



SimLights is a light map generation plug-in for Multigen Creator v 3.0 or better.

Light Mapping Overview

Light mapping is a technique that has been used in the gaming industry for years to add shadows and Phong lighting effects to scenes. A light map is simply a texture map that contains the environment's diffuse and ambient lighting effects for a surface.

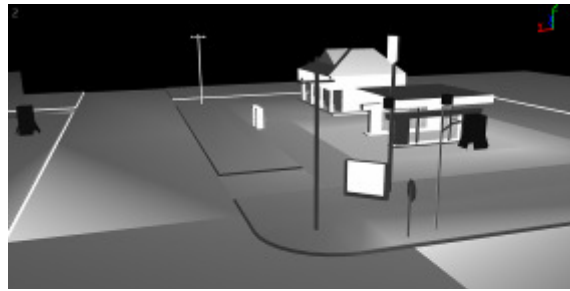


Image generated using Creator's "Calculate Shading," updating vertex colors.

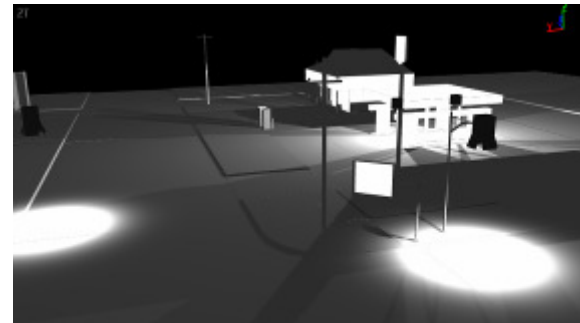


Image generated using SimLights with the same polygon and light source attributes.

SimLights

Light maps can be intensity maps or full RGB images for use with colored light sources. The light map modulates the attenuation of the surface providing the diffuse lighting effect – in the same manner as vertex colors in the OpenGL lighting equation.



SimLights Summary

SimLights will pre-render your database, generating a series of light maps that correspond to the lighting contributions from all static light sources in the scene. Light source colors, attributes, and visibility are combined with surface materials and normals using OpenGL's standard diffuse and ambient lighting equations. This produces a light map containing lighting and shadowing effects for each surface.

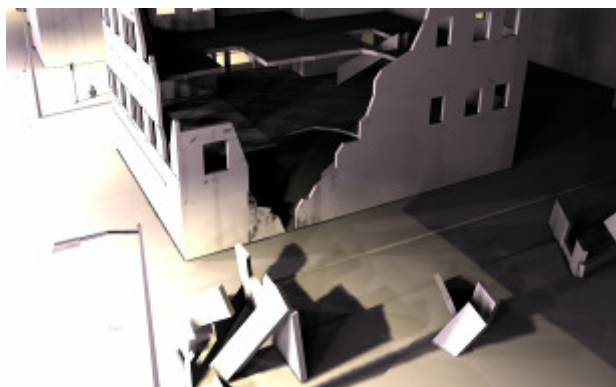
The light maps are automatically applied to the geometry as a secondary texture layer using MODULATE texture environment mode. When combined with the decal texture, the result is a

multi-textured database that appears to be Phong shaded and shadowed. Since light maps are pre-rendered, increasing the number of light sources or their attributes does not harm rendering performance.

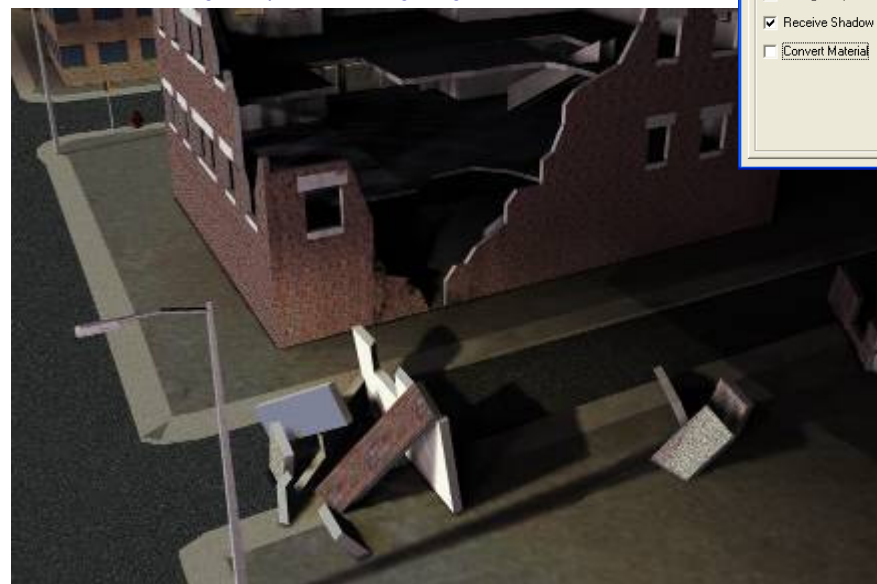
SimLights generates databases that are fully compliant with OpenFlight version 15.7, making them compatible with most modern Scene Graphs and Image Generators.

Please visit RTI's web site, www.simcreator.com, to learn more about SimLights and to download an example light mapped database.





Decal, light map with resulting image below.

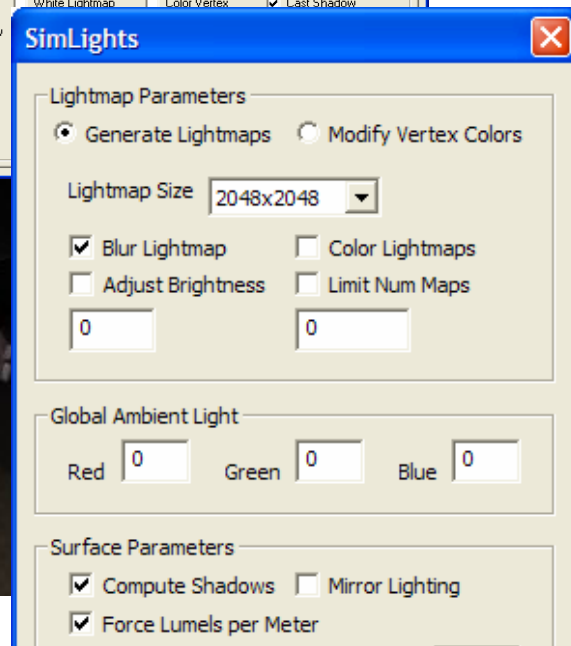
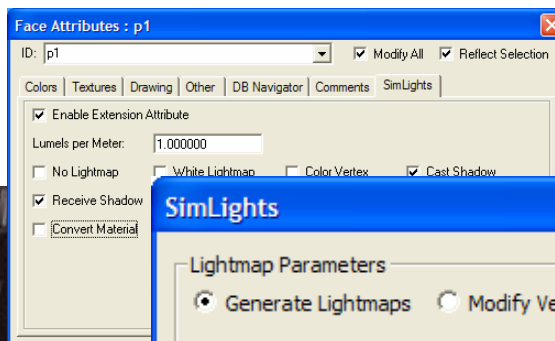


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features

- Complies with OpenFlight 15.7 – no runtime extensions needed to render scenes.
- Renders to light maps or vertex colors with full lighting and shadows.
- Offers infinite, local and spot lights with umbra and penumbra (dual cone effect).
- Allows per-surface or global lumel-per-meter ratio adjustments.
- Gives modeler control of light map texture memory usage.
- Supports OpenFlight LODs and billboards with transparency.
- Offers adjustable light map sizes from 128x128 to 4096x4096
- Allows for full color or intensity light maps.
- Provides blur light maps for softer shadows.
- Offers post-render intensity adjustments.
- Supports global ambient color.
- Takes advantage of Hyper Threading and SPM systems via fully threaded rendering engine.
- Generates "Mirror" lighting for reflective surfaces, with variable reflectivity.

SimLights



Top: Light map face attributes extensions.
Bottom: Creator light map renderer dialog box.



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