HDRI Lighting

By: Richard Fleming
Typical Lighting

- Point Lights
- Area Lights
- Distant Lights
- Linear Lights
- Spot Lights

- HDRI Lighting can simulate all these types of lights
When to Use HDRI Lighting?

- **Outside scenes**
  - Ocean light (sun over the ocean)
  - Moonlight
  - Sunrise
  - Afternoon
    - Generally any outside scene is good—so long as it has the elements needed for the LW scene

- **Almost any picture can be used in HDRI Lighting (a Lightprobe)**

- **Again, be sure that the image has lighting that will fit the scene.**

- **Can also be used on windows in a house**

- **Backdrop for an image and another image for the lighting**
Color Range

- **LDRI**
  - 8 bits = $2^8 = 256$ colors that can be represented

- **HDRI**
  - Exceeds the 8 bit limit
    - Values such as 942.32, 500, 257.333, are legal values.
    - Areas in which appear dark may contain valuable information
Creating the HDRI

- Images such as the one to the side are referred to lightprobes in Lightwave.
- Use a
  - Chrome ball set on a pole
  - Fish lens on a camera
  - Buy professionally edited photographs specifically taken for HDRI
- Edit the photos in Photoshop
  - Layer and stitch together
    - Layers create a higher dynamic range. This is of great importance when using the image as a lightprobe
Background Option

- Load your scene
- Effects tab > Background
  - Ctrl + F5 (v8.0)
Effects Tab

- Click on “add environment” dropdown
Select “Image World”
The plug-in is now installed
Edit Properties

- Select the "Image World" text
- Click on Edit and select properties
Loading the Image

- Load the image in the Light Probe Image drop-down
If Image Not Present...

- If the image is not present....
  - Press F6 to load the Image Editor (LW v8.0)
  - Click on the Load tab
  - Find your image
  - Now it’s loaded.
Settings

- Here you can edit the properties such as:
  - Rotational values
  - Brightness
  - *They are self explanatory
More Settings!

- Before rendering, be sure to turn ON radiocity
  - Select a light
  - Select global properties
  - Click on the box so that a check mark appears for the radiocity box
- No other lights should be needed at this point
What Wasn’t Told (In Tutorials/Online)

- What you should know, or what wasn’t told.
  - Create a Sphere
    - Large enough to surround the scene
  - Settings
    - Luminosity
    - Diffuse
    - Spherical mapping
Create a Sphere

- Create a Sphere
  - Make it large enough to surround your scene
  - Save it and import it into Lightwave
  - Load the image to the sphere
    - Image editor—T tab
      - Select HDRI image imported
      - Select spherical mapping
      - Have inverted normals
  - Turn off Shadows and exclude ALL lights
    - Select the sphere
    - Press p for properties
    - Render and Lights tab
      - Turn off all shadows under render
      - Make sphere unaffected by lights under Lights tab
Properties on Lighting

- Select a light (any light)
- Press p to enter properties
  - Click on Global Illumination
    - Change ambient lighting to 0%
    - Change the type under radiocity to Interpolated (fast) or Monte Carlo (More accurate—Slow)
      - These tell how accurate the lighting will be.
    - Change indirect bounces to 1 or 2
      - Higher values will create greater render time!
      - This simulates the light on how it bounces off objects; how many times it bounces off of one surface and lands on another
Sample Render

- LDRI Render
- Picture on window used as the only light source
  - Brightness set @ 300%
  - Monte Carlo
  - Indirect bounces = 1
  - Low AA
Good and Bad about HDRI Lighting

- **Good**
  - Can produce faster renders
    - Glass makes renders surprising slower
  - Realistic lighting

- **Bad**
  - You cannot see the image until render time
  - Difficult to spot where the “sun” or main light source is coming from.
Sources

- [http://www.dbki.de/tutorials/eng/hdr_lighting/index.htm](http://www.dbki.de/tutorials/eng/hdr_lighting/index.htm)
Thanks for your time and patience

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