **DO NOT** move, zoom, pan, or refresh in your graphics window. Click on menu-choice *File – Save As*. Give your image a filename, save it as a jpeg, and note WHERE you're going to save it. [*See Addendum Note 1.*]

Adden-du-du-da!

Note 1:   *Saving*

     Be aware that you should <u>*not*</u> move or scale or zoom or refresh in your graphics window before you save the image. If you do, you will lose the render and have to do Step 7 again. When you attempt to *Save As* in Step 8, the program knows you rendered something, and the file-type defaults to image files. Don't leave it on tiff. They're just as good as jpeg's, but they tend to be *much* bigger files. As do bmp's. Png's can end up washed out and a bit over-bright, and the others in the list are too weird to use in PowerPoint. Dpi is dependent upon your screen resolution. If you filled the screen with your model, you'll end up with an image resolution of about 1200 x 850 (assuming your display has a 1920x1600-type setting). This is probably pretty decent for quick prints or a PowerPoint slide. If your aim is a poster or brochure where dpi is a real issue, consider choosing to render to an output file. That's where you set the resolution you want, and that can be made relatively large. Be aware that if you are looking for serious resolution, you sacrifice time. For example, a 9000x5000 image took hours to render which is fine if you can leave it running overnight.

Note 2:   *the Floor*

     The orientation in which you place your model has a bearing on where the floor ends up. By default, the floor is parallel to the Top Plane. If you're trying to render a model in an orientation different than some modest tilt to the Top Plane, you need to find your floor and rotate it relative to your model's positioning or render the model without a floor (which isn't as visually thrilling). If worse comes to worst, model a great big extrusion under your model and render with this as a floor.

Note 3:   *Materials*

     Most of the materials in our default palette end up too shiny when they render. This can result in too many reflections (simply everything too chrome-like). The easiest way to handle this is explained in the "Reflections" section a little further on.

A good thing to note is that by using PhotoLux, you opened your door to a whole slew of new mapped, bumped, or textured color swatches that came with the license. Stone, woods, metals, paints, plastics, glass, led's, fabric, -all sorts of stuff.

These can be found in the *Appearance Gallery* in a dropdown on the "*Library*" line. Click on the dropdown and look under "Photolux Library".

Some reflection is good. It provides realism to a 3-D model, but if a model color is *too* reflective, it washes out to the background (like on the upper right edge) or blurs the line between what is one component and what is another (like the circled portion).
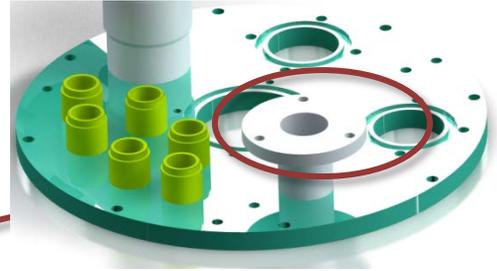
Messing with the lights to fix this can be a traumatic experience. A nice and easy remedy for this overwrought reflectivity is to mess with a swatch's **Highlight Color**.
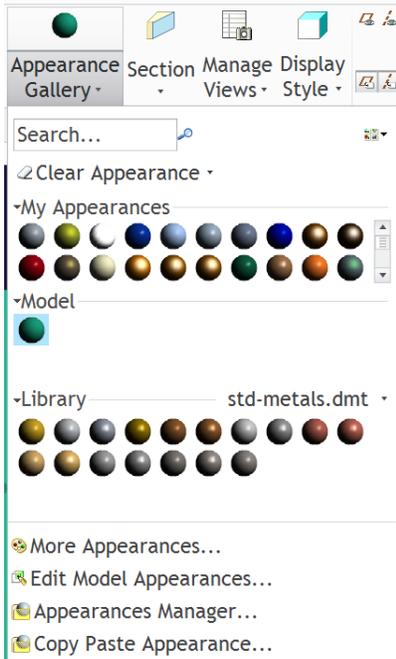
How do you get to a color's Highlight Color? Fair warning, it's a little tricky. It's usually best if you open the file with the offensive reflection. In my example, I'd open the green plate model. Go to the *View* Tab and click on the words "*Appearance Gallery*" which is a dropdown. In the middling section of it, you'll have an area called "*Model*".

Any balls here represent the color(s) used in your model. These are editable. All you have to do is right-mouse-click (RMB) on the ball you want to change and choose *Edit…* .

To edit the overall color, you would click on the "Color" box.

You'd get a default Color Editor window. It has many expandable areas. A useful one for controlling shade is the *HSV* box (stands for Hue – Saturation – Volume). You'll get slider bars for each one, much like R, G, and B (Red, Green, and Blue).
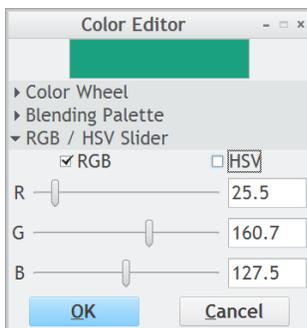
If you mess around with any of the H, S, or V values, they affect the R, G, and B values. Saturation (how rich or pure a hue is) and Volume (another word for this is luminescence or brightness) are percentage scales.

I found that, trying to fix overly reflective materials is actually a combination of Shine, Highlight and Reflection. Rather than mess with adjustments to those three, I can mess with Highlight Color and like what I get. It seems easier.

So, back to *Highlight Color…* By default, created color swatches (the little balls in the Appearance Manager) come into being with a Highlight Color of pure white. What with the white menu color, you may not even know you can mess with this. You find it here:
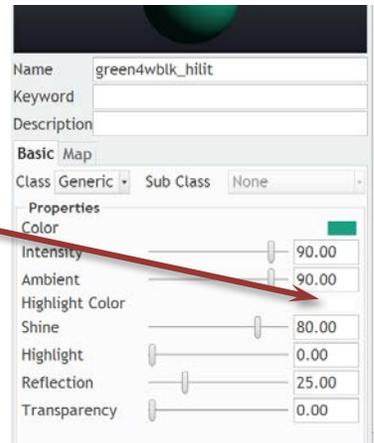
There's actually a little rectangle of white (the size and shape of that green box three rows above). This is editable if you can find it and click on it.

Using this example of a green plate with an assortment of tubes, you can affect your render as seen below. (*And this is all done __without__ messing with light intensity or position.*)

This picture to the left uses this color swatch ⬤ which originally had a Highlight Color of pure __white__ (Red255, Green255, and Blue255 or a Volume of 100%).
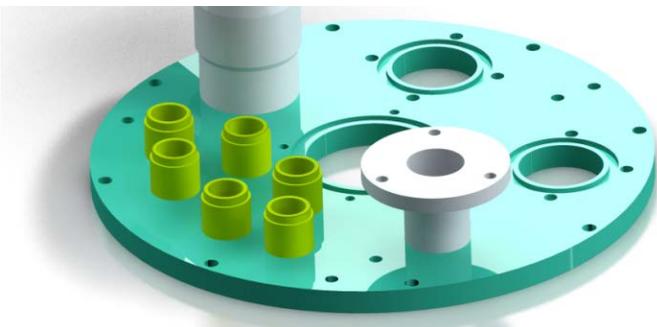
⬤ This is a rendering where the green plate has this color swatch too, but now with a Highlight Color of __grey__ (Color Editor Settings R89.3, G89.3, B89.3 or a Color Volume of 35%) More definition, still quite reflective.
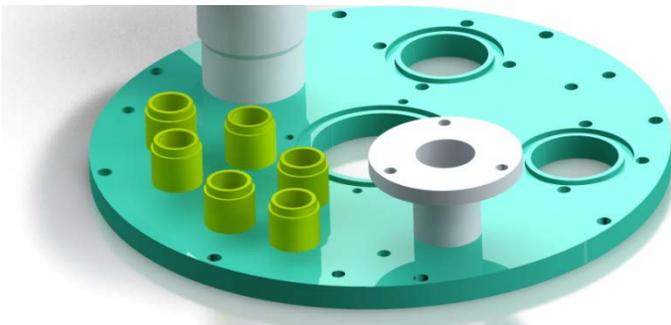
⬤ Same color swatch, but now with a Highlight Color of slightly __darker grey__ (Color Editor Settings of R51, G51, B51 or a Color Volume of 20%) The green seems slightly more rich with a 15% drop in Volume from the preceding.
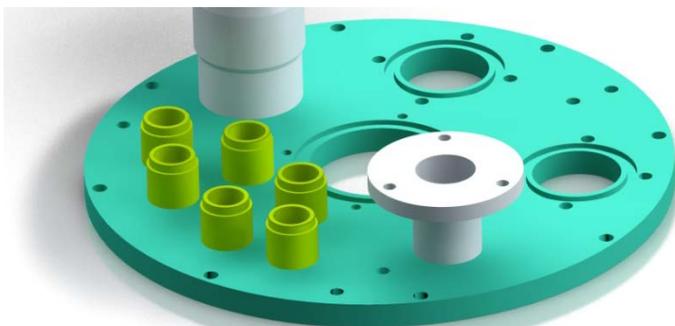
⬤ Again, same color swatch, but now with a Highlight Color of pure __black__ (Color Editor Settings of R0, G0, B0 or a Color Volume of 0%) Basically, using black results in a matte finish to the plate.

This shows the difference between having the floor (shadow-receiving surface) a little below your model (left) and positioning the floor directly beneath your model (right). The left *is* more dramatic, but it leads one to believe the plate has legs that aren't readily apparent in the picture. Again, it's personal choice as to how the image should look for what audience or what purpose.
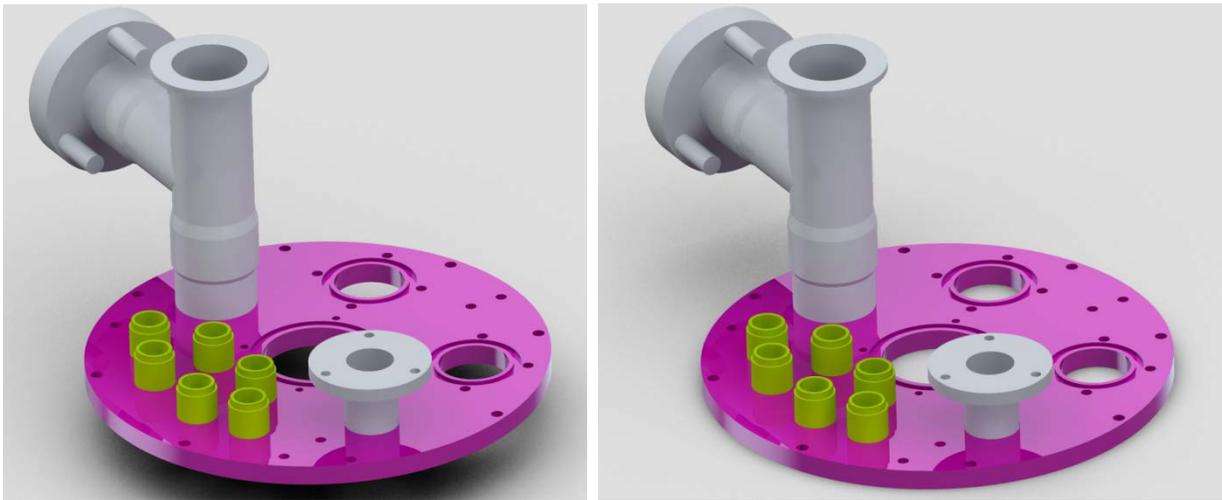
Scenes

Scenes are built-in, ready-made rendering settings that can encompass lights, room, background images and even images that, though not directly seen in your rendering, show up on any of your model's reflective surfaces. Unless you want your model stuck on a cobblestoned street or on a kitchen counter, some of the scenes won't interest you much because they have scenery. The only two that are easy to use and modify are labeled PhotoLux-Studio-Hard and PhotoLux-Studio-Soft. Below, you can see the difference between the Photolux-Studio-Hard and PhotoLux-Studio-Soft scenes. The "Hard" and "Soft" have to do with the definition of cast shadows (which has to do with the intensity of the lights involved).

(Hard lighting is really not all bad looking. It gives excellent shadows and good highlights, but it does make you address the over-shininess of any of your models.)

Other extraneous random Notes:

Rendering seems to take 3 passes. You'll see a progression bar that fills with blue as things go along. Don't get too excited over the first one. There'll be two more.

If you happened to rest your cursor outside of the graphics window whilst rendering, you may get a window that simply doesn't look rendered. Don't be alarmed. Just <u>hover</u> (*don't click or drag!)* your cursor within the bounds of the graphics window, and the image will pop into being. Don't know what causes this. It's just a funny quirk.

If rendering a pretty big assembly (by 'big', think surfaces involved, not scale of model), you may want to back off on the *Quality* in the *Render Setup* Window. The more surfaces, the more time it takes to render.

Scenes can be saved with the model file! There's a check box for that in the Scenes Window (right under "Description"). You can also save a scene to your hard drive and use it in another model, but I haven't had much luck making it work seamlessly. I usually have to mess with settings all over again. I'm thinking it has to do with your new model occupying a position and orientation different from the model from which you copied the scene.

Another scene comment… if you've had to adjust the position of your floor or walls, or you moved lights or created new ones? Choosing a different Scene to work with resets all that. (Makes sense as scenes are collections of settings.) And Scenes are peculiar to PhotoLux. You can't use PhotoRender (the default Creo renderer) with any Scenes in the Scene Gallery.

There are all sorts of settings to mess around with. From quality to materials to lights to HDRI files . . . If you have time, mess around with a few and see what they do.