0004-Light Models - Ambient, AO, GI or Radiosity [Download Topic]

Author	Message
sacada Site Admin Artist  Joined: October 2006 Posts: 56 Location: Ngunnawal	**0004-Light Models - Ambient, AO, GI or Radiosity**

This tute covers the different light models that are available in Vue.

Each Light Model has different benefits. Some render faster, some look better. Whether they are used indoors or outdoors.

Within this tute, I have created a bunch of example scenes rendered with the different light models.

In the end you can decide which one you would like to use for which scene.

Selecting Atmospheres

There are quite a few different lighting models to choose from within Vue.

To begin with a lighting model, you need to choose a base atmosphere. There are quite a few to choose from.

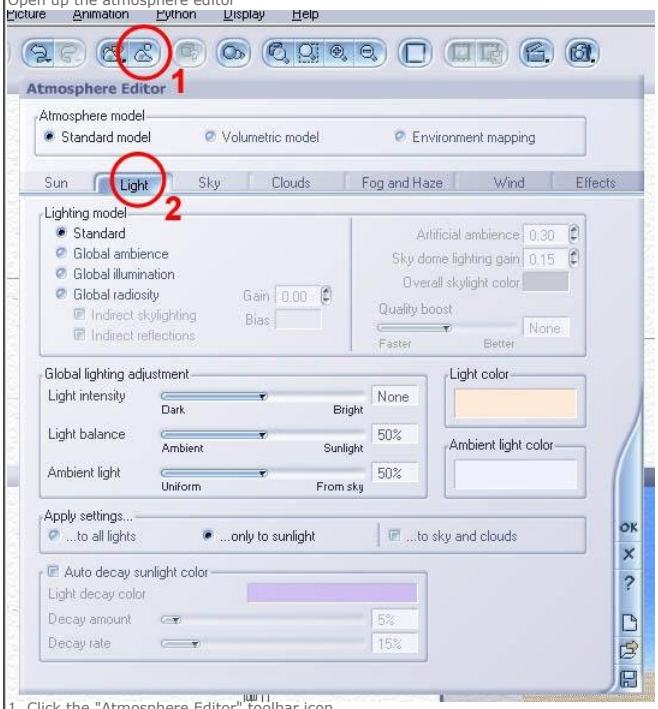
It is good to pick one that you are familiar with and play around with it for a while.

My favourite base atmospheres from Vue 5 are:
- Copenhaguen GI (in Realistic Sunsets)
- Copenhaguen (in Realistic Sunsets)
- Amsterdam (in Realistic Sunsets)
- New Orleans (in Sunshine)

My favourite base atmospheres from Vue 6 are:
- Sunny Summer (in Spectral)
- On the Move (in Spectral)
- The Big Ones (in Spectral)
- Cloud Front (in Spectral)
- Cumulus & Shadows (in Spectral)

I also try out many others and also use them for different moods.

Editing Atmospheres
Open up the atmosphere editor



1. Click the "Atmosphere Editor" toolbar icon
2. Click the "Light" tab.

There are a few different areas within this tab, but this tute will mostly deal with the "Lighting model" section.

Once you have your base atmosphere selected, you can then choose what Light Model you want to use.
These are the base types
1. Standard (S)
   This the the quickest render mode you can get. The shadows are uniformly dark.
2. Global ambience (GA)
   Still quite fast. Simplistically this gives an overall uniform lightening to the scene where the shadowed areas are all lighter.

3. Ambient occlusion (GO) (Vue 6)
AO gives the scene lighter and softer shadows. This method is not available in Vue 5. AO takes a Range integer value that is lighter for low nu
4. Global illumination (GI)
GI is very similiar to AO except AO only has soft shadows on close objects. GI doesn't have a Range.
5. Global radiosity (GR)
GR is the top of the line Lighting Model. Each object will reflect its own colour. This is the most realistic, but will also take the longest to rende
Vue 6 has a new rendering engine making GR renders much faster.

Overall you may find that you will use S or GA or even AO as your test render and then doing a final render in GR. You always have to be careful, as
render may not look at all like what you expected when you change your Light Model.

Indoor Scenes - Summary

Lets start with some indoor scenes. This one is a bathroom scene that was modelled by Sams3D.

This scene is very simple. Firstly I have made all the textures flat white. Then I made the back wall red and the floor checkered yellow and white.
I have added a single point light in the center of the room and also made the mirror reflective.
There is some jpg compression residue around the walls, just ignore that.

I have included render times with these images. These images were rendered at a higher resolution but the render times are there only for compariti
reasons. These comparisons times can be inaccurate as the computer could be doing many other things while rendering. If render times aren't what
will then render the image again to get another reading.

The first bathroom (above) is rendered using the Standard lighting model. In this bathroom you can see very dark areas shadow areas. The other ligl
models lighten the shadow areas (though it is not that evident with this example for Global Illumination).

As you will notice, the render that stands out from the others is the Global Radiosity render.
Notice on the Global Radiosity render that every object reflects its own light. The red wall colour reflects onto the ceiling. The red and yellow colour r
within the white furniture. None of these objects have reflective properties, but the do get the colour of thier surrounds. This is always most evident
white materials.

Render times are:
Standard: 2 min 57 sec
Global Ambiance: 4 min 2 sec
Ambient Occlusion: 6 min 48 sec
Global Illumination: 6 min 41 sec
Global Radiosity: 13 min 59 sec.

From these render times you can see that the GR render is taking twice as long as the AO or GI renders. It is generally worth the time for an indoor
render.

Outdoor Scenes - Summary

Outside renders generally have different results when applying the different Light Models.

Firstly, objects outside are much further apart than indoor scenes, and there is a constant light from the sky as well as the sun. This makes light outs different to inside, as you will see from these examples.

You may find that you won't need to always use Radiosity, but could also choose to render just as effectively with AO or GI. Ambient in these images light and washed out.

This scene only uses the sun as a light source. There are no extra point or spot lights.

The first image is with standard lighting. As you can see, the shadows are very dark. Too dark. Back in the old days (when there were no Lighting Mc would have to add extra lights into this scene to give it the over Ambience that you would expect from real life scenes.

A very dark shadowed looking render done with a Standard Lighting Model.

Next is a collection of four images with the different Light Models.
GA looks a bit washed out in this render.
AO also looked washed out when I first renderd it with a Range of 20, so I changed it to a Range of 70. Now it looks very similar to GI and GR.
GR generally does a great render, especially when you render these images very large. But the render time is always much greater. About twice AO a these examples.

Next we have detailed closeups of the same images. They show that there isn't too much difference between AO, GI and GR.
To compare check the shadows under and around the rocks.

Conclusion

My personal opinion...

Indoor - Best with GR, but could be done with AO (Range 20) to save time.

Outdoor - Best value for time would be AO (Range 70) or GI.

Hope you enjoyed the tute.

Thanks for your visit.

Site Admin and Artist
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#1 10 Oct 2006 09:55 OFFLINE PROFILE PM

Re: 0004-Light Models - Ambient, AO, GI Or Radiosity QUOT

SAG3

Member

Joined: January 2007
Posts: 1
Location: tennessee

Man your work is great. is there a chance that you may do a step by step on makeing a landscape like you have in "castle lookout" or "light house"?

again great work, sag3

#2 25 Jan 2007 02:11 OFFLINE PROFILE PM WWW

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