New Features in TracePro

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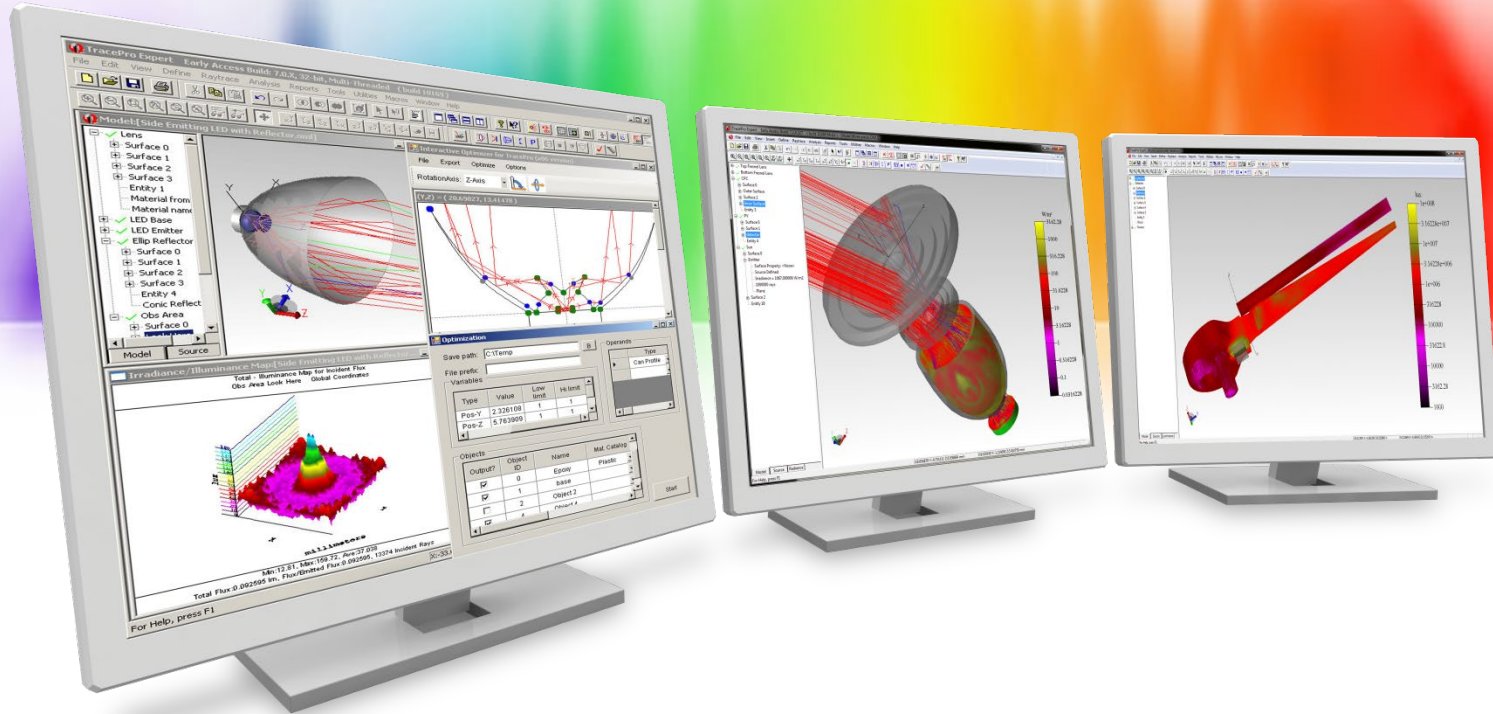
New TracePro Release Numbering

➢ 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 10th of the month, starting in February.
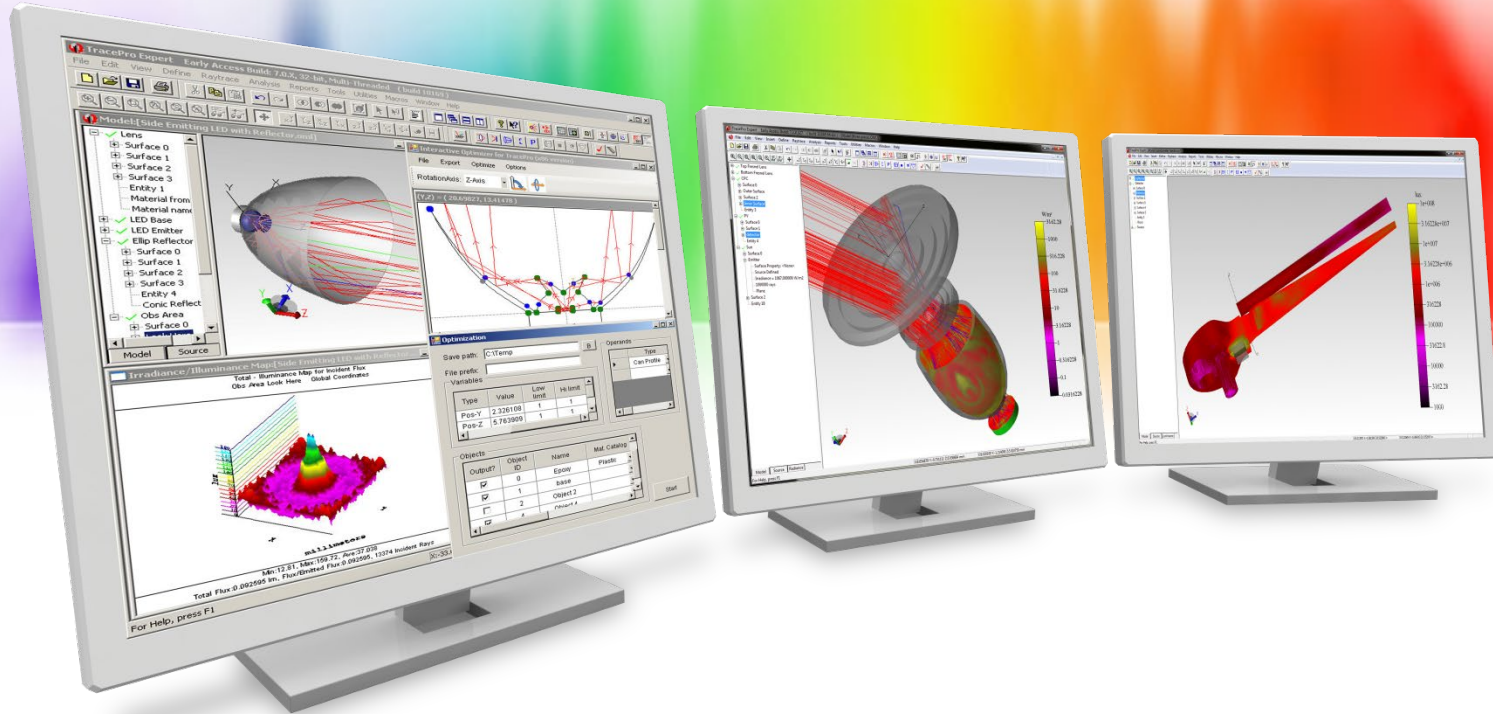
TracePro

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
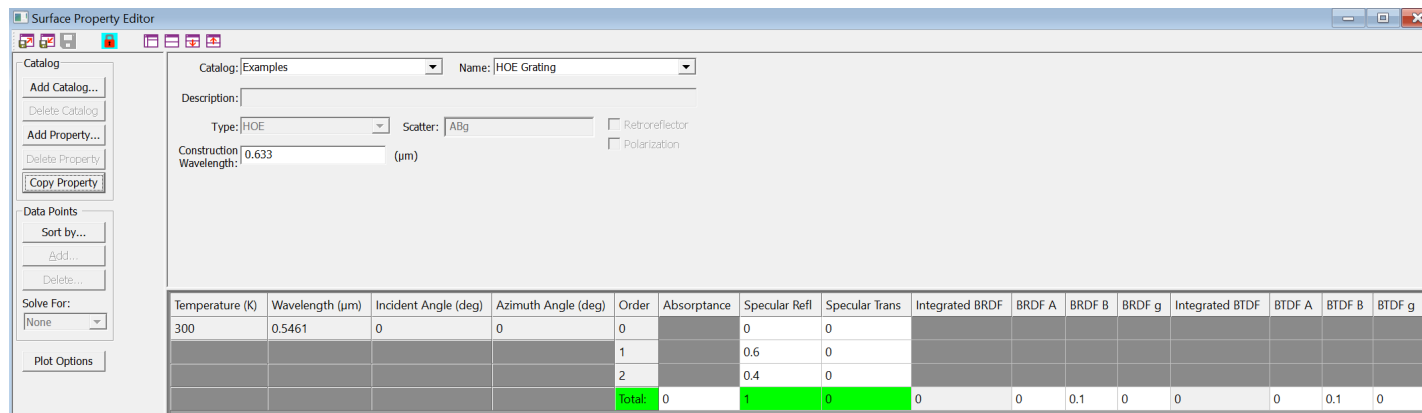
➢ **TracePro**
  ➢ Diffractive Optical Element capability
  ➢ Updated Stray Light Analyzer

TracePro

TracePro 2023 23.5

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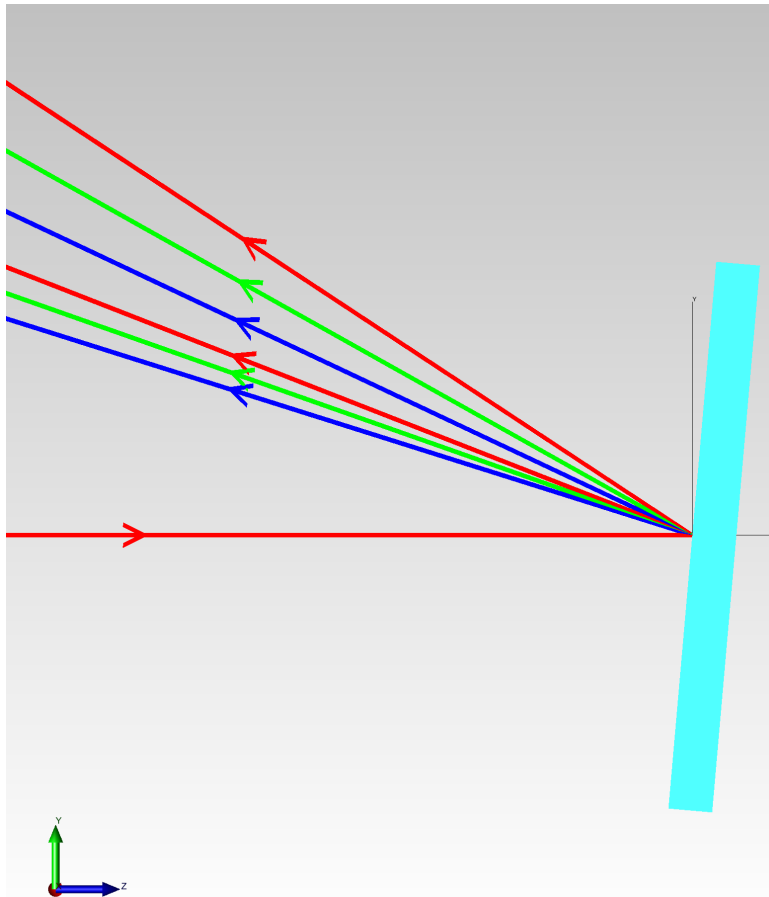>>> #### Computer Generated Holograms (CGHs)
>>> #### Zernike Phase
>>
>> ### CGH surfaces can be:
>>> #### Radially symmetric
>>> #### Asymmetric x-y
>>> #### Asymmetric (absolute value)

Surface Property Editor showing HOE surface for a reflection grating
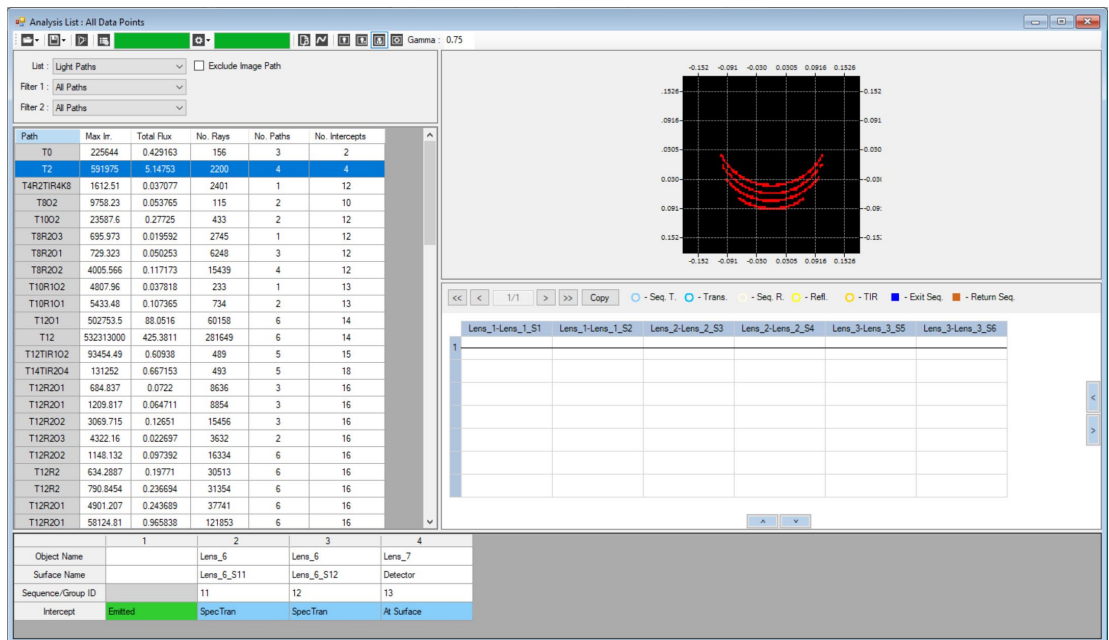
TracePro 2023 23.5

HOE reflection grating in TracePro
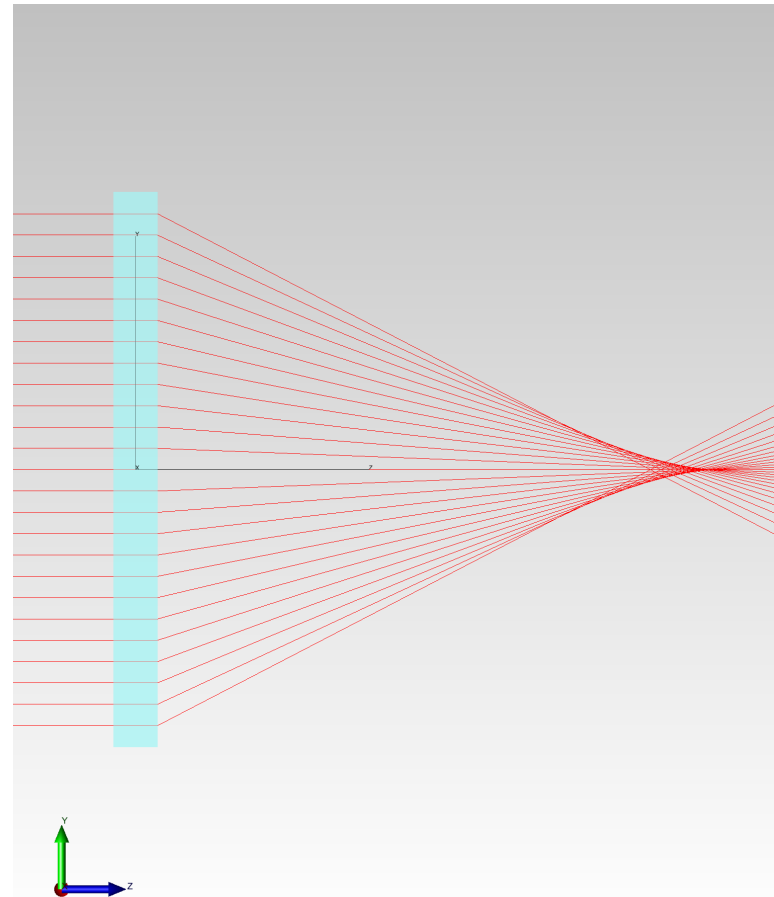
CGH lens example in TracePro
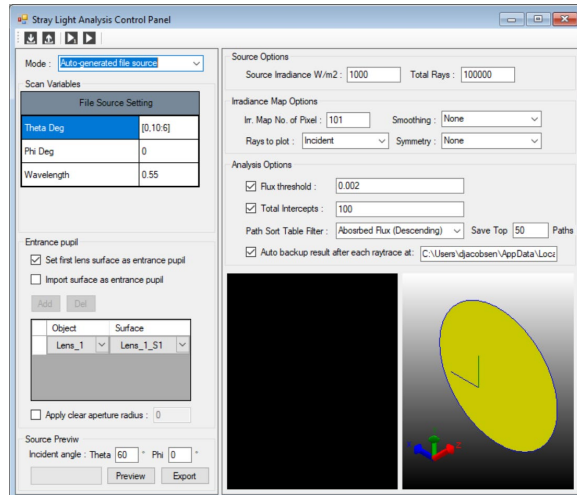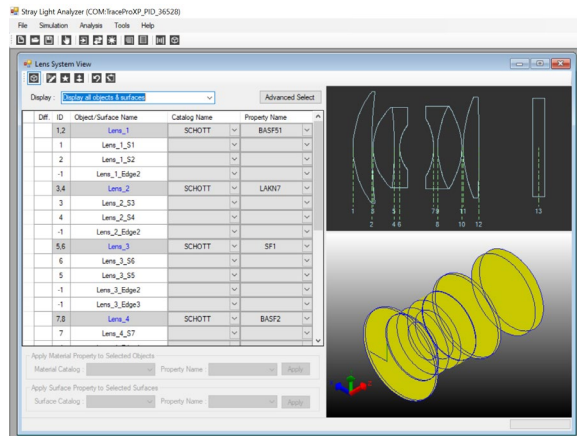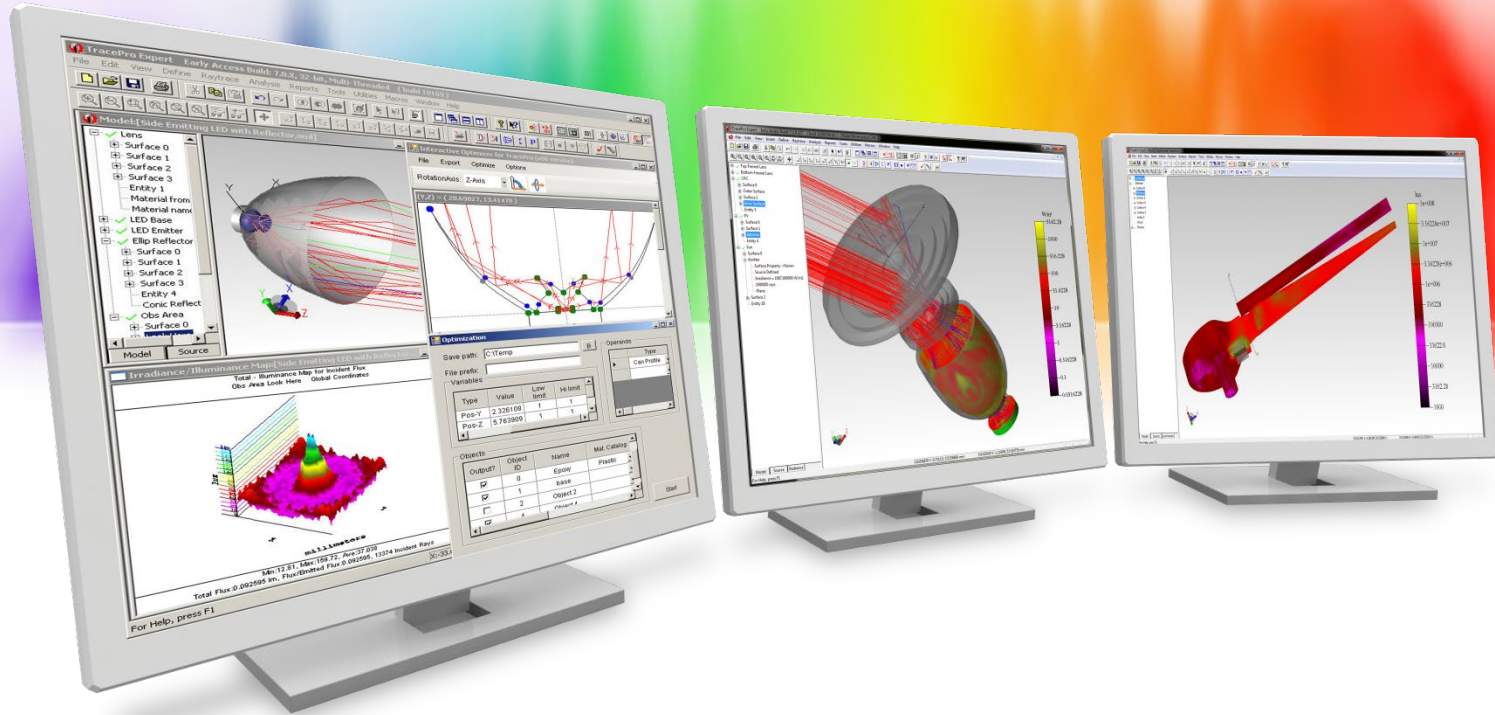
TracePro

TracePro 2023 23.5

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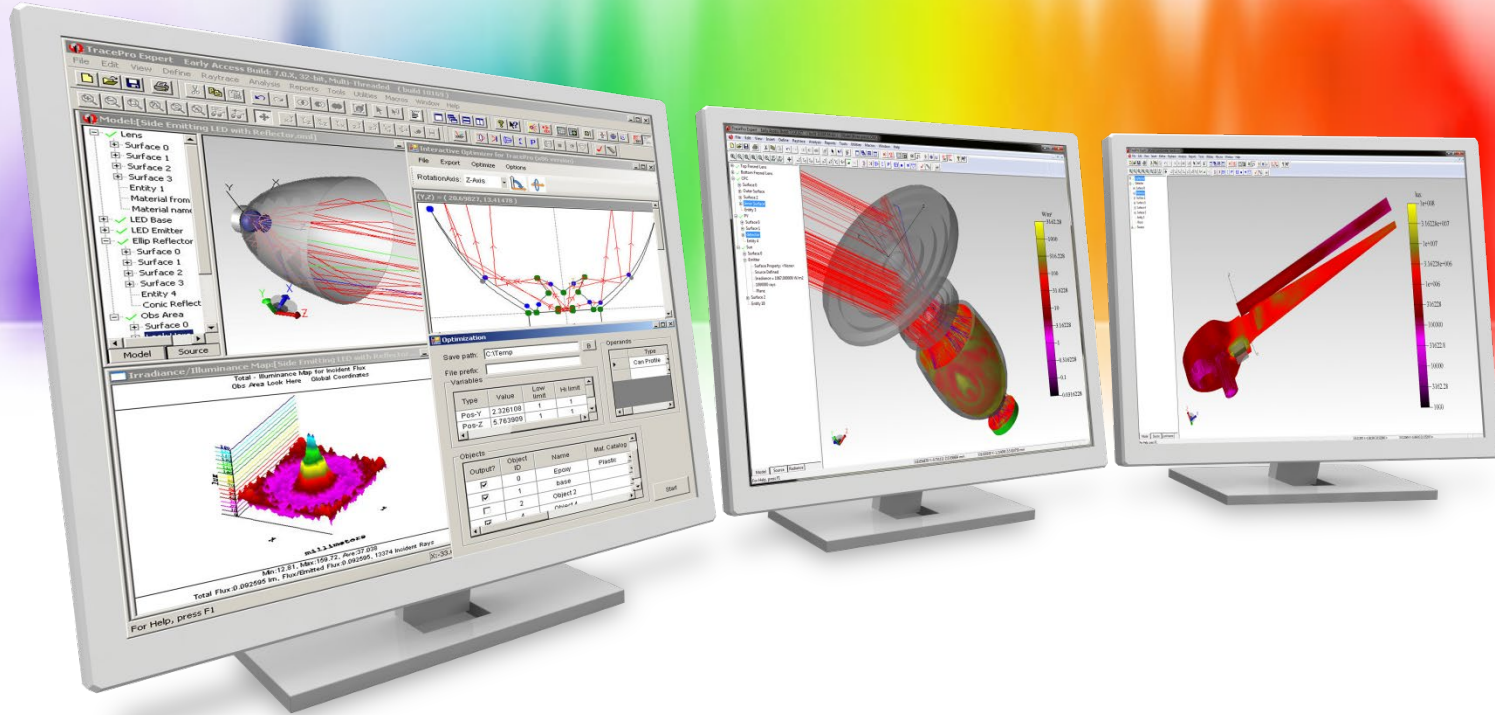> > The Stray Light Analyzer has been updated with added functionality

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
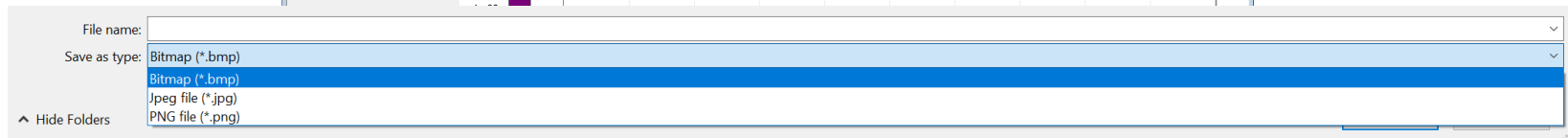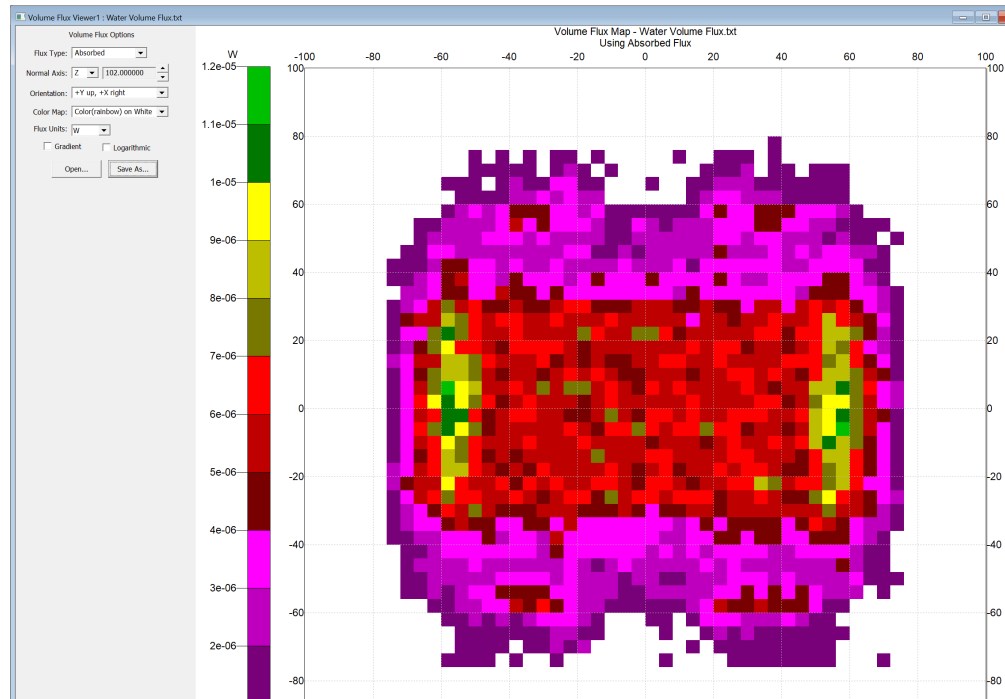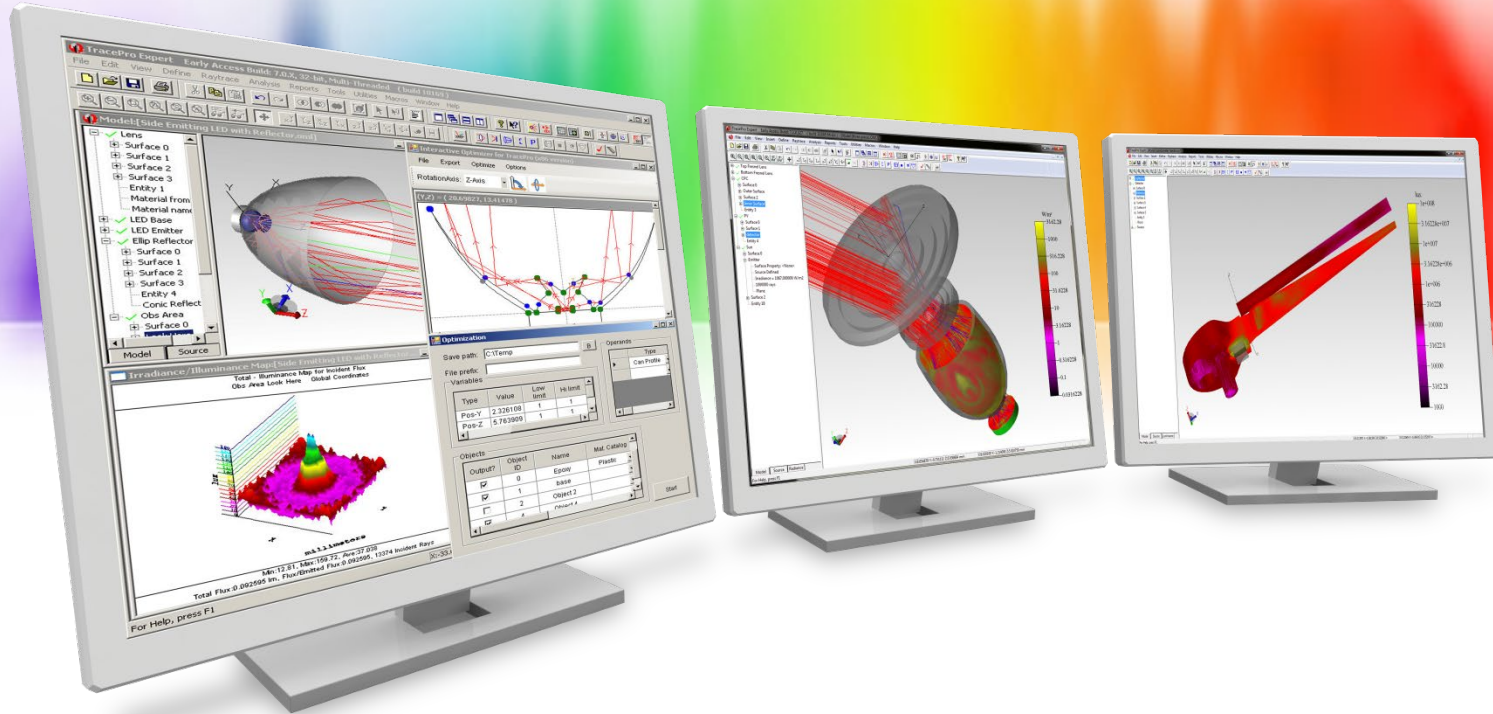   ➢ Vector3d:cross
    ➢ Vector3d:dot
    ➢ Vector3d:normalize

TracePro

New Features in TracePro 2023 23.1

TracePro 2023 23.1

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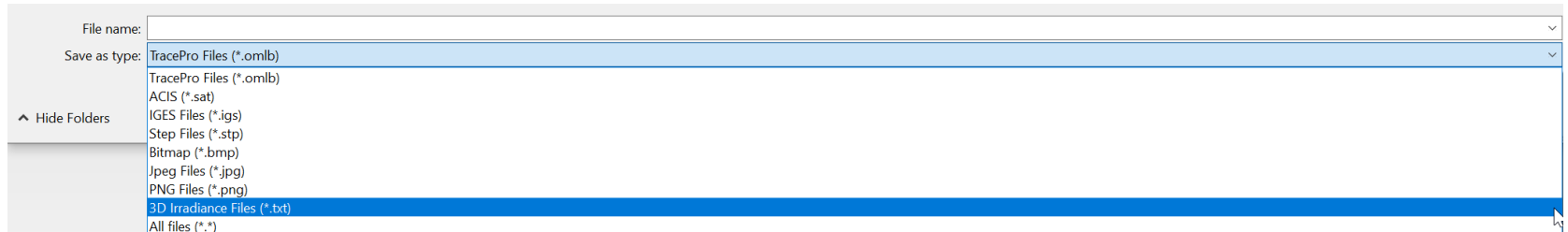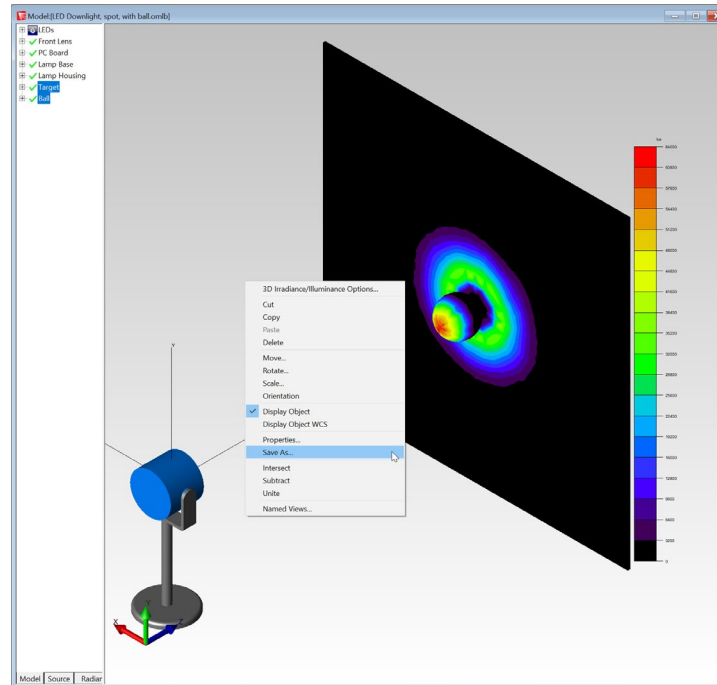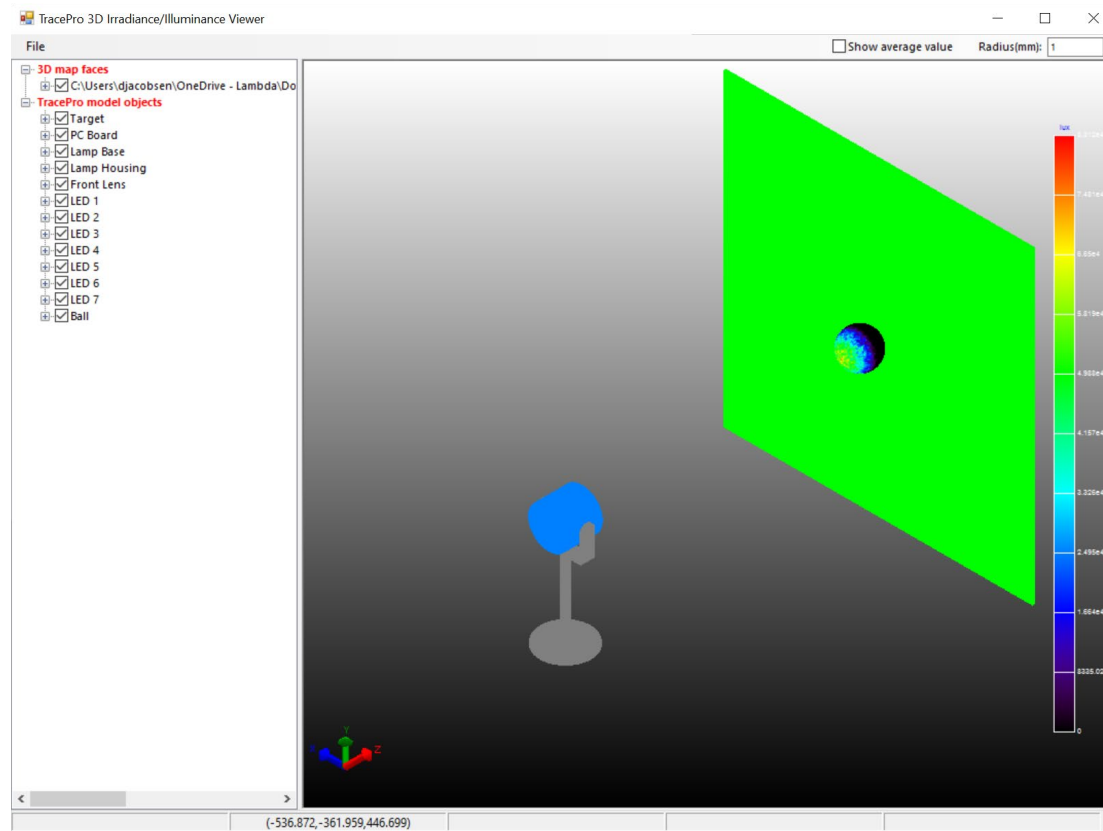
New Features in TracePro 2022 22.6

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TracePro 2022 22.6

> **New capability to save 3D Irradiance/Illuminance Map**
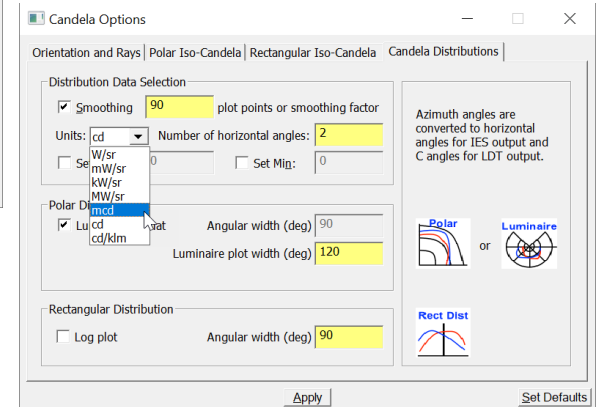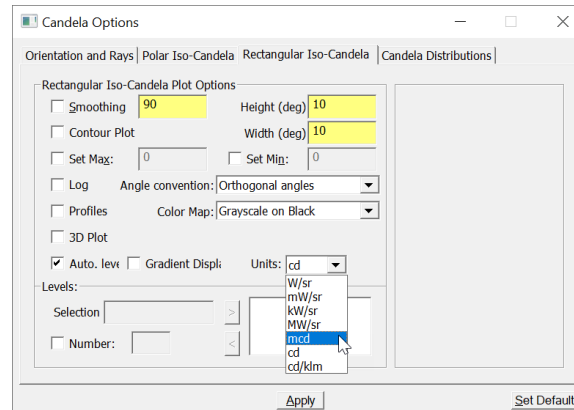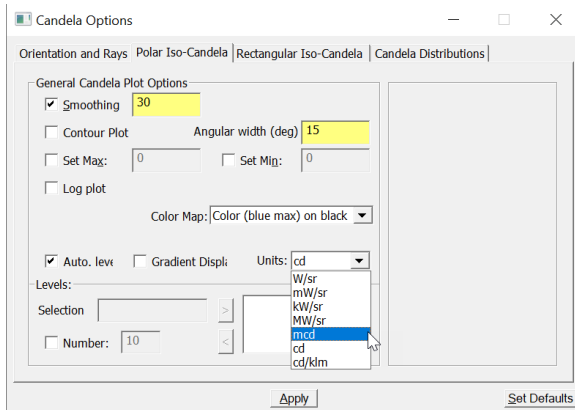
TracePro 2022 22.6

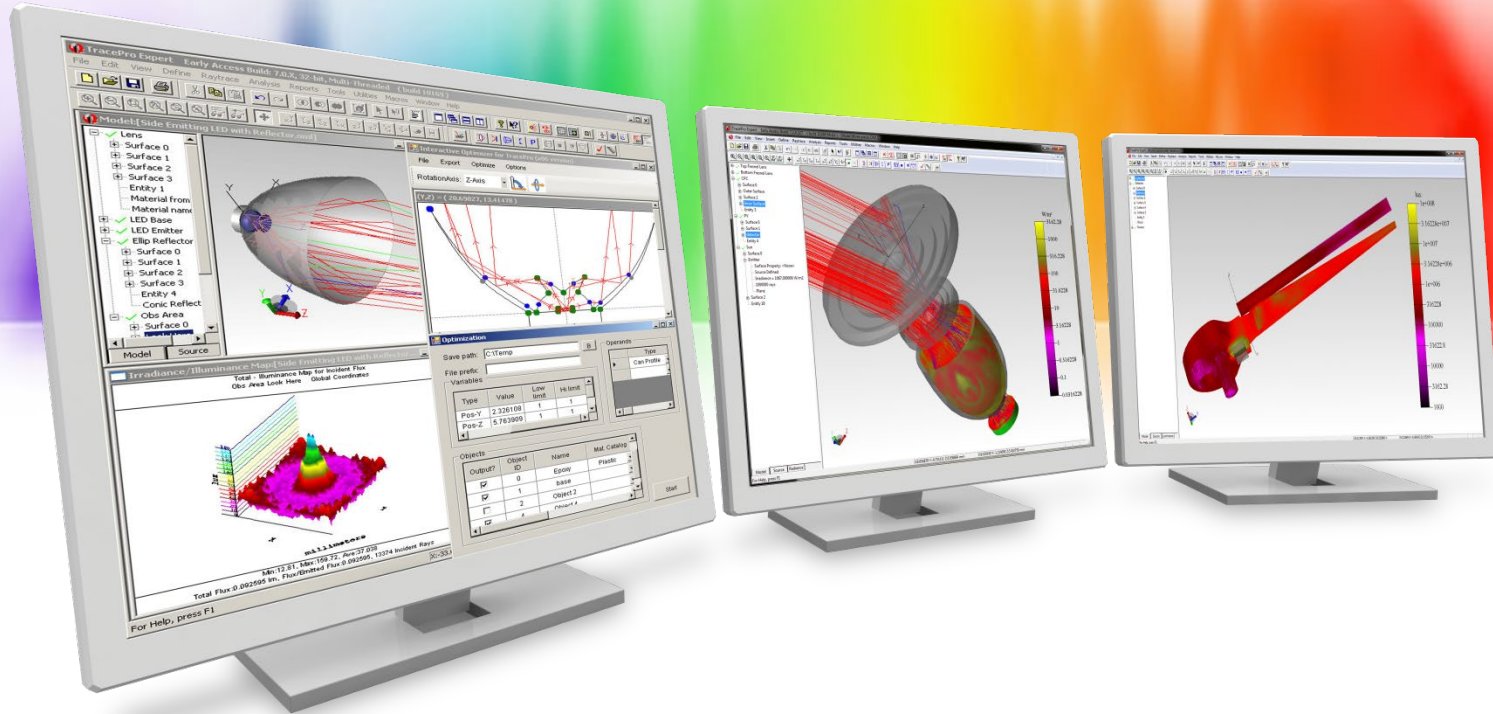> **New 3D Irradiance/Illuminance Viewer in Tools menu**

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

Top vertex corner : (Top X, Top Y, height/depth)

Vertex corner : (Point 1 X, Point 1 Y, 0)

Vertex corner : (Point 2 X, Point 2 Y, 0)

Vertex corner : (Point 3 X, Point 3 Y, 0)
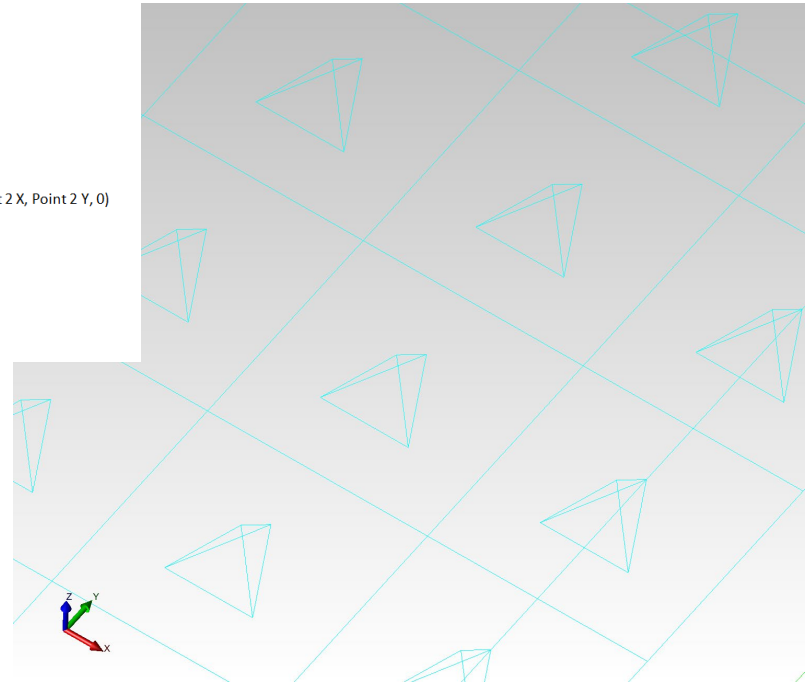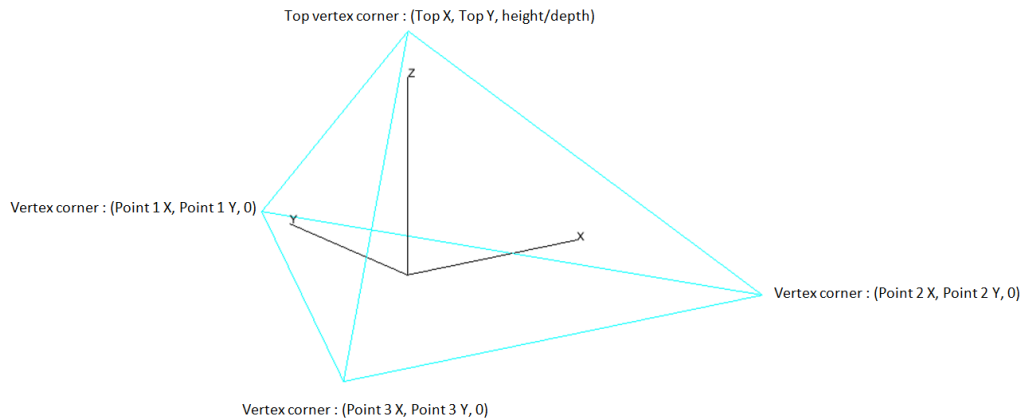
TracePro 2022 22.5

TracePro – Ray Sorting can now be used with the 3D Irradiance/Illuminance Map
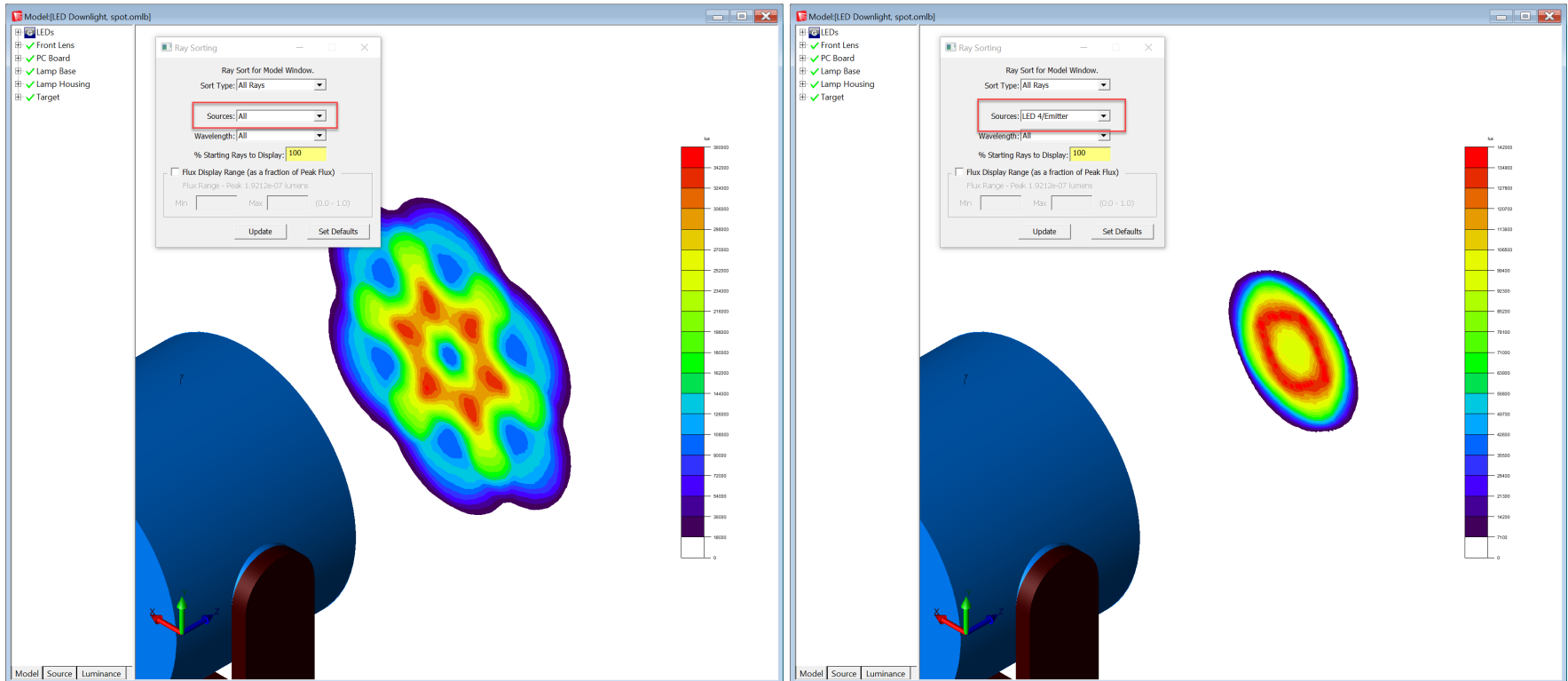
TracePro 2022 22.5

TracePro – TracePro can now import multi-configuration files from OSLO and Zemax
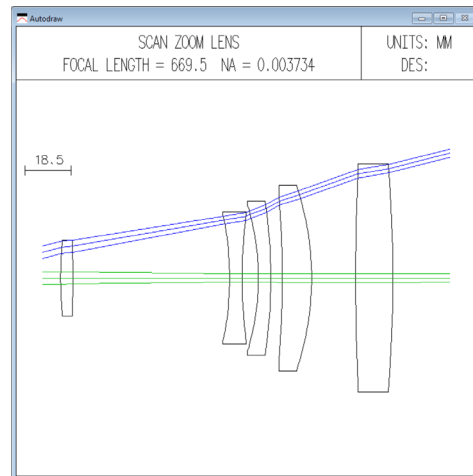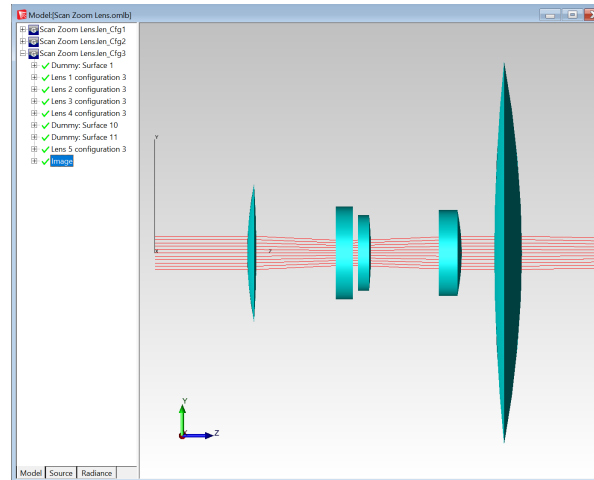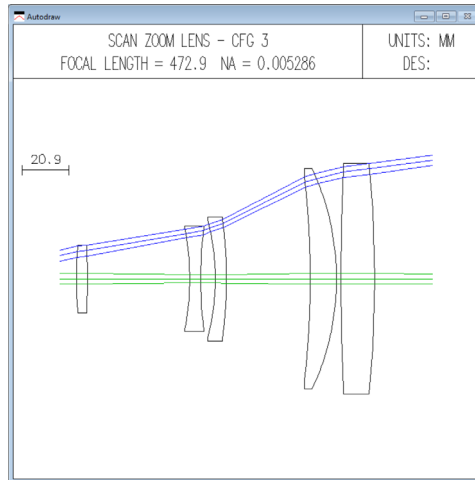
TracePro 2022 22.5

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

New Features in TracePro 2022 22.2

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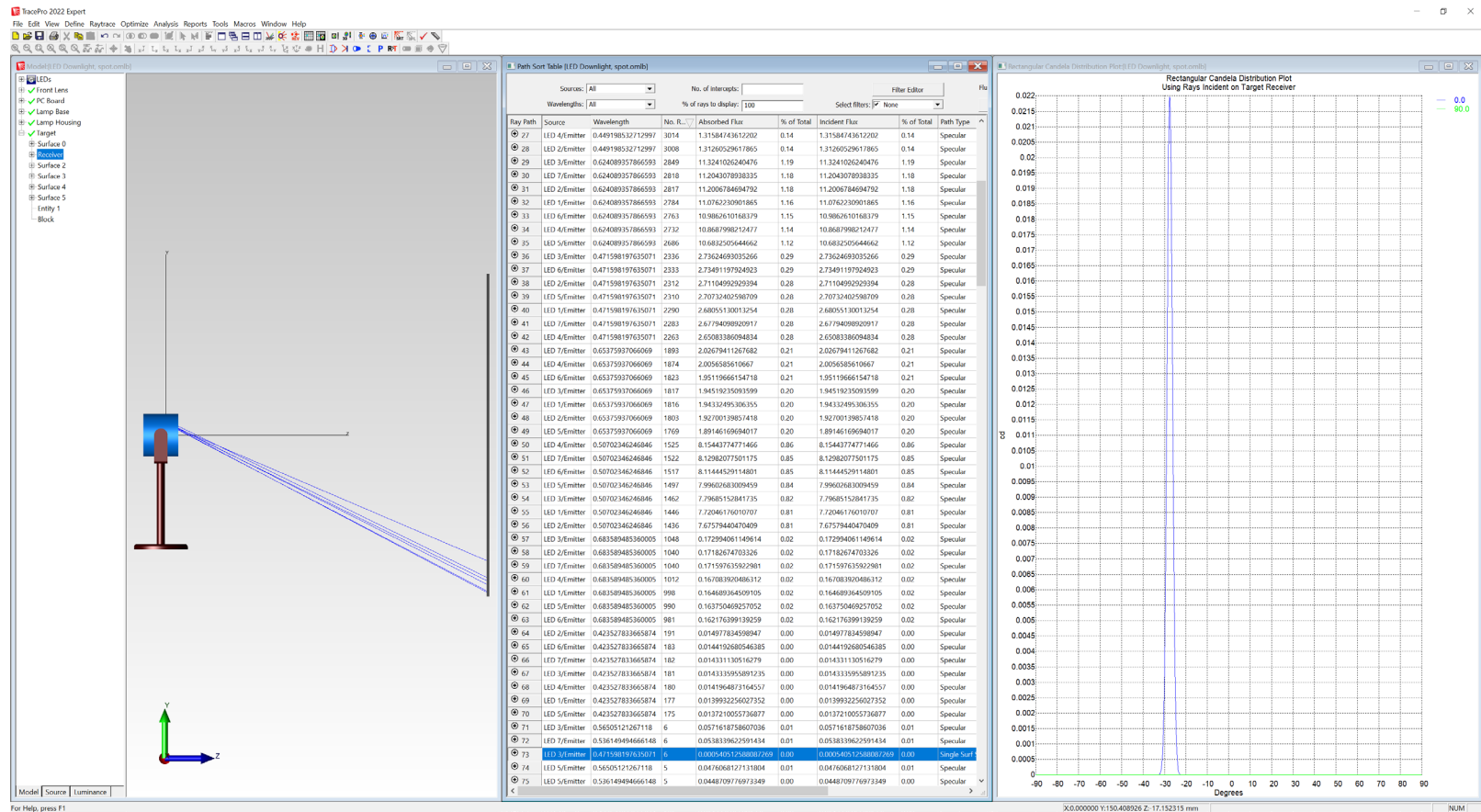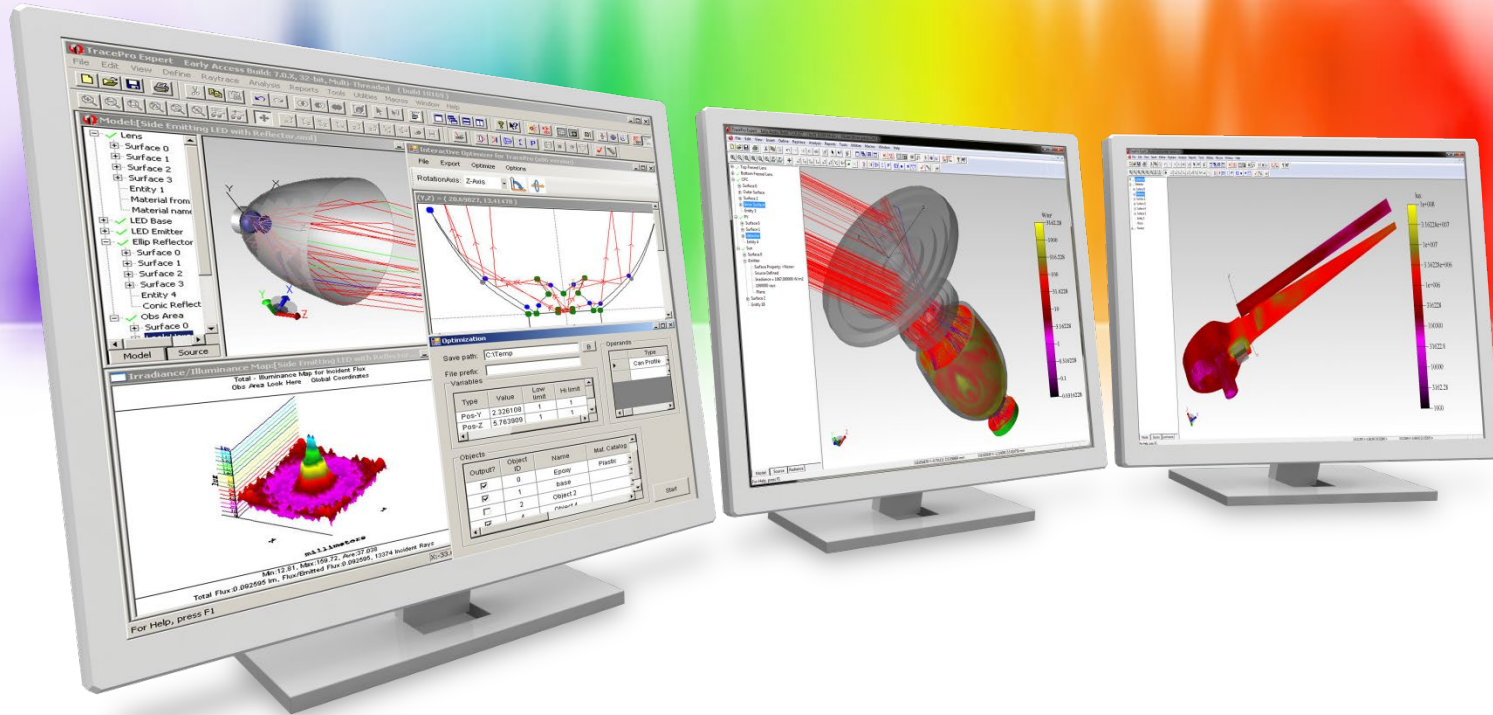
TracePro 2022 22.2

- ➤ **TracePro**
  - ➤ Group for imported lenses
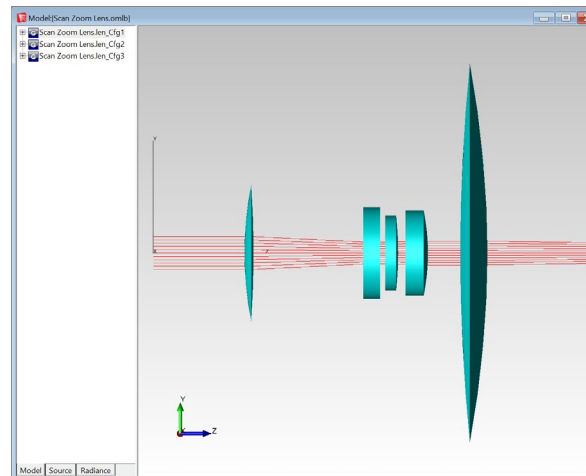
- ➤ **Light Source Builder**
  - ➤ Convert Lucidshape and Zemax rayfiles to TracePro rayfile format

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.
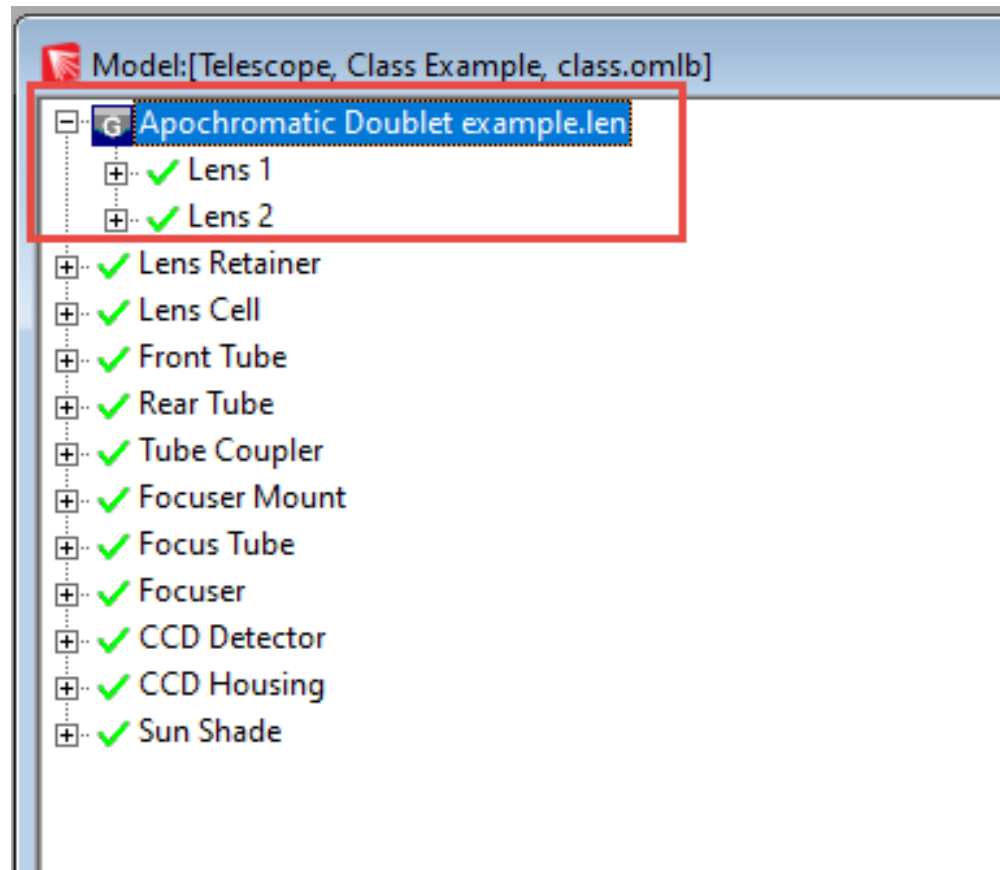
TracePro 2022 22.2

Light Source Builder – New ability to convert LightTools, Lucidshape, and Zemax rayfiles to a TracePro rayfile format

New Features in TracePro 2022 22.1

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
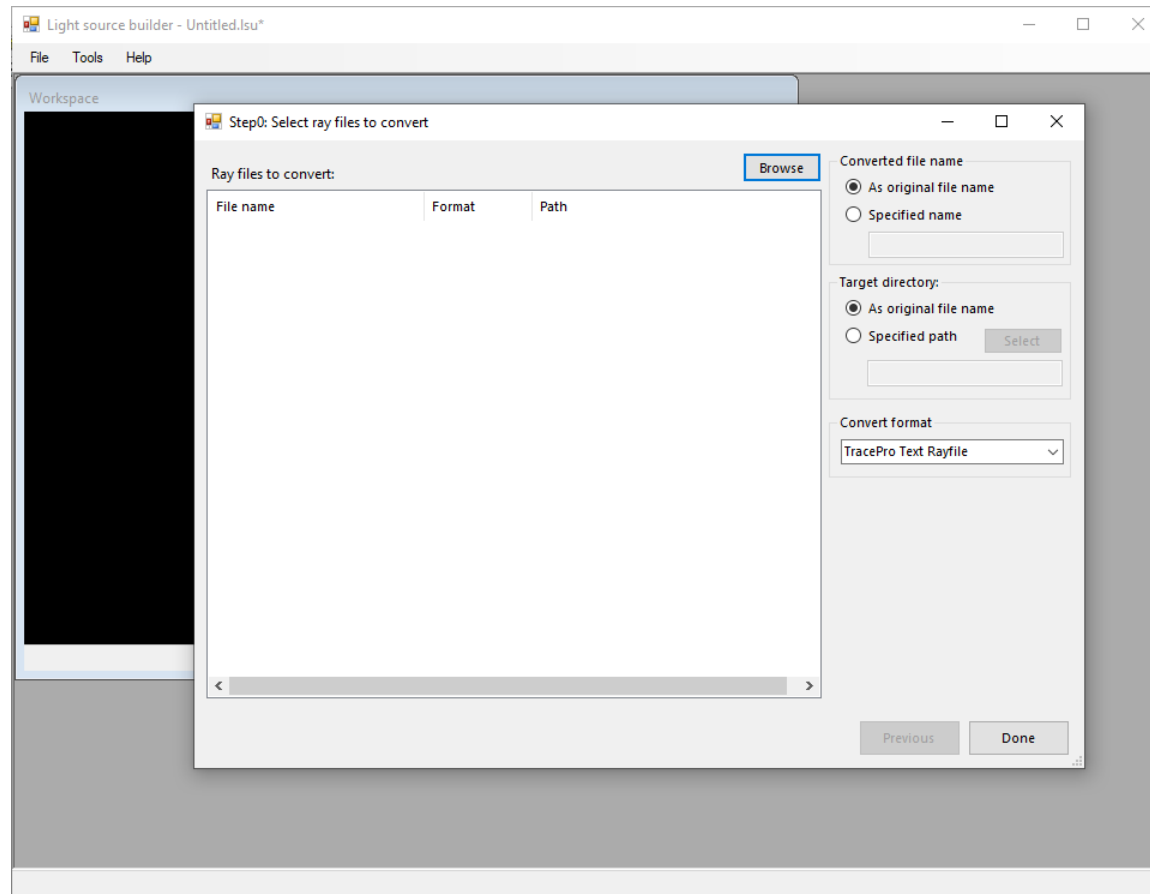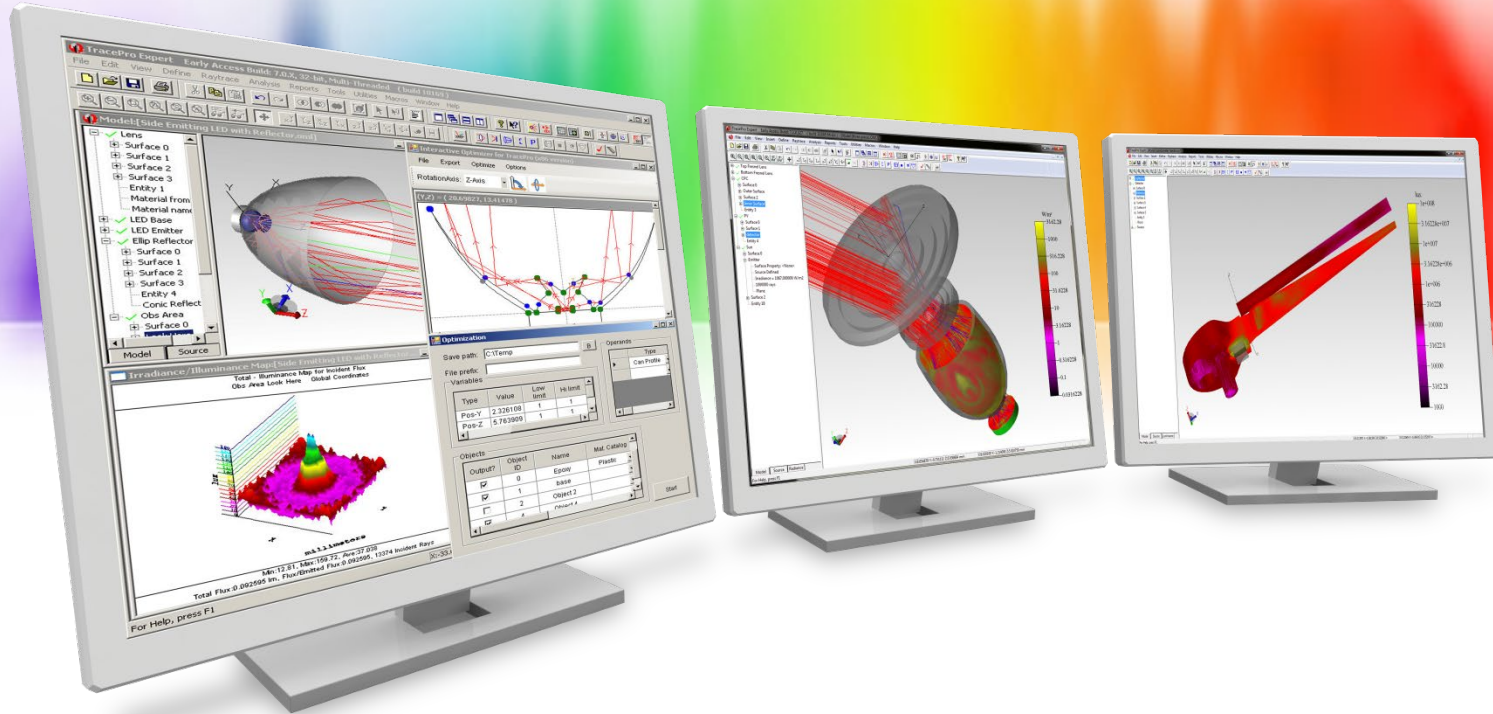 - ➤ STEP and IGES translators now included at no charge
  - ➤ New CAD importers included at no charge
  - ➤ New Environment options for Material and Bulk Scatter

- ➤ **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.
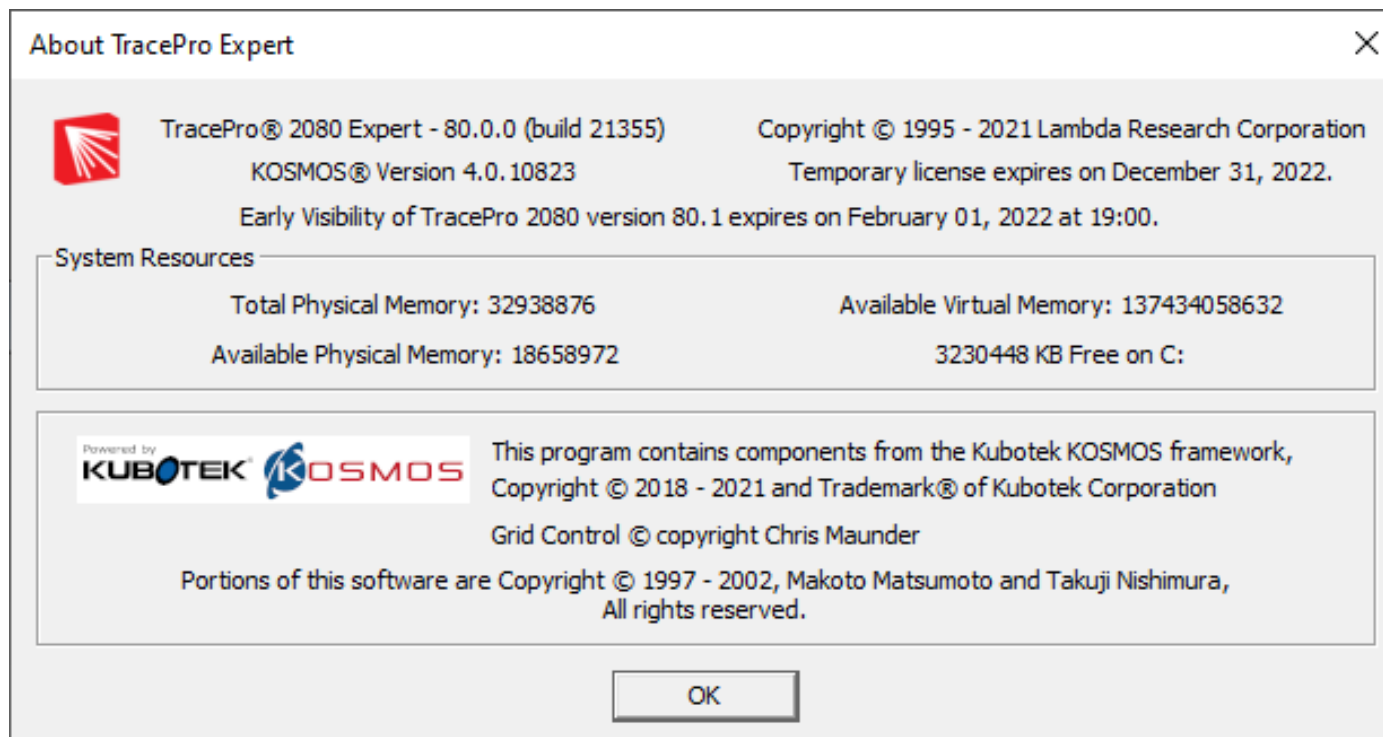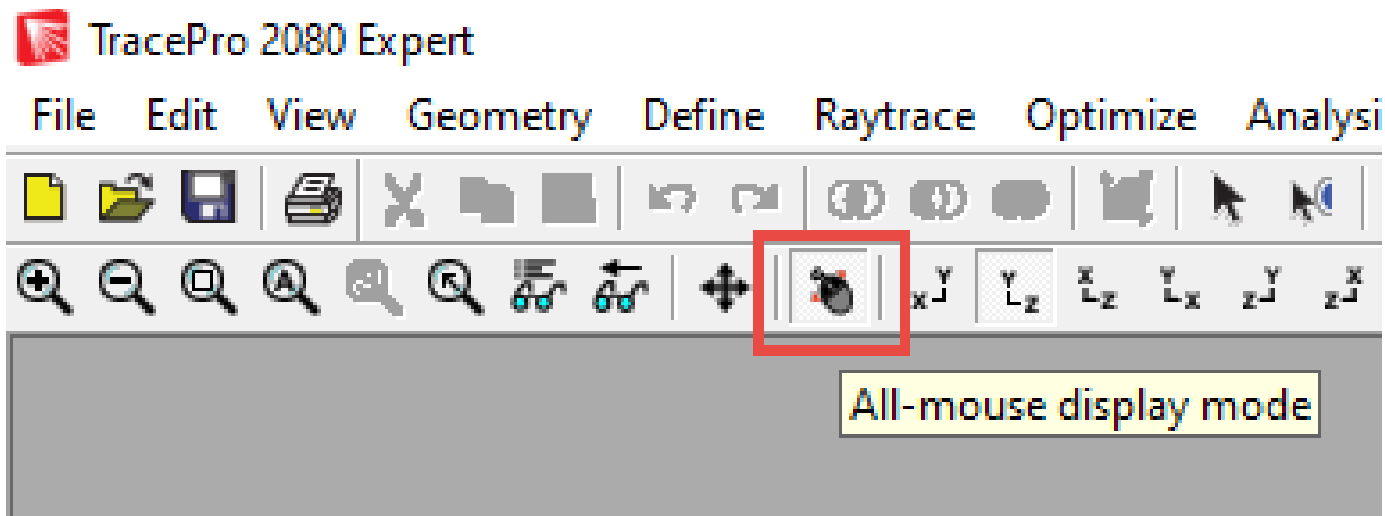
TracePro 2022 22.1

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
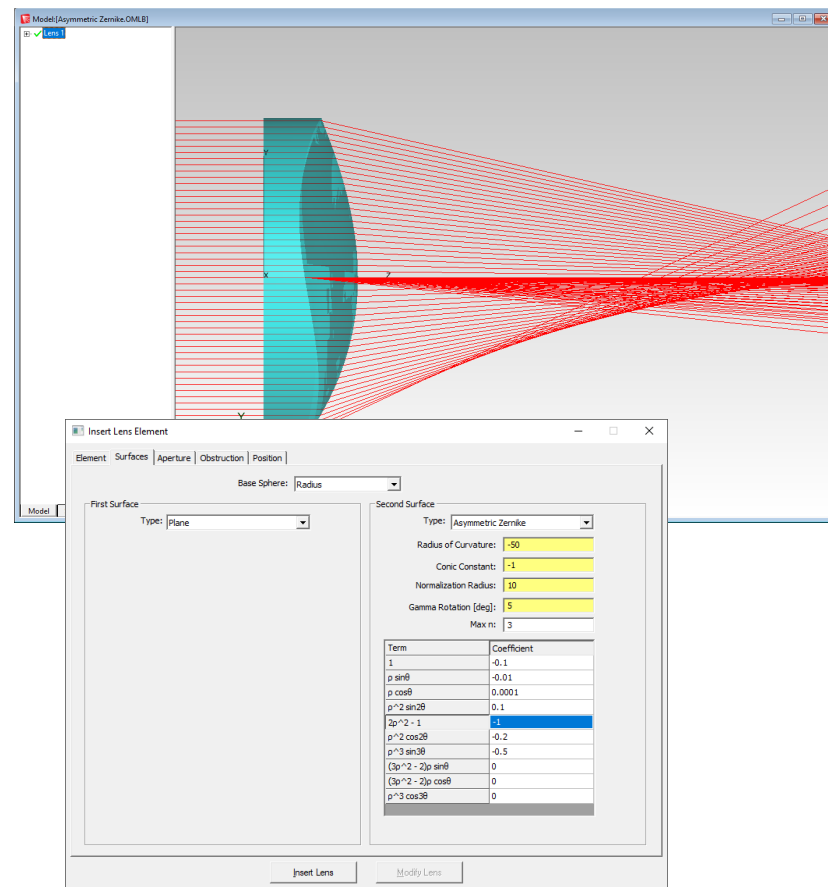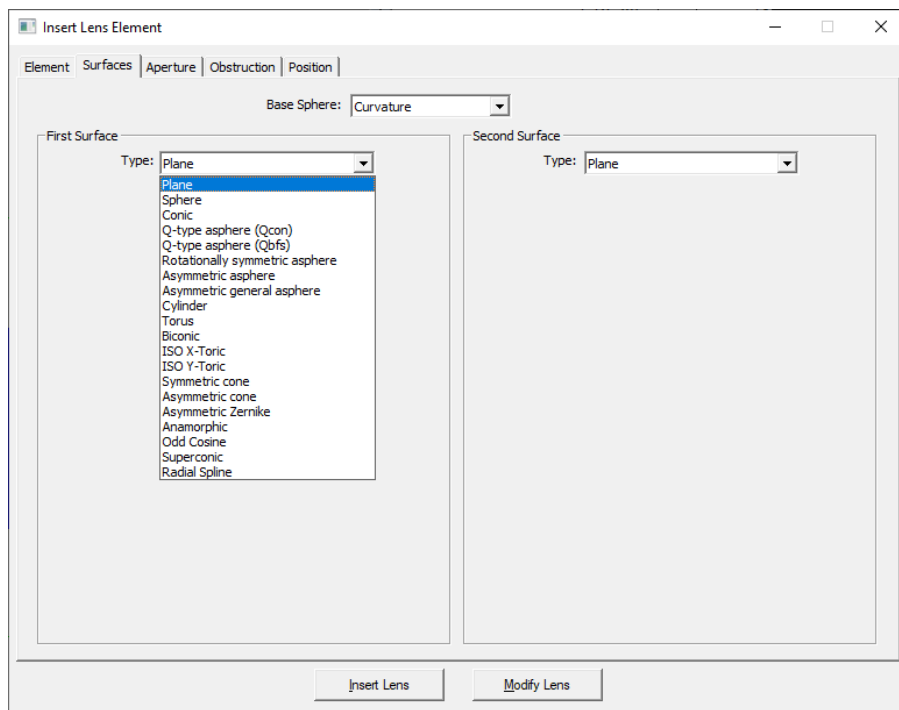
TracePro

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**
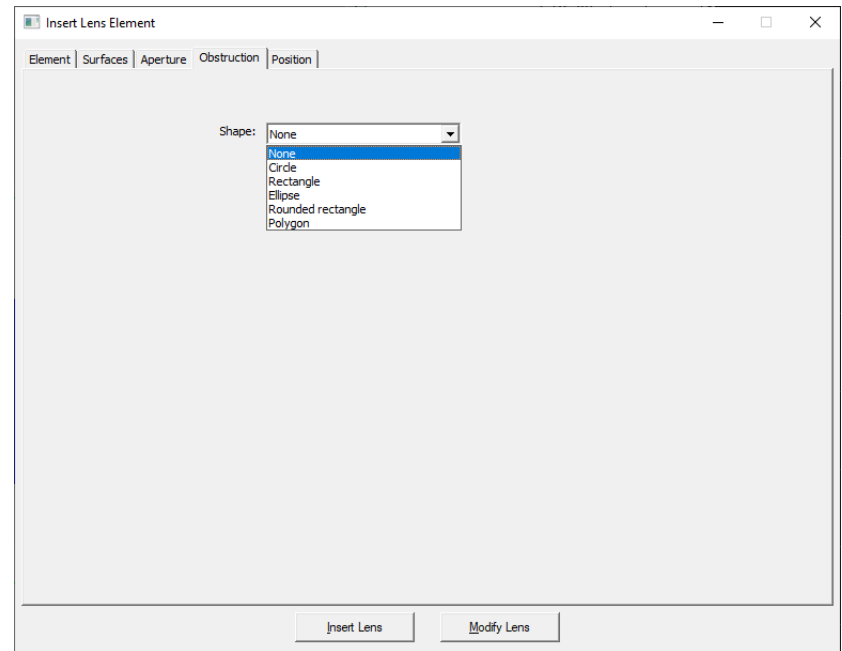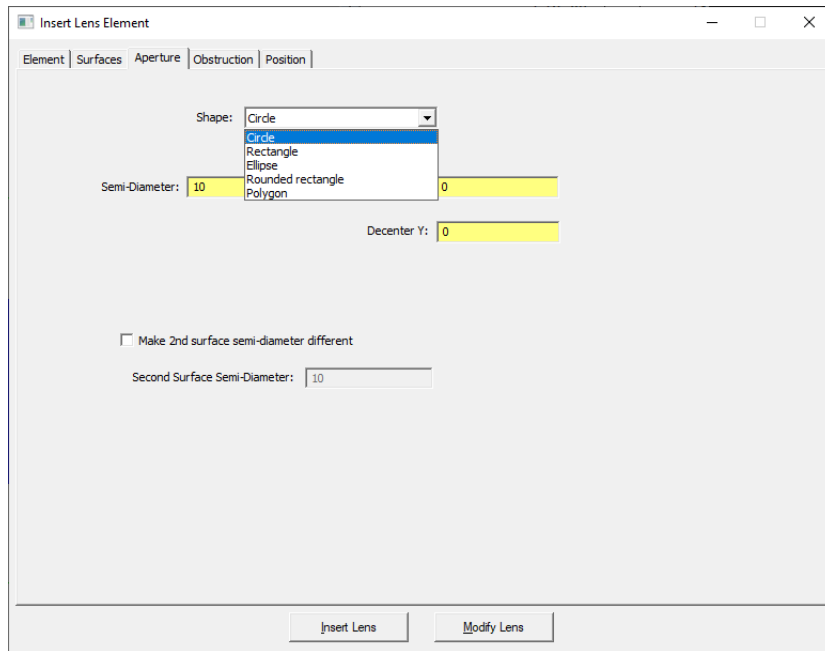- **Both-buttons – pan the view**

TracePro 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.
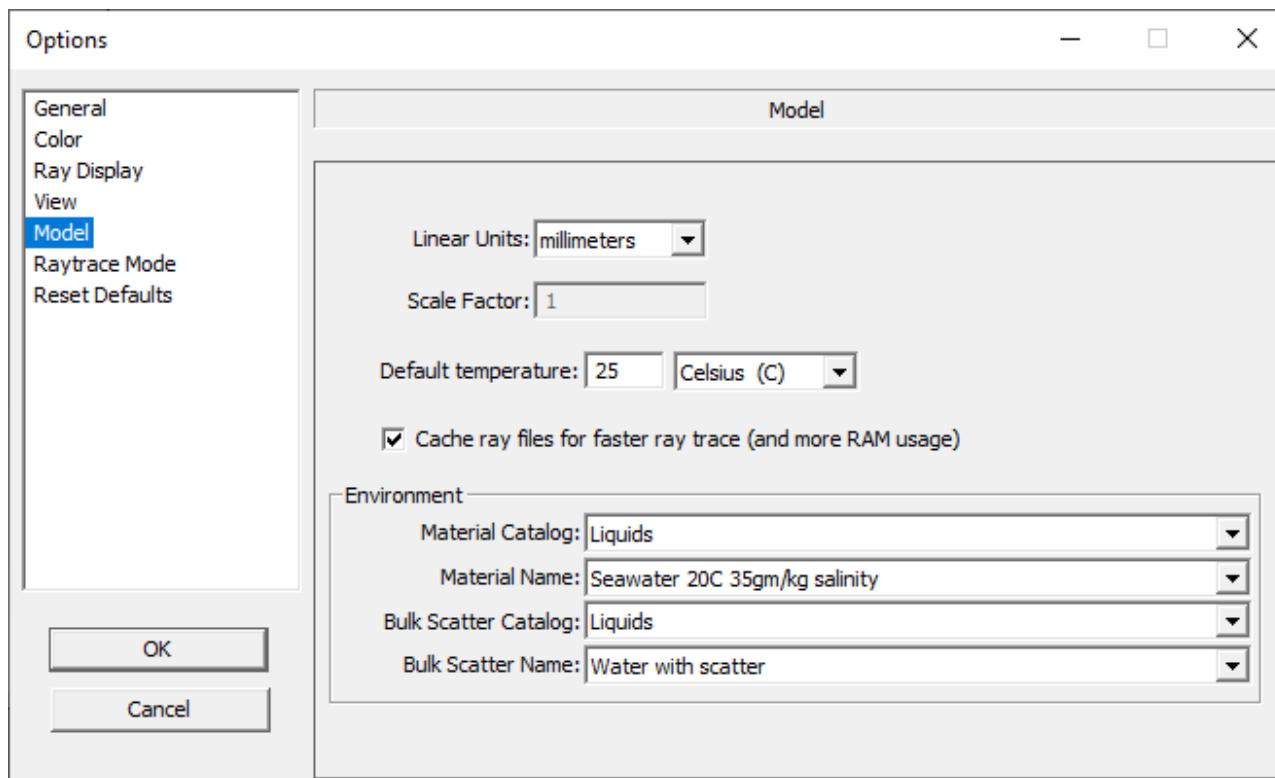
TracePro 2022 22.1

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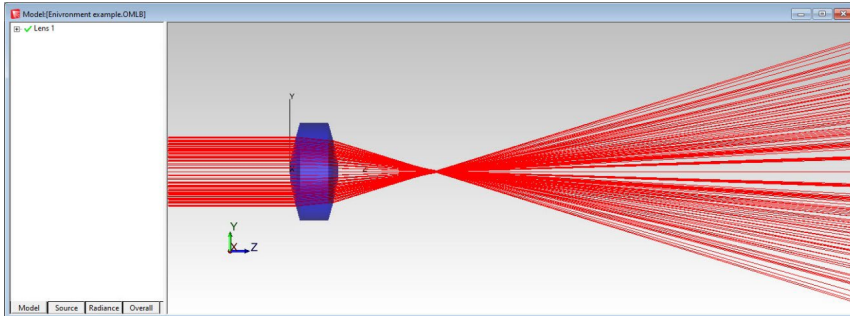
TracePro 2022 22.1

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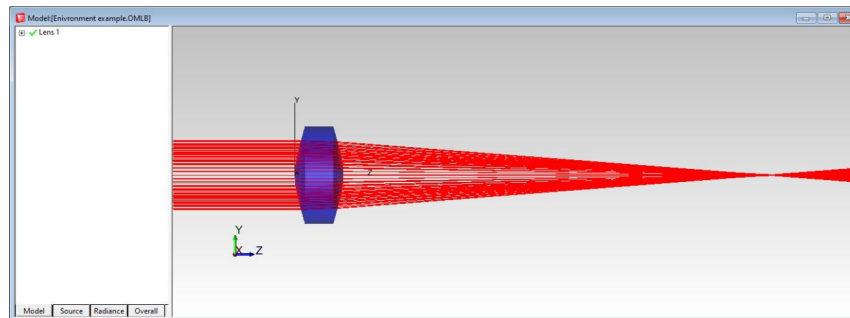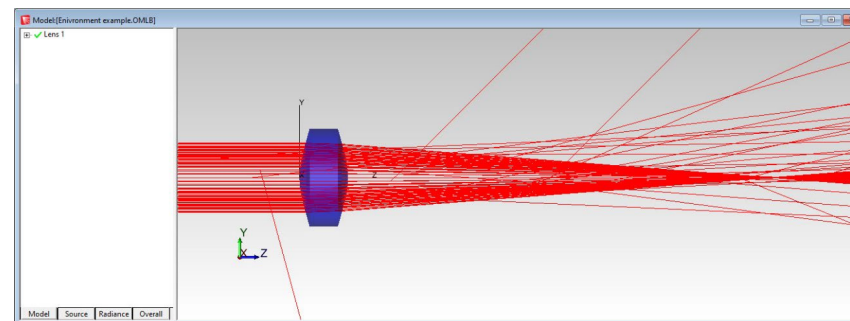
TracePro 2022 22.1

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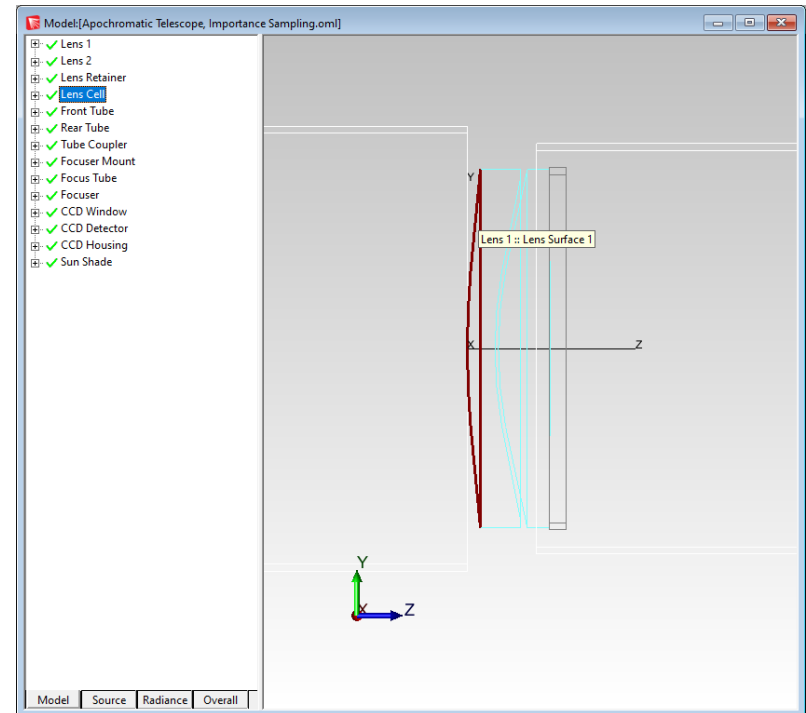

BK7 lens in air

BK7 lens in seawater

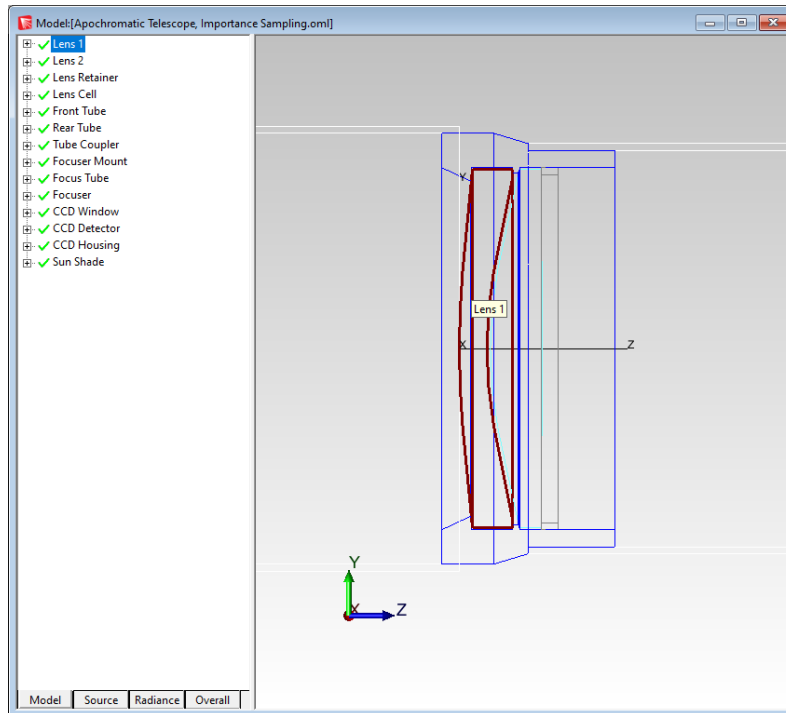**BK7 lens in seawater with scatter**

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
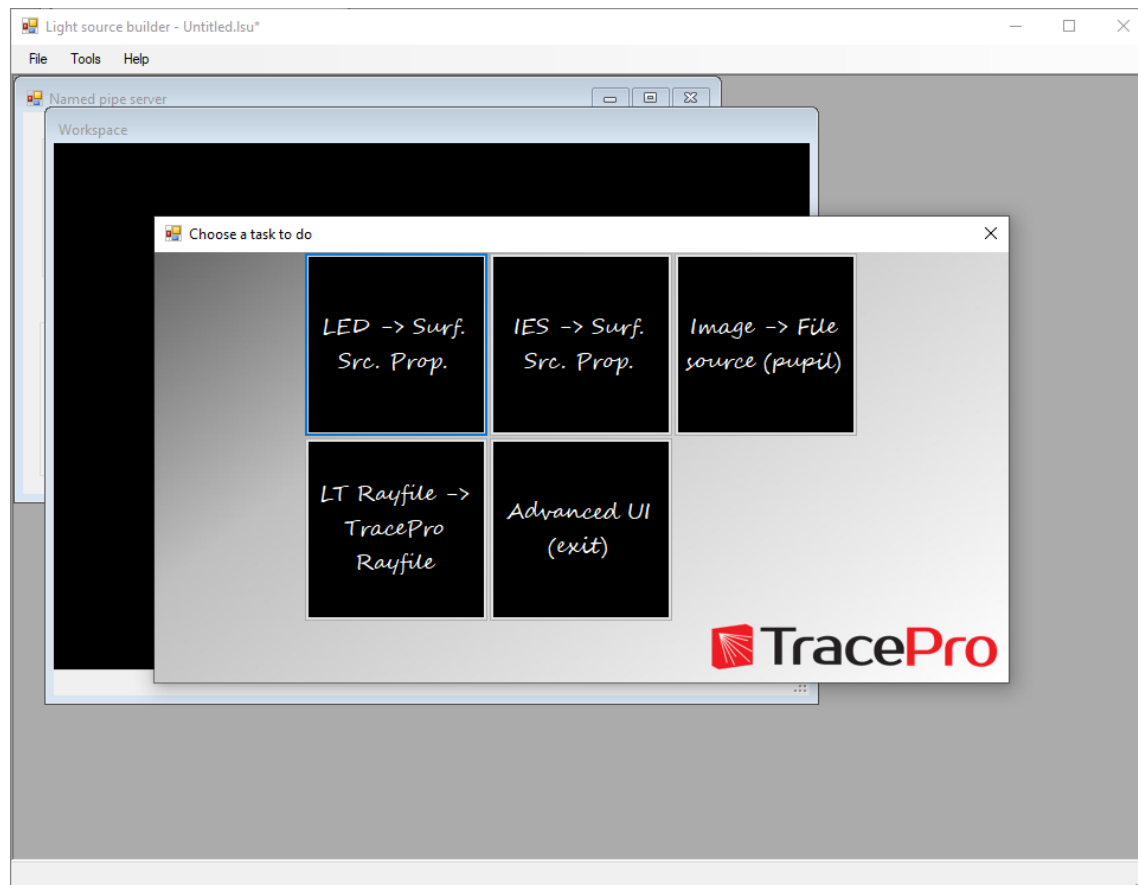
TracePro 2022 22.1

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.
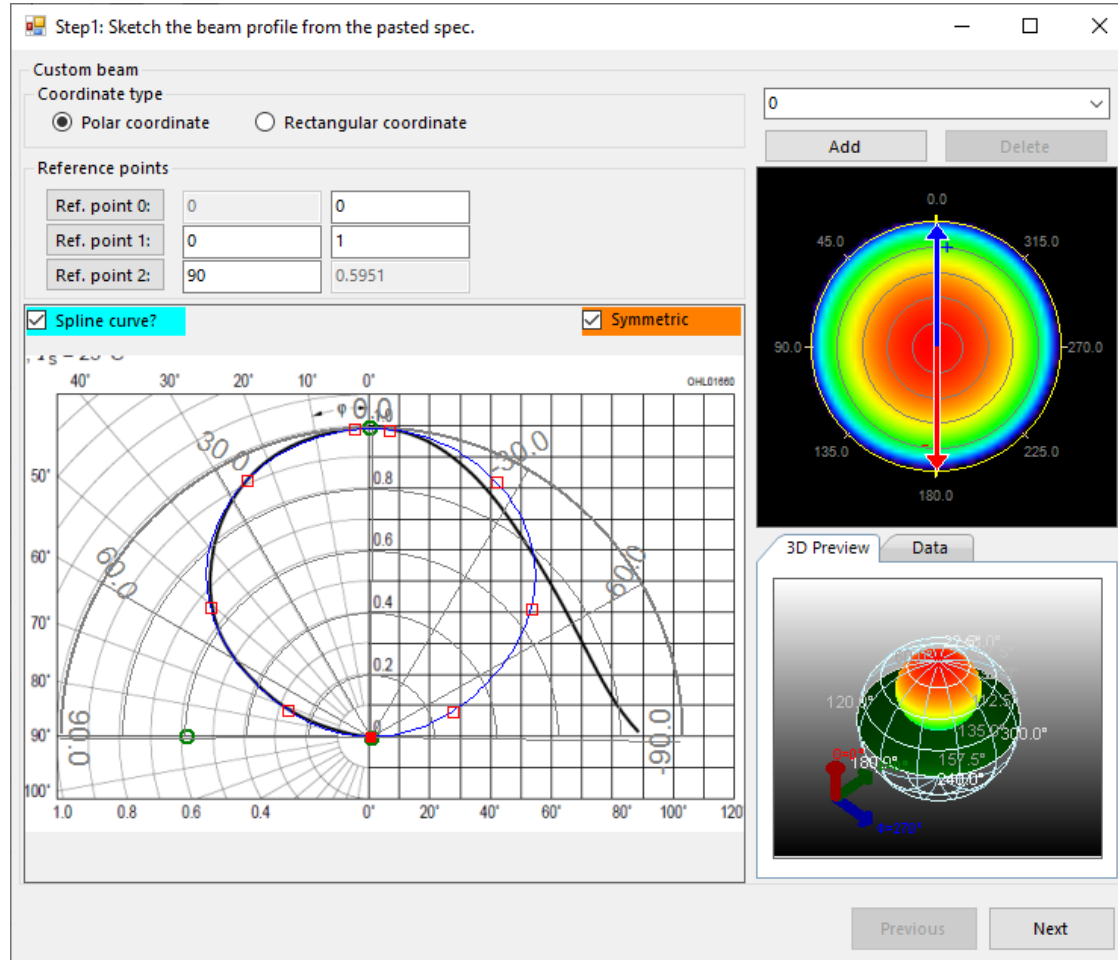
TracePro

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.
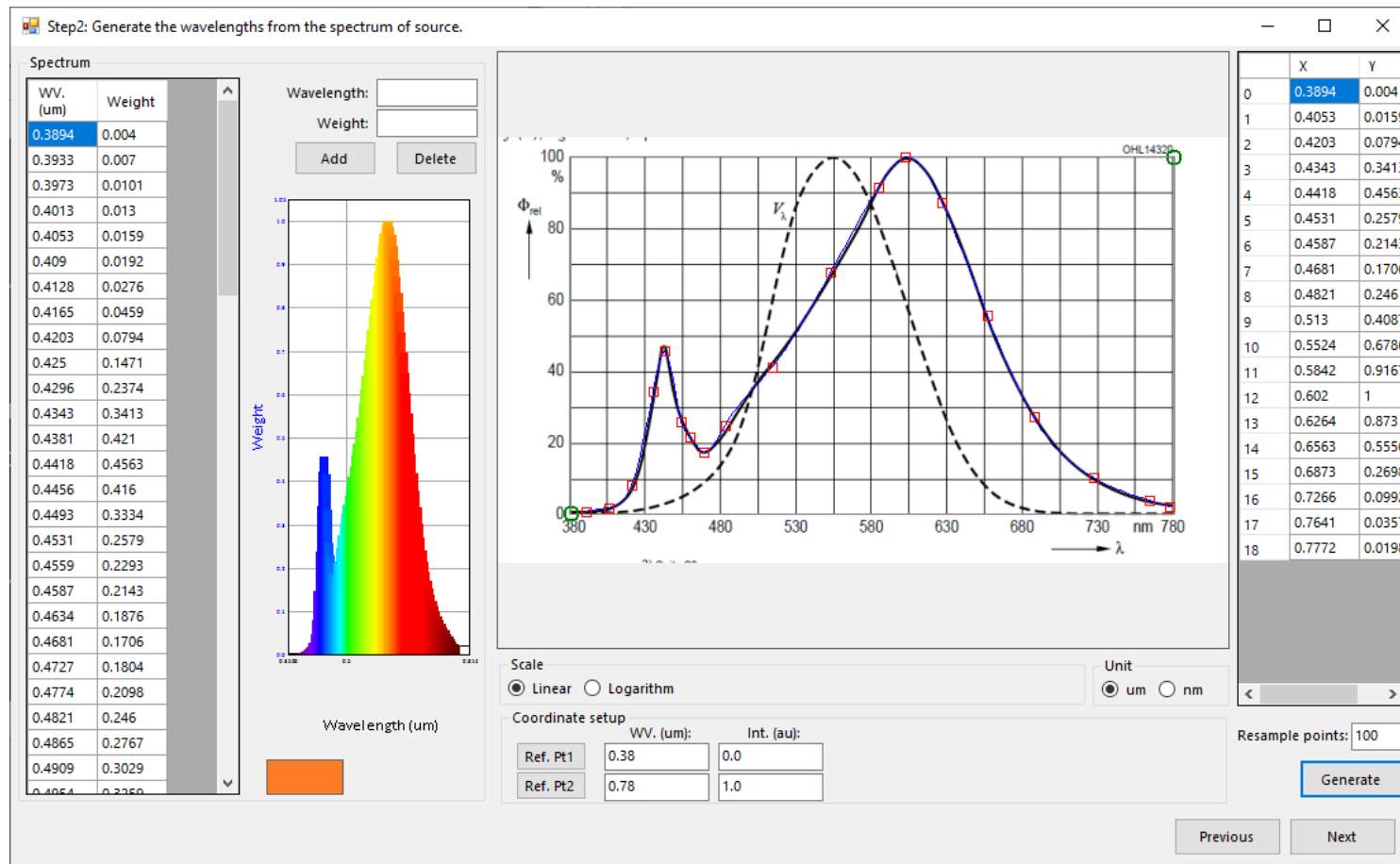
TracePro 2022 22.1

Light Source Builder – Surface Source Property

TracePro 2022 22.1

Light Source Builder – Surface Source Property

TracePro 2022 22.1

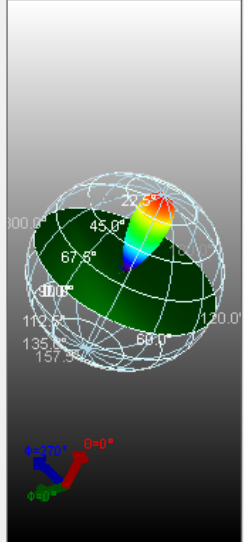## Light Source Builder – Surface Source Property from IES file

TracePro 2022 22.1

Light Source Builder – Surface Source Property from IES file

New Light Source Builder

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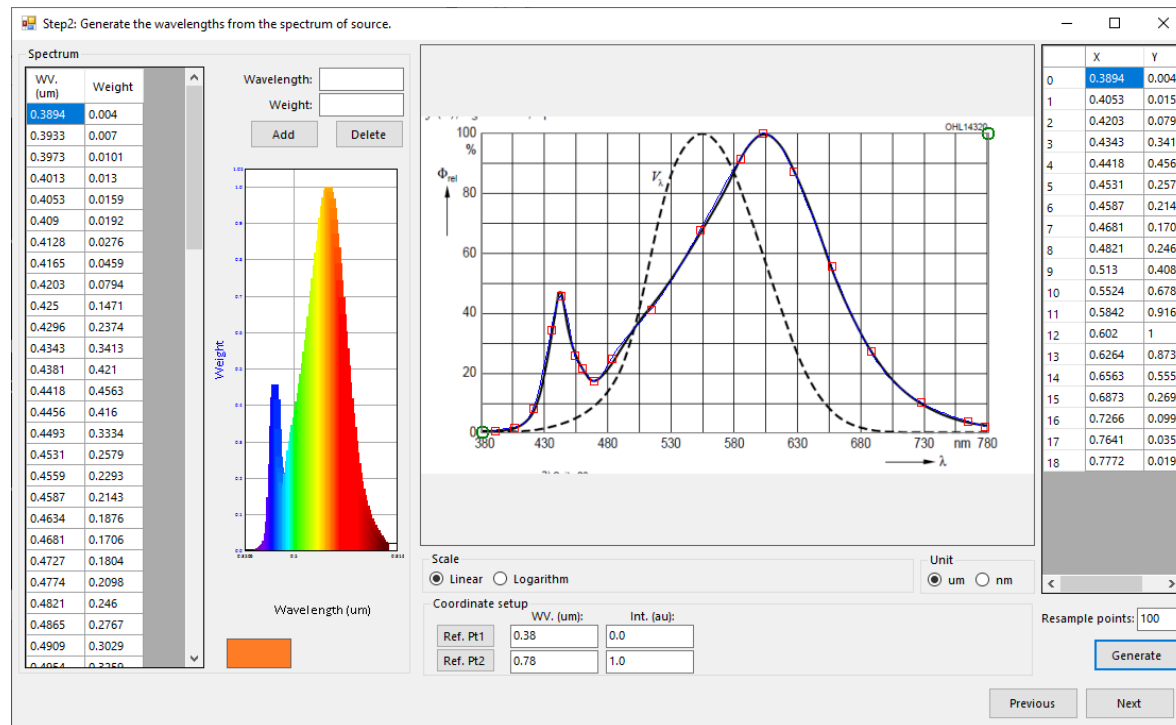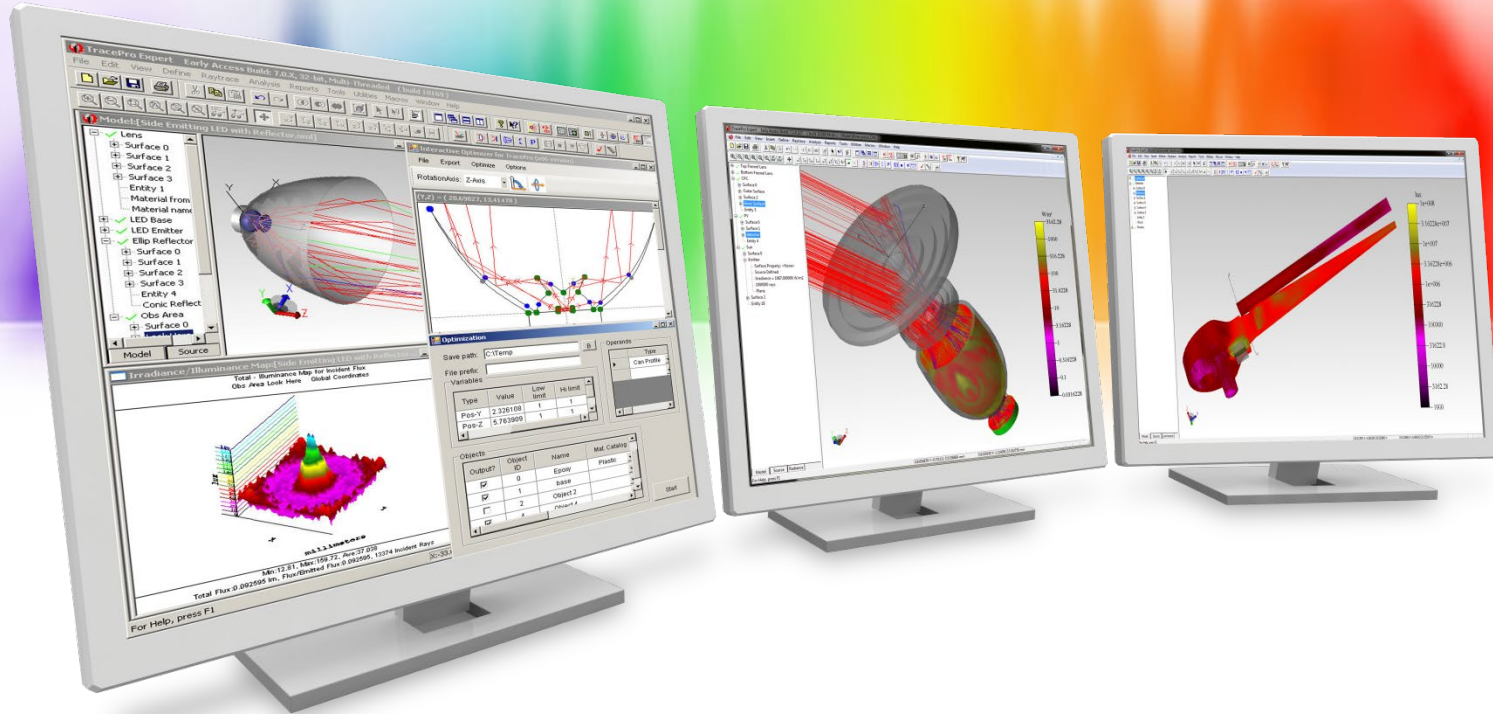
New Features in TracePro 2021 21.5

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

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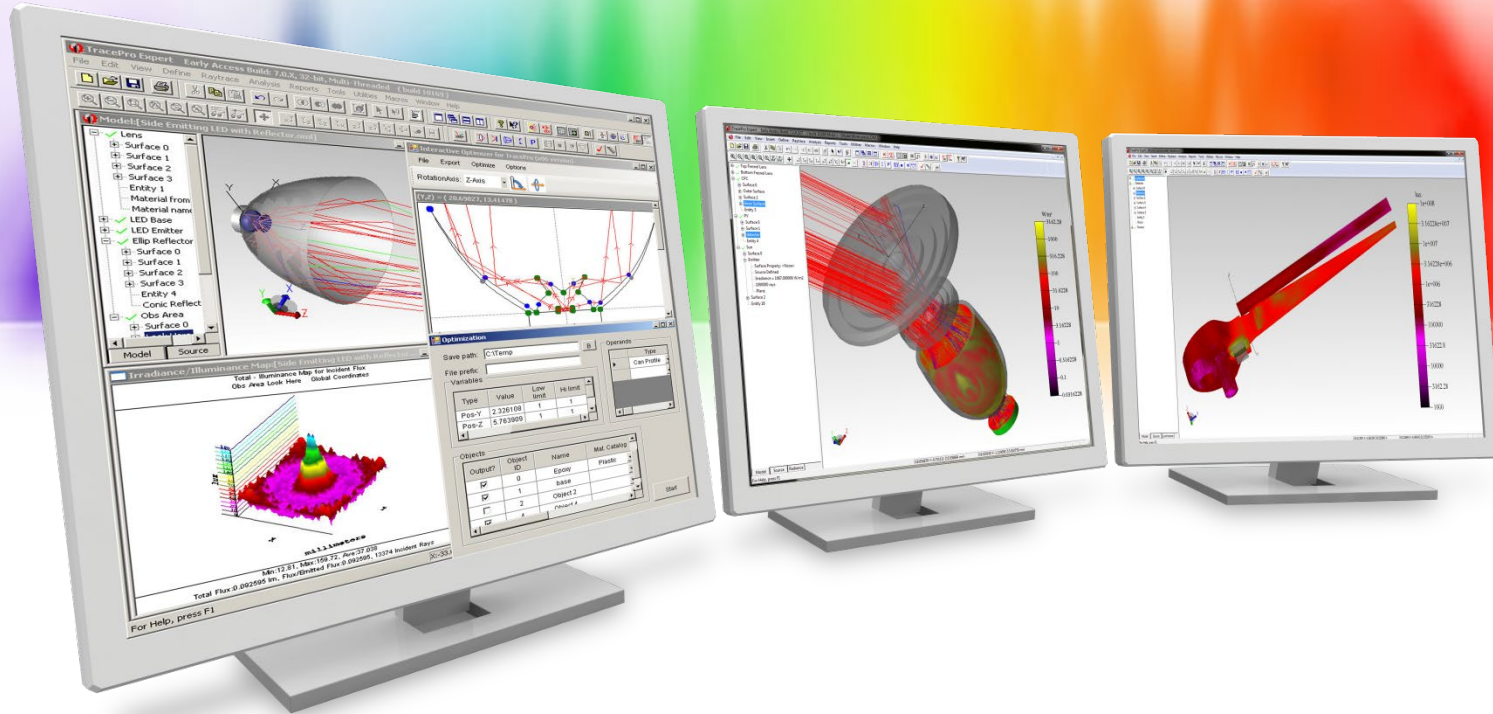
TracePro 2021 21.4

- ➢ **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.
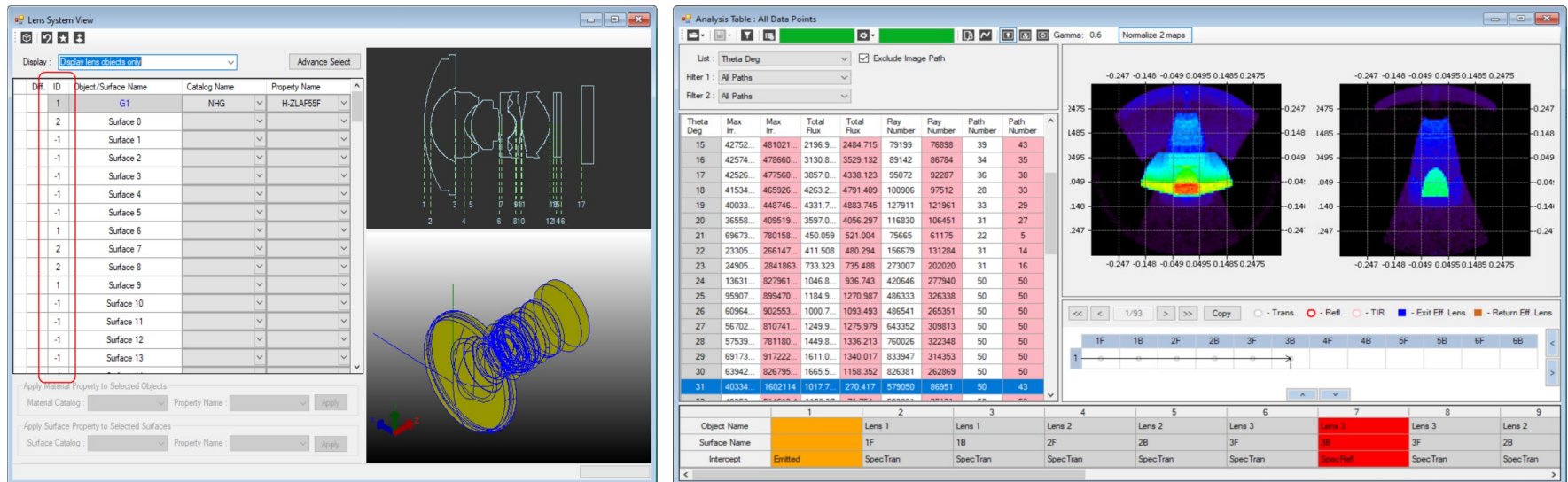
TracePro 2021 21.4

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.
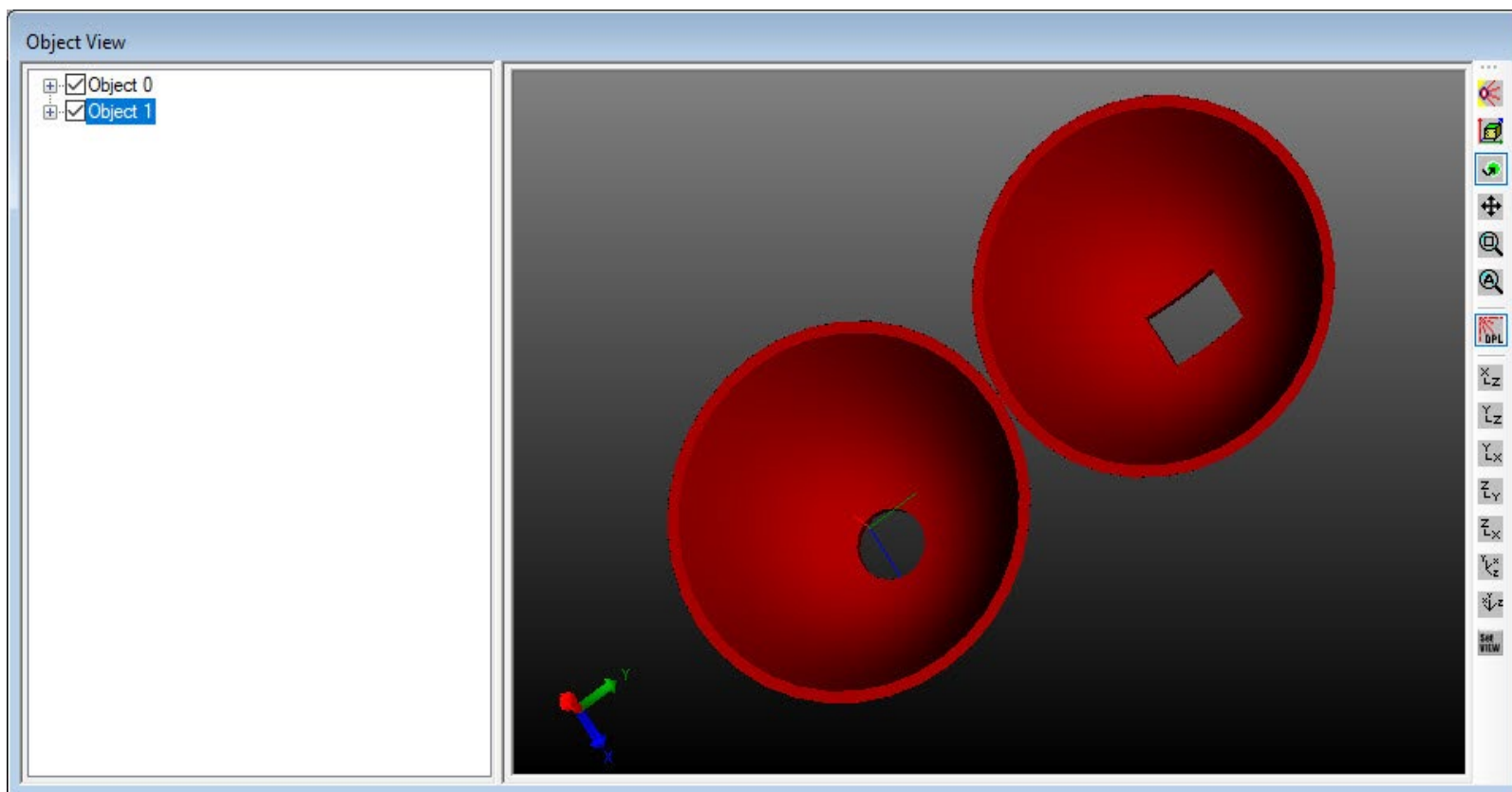
TracePro 2021 21.4

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

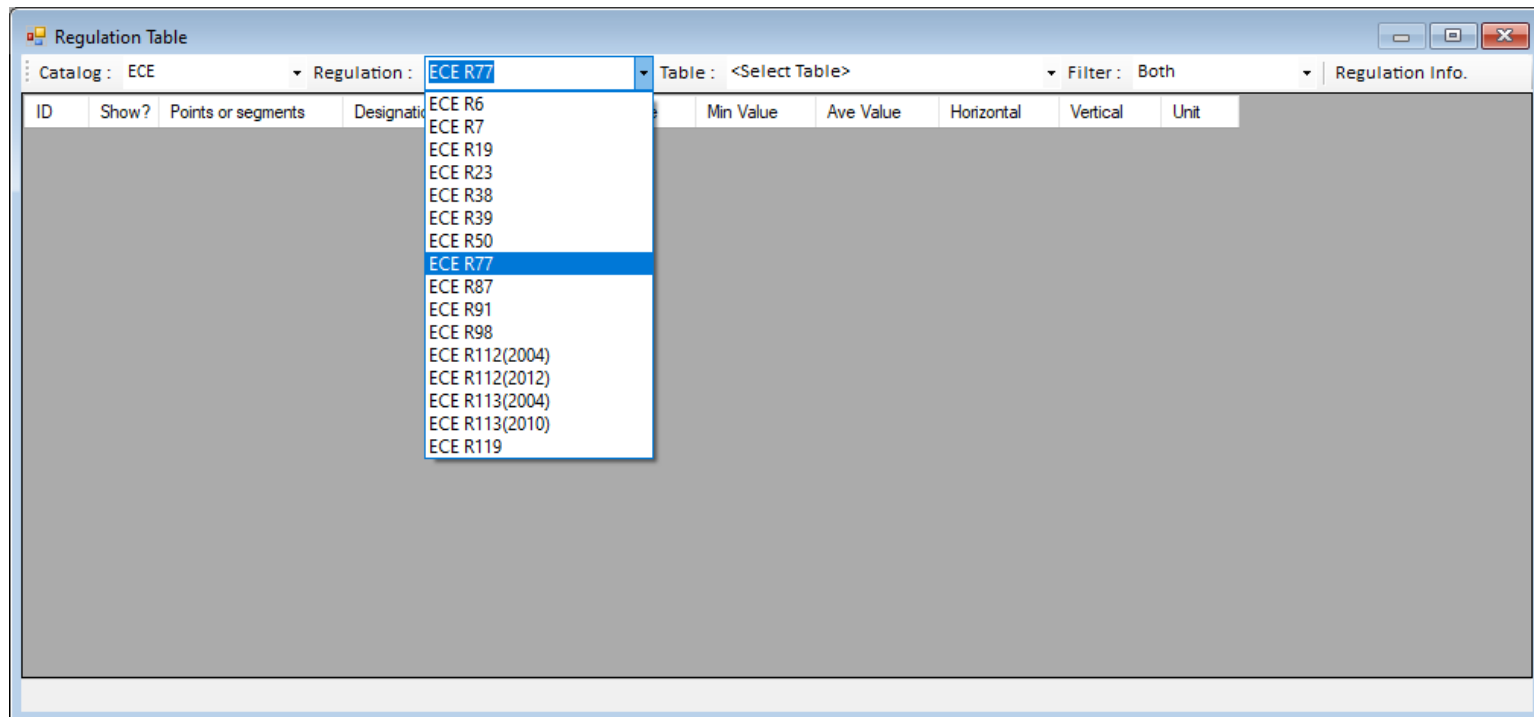# TracePro 2021 21.3

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.
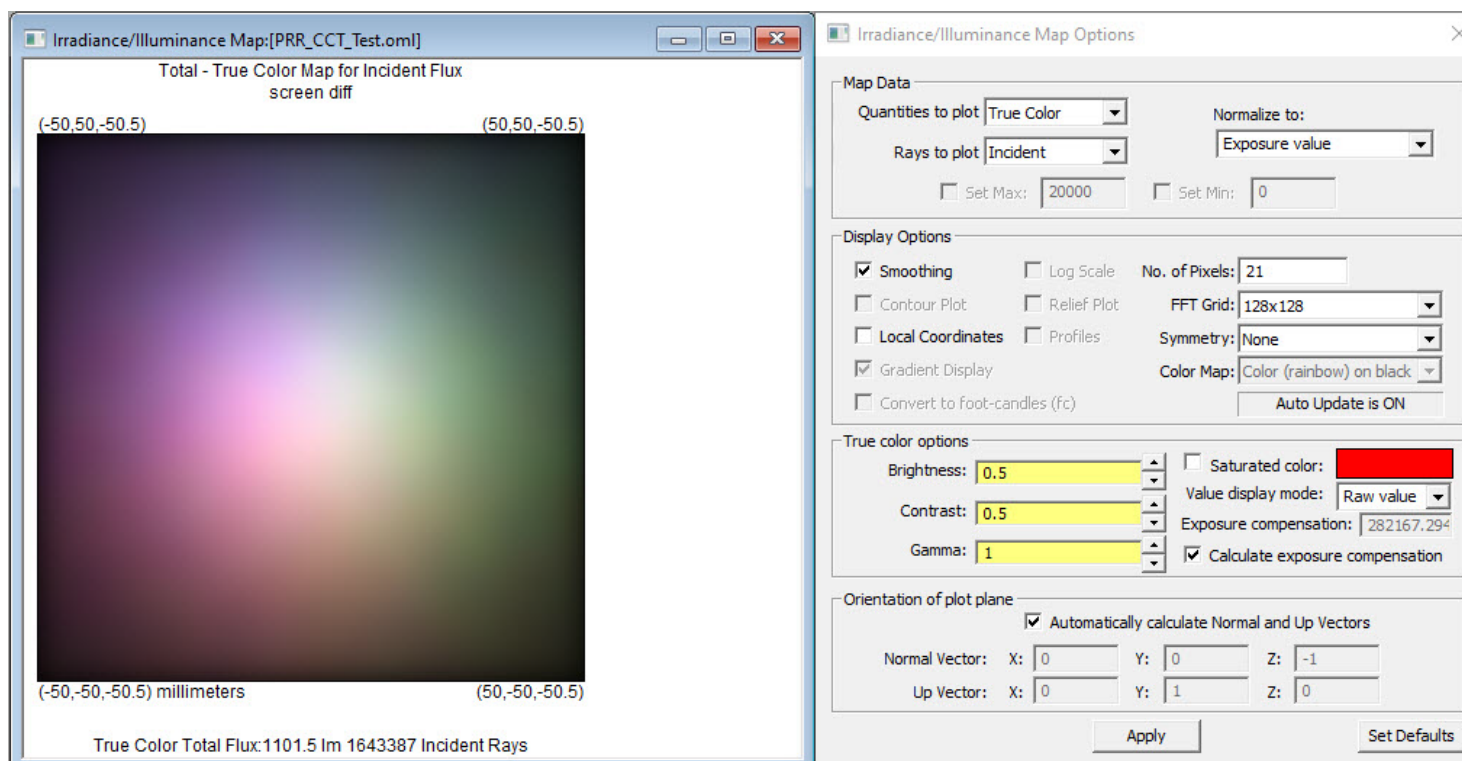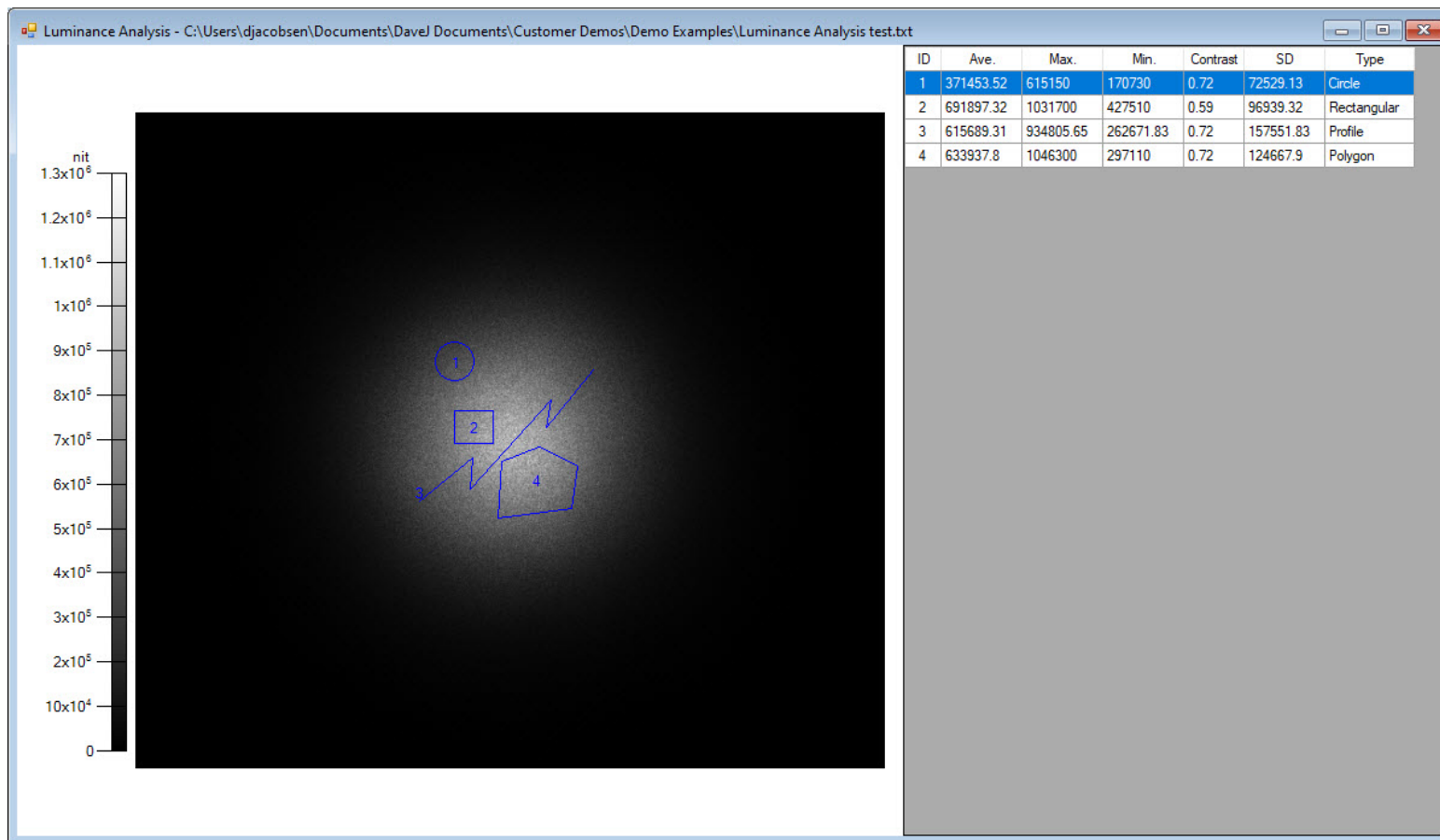
TracePro 2021 21.3

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
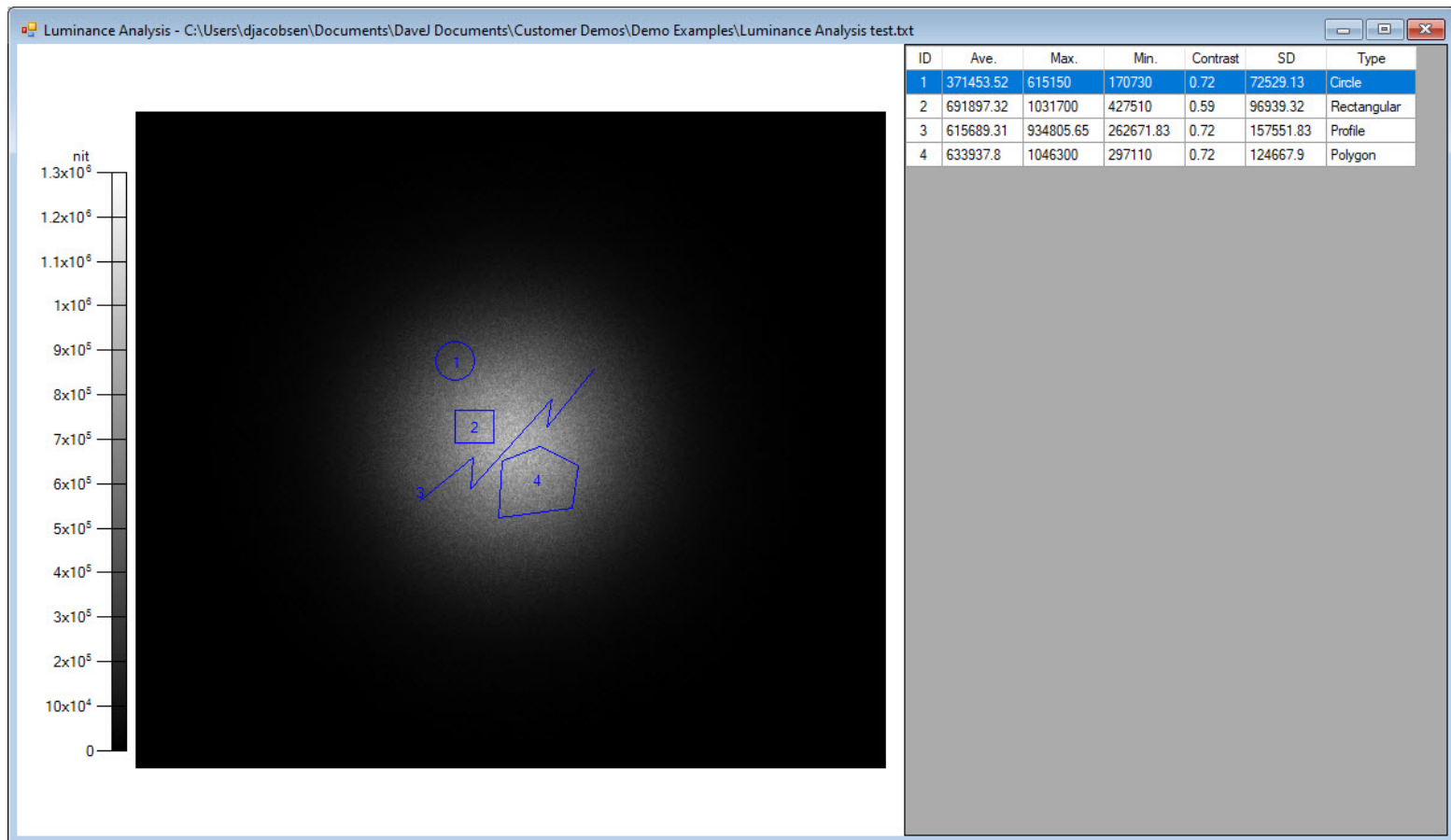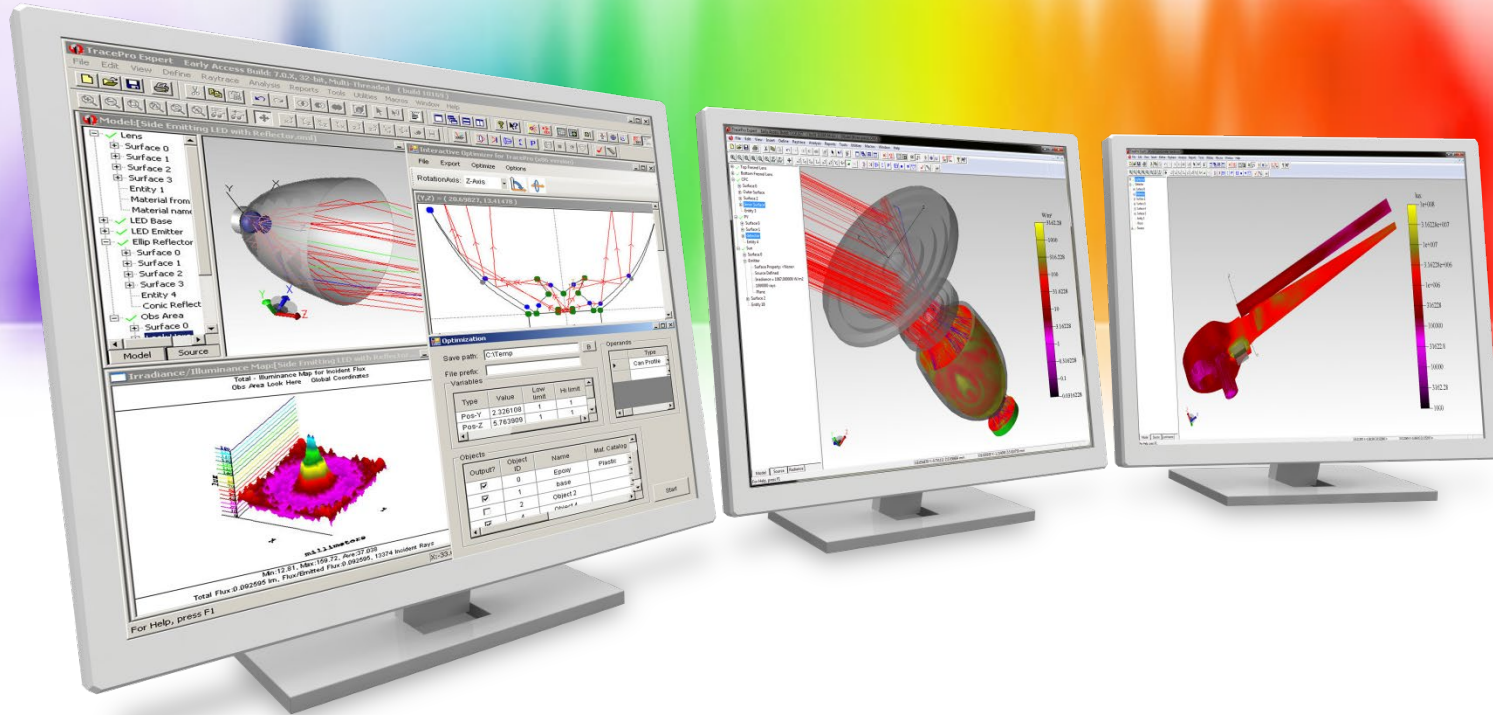
TracePro 2021 21.3

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
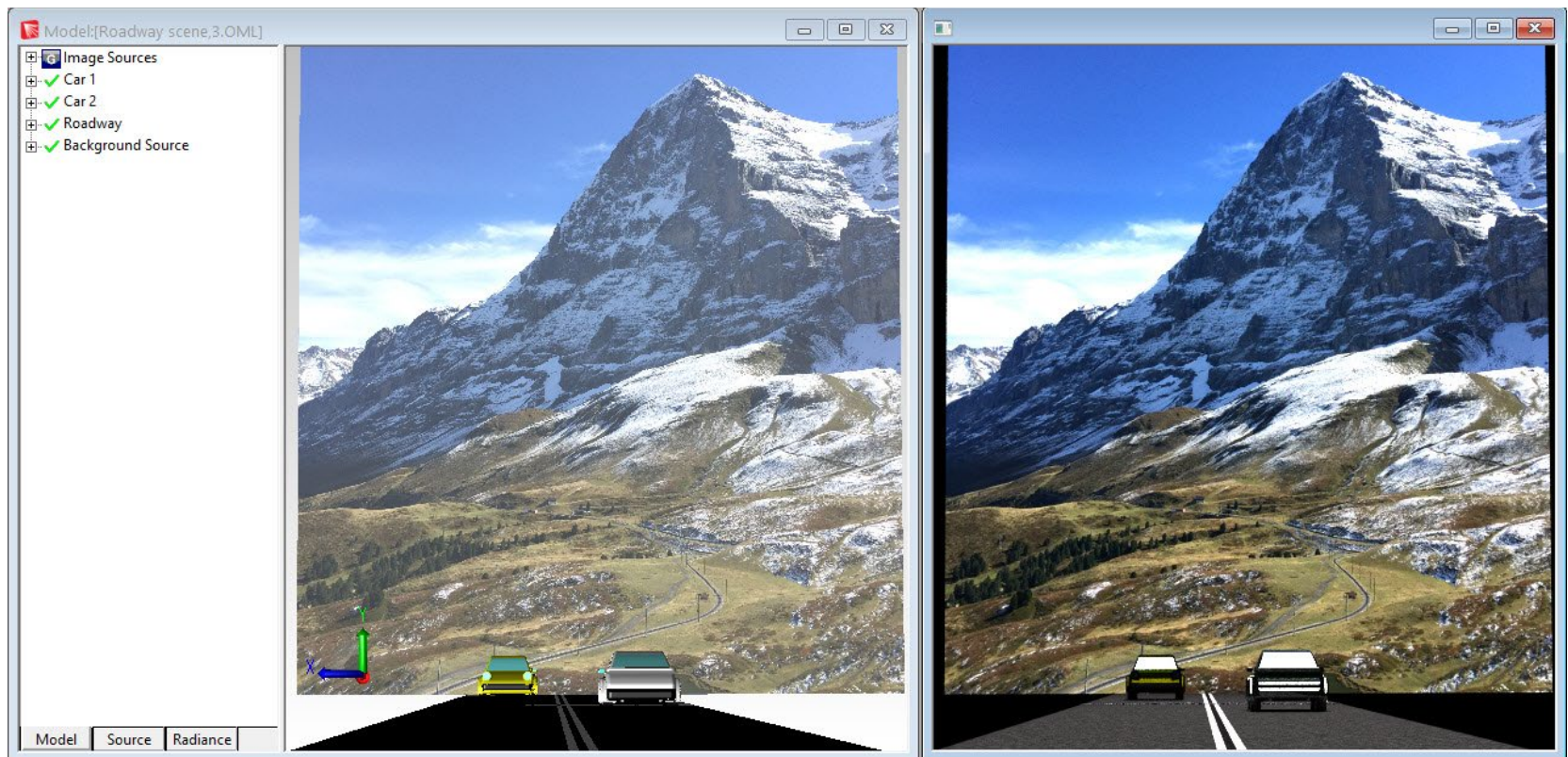   - geometry:make-circular-edge

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.

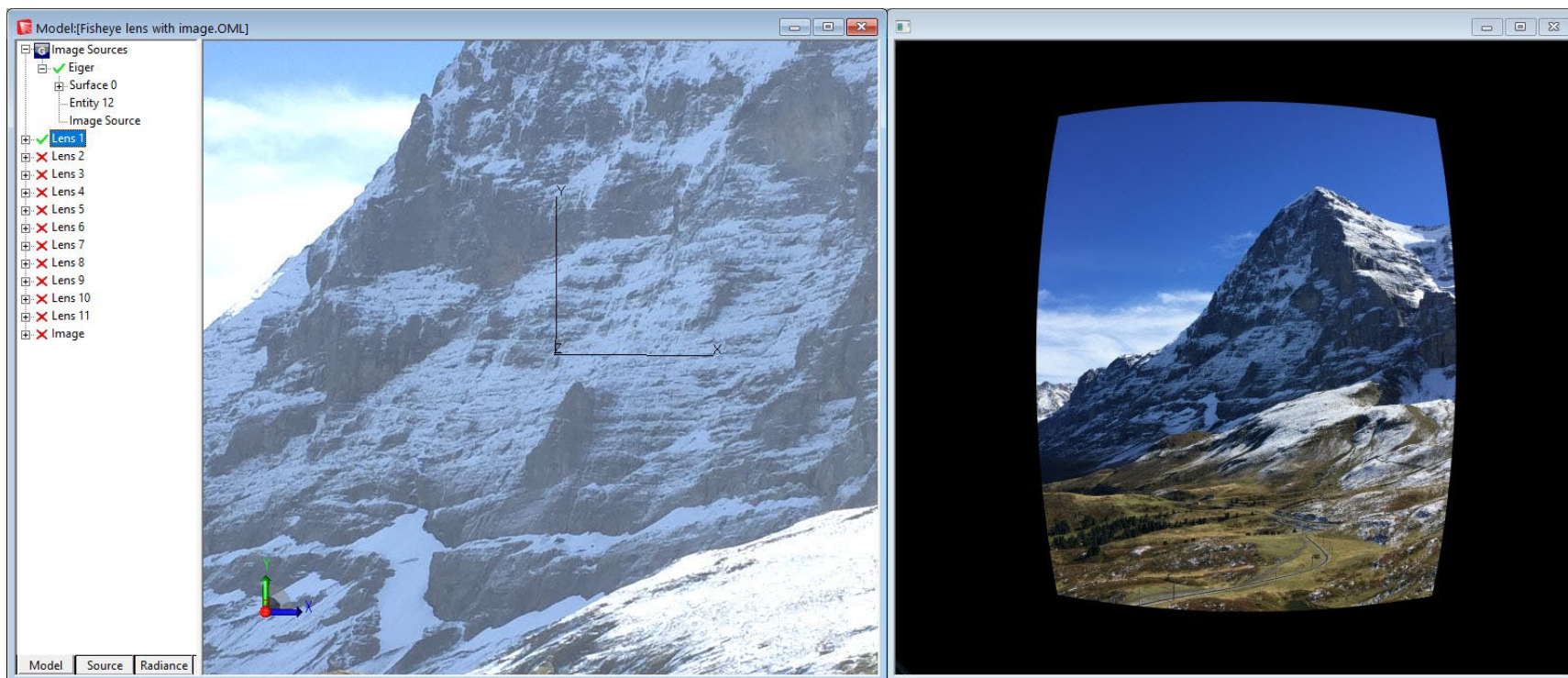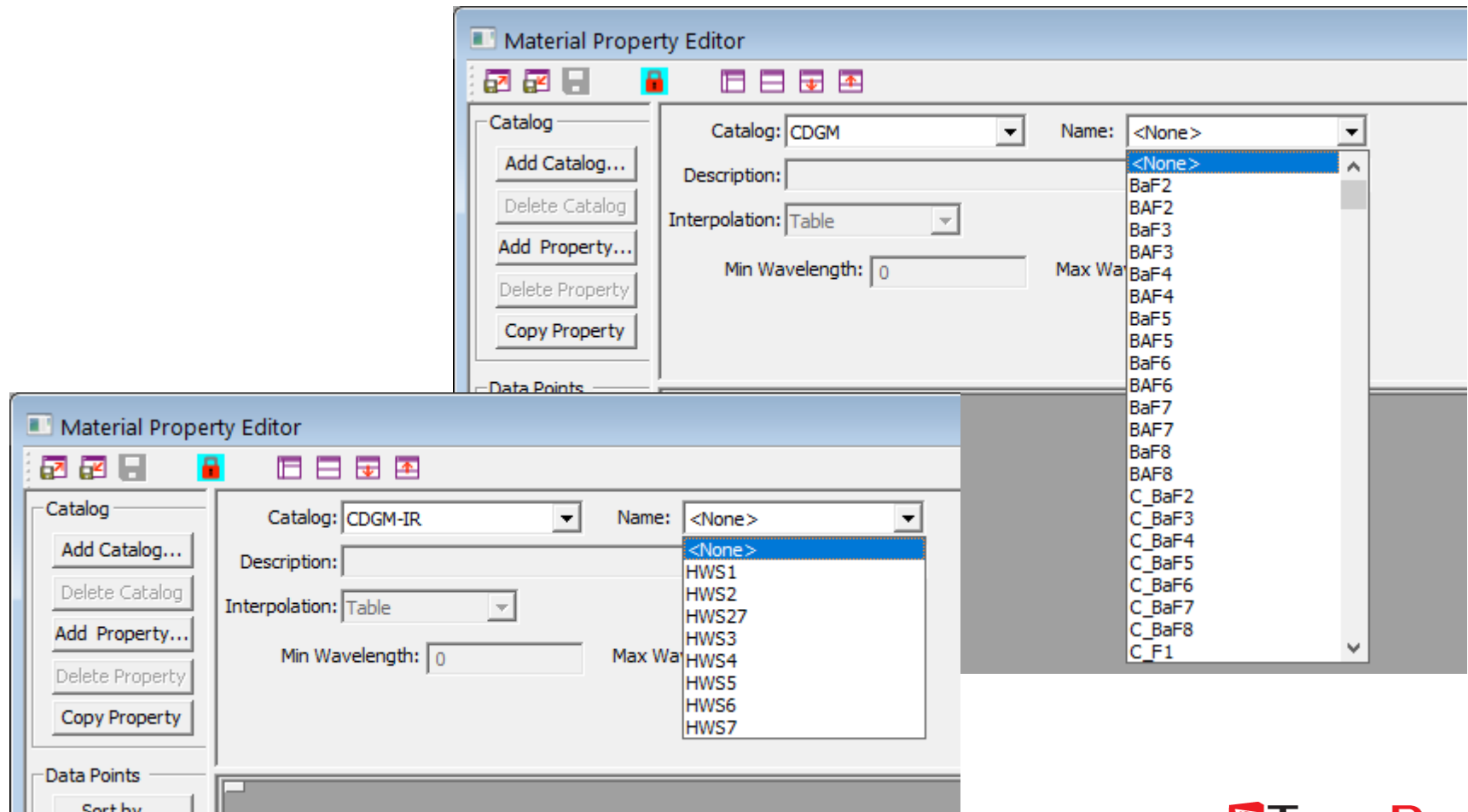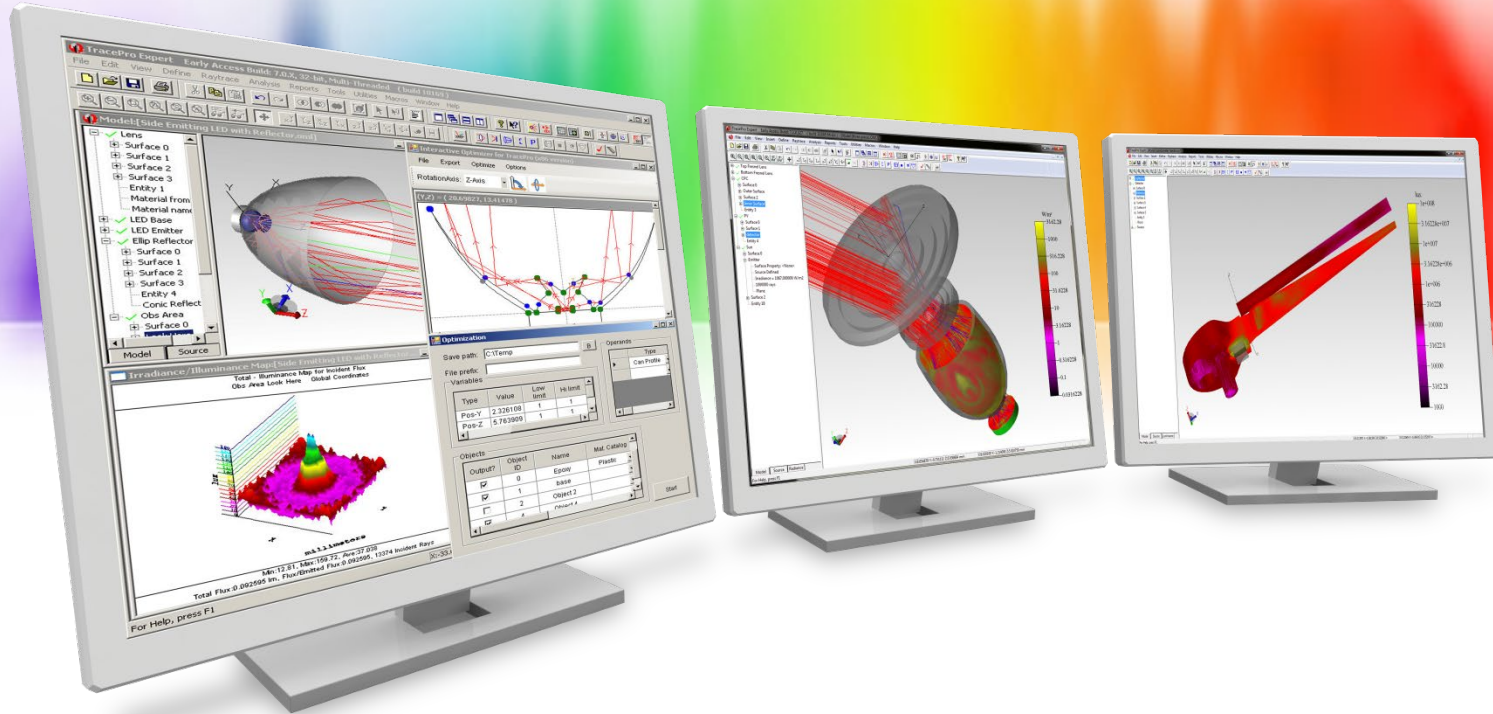

Image as viewed through a wide angle lens

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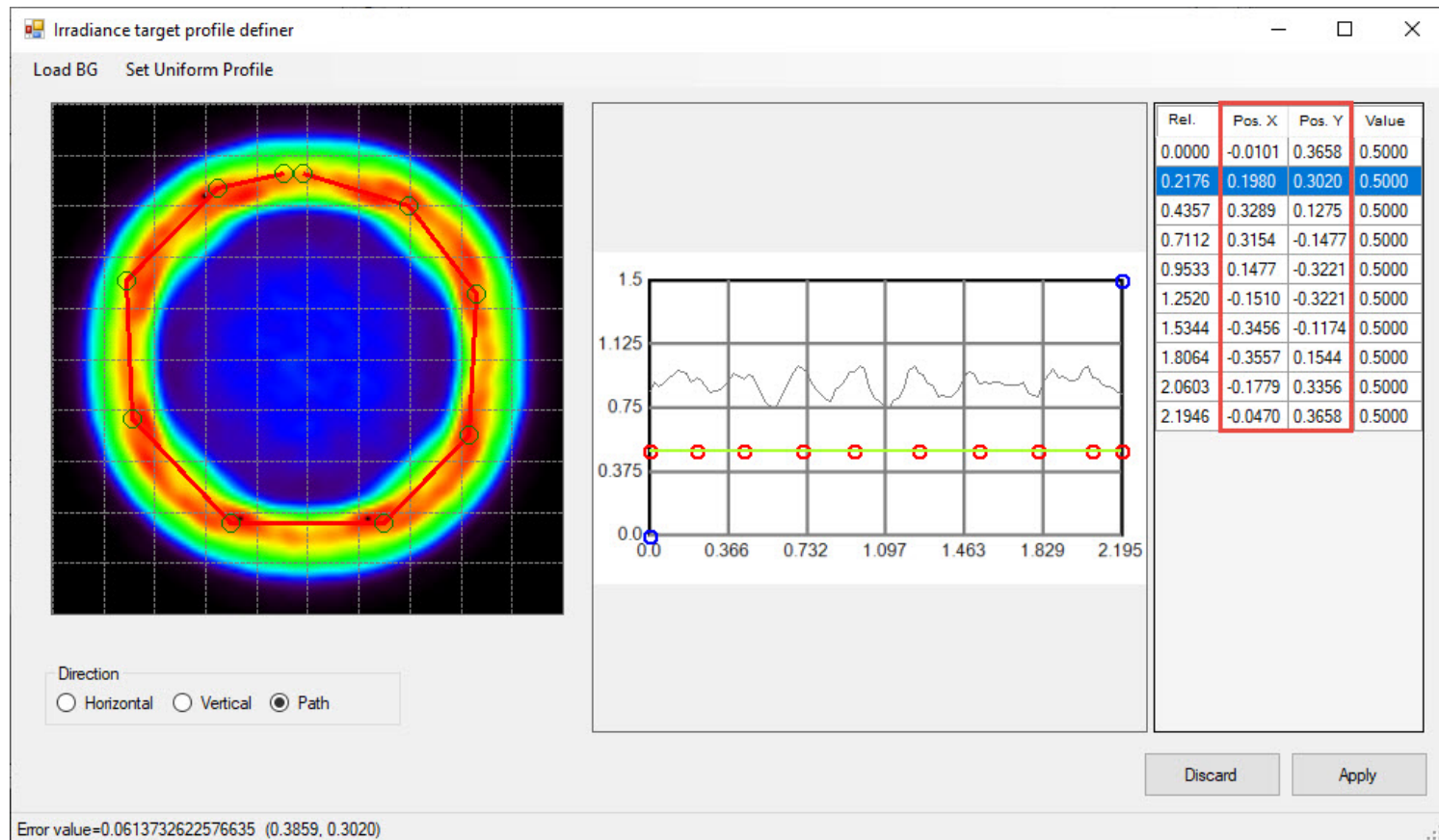 ➢ New capability for editing values of points in the Irradiance Profile operand

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

➢ **New Scheme command**

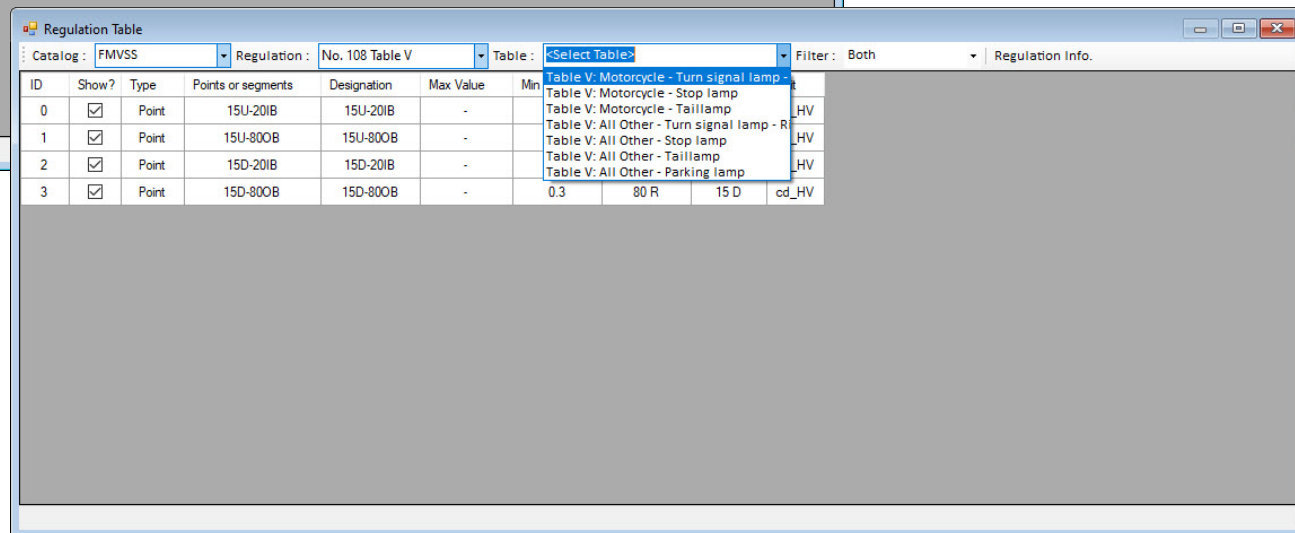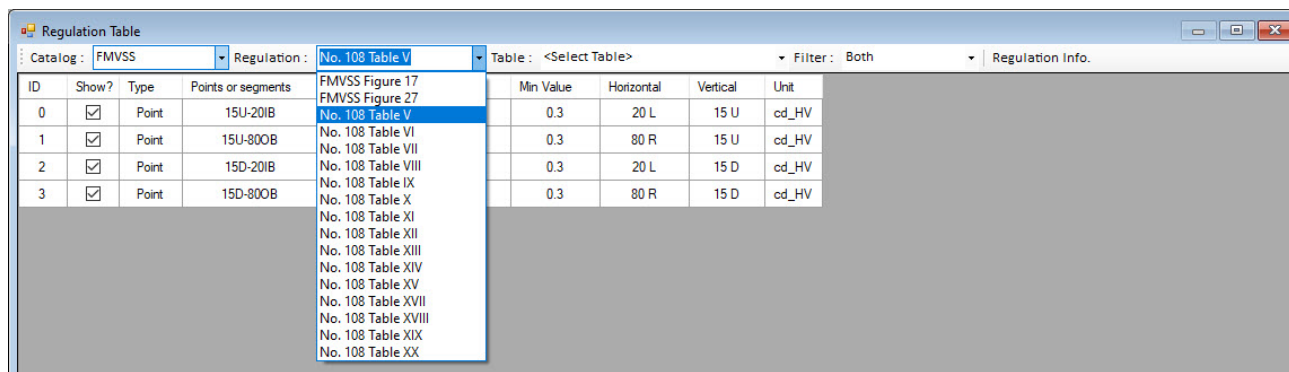TracePro

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