

# Synopsys Enhances Luminaire Design with LightTools 8.4 Release

Latest Version of Illumination Design Software Enables Rapid Virtual Prototyping and Optimization of General Lighting Systems

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## Highlights:

- New Configuration Manager to model design variations quickly and efficiently
- New hybrid ray tracing capability for faster simulation results
- New Light Guide Designer to improve light pipe output
- Enhanced Street Lighting Utility for design of symmetric fixtures targeting uniform luminance

Synopsys, Inc. (Nasdaq: SNPS) today announced the release of its LightTools® 8.4 software, the latest version of the company's illumination design solution for the modeling, analysis and optimization of innovative illumination optics. Synopsys' LightTools 8.4 release offers several significant enhancements to accelerate and streamline the design of luminaires, including a new Configuration Manager for rapid virtual prototyping, hybrid ray tracing for faster illumination simulations, and utilities to automate key design aspects of light pipes and street lighting fixtures.

## Configuration Manager

The new Configuration Manager supports multiple design variations in a single LightTools model. The feature simplifies model maintenance and allows users to construct design variations quickly and efficiently. For example, users can set up multiple versions of a model using different light sources, geometric shapes, materials and optical properties, and then quickly analyze and compare the variations to evaluate the best design solution. The Configuration Manager also streamlines the creation of multiple designs to incorporate the versions of a product family that share a common design form.

"The Configuration Manager enables LightTools users to rapidly construct, simulate and compare various design directions," said George Bayz, vice president and general manager of Synopsys' Optical Solutions Group. "It is a powerful addition to LightTools' virtual prototyping capabilities that makes it easier for users to make timely design evaluations and adjustments, and get the best designs to market faster."

## Hybrid Ray Tracing

The new hybrid ray tracing capability combines both forward and backward ray tracing into a single simulation to enable speed gains of 2x to 100x or more, depending on the model configuration. Hybrid ray tracing is fully integrated into LightTools and supports the analysis of illuminance, intensity, spatial and angular luminance and color. It is effective for luminaire designs with multiple scattering surfaces and smaller sources, such as digital projectors, medical optics and LED-based indoor and outdoor lighting systems. Hybrid ray tracing can show results in a fraction of the time needed using forward or backward methods alone, allowing the designer faster iterations and a shorter design time.

## Light Guide Designer

The new Light Guide Designer provides tools to automate the construction, analysis and optimization of light pipes and their extraction features to maximize light output. The Light Guide Designer simplifies the complex task of designing light guide systems with unique features including:

- Algorithms developed by Synopsys to rapidly optimize flux uniformity along the length of the light guide
- Automatic modification of texture shapes and lateral positions to optimize the output direction of light
- 3D analysis tools to visualize and evaluate both the flux and angular distribution of light

The Light Guide Designer is particularly useful for the design of light pipes used in automotive lighting, medical devices and architectural lighting.

## Street Lighting Utility Enhancements

The Street Lighting Utility provides a comprehensive set of tools to design, optimize and analyze luminaires for street lighting. LightTools 8.4 includes several enhancements to the Street Lighting Utility, including the ability to create fixture designs with bilaterally symmetric intensity distributions that maintain good luminance uniformity. This makes the fixtures more cost effective to manufacture and install. In addition, the utility now

directly interacts with the LightTools Freeform Designer to support the development of freeform optical elements that meet the desired intensity pattern, giving designers more flexibility to meet system requirements and improve energy efficiency.

### **Availability & Resources**

LightTools version 8.4 is available now. Customers with a current maintenance agreement can download this version from the Synopsys website using their SolvNet® account.

### **About LightTools**

LightTools is a 3D optical engineering and design software product that supports virtual prototyping, simulation, optimization and photorealistic rendering of illumination applications. For more information, visit <http://optics.synopsys.com/lighttools>.

### **About Synopsys**

Synopsys, Inc. (Nasdaq: SNPS) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 16th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also a leader in software quality and security testing with its Coverity® solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest quality and security, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at [www.synopsys.com](http://www.synopsys.com).

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