



Update Guide Release 2019.1

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INTRODUCTION

This document serves as a guide for the new features and changes in TracePro 2019.1. The enhancements in TracePro 2019.1 are: new intercept type - TIR - for tables and sorting; Path Sorting on Incident Ray Tables; New method for COM interface; IES/LDT plot tool supports tab-delimited IES files; new 3D Interactive Optimizer features; new Surface Property Generator feature; and new scheme commands. This release also fixes several problems reported by TracePro users. See the [TracePro Revision History](http://www.lambdare.com) at www.lambdare.com for more details on problem resolutions.

WHAT'S NEW IN TRACEPRO 2019.1?

Changes in TracePro 2019.1 compared to 2018.6 are summarized as follows:

- New intercept type: TIR.
- Enable Path Sorting on Incident Ray Tables.
- New COM method BackgroundExecuteSchemeString.
- IES/LDT plot tool now supports tab-delimited IES files.
- New 3D Interactive Optimizer features:
 - Use surface type D to create an extruded object.
 - New operand: luminance value from Photorealistic Rendering.
- New Analysis Toolkit feature: Show/hide analysis items.
- Surface Property Generator can now open TracePro Surface Property files.
- New scheme commands.

NEW INTERCEPT TYPE: TIR

This new intercept type, TIR for Total Internal Reflection, changes the content of Incident Ray Tables, Ray History Tables, and Path Sort Tables. It enables Path Sort Filters to use TIR as an intercept type. Rays that formerly had Intercept Type equal to SpecRefl and History equal to TIR will now have both Intercept Type and History equal to TIR. Below is an example Ray History showing the new TIR Intercept Type for Ray Node 6.

Wavelength	Ray Node	Start Ray	X Pos.	Y Pos.	Z Pos.	Flux	OPL	X Vec.	Y Vec.	Z Vec.	Type	History	Object	Surface
0.5461	1	7	4.72445	-1.63694	100.096	0.0001	0	0.746773	0.135327	-0.651165		Emitted	Arc	Cyl
0.5461	2	7	60.7357	8.51319	51.2553	0.0001	75.0044	0.794304	0.131045	-0.593218	SpecTran		Quartz bulb	Inside sphere
0.5461	3	7	72.7383	10.4934	42.2913	9.52738e-05	98.5066	0.75567	0.13461	-0.64097	SpecTran		Quartz bulb	Outside sphere
0.5461	4	7	89.2866	13.4412	28.2548	9.07727e-05	120.405	-0.265056	-0.0190498	0.964045	SpecRefl		Reflector	Inside
0.5461	5	7	80.4013	12.8026	60.572	8.61139e-05	153.928	-0.640796	-0.0871481	0.762749	SpecTran		Quartz bulb	Outside sphere
0.5461	6	7	68.3621	11.1653	74.9024	7.84596e-05	183.149	0.823579	0.152021	0.54645	TIR	TIR	Quartz bulb	Inside sphere
0.5461	7	7	83.8354	14.0214	85.1691	7.84596e-05	212.37	0.518094	0.108858	0.848368	SpecTran		Quartz bulb	Outside sphere
0.5461	8	7	265.482	52.1877	382.611	7.14856e-05	562.975	-0.235847	-0.0393493	0.970993	SpecRefl		Reflector	Inside
0.5461	9	7	115.523	27.1681	1000	6.78167e-05	1198.81	0	0	0		At Surface	Observation ...	Front

Figure 1. Ray History showing TIR Intercept Type on Ray Node 6.

PATH SORTING ON INCIDENT RAY TABLES

Path Sorting can now be used to filter the Incident Ray Table. To use this new feature after tracing rays, first select a surface and select **Analysis|Path Sorting**, then select **Analysis|Incident Ray Table**. Now select the path in the Path Sort Table that you wish to display and select **Analysis|Display Selected Paths**.

NEW COM METHOD

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

IES/LDT PLOT TOOL

The IES/LDT Plot Tool now supports opening IES files that are tab-delimited as well as files that are space-delimited.

3D INTERACTIVE OPTIMIZER

The 3D Interactive Optimizer has two new features: you can use a type D surface to create an extruded object; and a new operand is available, namely a luminance value from a Photorealistic Rendering.

Extruding a Type D surface

A Type D surface is a Spline Reflector or a Conic Reflector. After creating a Type D surface, you can extrude it to make an Extruded Object.

Luminance from Photorealistic Rendering as Optimization Operand

With his new capability you can use the luminance from a Photorealistic Rendering as an operand. You can choose from Average, Max, Min, or RMS luminance.

ANALYSIS TOOLKIT

Using the Analysis Toolkit, you can sketch areas on a map to be used for analysis. The Min, Max, Average, etc., are summarized at the bottom of the map, and the drawn analysis areas are displayed on the map. With this new feature you can choose to hide or show the analysis values. This is controlled using the pop-up menu for the map.

SURFACE PROPERTY GENERATOR

The Surface Property Generator can now import a TracePro Surface Property file for editing.

NEW SCHEME COMMANDS

Several new scheme commands are now available:

- (analysis:candela-viewer-open ...)
- (analysis:candela-viewer-close ...)
- (analysis:candela-viewer-save ...)

These are equivalent to File commands when using the Candela Viewer, accessed at **Tools|Candela Plot Viewer**.