

Texturing, Lighting, Scenery and Rendering

Okay, let's get on with setting this up as a scene. Load up Layout and start by loading in all the objects we have saved, which should be 12.

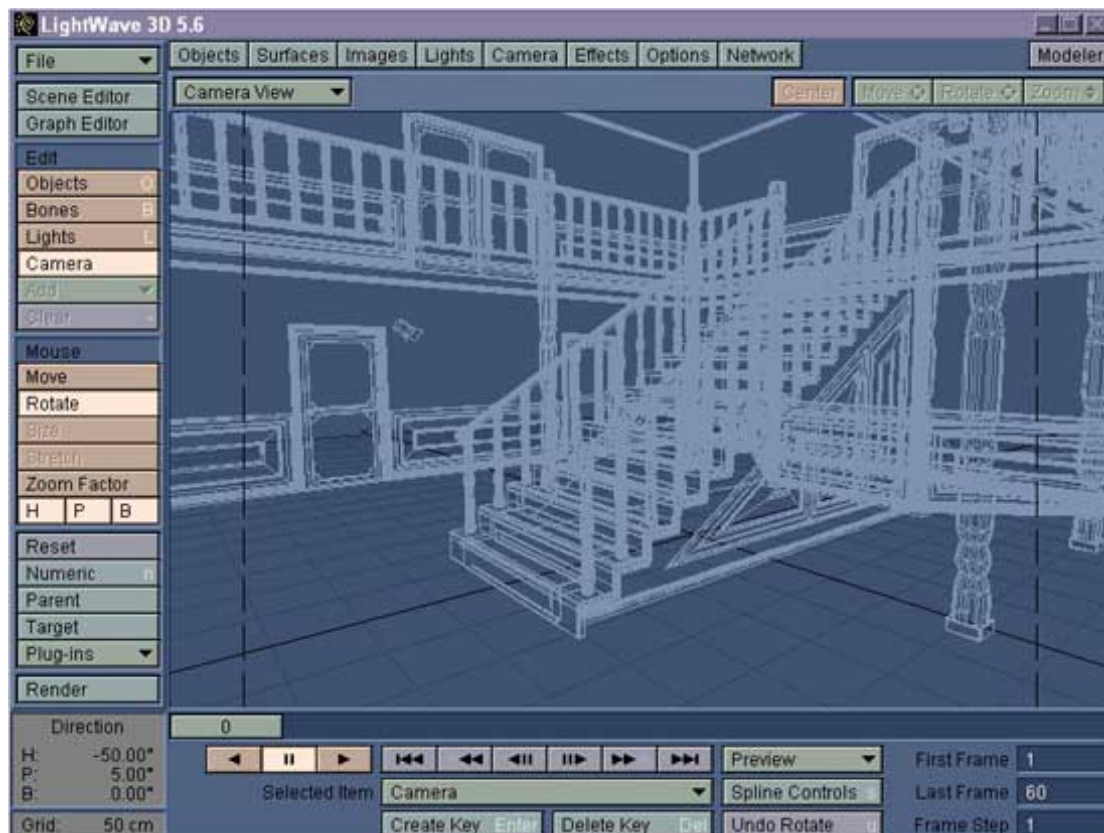
(If you made the second part of this Tutorial, where we created Carpets for Level 0 and Level 1, you can load these to) The Grid Size of Layout should change when you've loaded all the objects, so this is the first thing we will change. Open up the Options Panel and set the Grid Size to 50cm. Select Camera View to view the Universe from the Camera, then click the Camera button under the Edit menu, and choose the Move Tool, bring up the Numeric Panel and enter the following values.

X	4m
Y	1,7m
Z	-4m

When the Camera has moved, activate the Rotate Tool and enter the following values.

Heading	-50
Pitch	5
Bank	0

Open up the Camera Panel and change the Zoom Factor to 2.0. What the Camera sees now, should look something like Picture 1.



Picture 1: This is what the Camera should be looking at

Texturing the Mansion Hall

Carpet_Gold & Door_Knob

Open up the Surface Panel and checkmark the "Alphabetize List" box. This will arrange the Surface names nicely in the slide down menu.

We will now edit each surface to give them a good look for the final render. Lets start out with the Carpet_Gold one, so select this one from the slide down menu. We'll give this a simple Gold Metallic look, and in the Basic Parameters section of the Surface Panel, enter the following values.

Surface Colour: R: 230 G: 160 B: 30
Luminosity: 0%
Diffuse Level: 50%
Specular Level: 100%
Glossiness: 16
Reflectivity: 80%
Transparency: 0%
Smoothing: ON (89,5°)

Enter the Advanced Parameters section for this surface and select the Fast Fresnel Shader from the first slide down menu. Click the Options button for this Shader and enter the following values.

Minimum Glancing Angle: 25
Reflectivity: 100%
Specular: 100%

Deselect all the others but these two mentioned above. Only Reflectivity and Specular should be activated. Click OK and render a sample of this surface.

Switch to the Door_Knob Surface and click on the rendered sample we just created with the Carpet_Gold Surface. Lightwave will ask you if you want to copy the sample Surface to the current Surface, so just click yes, and the Door_Knob Surface is finished! If you now render a sample of the Door_Knob, it should look like the Carpet_Gold one.

Carpet_Red

Switch to the Carpet_Red Surface, and in the Basic Parameters section, enter the following values.

Surface Colour:	R: 255 G: 0 B: 0
Luminosity:	0%
Diffuse Level:	100%
Specular Level:	0%
Glossiness:	OFF
Reflectivity:	0%
Transparency:	0%
Smoothing:	OFF

We will make this Surface a bit more advanced than the last one, so click the Texture Button for the Colour Channel, and then enter the following values.

Texture Type:	Cubic Image Map
Texture Opacity:	70%
Texture Image:	Carpet.iff
Texture Alpha Image:	None
Pixel Blending:	ON
Width Repeat:	ON
Height Repeat:	ON
World Coordinates:	OFF
Texture Antialiasing:	OFF

Texture Size

X:	30cm
Y:	30cm
Z:	30cm

Leave the rest to the default settings and click OK. That's it for the Colour Channel, now click the Texture Button for the Diffuse Channel and enter the following values.

Texture Type:	Fractal Noise
Texture Opacity:	50%
World Coordinates:	OFF
Texture Value:	50%
Frequencies:	3
Contrast:	1.0
Small Power:	0.5

Texture Size

X:	40cm
Y:	2cm
Z:	2cm

When you've entered all these values, hit "ctrl+c" on your keyboard to copy these texture settings. Click the "Add New Texture" button and paste the settings here by hitting "ctrl+v" on your keyboard.

You will now have two layers for the Diffuse Channel with the same settings, but lets change this last one a bit. Click the Texture Size button, and then enter these new values.

Texture Size

X: 2cm
Y: 2cm
Z: 40cm

You may now click Use Texture, since we are finished with the Diffuse Channel.

We will also add a Bump Map to this Surface, so click the Texture Button for the Bump Map Channel and then use the following settings.

Texture Type: Cubic Image Map
Texture Opacity: 100%
Texture Image: Carpet.iff
Texture Alpha Image: None
Pixel Blending: ON
Width Repeat: ON
Height Repeat: ON
World Coordinates: OFF
Texture Antialiasing: OFF

Texture Size

X: 30cm
Y: 30cm
Z: 30cm

Texture Amplitude: 100%

Click OK and the Carpet_Red Surface is finished. You can render a sample to see what it looks like at this point.

Doors

Select the Doors surface and enter the following settings for the Basic Parameters part.

Surface Colour: R: 90 G: 45 B: 30
Luminosity: 0%
Diffuse Level: 100%
Specular Level: 35%
Glossiness: 16
Reflectivity: 0%
Transparency: 0%
Smoothing: OFF

Click the Texture button for the Colour Channel and use the following settings.

Texture Type: Fractal Noise
Texture Opacity: 30%
World Coordinates: OFF
Texture Colour: R: 110 G: 50 B: 40
Texture Value: 50%
Frequencies: 3
Contrast: 1.0
Small Power: 0.5

Texture Size

X: 10mm
Y: 20cm
Z: 10mm

Click Use Texture, since we are done with the Colour Channel. Click the Texture Button for the Diffuse Channel, and use the following settings.

Texture Type: Fractal Noise
Texture Opacity: 20%
World Coordinates: OFF
Texture Value: 50%
Frequencies: 3
Contrast: 1.0
Small Power: 1.0

Texture Size

X: 8mm
Y: 30cm
Z: 8mm

Click OK and we are done with the Door Surface!

Floor

Lets get on with the Floor Surface, so enter the following values for the Basic Parameters.

Surface Colour: R: 150 G: 75 B: 60
Luminosity: 0%
Diffuse Level: 100%
Specular Level: 75%
Glossiness: 16
Reflectivity: 20%
Transparency: 0%
Smoothing: OFF

Click the Texture button for the Colour Channel and use the following settings.

Texture Type: Fractal Noise
Texture Opacity: 30%
World Coordinates: OFF
Texture Colour: R: 0 G: 0 B: 0
Texture Value: 50%
Frequencies: 3
Contrast: 1.0
Small Power: 0.5

Texture Size

X: 50cm
Y: 10cm
Z: 10cm

Click OK since we are done with this Texture, then click the Texture button for the Diffuse Channel. Use the following settings for the first texture.

Texture Type: Planar Image Map
Texture Opacity: 100%
Texture Image: floor_diffuse2.jpg
Texture Alpha Image: None
Pixel Blending: ON
Width Repeat: ON
Height Repeat: ON
World Coordinates: OFF
Texture Axis: Y
Texture Antialiasing: ON (0.2)

Texture Size

X: 1m
Y: 1m
Z: 1m

Click the Add New Texture button, and use the following settings for the new texture.

Texture Type: Fractal Noise
Texture Opacity: 50%
World Coordinates: OFF
Texture Value: 50%
Frequencies: 5
Contrast: 1.0
Small Power: 1.0

Texture Size

X: 20cm
Y: 10mm
Z: 10mm

Press "ctrl+c" to copy this texture, then click the Add New Texture button and paste it there by hitting "ctrl+v". Change the following values with the texture we just pasted.

Texture Type: Fractal Noise
Texture Opacity: 35%
World Coordinates: OFF
Texture Value: 25%
Frequencies: 5
Contrast: 1.0
Small Power: 1.0

Texture Size

X: 10cm
Y: 1mm
Z: 1mm

When you are done, click Use Texture since we are done with the Diffuse Channel. Click the Texture Button for the Specular Channel and use the following settings.

Texture Type: Planar Image Map
Texture Opacity: 50%
Texture Image: floor_diffuse2.jpg
Texture Alpha Image: None
Pixel Blending: ON
Width Repeat: ON
Height Repeat: ON
World Coordinates: OFF
Texture Axis: Y
Texture Antialiasing: OFF

Texture Size

X: 1m
Y: 1m
Z: 1m

Click Use Texture since the Specular Channel is finished. Now we just need to add some Bump to our floor, so click the Texture button for the Bump channel, and use the following settings.

Texture Type: Planar Image Map
Texture Opacity: 100%
Texture Image: floor_bump.jpg
Texture Alpha Image: None
Pixel Blending: ON
Width Repeat: ON
Height Repeat: ON
World Coordinates: OFF
Texture Axis: Y
Texture Antialiasing: OFF
Texture Amplitude: 75%

Texture Size

X: 1m
Y: 1m
Z: 1m

Hit "ctrl+c" on your keyboard to copy this texture, then click the Add New Texture button and paste it there. Change this new Texture into the following values.

Texture Type: Planar Image Map
Texture Opacity: 100%
Texture Image: floor_bump2.jpg
Texture Alpha Image: None
Pixel Blending: ON
Width Repeat: ON
Height Repeat: ON
World Coordinates: OFF
Texture Axis: Y
Texture Antialiasing: OFF
Texture Amplitude: -30%

Texture Size

X: 1m
Y: 1m
Z: 1m

Click Use Texture and the Floor Surface is finished!

Rails

Switch to the Rails Surface and set the Basic Parameters to the following.

Surface Colour: R: 60 G: 25 B: 20
Luminosity: 0%
Diffuse Level: 100%
Specular Level: 50%
Glossiness: 16
Reflectivity: 25%
Transparency: 0%
Smoothing: ON (30,0°)

Click the Texture button for the Colour Channel and use the following settings.

Texture Type: Wood
Texture Opacity: 75%
World Coordinates: OFF
Texture Axis: Y
Texture Colour: R: 90 G: 50 B: 40
Frequencies: 3
Turbulence: 2.0
Ring Spacing: 0.01
Ring Sharpness: 3.0
Texture Size

X: 10cm
Y: 10cm
Z: 10cm

Copy this texture by hitting "ctrl+c", then click the Add New Texture button and paste it there. Use the following settings.

Texture Type: Wood
Texture Opacity: 75%
World Coordinates: OFF
Texture Axis: Y
Texture Colour: R: 110 G: 60 B: 40
Frequencies: 3
Turbulence: 1.0
Ring Spacing: 0.01
Ring Sharpness: 3.0

Texture Size

X: 15cm
Y: 15cm
Z: 15cm

Click the Add New Texture button once more and use the following settings.

Texture Type: Fractal Noise
Texture Opacity: 50%
World Coordinates: OFF
Texture Colour: R: 120 G: 50 B: 40
Frequencies: 3
Contrast: 1.0
Small Power: 0.5

Texture Size

X: 10mm
Y: 10cm
Z: 10mm

Click Use Texture and the Rails Surface is finished!

Roof

Lets do the Roof! Change the Basic Parameters to the following.

Surface Colour: R: 130 G: 80 B: 70
Luminosity: 0%
Diffuse Level: 100%
Specular Level: 0%
Glossiness: OFF
Reflectivity: 0%
Transparency: 0%
Smoothing: OFF

Click the Texture Button for the Colour Channel and set the texture to the following.

Texture Type: Fractal Noise
Texture Opacity: 30%
World Coordinates: OFF
Texture Colour: R: 150 G: 100 B: 70
Frequencies: 3
Contrast: 1.0
Small Power: 0.5

Texture Size

X: 3cm
Y: 3cm
Z: 3cm

Click Use Texture and then click the Texture button for the Diffuse Channel, set the texture to the following.

Texture Type: Fractal Noise
Texture Opacity: 30%
World Coordinates: OFF
Texture Value: 50%
Frequencies: 3
Contrast: 1.0
Small Power: 0.5

Texture Size

X: 2cm
Y: 2cm
Z: 2cm

Click Use Texture, then click the Texture Button for the Bump Channel, and set the texture to the following.

Texture Type: Fractal Bumps
Texture Opacity: 100%
Texture Size: 10mm on all axes
Texture Amplitude: 20%
Frequencies: 6

Click Use Texture and we are done with the Roof Surface!

Wallpaper

Change the current surface to the Wallpaper one, and use the following Basic Parameters.

Surface Colour: R: 160 G: 80 B: 60
Luminosity: 0%
Diffuse Level: 100%
Specular Level: 0%
Glossiness: OFF
Reflectivity: 0%
Transparency: 0%
Smoothing: OFF

Click the Texture Button for the Colour Channel and use the following settings.

Texture Type: Cubic Image Map
Texture Opacity: 50%
Texture Image: wallpaper_colour.jpg
Texture Alpha Image: None
Pixel Blending: ON
Width Repeat: ON
Height Repeat: ON
World Coordinates: OFF
Texture Antialiasing: OFF

Texture Size

X: 42,5cm
Y: 89,15cm
Z: 42,5cm

Hit "ctrl+c" on your keyboard to copy this surface, then click Use Texture since we are done with the colour channel. Click the Texture Button for the Diffuse Channel and paste the surface here by hitting "ctrl+v". Change the following settings. (Just change the image file)

Texture Type: Cubic Image Map
Texture Opacity: 50%
Texture Image: wallpaper_diffuse.jpg
Texture Alpha Image: None
Pixel Blending: ON
Width Repeat: ON
Height Repeat: ON
World Coordinates: OFF
Texture Antialiasing: OFF

Texture Size

X: 42,5cm
Y: 89,15cm
Z: 42,5cm

That's it for the Diffuse Channel, so just click Use Texture.

Click the Texture Button for the Bump Map Channel, and once again paste the texture here. Change the following settings.

Texture Type:	Cubic Image Map
Texture Opacity:	100%
Texture Image:	wallpaper_diffuse.jpg
Texture Alpha Image:	None
Pixel Blending:	ON
Width Repeat:	ON
Height Repeat:	ON
World Coordinates:	OFF
Texture Antialiasing:	OFF
Texture Amplitude:	50%

Texture Size

X:	42,5cm
Y:	89,15cm
Z:	42,5cm

Click Use Texture and we are done with the Wallpaper Surface!

Walls_Wood

Okay, the last one! Set the Basic Parameters of the Walls_Wood surface to the following.

Surface Colour: R: 60 G: 25 B: 20
Luminosity: 0%
Diffuse Level: 80%
Specular Level: 80%
Glossiness: 16
Reflectivity: 10%
Transparency: 0%
Smoothing: OFF

Click the Texture Button for the Colour Channel and use the following settings.

Texture Type: Fractal Noise
Texture Opacity: 50%
World Coordinates: OFF
Texture Colour: R: 120 G: 50 B: 40
Frequencies: 3
Contrast: 1.0
Small Power: 0.5

Texture Size
X: 10cm
Y: 1mm
Z: 10cm

Click the Add New Texture button and change to the following.

Texture Type: Wood
Texture Opacity: 75%
World Coordinates: OFF
Texture Axis: Y
Texture Colour: R: 80 G: 40 B: 30
Frequencies: 6
Turbulence: 1.0
Ring Spacing: 0.04
Ring Sharpness: 1.0

Texture Size
X: 10mm
Y: 10mm
Z: 10mm

Hit "ctrl+c" to copy this texture, then click the Add New Texture button and paste it here. Change to the following.

Texture Type: Wood
Texture Opacity: 100%
World Coordinates: OFF
Texture Axis: Y
Texture Colour: R: 60 G: 20 B: 10
Frequencies: 6
Turbulence: 1.0
Ring Spacing: 0.04
Ring Sharpness: 1.0

Texture Size

X: 2cm
Y: 2cm
Z: 2cm

Click Use Texture since we are done with the Colour Channel, then click the Texture button for the Diffuse Channel and change to the following.

Texture Type: Fractal Noise
Texture Opacity: 40%
World Coordinates: OFF
Texture Value: 50%
Frequencies: 5
Contrast: 1.0
Small Power: 1.0

Texture Size

X: 20cm
Y: 2mm
Z: 20cm

Click Use Texture and we are done with the last Surface! Enter the Objects Panel and click the Save All Objects button, now the surfaces are saved with the objects.

Lighting

We will use 12 lights for our scene to make it as realistic as possible. If you are using Lightwave 6 you could try your own Lighting setup since you can use Radiosity, which I must say, adds very much realism to the scene. But for Lightwave 5.5 or 5.6 you can do the following steps.

Open up the Lights Panel and change the current light to the following settings.

Ambient Colour: R: 255 G: 255 B: 255
 Enable Lens Flares: ON
 Enable Shadow Maps: ON
 Light Colour: R: 255 G: 255 B: 255
 Lens Flare: OFF
 Light Intensity: 150%
 Light Type: Point Light
 Intensity Falloff: ON
 Maximum Range: 4m
 No Diffuse: OFF
 No Specular: OFF
 Shadow Type: Raytrace

This is our basic Light Setup, now we just need to clone this one. Click the Clone Light button and enter 11 for the number of Clones. This will give us 12 Lights, which we now will place out in our Hall. Close down the Lights Panel, and then click the Lights button in the Edit menu. Everything we do now, will affect the lights.

At the bottom of Layout, you should see a slide down menu where you can select items in your scene. Since we are in Lights mode, the lights are listed in the slide down menu. Select the Light(1) from this list and then bring up the Numeric Panel for the Move Tool. Below you'll find information that will tell you where each of these lights should be positioned, so change the values on the lights one at a time.

Light(1) Position	Light(2) Position	Light(3) Position	Light(4) Position
X -3,4m	X -3,4m	X -3m	X 3,4m
Y 1,7m	Y 1,7m	Y 1,7m	Y 1,7m
Z -3,4m	Z 0m	Z 3m	Z -3,4m

Light(5) Position	Light(6) Position	Light(7) Position	Light(8) Position
X 3,4m	X 3m	X 0	X -3,4m
Y 1,7m	Y 1,7m	Y 3m	Y 4,6m
Z 0m	Z 3m	Z 2m	Z -3,4m

Light(9) Position	Light(10) Position	Light(11) Position	Light(12) Position
X -3m	X 3,4m	X 3m	X 0m
Y 4,6m	Y 4,6m	Y 4,6m	Y 2,4m
Z -3m	Z -3,4m	Z 3m	Z -1,5m

The Rotation of these Lights does not matter since they are Point Lights.

Setting up the Camera

This scene is soon finished for rendering, but first we need to tell the camera what to render. Switch from Lights mode to Camera mode, and activate the Move Tool. Move to Frame 1 at the bottom of Layout, and bring up the Numeric panel. Use the following settings.

Camera Frame 1	
X	4m
Y	1,3m
Z	-4m

Click OK and hit Enter on your keyboard to create a key. Move to Frame 2, bring up the Numeric Panel again and use the following settings.

Camera Frame 2	
X	4m
Y	1,3m
Z	-4m

Click OK and hit Enter to create a key. (The position of frame 1 and 2 should be the same; we will change the rotation later on). Move to Frame 3 and bring up the Numeric Panel. When you are done with frame 3 just continue with frame 4-6. Use the values shown below. Remember to create a key after each move.

Camera Frame 3	
X	90cm
Y	1,3m
Z	-3m

Camera Frame 4	
X	0m
Y	60cm
Z	-4,3m

Camera Frame 5	
X	0m
Y	4,6m
Z	4,2m

Camera Frame 6	
X	-4,2m
Y	4,6m
Z	4,4m

Now the Camera is positioned at different places in our Hall, and if you use the Frame Slider at the bottom of Layout, you can see how the camera moves between the different frames. Now we will rotate the Camera, so activate the Rotate Tool, go back to Frame 1 and use the following settings.

Camera Frame 1	
Heading	-60
Pitch	4
Bank	0

Click OK and hit Enter to create a key. Repeat this procedure with the following 5 frames (2-6), use the values shown below.

Camera Frame 2	
Heading	-20
Pitch	1
Bank	0

Camera Frame 3	
Heading	50
Pitch	6
Bank	0

Camera Frame 4	
Heading	0
Pitch	-5
Bank	0

Camera Frame 5	
Heading	170
Pitch	25
Bank	0

Camera Frame 6	
Heading	135
Pitch	23
Bank	0

Remember to create a key after each rotation you make. The Camera is now finished, and if you use the Frame Slider, you can see how it moves and rotates as you change the frame number. 6 Renders is quite enough to see how the textures and lighting work, but you could of course make a small animation of this if you want to.

Final Rendering

Open up the Camera Panel and check the following settings.

Custom Size: 800x600 (You can use more or less if you want to)
Pixel Aspect Ratio: Square Pixels
Limited Region: OFF
AntiAliasing: Enhanced High
Adaptive Sampling: ON
Zoom Factor: 2.0

Leave the rest to the default settings and close down this Panel. Open up the Render Panel and check the following settings.

Rendering Mode: Realistic
Trace Shadows: ON
Trace Reflection: ON
Trace Refraction: OFF
Show Rendering in Progress: OFF
Render First Frame: 1
Render Last Frame: 6
Render Frame Step: 1
Automatic Frame Advance: ON

Image Saving: ON (Save RGB Images, choose a name)

That's it! We have a complete scene ready for rendering!
Save this scene as "MansionHall.lws".

All you have to do now is click the Begin Rendering button and you are on your way!