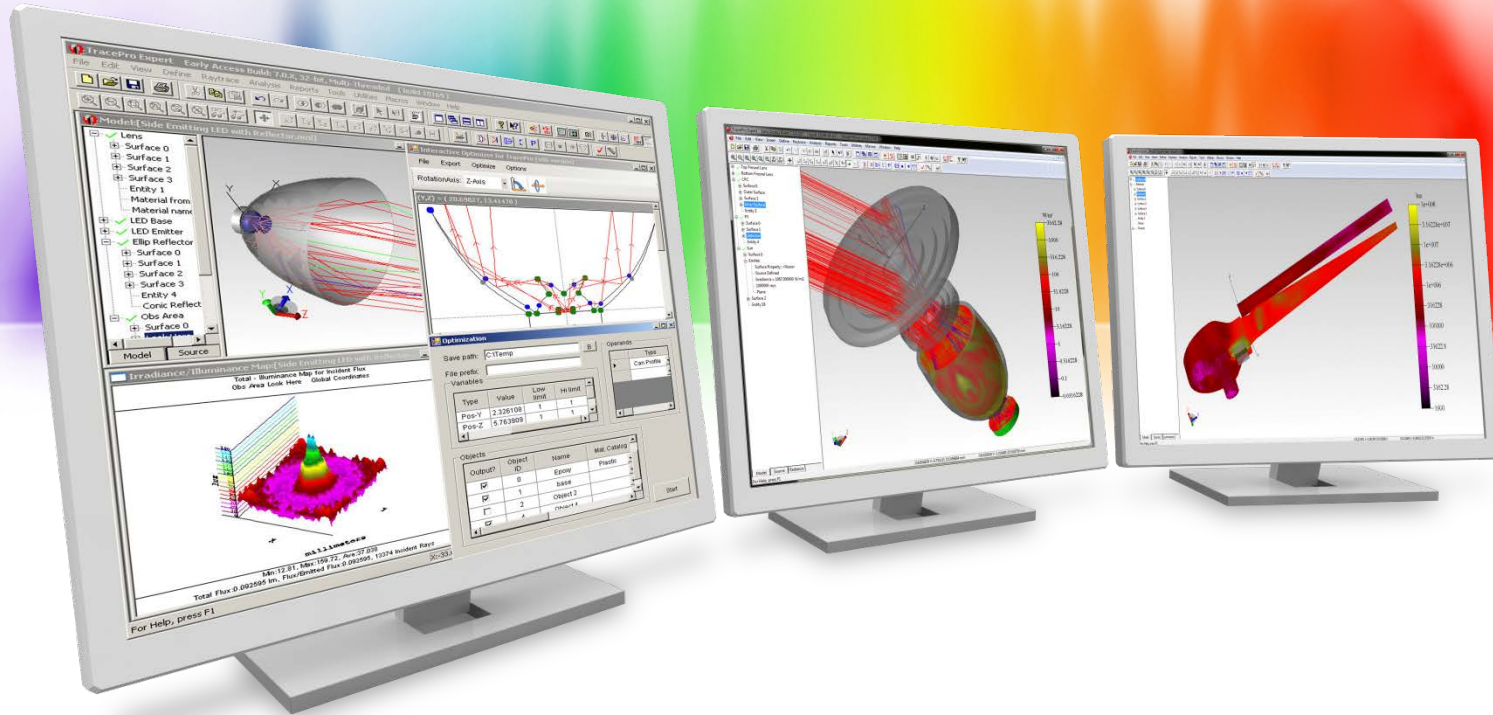# New Features in TracePro

New TracePro Release Numbering

➢ TracePro has switched to a yearly naming scheme. TracePro 2020 version 20.1 was the first release of TracePro in 2020.

➢ Official releases of TracePro 2020 will debut approximately every 60 days on or around the 10th of the month, starting in February..
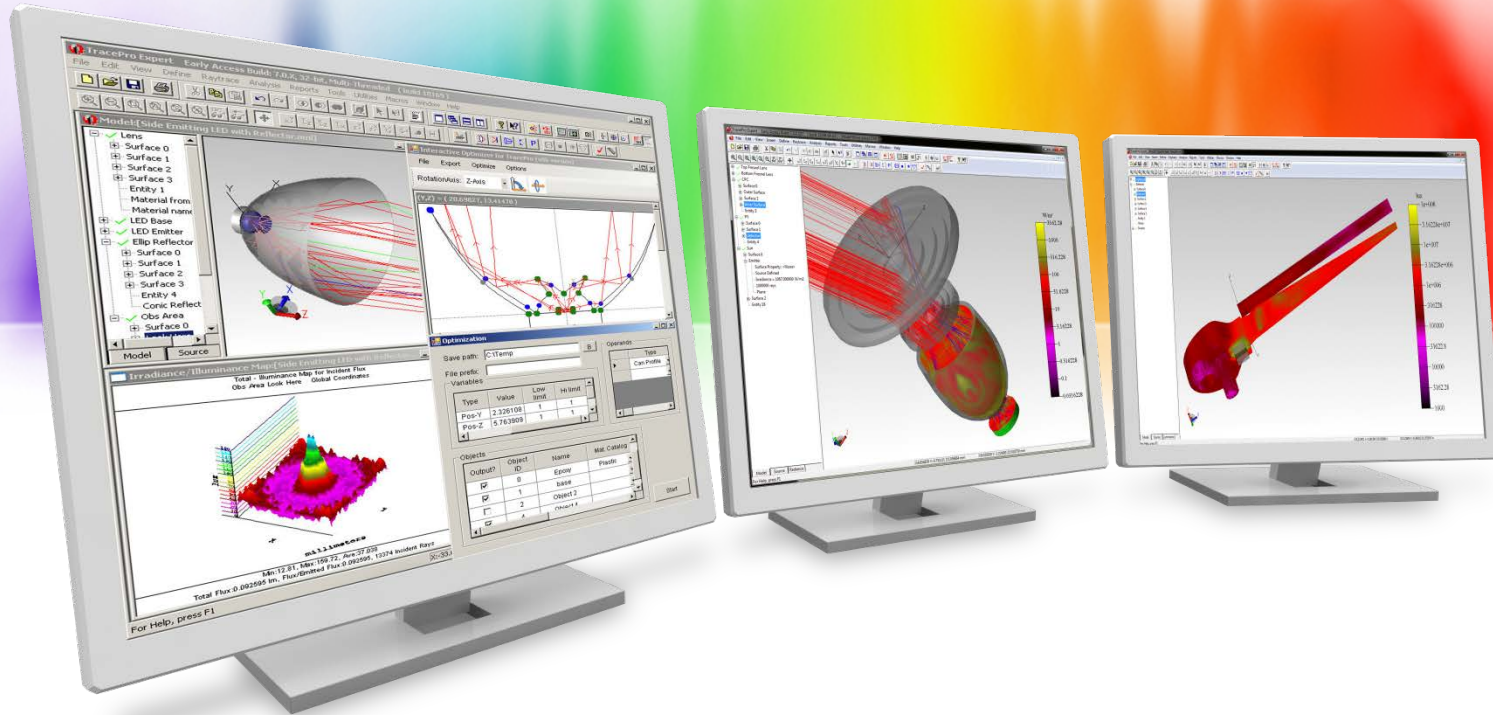
TracePro

New Features in TracePro 2020 20.5

TracePro 2020 20.5

> **TracePro**
> > New Scheme commands for setting and getting the current setting for Collect Path Sort Data
> >
> > > (raytrace:set-collect-path-sort-data-on)
> > > (raytrace:set-collect-path-sort-data-off)
> > > (raytrace:get-collect-path-sort-data?)
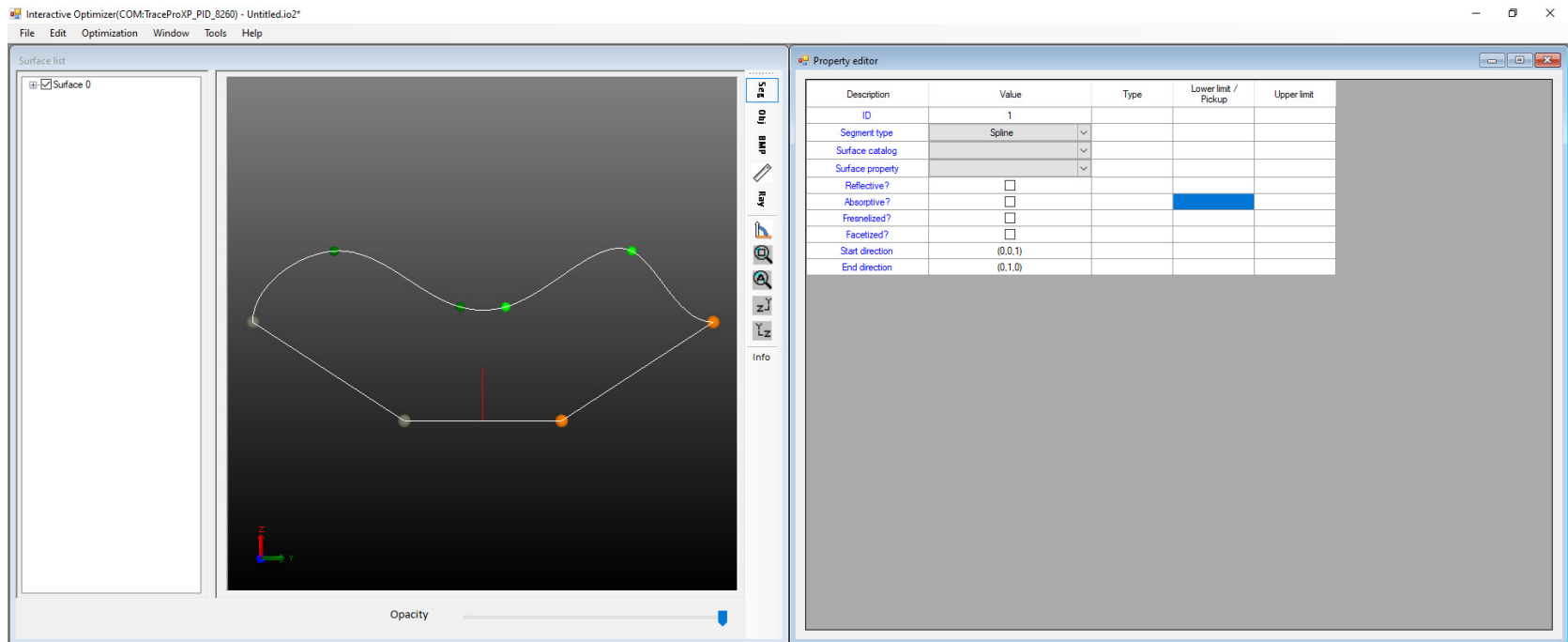
TracePro

New Features in TracePro 2020 20.4
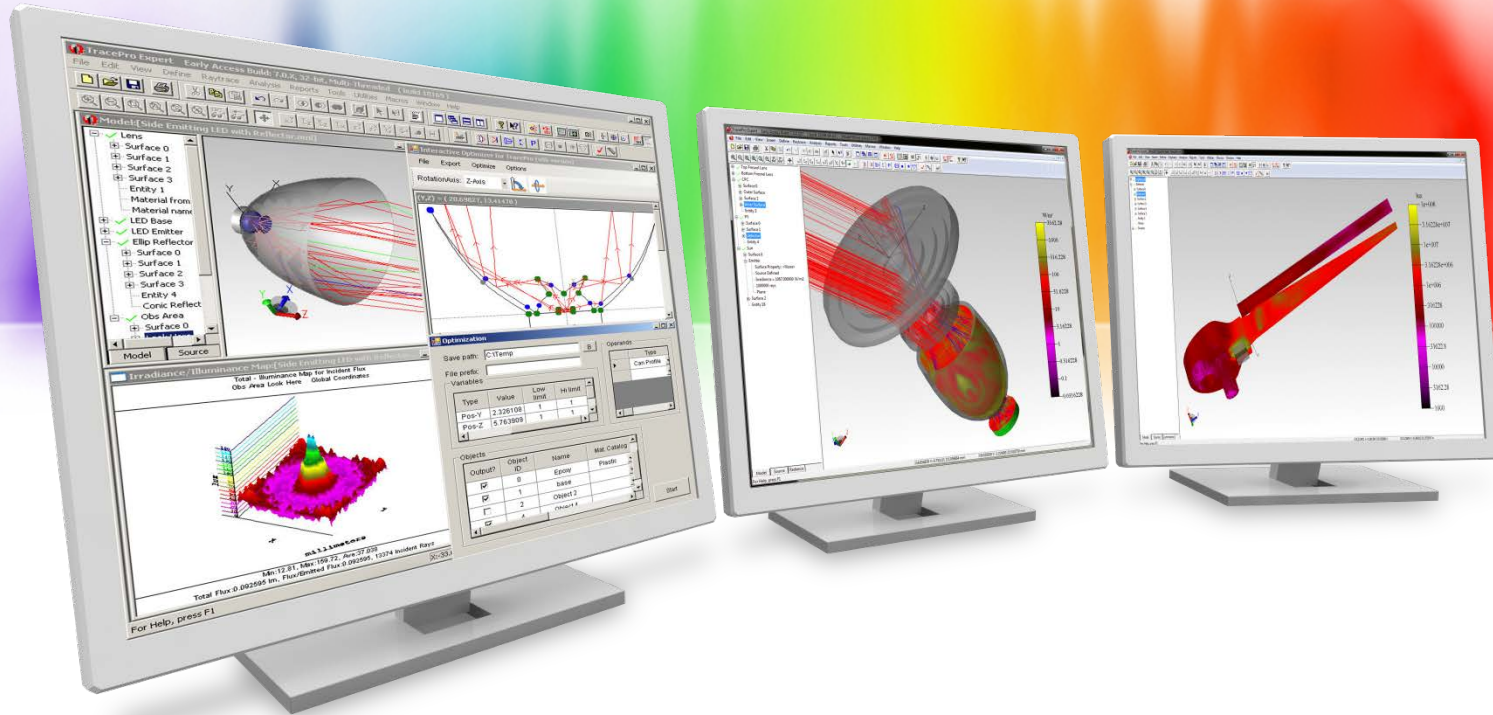
TracePro 2020 20.4

> **Interactive Optimizer**
>> Two new properties for the Spline segment: Start direction and End direction

TracePro

TracePro 2020 20.4

Interactive Optimizer – New Start and End directions can be used to control the terminal slope of a generated spline curve

New Features in TracePro 2020 20.3

TracePro 2020 20.3

➢ **TracePro**
  ➢ New arguments for geometry:baffle-vane Scheme command
  ➢ New Scheme command modify:baffle-vane

TracePro 2020 20.3

> ## TracePro
>> New arguments for the geometry:baffle-vane Scheme command have been added. The user can now enter values for the angles in degrees and apply a name to the baffle.

geometry:baffle-vane

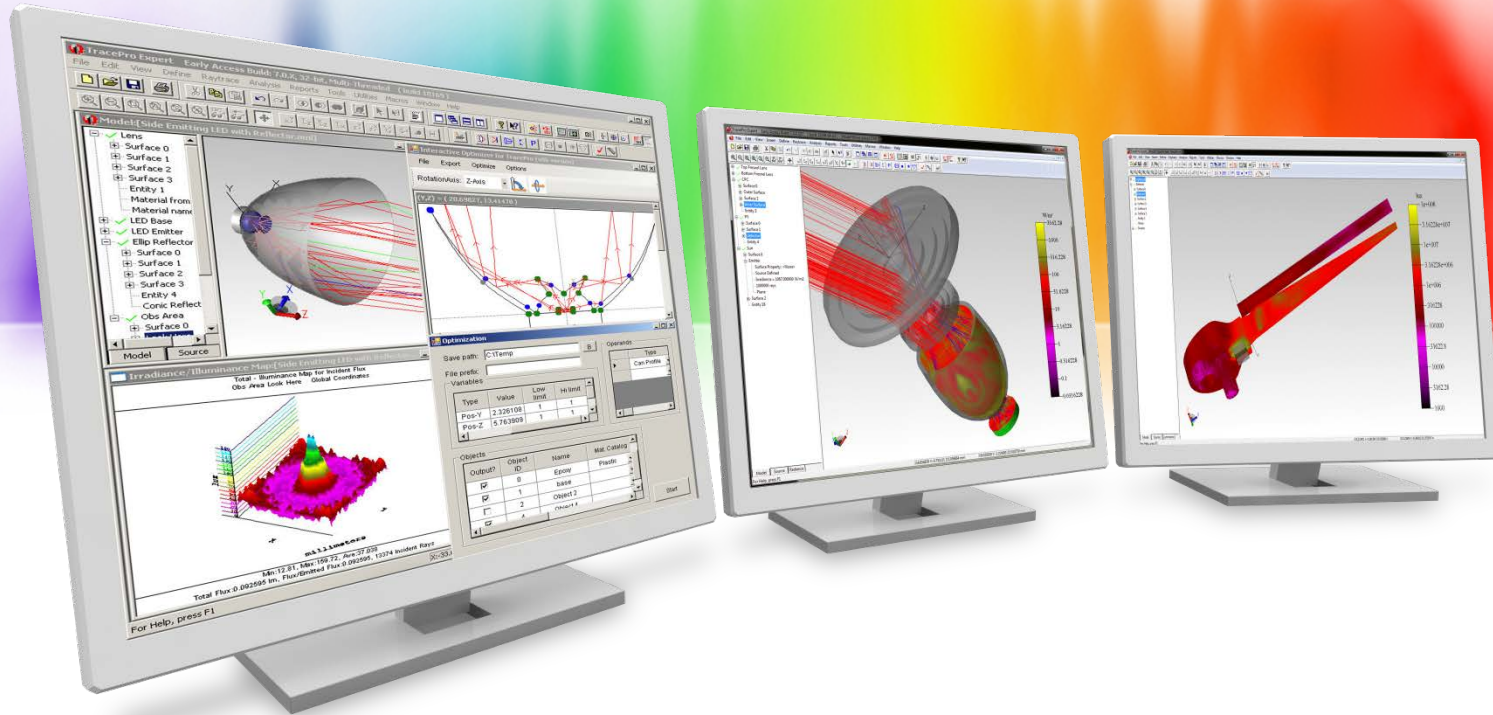|	
Action:	Creates a TracePro baffle vane.
Syntax:	**(geometry:baffle-vane** app-radius tube-radius [conical-angle=45] [grnd-angle=30] [thickness=0.1] [knife-radius=0.01] [center=(0,0,0)] [rot-x=0] [rot-y=0] [rot-z=0] [degrees=#f] [name=""])
Arg Types:	app_radius real tube_radius real conical_angle real grnd_angle real thickness real knife_radius real center position rot_x real rot_y real rot_z real degrees boolean name string
Returns:	entity
Errors:	None
Description:	The baffle vane is created based on the definitions in TracePro. The app_radius (Aperture Radius) and tube_radius (Tube Radius) are required. The conical-angle default to 45 degrees and the relative Ground Angle (grnd-angle) defaults to 30 degrees. The thickness default in .1 mm and the knife-radius has a default of .01 mm. The baffle vane will be placed at the global origin without any rotation. Note that all the angles must be entered in Radians unless degrees is set to true.
Limitations:	Not applicable
Example:	

TracePro 2020 20.3

➢ **TracePro**

➢ A new Scheme command modify:baffle-vane has been added

modify:baffle-vane

Action:	Modifies a TracePro baffle vane.
Syntax:	(**modify:baffle-vane** body app-radius [tube-radius] [conical-angle] [grnd-angle] [thickness] [knife-radius] [center] [rot-x] [rot-y] [rot-z] [degrees=#f] [name])
Arg Types:	body entity app_radius real tube_radius real conical_angle real grnd_angle real thickness real knife_radius real center position rot_x real rot_y real rot_z real degrees boolean name string
Returns:	entity
Errors:	None
Description:	The arguments are based on the baffle vane parameters in TracePro. The parameters default to the current values for the body. Only the app_radius (Aperture Radius) is required. All properties will be preserved provided that the modified body has the same number of faces as the original. Note that all the angles must be entered in Radians unless degrees is set to true.
Limitations:	Not applicable
Example:	

TracePro

New Features in TracePro 2020 20.2

TracePro 2020 20.2

- ➢ **TracePro**
  - ➢ New Material Property catalog for Dow Silastic moldable silicone materials

- ➢ **Texture Optimizer II**
  - ➢ New capability for a random dot distribution
  - ➢ New capability for smoothing the dot distribution
  - ➢ New tool to measure Dot spacing

- ➢ **Interactive Optimizer**
  - ➢ Added ability for viewing the TracePro model in the Interactive Optimizer
  - ➢ New capability to locate the position, normal, and uv coordinates of an existing model
  - ➢ New simplified capability the marked trajectory information above in an After-scheme macro

TracePro

TracePro 2020 20.2

TracePro – A new catalog of Dow Silastic moldable silicone has been added. User's can updated their catalogs in TracePro by going to: Help->Update Property Data
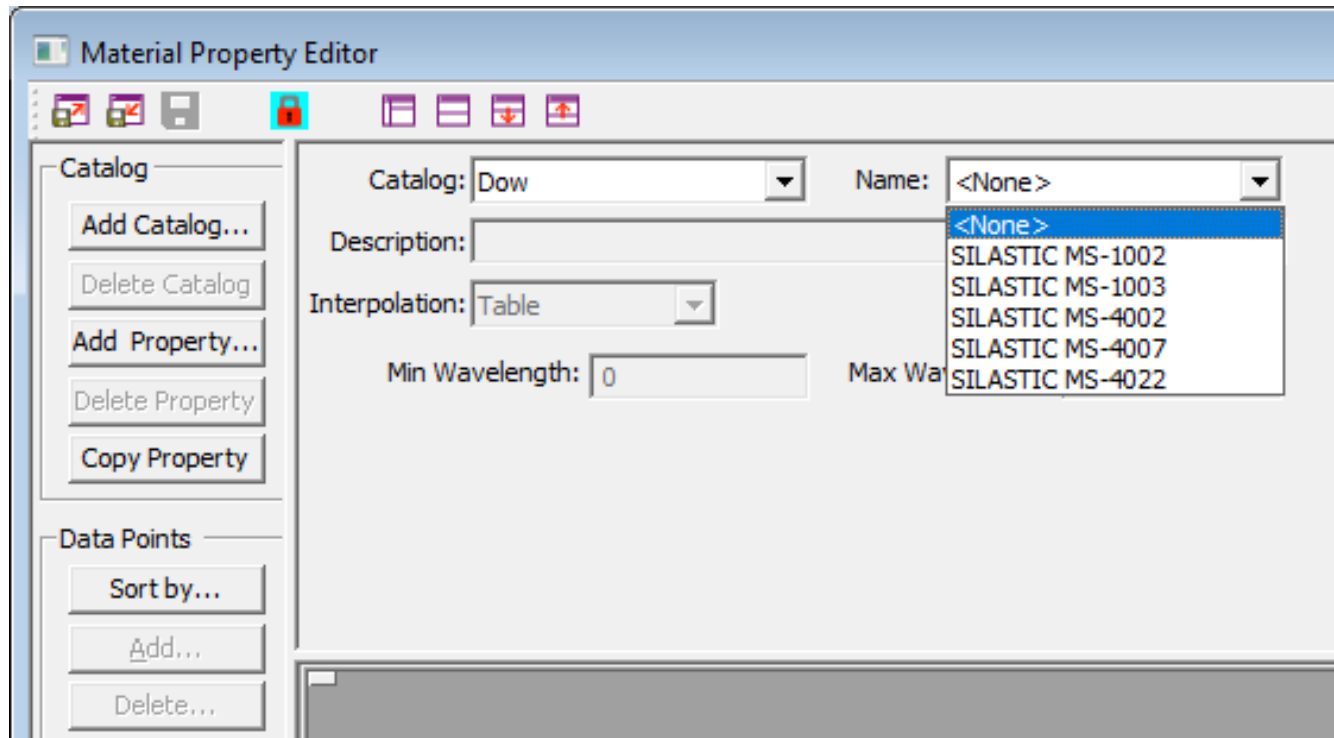
TracePro 2020 20.2

Texture Optimizer II – Two methods of adding a random dot pattern have been added: using cell densities and using a density map
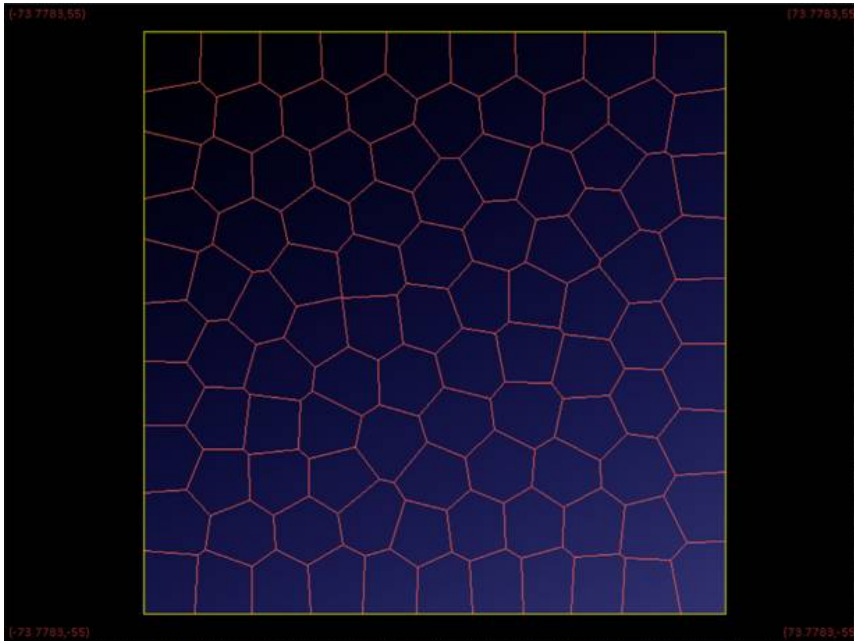
Varying density map
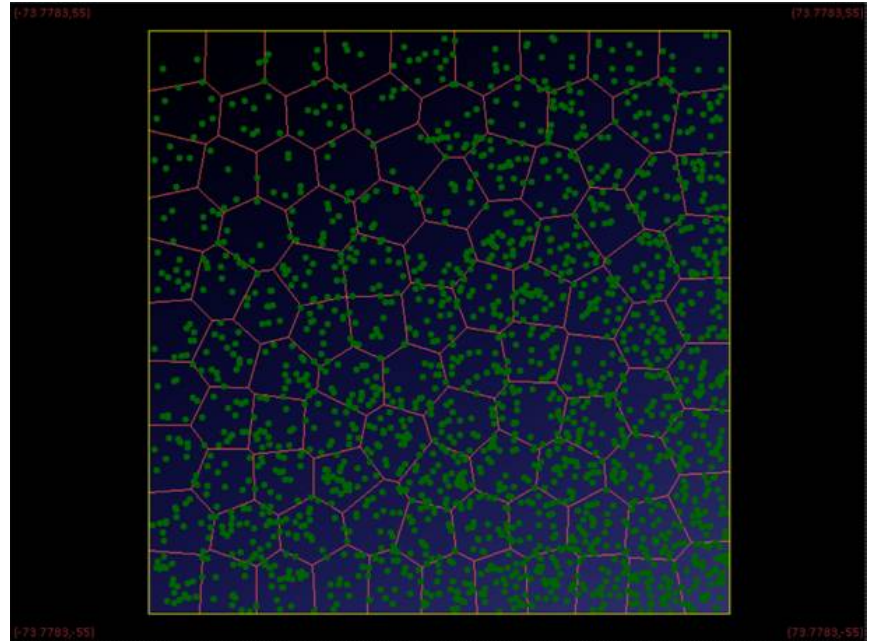
Random dots using density map

TracePro

TracePro 2020 20.2

Texture Optimizer II – The distribution of the dots can be smoothed using the Molecular Dynamics Simulation approach
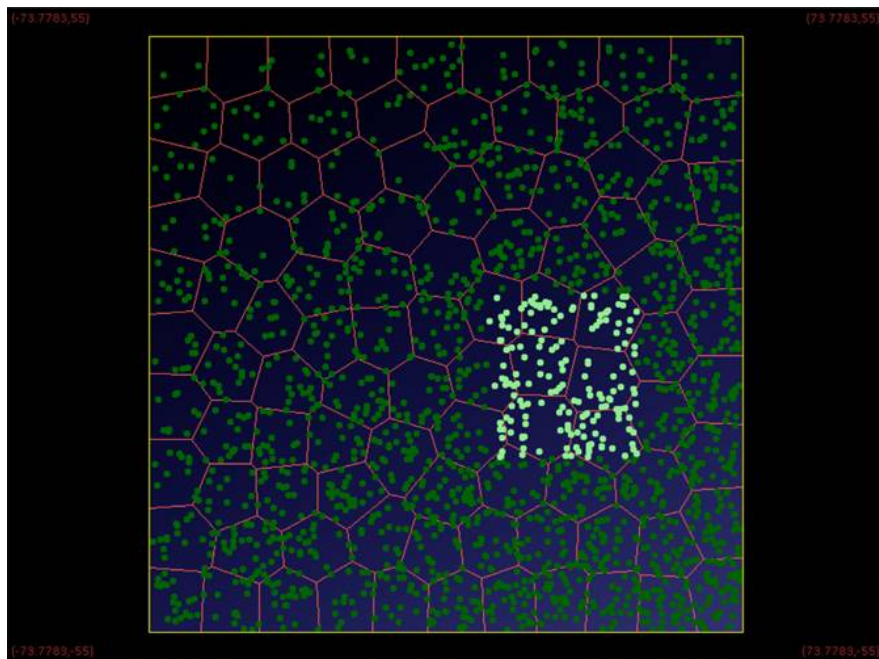
A group of dots selected for smoothing, some dots are overlapping
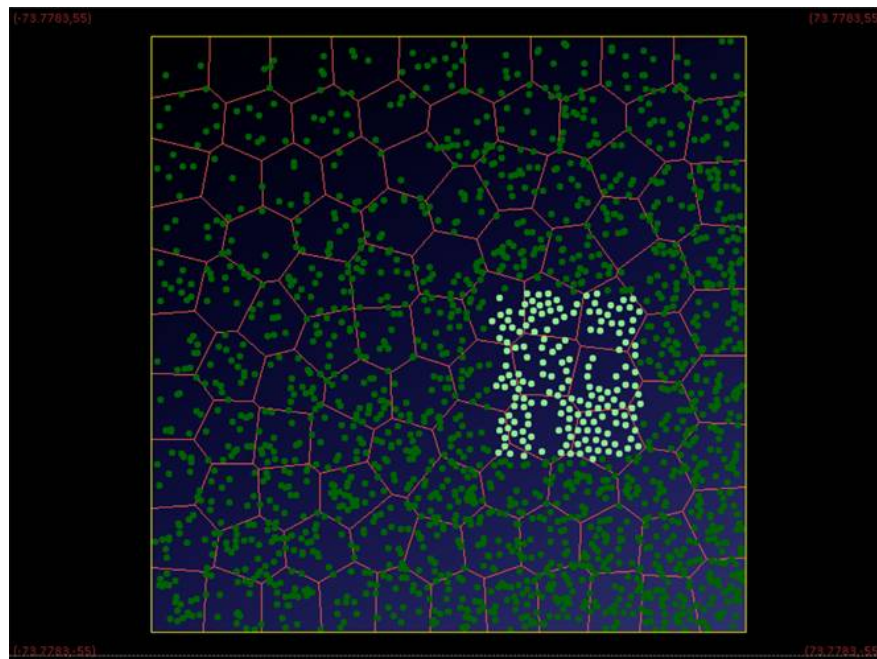
The smoothing function adjusts the dot positions so they are no longer overlapping

TracePro

TracePro 2020 20.2

Texture Optimizer II – The distance between two dots selected for smoothing can be displayed
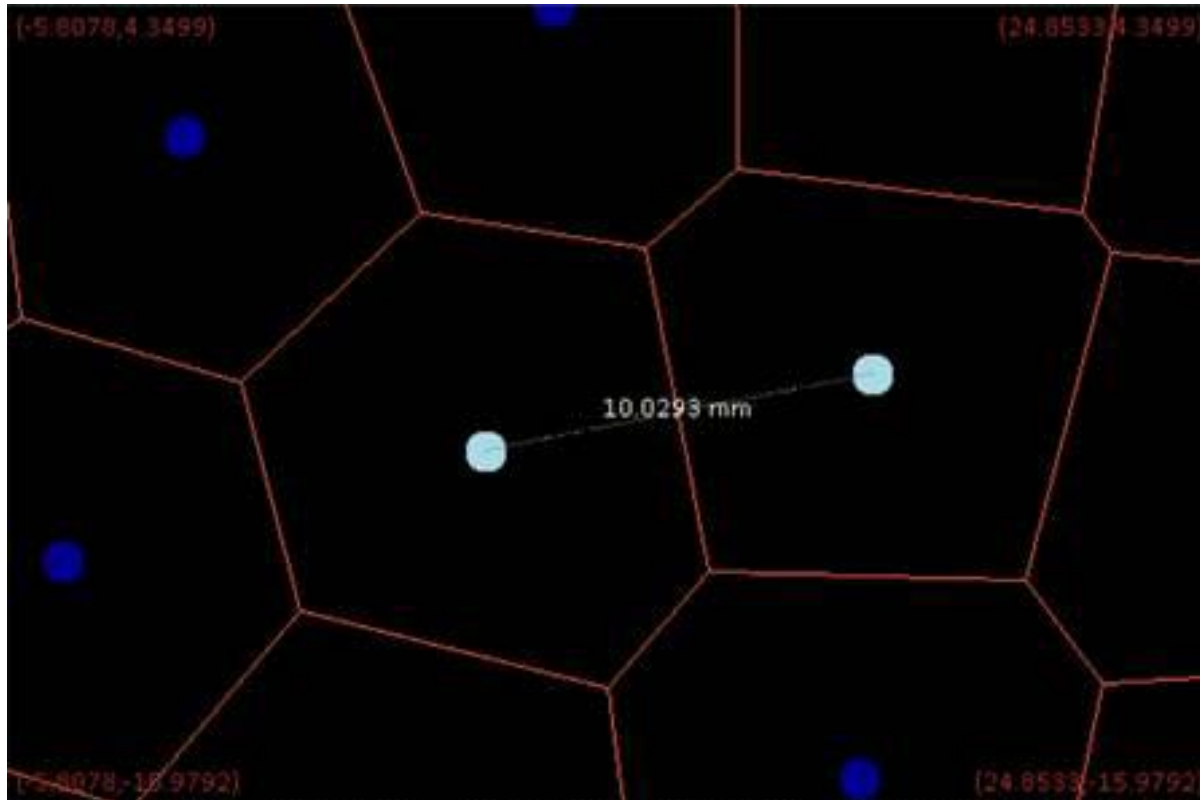
TracePro 2020 20.2

Interactive Optimizer – The current TracePro model can now be viewed in the optimizer. Either all objects or selected objects can be viewed.
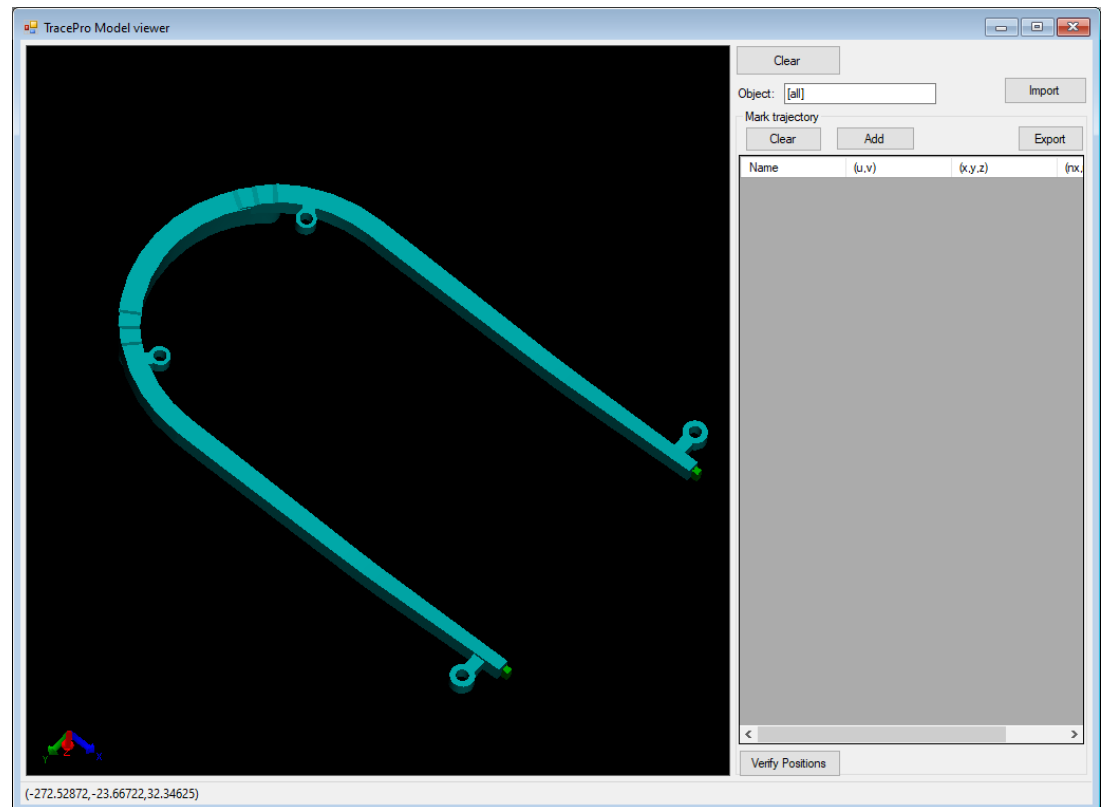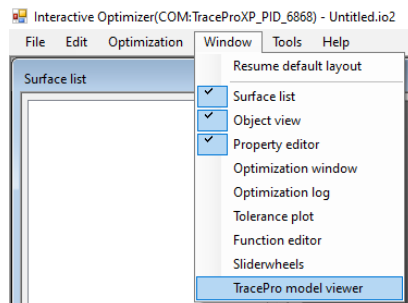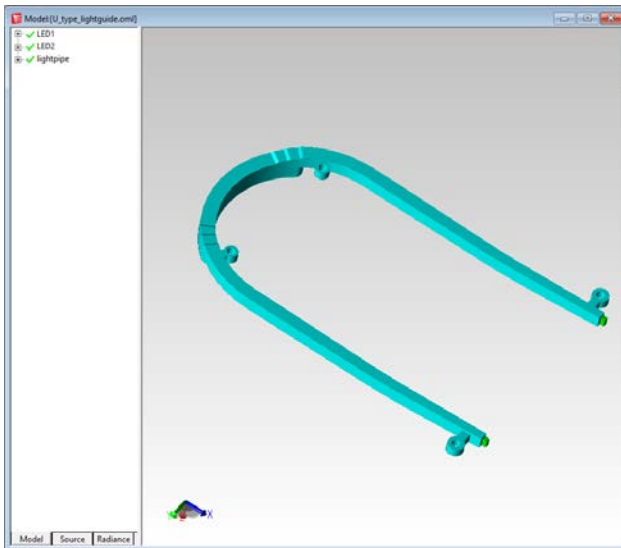
TracePro 2020 20.2

Interactive Optimizer – The trajectory of a path along a surface of the model from TracePro can be easily plotted
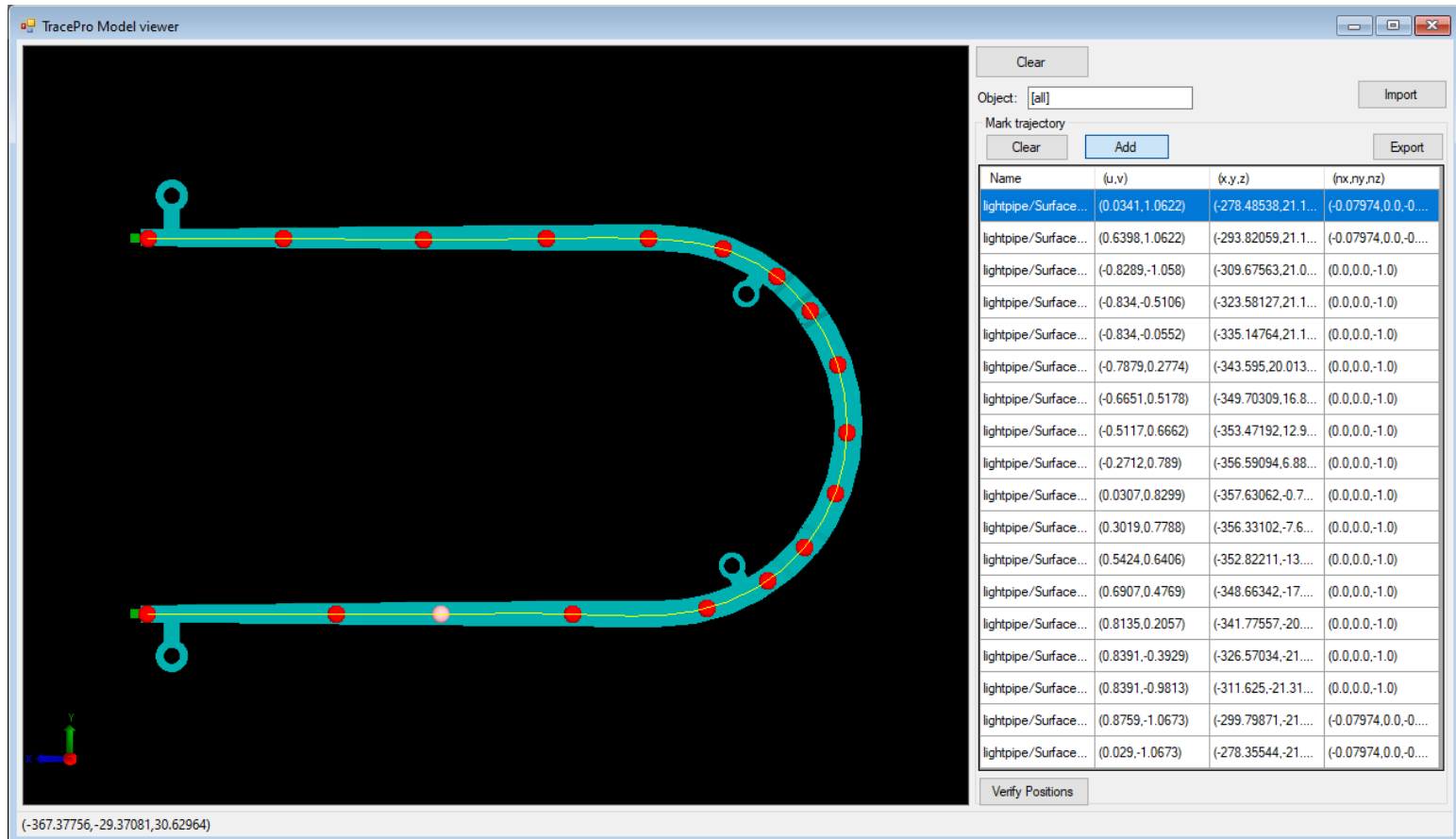
TracePro 2020 20.2

Interactive Optimizer – The trajectory of a path can be exported and used in an After-scheme macro to add periodic structures to a light guide surface
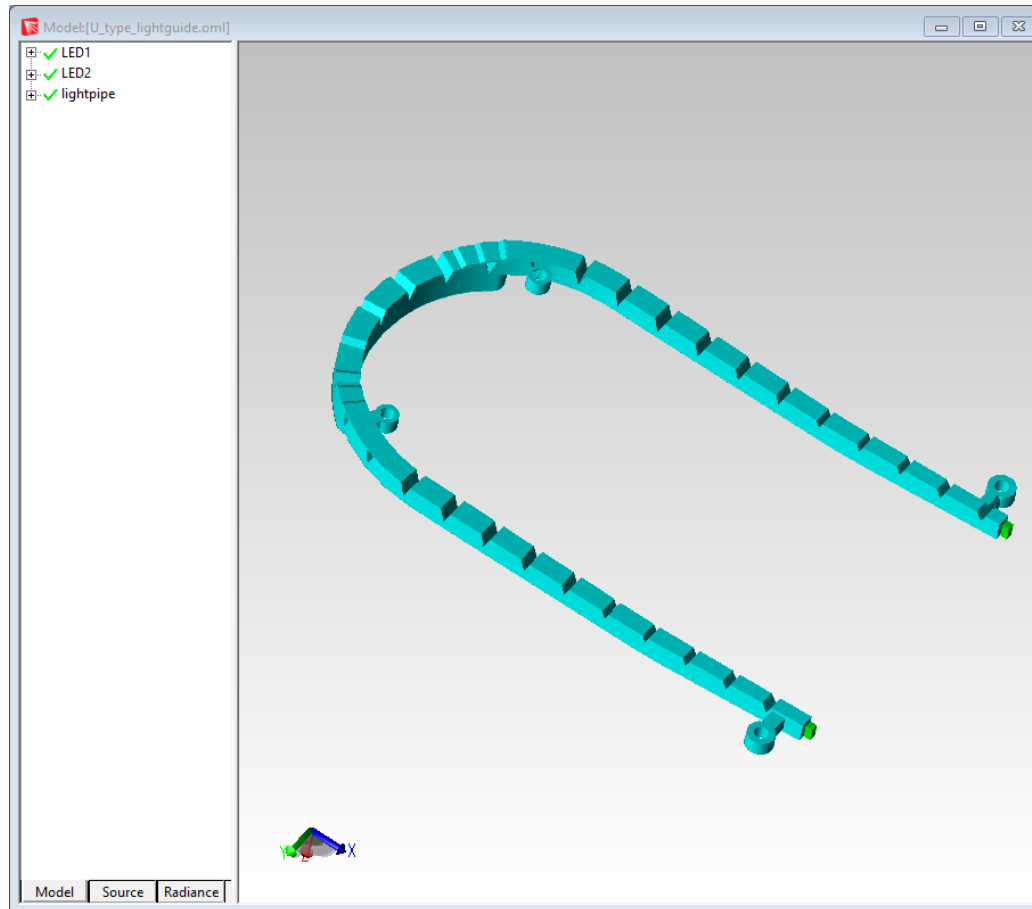
New Features in TracePro 2020 20.1

TracePro 2020 20.1

- ➢ **TracePro**
  - ➢ Enhanced Thin Sheet capabilities including new shape options and the ability to modify existing Thin Sheet primitives

- ➢ **Surface Property Generator**
  - ➢ Added capability to import scatter data files from Surface Optics Corp.

- ➢ **New Scheme Commands**

TracePro

TracePro 2020 20.1

TracePro – The Thin Sheet Primitive Solid now has new options for shapes including: ellipse, circle, rectangle, regular polygon, and irregular polygon. Existing Thin Sheet primitives can now be modified after they are created.
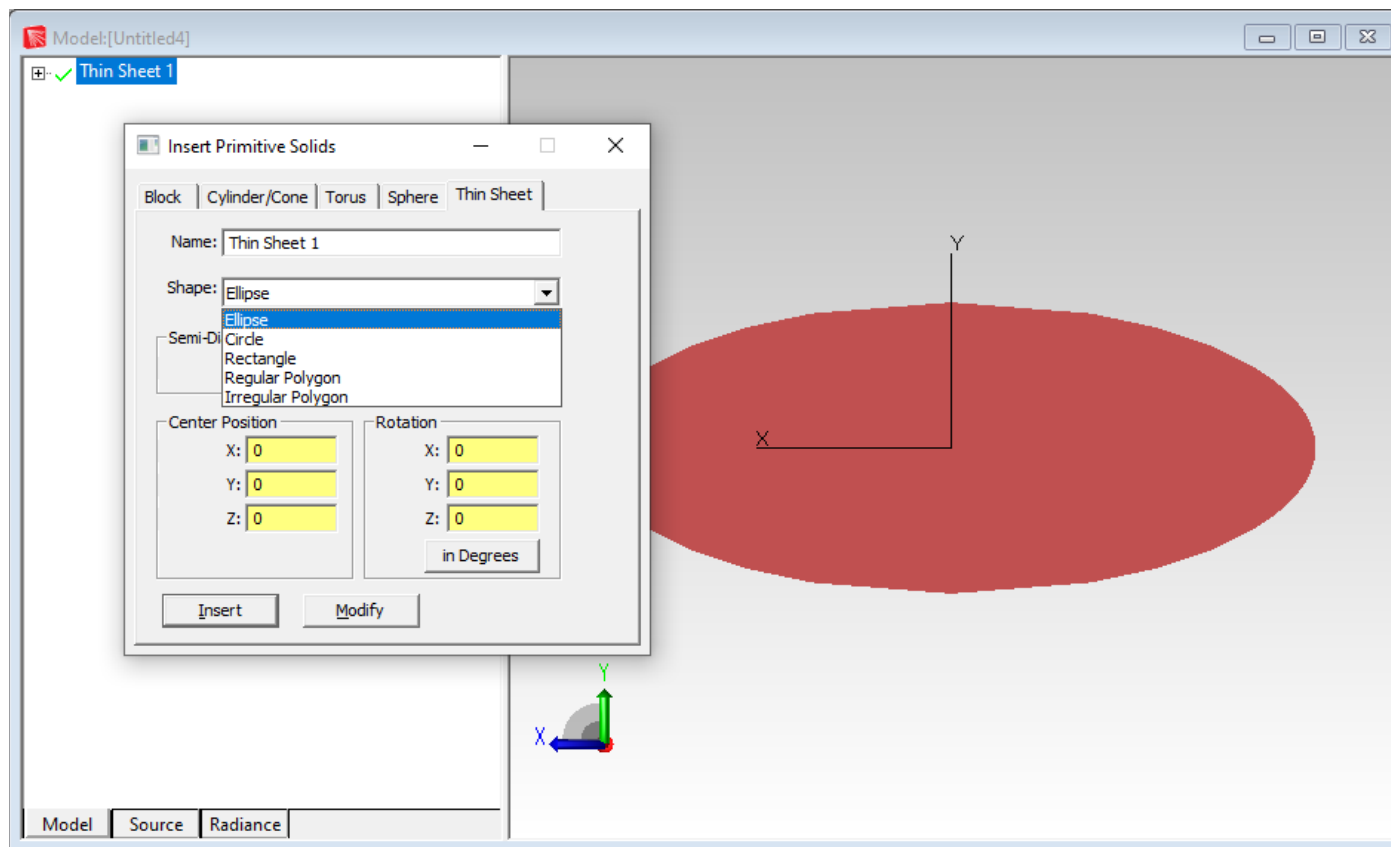
TracePro 2020 20.1

Surface Property Generator – BRDF files from Surface Optics Corporation can now be loaded in the Surface Property Generator to make new Surface Properties for use in TracePro
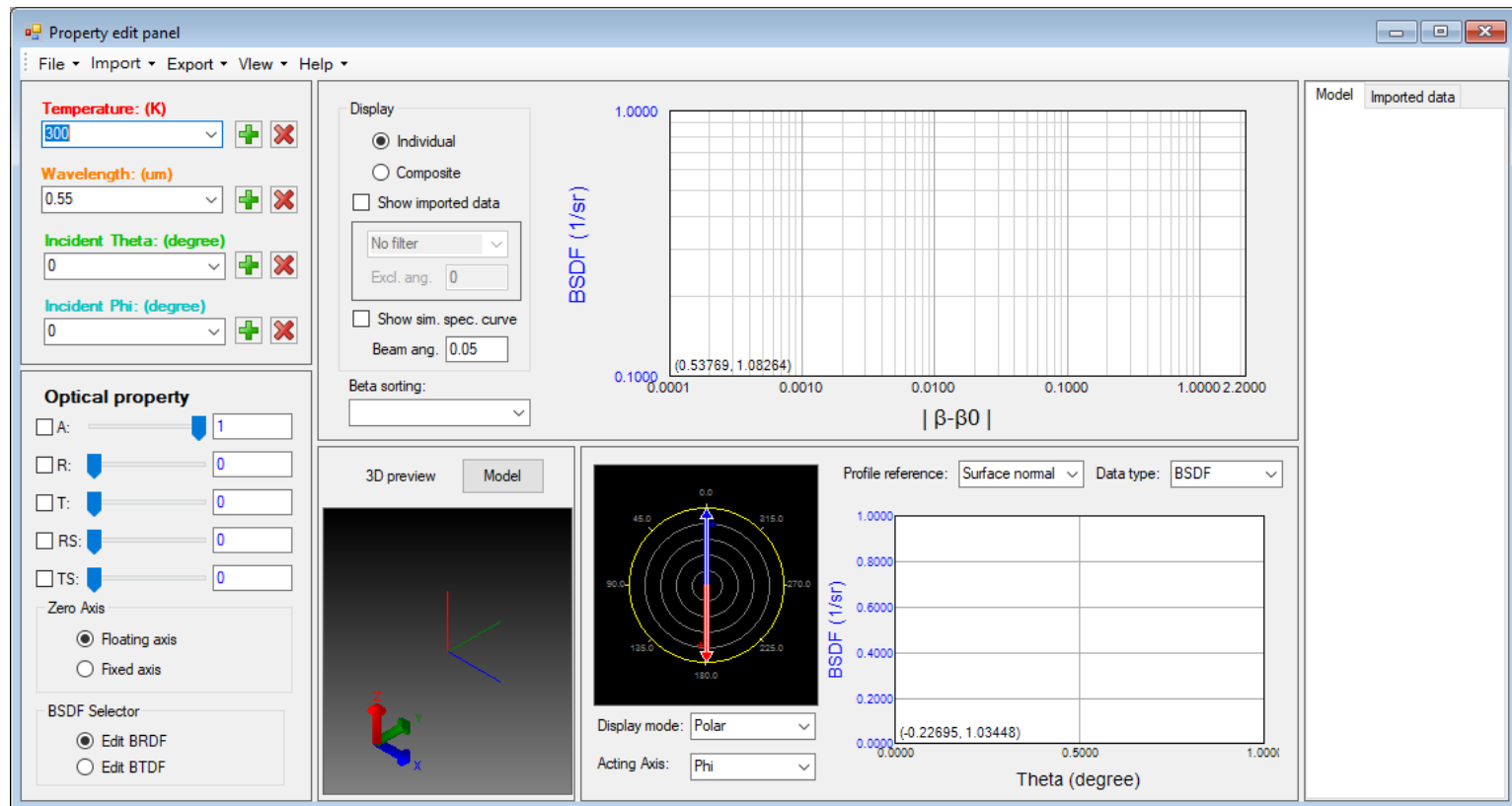
TracePro 2020 20.1

Scheme – New Scheme commands have been added

Ten new Scheme commands are now available:

- ➤ (geometry:thin-sheet)
- ➤ (geometry:thin-sheet-circle)
- ➤ (geometry:thin-sheet-ellipse)
- ➤ (geometry:thin-sheet-rectangle)
- ➤ (geometry:thin-sheet-regular-polygon)
- ➤ (modify:thin-sheet)
- ➤ (modify:thin-sheet-circle)
- ➤ (modify:thin-sheet-ellipse)
- ➤ (modify:thin-sheet-rectangle)
- ➤ (modify:thin-sheet-regular-polygon)

TracePro

New Features in TracePro 2019 19.6

TracePro 2019 19.6

> ## Interactive Optimizer (TracePro Standard and Expert)
>> - XY Polynomial surface extended to 20th order
>> - New option to set the size of the saved Irradiance Maps and Candela Plots during the optimization

> ## Texture Optimizer II (TracePro Expert)
>> - Dot coefficients can be modified by interactively dragging a spline curve in the dot list editor

> ## New Scheme Commands

TracePro

TracePro 2019 19.6

Interactive Optimizer – The XY Polynomial surface can now be defined to the 20th order

TracePro 2019 19.6

Interactive Optimizer – The window size of the Irradiance Maps and Candela Plots saved during the optimization can now be set by the user
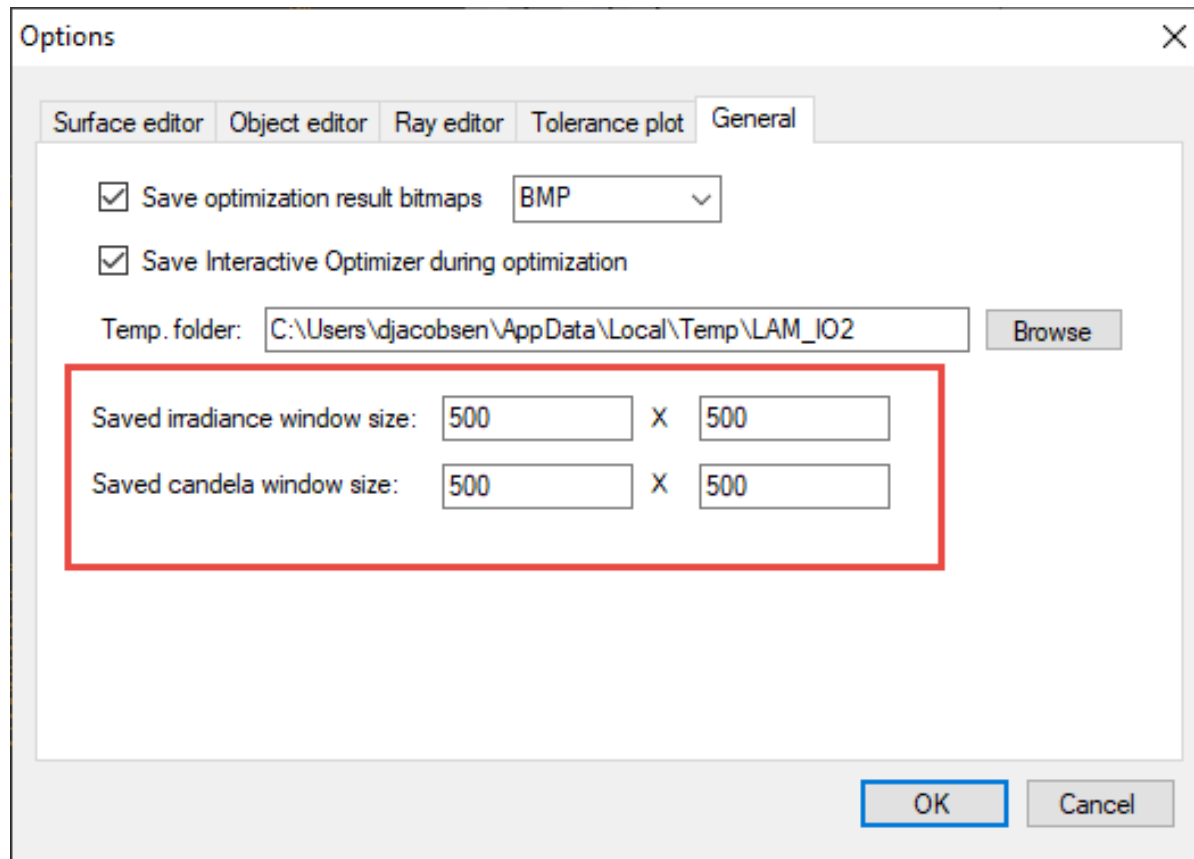
TracePro 2019 19.6

Texture Optimizer II – Dot coefficients, such as radius or position, can now be modified by interactively by dragging a spline curve in the dot list editor
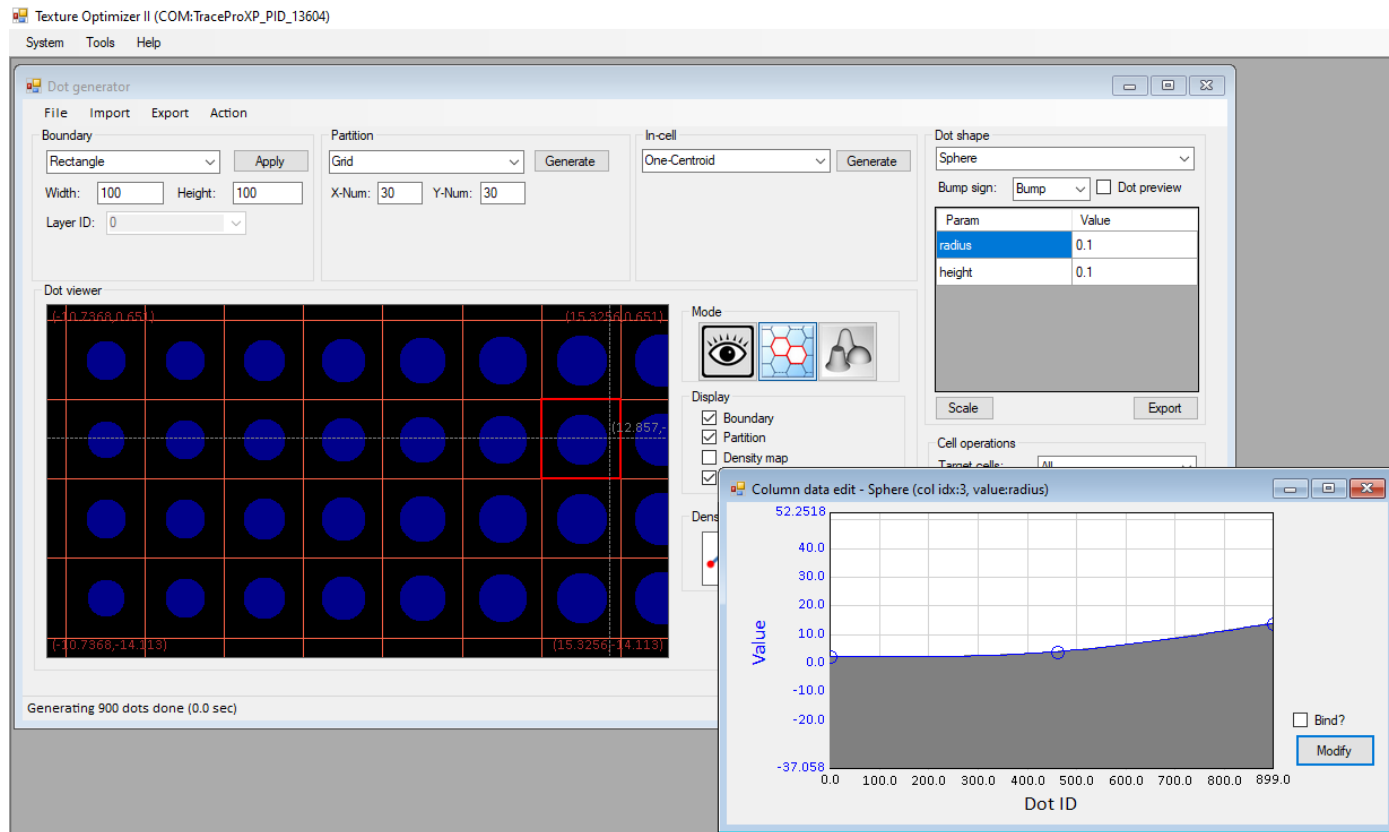
TracePro

TracePro 2019 19.6

Scheme – New Scheme commands have been added

Four new Scheme commands are now available:

- ➢ (edit:get-faces)
- ➢ (geometry:create-sheet-from-planar-edges)
- ➢ (raytrace:get-surface-source-scale)
- ➢ (raytrace:set-surface-source-scale)

TracePro

New Features in TracePro 2019 19.4

TracePro 2019 19.4

- **TracePro**
  - Updated to ACIS 29
  - New Flux Report feature added
  - Toolbar updates
- **3D Interactive Optimizer (TracePro Standard and Expert)**
  - Renamed Interactive Optimizer
  - New RepTile object type added
- **3D Geometry Modeler (TracePro LC)**
  - Renamed Geometry Modeler
- **2D Interactive Optimizer and 2D Geometry Modeler**
  - Discontinued
- **Texture Optimizer II (TracePro Expert)**
  - Texture Optimizer discontinued
  - DMD Generator has been merged with the Texture Optimizer II
- **New Scheme Commands**

TracePro

TracePro 2019 19.4

TracePro – The ACIS CAD kernel in TracePro has been updated to ACIS Version 29.0.1

About TracePro Expert

TracePro® 2019 Expert - 19.4 Release   Copyright © 1995 - 2019 Lambda Research Corporation

ACIS® Version 29.0.1   Temporary license expires on December 31, 2019.

System Resources

Total Physical Memory: 32950732   Available Virtual Memory: 137433845712

Available Physical Memory: 24062408   1940344 KB Free on C:

Portions of this software are owned by Spatial Corp. © 1986 - 2019. All Rights Reserved.

Grid Control © copyright Chris Maunder

Portions of this software are Copyright © 1997 - 2002, Makoto Matsumoto and Takuji Nishimura, All rights reserved.

OK

TracePro 2019 19.4

TracePro – The Flux Report has been enhanced with a new feature: you can now limit the Flux Report to include only those objects and surfaces with non-zero-flux.

TracePro 2019 19.4

TracePro – The toolbars in TracePro have been updated. The Help toolbar was removed as its functionality was redundant. The option for monochrome toolbars has also been removed. Color toolbars is the only choice now. A new feature to specify large or small icons has been added to make the toolbars easier to see with high resolution monitors.
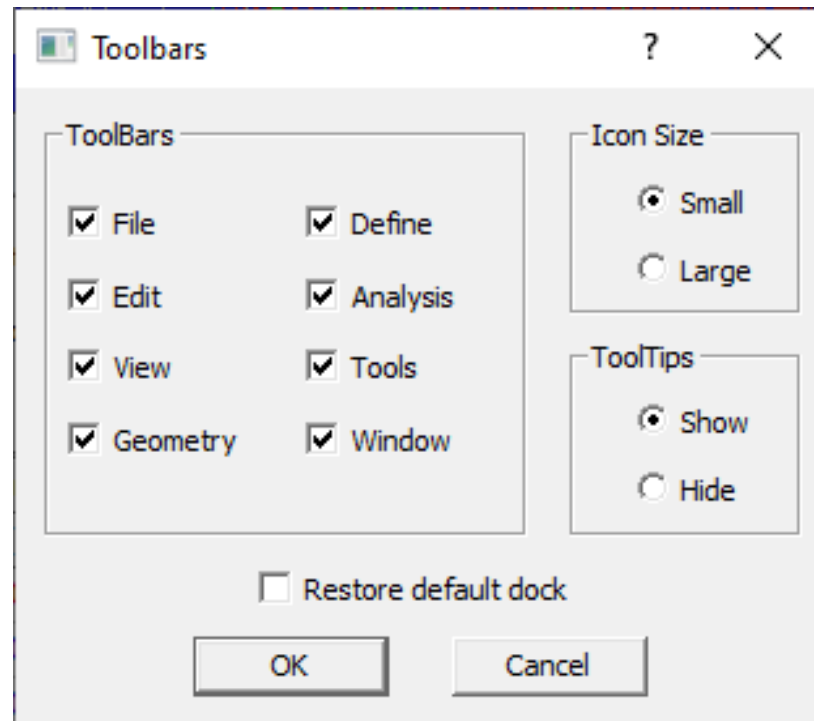
TracePro 2019 19.4

3D Interactive Optimizer – The 3D Interactive Optimizer and the 3D Geometry Modeler have been renamed the Interactive Optimizer and Geometry Modeler respectively
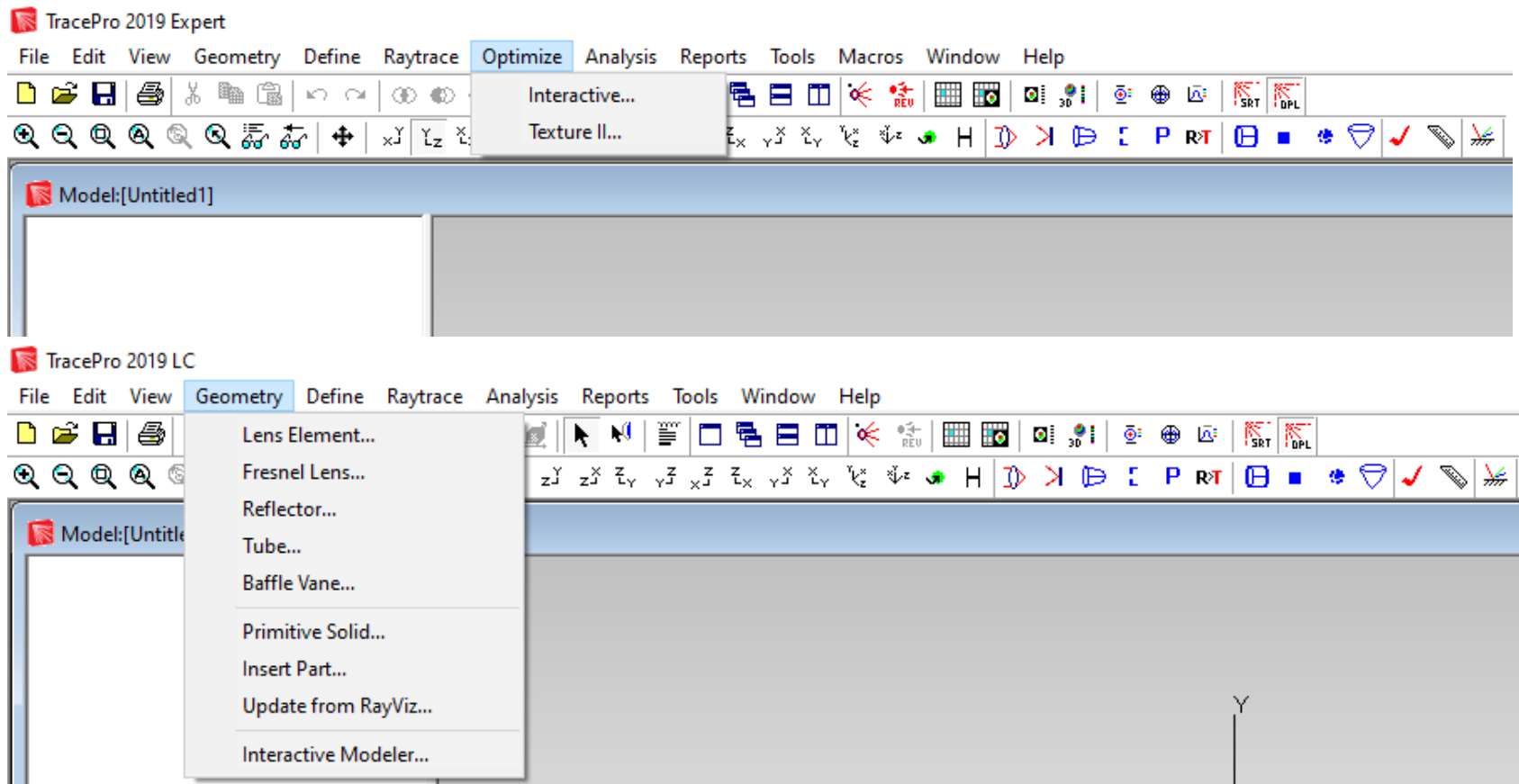
TracePro 2019 19.4

Interactive Optimizer – A new Object Type called RepTile object has been added. This allows the Interactive Optimizer to make solid objects based on RepTile geometry types.
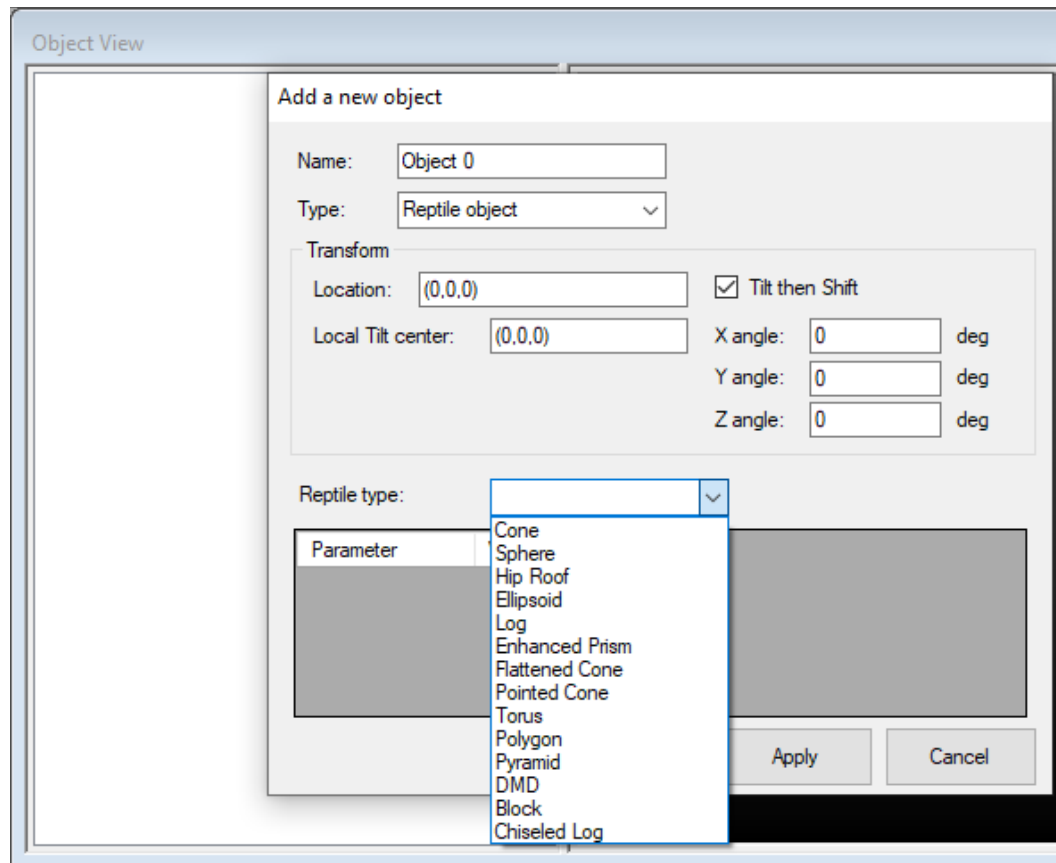
TracePro 2019 19.4

Texture Optimizer II – The capability previously found in the DMD Generator has been added to the Texture Optimizer II. The Texture Optimizer has been discontinued.

TracePro 2019 19.4

Scheme – New Scheme commands have been added
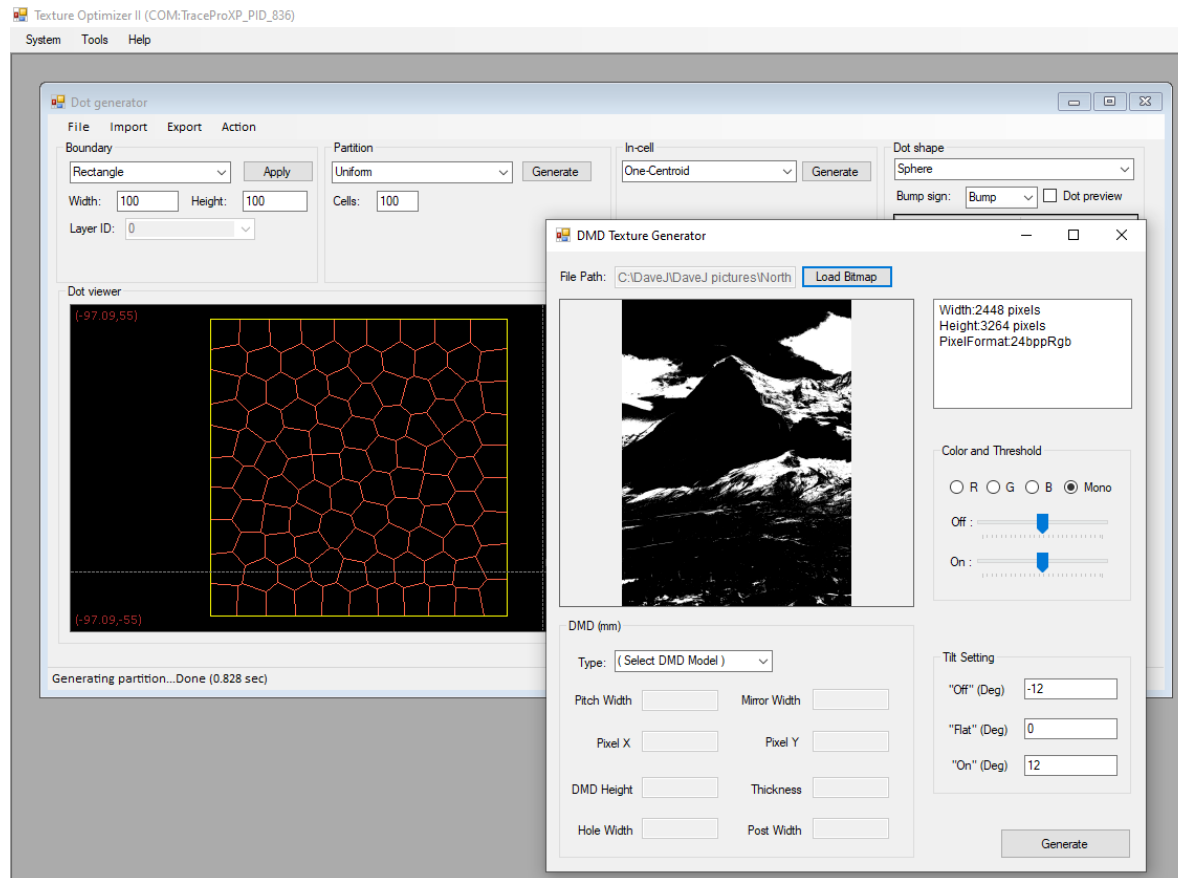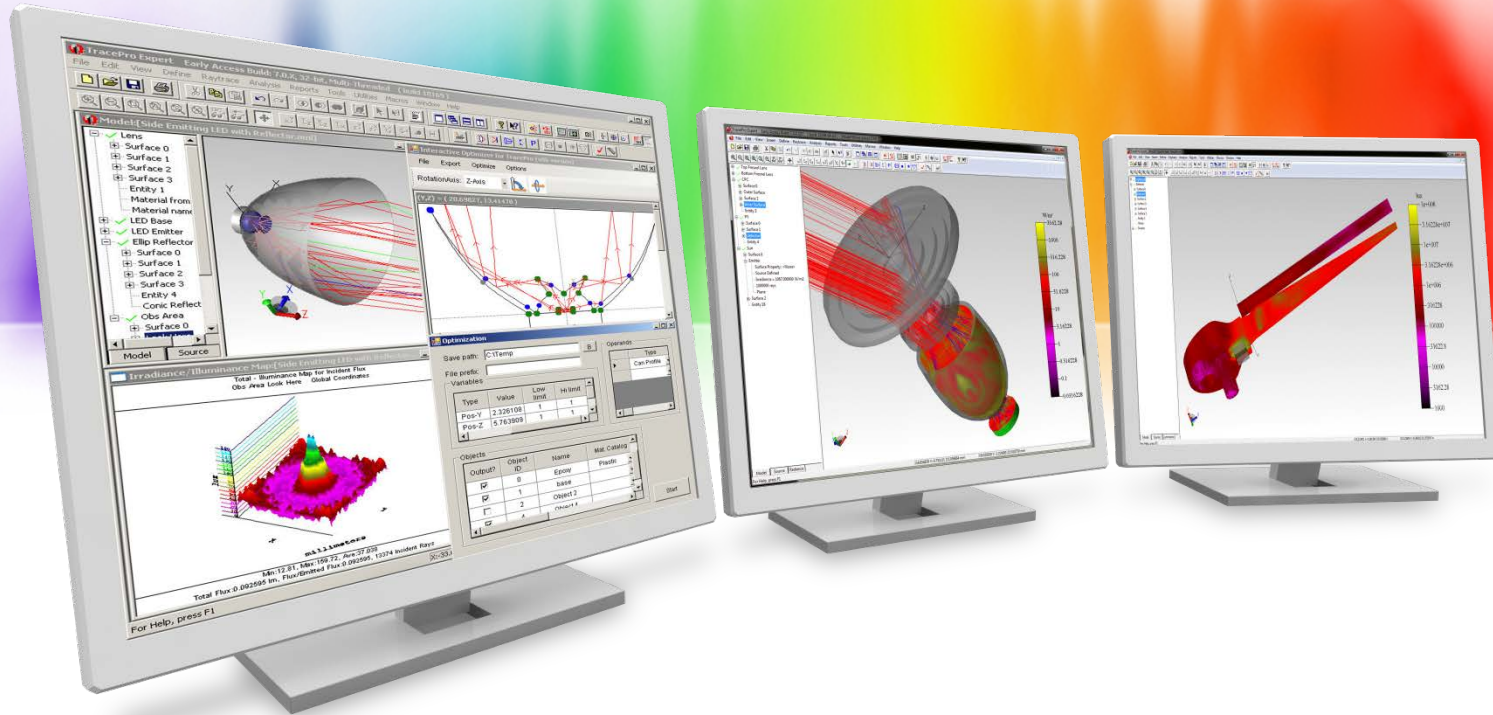
Three new Scheme commands are now available:

- ➢ (geometry:baffle-vane…)
- ➢ (geometry:rectangular-tube…)
- ➢ (geometry:ray-test…)

The following Scheme commands have been deprecated:

- ➢ (solid:baffle-vane…)
- ➢ (solid:rectangular-tube…)
- ➢ (solid:ray-test…)

The Scheme command (edit:surface-revolve…) has been enhanced to optionally calculate the Position on axis of revolution

TracePro

New Features in TracePro 2019 19.2

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TracePro 2019 19.2

- **3D Interactive Optimizer**
  - New shortcuts in the after-scheme editor to run the current macro and to step through the macro line-by-line
- **Texture Optimizer II**
  - New optimizable dot pattern with varying dot pitch
- **Analysis Toolkit**
  - Added options for maximum, minimum, and log values for Luminance Analysis
- **Lighting Toolkit**
  - Added SAE J914 regulation
  - Capability to set minimum value for the log scale in Contour display mode
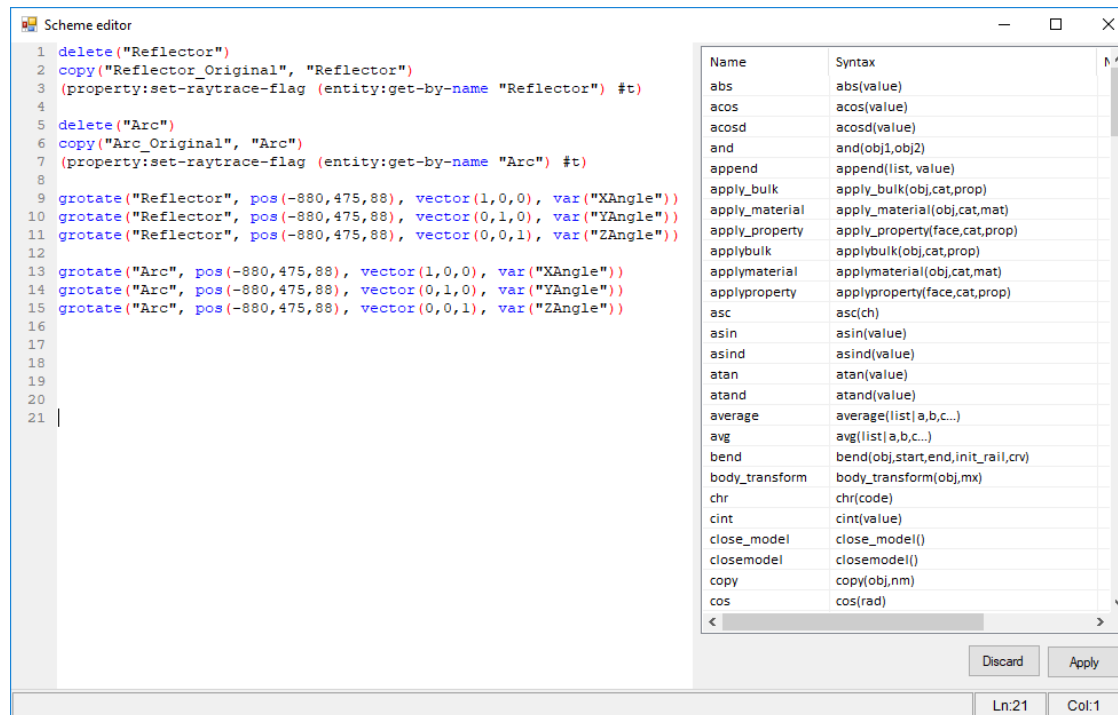
TracePro

TracePro 2019 19.1

3D Interactive Optimizer – New shortcuts in the after-scheme editor

**F5 – Executes the current after-scheme macro in TracePro**
F10 – Enables the step execution mode
**F11- Steps forward through the after-scheme macro, executing it line-by-line**

TracePro 2019 19.1

Texture Optimizer II – New optimizable dot pattern: grid with variable pitch. This type keeps the x or y pitch constant but varies the pitch in the orthogonal direction. The dot size is kept constant.
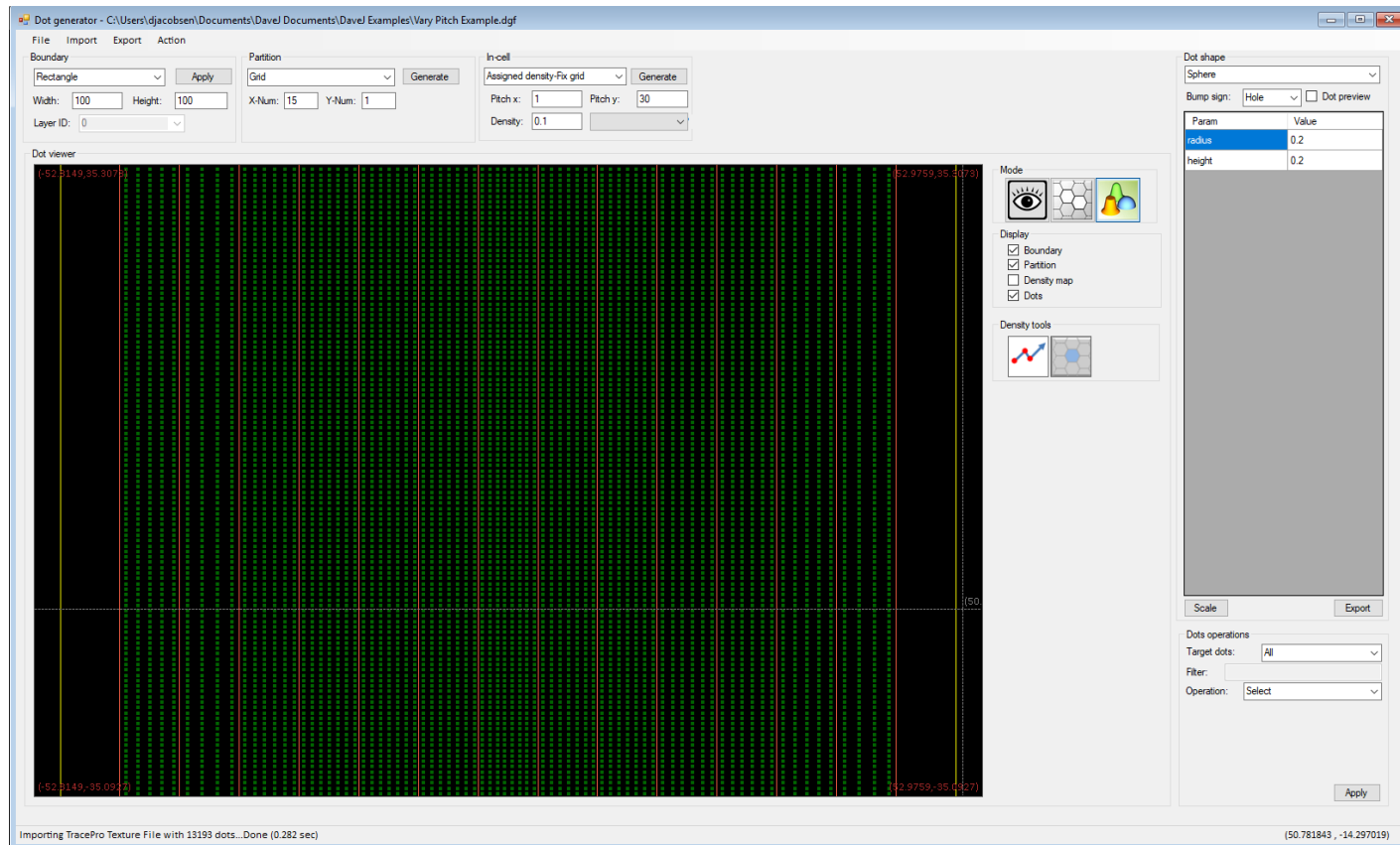
TracePro 2019 19.1

Analysis Toolkit – Options for minimum, maximum, and log values have been added for the Luminance Analysis.
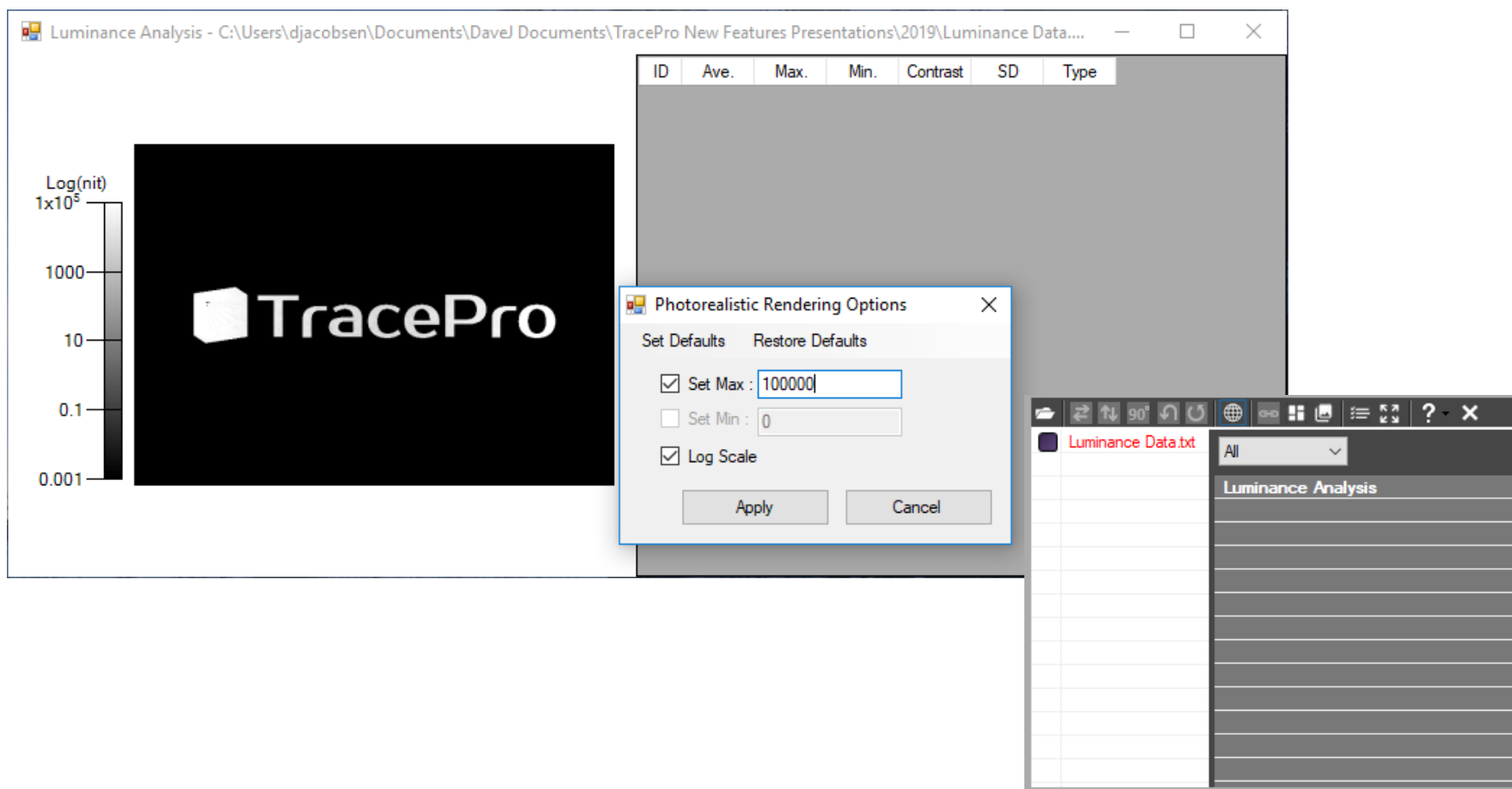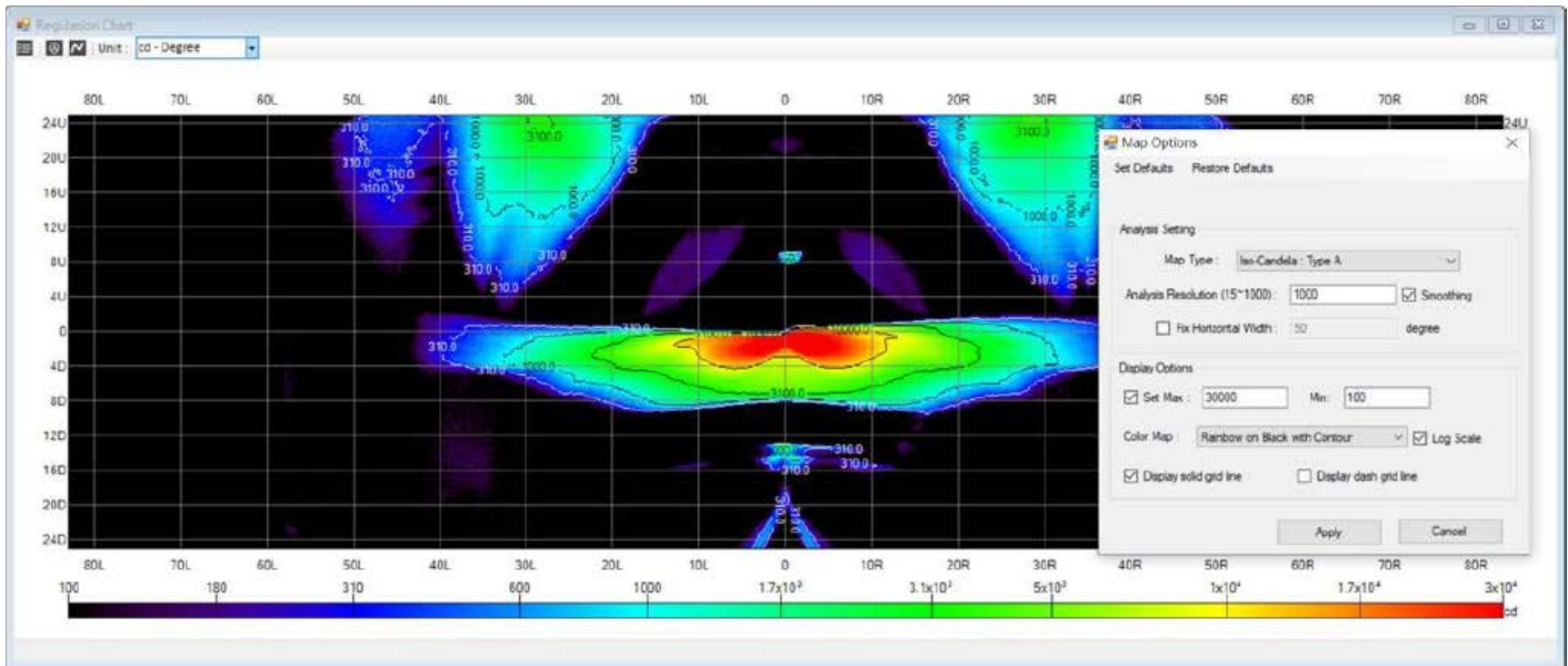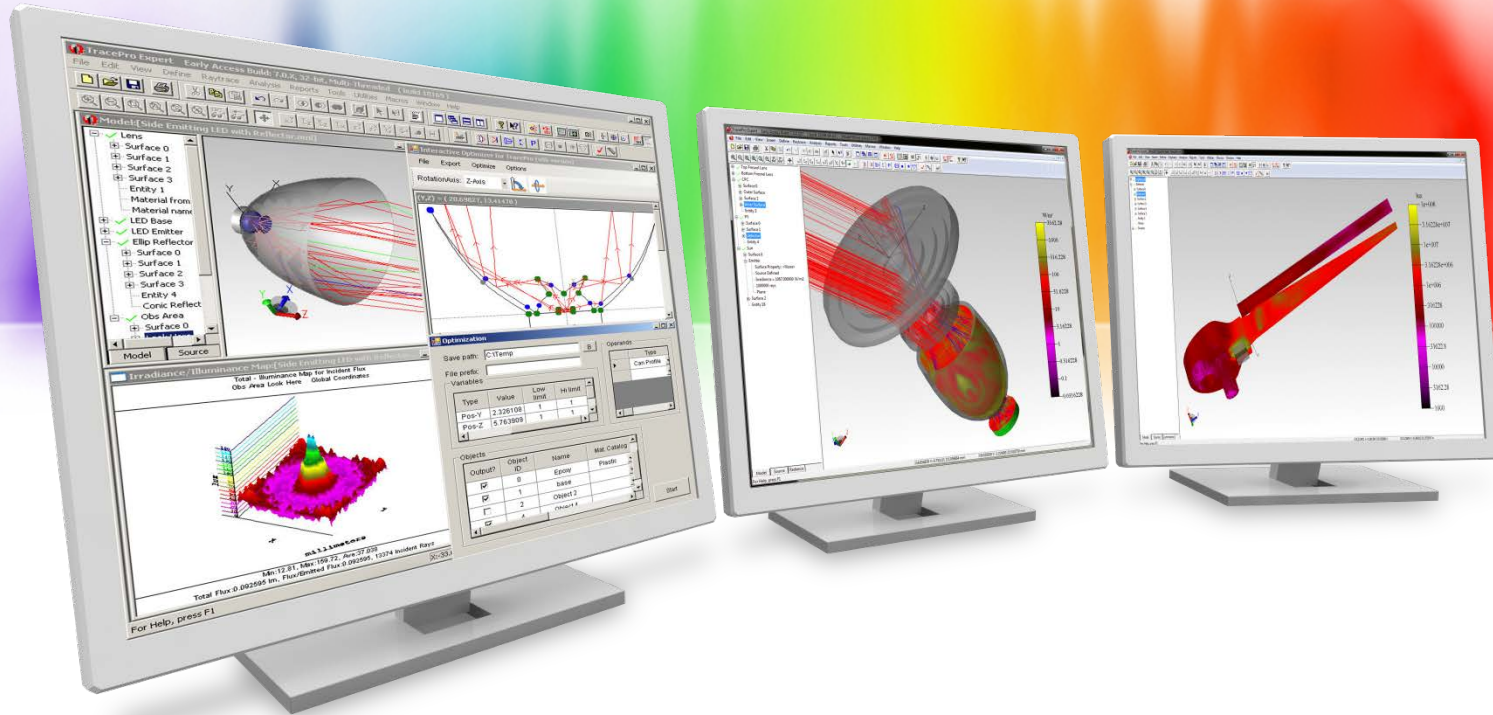
TracePro 2019 19.1

Lighting Toolkit – The SAE J914 regulation for side turn signal lamps has been added.

Regulation Table

Catalog : SAE   Regulation : SAE J914   Table : SAE J914 2014 Figure 1   Filter : Both   Regulation Info.

ID	Show?	Type	Points or segments	Designation	Max Value	Min Value	Horizontal	Vertical	Unit
0	☑	Point	1	15U-30L	200	0.36	30 L	15 U	cd_HV
1	☑	Point	2	5U-30L	200	0.36	30 L	5 U	cd_HV
2	☑	Point	3	H-30L	200	0.36	30 L	0	cd_HV
3	☑	Point	4	5D-30L	200	0.36	30 L	5 D	cd_HV
4	☑	Point	5	15D-30L	200	0.36	30 L	15 D	cd_HV
5	☑	Point	6	15U-70L	200	0.36	70 L	15 U	cd_HV
6	☑	Point	7	5U-70L	200	0.36	70 L	5 U	cd_HV
7	☑	Point	8	H-70L	200	0.36	70 L	0	cd_HV
8	☑	Point	9	5D-70L	200	0.36	70 L	5 D	cd_HV
9	☑	Point	10	15D-70L	200	0.36	70 L	15 D	cd_HV
10	☑	Point Col.	Zone I	1+2+3+4+5	-	3	*	*	cd_HV
11	☑	Point Col.	Zone II	6+7+8+9+10	-	3	*	*	cd_HV

TracePro 2019 19.1

Lighting Toolkit – The ability to select a log scale and a minimum value for the contour display option has been added. Color schemes are also now available with the log scale.

New Features in TracePro 2019 19.1

TracePro 2019 19.1

- **TracePro**
  - New intercept type: TIR
  - Path Sorting now available for Incident Ray Tables
  - New COM method
- **3D Interactive Optimizer**
  - Added ability to use Type D surface to create an extruded object
  - New optimization operand: Luminance value from Photorealistic Rendering
- **IES/LDT Plot Tool**
  - Now supports tab-delimited IES file
- **Analysis Toolkit**
  - New ability to show/hide analysis items
- **Surface Property Generator**
  - Added ability to open TracePro Surface Property files
- **New Scheme Commands**

TracePro

TracePro 2019 19.1

TracePro – A new intercept type, TIR (total internal reflection), is now available for the Incident Ray Table, Ray History Table, and Path Sort Table

TracePro 2019 19.1

TracePro – Path Sorting can now be used with the Incident Ray Table to show the ray data for each ray in a selected path.
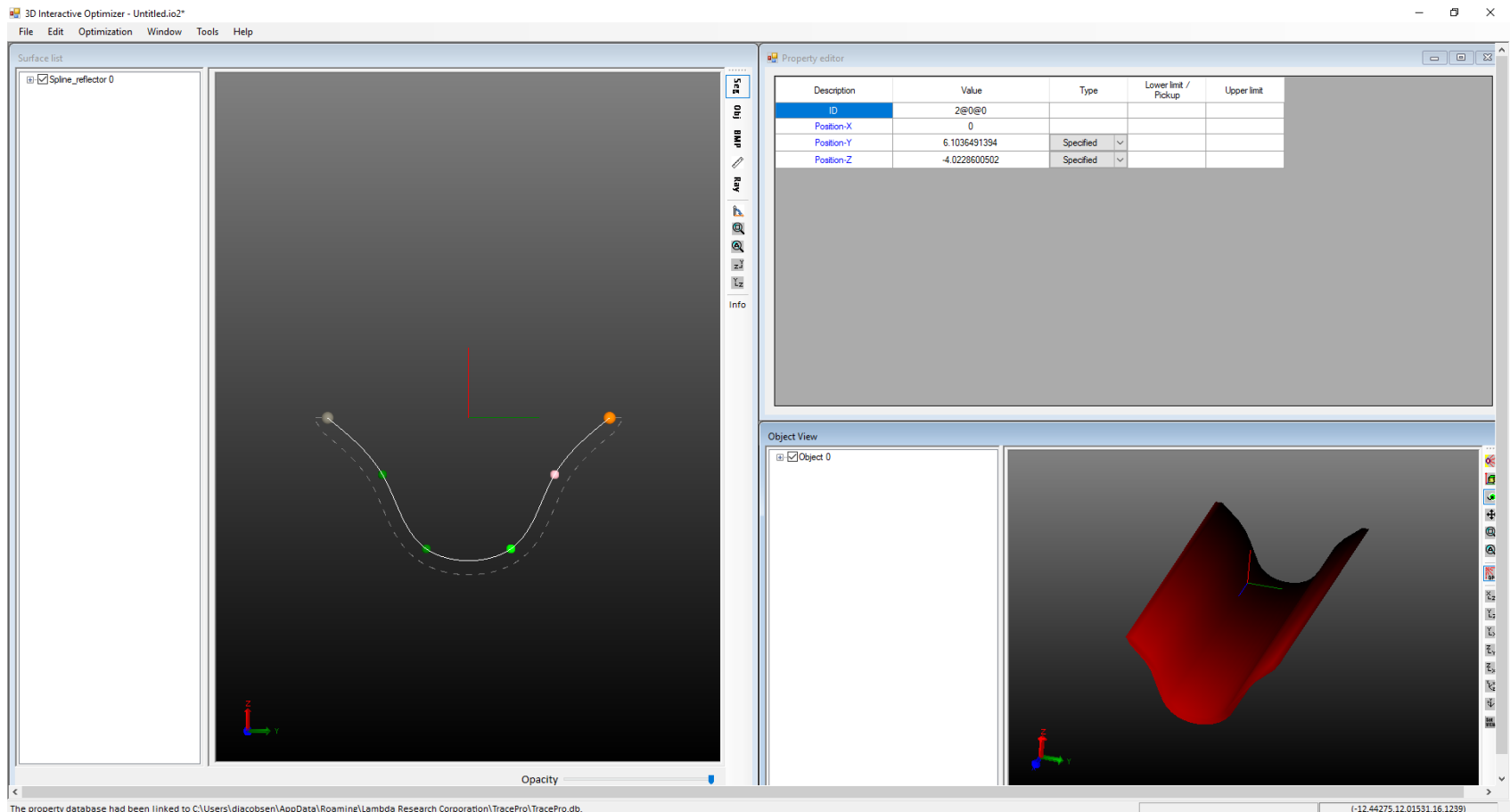
TracePro 2019 19.1

TracePro – A new COM method is now available: BackgroungExecuteSchemeString. This allows the user to execute a Scheme code through the COM interface and not wait for a return from TracePro.

TracePro

TracePro 2019 19.1

3D Interactive Optimizer – The Type D surface type can now be extruded. A Type D surface is a Spline Reflector or Conic Reflector profile.

TracePro 2019 19.1

3D Interactive Optimizer – The luminance value from a Photorealistic Rendering can now be used as an optimization operand. The options include: Average, Max, Min, or RMS luminance.
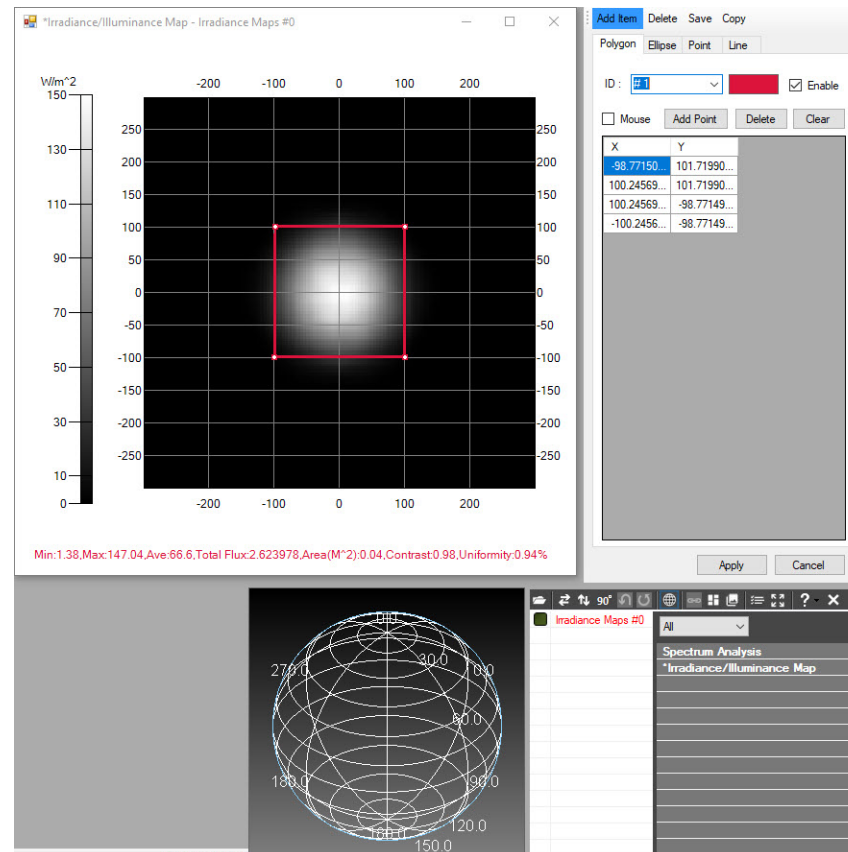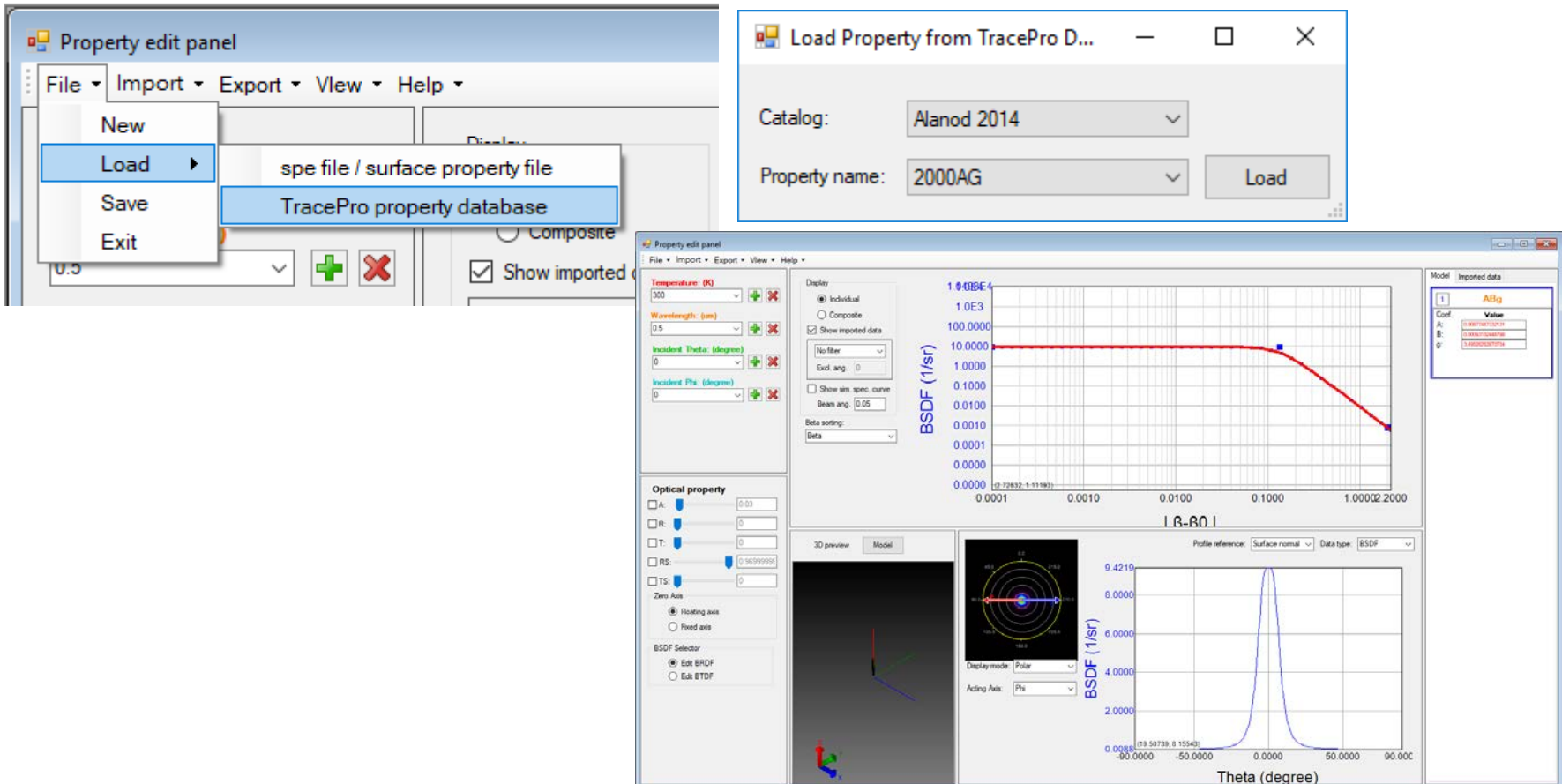
TracePro 2019 19.1

Analysis Toolkit – The user can now sketch areas on the Analysis Toolkit maps to be used for analysis. The Min, Max, Average, Contrast, and Uniformity values are then shown at the bottom of the map. The area sketched for analysis is also displayed on the map.

TracePro 2019 19.1

Surface Property Generator – The Surface Property Generator now allows for importing and editing a TracePro Surface Property.

TracePro 2019 19.1

Scheme – New Scheme commands have been added

Three new Scheme commands are now available:

- ➢ (analysis:candela-viewer-open …)
- ➢ (analysis:candela-viewer-close …)
- ➢ (analysis:candela-viewer-save …)

TracePro