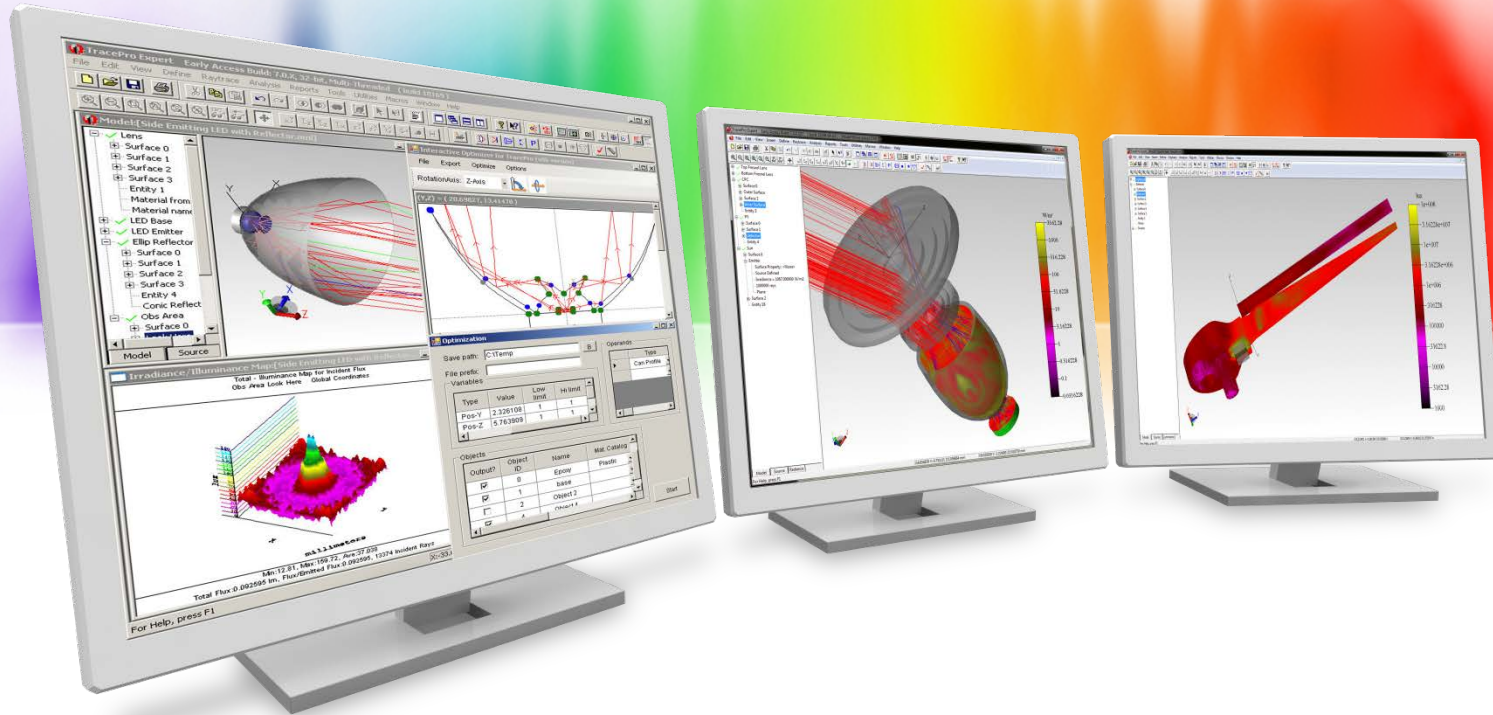


# New Features in TracePro

# 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 10<sup>th</sup> of the month, starting in February..



# New Features in TracePro 2020 20.4

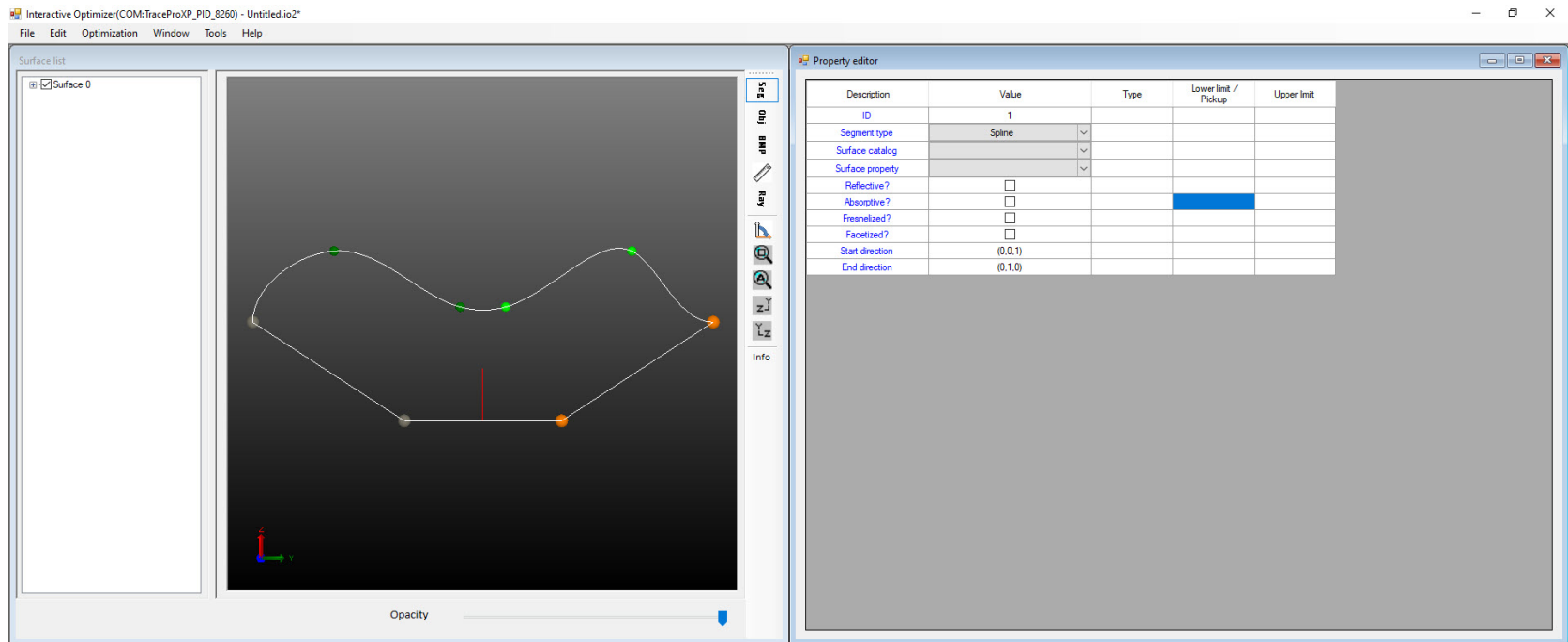
# TracePro 2020 20.4

## ➤ **Interactive Optimizer**

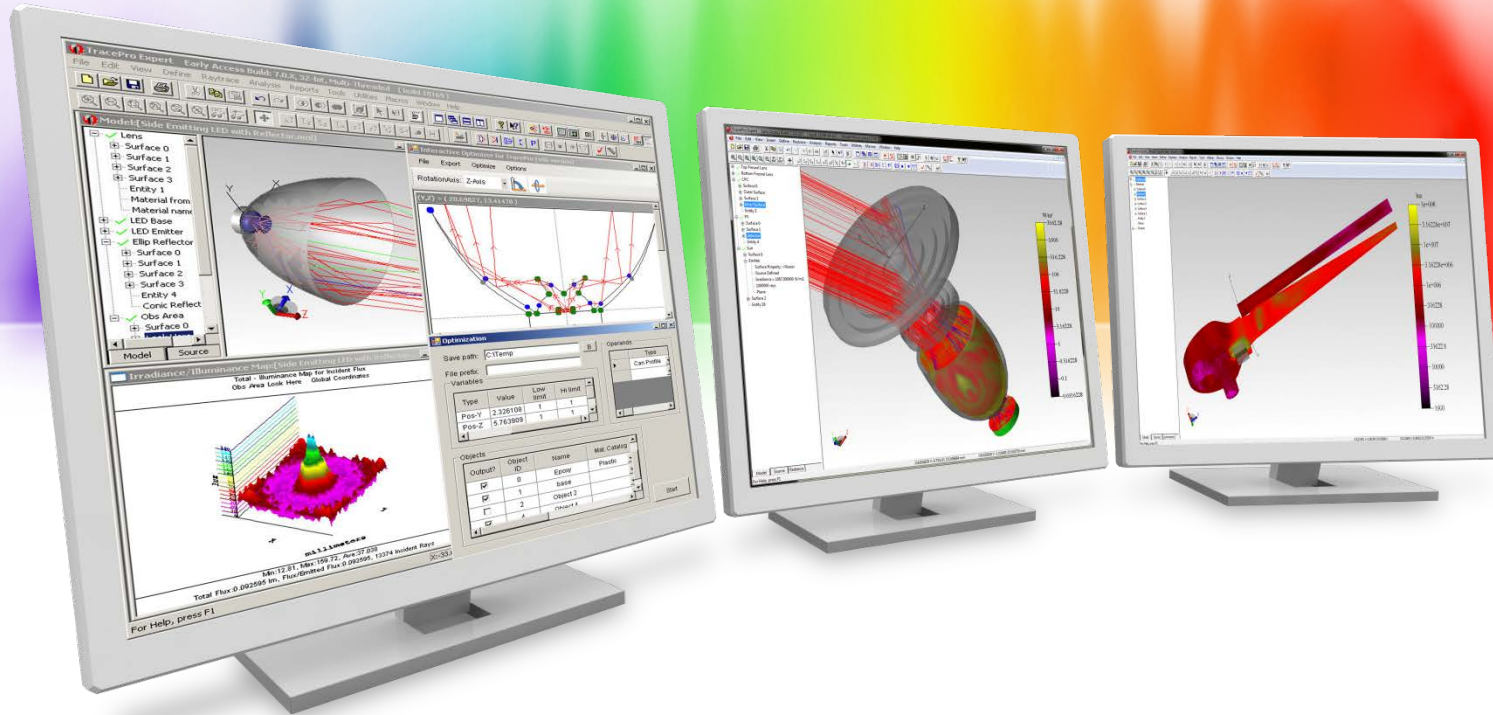
- Two new properties for the Spline segment: Start direction and End direction

# TracePro 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

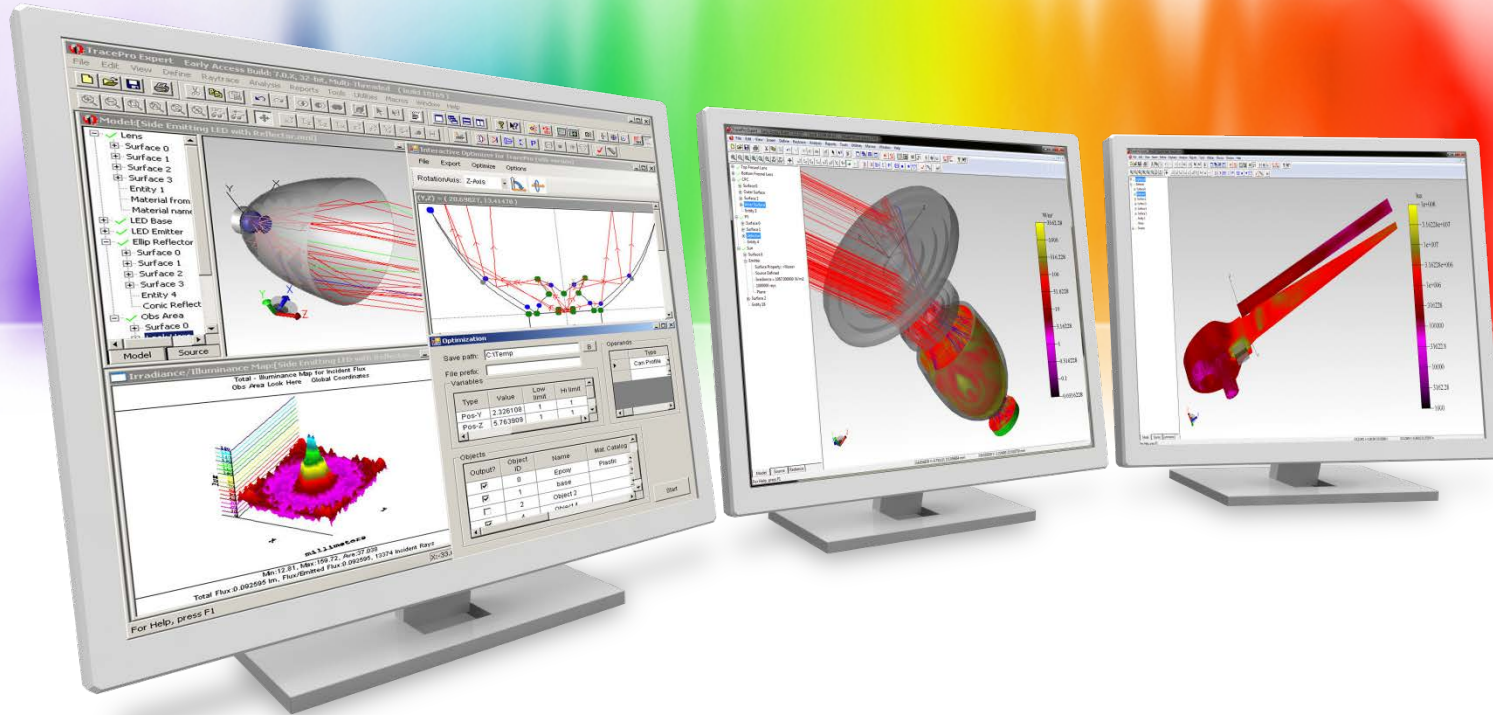
**Errors:** None

**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:**



# New Features in TracePro 20.20.2

# TracePro 2020 20.2

## ➤ TracePro

- New Material Property catalog for Dow Silastic moldable silicone materials

## ➤ Texture Optimizer II

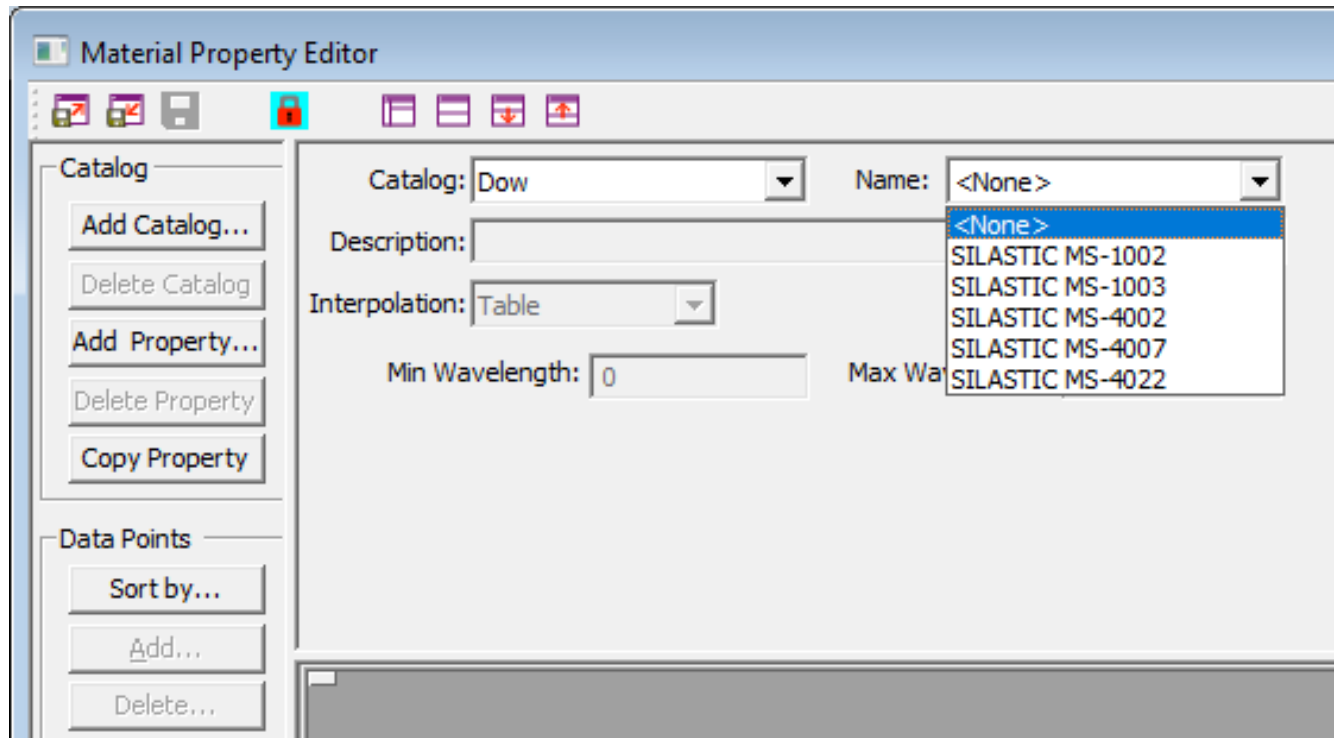
- New capability for a random dot distribution
- New capability for smoothing the dot distribution
- New tool to measure Dot spacing

## ➤ 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

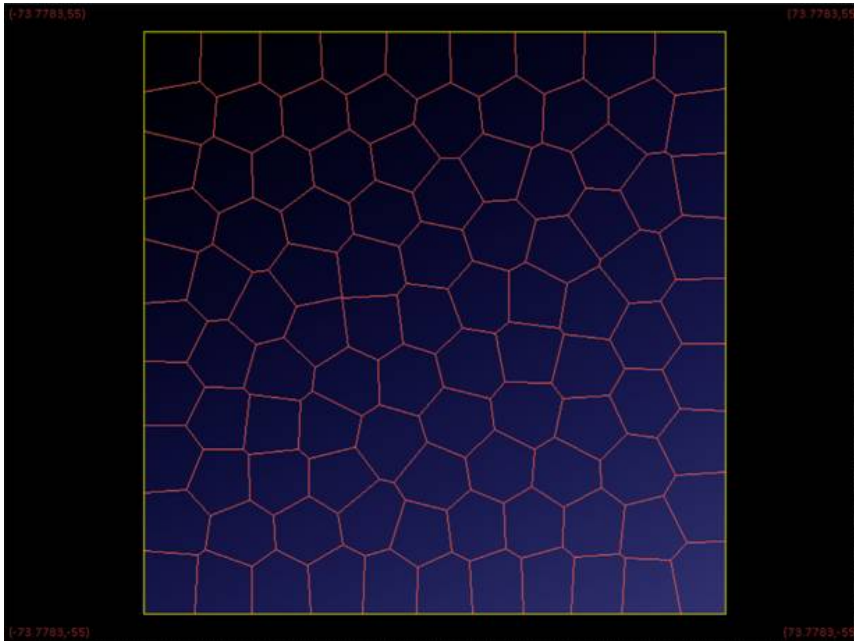
# TracePro 2020 20.2

**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**

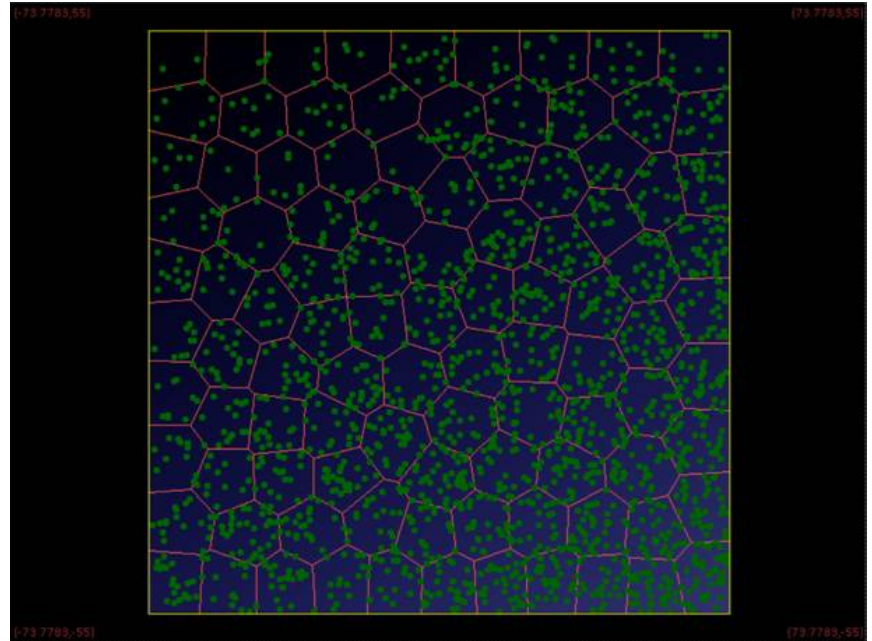


# TracePro 2020 20.2

**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

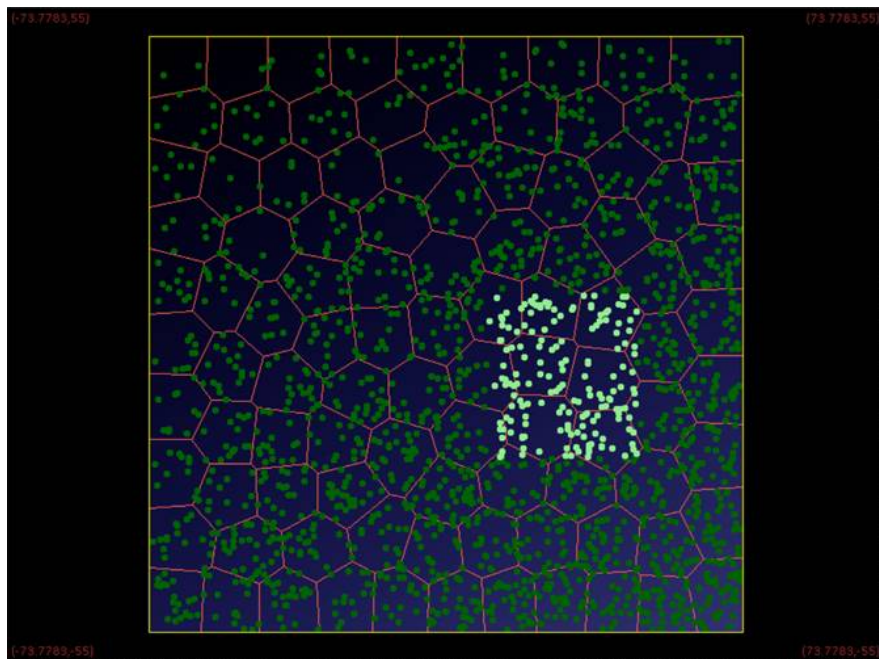


Random dots using density map

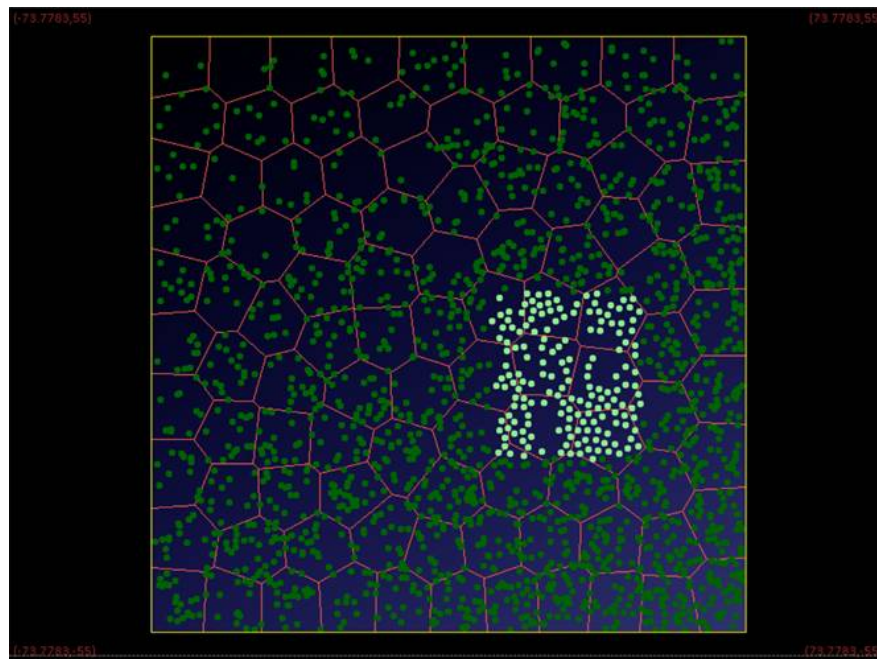


# TracePro 2020 20.2

## 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

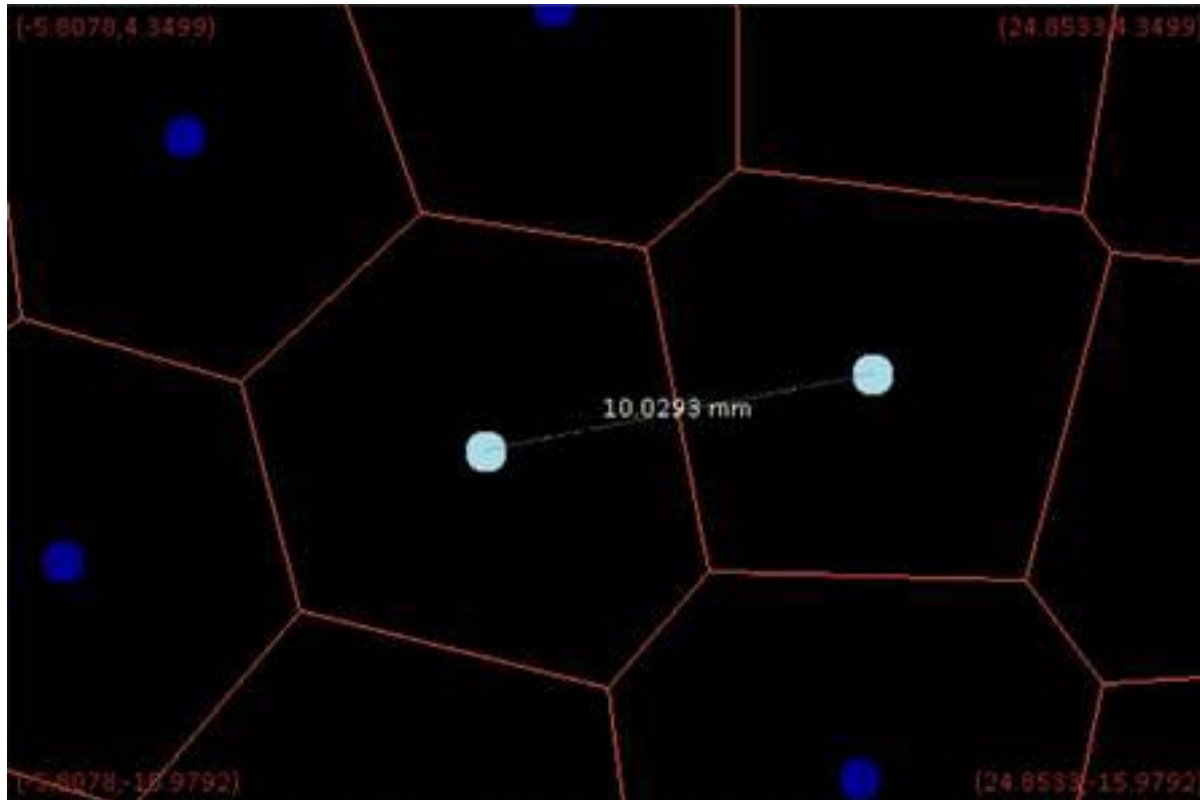


The smoothing function adjusts the dot  
positions so they are no longer overlapping



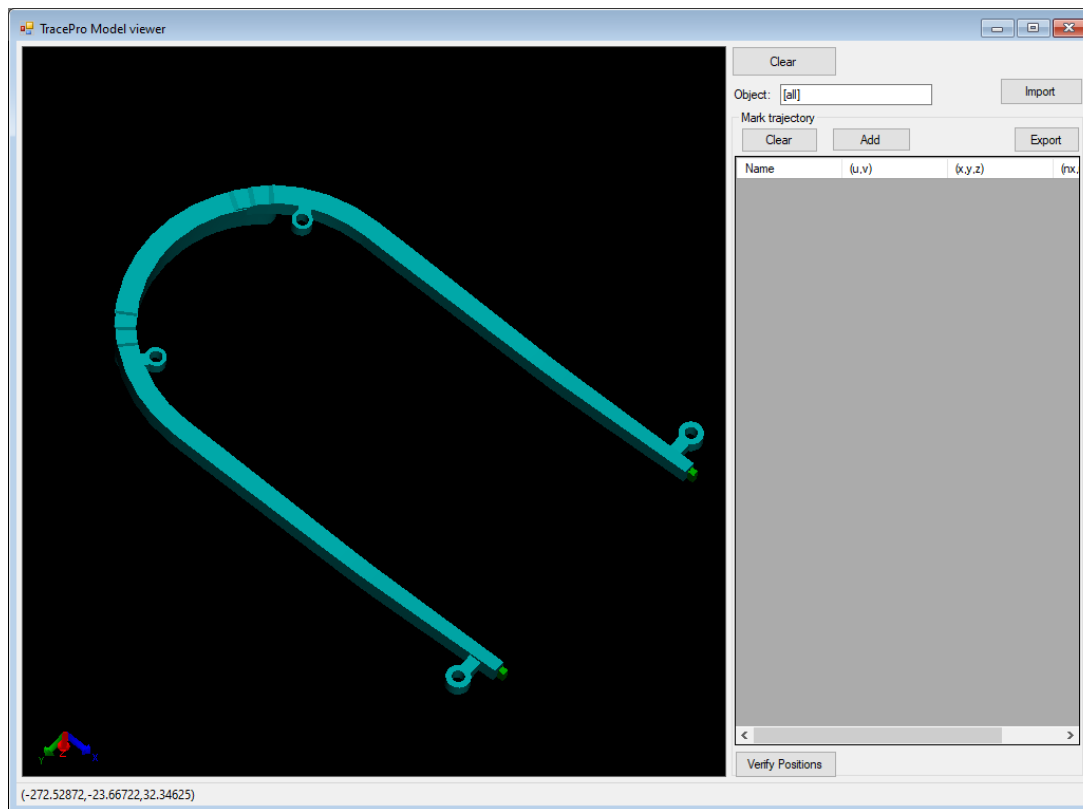
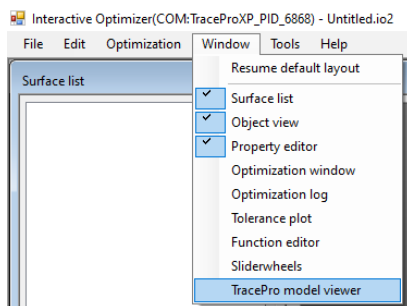
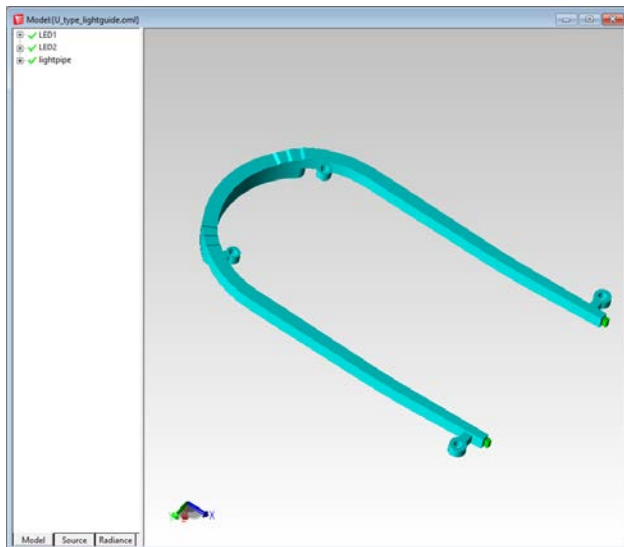
# TracePro 2020 20.2

**Texture Optimizer II – The distance between two dots selected for smoothing can be displayed**



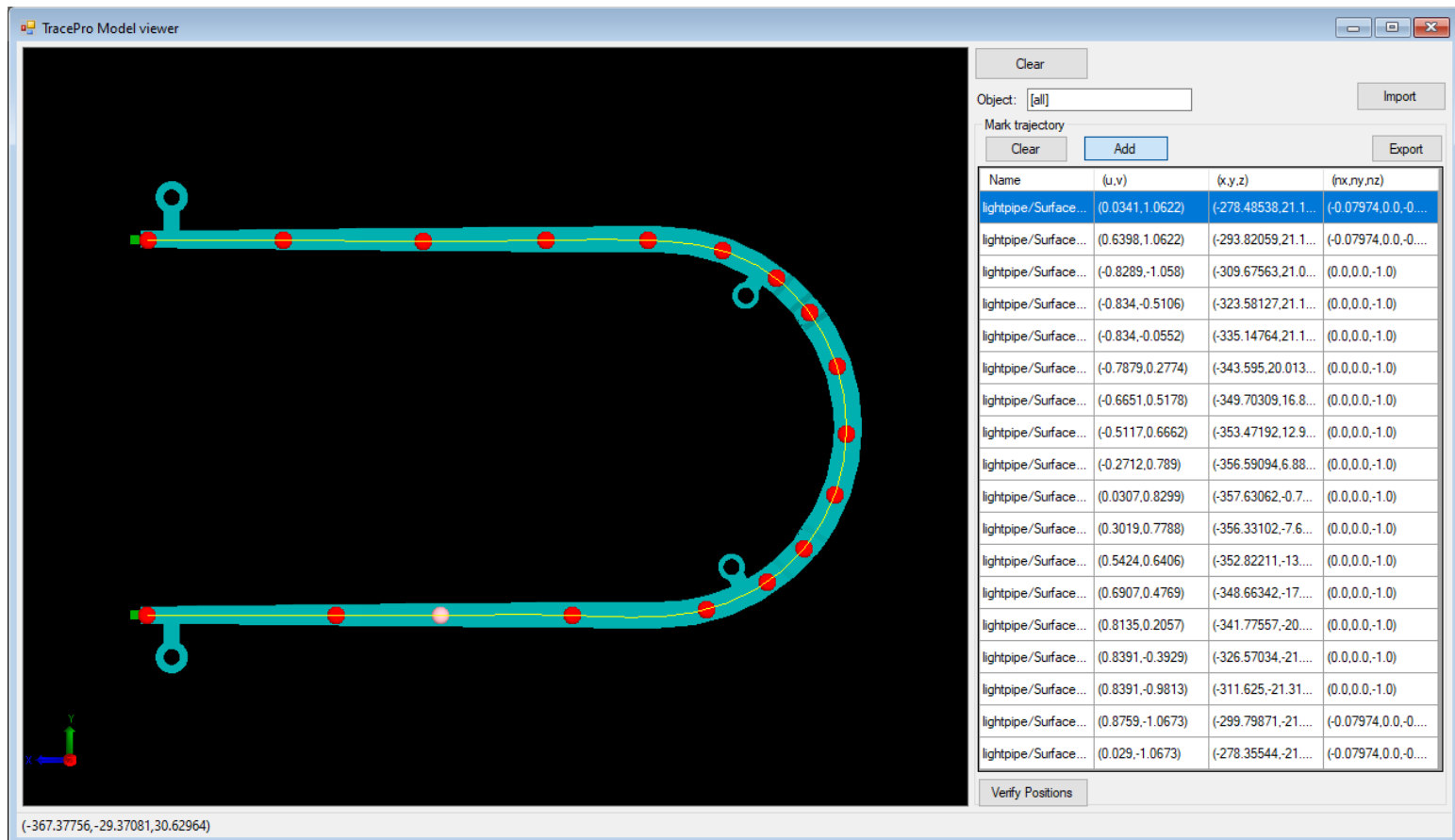
# TracePro 2020 20.2

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



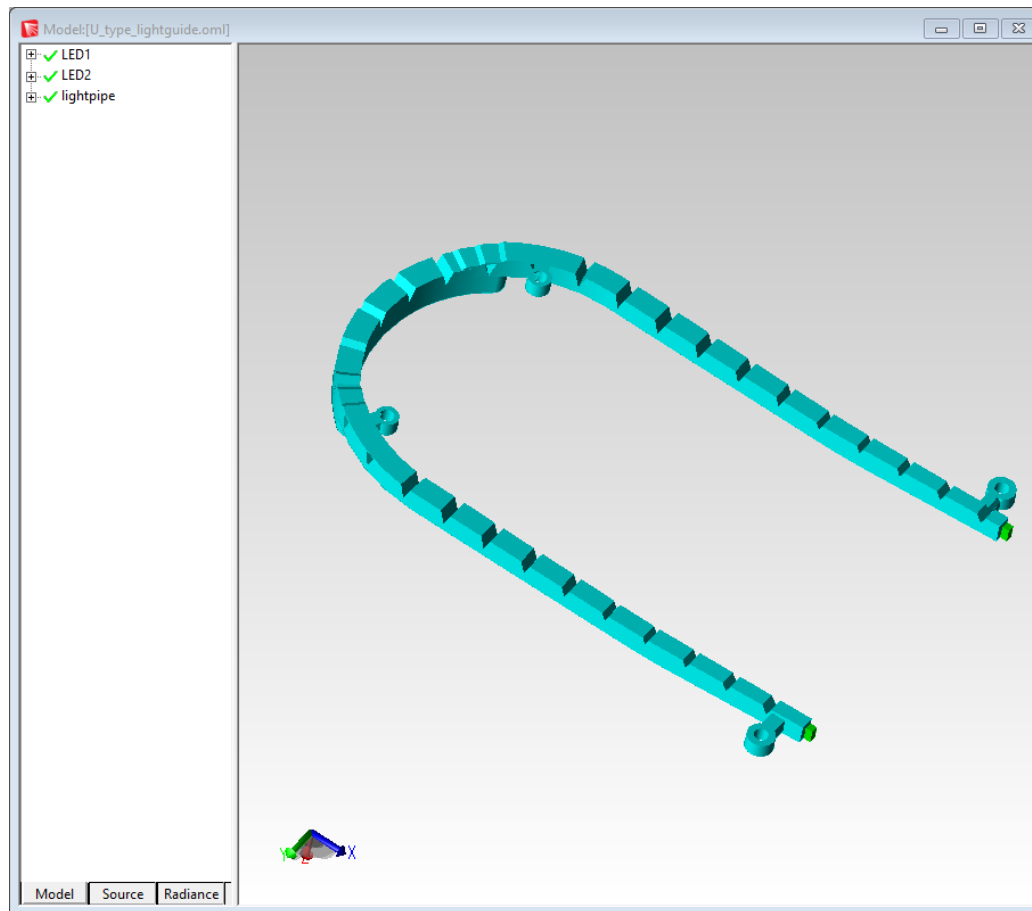
# TracePro 2020 20.2

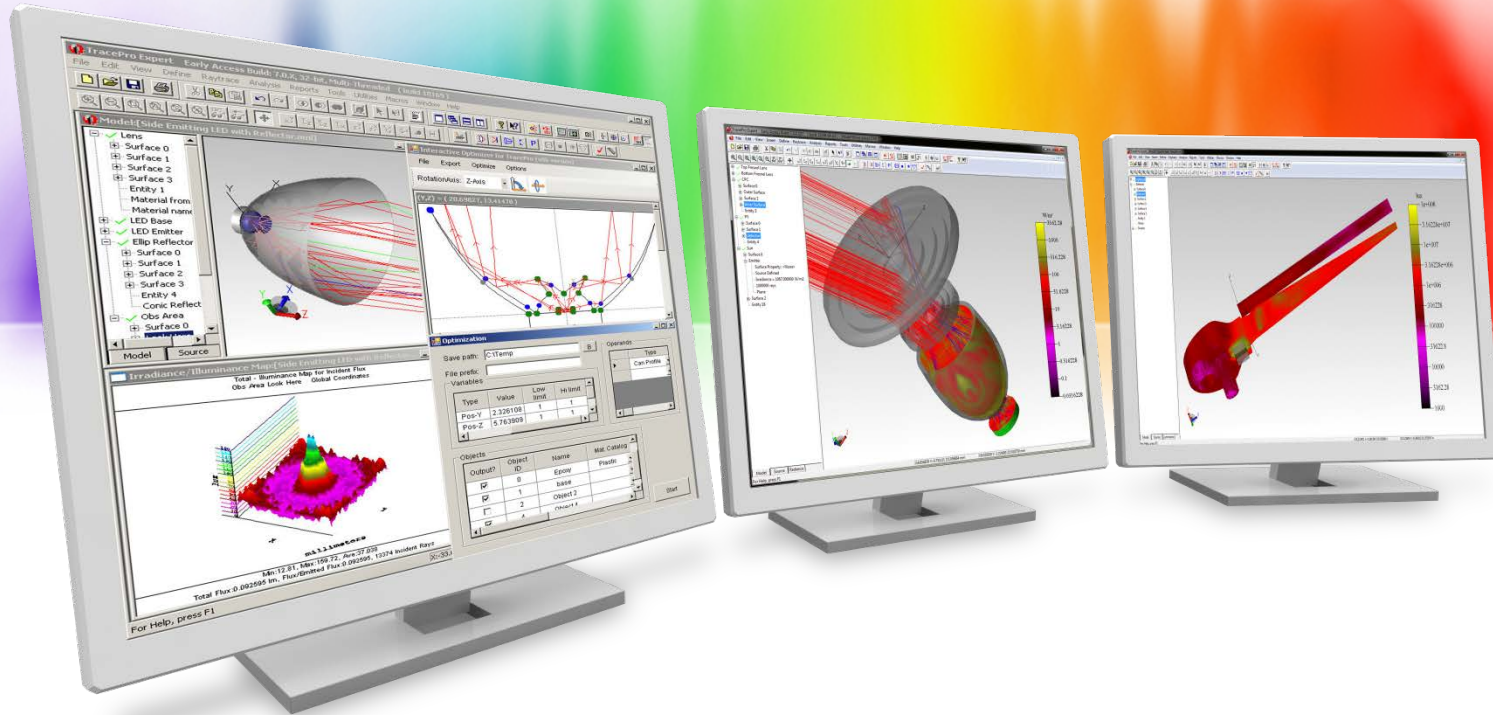
**Interactive Optimizer – The trajectory of a path along a surface of the model from TracePro can be easily plotted**



# 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 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**

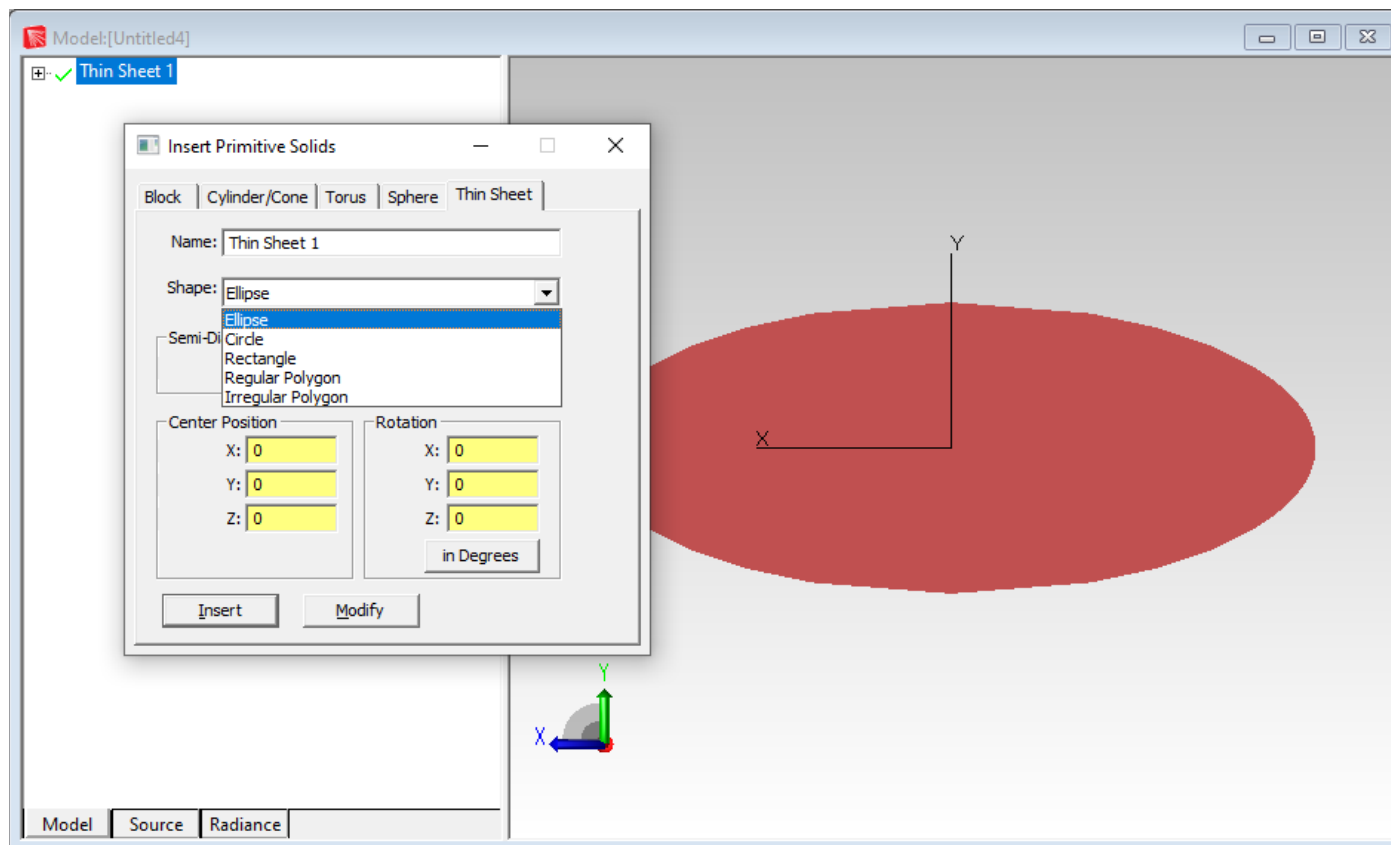
- Added capability to import scatter data files from Surface Optics Corp.

## ➤ **New Scheme Commands**



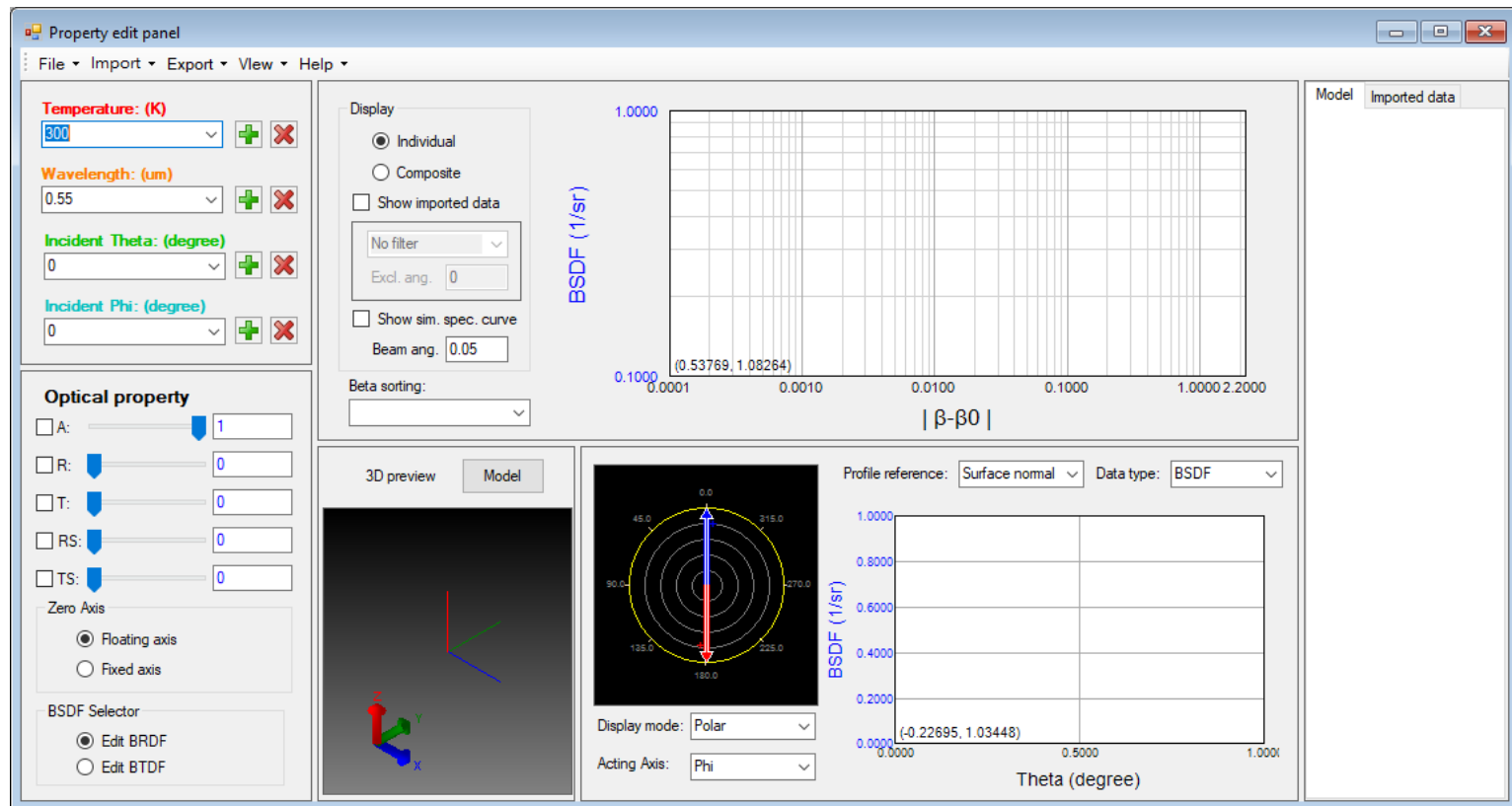
# TracePro 2020 20.1

**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**

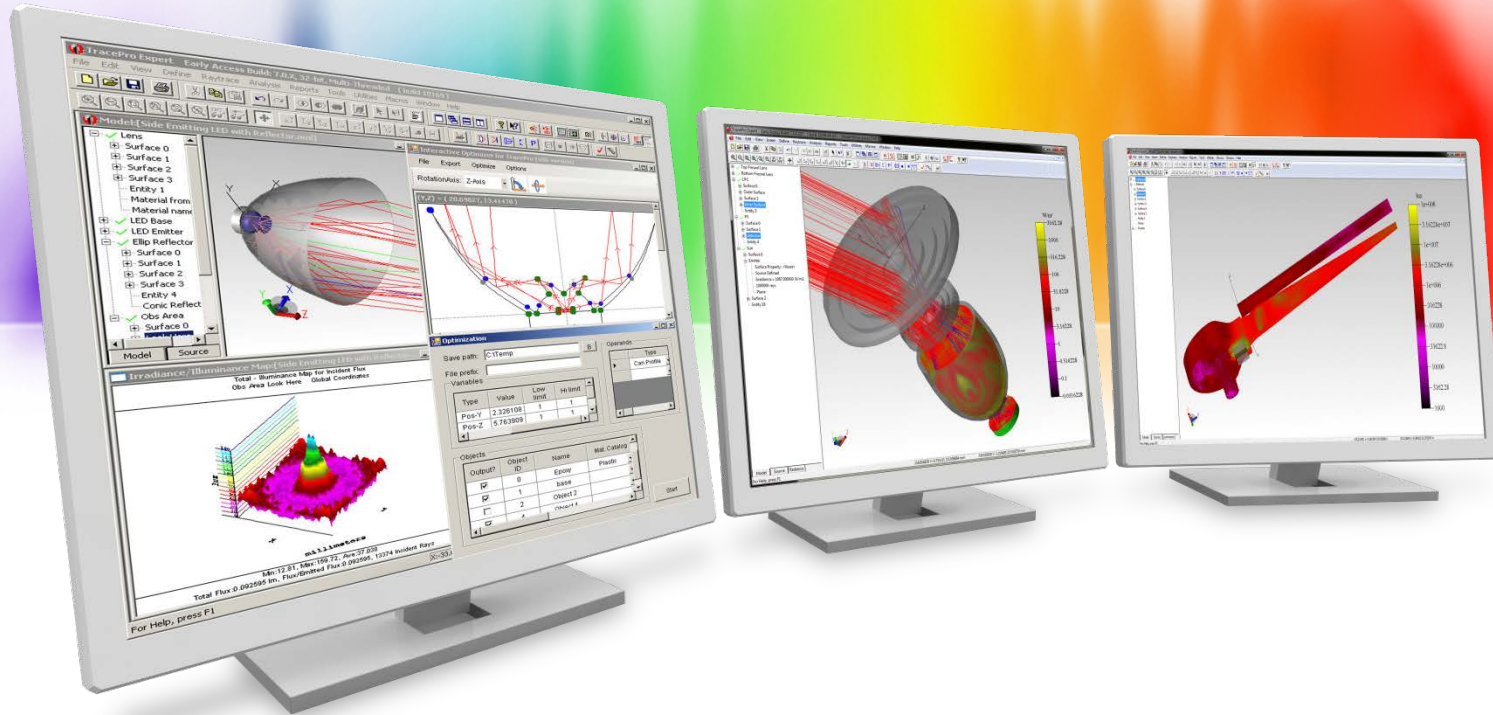


# TracePro 2020 20.1

## **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)



# New Features in TracePro 2019 19.6

# TracePro 2019 19.6

## ➤ **Interactive Optimizer (TracePro Standard and Expert)**

- XY Polynomial surface extended to 20<sup>th</sup> 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 2019 19.6

## Interactive Optimizer – The XY Polynomial surface can now be defined to the 20<sup>th</sup> order

Interactive Optimizer(COM:TraceProXP\_PID\_13604) - Untitled.io2\*

File Edit Optimization Window Tools Help

Surface list

- ☒ Surface 0

Property editor

Description	Value	Type	Lower limit / Pickup	Upper limit
Name	Surface 0			
Surface type	XY polynomial			
Surface ID	0			
Surface catalog				
Surface property				
Reflective?	<input type="checkbox"/>			
Size	(20,20)			
Define terms	Setup			
X <sup>0</sup> Y <sup>0</sup>	0	Specified		
X <sup>1</sup> Y <sup>0</sup>	0	Specified		
X <sup>0</sup> Y <sup>1</sup>	0	Specified		
X <sup>1</sup> Y <sup>1</sup>	0	Specified		
X <sup>2</sup> Y <sup>0</sup>	0.1	Specified		
X <sup>0</sup> Y <sup>2</sup>	0.1	Specified		
X <sup>2</sup> Y <sup>1</sup>	0.01	Specified		

Opacity

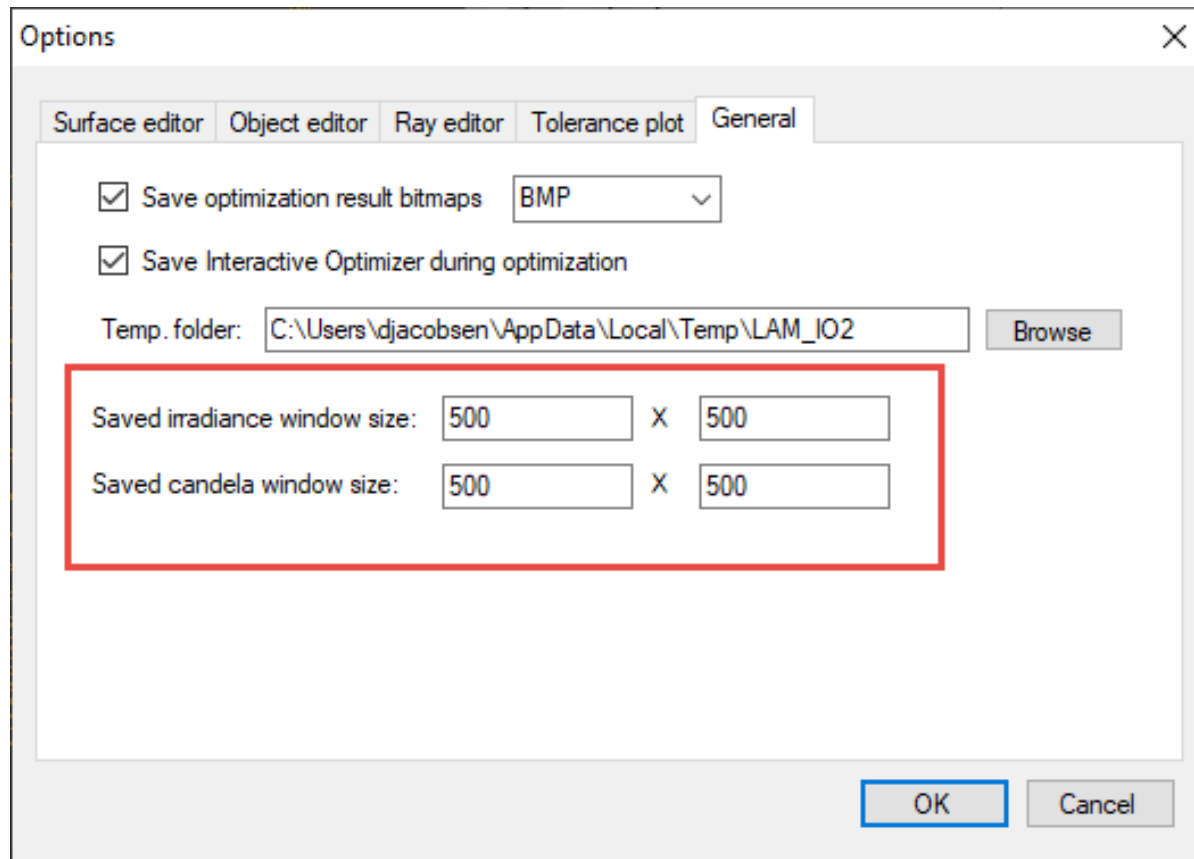
	X <sup>0</sup>	X <sup>1</sup>	X <sup>2</sup>	X <sup>3</sup>	X <sup>4</sup>	X <sup>5</sup>	X <sup>6</sup>	X <sup>7</sup>	X <sup>8</sup>	X <sup>9</sup>	X <sup>10</sup>	X <sup>11</sup>	X <sup>12</sup>	X <sup>13</sup>	X <sup>14</sup>	X <sup>15</sup>	X <sup>16</sup>	X <sup>17</sup>	X <sup>18</sup>	X <sup>19</sup>	X <sup>20</sup>
Y <sup>0</sup>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>1</sup>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>2</sup>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>3</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>4</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>5</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>6</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>7</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>8</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>9</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>10</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>11</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>12</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>13</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>14</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>15</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>16</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>17</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>18</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>19</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y <sup>20</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply



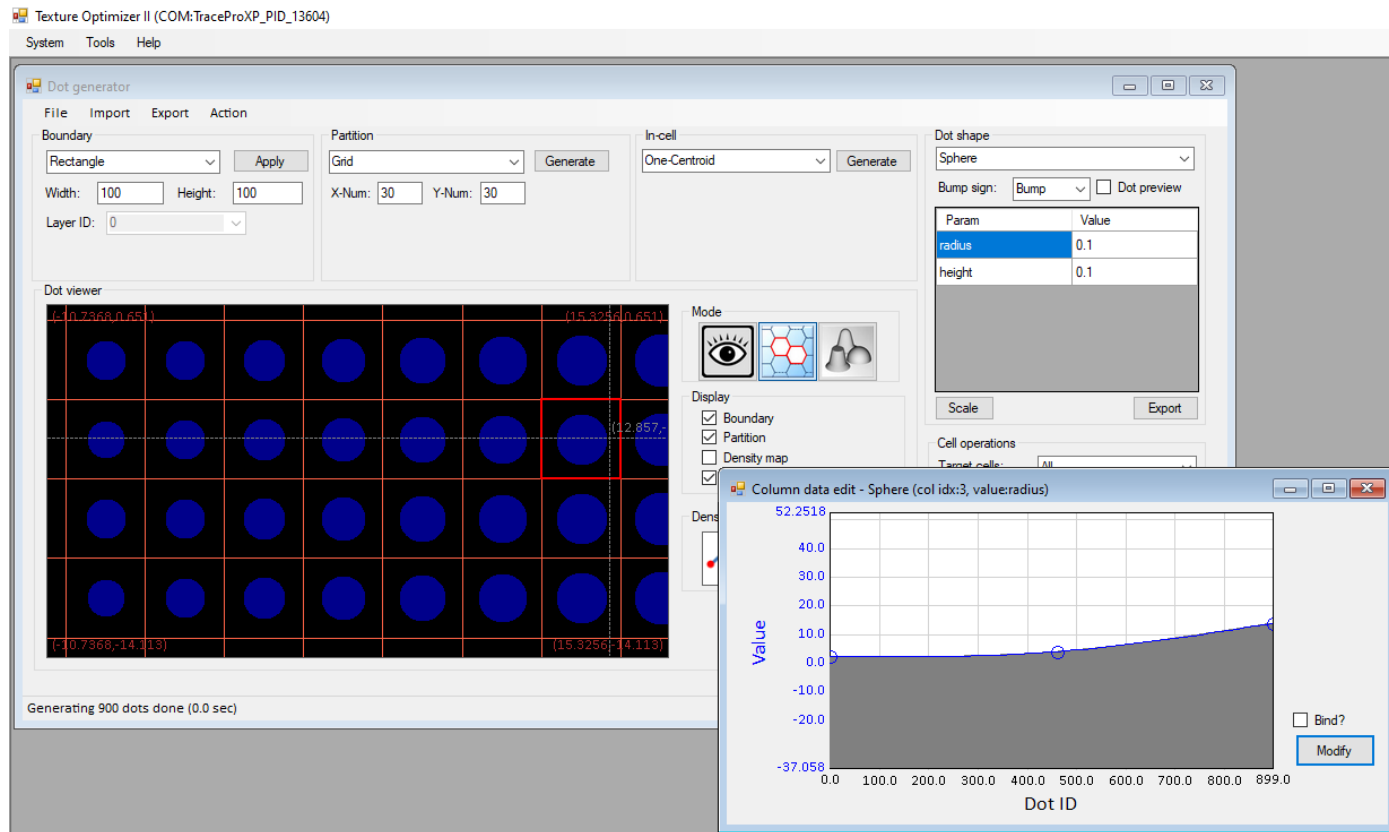
# TracePro 2019 19.6

**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**

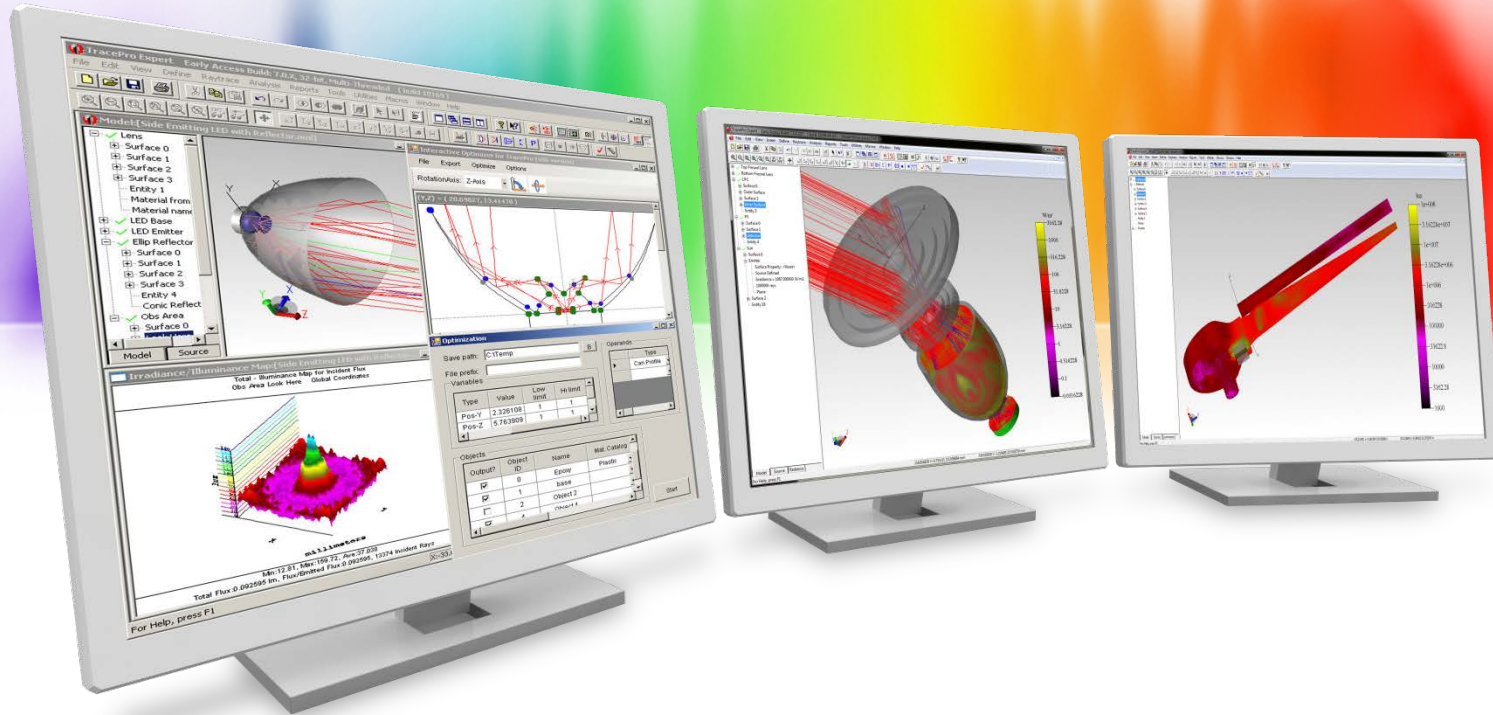


# TracePro 2019 19.6

## **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)



# 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

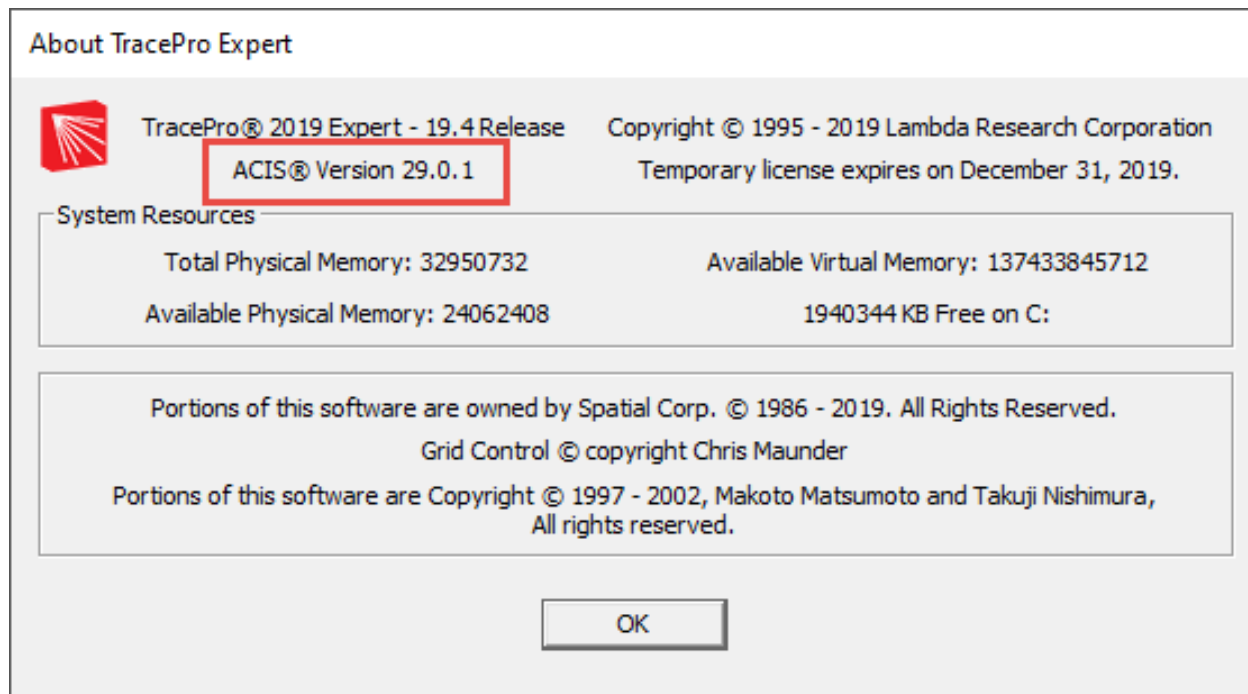
## ➤ **Texture Optimizer II (TracePro Expert)**

- Texture Optimizer discontinued
- DMD Generator has been merged with the Texture Optimizer II

## ➤ **New Scheme Commands**

# TracePro 2019 19.4

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





# 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.**

Flux Report:[LED Downlight, spot.oml]

Source selection: All Sources ☐ Display Selected Objects

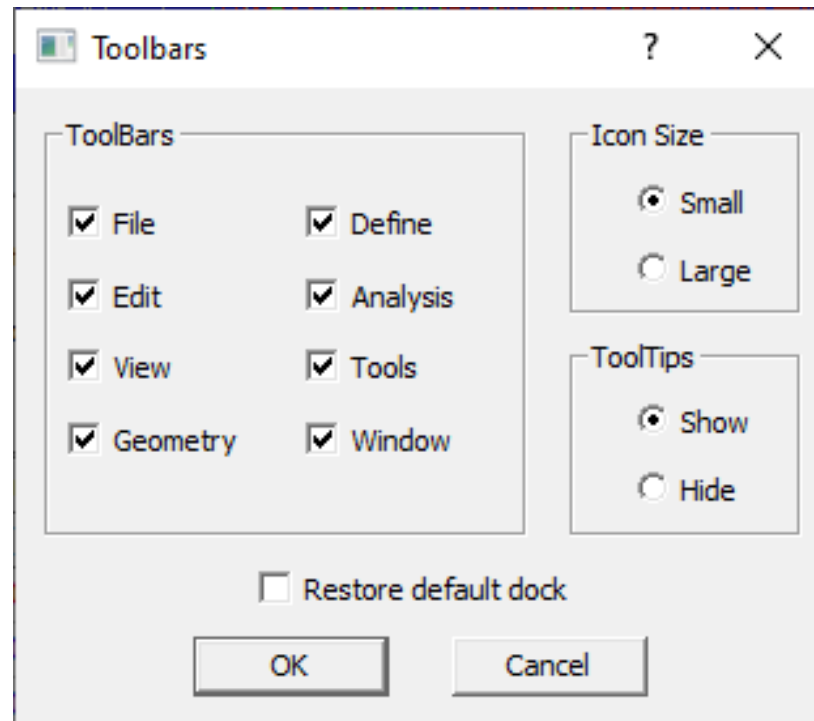
Wavelength selection: wavelength totals ☒ Display All Objects

☒ Only display objects and surfaces with non-zero flux: Incident

Object Name	Material Catalog	Material Property	Surface Area [sq mm]	Number of rays	Incident [lumens]
Surface Name	Surface Catalog	Surface Property			
LED 1	<None>	<None>			0.281176942620518
Emitter	Default	<None>	6.25	302	0.158632492844508
Surface 1	Default	<None>	6.25	305	0.161534387708966
Surface 2	Default	<None>	2.5	114	0.071711694241359
Surface 3	Default	<None>	2.5	102	0.0463162611234435
Surface 4	Default	<None>	2.5	103	0.068313482323218
Surface 5	Default	<None>	2.5	98	0.0558455669995417

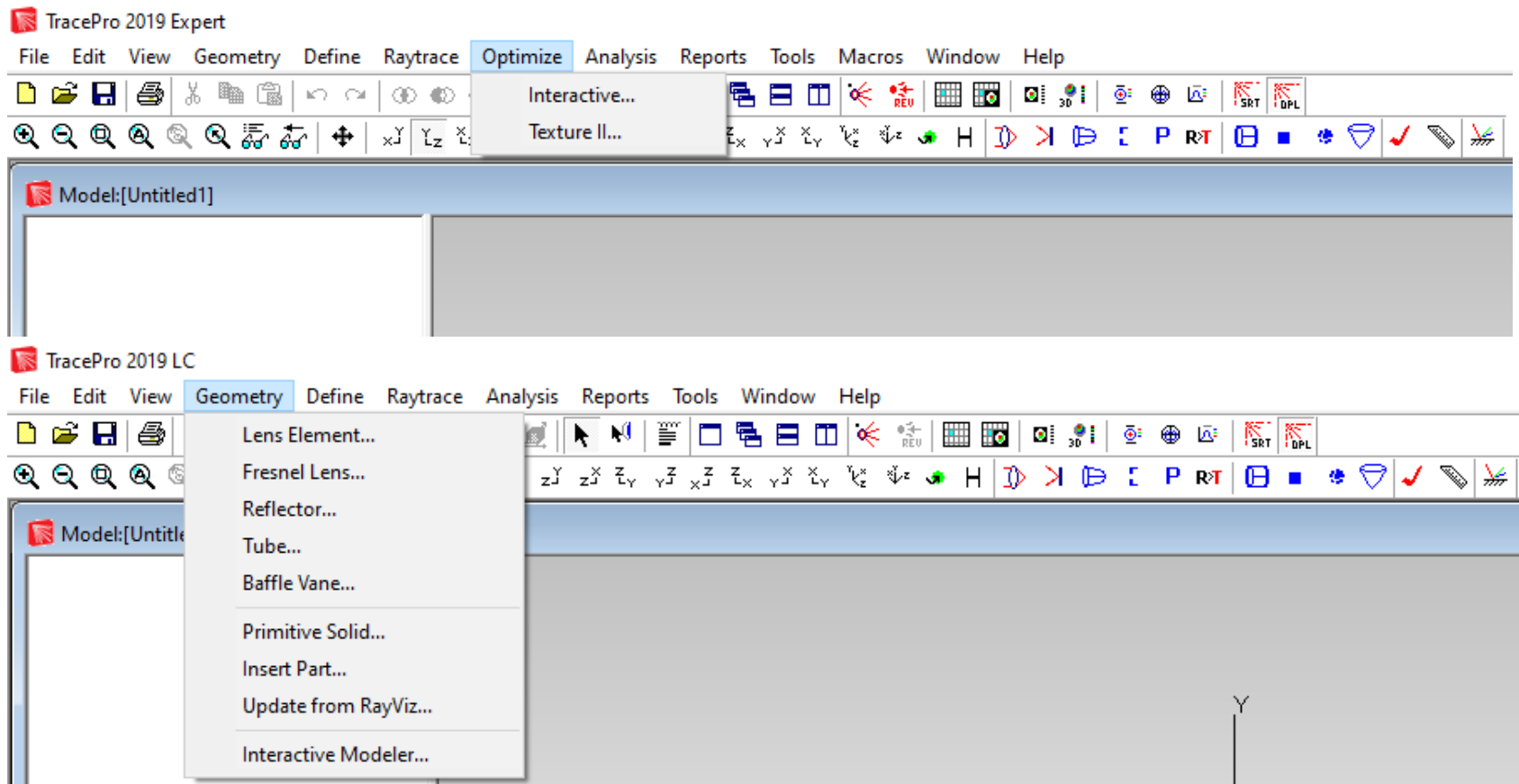
# TracePro 2019 19.4

**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.**



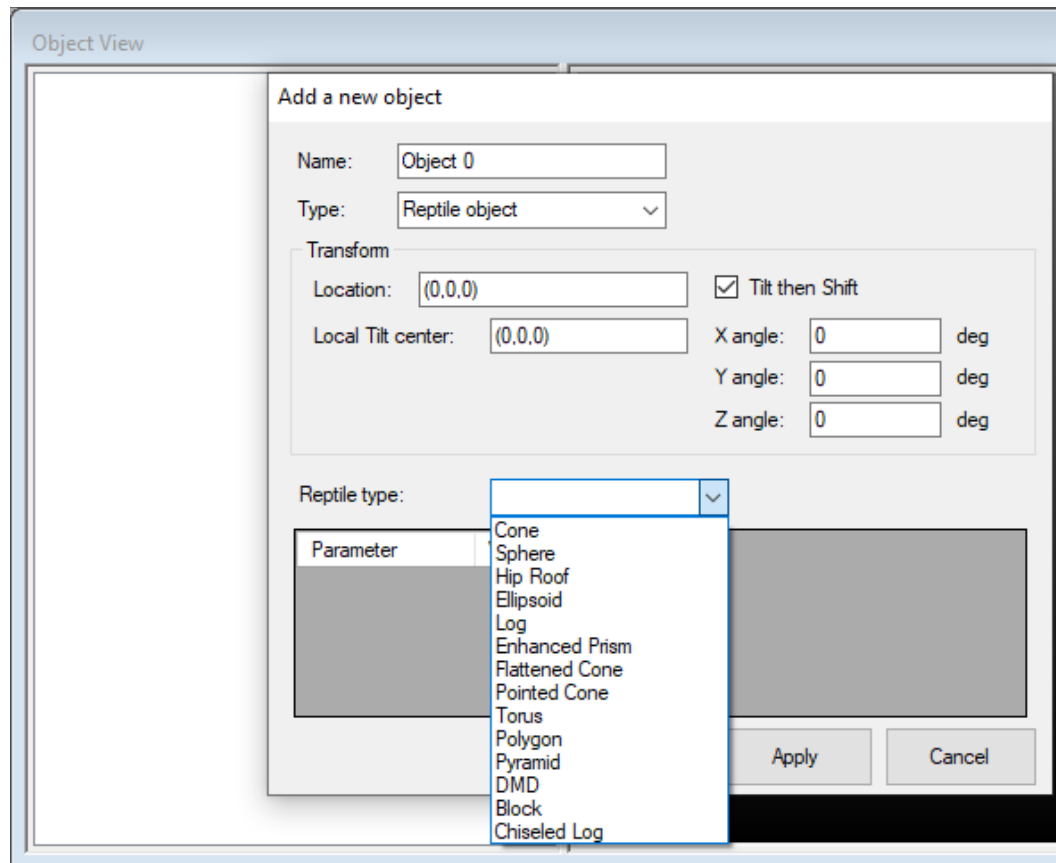
# TracePro 2019 19.4

**3D Interactive Optimizer – The 3D Interactive Optimizer and the 3D Geometry Modeler have been renamed the Interactive Optimizer and Geometry Modeler respectively**



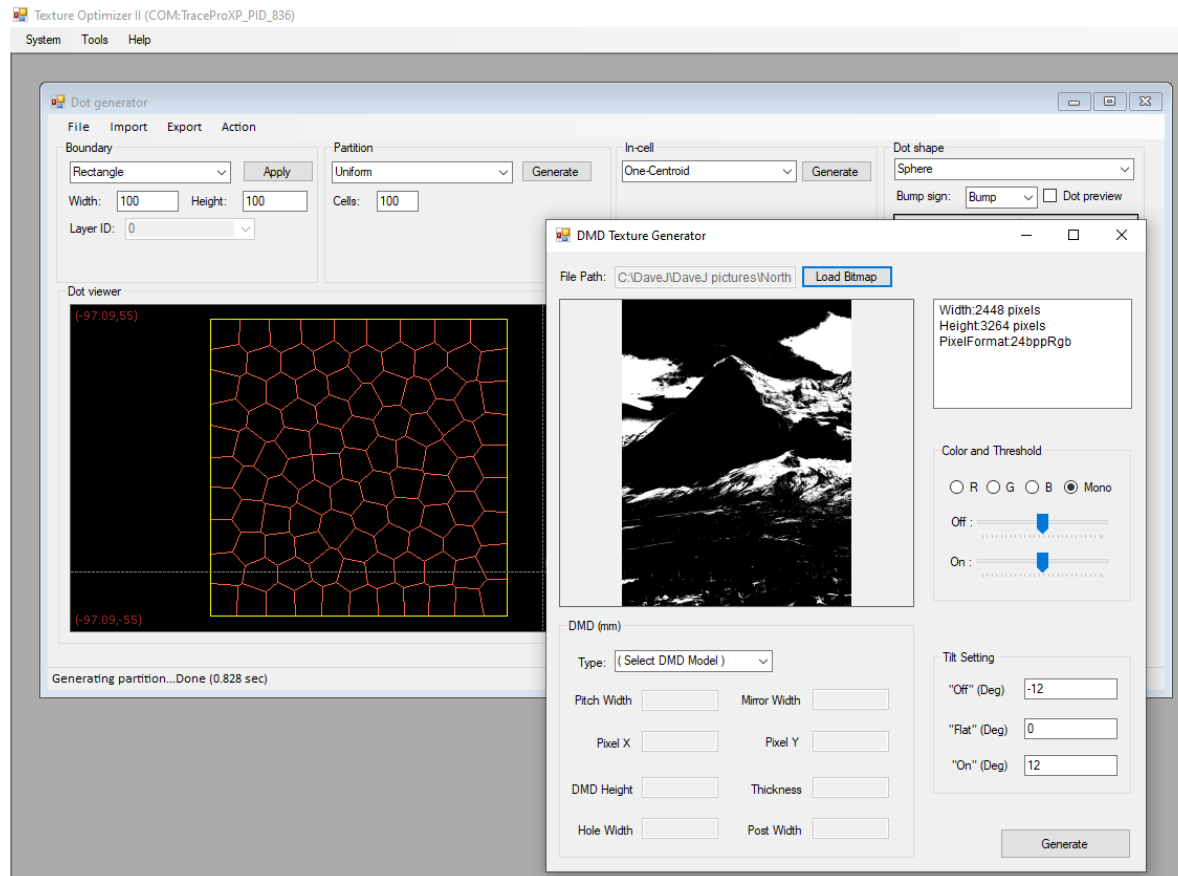
# TracePro 2019 19.4

**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**

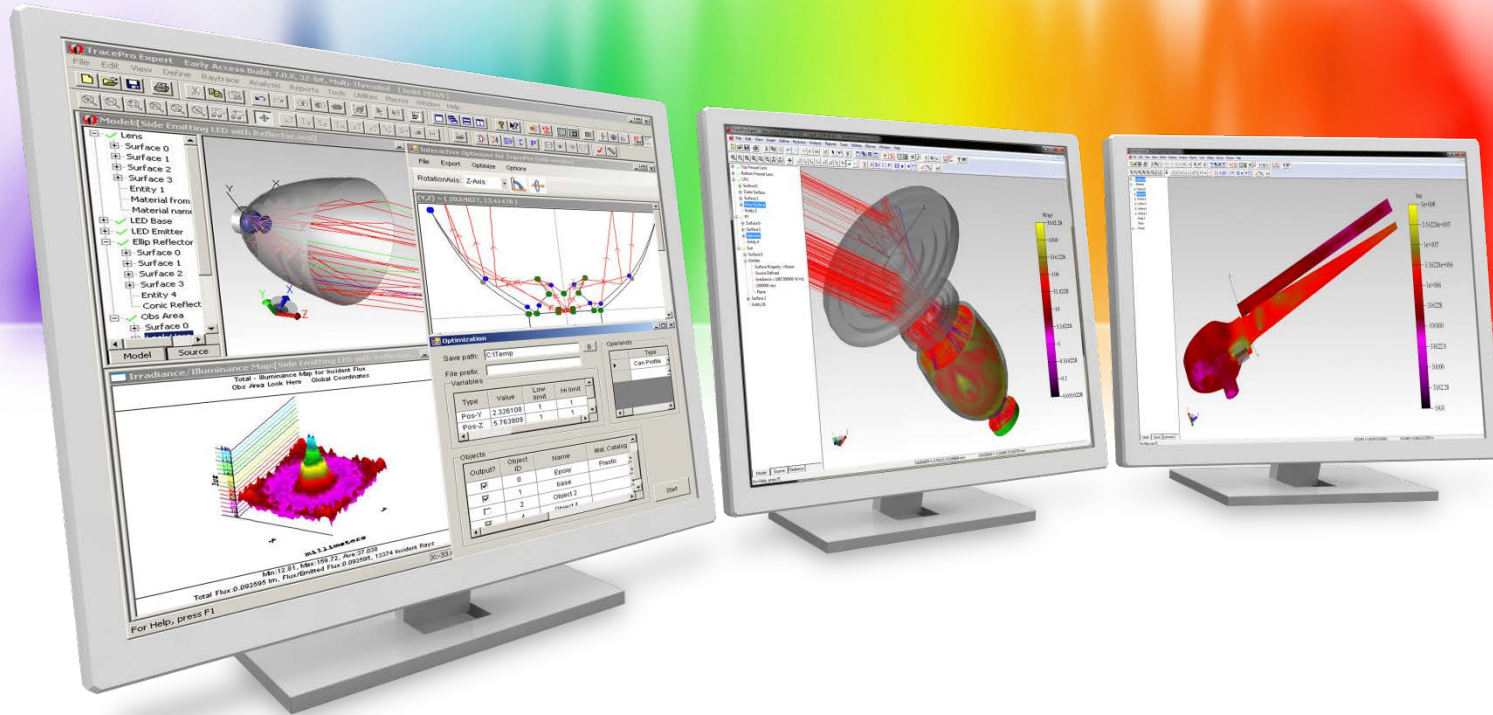
Three new Scheme commands are now available:

- (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



# New Features in TracePro 2019 19.2



# 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

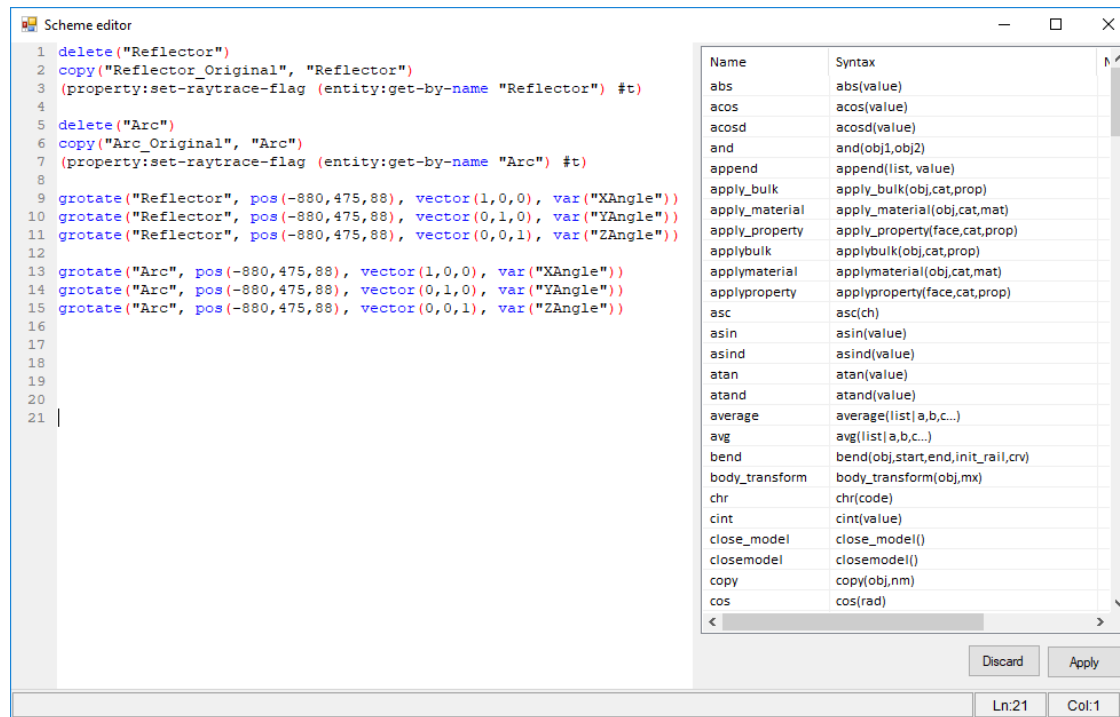
# TracePro 2019 19.1

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

**F5 – Executes the current after-scheme macro in TracePro**

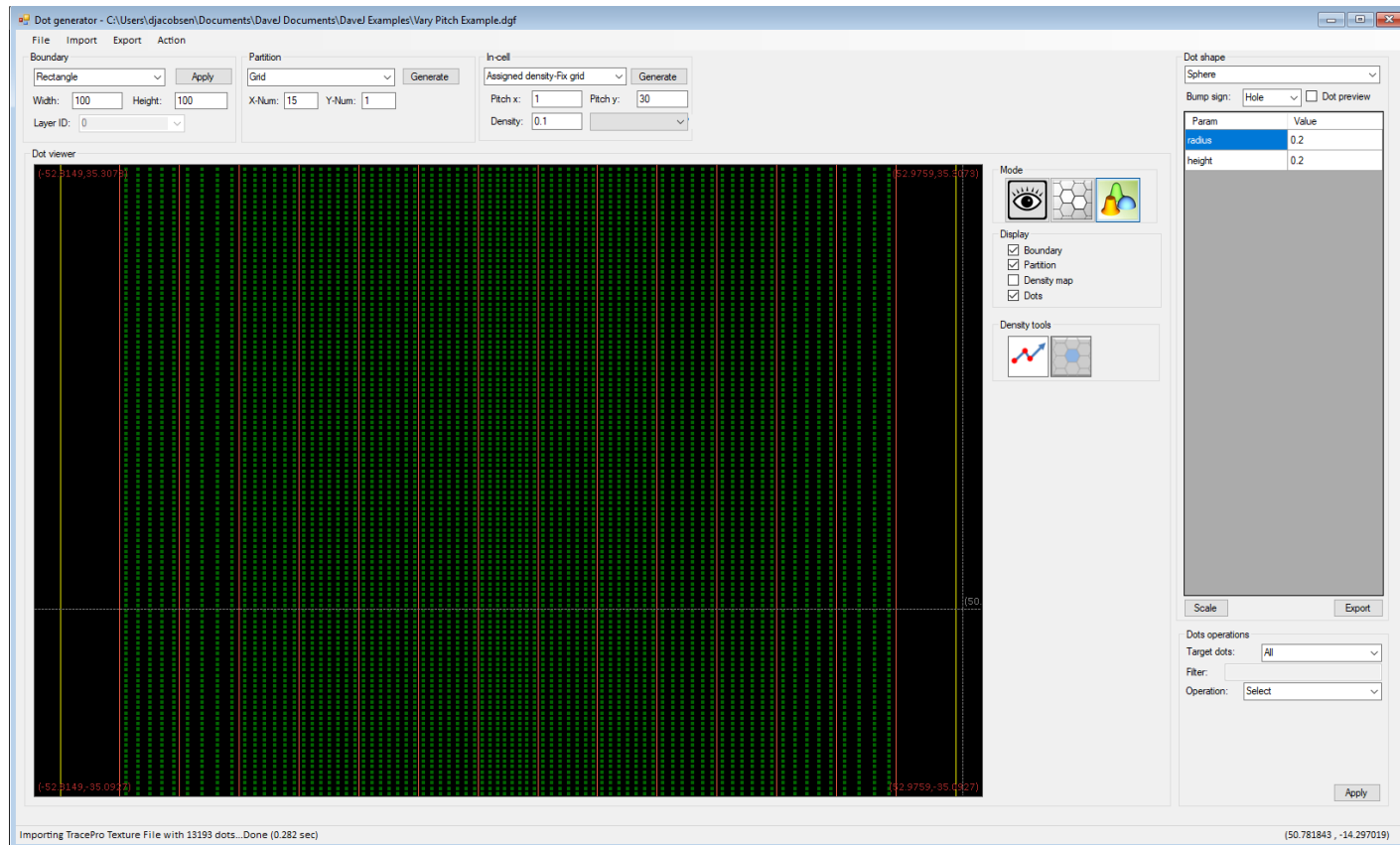
**F10 – Enables the step execution mode**

**F11- Steps forward through the after-scheme macro, executing it line-by-line**



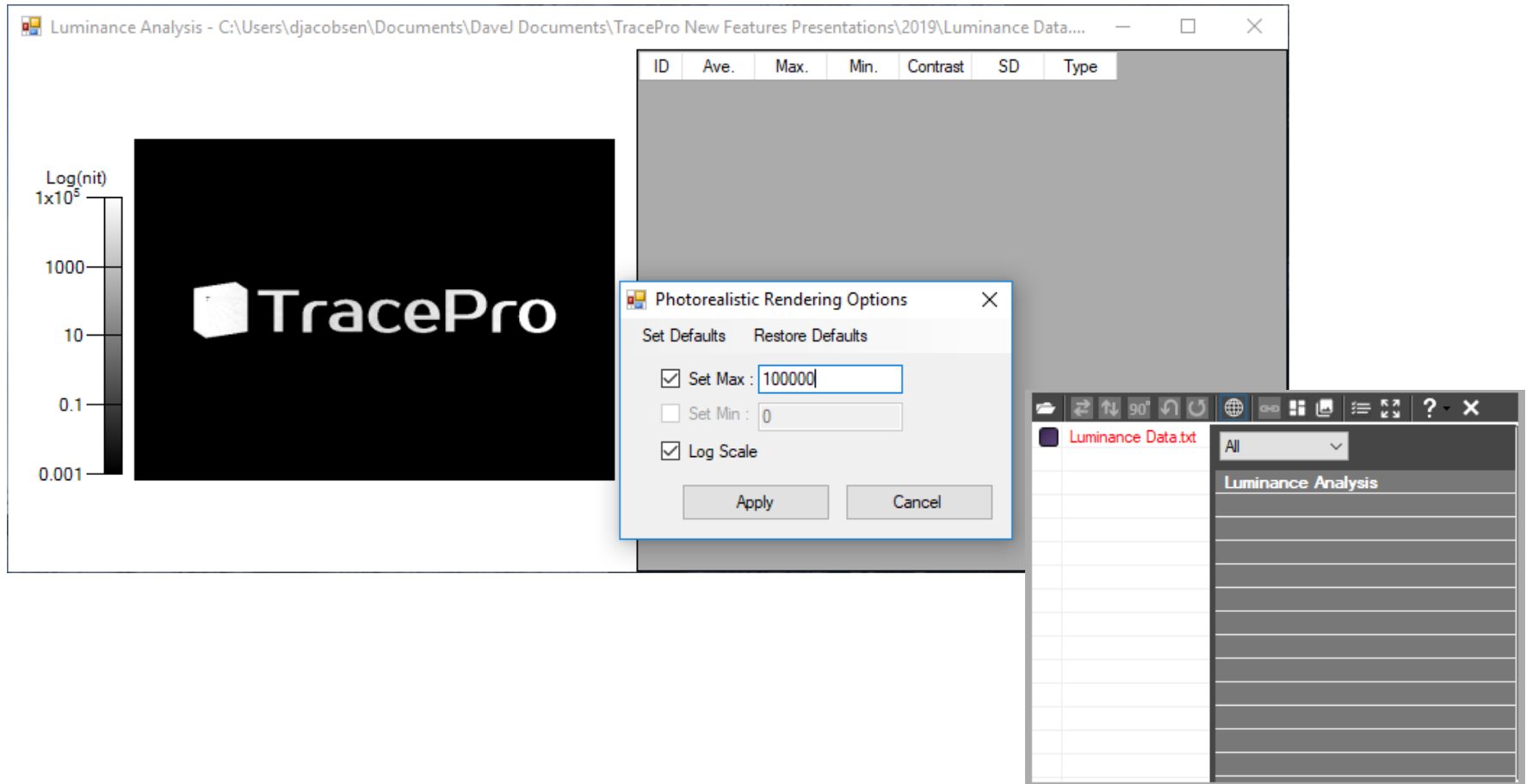
# TracePro 2019 19.1

**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.**



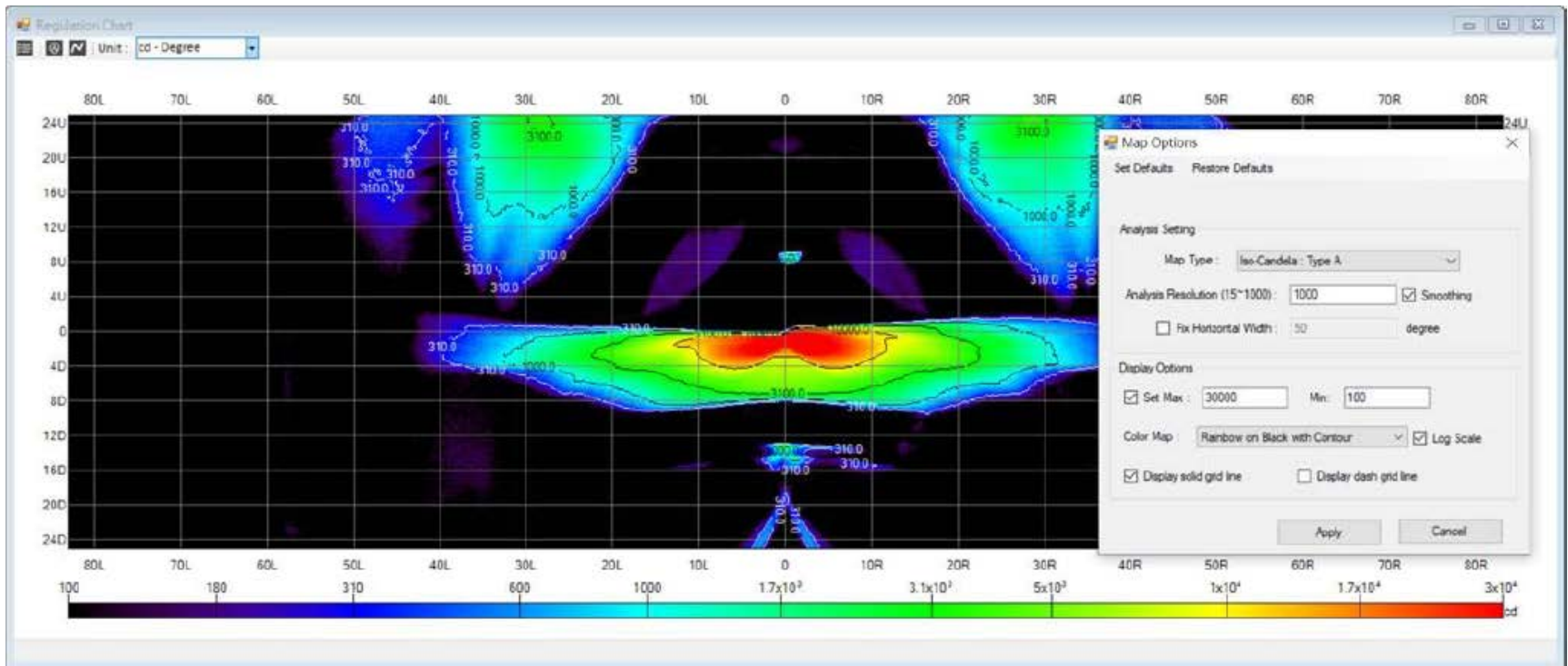
# TracePro 2019 19.1

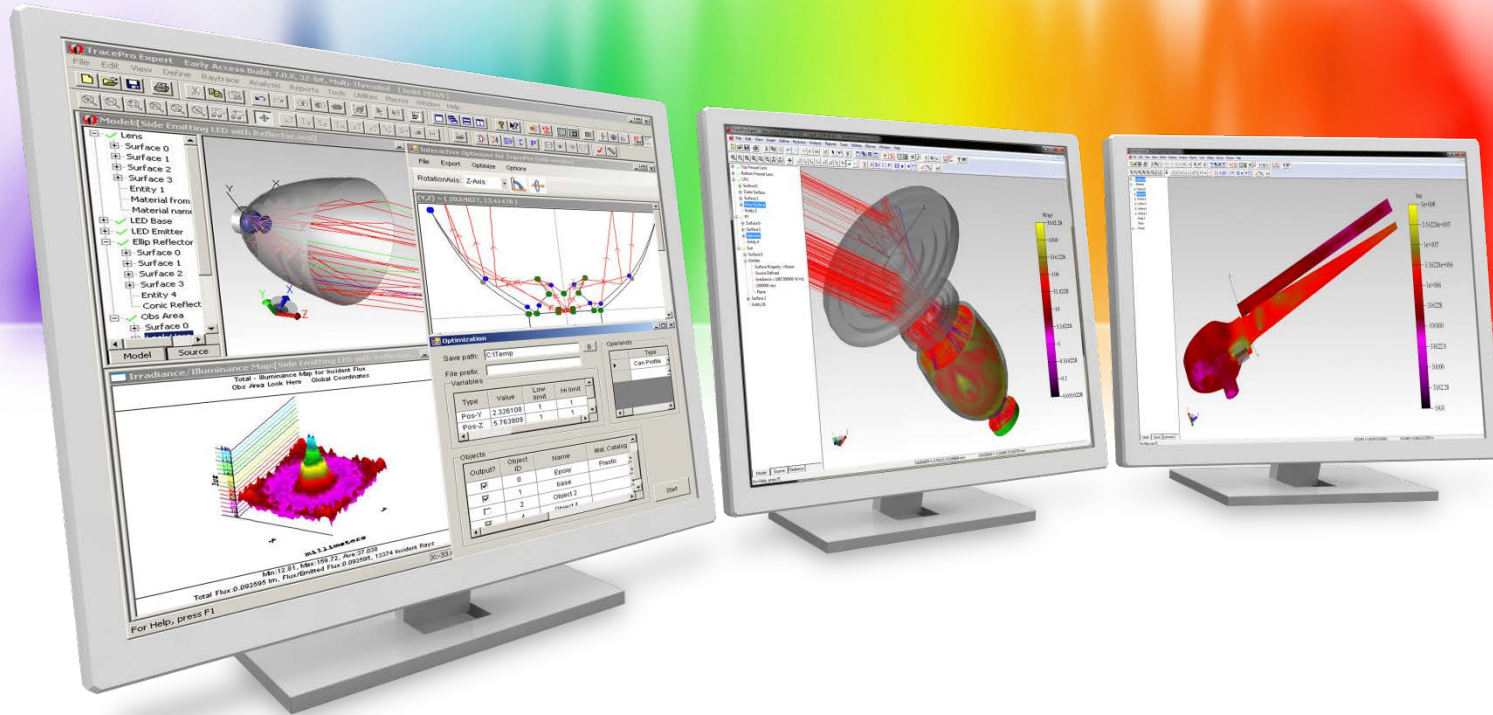
**Lighting Toolkit – The SAE J914 regulation for side turn signal lamps has been added.**

Regulation Table									
Catalog :		Regulation :		Table :		Filter :		Regulation Info.	
SAE		SAE J914		SAE J914 2014 Figure 1		Both			
ID	Show?	Type	Points or segments	Designation	Max Value	Min Value	Horizontal	Vertical	Unit
0	<input checked="" type="checkbox"/>	Point	1	15U-30L	200	0.36	30 L	15 U	cd_HV
1	<input checked="" type="checkbox"/>	Point	2	5U-30L	200	0.36	30 L	5 U	cd_HV
2	<input checked="" type="checkbox"/>	Point	3	H-30L	200	0.36	30 L	0	cd_HV
3	<input checked="" type="checkbox"/>	Point	4	5D-30L	200	0.36	30 L	5 D	cd_HV
4	<input checked="" type="checkbox"/>	Point	5	15D-30L	200	0.36	30 L	15 D	cd_HV
5	<input checked="" type="checkbox"/>	Point	6	15U-70L	200	0.36	70 L	15 U	cd_HV
6	<input checked="" type="checkbox"/>	Point	7	5U-70L	200	0.36	70 L	5 U	cd_HV
7	<input checked="" type="checkbox"/>	Point	8	H-70L	200	0.36	70 L	0	cd_HV
8	<input checked="" type="checkbox"/>	Point	9	5D-70L	200	0.36	70 L	5 D	cd_HV
9	<input checked="" type="checkbox"/>	Point	10	15D-70L	200	0.36	70 L	15 D	cd_HV
10	<input checked="" type="checkbox"/>	Point Col.	Zone I	1+2+3+4+5	-	3	*	*	cd_HV
11	<input checked="" type="checkbox"/>	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 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

Incident Ray Table [Dual Output Light Guide, with target.ora]

Target Receiver

Send to Analysis Toolkit

Ray Number	Wavelength	Source	Start Ray	Ray Node	Type	History	Flux	X Pos.	Y Pos.	Z Pos.	X Vec.	Y Vec.	Z Vec.	OPL
12	0.408453	LED Surface S...	12	15	RandTran		6.47611e-05	-0.324003	-38.5	100.871	0.317329	-0.893595	-0.317473	198.946
13	0.408453	LED Surface S...	13	13	RandTran		6.49958e-05	0.532137	-38.5	148.512	0.00427558	-0.974501	0.224343	279.854
14	0.42312	LED Surface S...	14	27	RandTran		0.000310705	-1.35641	-38.5	148.87	0.0964375	-0.514124	-0.852277	333.128
15	0.42312	LED Surface S...	15	16	RandTran		0.000380783	0.096311	-38.5	149.541	-0.312877	-0.880744	-0.355526	280.759
16	0.42312	LED Surface S...	16	40	RandTran	TIR	0.000122673	3.82198	-38.5	146.279	0.552175	-0.270557	-0.788608	345.115
17	0.42312	LED Surface S...	17	9	RandTran		0.00038791	-0.533315	-38.5	101.02	-0.103387	-0.994406	-0.0216273	195.068
18	0.42312	LED Surface S...	18	30	RandTran		0.000356695	4.18044	-38.5	152.866	0.719975	-0.163791	0.674395	315.056
19	0.42312	LED Surface S...	19	27	RandTran		0.00020664	1.12349	-38.5	146.105	0.170257	-0.261359	-0.950107	321.357
20	0.42312	LED Surface S...	20	17	RandTran		0.000378217	0.82364	-38.5	150.695	-0.168863	-0.944217	-0.282736	293.061
21	0.42312	LED Surface S...	21	26	RandTran		0.000173638	0.933434	-38.5	154.083	-0.466087	-0.412965	0.782447	300.977

Ray History Table [Dual Output Light Guide, with target.ora]

Target Receiver

Wavelength	Ray Node	Start Ray	X Pos.	Y Pos.	Z Pos.	Flux	OPL	X Vec.	Y Vec.	Z Vec.	Type	History	Object	Surface
0.408453	1	1	-0.0302504	-0.401894	-1.05	7.44632e-05	0	-0.10979	0.830001	0.54885	Emitted		LED Surface S...	Emitter
0.408453	2	1	-0.2207	0.97741	-0.14124	7.44632e-05	1.66181	-0.10979	0.830001	0.54885	SpecTran		LED Body	Surface 123
0.408453	3	1	-0.249056	1.19178	0	7.44632e-05	1.92009	-0.0730061	0.55192	0.830695	SpecTran		Light Guide	Surface 11
0.408453	4	1	-0.732795	5	5.73176	6.87674e-05	12.2965	-0.0730061	-0.55192	0.830695	TIR	TIR	Light Guide	Surface 14
0.408453	5	1	-0.07056	-5	20.7828	6.87674e-05	39.5441	-0.0730061	0.55192	0.830695	TIR	TIR	Light Guide	Surface 12
0.408453	6	1	-2.5	-1.78128	25.6122	6.87674e-05	48.287	0.0730061	0.55192	0.830695	TIR	TIR	Light Guide	Surface 13
0.408453	7	1	-1.60167	5	35.8338	6.87674e-05	66.7916	0.0730061	-0.55192	0.830695	TIR	TIR	Light Guide	Surface 14
0.408453	8	1	-0.278906	-5	50.8948	6.87674e-05	94.0291	0.0730061	0.55192	0.830695	TIR	TIR	Light Guide	Surface 12
0.408453	9	1	1.04386	5	65.9359	6.87674e-05	121.287	0.0730061	-0.55192	0.830695	TIR	TIR	Light Guide	Surface 14
0.408453	10	1	2.5	-6.00829	82.3045	6.87674e-05	151.281	-0.0730061	-0.55192	0.830695	TIR	TIR	Light Guide	Surface 15
0.408453	11	1	2.41333	-6.66352	83.4906	6.87674e-05	153.067	-0.0730061	-0.185862	0.97956	TIR	TIR	Light Guide	Surface 3
0.408453	12	1	1.53716	-8.89409	95.2502	6.87674e-05	171.115	-0.0730061	-0.992059	0.102416	TIR	TIR	Light Guide	Surface 2
0.408453	13	1	0.861	-20.8	96.4793	6.87674e-05	189.163	-0.0730061	-0.874353	0.479767	TIR	TIR	Light Guide	Surface 3
0.408453	14	1	-0.255168	-31.7725	102.5	6.87674e-05	208.035	-0.0730061	-0.874353	-0.479767	TIR	TIR	Light Guide	Surface 0
0.408453	15	1	-0.7334	-37.5	99.3573	6.87674e-05	217.886	0.238934	-0.964241	0.114671	RandTran		Light Guide	Output 1
0.408453	16	1	-0.485605	-38.5	99.4762	5.94e-05	218.923	0	0	0	At Surface		Target	Receiver

Path Sort Table [Dual Output Light Guide, with target.ora]

Filter Editor

Apply

Sources: All

Wavelengths: All

No. of intercepts: 100

% of rays to display: 100

Select filters: None

Ray Path	Source	Wavelength	No. Rays	Absorbed Flux	% of Total	Incident Flux	% of Total	Path Type	No. Intercepts	No. Intercept Type	Object	Surface
1	LED Surface Source/Emitter	0.589364432733088	3	0.138119365395478	0.06	0.138119365395478	0.06	Single Surf Scat	10			
										1	Emitted	LED Surface Source
										2	SpecTran	LED Body
										3	SpecTran	Light Guide
										4	TIR	Light Guide
										5	TIR	Light Guide
										6	TIR	Light Guide
										7	TIR	Light Guide
										8	TIR	Light Guide
										9	RandTran	Light Guide
										10	At Surface	Target
2	LED Surface Source/Emitter	0.561066093777315	2	0.117034195661249	0.05	0.117034195661249	0.05	Single Surf Scat	13			
3	LED Surface Source/Emitter	0.561066093777315	2	0.117464876165446	0.05	0.117464876165446	0.05	Single Surf Scat	12			

# 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 Expert

File Edit View Geometry Define Raytrace Optimize Analysis Reports Tools Macros Window Help

Model[Spectrometer.aml]

Incident Ray Table[Spectrometer.aml]

Path Sort Table[Spectrometer.aml]

Send to Analysis Toolkit

Ray Number	Wavelength	Source	Start Ray	Ray Node	Type	History
1	0.2	Slit Grid Source	747	12	SpecTran	Coinc Surf
2	0.2	Slit Grid Source	1027	12	SpecTran	Coinc Surf
3	0.2	Slit Grid Source	1254	12	SpecTran	Coinc Surf
4	0.2	Slit Grid Source	1456	12	SpecTran	Coinc Surf
5	0.2	Slit Grid Source	1559	12	SpecTran	Coinc Surf
6	0.2	Slit Grid Source	1602	12	SpecTran	Coinc Surf
7	0.2	Slit Grid Source	2223	12	SpecTran	Coinc Surf
8	0.2	Slit Grid Source	2375	12	SpecTran	Coinc Surf

Model Source Radiance

For Help, press F1

X:2.500000 Y:124.385078 Z:94.640717 mm

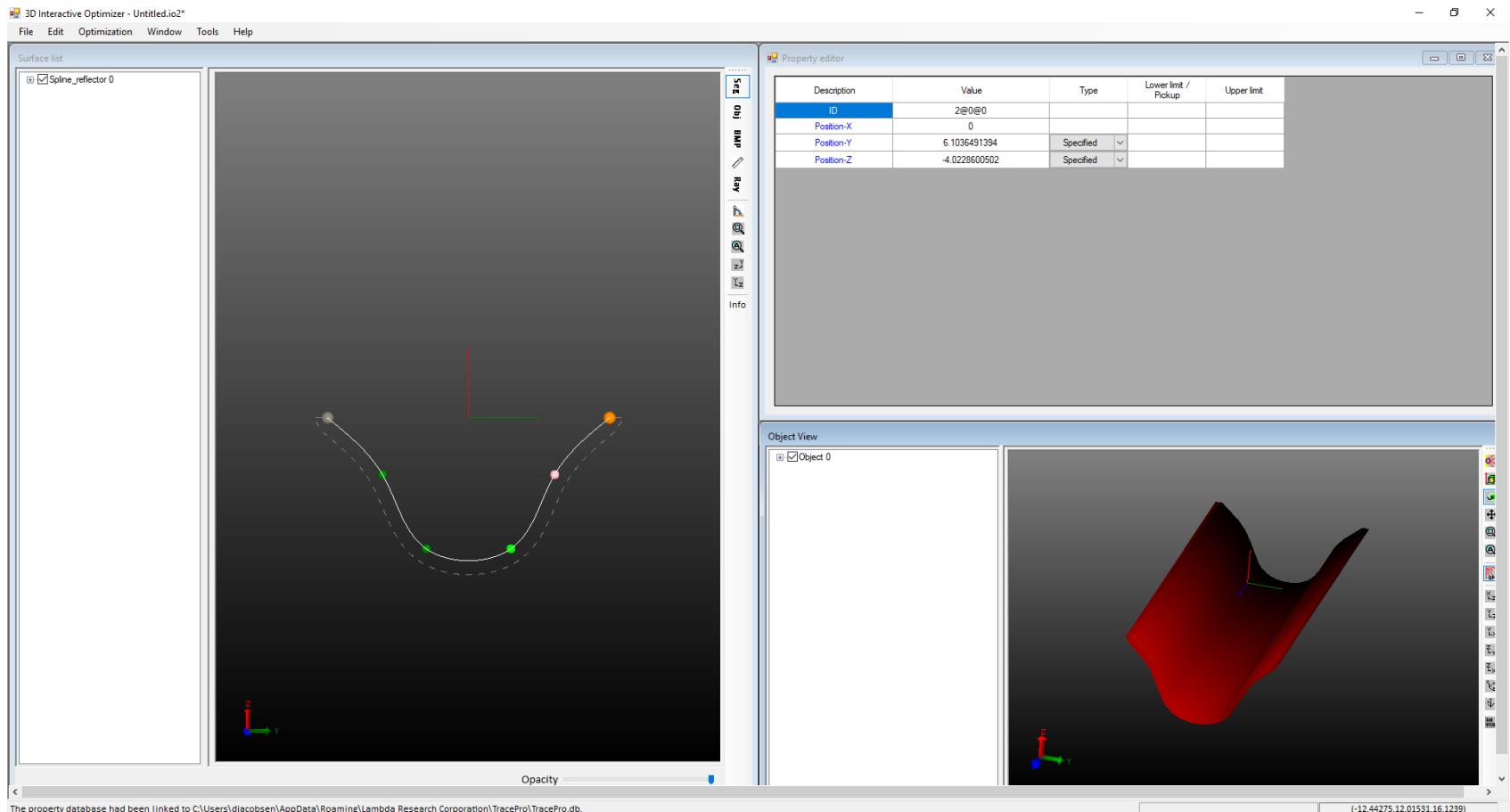
NUM

# TracePro 2019 19.1

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

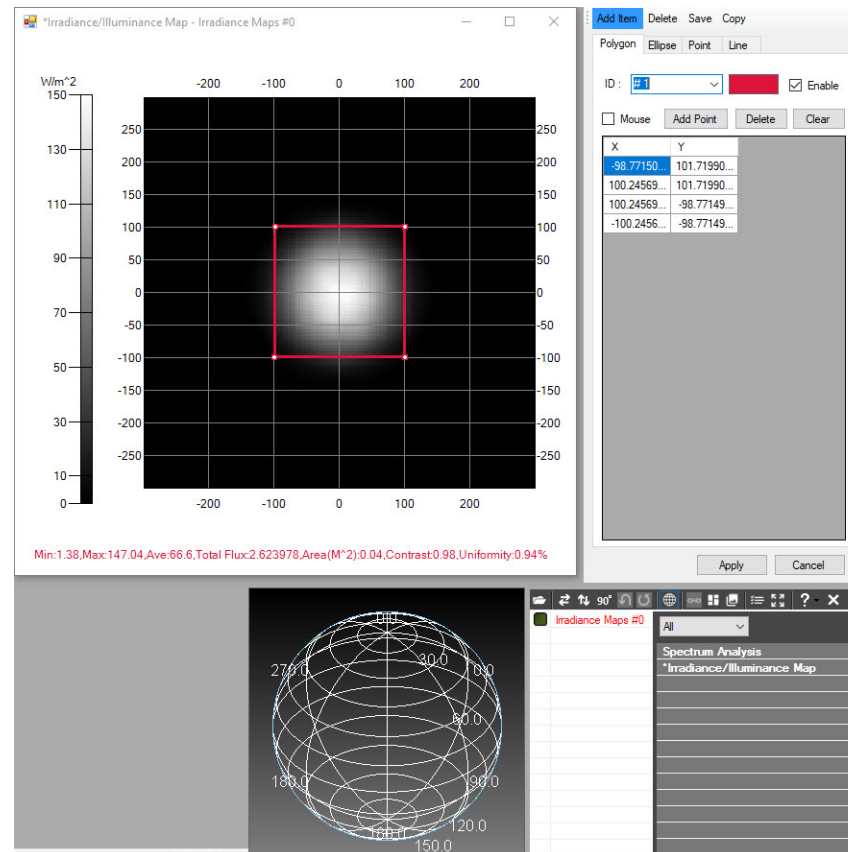
Src config

Operand list

	ID	Type	Opt.	Surface	Range	Weight	Target value	MAP Op.	Src Config.
▶	O1	Photoreali...	<div><div>Average</div><div>Average</div><div>Max</div><div>Min</div><div>RMS</div></div>			1.0			1

# 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.**

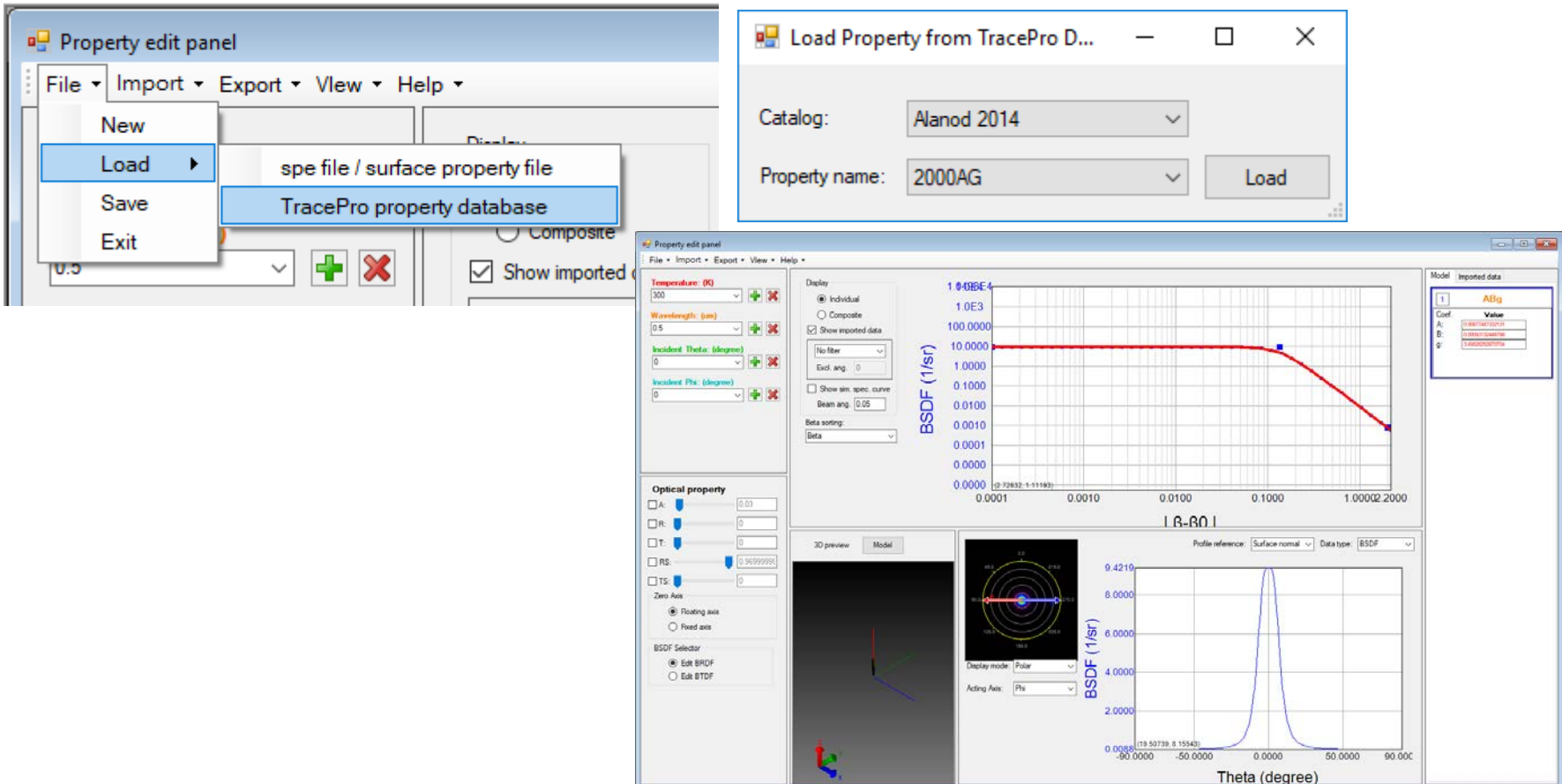




# TracePro 2019 19.1

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

Surface Property Generator



# 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 ... )