Bringing Multiple Light Sources into One Optical System

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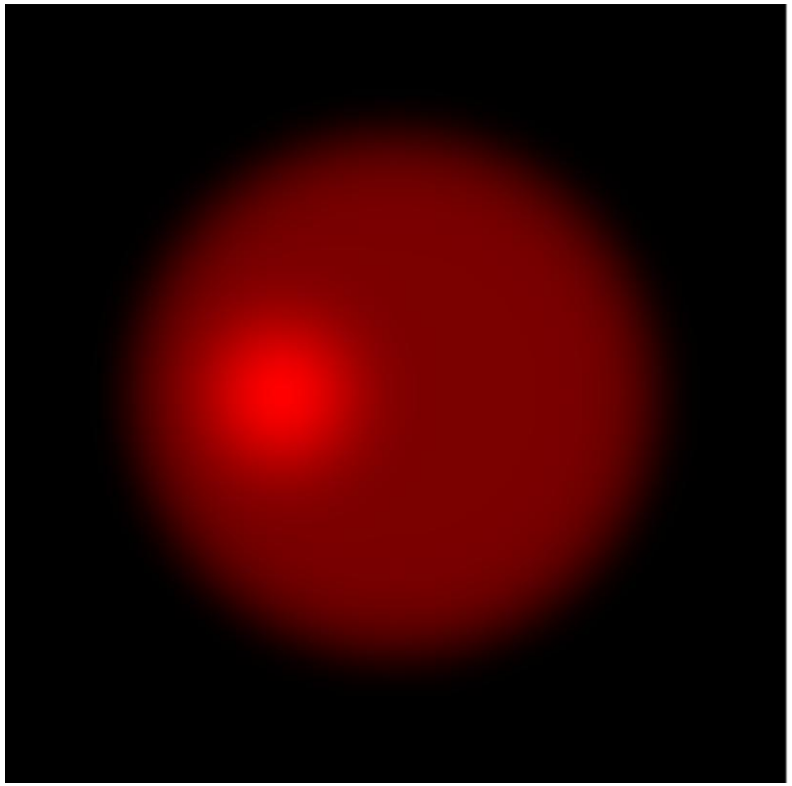


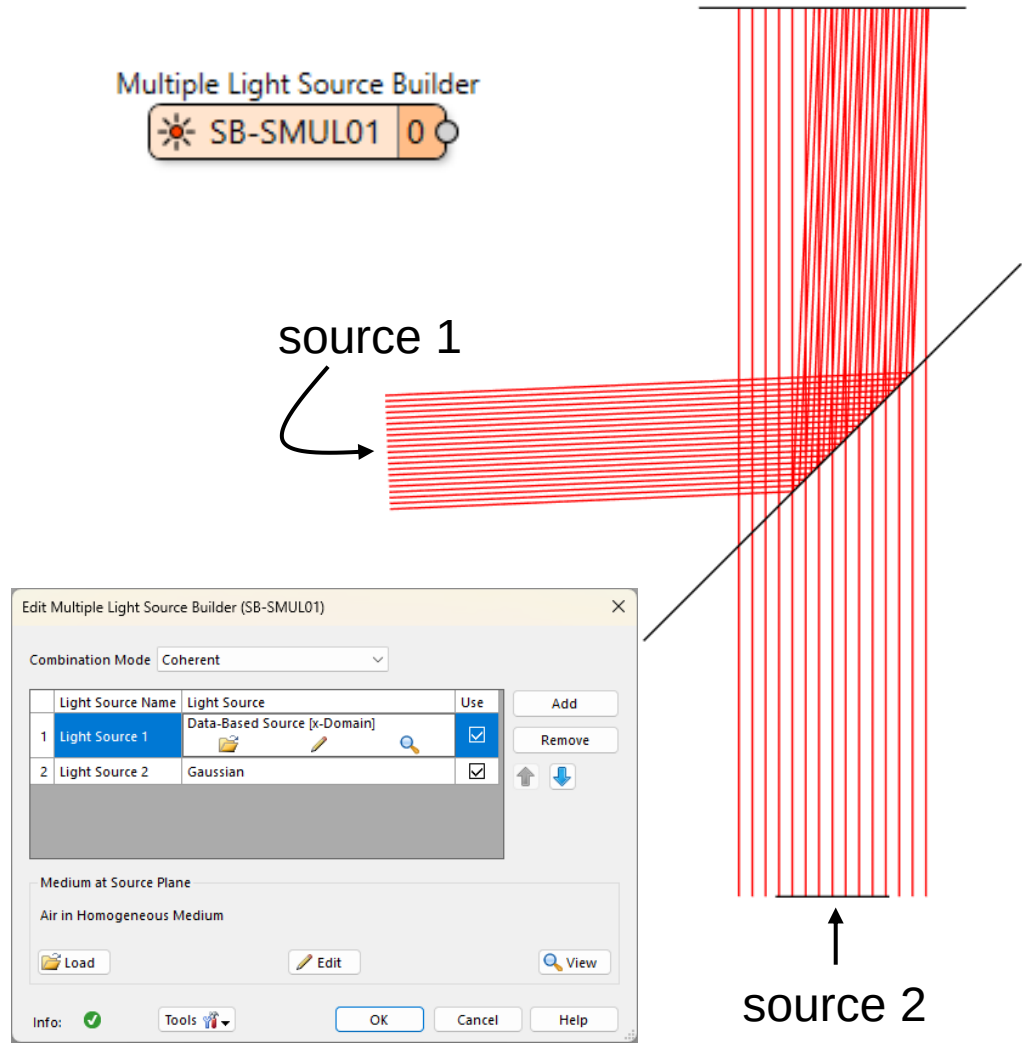
What Can the Multiple Light Source Builder Be Used For?

Flexible Source Configurations

- The Multiple Light Source Builder twin can contain several individual sources within one optical system.
- If *Software Developement Kits (SDK)* sources are used, their coordinate systems can be freely defined.
- This allows users to emit fields from different positions and directions within the same setup.

Software Development Kits (SDK)

- SDK sources can be used to define custom field distributions or specialized source models.
- For simple custom source models, users may also contact support@lighttrans.com for support with SDK source programming.



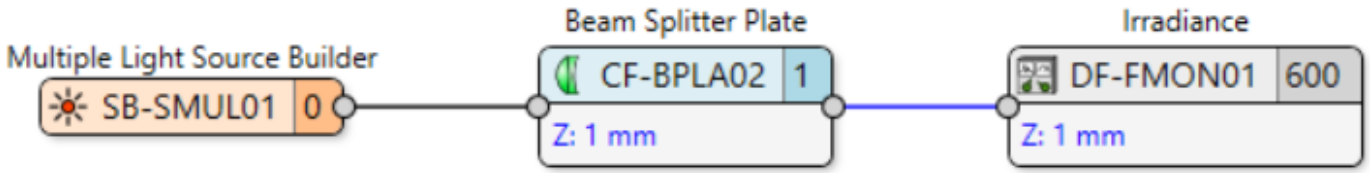
Demonstration Example

Demonstrated Optical Setup

Component	Specification
Source 1	Data-Based Source (Super-Gaussian), 800 nm wavelength
Source 2	Gaussian (programmed), 10° tilt, 800 nm wavelength
Beamsplitter	Ideal 50:50 beamsplitter
Detector	Irradiance

Please find the optical setup in the corresponding files as:

- *Example_Beamsplitter.os*

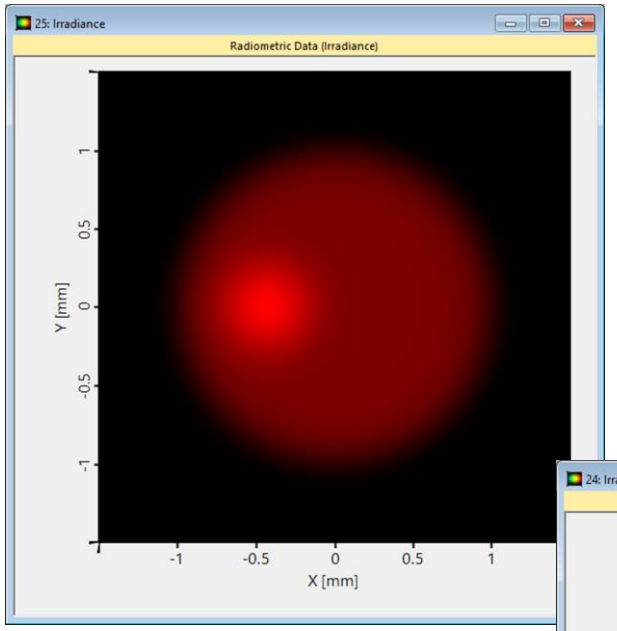


Comparison Between Coherent and Incoherent Setup

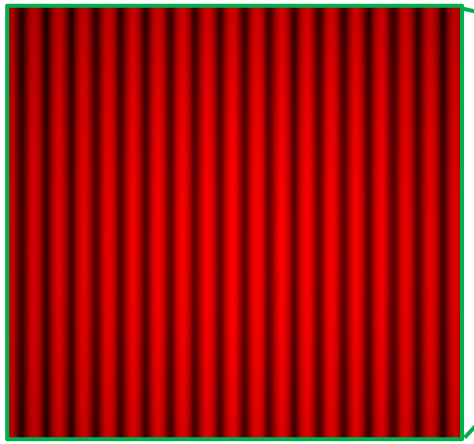
Main Observation

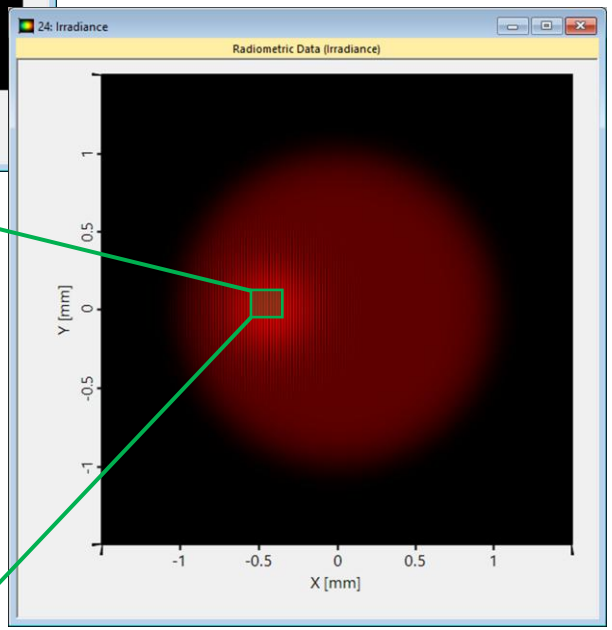
- With the *Multiple Light Source Builder* twin individual sources can be combined either coherently or incoherently.
- In the incoherent case, the detector shows a simple intensity superposition of the two spots.
- The fields overlap, but no interference fringes are formed.
- In the coherent case, the overlapping fields interfere with each other.
- Due to the $10°$ tilt of one source, a clear linear interference pattern becomes visible.

Incoherent



Coherent

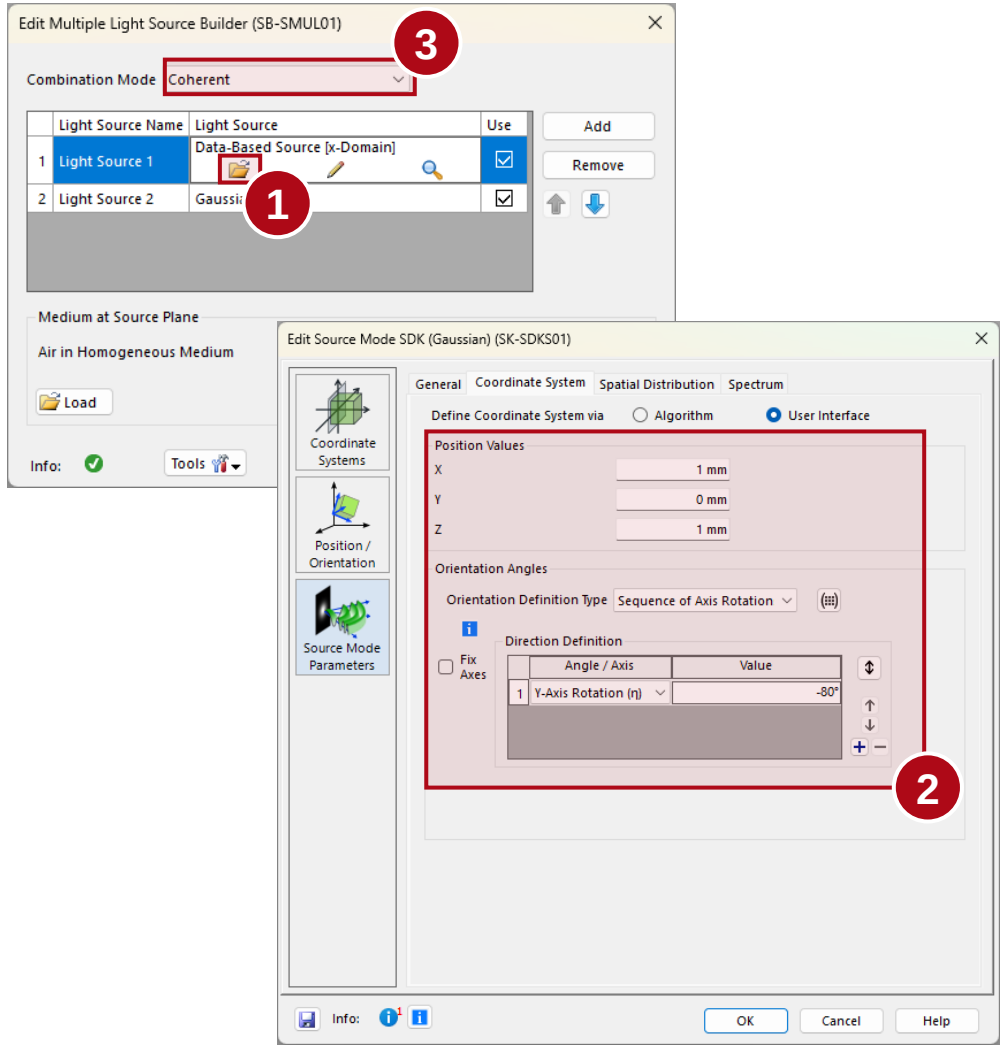




Workflow

What the User Does

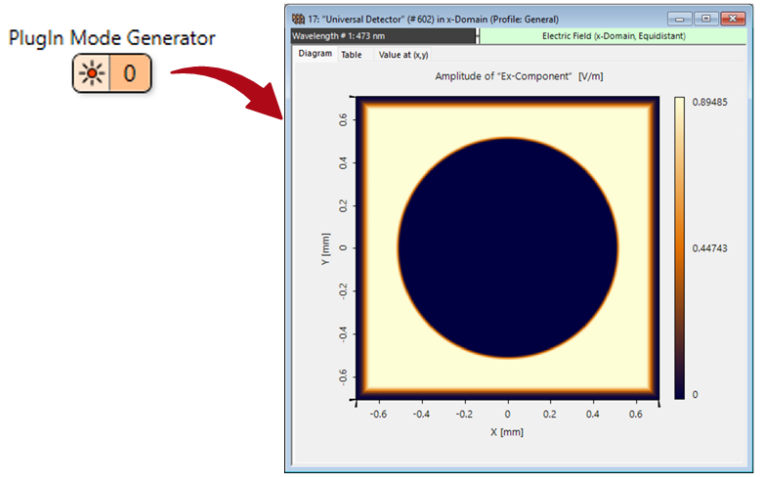
1. Create a suitable SDK source or choose an existing one from our source catalog.
2. Add a *Multiple Light Source Builder* to your system.
3. Load the individual sources into the *Multiple Light Source Builder*.
4. Open the source editor and define the desired source coordinates under *Coordinate System*.
5. Set the Multiple Light Source to either *Coherent* or *Incoherent*.
6. Check the detector settings related to coherence handling.
7. Run the simulation and compare the detector results.



Related Documents

Use Cases and Feature Demos

- Plug-In Mode Generator
- Basic structure-based source model for an OLED



Tutorials

- Programming Radially & Azimuthally Polarized Sources
- Defining the Source Power (Radiant Flux) in VLF

Defining the Source Power (Radiant Flux) in VirtualLab Fusion!

Overview

In VirtualLab Fusion (VLF) the user can specify a power value for the light source. It refers to the radiant flux going through the input plane of the source with its given aperture. This tutorial describes the procedure for configuring the source power.

> ⚠️ **Important:** The power management settings are only available when using the **Field Tracing** engine as radiant flux is not defined for the results provided by the **Ray Tracing** engine.

1. **Open the Profile Editor** of your Optical System
2. **Activate Power Management** under *Sources › Power Management*
3. **Set the Source Modeling Power** (radiant flux directly after the source)
4. **Validate the power** using a field monitor and the Radiant Flux detector add-on