Fake Radiosity Tutorial

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Creating simple objects by using Box tool, Ball tool and Cone tool.
Using the quick key q to name the surfaces.

I won’t go specific details into creating objects. Please look for other tutorials for creating objects.

Now click on the arrow and send the object to Layout.
You are free to play with the texturing. I turned up the Specularity and Glossiness for all the objects, but I turned the reflection all the way up for the yellow ball.

You can access the surface editor by clicking the "Surface Editor."

The window will show up.

Click on the surface names you want to modify.
1. Click on Light option at the bottom.
2. Click on Item Property.
3. Click on Global Illumination

The following screen will load.
Set the Ambient Intensity to 0%.
Click on the Camera option at the bottom.
Use the move and rotate tab to adjust the camera position and angle.

The angel I used was about 30-40 degree facing the down from the object.
Under the Item tab,
Click on Add -> Lights -> Add SpotLight
We will need two more light sources:
Fill Light and Back Light

The scene is going to use modified 3 point light system.
1. Key Light, it’s the major light source with 100% light intensity. The position is about 30 degree away from the camera and facing down in a 30-45 degree angle.

2. Fill Light, secondary light source with 20% light intensity. It’s placed opposite of the Key Light. Roughly the same position as the Key Light.

3. Back Light, third light source with 10% light intensity. Back Light is placed directly behind the objects. 30-45 degree facing downward.
The following is a little bit complicated.

Step 1: Click on the Light tab at the bottom.
Step 2: Click on the Item Property.
Step 3: Switch the “Current Light” to Light, which is the default distant light.
Step 3.1: Change the “Light Type” to Spot Light.
Step 4: Making sure the “Light Intensity” is at 100% for this light.
Step 5: Adjust the Spotlight Soft Edge Shadow to your desired value.
Step 6: Choose Shadow Map option for the “Shadow Type.”
Step 7: Adjust the Shadow Map Size to your desired value.
Step 8: Adjust the Shadow Fuzziness to your desired value. This option basically blur the shadows.
The steps are the same as the Key Light, but the “Light Intensity” has dropped down to 20%.
The Back Light also has the same setting as the Key Light, but the "Light Intensity" dropped to 10%.
Now the camera and lights are setup properly. Click on the Render tab at the left and choose Render Options. Turn on Ray Trace Shadows, Ray Trace Reflection, Ray Trace Refraction and Ray Trace Transparency.
The First Render

Well the scene looks ok. This is a 5 second render also.
We have to head back to Global Illumination again to enable the radiosity. (It’s the place you can set the ambient light value, go back if you can’t remember where it is.)

1. Enable the radiosity
2. Choose Monte Carlo for Type
3. Intensity to 100%!

Ok, time to render the scene with the best out of the best radiosity.

Well, let’s hope this won’t take a few days to render.
Painful Radiosity Render

Oh my god!!

It took 2 minutes and 5 seconds to render!!!
However, it looks way better than the first render though.
Radiosity basically simulates light bounces off from different objects. If you look closely, the objects’ colors are actually projected to the floor.

Forgot the mention, the floor does not have any reflection values.
Using the concept, I can recreate the reflection of lights using Spot Lights.

We will add three more lights into the scene.

Blue Light for the blue cone, which will be placed right above the blue cone.
Yellow Light for the yellow ball, which will be placed right above the yellow ball.
Red Light for the red cube, which will be placed right above the red cube.

Light Intensity, Spotlight Cone Angle, and Spotlight Soft Edge Angle can be adjust for your personal needs.

If you are picky, you can add a lot more spot lights to increase the realistic of the scene or even use Intensity Falloff Option.

The position of the light is a little bit weird. We have to follow the light and try to project the reflection visually.

Ambient Light can be raised to 10% to create soft edges for the corner, or lighting up some dark areas that simulates Radiosity Effect.
Select Objects -> Item Properties

Click on Rendering, and exclude the objects from creating shadows from the blue, yellow, and red light we created.

The floor however MUST receives the light so do not exclude it.
This is simulating the light reflected from the fill light.

You can choose to use other light sources to fit your needs.

Adding multiple spot lights for one object works very well.
Render for fake blue light 6.5 seconds.
The visual simulation of the light reflected from the yellow ball.
Blue and Yellow, 6.6 seconds
Same Concept for the red cube...
All 3 lights combined, 6.6 seconds
Conclusion

• The shadows aren’t sharp as I wanted, but this tutorial is designed to be simple. A little of changing here and there could create a better scene.
References