

Intro

And Brian said, "Let there be light," and there was light. Brian saw that the light was good, and he separated the light from the darkness. Genesis 1:3,4

Rarely does a change in decorating impact as much as the recent and sometimes bewildering yet always interesting effect of light.

To make it work efficient there are a few key concepts to learn and few tunings to do. After that you will probably like other decorators who just discovered light... think as this day as Before and After.

That said... lets dive into this new technique.



Concepts

Area

Light is an effect that happens in an Area on all props that have a position XYZ inside that Area. A useful efficient space could be the Trigger Box, although any 3d object large enough can be used.

An Area is indicated by a Name or Region. Why RLC gave it two separate labels is unclear, yet it is important that the 3 light scripts are linked by the exact name you choose. Notice that this name or Region is Case Sensitive as in best copy paste the name.

Two scripts are used to create an area... the Create Light Area (extend) ... which is the most simple to use with only the Region name as parameter... and the Create Light Area... which besides the Region name also allows two types of light.

If a prop is within multiple areas (like when you put a trigger box within another trigger box then the smallest area will 'win'. If you put multiple Area scripts on an object then only the first has effect.

Extend Areas can simplify configuration by 'copying the same light as configured in a Light Area. This is useful in case something like a complex sunset light needs to work around a house, not within the house; or when outside light needs to be shown at several windows and vice versa.

Light

There are three types of Light: Radial, Ambient and Directional.

Radial Light is made with the Create Light Script on any prop of choice. This is a point light... much like a glow stick it radiates from that position in all directions. Radial Light will allow for lovely shadow around poles, bodies and objects. Radial Light weakens with distance... The further away the less effect. As we walk towards radial Light it will brighten our front and when we walk past it the light will shine on our back. Provided the rest of the area is dark enough we will experience shadows.

The light radiates from the Position of the prop you applied the script to. Since candles, lanterns and most props have the origin at the bottom you might want to use any rarely used prop and make it invisible. The script allows you to set the color by three boxes: Red, Green and Blue each in value between 0 and 255. The intensity can be set in percentages, although RLC forgot to put the dot... hence 100 is really 1%... 10000 is 100%

Multiple light sources will add more light and color to the mix. Props could have Light scripts that work on different Areas by using the correct different names, useful if you want the prop count low yet want different nearby effects, like on stage.

The opposite of Radial Light is ambient light. This is light that appears from all directions, exactly as we have been used to in the past. A normal zaby has about 70% ambient light by default. Ambient light can be used to soften the effects of the Radial and Directional light.

Directional Light works under the same angle in the entire area. Sun or moonlight are great examples of directional light, however you might also use it under stages or generic light from ceilings or windows. As the name indicate it comes with a direction expressed in x, y and z that the light seems to travel. A useful way to think of it is to walk through the space with: while the light travels forward it goes X and Z horizontal and Y vertical. Example: $1x -0.2y -0.1z$ would translate to light that while going forward appears to move positive on X by 100 while at the same time about -10 on Z and dips down by 20 on Y. Any object in the path of the light will brighten where it gets illuminated by that light.

Ambient and Directional Light work in the Area defined by the script. Radial light works the Area with the same name as configured. The position does not have to be within that area... the name is what links them. Unlike Radial Light, the Ambient and Directional light do not have



intensity as separate option. Best use lower numbers for less effect... and higher numbers for more effect. For example: 10R 15G 8B is half the strength of 20R 30G 16B yet the same color.

The maximum light effects per Area appears to be 7, maybe 8 at the moment. On the Create Script Area you could hence add 5 or 6 Radial lights. Despite extensive testing I could not conclude why sometimes it is counted and sometimes it is omitted. For the moment I suggest to simply not add more than 5 lights to an area. When you do need extra lights, like in some dining hall with multiple tables, consider dividing the space in multiple areas.



Status

How individual props are affected by the light effects depends on Status settings.

Props can be completely excluded from Light effects by selecting the Texture Unlit. Notice that Flash scripts have by default Unlit on... flowers etc. that were often textured by flash because of a wrong



default setting might hence not show any change.

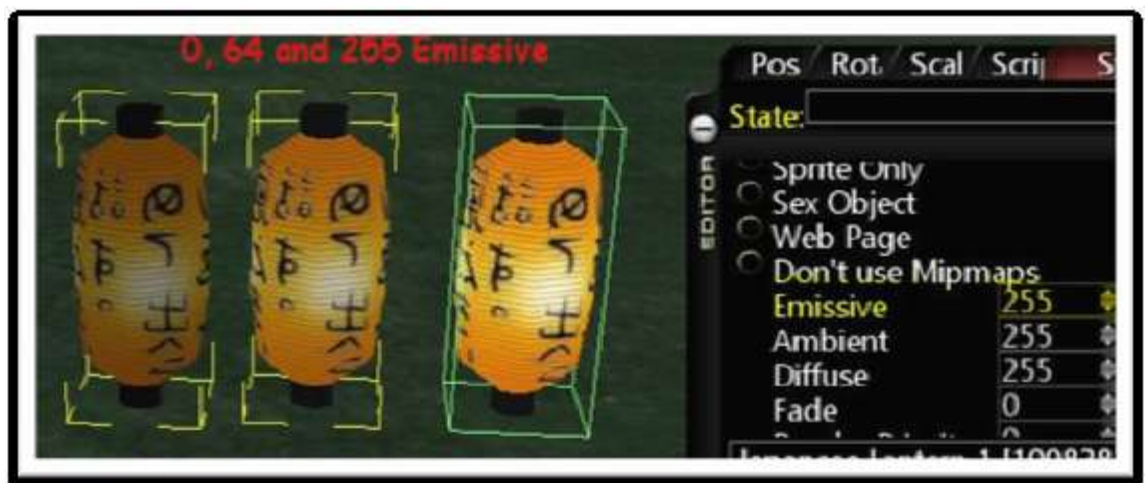
While on the topic... in Settings have a look at Texture Filter: The default Bilinear makes fragile plants look faint and horrible. The setting 16x seems to have no impact on my graphics Measure Prop number... it does however make the texture look fantastic. An Attached Flash, again on my graphics card is equal to 5 or more Cached Web Image textures.

Test this by getting a nice PNG texture on the same object, first using Attach Flash and second by Cached Web Image. Then make a screenshot while

your Measure Props is on. Then in Settings change the Texture Filter setting to 16x. Close the RLC client and reopen ... make the same screenshot again. One client described the first flower she saw as the very best she ever seen in RLC... yet it was exact the same texture she had till then been looking at. Be aware that with each major rebuild of RLC they revert back to the wrong setting...

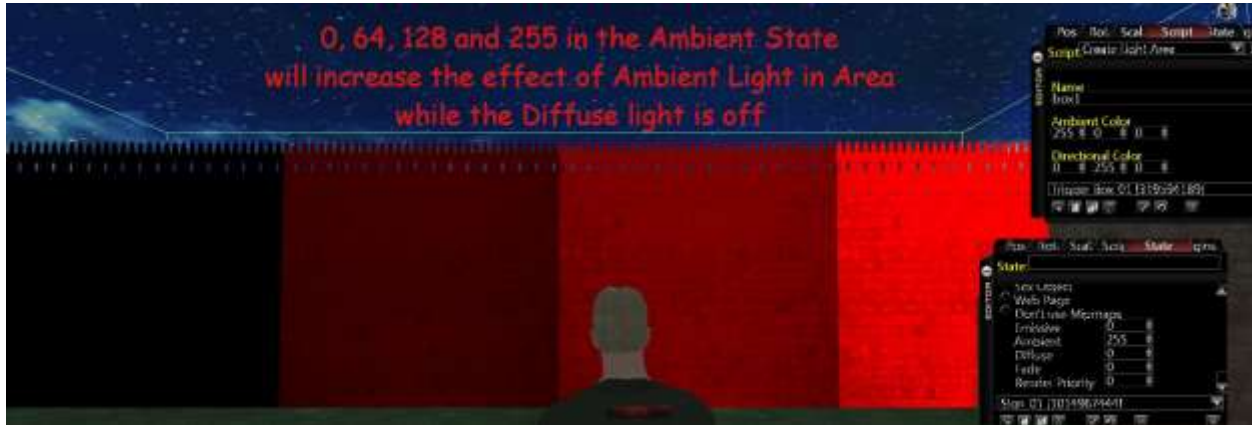
Emissive

Lamps, glowing wood, fire etc. emits light on its own. The light that seems to radiate off the prop is controlled by Emissive. Dark objects are 0... bright/unlit have 255. Emissive is color neutral... as in just your texture becomes more or less bright.



Ambient

Ambient controls how much the color of the texture is controlled by the light within the area. To study its effect... best use lower Emissive values... like 0, 32 or 64. You should observe that the color of the prop picks up more or less of the ambient or directional color of the area in which the prop is.



Diffuse

The setting Diffuse controls how the prop is bouncing back Radial and Directional light in the area. If you have a fire ... make sure props around it have Diffuse sufficient high to show the effect



To test... make a trigger box with red ambient and green directional light. Props inside that have Ambient on 0 and Diffuse on 255 will only pick up the green directional light, whereas props that have Ambient at 255 and Diffuse on 0 will pick up the ambient red glow.

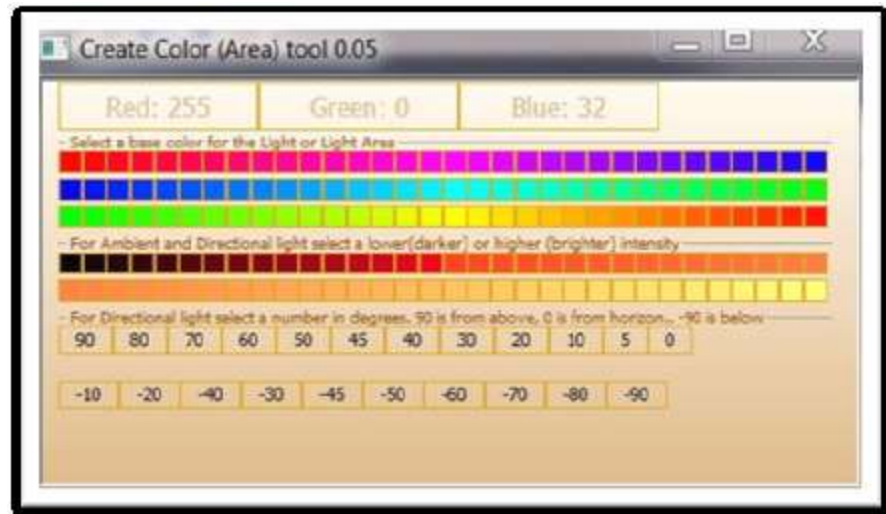
Implementation

Color Tool

With the basics done, let us create some useful light effects. To help you quickly get the correct numbers you might want to get the Color.hta tool, an HTML Application from <http://SifuPeterTools.com>

It looks like this. First select the Base Color. This will change the Click boxes on top which copy the value in the clipboard. In the Prop Editor simply paste with Control + V for each color box. For Ambient and Directional Light you might

want to use the intensity buttons. Dark is here less effect... bright is stronger effect. For directional Light also look at the Degrees at which the light should shine. Then work out if the X or Z needs to be plus or



minus to create wonderful moonlight from the correct direction.



Please be kind to me and my efforts to provide and maintain this tool... Check regular for newer versions with the Update button

Tips

Start with a smaller trigger box than needed. This will allow you to jump over it and grab it while testing

If a prop seems unresponsive to light effects: Check that it is inside the box. Notice that things like rocks, plants and many other props have significant offsets ... your light area might have to extend far under the floor.

If a Radial Light does not appear to work in an Area... check the Name/Region.

Put Texture Unlit off on all props you want to include. A nice way to make sure is to wait with any light effect. All non-black props will hence either have Texture Unlit on or are not inside the box or have some Emissive on their own.

Start with soft light effects. One huge strong light and very little else remains easy tunable.

Consider light just like sound. It should be non-intrusive, softly pulling curious visitors towards the main reason for your creation. Carefully look at what overall effect something has on you and some testers. Spooky lights from below can be great yet might ruin some expensive outfit or skin.

Soft lights can have an amazing effect on human body... consider a warm reddish 'punani light' that seems to put flesh on the areas that matter. At first glance it is hardly noticeable yet people do somehow find the screenshot more attractive. Certain clothes and attributes like blond hair react strong with even small amounts of gold light.



Lag

Light does greatly enhance the experience of a zaby or club... yet... at a cost. On my PC the same sign within a trigger box has in Measure Props a value of 17. Without the trigger box and hence also without the light effect it is more towards 14. That would translate to about 15% to 20% more work for my graphics card. This lag effect is even true for unlit props indicating that the obvious optimization of unlit items has yet to be discovered and programmed.

To test: put up a sign with texture and copy it. Place a trigger box with some ambient light or directional light and move the box around such that it is in front of the signs (this should give you an idea how a sign is effected by looking through a trigger box.. and then inside. Notice that although the difference is not great, the directional light seems to cost slightly more than ambient. Both should cost measurable more compared to the sign not at all affected by light.

If light effects are on many walls and objects... you might consider to use Corel or Photoshop at least on some of those. This allows for an ever richer and more fine-tuned delicate light and is despite the extra skill requirement speedier for visitors.

If lag is an issue... considers reducing light on smaller things... avoid fade which easily doubles the impact of a texture. A PNG is really faster than a JPG with fade (at least on my PC).

Note: Please do not just look at my numbers as they only would be similar if you have a comparable PC. Always check and see for yourself. If you have some hugely expensive graphics card you might not see any performance drop till you have several hundred huge textures.... On a shared memory laptop with 1Gig of memory you might not even be able to load a single 4k by 4k PNG

On testing... If you have a huge PC... consider tossing a club full of Humans or custom bot scripts... this should give you a fair indication how your club is going to be with say 30 people in it.

Still. I wonder if I can still live without light... might not... the dark medieval days seem behind me. Just like there is an entire training class on lag, rightsizing textures, it is useful to balance the graphical impact a zaby has compared to how many... or how few ... can enjoy what you make. Have the wonderful Sky if it is important... put something simple if it is not the main effect. Have a magic light moment where it counts... forget putting complex light effects on everything.

Classroom

To help you with the actual implementation there is a classroom setup with many examples and easy layout to learn both the basics and advanced light concepts. All you need is to have read this document, to have the Color.hta on your desktop and Skype to peternieropnl which helps me explain more and quicker. (PS... I am fine if you like to mute your mic... as long as I can use mine to make more efficient use of my and your valuable time) You might also consider other topics... like the real story about collidables, stairs, bridges and rivers. Battle Lag or rightsizing images might be your thing. Matrix building could be something that interests you. Or maybe Corel is something you want to learn about.

Access is general given for a few days... however can be quickly reopened if you so like. Textures that are in the classrooms are made by me and donated to my students.

All this material I own. I made it, I wrote the tools myself... I did the research myself. You are free to use what is in my PDFs and to use the tool. Please grant me the honor of my work by not copying or donating it to others... rather invite them to have a chat with me. They might love you for your consideration.

Cordial greetings

SifuPeter