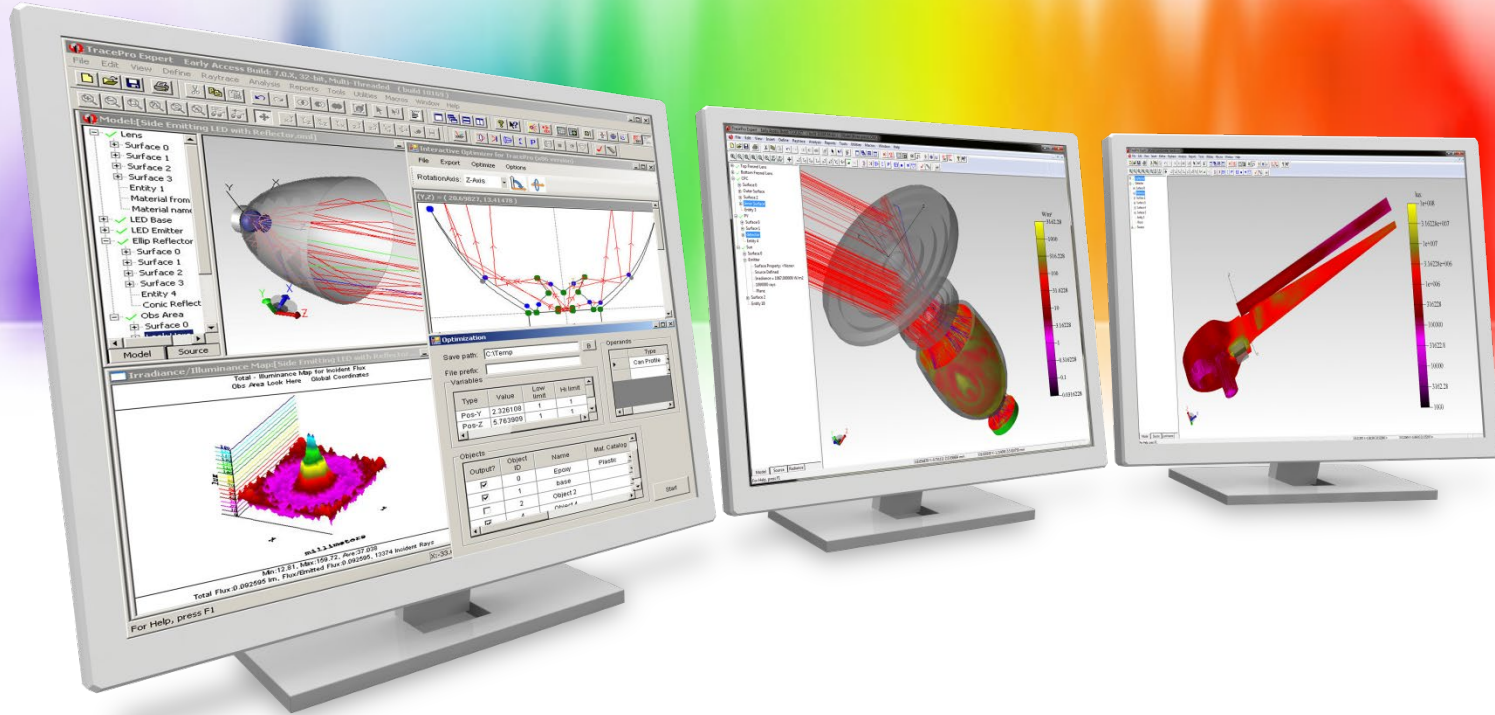# New Features in TracePro

# New TracePro Release Numbering

➢ TracePro has switched to a yearly naming scheme. TracePro 2024 version 24.1 was the first release of TracePro in 2024.

➢ Official releases of TracePro 2024 will debut approximately every 90 days, on or around the 10$^{th}$ of the month, starting in February.
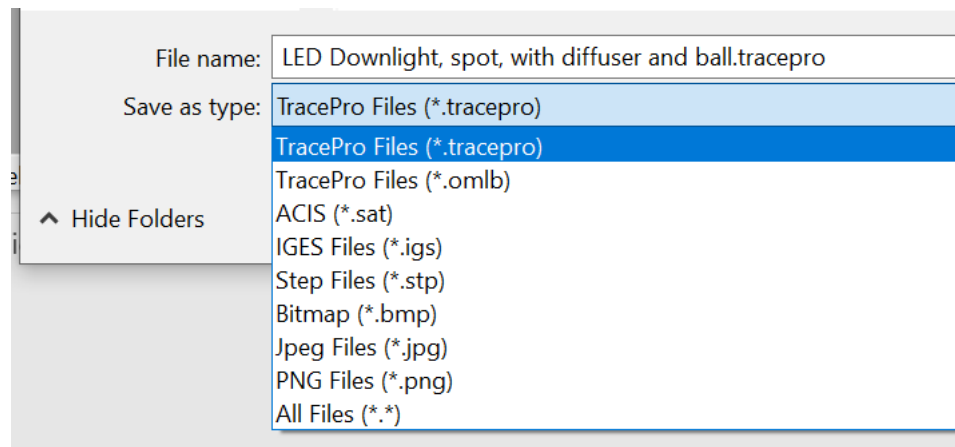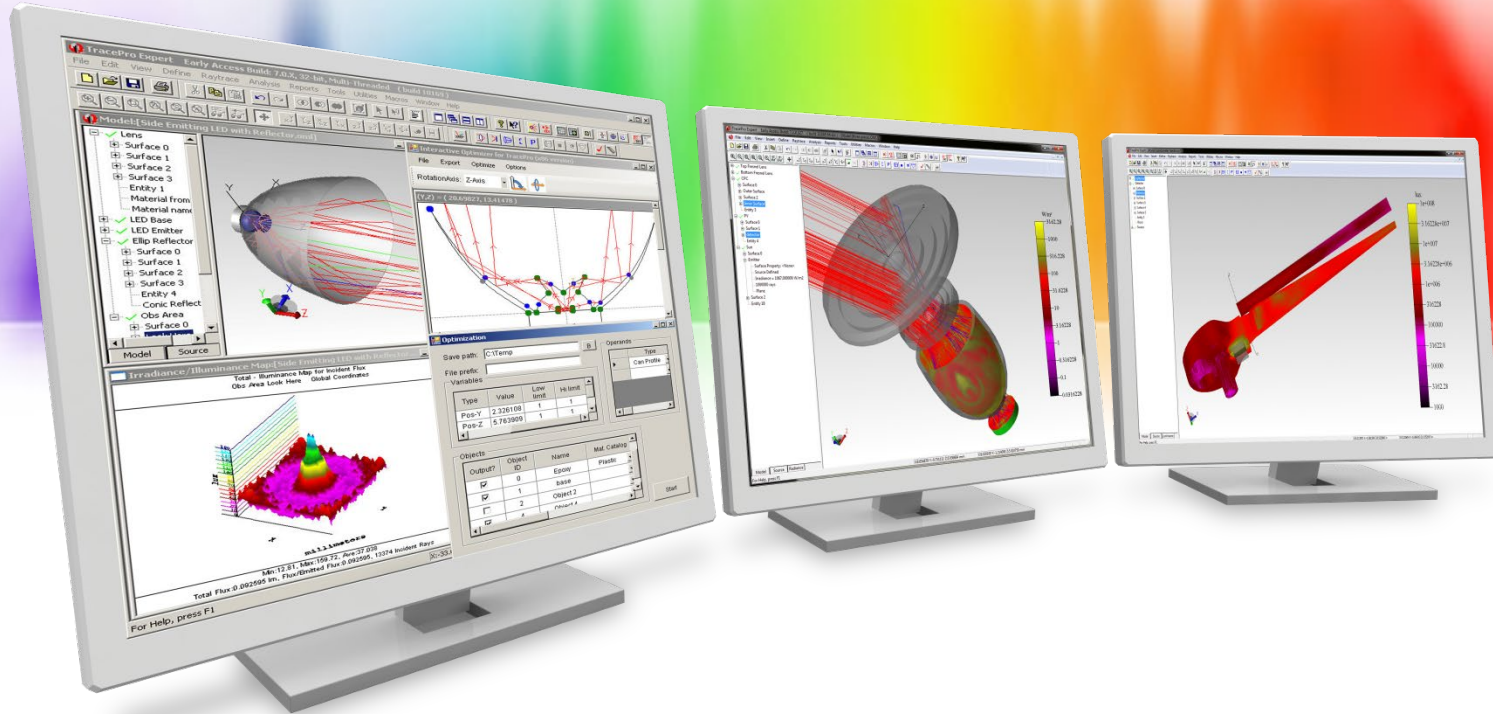
TracePro

# New Features in TracePro 2024 24.2

# TracePro 2024 24.2

> **TracePro**
> > New .tracepro file format
> > > Additional information is now saved with the TracePro model, including:
> > > > .omlb data
> > > > Property data, including default and custom properties
> > > > Sequence data for sequential ray tracing
> > > > Rays
> > The .omlb file format is still available

| File name: | LED Downlight, spot, with diffuser and ball.tracepro |
|---|---|
| Save as type: | TracePro Files (*.tracepro) |

TracePro Files (*.tracepro)
TracePro Files (*.omlb)
ACIS (*.sat)
IGES Files (*.igs)
Step Files (*.stp)
Bitmap (*.bmp)
Jpeg Files (*.jpg)
PNG Files (*.png)
All Files (*.*)

Hide Folders

TracePro

# New Features in TracePro 2024 24.1

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# TracePro 2024 24.1

- ➤ **TracePro**
  - ➤ New and updated Material Property catalogs
    - ➤ Schott
    - ➤ OHARA
    - ➤ Hoya
    - ➤ Hikari (Nikon)
    - ➤ CDGM
    - ➤ Sumita
    - ➤ Vitron
    - ➤ Umicore
    - ➤ Nikon
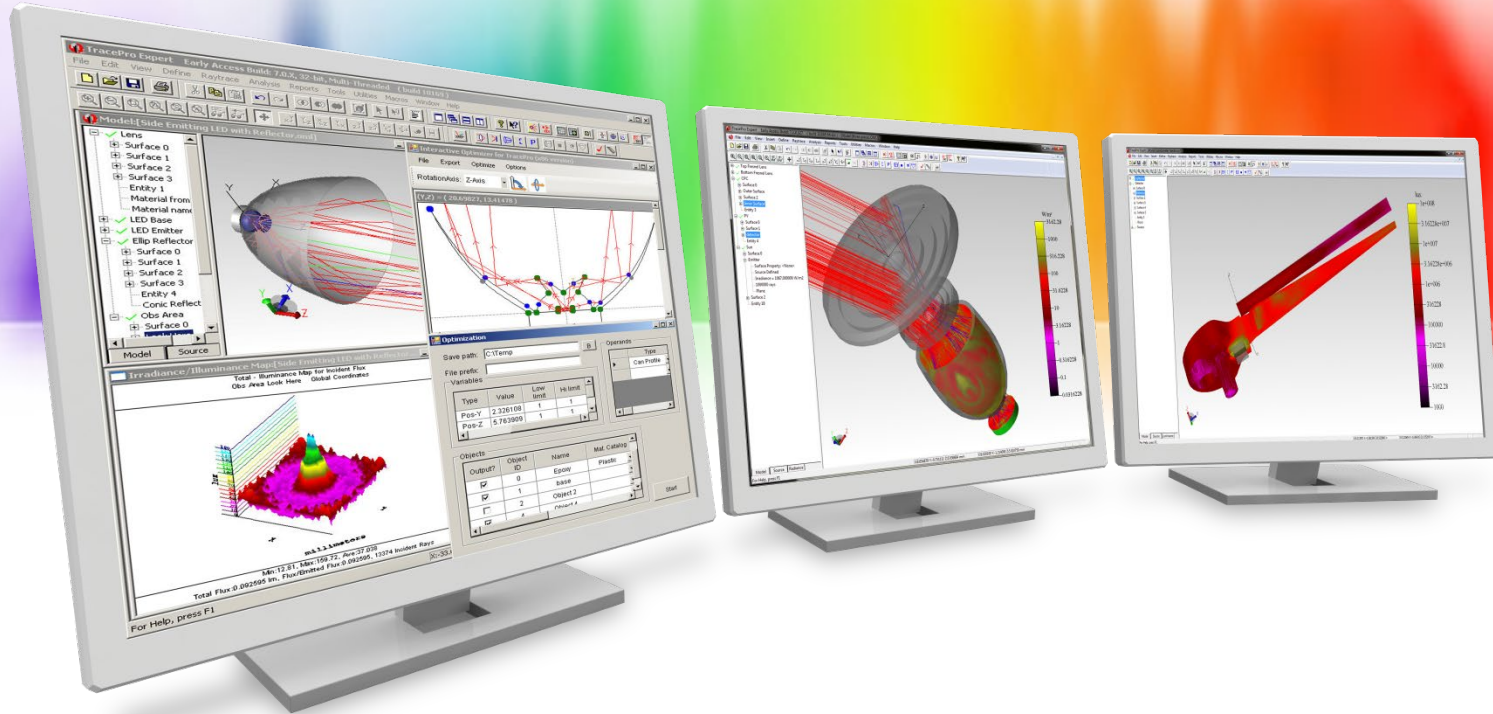
TracePro

# New Features in TracePro 2023 23.5

# TracePro 2023 23.5
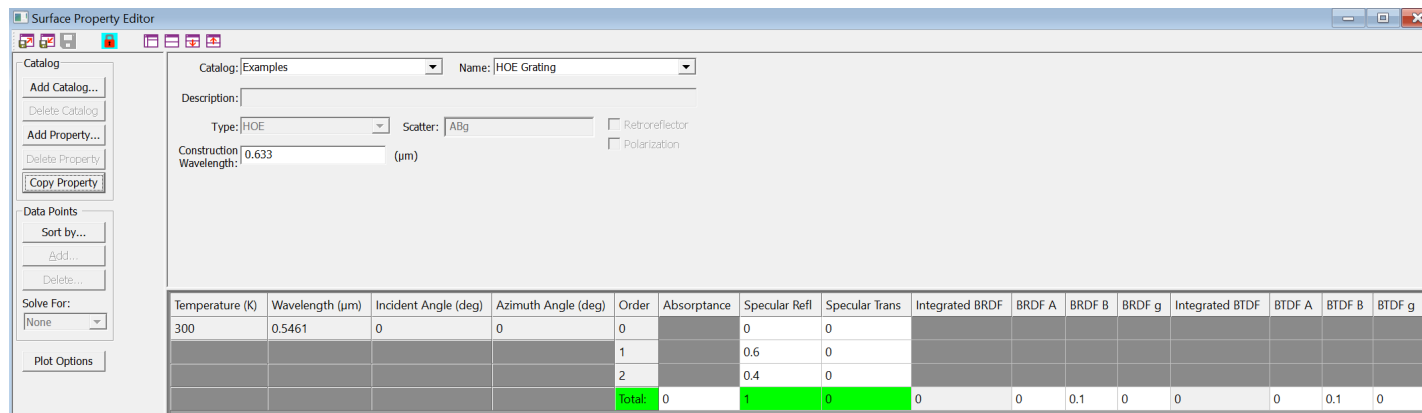
- ➢ **TracePro**
  - ➢ Diffractive Optical Element capability
  - ➢ Updated Stray Light Analyzer

TracePro

# TracePro 2023 23.5

> ## TracePro Standard and Expert
>> TracePro can now model 3 different types of Diffractive Optical Elements
>>> Holographic Optical Elements (HOEs)
>>> Computer Generated Holograms (CGHs)
>>> Zernike Phase
>>
>> CGH surfaces can be:
>>> Radially symmetric
>>> Asymmetric x-y
>>> Asymmetric (absolute value)



Surface Property Editor showing HOE surface for a reflection grating

TracePro
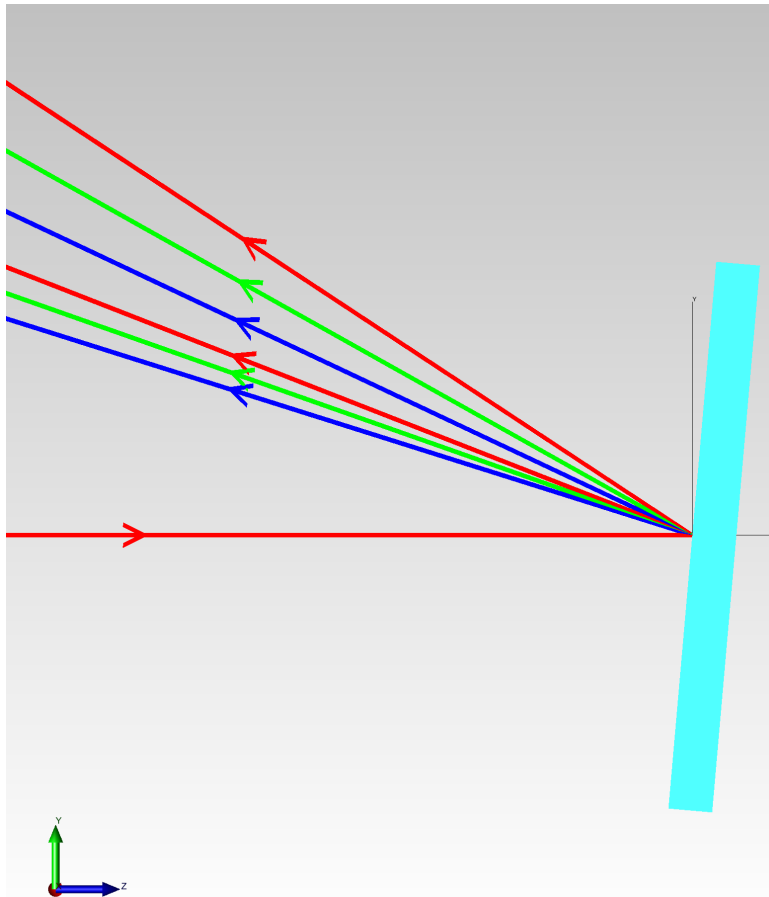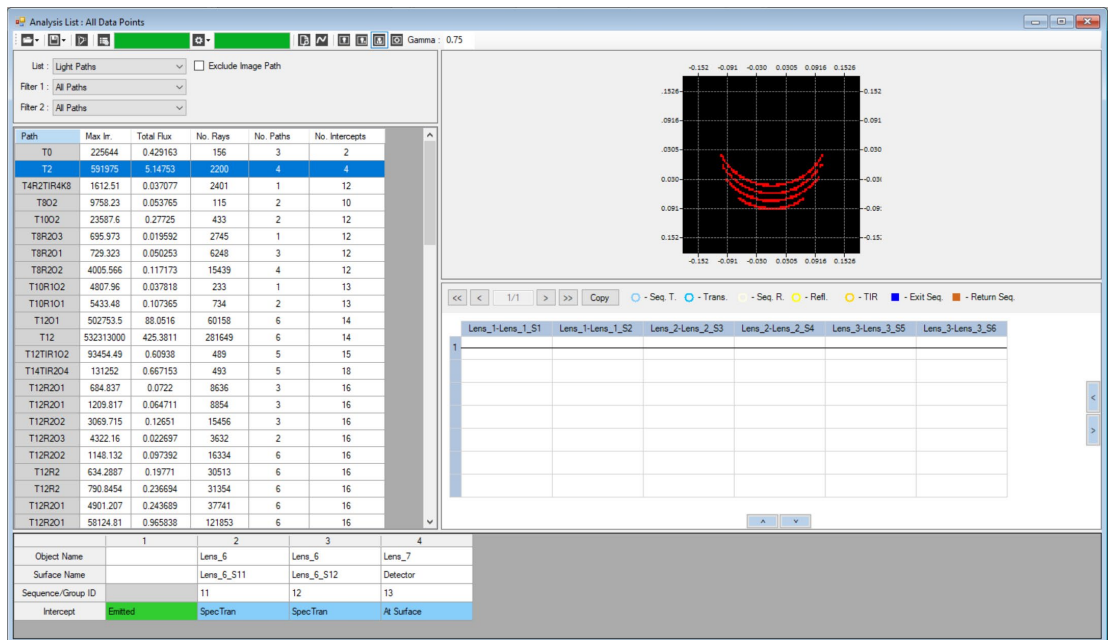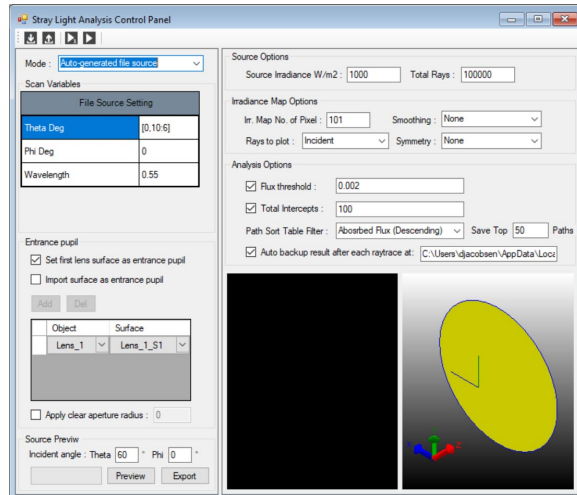
# TracePro 2023 23.5
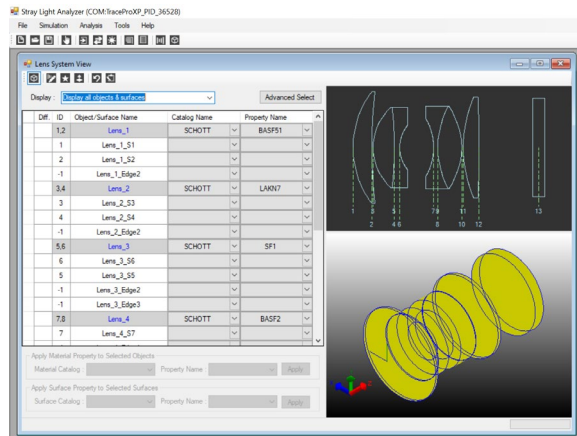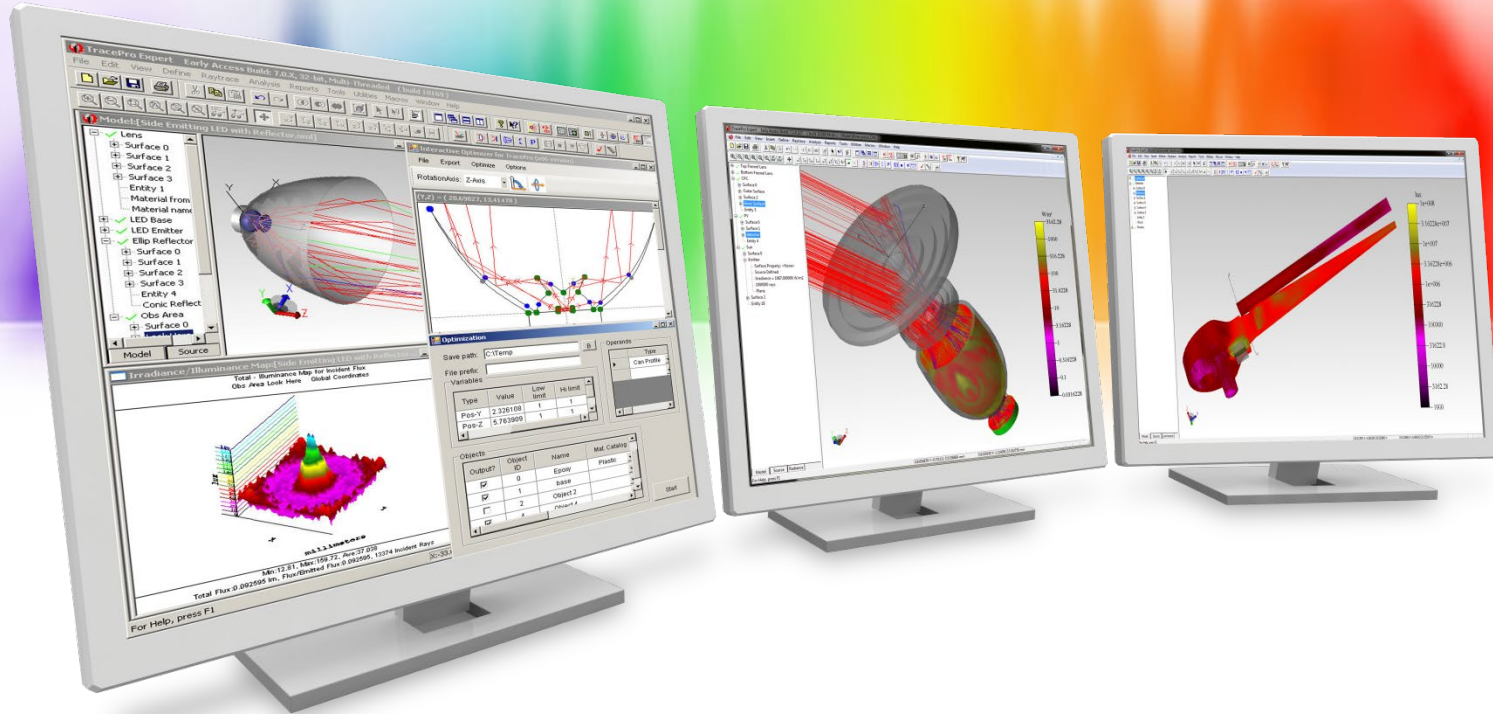
HOE reflection grating in TracePro
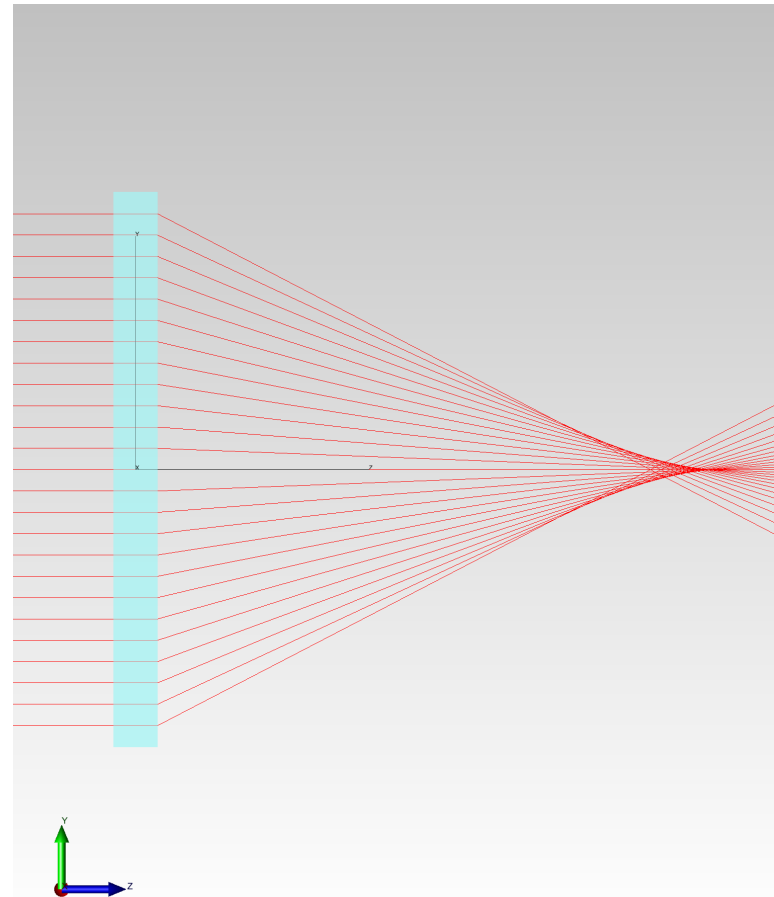
CGH lens example in TracePro

TracePro

# TracePro 2023 23.5

> ## **TracePro Standard and Expert**
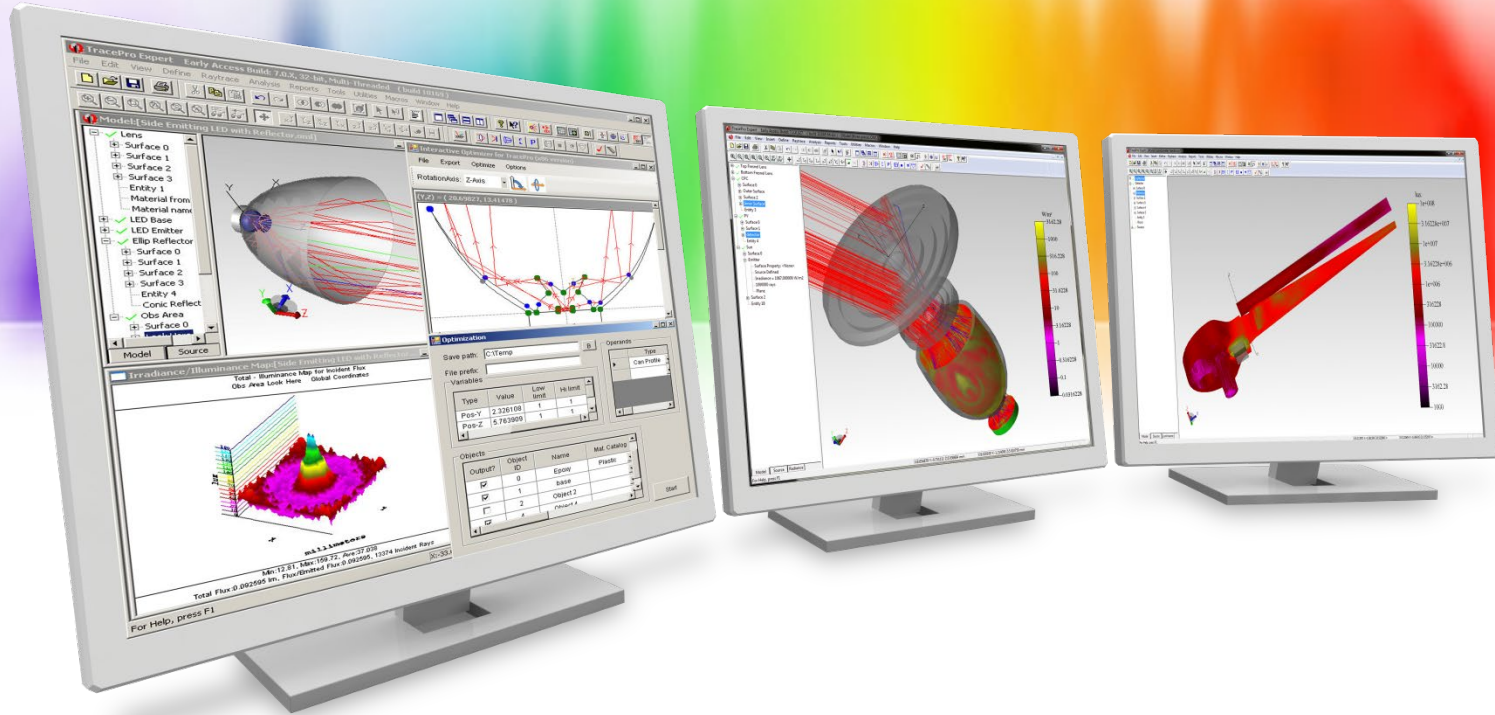> > ## The Stray Light Analyzer has been updated with added functionality

# New Features in TracePro 2023 23.2

# TracePro 2023 23.2

➢ **TracePro**
- ➢ Improved ray trace performance
- ➢ Increased Scheme processing stack size for complex Scheme programs
- ➢ New macro commands
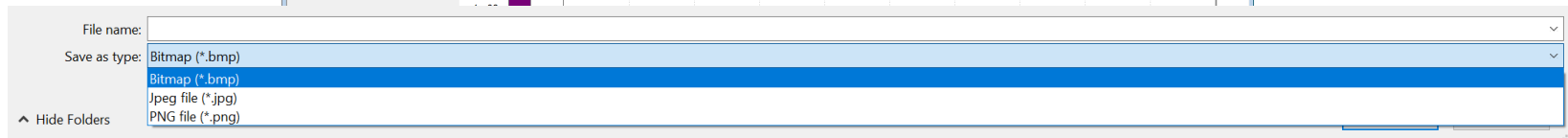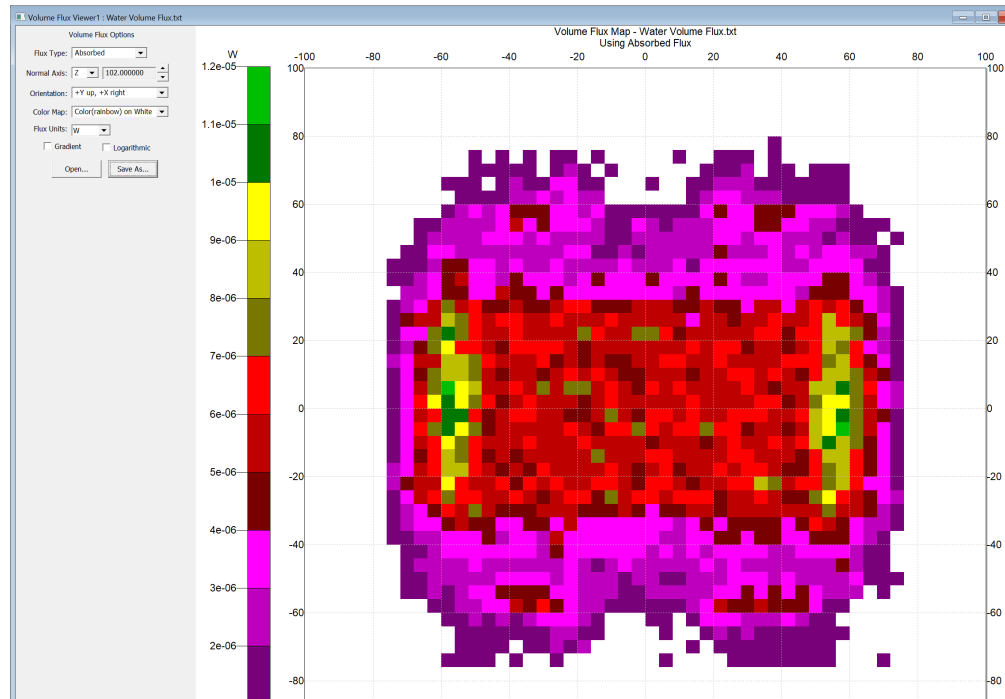  - ➢ Vector3d:cross
  - ➢ Vector3d:dot
  - ➢ Vector3d:normalize

**TracePro**

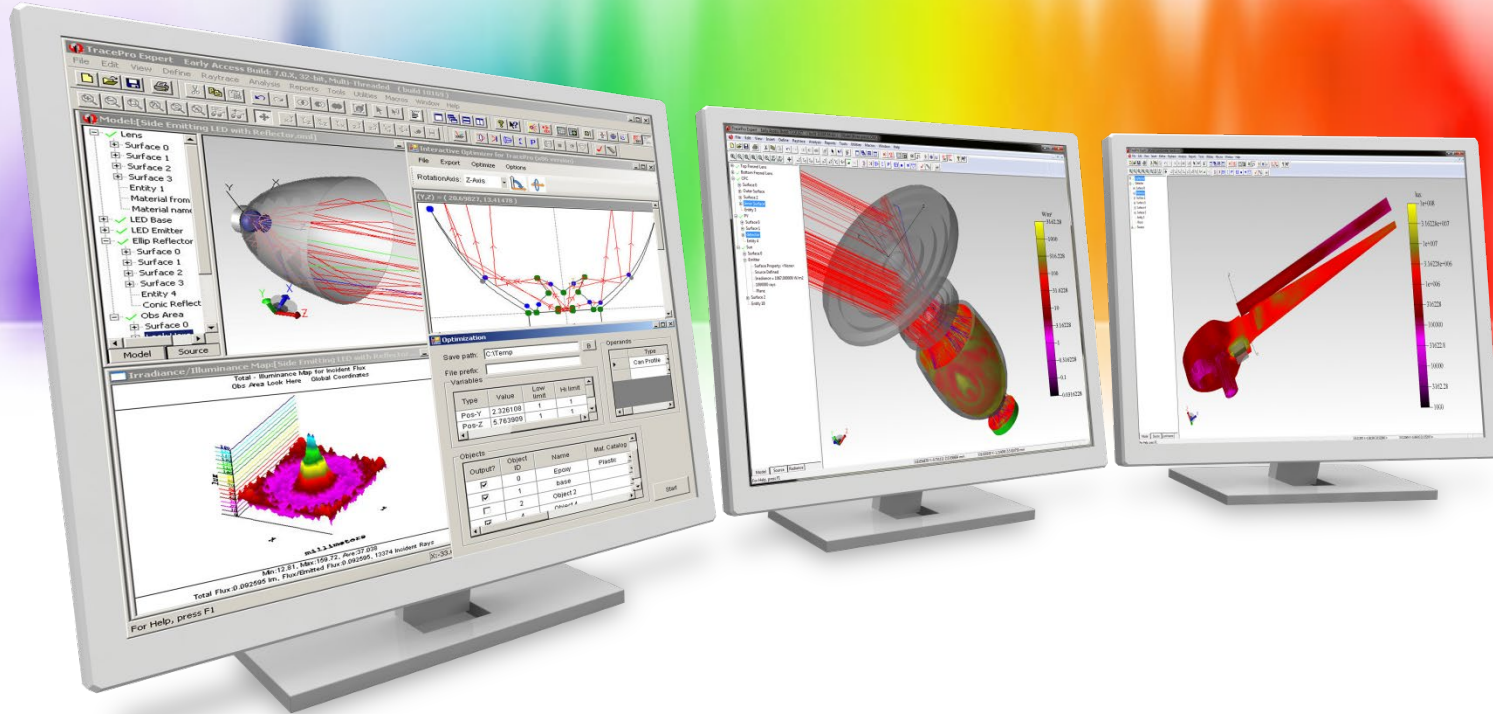# New Features in TracePro 2023 23.1

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# TracePro 2023 23.1

> **TracePro**
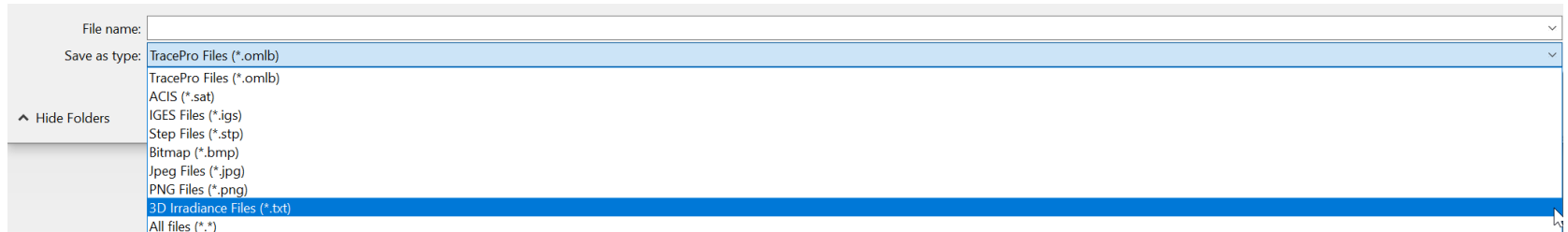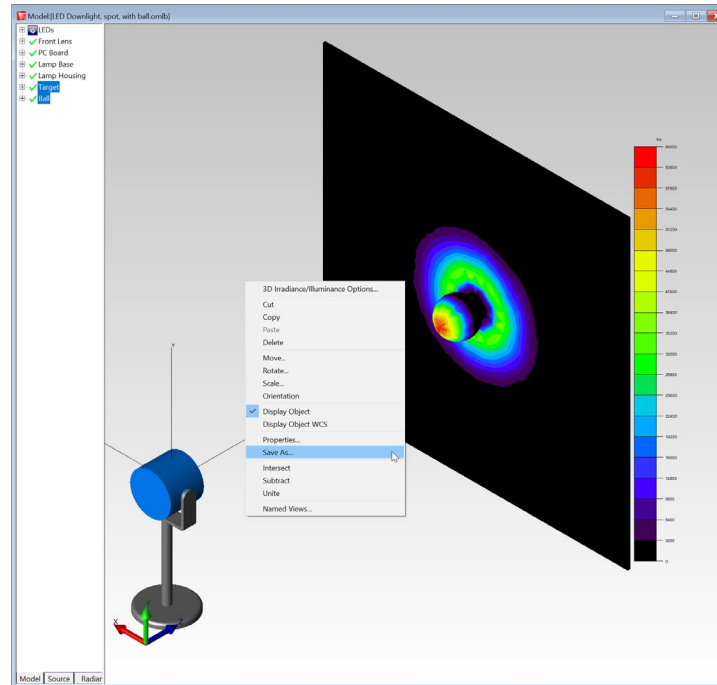>> Added ability to save image files (jpg, bmp,wmf) to Volume Flux Viewer
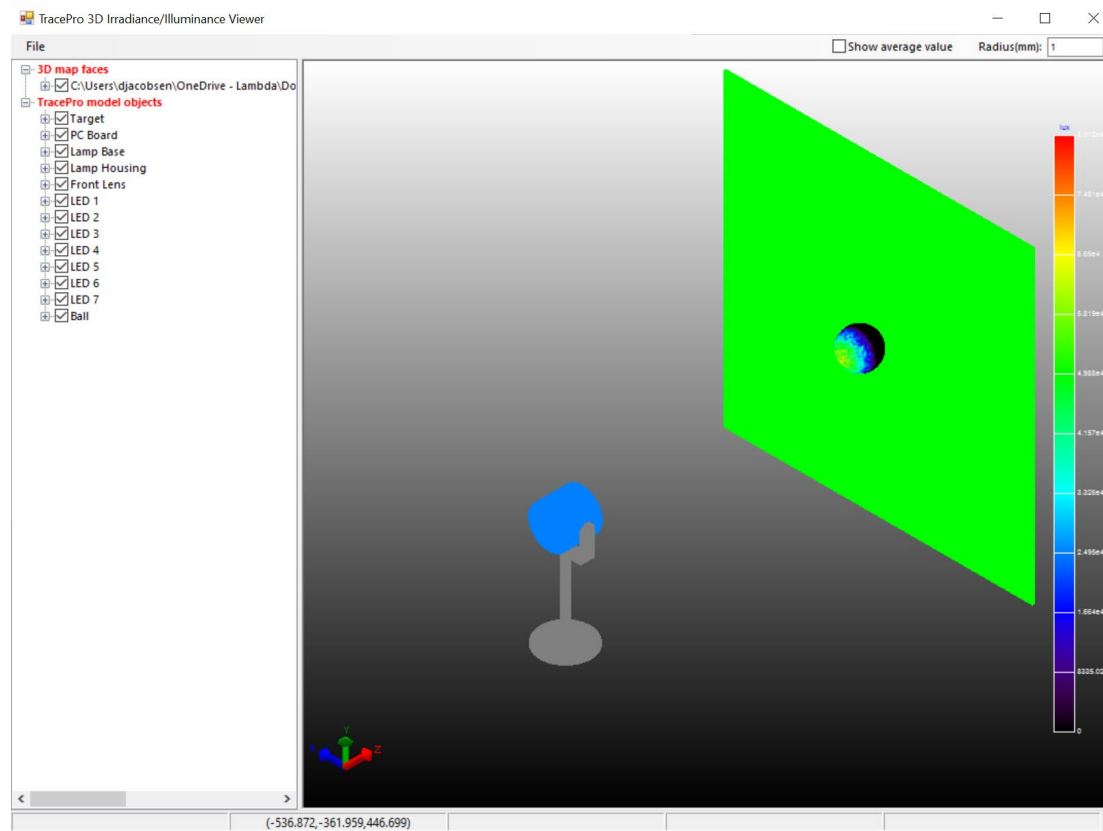
# New Features in TracePro 2022 22.6

# TracePro 2022 22.6

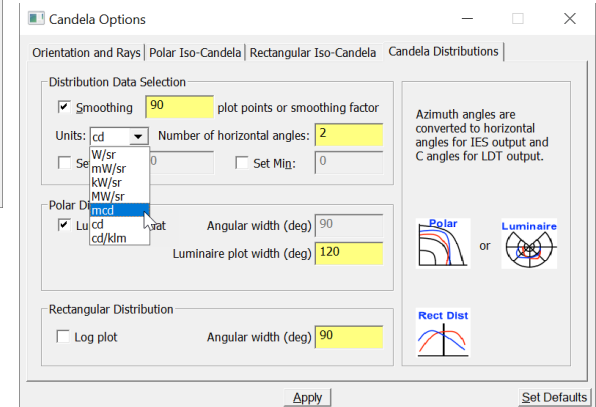> ➤ **New capability to save 3D Irradiance/Illuminance Map**

# TracePro 2022 22.6

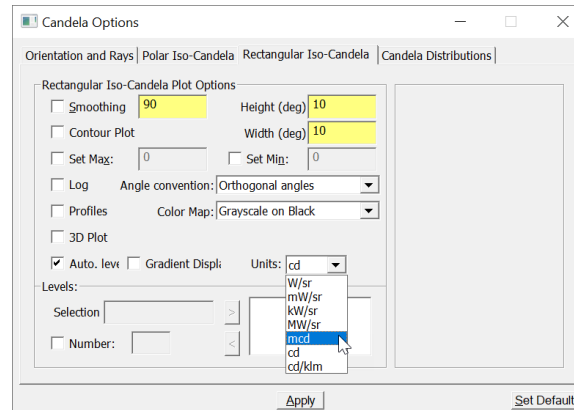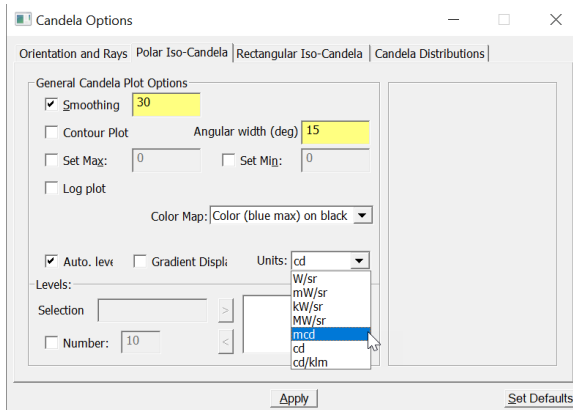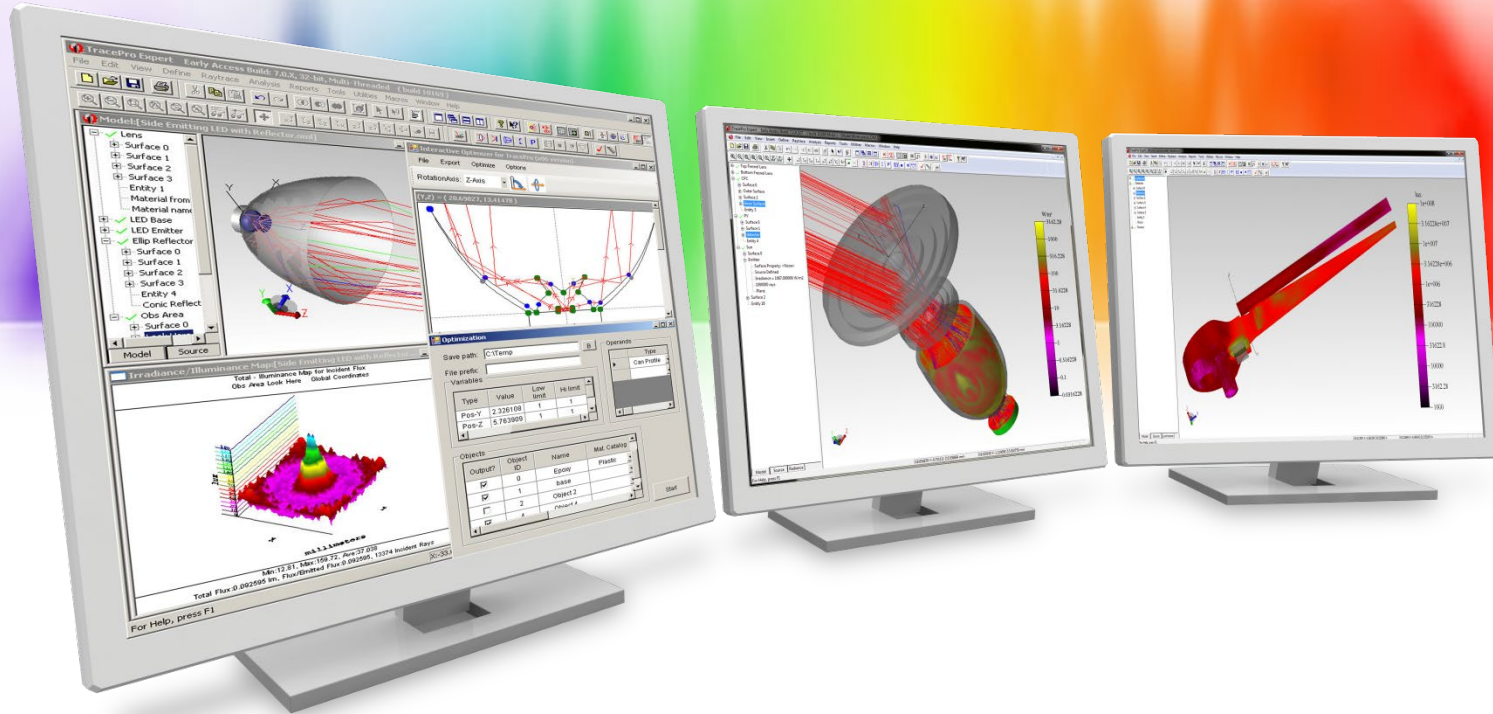> **New 3D Irradiance/Illuminance Viewer in Tools menu**

# TracePro 2022 22.6

> ## TracePro
> > Added mcd (millicandela) unit option to Candela Plots

# New Features in TracePro 2022 22.5

# TracePro 2022 22.5

> **TracePro**
> > New analysis tools unit options
> > Set Defaults capability added to Ray Sorting
> > New RepTile geometry – tetrahedron
> > Ray Sorting added to 3D Irradiance/Illuminance Map
> > New capability to import multi-configuration OSLO and Zemax files
> > New ability to select one or more paths and display them in the Candela Plot
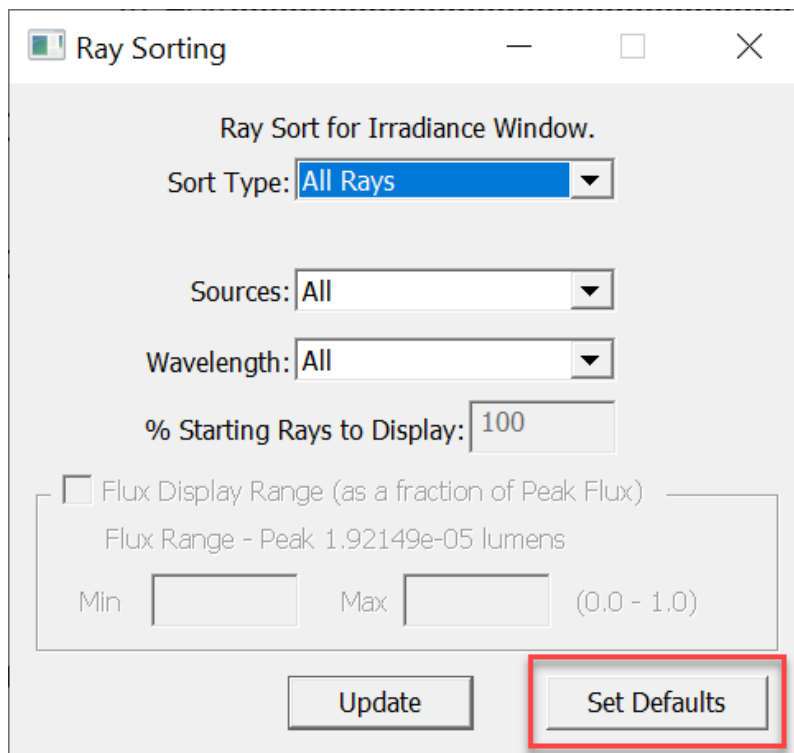
**TracePro**

# TracePro 2022 22.5

**TracePro – New unit options have been added to the analysis tools. Also, the units are now set in the appropriate Options dialog boxes.**
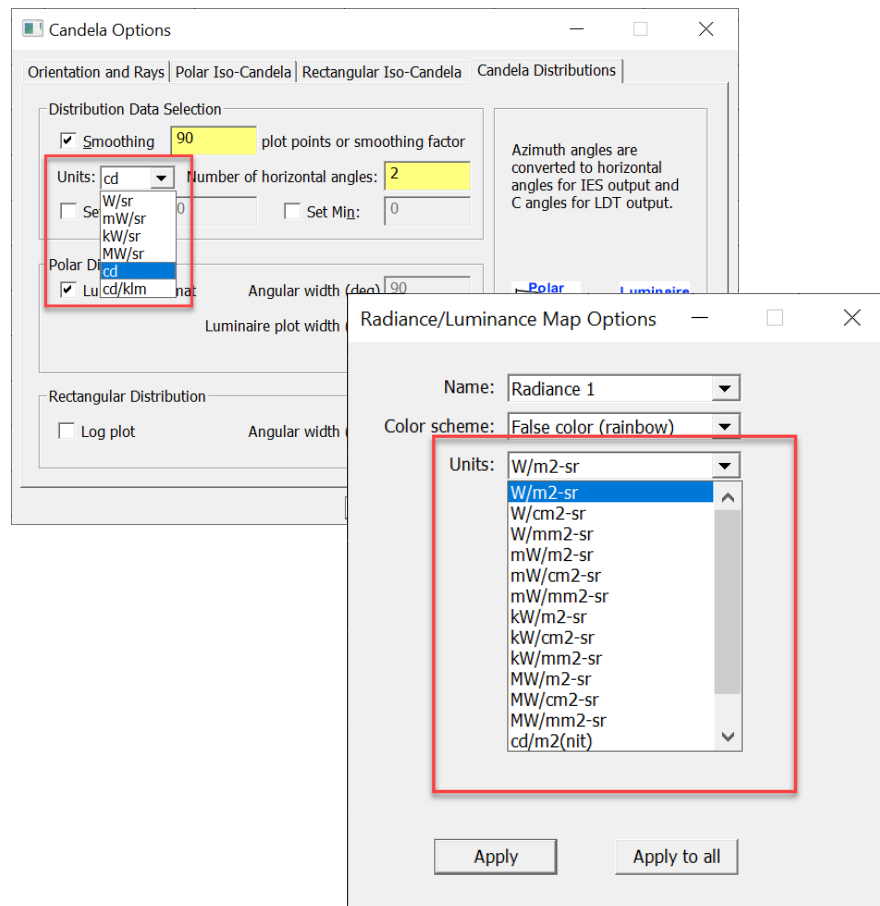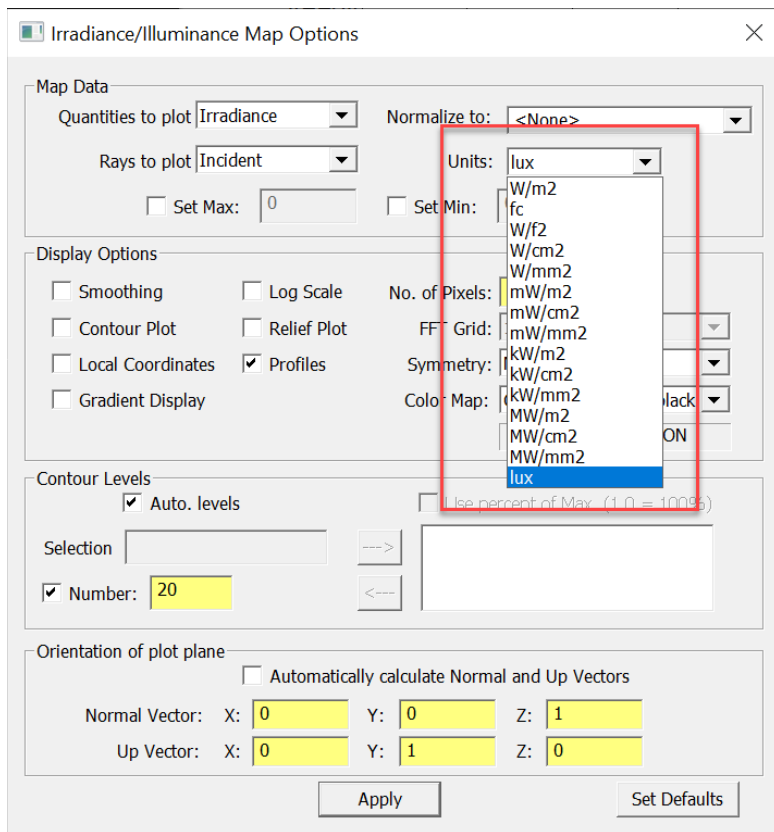
# TracePro 2022 22.5

**TracePro – Ray Sorting now has a Set Defaults option to allow users to save commonly used settings as the default values**
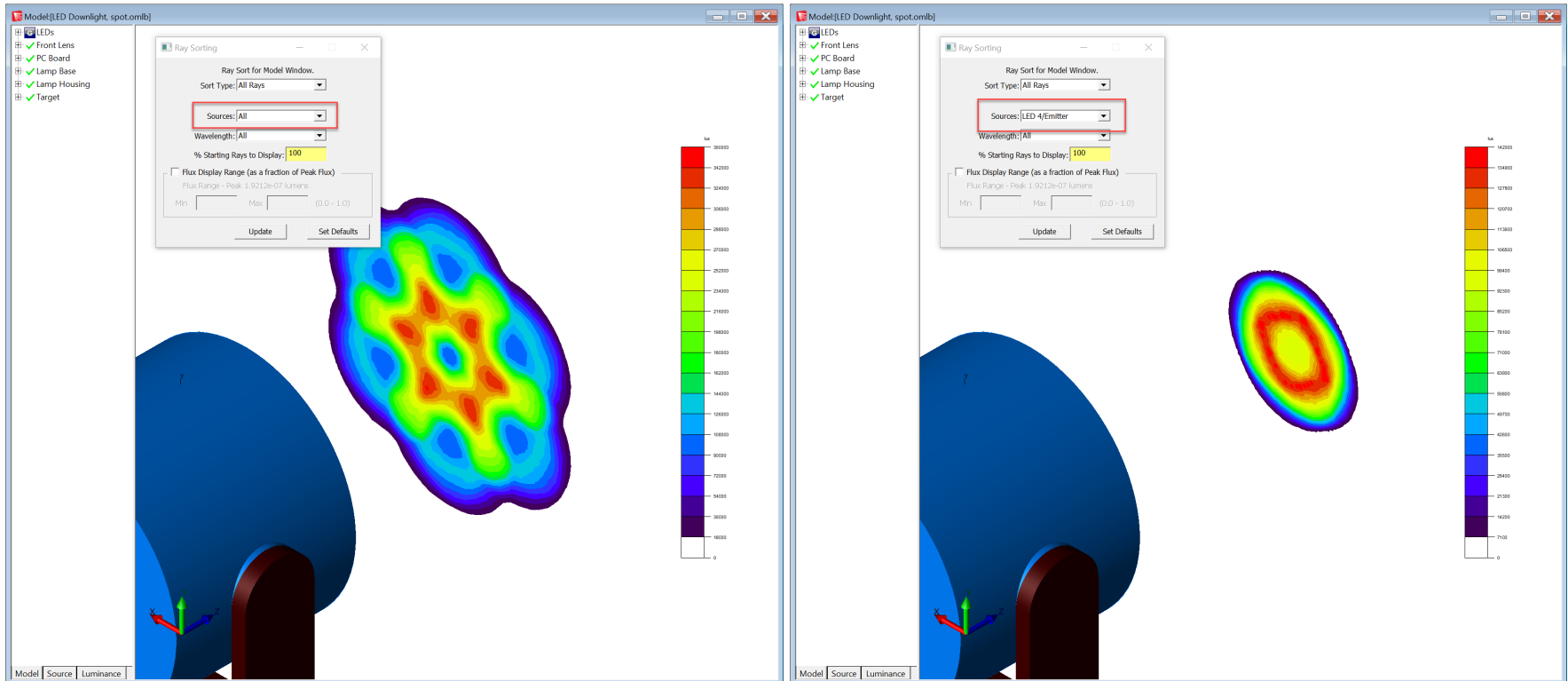
# TracePro 2022 22.5



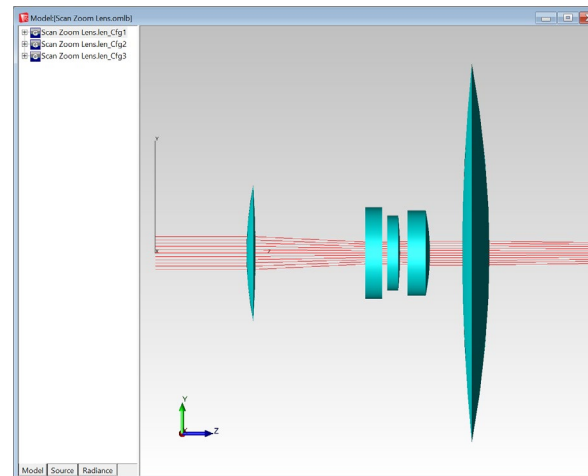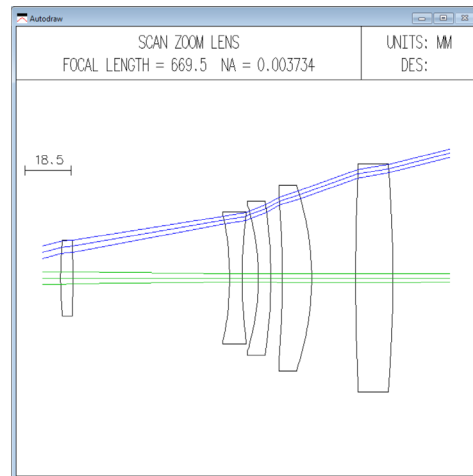**TracePro – A new RepTile geometry type, Tetrahedron, has been added**
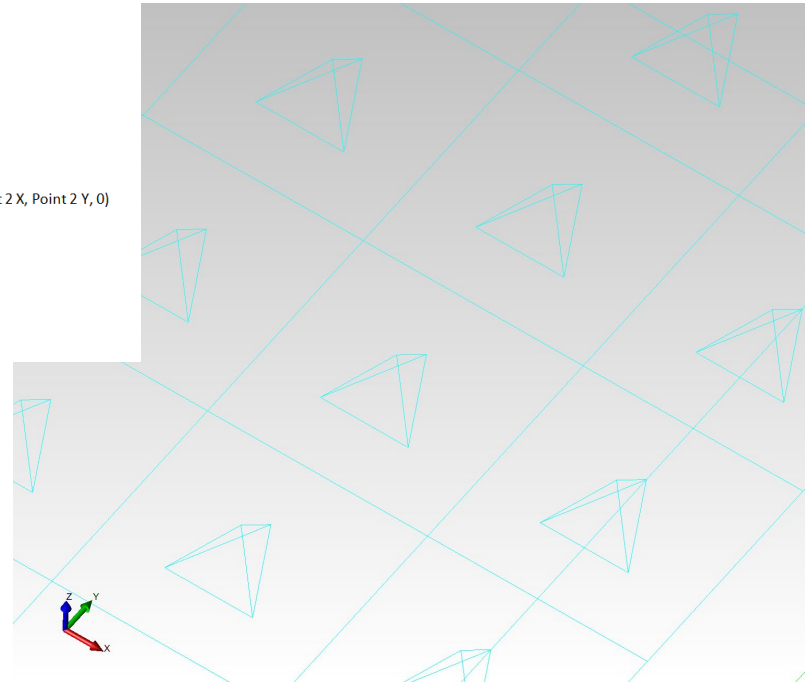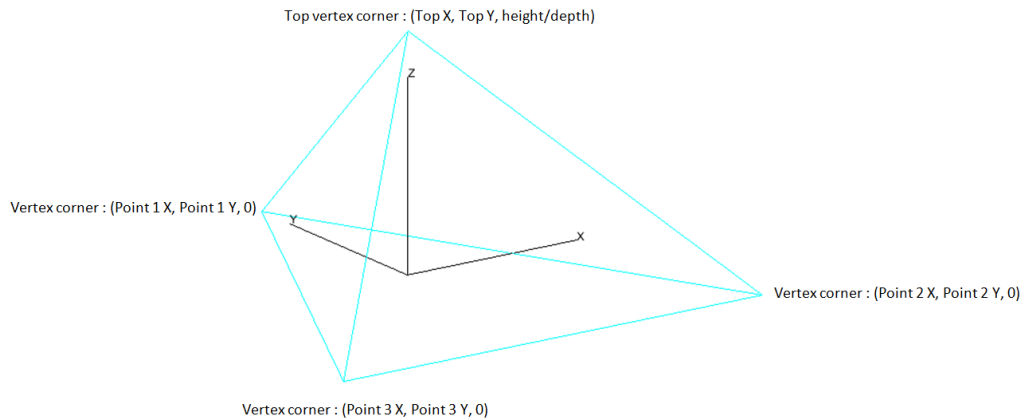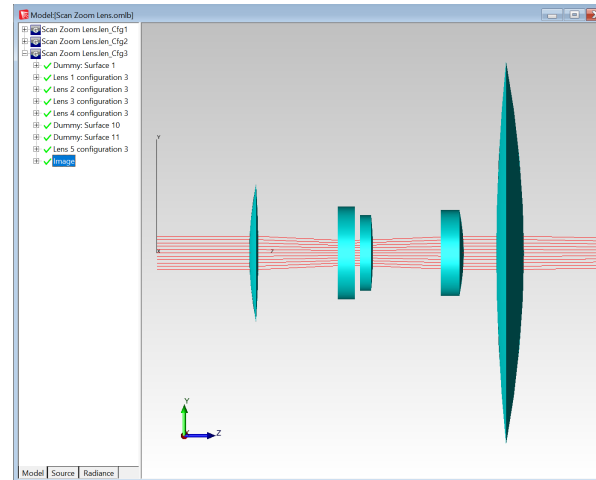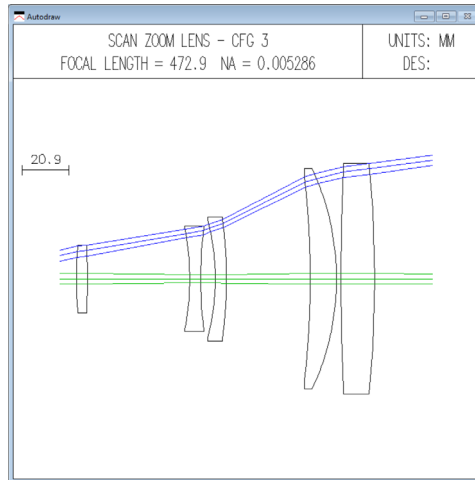
# TracePro 2022 22.5

**TracePro – Ray Sorting can now be used with the 3D Irradiance/Illuminance Map**

# TracePro 2022 22.5

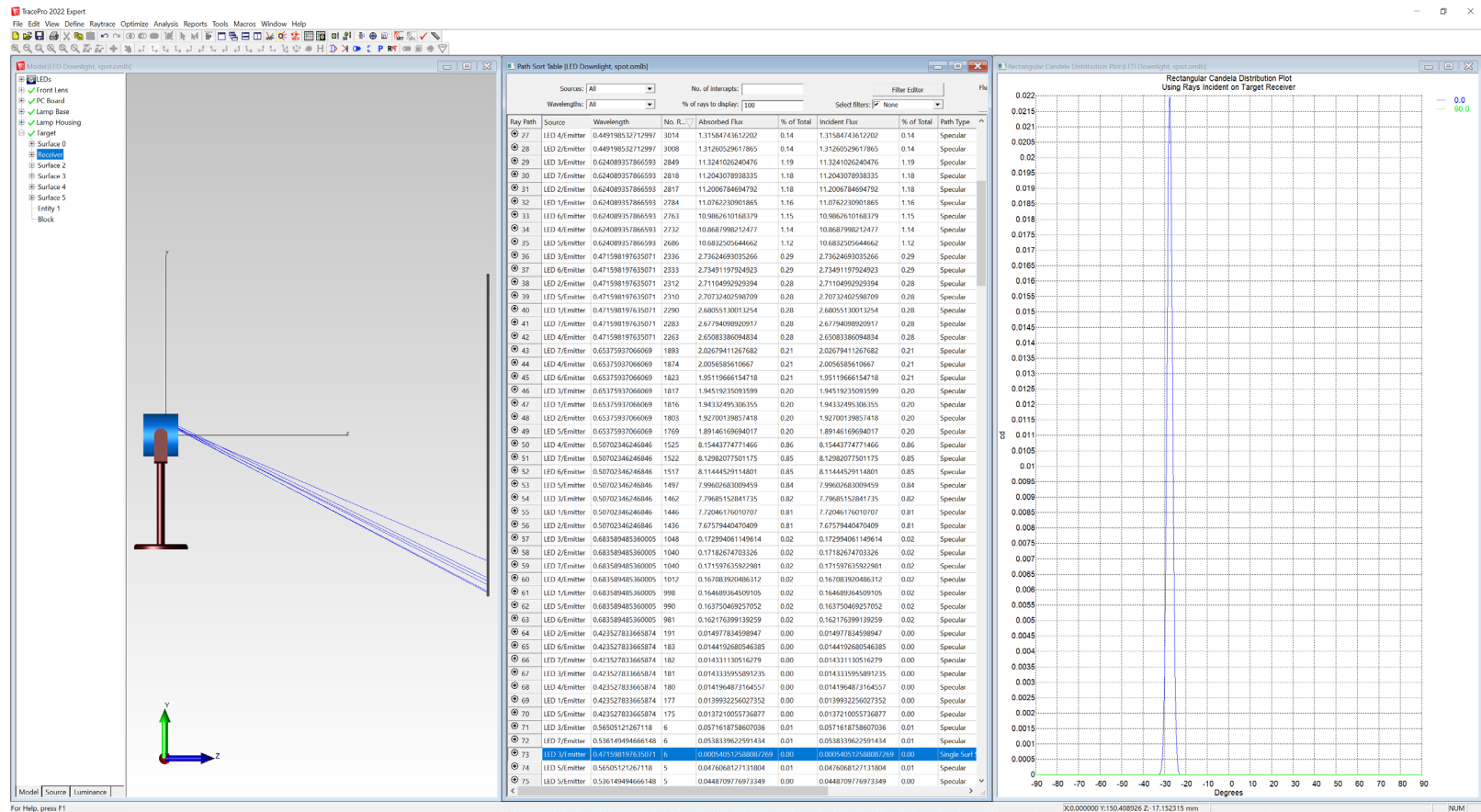**TracePro – TracePro can now import multi-configuration files from OSLO and Zemax**

# TracePro 2022 22.5

**TracePro – Path Sorting can now be used with the Candela Plots in TracePro**

# New Features in TracePro 2022 22.2

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# TracePro 2022 22.2

> ## TracePro
>> Group for imported lenses

> ## Light Source Builder
>> Convert Lucidshape and Zemax rayfiles to TracePro rayfile format

**TracePro**

# TracePro 2022 22.2

**TracePro – Imported lenses are now placed in a new group in TracePro. The name of the lens file will be the name of the group in TracePro.**
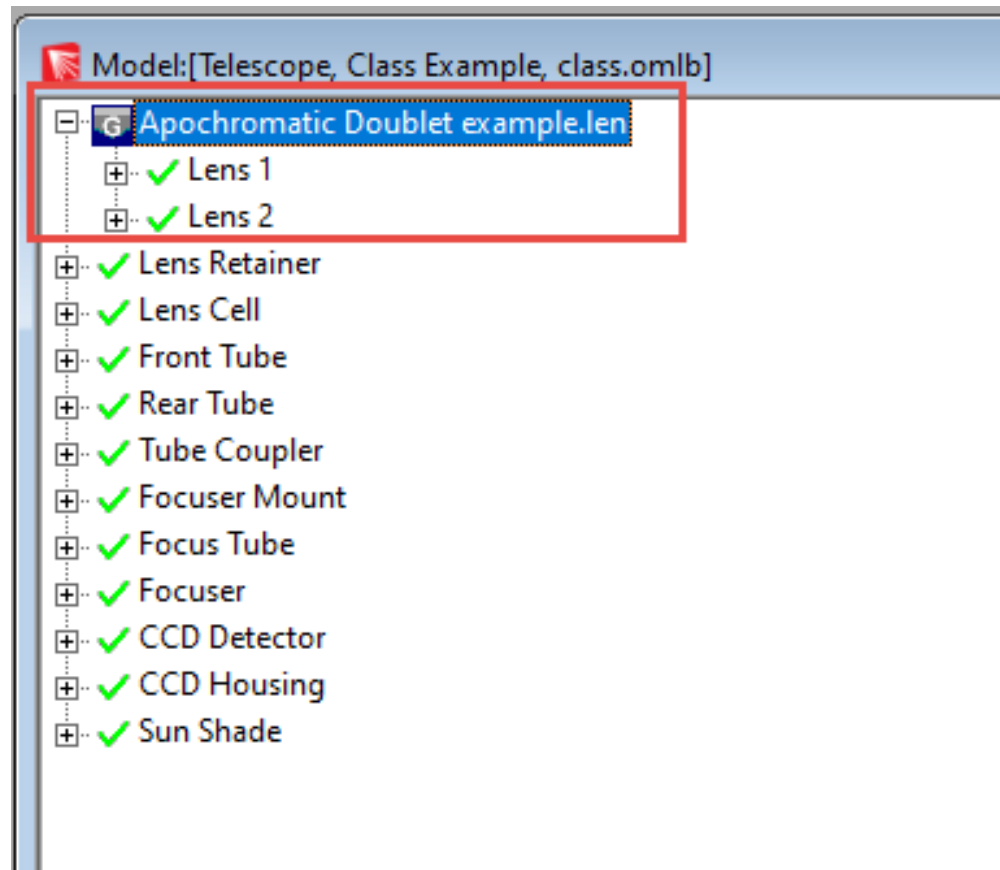
# TracePro 2022 22.2
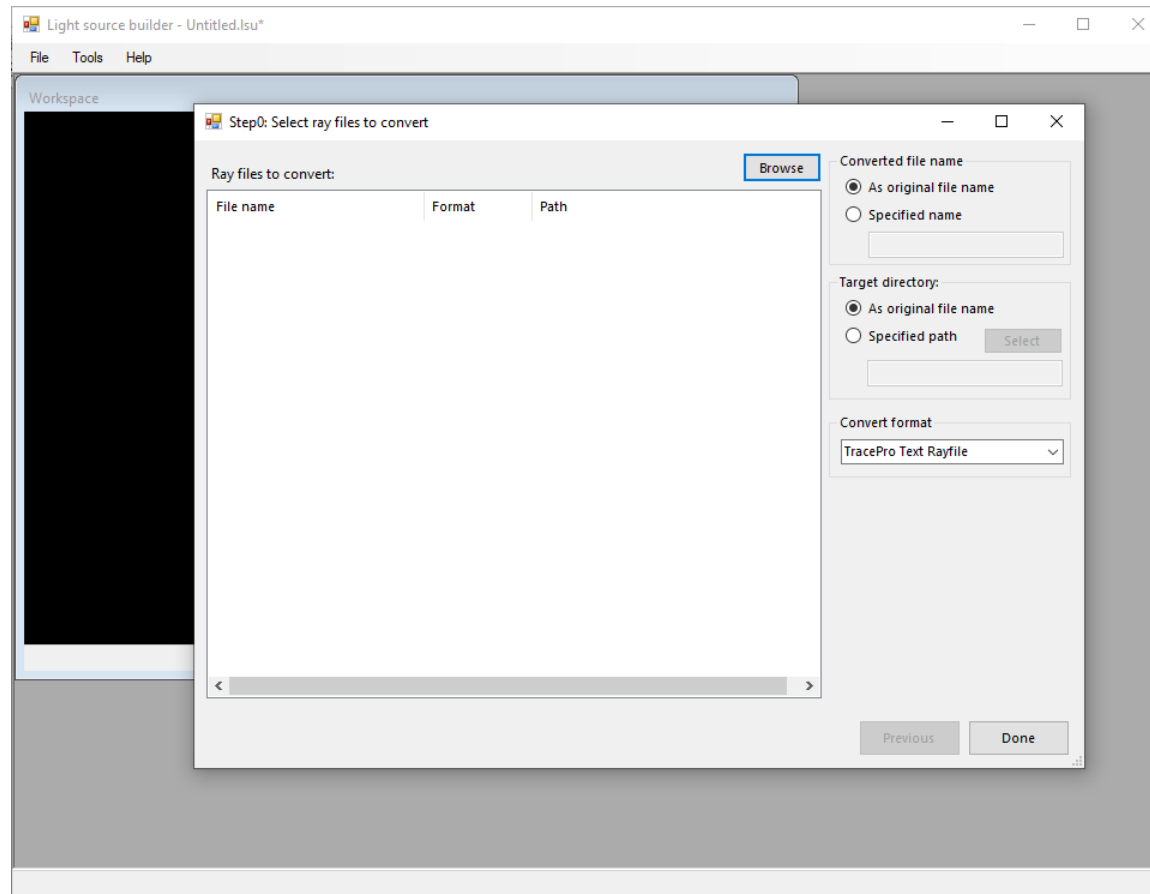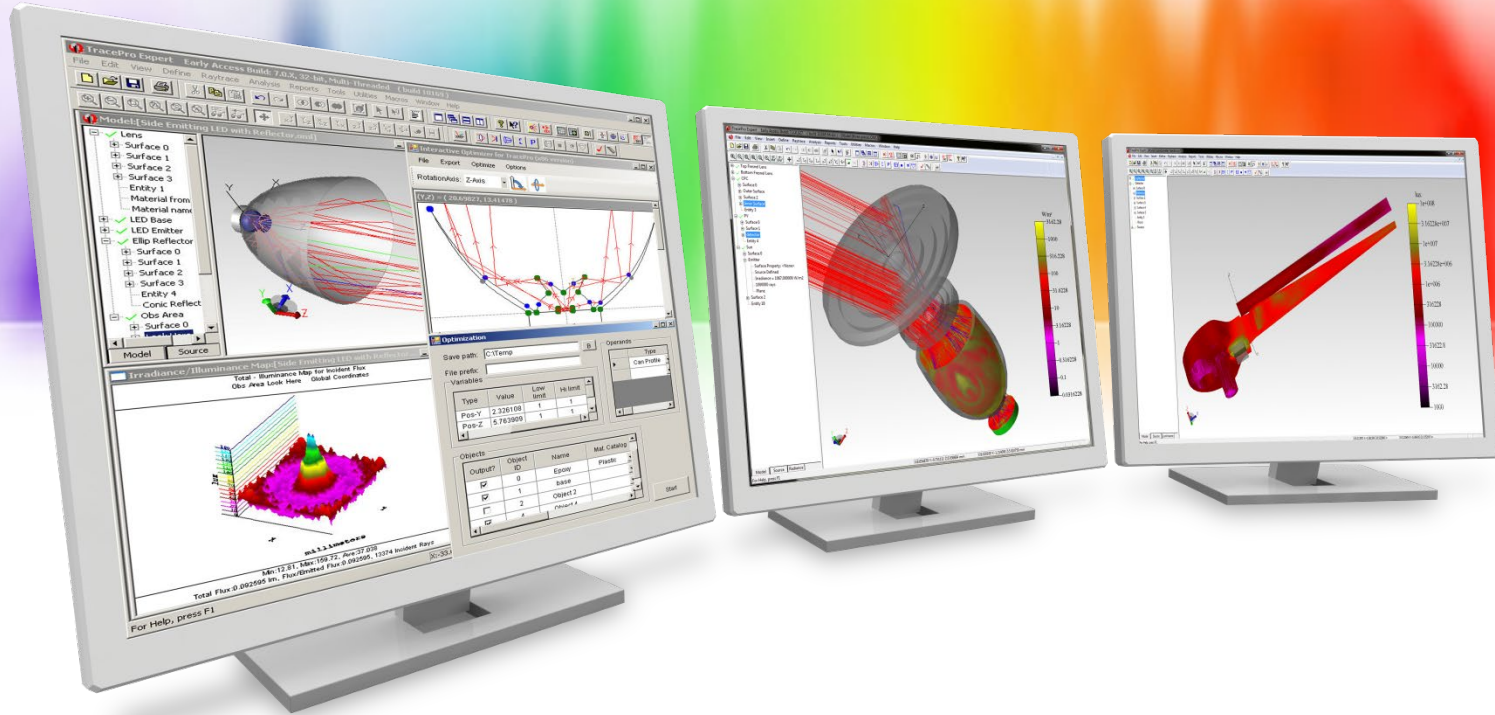
**Light Source Builder – New ability to convert LightTools, Lucidshape, and Zemax rayfiles to a TracePro rayfile format**

TracePro

# New Features in TracePro 2022 22.1

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# TracePro 2022 22.1

➢ **TracePro**
  ➢ New geometric modeler
  ➢ New surface types and aperture shapes for the Lens Element
  ➢ New All-mouse mode
  ➢ New dynamic highlighting and tooltips for identifying surfaces
  ➢ New file format *.OMLB
  ➢ STEP and IGES translators now included at no charge
  ➢ New CAD importers included at no charge
  ➢ New Environment options for Material and Bulk Scatter

➢ **Light Source Builder**
  ➢ New source builder utility for making many different source types

**TracePro**

# TracePro 2022 22.1

**TracePro – New Kosmos® KCM® geometric modeler made by Kubotek3D® gives TracePro the capability to model asymmetric and free-form optical surfaces with the accuracy required for optical ray tracing.**
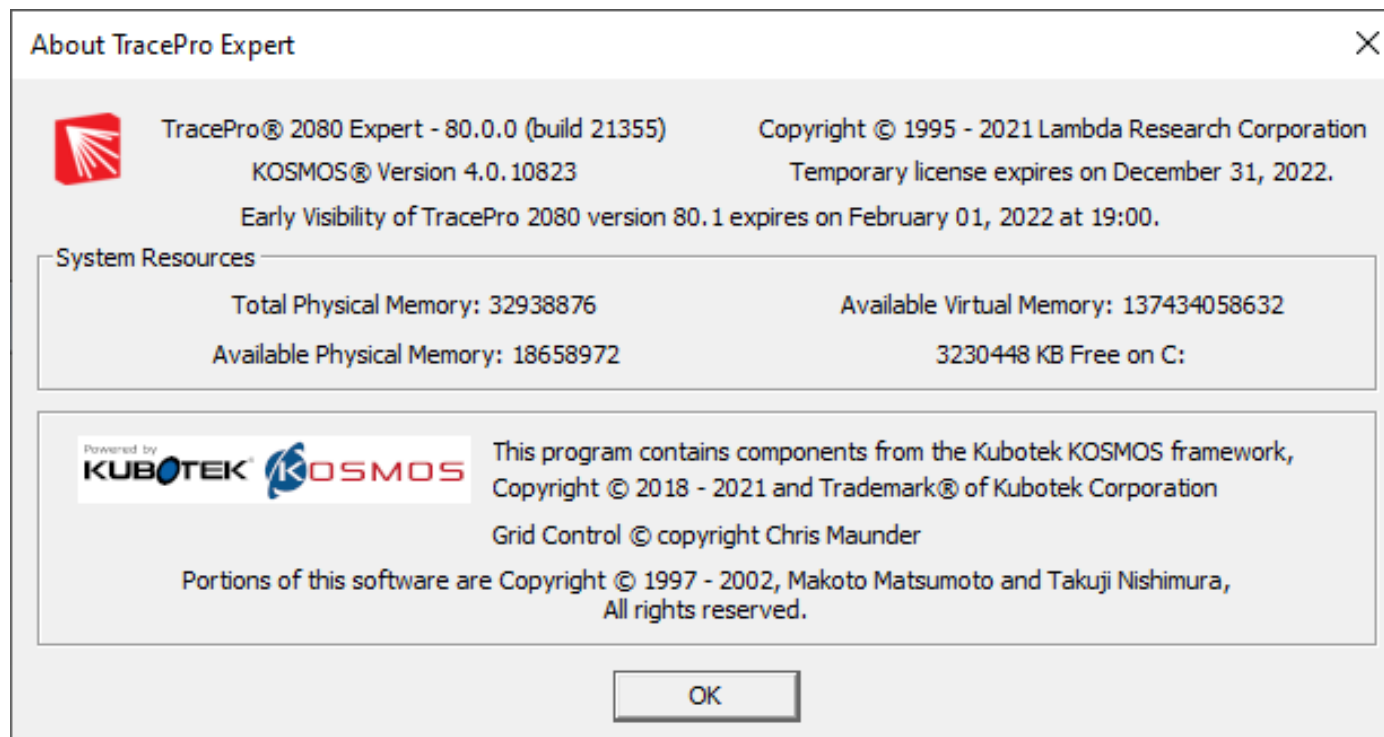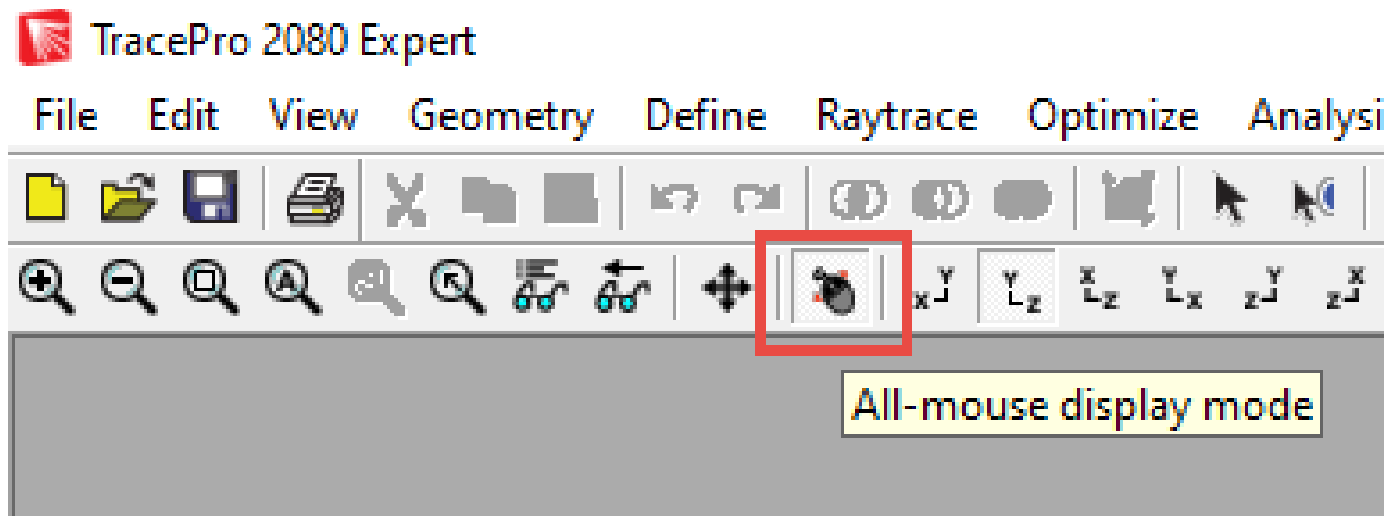
# TracePro 2022 22.1

**TracePro – CAD translators and importers included at no additional cost**

- ## CAD Translators
    - STEP
    - IGES
    - SAT

- ## CAD Importers
    - SOLIDWORKS
    - NX/Unigraphics
    - Inventor
    - Creo/Pro-E
    - SolidEdge
    - CATIA v4 and v5

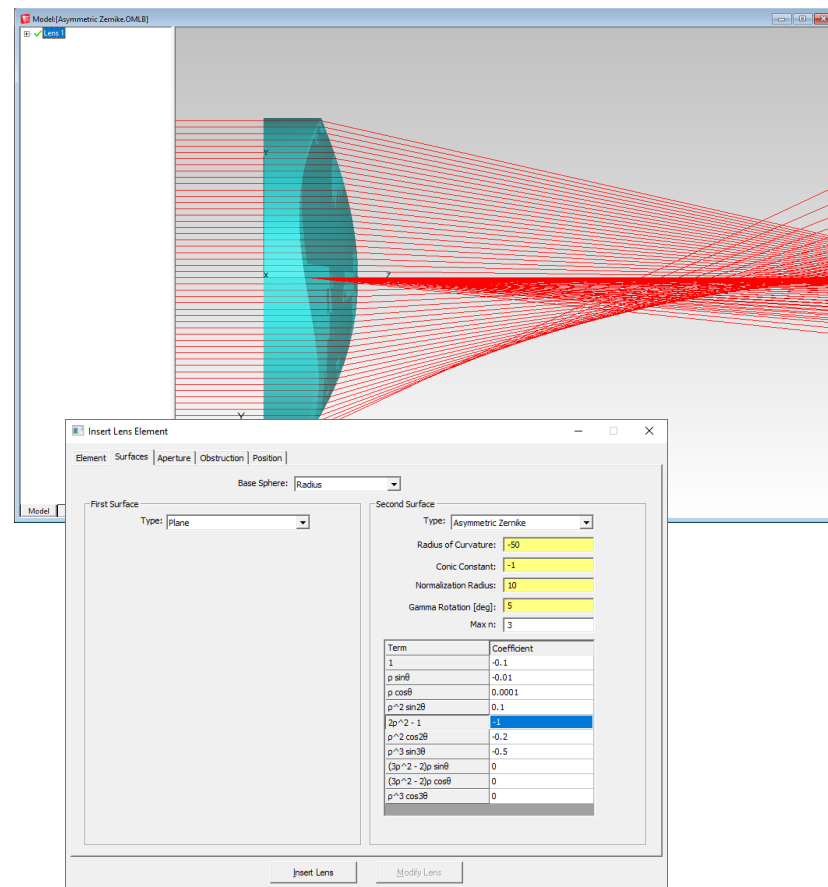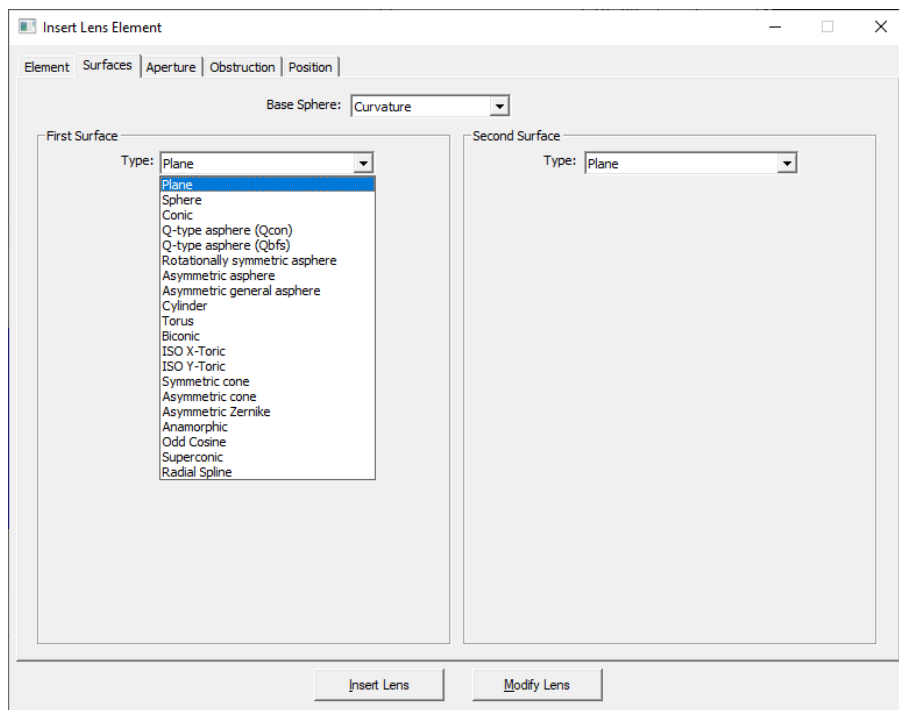**TracePro**

# TracePro 2022 22.1

**TracePro – New All-mouse mode enables users complete many view manipulations using only the mouse**



- **Left-button drag – orbit the view**
- **Right-button drag up and down – zoom the view**
- **Both-buttons – pan the view**

TracePro

# TracePro 2022 22.1

**TracePro – Many new surface types have been added to the Lens Element including, Q-type aspheres, Biconics, Asymmetric Zernike, Super Conic, Radial Spline, and many more.**
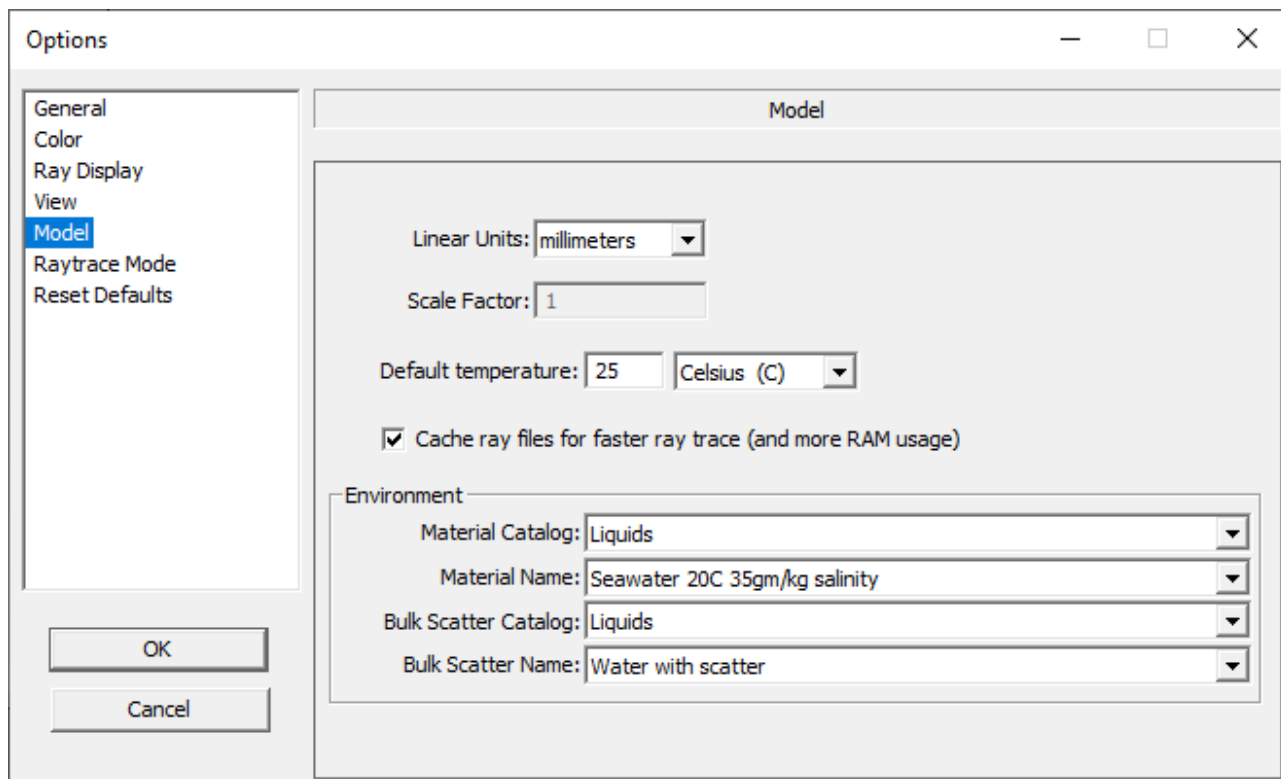
# TracePro 2022 22.1

**TracePro – Lens Element Aperture and Obstruction options now include Circle, Rectangle, Ellipse, Rounded rectangle, and Polygon**
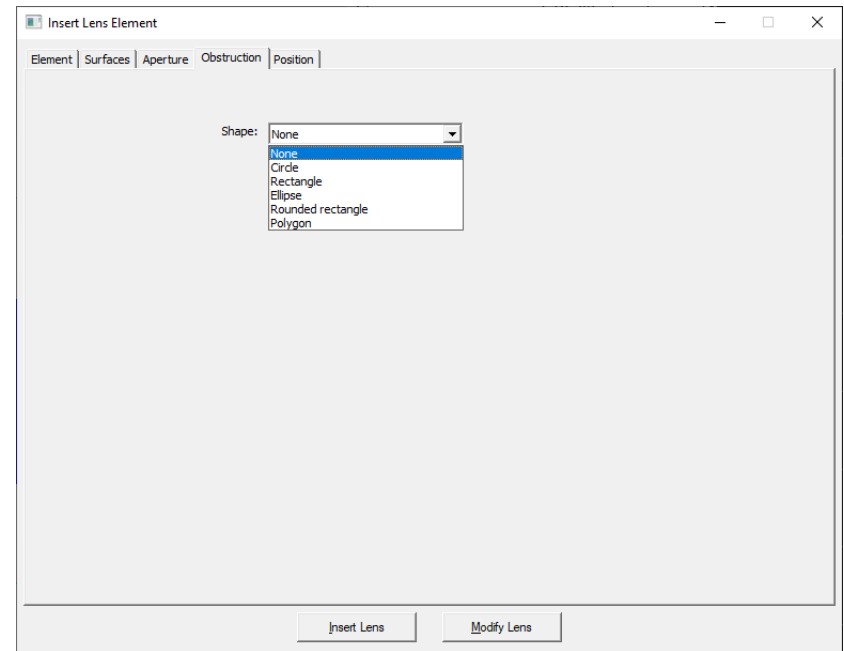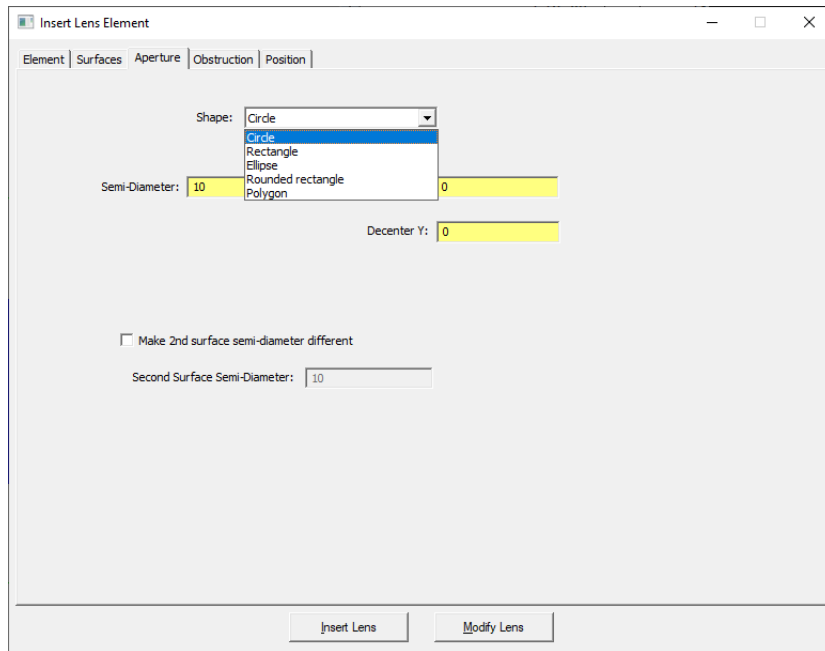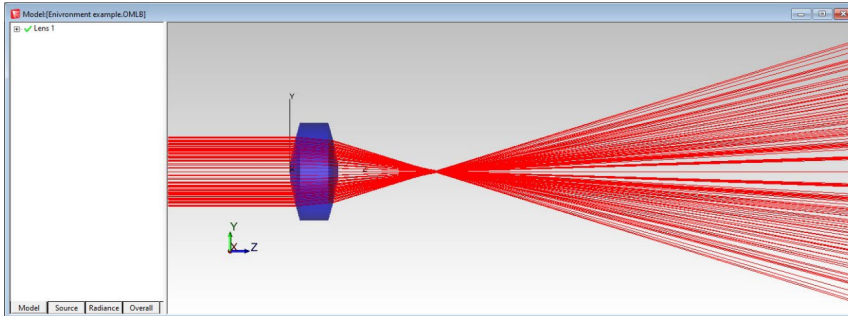
# TracePro 2022 22.1

**TracePro – Material and Bulk Scatter Properties can now be applied to the environment in TracePro**
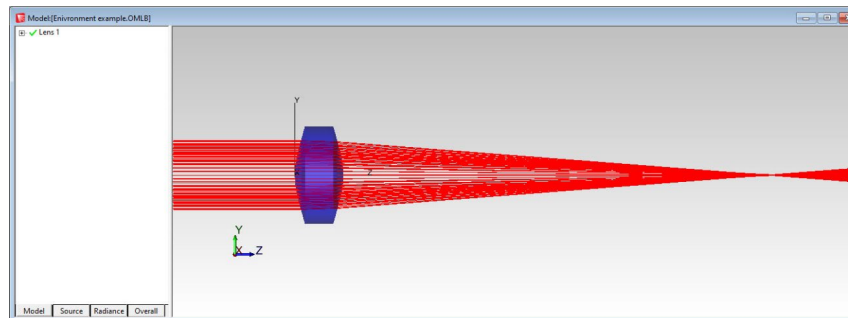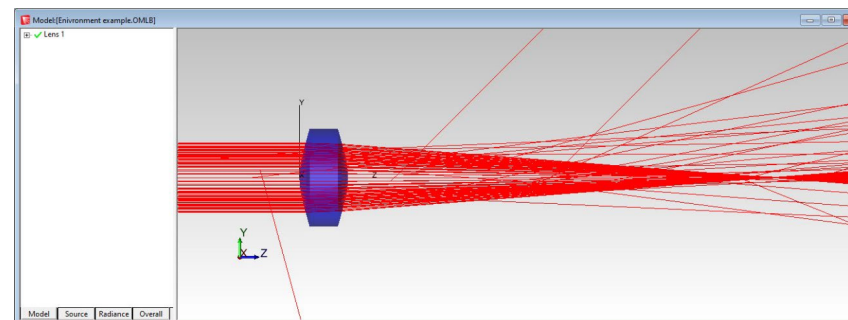
# TracePro 2022 22.1

**TracePro – Material and Bulk Scatter Properties can now be applied to the environment in TracePro**
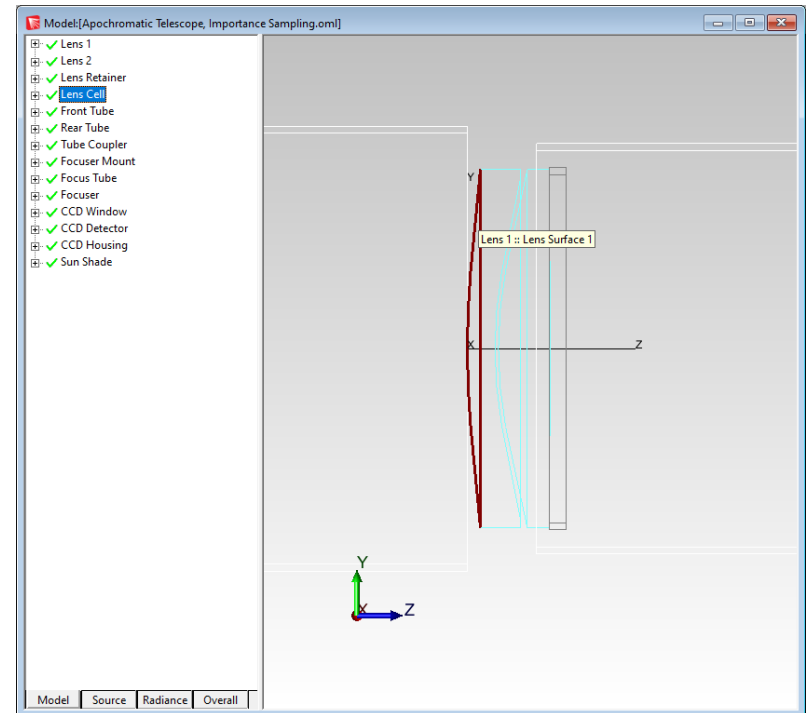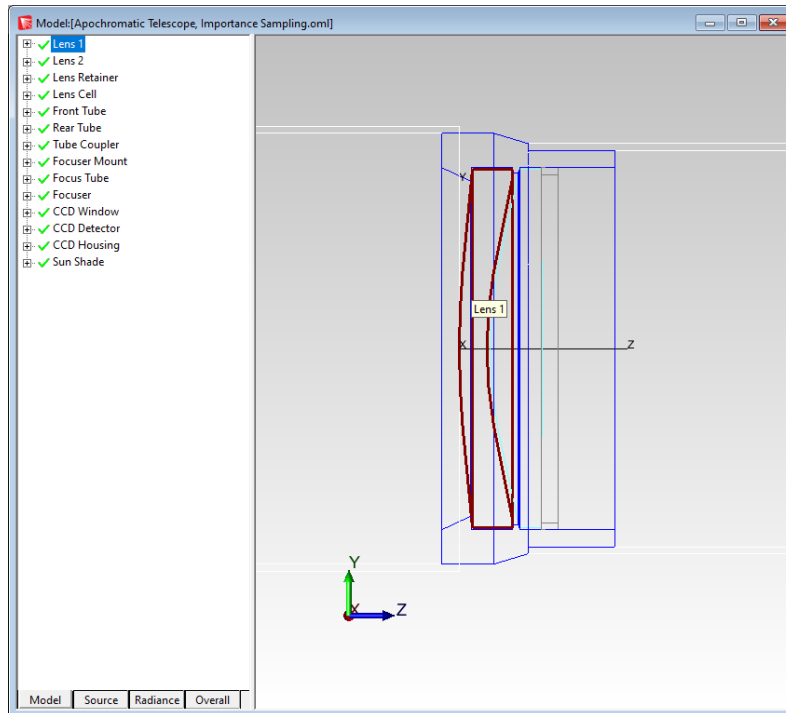


**BK7 lens in air**



**BK7 lens in seawater**



**BK7 lens in seawater with scatter**

# TracePro 2022 22.1

**TracePro – New Dynamic Highlighting. Move the cursor over an object or surface to dynamically highlight the object or surface and display its name**
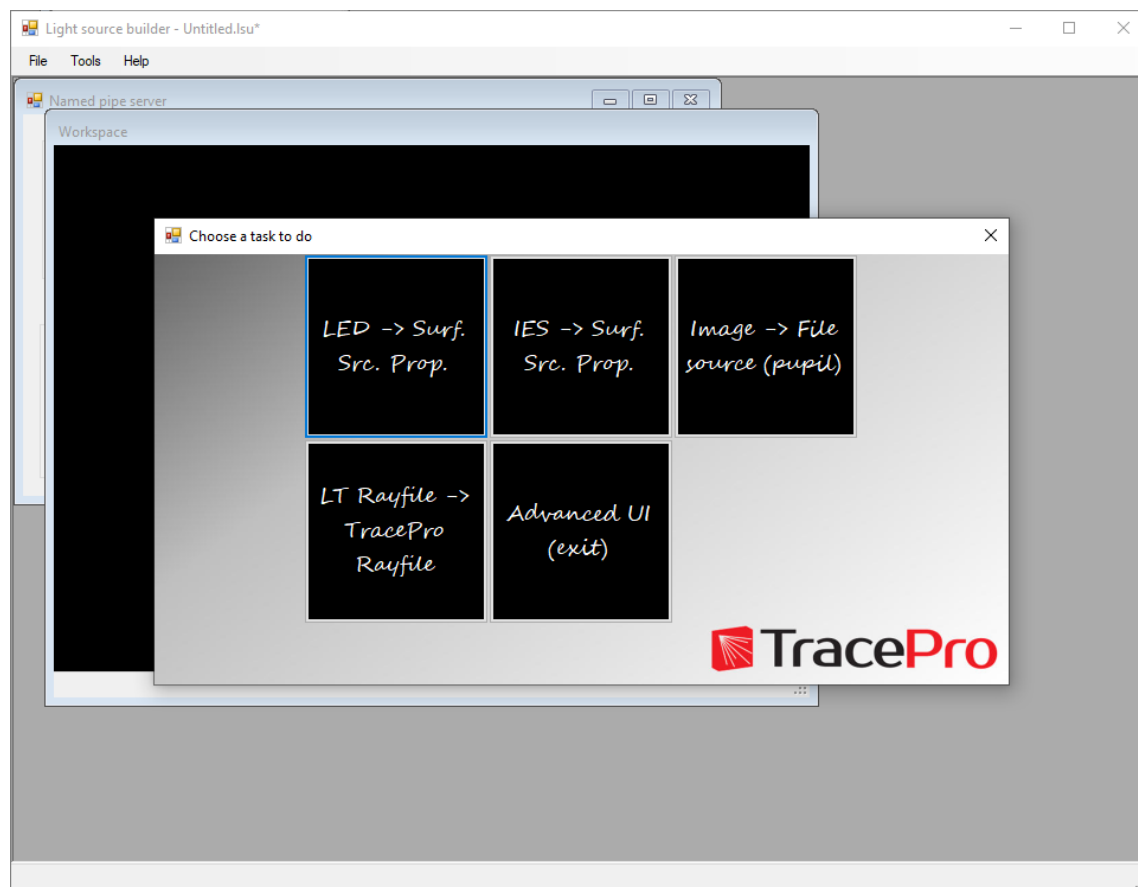
# TracePro 2022 22.1

**TracePro – New TracePro file extension .OMLB. TracePro 2022 can also open .OML files. Older versions of TracePro will not be able to open .OMLB files.**
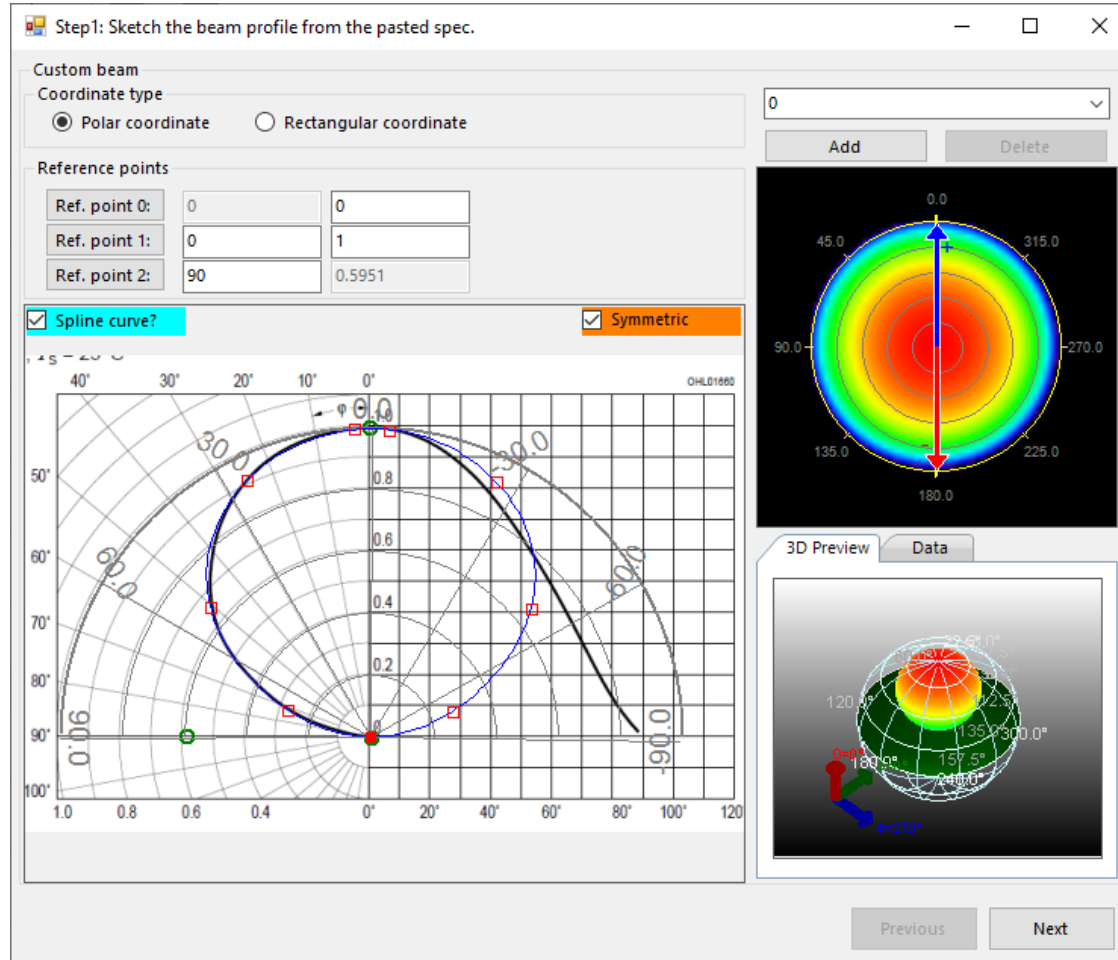
**TracePro**

# TracePro 2022 22.1

**Light Source Builder – The new Light Source Builder gives uses a wizard tool and gives users the ability to make multiple types of light sources.**
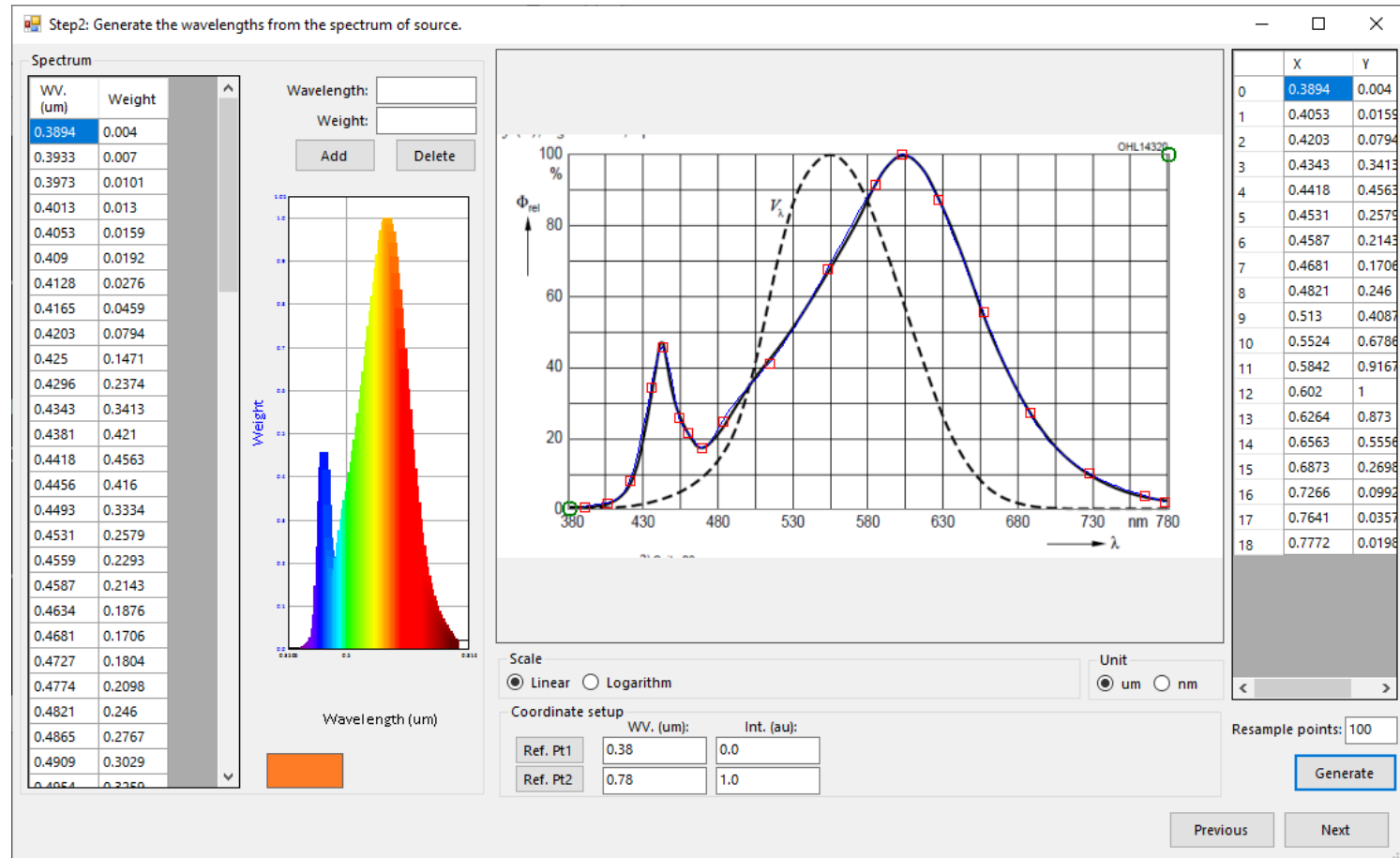
# TracePro 2022 22.1

## Light Source Builder – Surface Source Property

# TracePro 2022 22.1

## Light Source Builder – Surface Source Property

# TracePro 2022 22.1

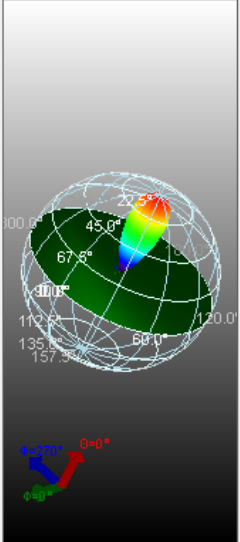**Light Source Builder – Surface Source Property from IES file**

# TracePro 2022 22.1

## Light Source Builder – Surface Source Property from IES file

# New Light Source Builder

**Surface Source Property from IES file**
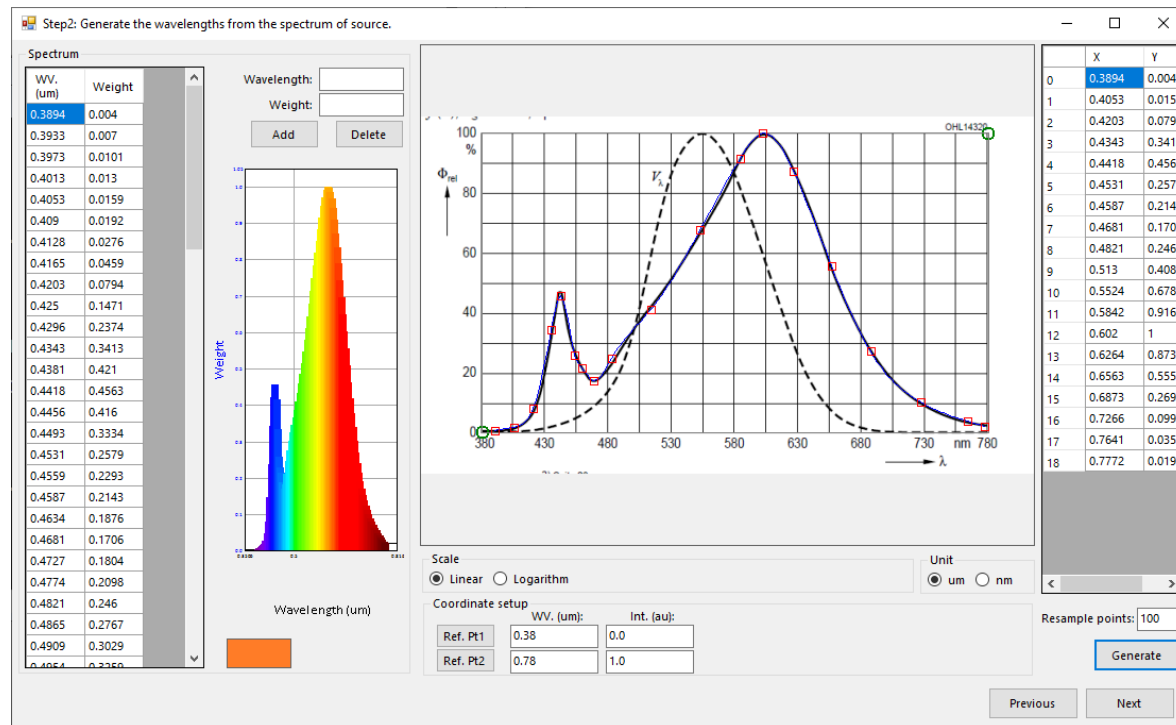
# New Features in TracePro 2021 21.5

# TracePro 2021 21.5

- ➤ **TracePro**
  - ➤ New Stary Light Analyzer utility

- ➤ **Interactive Optimizer**
  - ➤ New rectangular hole option has been added to the Reflector object type

- ➤ **Lighting Toolkit**
  - ➤ New regulations have been added
  - ➤ Regulations have been updated

- ➤ **New Scheme commands**

**TracePro**

# New Features in TracePro 2021 21.4

# TracePro 2021 21.4

- ➤ **TracePro**
  - ➤ New Stary Light Analyzer utility

- ➤ **Interactive Optimizer**
  - ➤ New rectangular hole option has been added to the Reflector object type

- ➤ **Lighting Toolkit**
  - ➤ New regulations have been added
  - ➤ Regulations have been updated

- ➤ **New Scheme commands**

**TracePro**

# TracePro 2021 21.4

**TracePro – A new Stray Light Analyzer utility has been added to TracePro. This utility automates and simplifies many of the steps necessary to do a stray light analysis.**
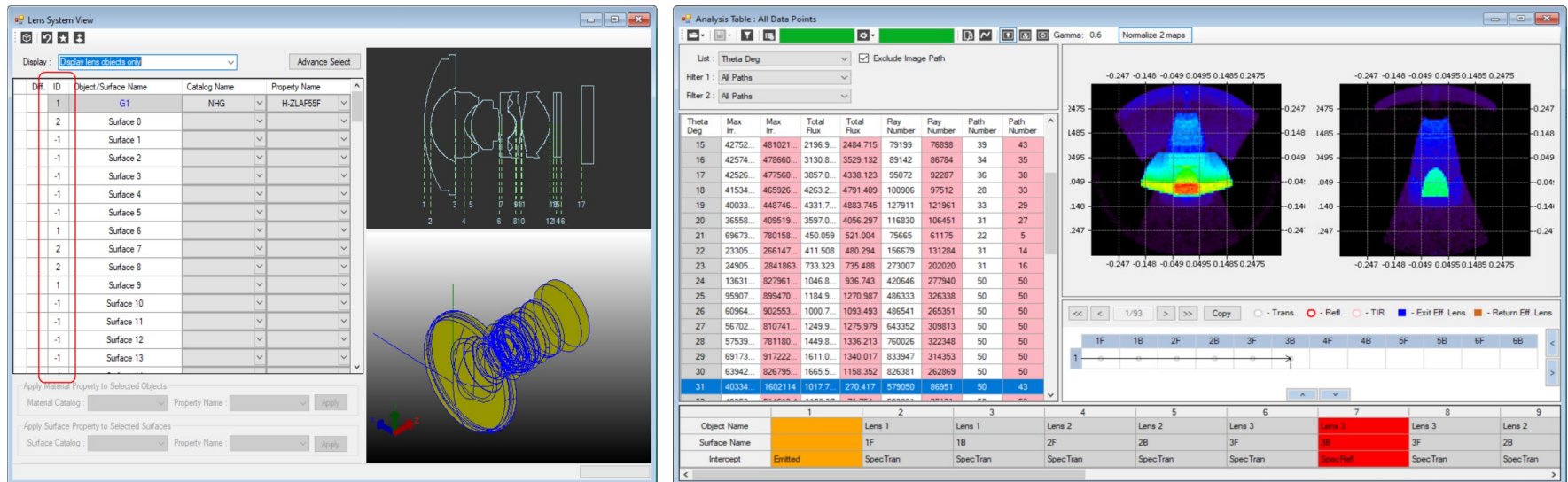
# TracePro 2021 21.4

**Interactive Optimizer – The Reflector object type in the Interactive Optimizer has been updated so that a rectangular hole can be added to the reflector in addition to the previous circular option.**
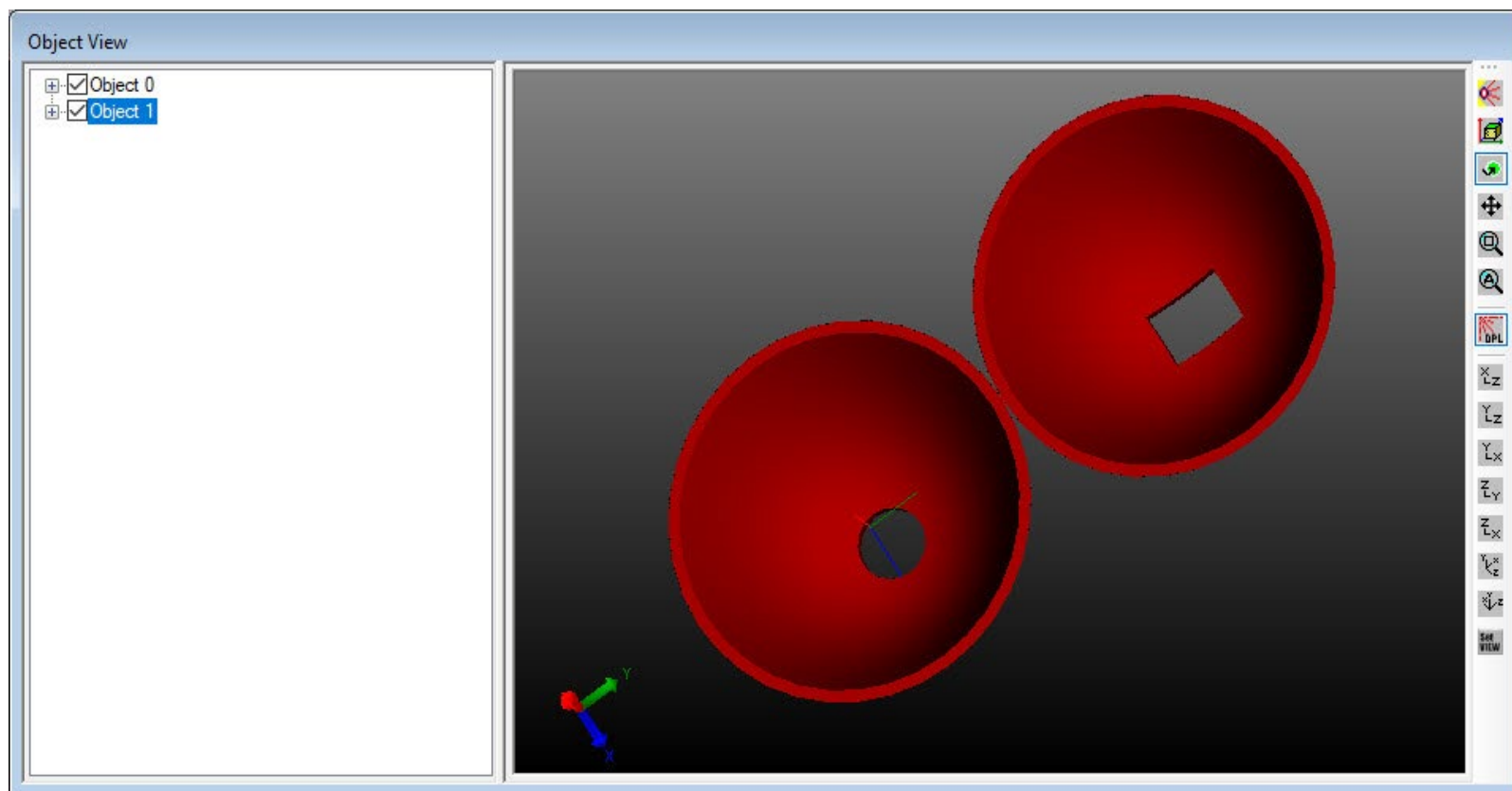
# TracePro 2021 21.4

**Lighting Toolkit – Eight new regulation tables have been added**

- ➢ ECE R7 2019
- ➢ ECE R119 (2014)
- ➢ ECE R6 2008
- ➢ SAE J588
- ➢ SAE J222
- ➢ SAE J592
- ➢ SAE J594
- ➢ SAE J845

**TracePro**

# TracePro 2021 21.4

**Lighting Toolkit – Six regulation tables have been updated**

- ➢ ECE R6
- ➢ ECE R3
- ➢ ECE R91
- ➢ ECE R98
- ➢ ECE R112 (2010, 2012)
- ➢ FMVSS 108 Figures 17, 27, 28

**TracePro**

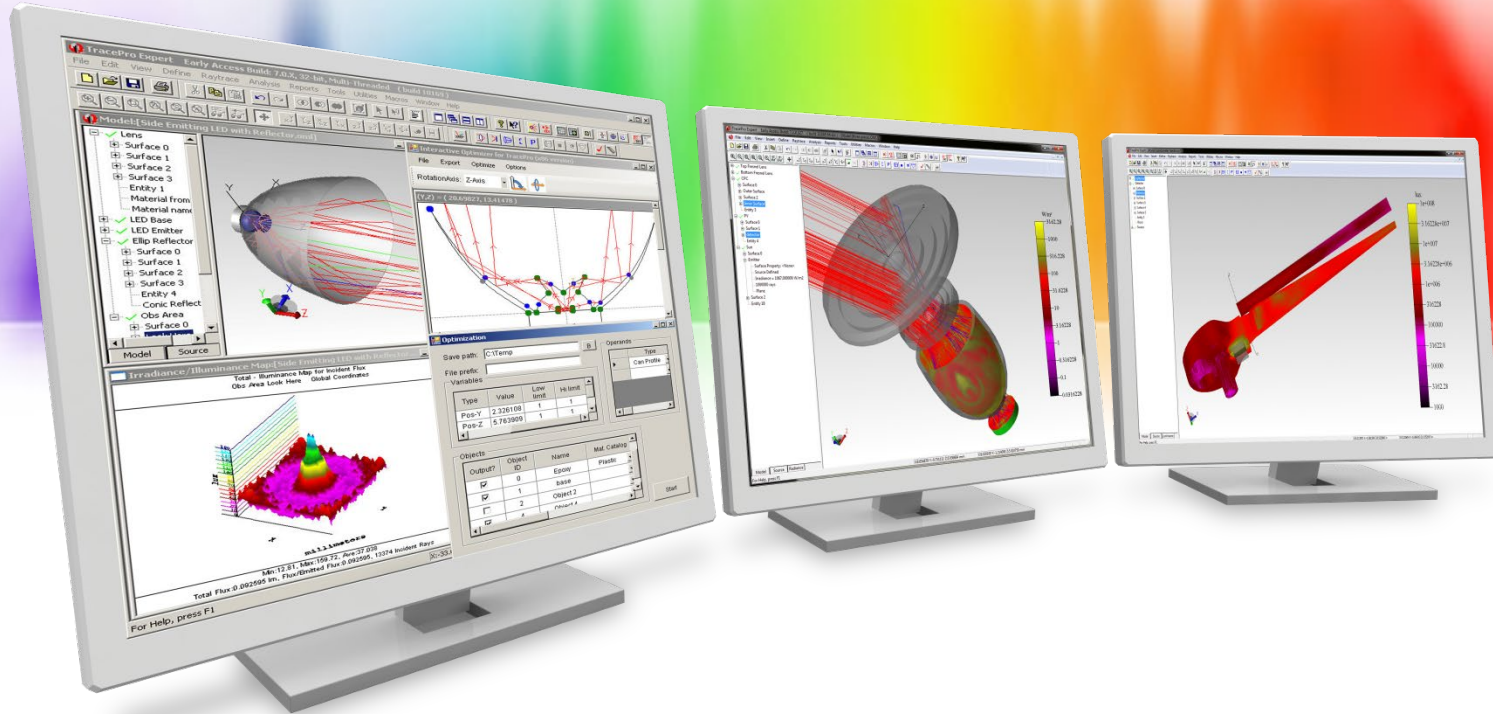# TracePro 2021 20.3

➢ **New Scheme commands**
  ➢ geometry:get-block-parameters
  ➢ modify:primitive-block

TracePro

# New Features in TracePro 2021 21.3

# TracePro 2021 21.3

> **TracePro**
> > Exposure Compensation for Photorealistic Rendering and TrueColor plots

> **Lighting Toolkit**
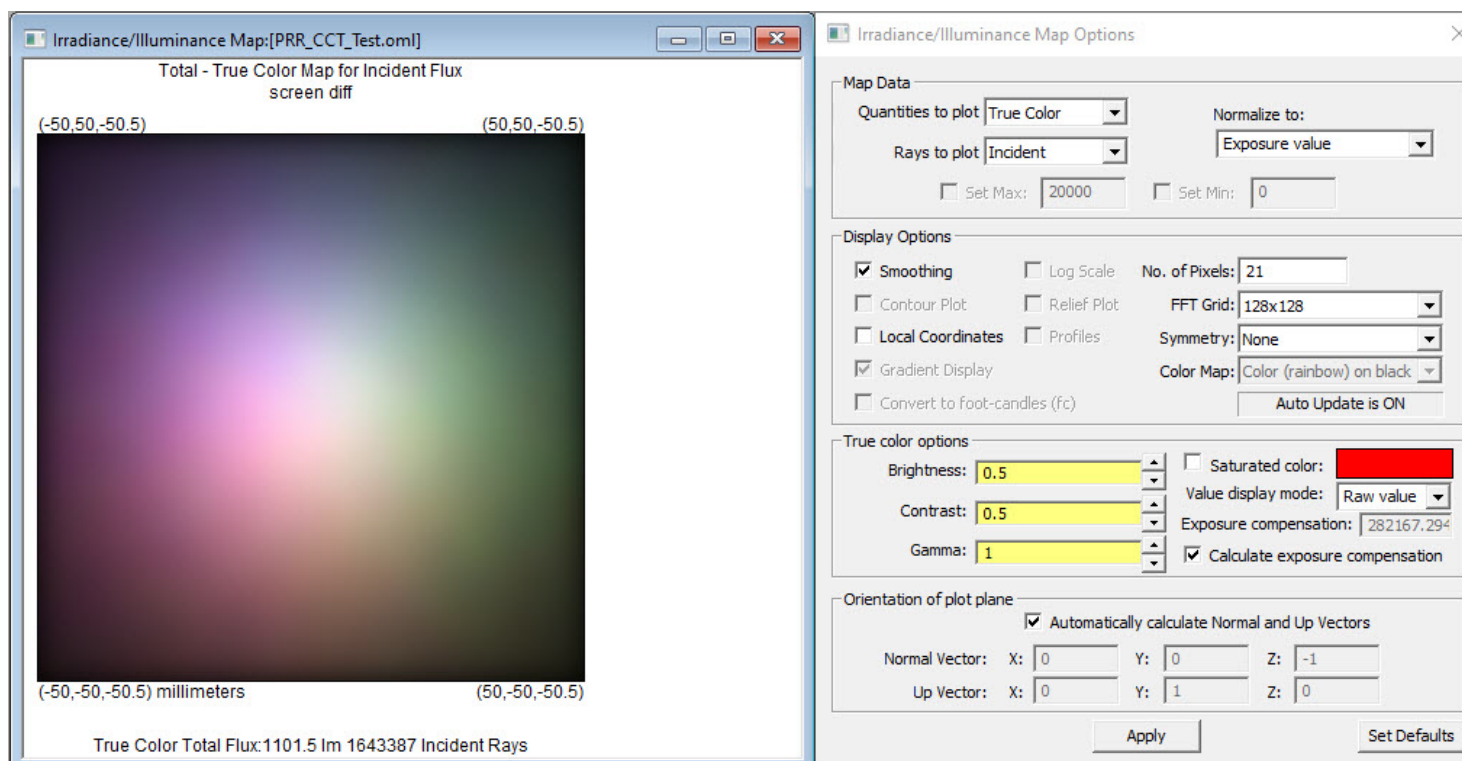> > New ECE regulations have been added to the Lighting Toolkit

> **Analysis Toolkit**
> > A polygon analysis shape for luminance analysis has been added

> **New Scheme commands**

TracePro

# TracePro 2021 21.3

**TracePro – A new Exposure Compensation option has been added to the Photorealistic Rendering and TrueColor Plots. This allows normalizing the color to a saturated white or monochromatic color. There is also a new option to normalize to the highest color in the plot.**
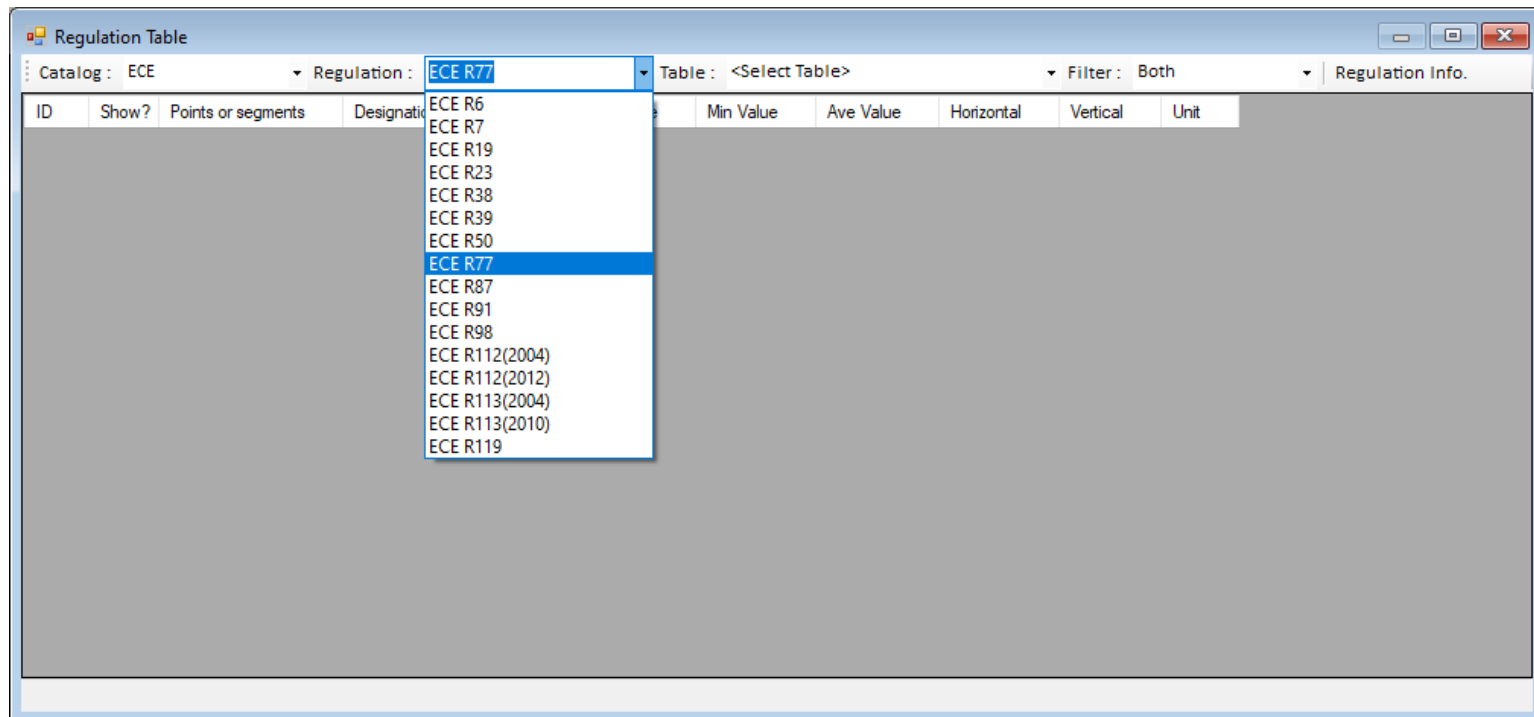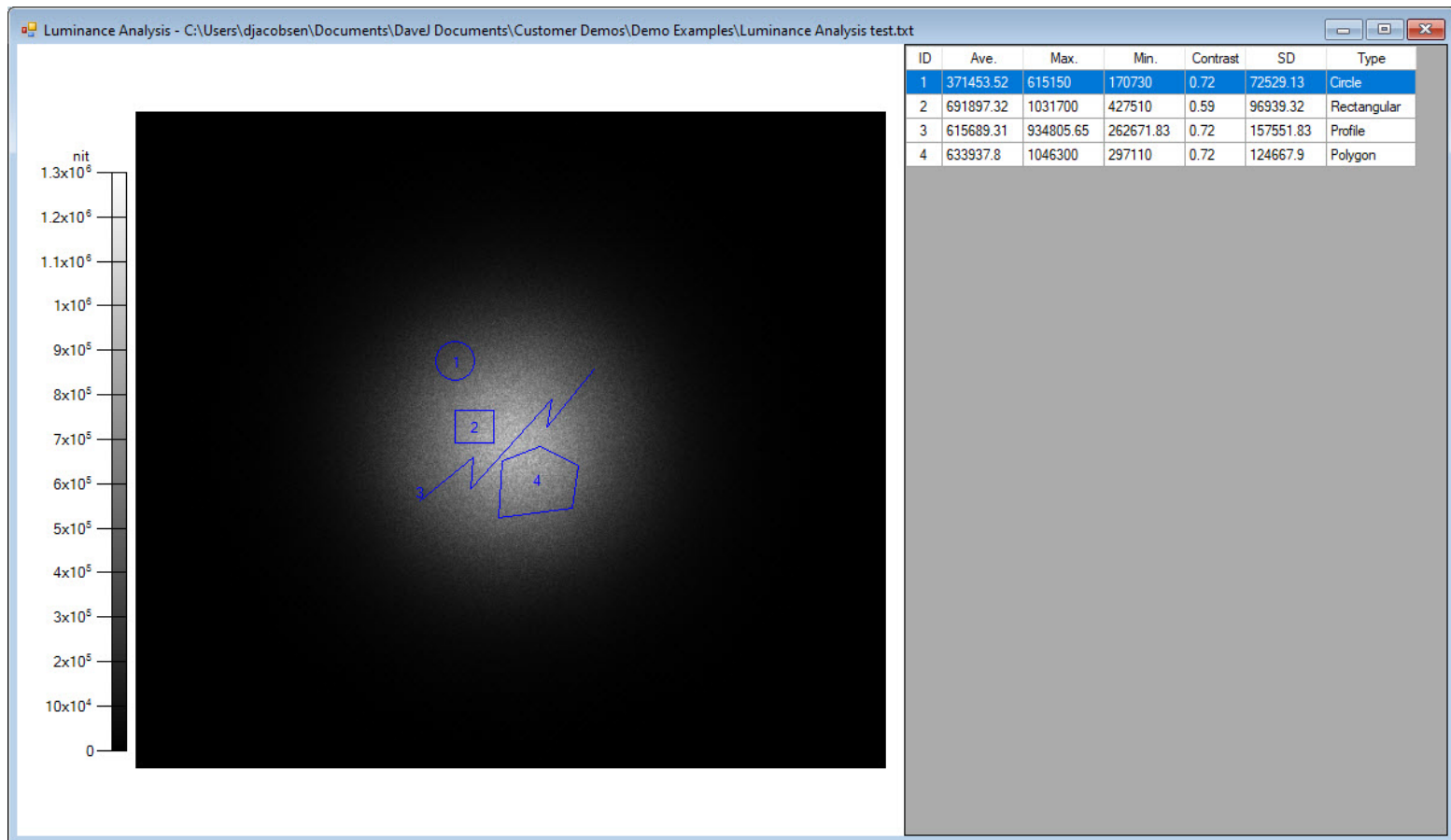
# TracePro 2021 21.3

**Lighting Toolkit – Three new ECE regulation tables**

- **ECE R91 side marker lamps**
- **ECE R119 cornering lamps**
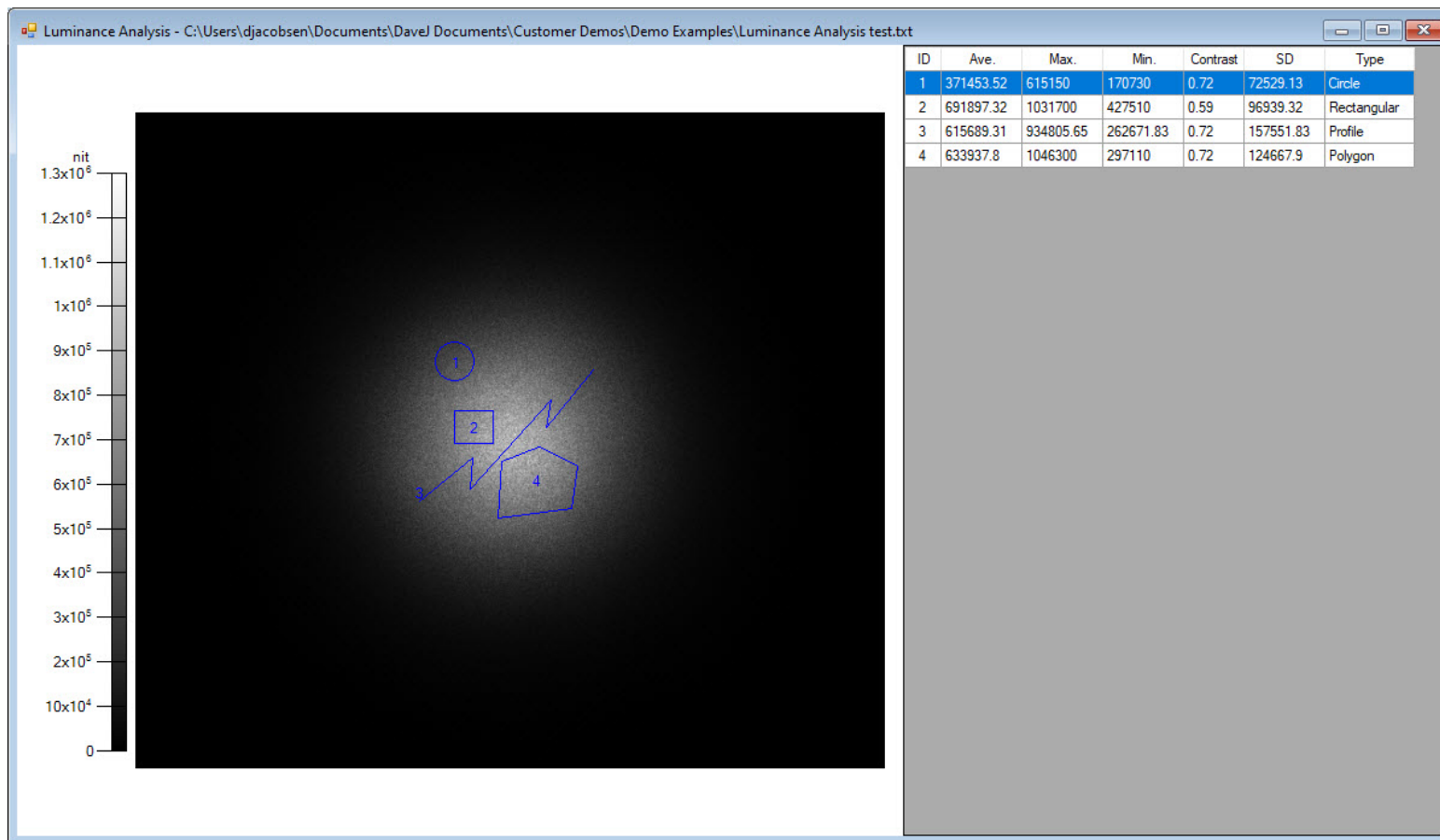- **ECE R77 parking lamps**

# TracePro 2021 21.3

**Analysis Toolkit – A new analysis shape, polygon, has been added to the Luminance Analysis tool in the Analysis Toolkit**
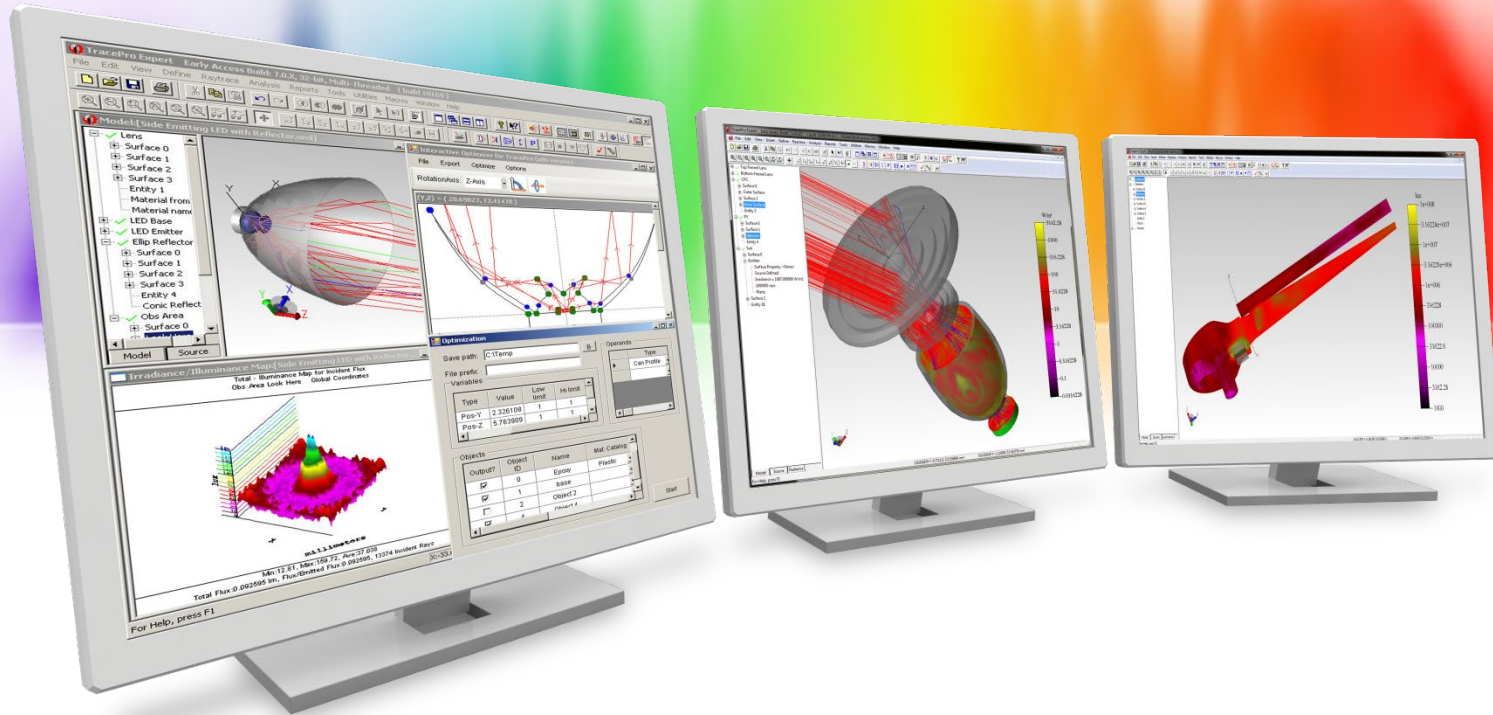
# TracePro 2021 21.3

**Analysis Toolkit – A new analysis shape, polygon, has been added to the Luminance Analysis tool in the Analysis Toolkit**

# TracePro 2021 20.3

> **New Scheme commands**
>> ➢ New Scheme commands have been added
>>> ➢ geometry:make-circular-edge-3pt
>>> ➢ geometry:make-circular-edge

TracePro

# New Features in TracePro 2021 21.2
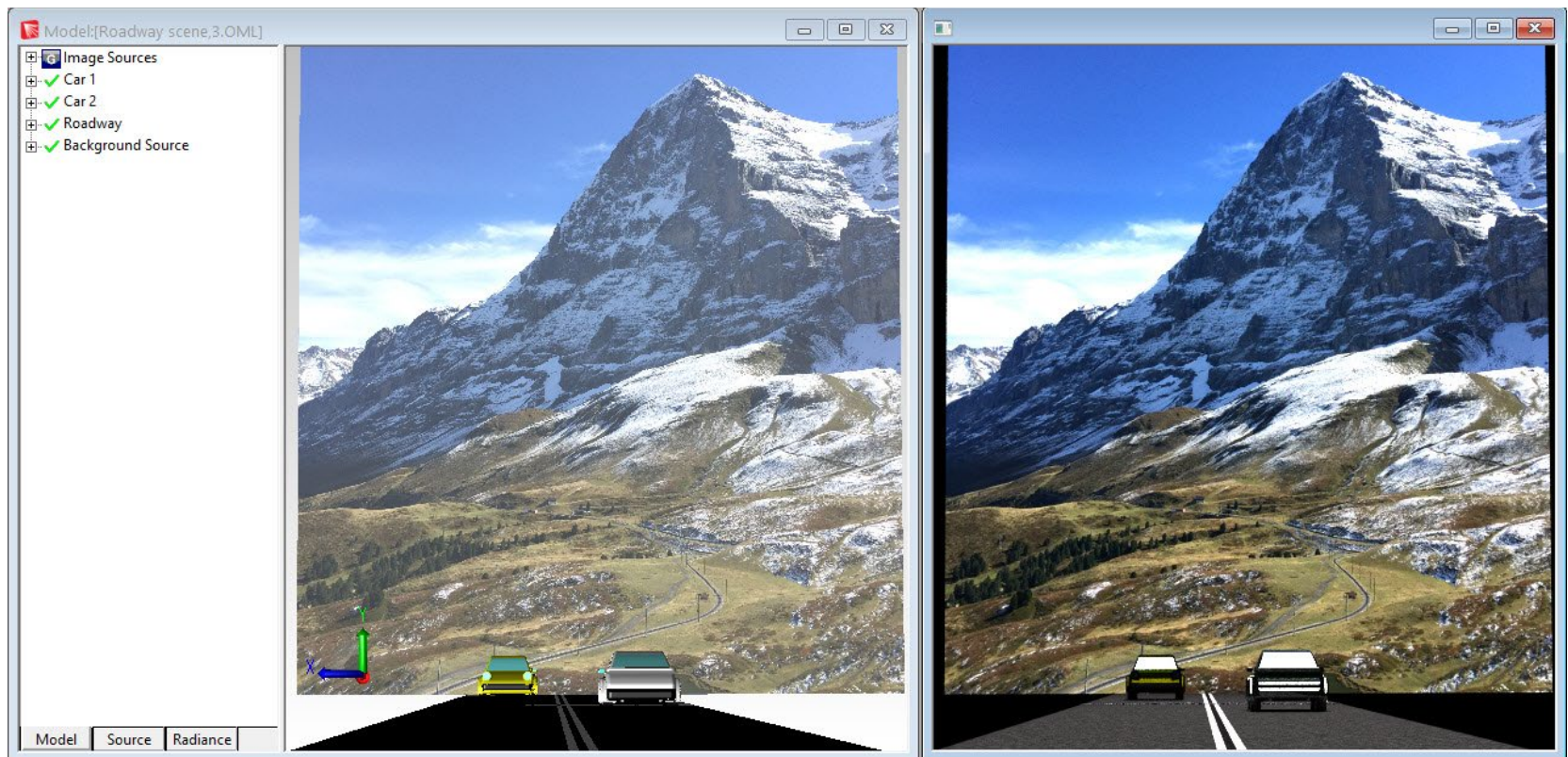
# TracePro 2021 21.2

> ## TracePro
>> New source type - Image Source
>> Updated CGDM glass catalogs

TracePro

# TracePro 2021 21.2

**TracePro – A new source type, the Image Source has been added. An image file such as a JPEG or Bitmap file can now be used as a source in TracePro.**

# TracePro 2021 21.2

**TracePro – A new source type, the Image Source has been added. An image file such as a JPEG or Bitmap file can now be used as a source in TracePro.**
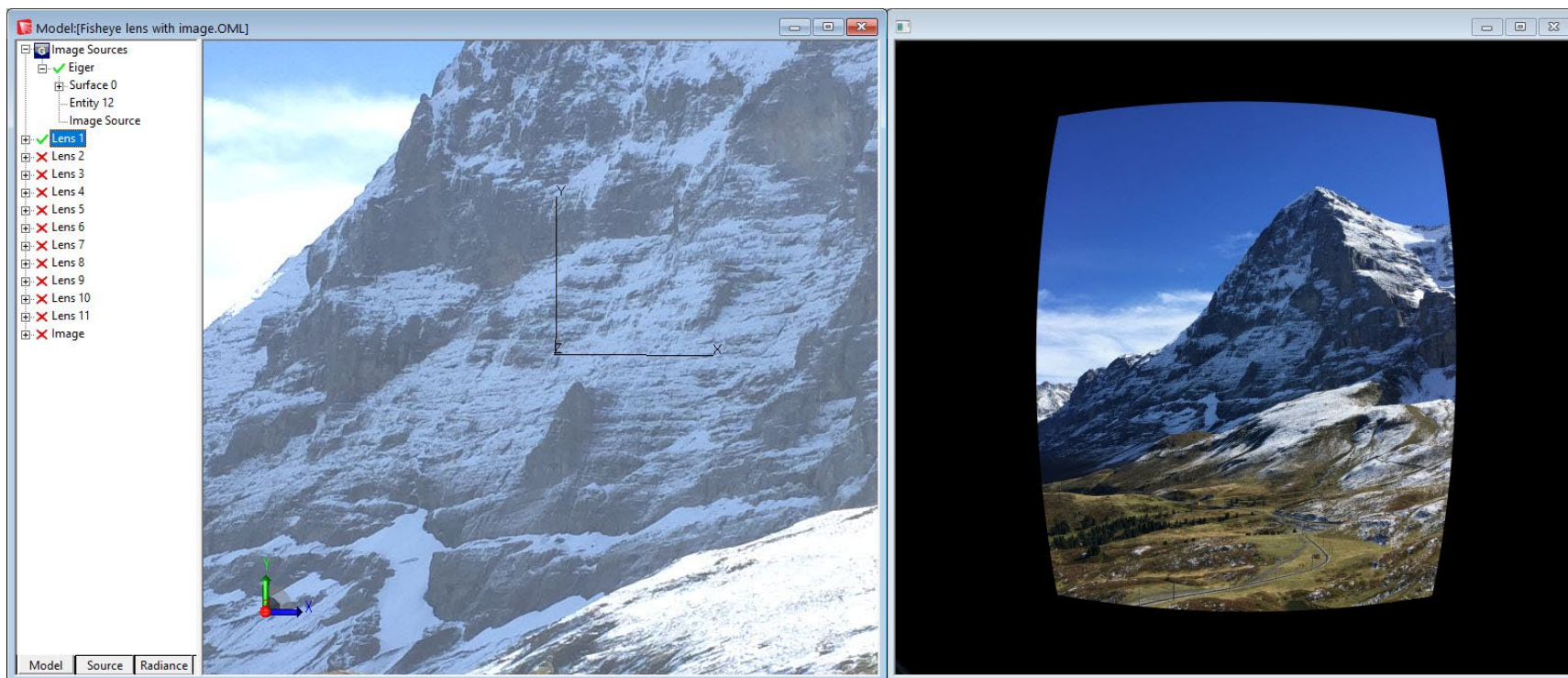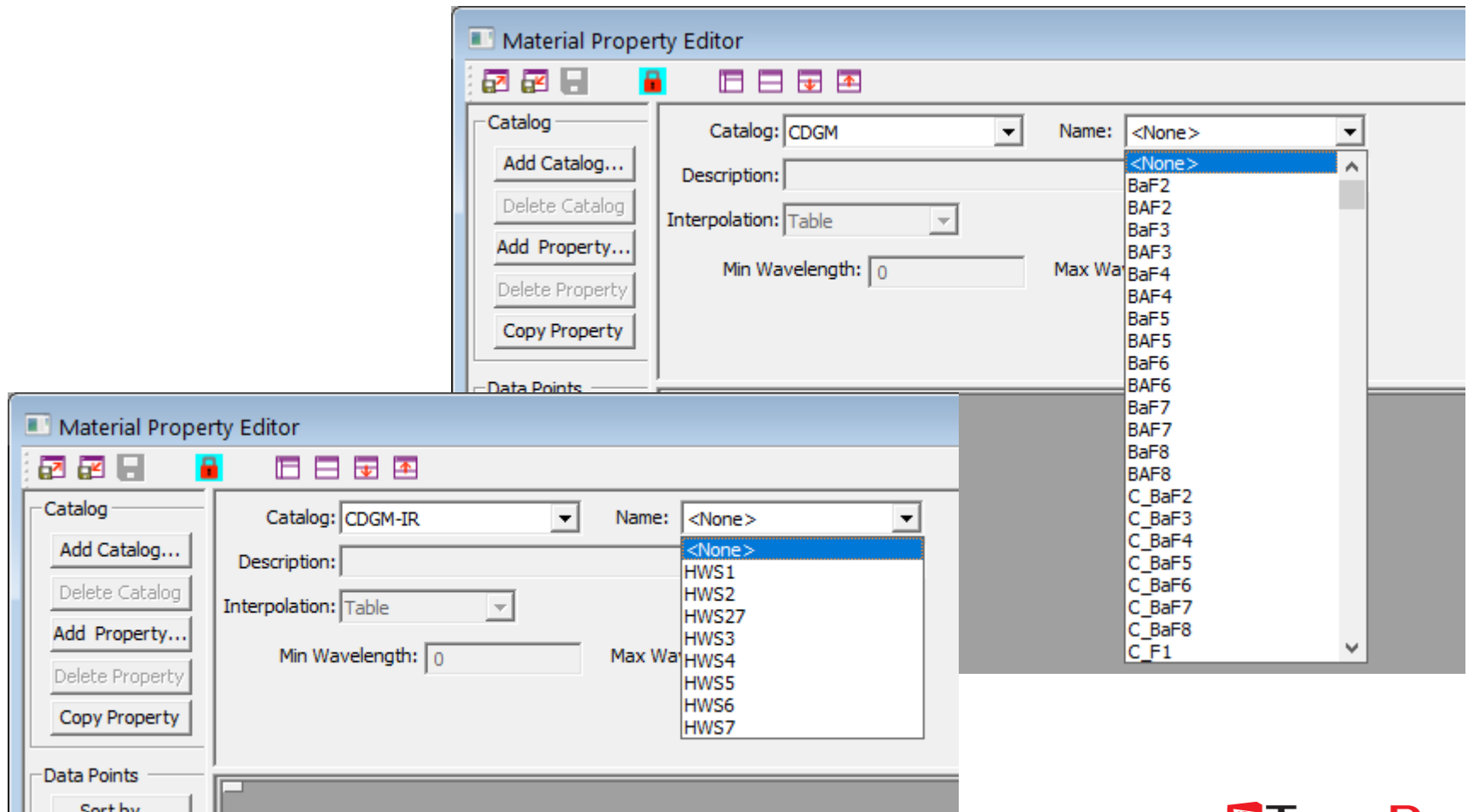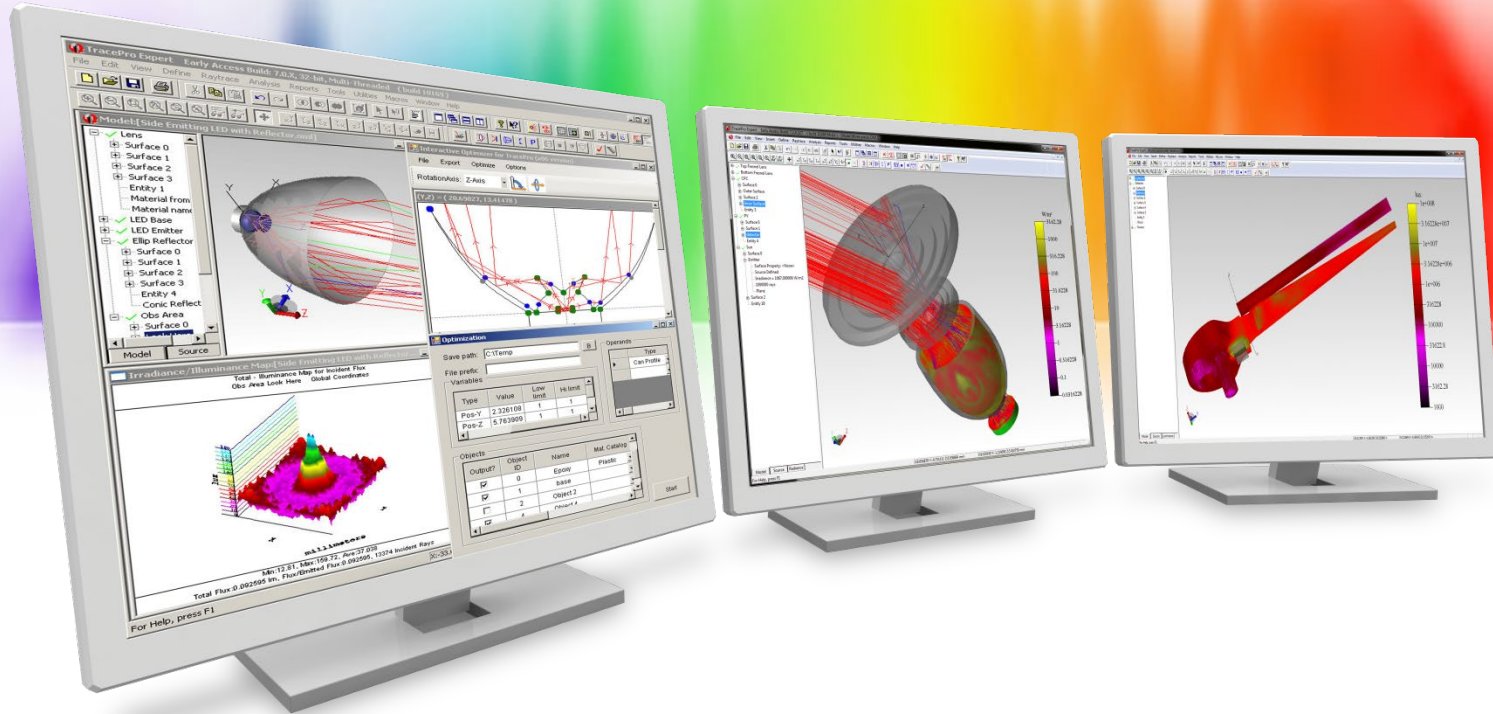


Image as viewed through a wide angle lens

# TracePro 2021 21.2

**TracePro – The CDGM glass catalog as been updated to reflected the latest data. A new CDGM-IR catalog of IR glass has been added.**

# New Features in TracePro 2021 21.1

# TracePro 2021 21.1

➢ **Interactive Optimizer**
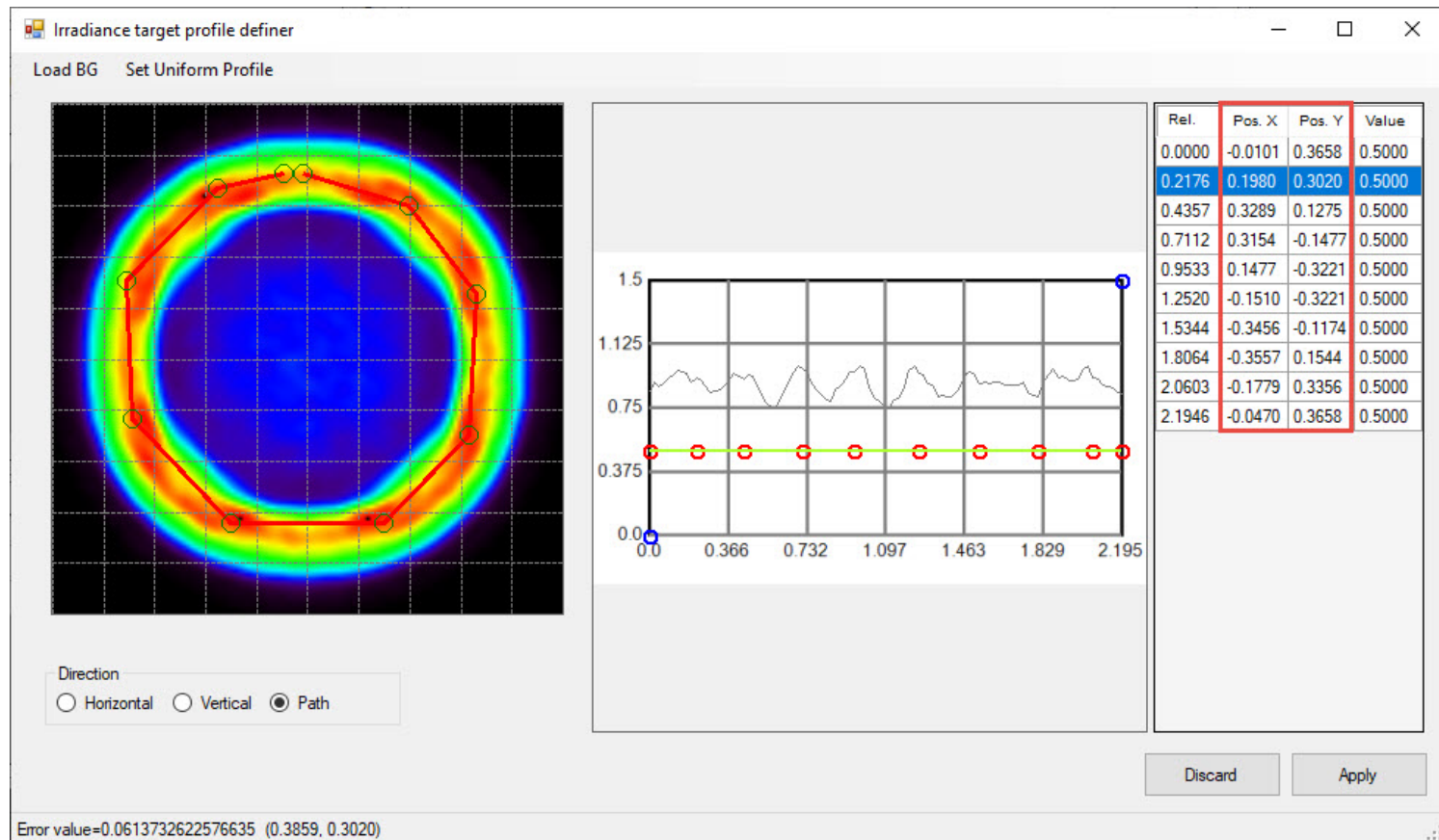  ➢ New capability for editing values of points in the Irradiance Profile operand

➢ **Lighting Toolkit**
  ➢ New FMVSS 108 regulations have been added

➢ **New Scheme command**

TracePro

# TracePro 2021 20.1

**Interactive Optimizer – The capability to edit the values of points when defining the Irradiance Profile operand has been added**
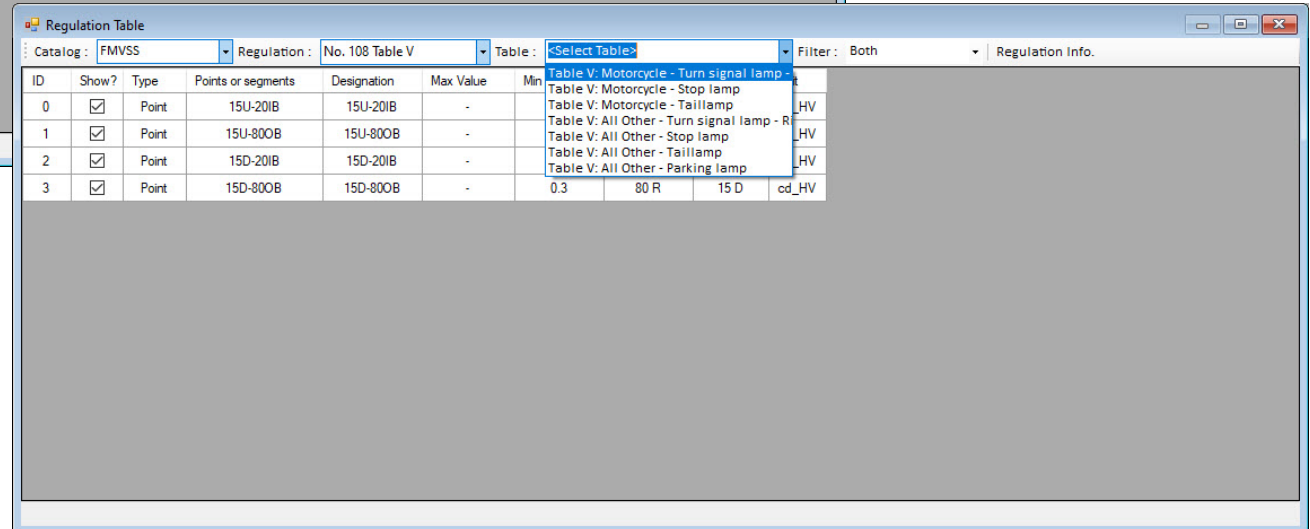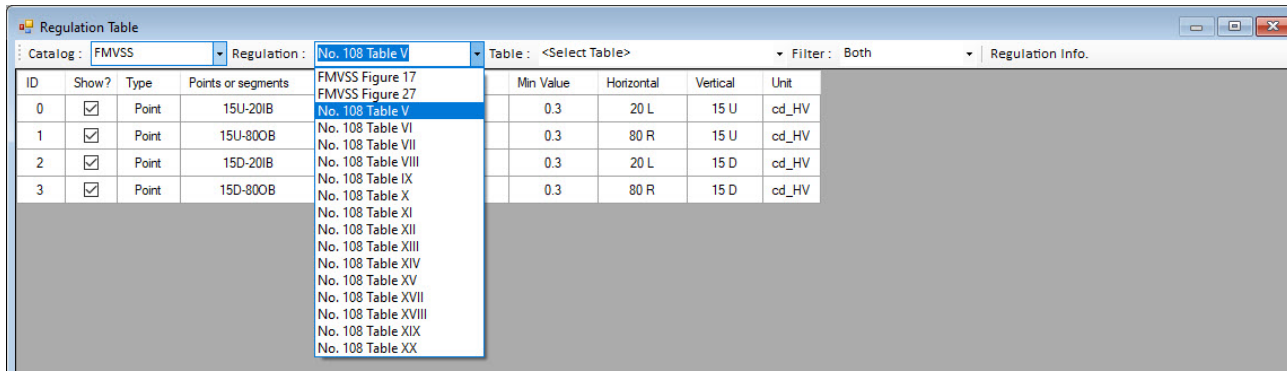
# TracePro 2021 20.1



> ## Lighting Toolkit
>> ➢ 62 FMVSS 108 regulations have been added

# TracePro 2021 20.1

> **New Scheme command**
>> **New Scheme command has been added**
>>> edit:rotate-objects

TracePro