

# TracePro Revision History

## **TracePro 2024 (Version 24.2)**

- New: New .tracepro format file containing omlb file, properties and saved rays. - T2293
- Update: Interactive Optimizer: Send To TracePro – Windows Regional setting to Poland (Decimal Symbol ,) – object not created, displays as tempsurf in Model Tree - T6997
- Update: Interactive Optimizer: error 1st iteration - Exception has been thrown by the target of an invocation [confirmed trigger setting Regional Format to Polish (Poland) - T6990
- Update: Save Ray Data is not working correctly for .tracepro files - T6988
- Update: Opening .tracepro file with missing image source file leads to errors when specifying new image file or deleting source. - T6985
- Update: Raytrace Error – RepTile - Ray escaped from RepTile cell ... may be due to incorrect RepTile boundary data ... - believe boundary data is correct - T6970
- Update: Interactive Optimizer: Load Model File - Open dialog only searching file type oml not omlb - T6956
- Update: Flux Report - model created by Solar Emulator - select Source - Exception Caught ... CFluxForm::OnSelchangeFluxSource did not complete successfully - T6947
- Update: Macro recorder doesn't record the command of setting flux units for (ISO) Candela plot. – T721
- Update: Photorealistic Rendering - rendering result doesn't match the view setting. - T6506
- Update: Import .sat file - Audit - CTraceProDoc::OnToolsAudit did not complete successfully - ERROR: Geometric Modeler: Unable to facet face. - T6975
- Update: Boolean Unite - Lenses with Biconic surface - results in defective object warning - T6971
- Update: Boolean Subtract - Lens minus Cut - CTraceProDoc::OnEditBooleanSubtract did not complete successfully. - T6960
- Update: Error when inserting lens element (ERROR: FindRequiredLensFace: Cannot find unique front or back face of lens.) - T6923
- Update: Boolean Unite failure (ERROR: Geometric Modeler: Inconsistent face containment after imprinting. Could not ...) - T6738
- Update: Solar Emulator: Retrieve Model - TracePro Message Macro Window displays "\*\*\* ERROR \*\*\* edit:is-body?" and ": unbound variable: KCM::ObjectID0\,2" - T6849
- Update: Fix error message (CLamAtImage failed to load) when merging .tracepro file when an image source file is not in the original location. - T6989
- Update: Fix Multiple bugs in File->Merge - T6908
- Update: Fix another case where Photorealistic Rendering results in error message "Trace photo render rays(CILK4) did not complete successfully." - T6950
- Update: Don't allow area calculation on individual surfaces prevent Audit/Ray Trace. Messages are displayed that the area could not be calculated for surface. - T6975
- Update: Volume Flux - after 2nd raytrace with same Volume Flux config, (1) prompted to overwrite file (did not expect prompt in this case) and (2) replaced data (expected it to append). - T6973
- Update: Properties Database - prompts to convert .mdb to .db, then gives error that converter not available. - T6929
- Update: Interactive Optimizer: Pickup - control point location does not follow when pickup reference point is moved in Surface Window (Workaround - pickup updates when position is typed into Property Editor). - T6932
- Update: Interactive Optimizer: Fix display and send to TracePro for biconic surfaces with conic constants equal to - 1. Use the full domain that the user specified for biconic surfaces when possible. Fixed: Error on Send To TracePro - OPENGL ERROR: invalid value: GraphicsGroup::Render. - T6959
- Update: Multiple bugs in File->Merge. - T6908
- Update: Fix message when attempting to open tristimulus ray files. - T6998

### ***TracePro 2024 (Version 24.1)***

- New: The material property catalog Nikon has been added.
- Update: The HOYA material catalog has been updated with the latest glasses and data from the manufacturer.
- Update: The Hikari material catalog has been updated with the latest glasses and data from the manufacturer.
- Update: Photorealistic Rendering results in error message "Trace photo render rays(CILK4) did not complete successfully." - T6950
- Update: Updating the property database (Help->Update Property Database) takes a long time in TracePro 23.5. - T6951
- Update: OSLO Translator: Read curvature changes in configuration data fixing message "Too many arguments for command cv" and using the additional arguments when curvature is changed in a configuration. - T6953

### ***TracePro 2023 (Version 23.5)***

- New: Diffractive Optical Elements (DOEs) within both the Standard and Expert editions. T530, T916, T999
- Update: The source tree displays an incorrect number of rays after importing Grinrod.len. The tree shows 813 rays for an 11 x 11 Cross x 3 wavelengths when it should be 63. - T6903
- Update: Enable input fields in Apply Properties Surface dialog when applying surface DLL properties. Position and orientation input fields were disabled. The User Param label and file manager button(...) were missing from the dialog. - T6935
- Update: Fix Apply Properties Surface dialog when grating properties are applied. The up direction controls are disabled and controls for automatically calculate and Norm Radius are displayed. - T6936, T6937
- Update: Lens dialog data doesn't represent the selected lens when modifying a lens. - T6933

### ***TracePro 2023 (Version 23.4)***

- New: The Surface Property catalog Acktar\_coatings\_2023 has been added.
- Update: Can't access Macro Reference overview pages. - T6907
- Update: Source tree is not updated for grid source created when opening OSLO model. - T6893
- Update: Radiance/Luminance Map - incorrect Luminance cd/m2 (nits) value, correct Radiance W/m2-sr. - T6891
- Update: License Troubleshooter/Help->License: Attach context file on email requesting educational license. Fix some issues with email from troubleshooter on emails that don't contain a context file. - T6927
- Update: Geometric modeling engine KOSMOS 5.3.13812.
- Update: Surface Source Property Generator : Windows Region Setting to Finnish (Finland) - insert control point - Unhandled Exception ... Conversion from string "-72.6147" to type 'Single' is not valid. - T6928
- Update: Texture Optimizer: Program crash - test case with Check Null Flux checked in Optimization window. - T5809
- Update: Interactive Optimizer: Can't update limits on variable for XY Polynomial surface type after changing from specified to relative. T6873
- Update: Interactive Optimizer: Help - Optimization Operands - does not address Weight, MAP Op., or Src. Config - name Target does not match UI Target value. T6310
- Update: Interactive Optimizer: Exception thrown during the first iteration of optimization - Unhandled Exception - Exception has been thrown by the target of an invocation. - T6921
- Update: Interactive Optimizer: Error message occurs when adding a Sweep Object with a Conic Reflector linked surface (combination should not be allowed). - T5997
- Update: Interactive Optimizer: Help - Edit Surface - Bitmap Mode - clarify (1) surface must be created first, and (2) only works for Surface Profile surfaces. - T5815
- Update: Interactive Optimizer: Help - Object View - Editing Features and Toolbar Commands - describe design intent, behavior, and /or limitations of ray display. - T5627
- Update: Interactive Optimizer: Property Editor - Periodic Segment - when the Type is changed away from "Func", the Value field still shows the name of the function, it should update to a default value. - T5484
- Update: Stray Light Analyzer: Files generated during the analysis are not being loaded. - T6906
- Update: Stray Light Analyzer: Manually Import Path Sort Table - results in Retrieve data 0/0 and Path Sort Table

- Info with values of 0. – T6886
- Update: Stray Light Analyzer: After successful completion of raytraces - Analysis|Analysis Table - Error "Without imported path sort table, fail to make analysis table. – T6884
- Update: Stray Light Analyzer: Auto Backup - after selection to resume previous analysis, backup files are deleted. – T6922
- Update: Stray Light Analyzer: The Analysis List in the Stray Light Analyzer is not populating after the raytraces have been run. – T6918
- Update: Source Builder: Polar curves can't be used to define the angular distribution. -T6902
- Update: Source Builder: Surface Source Property Generator not exporting angular data properly. -T6901

### **TracePro 2023 (Version 23.3)**

- Update: Save As ACIS .sat - CTraceProDoc::OnSaveDocument did not complete successfully - Geometric Modeler: Length Unit is invalid. - T6856, T6828
- Update: Inserting or modifying a lens using an aperture polygon fails with Geometric Modeler error. - T6851
- Update: Problems with the behavior of TracePro geometric objects(block,cylinder,etc) created in TracePro saved to a step file and then reopened in TracePro. - T6847
- Update: TracePro crashes when choosing to modify a TracePro created lens imported from a step or sat file saved from TracePro. - T6843, T6844
- Update: Large omlb file size: Customer saved omlb file from TracePro 22.2.0 and the size got very large, set of steps copying blocks and moving into group, after deleting file size remains large, 46 KB file with 19 similar objects (cylinders) - removing 1 results in 30 KB file, steps demonstrating problem saved as a macro, – T6565, T6630, T6827, T6842
- Update: Macro Recorder - Revolve - records erroneous surface number and entity number. - T6840
- Update: Importing OSLO lburgtel.len file results in incorrect gradient index ray-trace. - T6836
- Update: Don't allow a revolve angle of 0 degrees, larger than 360 or less than -360 when revolving a face. -T6829, T6830
- Update: Right-click on an existing tube and select Modify does not pick up all attributes. – T6089
- Update: Erroneous Flux value in file source dialog has two components (1) 1/Trace % of rays error, (2) error due to estimating flux of actual rays. – T5794
- Update: No reason to terminate ray because of ray and edge intersection. – T5785
- Update: Rectangular Iso Candela Plot - change of Height and Width changes plot but not data labels, and the change is not retained after close/reopen of Candela Options (Sim mode - Save Data to Disk). – T5770
- Update: Irradiance Map - True Color - 6 items - (1) RGB values truncated (2) RGB range 0 to 255 (3) RGB for map as displayed (not raw data) (4) User's Manual (5) Help (6) incorrect RGB for 450 nm. – T5631
- Update: Flux value in file source dialog displays an incorrect value when Trace % of rays differs from 100%. - T5570
- Update: RepTile Display error - ERROR: DMD RepTile property. Invalid post width and center hole width on row 1 (Property Editor allows width to be 0, change display to allow). – T5207
- Update: Insert Lens Element - Windows Display Settings custom scale 225% - fields truncated and displaced. - T6872
- Update: Boolean Intersect Error - macro creating lenslet array. - T6868
- Update: Saving to omlb file to older version of KOSMOS doesn't work in TracePro 23.2.2 early visibility release. - T6861
- Update: Can't modify a polygon obstruction of lens. The grid control is not working properly. - T6852
- Update: Incorrect grid source size when importing OSLO lens grinrod.len. - T6837
- Update: Performance Issue - Boolean Intersect, Unite, or Subtract - objects with 15 and 25 surface - Lambda Support PC takes 7 min in 23.1, 5.5 min in 23.1.2. - T6814
- Update: Remove some invalid commands from macro reference. – T6394
- Update: Raytrace Error - rays propagating through RepTile feature with Perfect Absorber applied, object also has Bulk Scatter. - T6128

Update: When checking Save Ray History to disk, too many exit surface leads simulation mode raytrace crash. – T5653

Update: Raytrace Progress dialog - after clicking Cancel and confirming, raytrace continues to trace the current ray (should stop immediately). – T4135

Update: Surface Source Property Generator: Image Source Editor - 3 fields accept incorrect input - integers vs decimals. – T5533

Update: Surface Source Property Generator: Remove UI associated with import of Diffract Mod data. - T5392

Update: Texture Optimizer: Export Real Geometries - Unhandled exception ... Not a scheme Position string. - T6824

Update: Texture Optimizer: Help - Dot Generator - Export Real Geometries - Method, Origin, Up, Norm fields added to UI, need to add to Help. – T5823

Update: Texture Optimizer: Help listing for Boundary does not mention .wrk file or how to create one. – T5365

Update: Texture Optimizer: Tools menu has selection to reset DDE, update to COM. - T6823

Update: Interactive Optimizer: Incorrect orientation of elliptical cross-section of ellipse. T6858

Update: Interactive Optimizer: Use control point on circular cross-section to orient the surface of the sweep.

Update: Interactive Optimizer: Help - no listing for Beam Center Operand Type. – T6340

Update: Interactive Optimizer: Help - page for "Pick-ups" should be renamed "Pickups" to match the name visible in the user interface. – T6485

Update: Interactive Optimizer: Problem with XY Polynomial surface type in Interactive Optimizer. - T6873

Update: Interactive Optimizer: Path that does not yet exist - Create Objects Execute Schemes and Run gives Unknown exception ... Could not find a part of the path (selecting Start prompts and creates path). - T6869

Update: Interactive Optimizer: Boolean subtract error in TracePro with objects from the optimizer. - T6839

Update: Surface Property Generator: Save with Solve for BRDF - Integrated BRDF value does not update (BRDF A does update, Integrated BRDF correct after viewing another property and coming back) – T6871

Update: Stray Light Analysis Control Panel - Simulation Options - Auto backup - add capability to the file path for the backup files. – T6863

Update: Source Builder: Export to TracePro database - Object Reference not set to an instance of an object. -T6822

Update: Source Builder: .lsu file saved after loading IES file as Beam Shape - open file - Unhandled exception ... Not a beam shape class. -T6821

## ***TracePro 2023 (Version 23.2)***

New: New scheme commands: vector3d:cross, vector3d:dot, vector3d:normalize

Update: Performance improvements for ray tracing. – T6644

Update: Include Kosmos 5.1.0.13170 and update Kosmos version selection in save as dialog.

Update: Raytrace Error - ray intersection omitted on one surface near edge of cylindrical (ISO-Y-Toric with all coefficients zero) lens face. - T6804

Update: Boolean Subtract error - CTraceProDoc::OnEditBooleanSubtract did not complete successfully. - T6765

Update: Incorrect body positions when import STEP file. - T6643

Update: Geometry is missing from exported .sat file. This was noticed when importing into SolidWorks or TracePro 21.6. - T6631

Update: TracePro crashes during photorealistic rendering when model contains multiple faces with reptile properties. – T5837

Update: Improve ray tracing performance for aspheres when most or all coefficients are zero.

Update: Fix several minor issues with the version of the KOSMOS data saved in omlb file.

Update: Fix command name in macro reference example using analysis:set-3d-irradiance-flux-units.

Update: Boolean unite failure with TIR lens. -T6742

Update: STEP import - Two erroneous surfaces - large circles. -T6670

Update: Increase scheme processing stack size: Could impact whether a complicated scheme program is able to finish.

Update: Surface Source Property Generator: .spg saved with symmetric input checked, but values for -90 and +90

differ, and plot is noisy and erroneous / additional steps performed, load .spg, now symmetric input is unchecked – T6805

Update: Interactive Optimizer: attempt to load 22.6 .io2 in 23.1 results in "Unhandled Exception ... Object reference not set to an instance of an object – T6812

Update: Interactive Optimizer: Create Objects and Execute Schemes - TracePro crashes/disappears - Interactive Optimizer error Convert to Boolean Failed. – T6720, T6733, T6734

Update: Interactive Optimizer: TracePro hangs after executing after scheme of KCM::ChangeStretch Macro Example. – T6716

Update: Interactive Optimizer: Freeform Lens object - Send to TracePro - Material property cannot be applied to thin sheet body. – T6657

Update: Interactive Optimizer: TracePro crashes when sending object with Fresnelized Symmetric Profile to TracePro. – T6608

Update: Interactive Optimizer: Boolean Intersect error when sending to TracePro - CTraceProDoc::OnEditBooleanIntersect did not complete successfully. -T6800

### **TracePro 2023 (Version 23.1)**

New: Volume Flux Viewer - add capability to save image (jpg, bmp, wmf). – T1387

Update: Irradiance Viewer: TracePro crashes opening an irradiance map created in a version of TracePro before 22.5.– T6802

Update: TracePro LC does not give proper message when Thin Film Property is applied. – T5682

Update: Incorrect BTDF scatter into material. The problem is that the BSDF beta needs to be scaled by the index when scattering into a material other than air. – T6795

Update: Irradiance Map - units set to W/m2, scale labeled W/m2 but Total Flux value labeled lumens. – T6794

Update: Flux Display Range in Ray Sorting does not work correctly when raytrace and source units don't match. – T6788

Update: Peak value in ray sorting dialog is often not correct when raytrace units do not match source units. – T6786

Update: Flux report does not work with more than one grid source. – T6782

Update: Grid Source - Gaussian Spatial and Angular Profile - view Flux Report - Unknown Exception ... CFluxForm::OnInitialUpdate did not complete successfully. – T6778

Update: Environment - Environment does not work with Reptile property. – T6767

Update: Can't set 3D irradiance map units to W/m2. – T6766

Update: Problems saving LDT files, file saves in radiometric units even if the Candela Plot is set to photometric values. Cannot change the number of vertical angles, changing Dg has no impact. – T6763, T5471

Update: Cannot save IES file, you get a message saying the units need to be set to Photometric. – T6762, T6736

Update: Setting defaults in the ray sorting dialog does not take effect until TracePro is restarted. – T6761

Update: The user default for the ray sorting dialog for percentage of starting rays is not used. – T6760

Update: Rectangular Candela Distribution Plot - Save As IES - message to change units photometric appears if TracePro model was saved in older release (Raytrace|Raytrace Options). – T6757

Update: RepTile Texture - Enhanced Prism - display not showing correct angles - raytrace is correct. – T6756

Update: Candela Plots/Options/Units - 6 bugs - plot with cd shows data for IR wavelength - plot with cd shows Total flux W - Polar Cand Dist displays as empty window (2x) - Iso Plots update units from change in Dist options (2x). – T6745

Update: Macro recorder does not record the command of setting flux units for (ISO) Candela plot. – T6721

Update: Irradiance/Illuminance Map units change after running a raytrace. – T6718

Update: Error when using fluorescence raytrace. This occurs with the environment set to something other than air and an object in the model with a material property something other than air. Errors are reported during ray tracing that lock up TracePro. – T6680

Update: Errors using the result of scheme command transform3d:compose in macro. – T6553

Update: Material property anomalies on imported OSLO lens, direct glasses are not handled correctly. – T6476

Update: Photorealistic Rendering - The value of max photons to trace is ignored. – T5964

Update: Raytrace Error - Elliptical ABg applied to coincident face - erroneous angular distribution. – T5807

Update: Grid Source - Spatial Gaussian Distribution - uniform position / weighted flux - incorrect flux of 1.056... should be 1 watt. – T5459

Update: Candela Options - Units - Polar Iso list and navigation different than Rectangular Iso and Distributions, and different in English vs Japanese. – T6753

Update: Fix problems setting and displaying second radius with biconic and torus surfaces in the insert lens dialog. Also fix the order of the conic constant and gamma parameters for the torus. – T6752

Update: Fix order of the conic constant and gamma parameters for the torus surface in geometry:lens-element-2 and modify:lens-element-2. – T6751

Update: Fix exception caught when updating in the ray sorting dialog. Message displayed CRaySortDig::OnUpdateRaySort did not complete successfully. – T6746

Update: Foot candles not calculated correctly in Irradiance/Illuminance Map. – T6724

Update: Incorrect command recorded (analysis:candela-polar-gradient) when recording a macro when updating a Candela plot.

Update: Irradiance Map - display of "W/m2" - the "2" has been replaced by an erroneous character. – T6717

Update: Help - Luminance/Radiance - selection of units refers to Raytrace Options, should refer to Radiance/Luminance Map Options. – T6713

Update: Object and Surface Colors - custom color applied to object - Silhouette View - some edges erroneously display as default color. – T6710

Update: An object copied that was in a group can't be pasted outside of any group. – T6704

Update: Units in the Iso Candela Plots are inconsistent when changing between photometric and radiometric units. The units on the scale do not match the units shown in the text area. – T6698

Update: Candela Plot - right-click on plot, open in IES/LDT Analysis - erroneous message about photometric units when original model had Radiometric set in Raytrace|Raytrace Options. – T6791

Update: Ray colors based on flux are not correct for sources with units that don't match the raytrace units.. – T6789

Update: Simulation results from TracePro 22.0 and 22.1 can't be viewed in newer versions of TracePro. – T6774

Update: Simulation results from the ex1 file from TracePro 22.4.0 can't be viewed in newer releases of TracePro. Exception thrown. – T6775

Update: Interactive Optimizer: Fix crash after checking Fresnelized for a spline segment– T6796

Update: Interactive Optimizer: Lens object using XY Polynomial Surface - erroneously truncated in TracePro. – T6787

Update: Interactive Optimizer: Update Model results Optimization Log error Unhandled Exception ... Index was outside the bounds of the array. – T6759

Update: Interactive Optimizer: Fix unhandled exception when loading .io2 file (Unhandled Exception ... Argument "Index" is not a valid value) – T6737

Update: Analysis Toolkit: Spectrum Analysis - V shaped spectral distribution erroneously appears highest in the middle and it only shows visible wavelengths (OK in 22.3) – T6779

Update: Source Builder: Fix crash while selecting points in Step 1: Sketch the beam profile from the pasted spec. plot opened by selecting LED -> Surf Src Prop. - T6750

### **TracePro 2022 Release (Version 22.6)**

New: Add "mcd" as a unit option in the Polar/Rect. IsoCandela and Polar/Rect. Candela Distribution. – T6703

New: Add capability to save 3D irradiance map. – T4463

New: New utility for viewing 3D irradiance maps. – T6166

Update: Polar Iso Candela Plot - units set to cd - Min Max Total Flux values labeled as W. – T6727

Update: TracePro not asking to save model when closing after applying surface property or material. – T6725

Update: Fix macro recording when saving IES files. – T6709

Update: Ray Sorting dialog doesn't update "% Starting Rays to Display" after executing scheme command. – T6707

Update: Flux unit control and Send to Analysis Toolkit button overlap in incident ray table on high resolution monitors. – T6706

Update: Flux Report error with multi-wavelength rayfile with a grid or file source. – T6699

Update: Irradiance/Illuminance Map Normalize to Peak Irradiance inconsistent values. – T6696

Update: Ray Sorting Display % of Rays value not maintained. – T6695

Update: 3D irradiance map does not update when changing the units to lux. – T6693, T6690

Update: Enable view focal length and FOV in perspective views only. - T6691

Update: The copyright strings for Kubotek and Lambda in the about dialog have an extra character in them before the copyright symbols. – T6683

Update: Fix crash when opening sat file from ACIS 7.0. – T6681, T6682, T6672

Update: Fix Boolean error that resulted in an object that was missing many surfaces. T6679

Update: Reduce error messages with Check for Updates and updating license file when the computer running TracePro does not have an internet connection. – T6669

Update: Eulumdat file - erroneous values on Lines 22 and 23 - DFF Downward Flux Fraction - LORL Light Output Ratio Luminaire – T6666

Update: Fix problems using a full circular edge created with geometry:make-circular-edge. The scheme command geometry:skin-sheet-from-wires failed to create the desired geometry. T6660

Update: Insert Reflector - Rectangular Concentrator tab - toggle from Hollow to Solid, thickness field should gray out when Solid is selected (it does after creation of object, should before). – T6093

Update: Fix problem where the temperature distribution was ignored in model with a temperature dependent surface source property. T6049

Update: Update license troubleshooter when no license is available to run TracePro. – T6471

Update: Blackbody Surface Source with Calculated Wavelengths - rays traced > rays to be traced. - T5849

Update: Fix luminance value in the photorealistic rendering result when the importance sampling is applied to the source. T5797

Update: Fix erroneous photorealistic rendering results when using non-cached ray files. - T5667

Update: Texture Optimizer: Exporting real geometry results in error: geometry:flatten-pattern did not complete successfully. – T6708

Update: Texture Optimizer: Exporting real geometry as holes results in bumps. – T6697

Update: Interactive Optimizer: Fix the issue that pasting and exporting Advance Sweep Body crashes program

Update: Interactive Optimizer: Fix the issue that exporting biconic object will cause Boolean exception in TracePro - T6684

Update: Analysis Toolkit: Fix the issue of incorrect result for standard deviation calculation

### ***TracePro 2022 Release (Version 22.5)***

New: Set View - Perspective View - Width and Height give control, would like parallel field to enter as Focal Length. – T5987

New: Irradiance/Illuminance Map - option to change units (W/cm<sup>2</sup>, W/mm<sup>2</sup>, lumens/cm<sup>2</sup>, lumens/mm<sup>2</sup>, mW/m<sup>2</sup>, mW/cm<sup>2</sup>, kW/m<sup>2</sup>, MW/m<sup>2</sup>). – T1296

New: Add macro command property:get-color.

New: Add COM functions to get and set the TracePro database name.

New: Ray Sorting - add Set Defaults capability. – T6662

New: Reptile - Request new reptile geometry "tetrahedron". – T6576

New: Add capability of importing any or all configurations from a multi-configuration OSLO file. – T5799

New: Add capability of importing any or all configurations from a multi-configuration Zemax file. – T1716

New: Add capability to select one or more paths and display them in a Candela Plot. – T6534, T4486

New: Ray sorting can now be used in 3D irradiance map. - T6490.

New: Source Builder: Show the viewing ray file name in the ray file analysis dialog

New: Source Builder: Add feature of inserting file source array into TracePro

Update: Include KOSMOS 4.1.12197.

Update: Photorealistic rendering is not handling TIR reflections correctly. - T6661

Update: Simulation mode raytrace after boolean involving object with Exit Surface results in erroneous message - Simulation Mode requires an Exit Surface. - T6658

Update: Object and Surface Color - Default color ignored - Silhouette mode - silhouettes display as green when default color is not green. - T6654

Update: SolidWorks import - SolidWorks Assembly opens as an empty model, SAT export of same model opens successfully. - T6648, T6479

Update: Insert Part - fails to import Solidworks file (that opens with File|Open) - T6640

Update: Boolean intersect error. - T6634

Update: Subtraction fails with ERROR: Geometric Modeler: Inconsistent face containment after imprinting. Could not separate face(s) within body., LAM\_HA\_Bridge.cpp, 196. - T6633

Update: The contents of the KCM Core and Modeling sections are missing from the macro reference. - T6625

Update: Fix problems opening of files saved using macro command file:save-objects-as. - T6602

Update: Change oml to omlb for commands in the Macro Reference that require omlb files. - T6601

Update: Faceting changed for object that was copied and pasted. Pasted object doesn't display correctly. - T6599

Update: Fix definition of macro command KCM::GetDistanceBetweenTopology. - T6598

Update: Groups - after opening .omlb, Group is missing the + sign, cannot expand group to select objects (save as .sat shows that objects are in .omlb). - T6519

Update: Macro Reference TOC needs Scheme Primitives divided into subtopics. - T6248

Update: Fix COM bug where TracePro didn't shut down when the last COM object was released when TracePro was started using COM..

Update: Add message when macro file doesn't exist for macro language and COM.

Update: Macro reference examples don't use (tracepro:get-active-universe), (model:start-event) and (model:end-event). - T6678

Update: Fails to open ProE/Creo file, no error message (workaround file extension from .prt.1 to .prt). - T6677

Update: Ray Colors - Flux based - erroneous colors for Display Selected Paths. T6556

Update: Interactive Optimizer: Conic Reflector and Spline Reflector - Send to TracePro - Unhandled Exception ... Index was outside the bounds of the array. - T6668

Update: Interactive Optimizer: Send to TracePro results in Unhandled Exception ... The length of the components are not reasonable for B-spline. - T6667

Update: Interactive Optimizer: Fails on first iteration with message "Index was outside the bounds of the array" (OK when Candela Profile Operand replaced by Flux Operand) - T6656

Update: Interactive Optimizer: Send To TracePro - Object with XY Polynomial surface - edit:surface-sweep did not complete successfully - T6655

Update: Interactive Optimizer: Send To TracePro - geometry:sweep-along-path did not complete successfully. - T6651

Update Object - Send To TracePro - geometry:sweep-along-path did not complete successfully. - T6651

Update: Interactive Optimizer:Surface - Send To TracePro - geometry:sheet-from-planar-wire - wrong number of arguments. - T6650

Update: Analysis Toolkit: Improve the capability of selecting area for analyses in the Irradiance map viewer

Update: Source Builder: Fix the issue that cannot load TracePro binary ray files which are provided by Luminus website

### ***TracePro 2022 Release (Version 22.4)***

New: Set the orientation of File source by using normal vector and up (Y axis) vector as well as Euler angles. - T6481

New: Interactive Optimizer: After Scheme Commands - add command to enable optimization of a Bulk Scatter property (similar to prop:add\_material). - T6618

New: Source Builder: Add the capability of copying, pasting, selecting-all the texts in the File Source Converter dialog



Update: Raytrace Error - CTraceProDoc::TraceRays did not complete successfully ... - after tracing rays, modifying an object, then tracing again in simulation mode. - T6639

Update: Eulumadat (.ldt) file saved from Polar Candela Distribution plot - Downward Flux Fraction correct for first raytrace, but for each iteration of raytrace after value is erroneously divided by the iteration number. - T6638

Update: Missing surface and object exporting model to sat file. - T6632

Update: Raytrace error - ray leak through lightpipe. - T6627

Update: Boolean intersect error - can't separate body. - T6433

Update: Importance Targets - Macro behavior differs from UI behavior - when an object is selected, (property:apply-importance-target) applies to all surfaces of object, UI applies to object only and not surfaces. - T5344

Update: Notes Editor - select Enter key - cursor not moving to a new line. - T6610

Update: Interactive Optimizer - extrusion of Spline Reflector Profile - Send to TracePro - object in TracePro does not agree with object in Interactive Optimizer. - T6607

Update: After typing scheme command, pressing enter doesn't execute scheme command. - T6606

Update: Flux Report does not update correctly when changing Raytrace Options>Radiometric Units. - T6605

Update: Surface of reflector is not correct in saved STEP file. - T6604

Update: Incident ray table stokes parameters incorrect when analysis units do not match source units. - T6600

Update: Measure Tool - new capability to copy vertex coordinates to clipboard - (1) add to Help, (2) consider adding UI to show that capability is available. - T6597

Update: TracePro and Solar Emulator crash (quit) after starting analysis. - T6595

Update: STEP file saved by TracePro cannot open in SolidWorks. - T6585

Update: Face can't be selected with the mouse in the model window. - T6569

Update: Importing ProE/CREO file fails with two Geometric Modeler messages. - T6562

Update: Tilting second surface of lens to -45 causes error and extra bodies in the display. - T6559

Update: After boolean subtract of 3D compound reflector from block, the new surface can't be selected by mouse. - T6557

Update: Subtraction of block from object to split it in two produced only one half. - T6555

Update: Interactive Optimizer: Macro command geometry:skin-sheet-from-wires creates incorrect geometry. - T6552

Update: STEP Import - TracePro hangs attempting to open file. - T6548

Update: Interactive Optimizer: Free Form Lens - Send to TracePro creates erroneous geometry that is not a 3D solid. - T6545

Update: Macro (geometry:skin-sheet-from-wires) erroneously results creates a cone when a spline surface is expected. - T6536

Update: Boolean intersect results in an invalid object. A surface is not being displayed. - T6526

Update: Import .sat file (ACIS 7.0) - TracePro crash - CTraceProDoc::OnOpenDoc did not complete successfully, and stream of Geometric Modeler messages in the Message/Macro window. - T6498

Update: Interactive Optimizer: Extra points added to Irr Profile. - T6488

Update: Boolean Subtract - results in error message CTraceProDoc::OnEditBooleanSubtract did not complete successfully. - T6474

Update: Sweep with draft fails when face has a hole in it. - T6431

Update: Intersection of long extrusion with lens fails with an access violation error. - T6423

Update: Surface Selection - several instance of incorrect selections (one is clear case of surface selected when cursor is not over any surface in the model). - T6415

Update: Poor faceting on spline surface. Can't tell shape of surface from the display. - T6393

Update: Body imported from CATIA step file is reported as defective during audit. - T6302

Update: Fix hang during raytrace getting scatter direction. - T6623

Update: Create solid body instead of sheet body for some Fresnel lenses that were created incorrectly. - T6621

Update: Error message CTraceProDoc::OnEditBooleanSubtract did not complete successfully. - T6612

Update: Boolean subtraction failure. – T6603

Update: Boolean Subtract of Block minus Spheres (pattern) fails with message CTraceProDoc::OnEditBooleanSubtract did not complete successfully. – T6538

Update: Audit does not detect missing Environment Properties. – T6447

Update: Planar face on edge of reflector doesn't highlight when mouse is over it and can't be selected in XY view. – T6432

Update: Surface Source - Calculated Wavelengths - erroneous data in case with Surface Property defined at one wavelength. – T6412

Update: Surface Property - Use BSDF Properties - Test 1 fails in Surface Property Editor, Test 2 fails in raytrace - ERROR: Surface property BSDF data is corrupt. – T6311

Update: Simulation Mode - Bulk Scatter Data - incorrect (off-by-one) error in flux value for each Ray Node. – T6180

Update: Rendered display of thin solid has facets from one face displayed behind other faces. – T6099

Update: Surface Property Editor - should not allow BRDF B or BTDF B to be 0. – T2682

Update: Insert Tube - Tapered Rectangle gives incorrect error message (refers to Radius, should say Semi X or Y). – T2501

Update: Texture Optimizer: Export Real Geometries - fails to create any texture geometry. – T6594

Update: Interactive Optimizer: Fix the issue that variables in Freeform slice surface's base profile doesn't appear in Optimization dialog variable list – T6636

Update: Interactive Optimizer: right-click on object, Send to TracePro results in several messages including 'geometry:sweep-along-path' – T6632, T6594

Update: Interactive Optimizer: Fix error with boolean intersect, fails with "Could not separate body." exporting object to TracePro – T6626

Update: Interactive Optimizer: Fix the issue when exporting a biaxial object to TracePro – T6615

Update: Interactive Optimizer: Fix unhandled exception selecting X Y Polynomial surfaces. – T6620

Update: Interactive Optimizer: Fit Asphere - (1) coefficients do not match Property Editor, (2) raytrace results in TracePro differ. – T6619

Update: Interactive Optimizer: Double sided object - BiConic surface - Send To TracePro - edit:boolean-intersect did not complete successfully. – T6611

Update: Interactive Optimizer: Double sided object - XY Polynomial surface - Send To TracePro crashes (exits). – T6609

Update: Interactive Optimizer: Boolean intersect failure during send to TracePro. – T6568

Update: Surface Source Property Generator: Fix the issue that when the calculated weight is much greater than 1.0 (e.g – 24.x), the value won't display properly in plot – T5490

Update: Solar Emulator: TracePro crashes when running scheme (KCM::CreateExtrude). – T6529

Update: Stray Light Analyzer: After utility changes TracePro geometry's name, utility can't perform automatic ray trace

### ***TracePro 2022 Release (Version 22.3)***

New: Copy the vertex position to clipboard in Tools->Measure. – T6551

Update: Return a Null object if an entity doesn't exist for the number supplied to the macro command model:get-object-by-number doesn't exist. - T6581

Update: Document from\_KCM macro command. - T6546

Update: Macro Recorder - create New Group - command is erroneously recorded twice. - T6589

Update: Warn the user when an image source has zero flux and therefore no rays to trace. - T6588, T6571

Update: Flux Report - not available after raytrace in model with File Source and no objects. – 7334, T5579

Update: Fix ray path colors. - T6556, T6561

Update: Change instances of (position,gvector) to (position3d,vector3d) for Macro Reference and recording. - T6583

Update: View Options - Dialog content disappear after pressing enter. - T6575

Update: Fix exception thrown when right-clicking on Image Source in Source Tree and selecting Trace Selection. - T6570

Update: Fix Totals and percent columns off by one in flux report. - T6574

Update: Fix hang when picking OK or Apply in View-Rotate-About Axis. - T6567

Update: Fix macro command edit:move-into-group. - T6564, T6587

Update: Add 2nd-semi-diameter argument for macro commands geometry:lens-element-2 and modify:lens-element-2.

Update: Image Source - the up vector of image source should auto-correct like gird source's up vector. - T6491

Update: Fix highlighting of surface when selecting in the model view. T6535

Update: Fix lens positions when opening Zemax lens file. - T6547

Update: Update system tree when surface properties are applied to selected surfaces. - T6539, T6543, T6544

Update: Double click source tree root to pop up insert source dialog. - T6358

Update: Update flux report when the selection has changed and selected objects is checked. - T6509

Update: Include KOSMOS 4.1.11213

Update: Update save dialog to set KOSMOS version. – T6126, T6472

Update: Add space delimiter for Notes paragraph escape sequence in OSLO importer.

Update: Import lens title and notes into TracePro Notes editor for Code V and Zemax lens design files.

Update: Tori doesn't display correctly, reported as defective and boolean fails. - T6057

Update: Boolean Unite of 7 objects - fails with "Geometric Modeler: Caught an exception., LAM\_HA\_Bridge.cpp, 383". - T6577

Update: Boolean Unite of 19 objects fails - OnEditBooleanUnite did not complete successfully - ERROR: Geometric Modeler: Caught an exception., LAM\_HA\_Bridge.cpp, 383.- T6579

Update: LambdaLicenseUpdate.exe no longer requires administrator privileges to install license files.

Update: IES/LDT Analysis: Fix the Template editor problem – T6590

Update: Interactive Optimizer: Add descriptions to Asphere fitting in Help – T6541

### ***TracePro 2022 Release (Version 22.2)***

New: Make editable Thin Sheet objects when creating dummy surfaces during lens import.

New: Create a group in the System Tree for objects created during lens import.

New: Add the capability of sweeping edge to a body for (geometry:sweep-along-path) command.

New: Texture Optimizer: Add new uv remapping tools convert uv dots created in TracePro 2021 to TracePro 2022 – T6489

New: Source Builder: Add supports to convert Lucidshape and Zemax rayfile to TracePro rayfile

Update: Update creation of dummy surfaces in lens import to make editable Thin Sheet body.

Update: Prevent selected object from spinning when CTRL key is held down. – T6521

Update: Fix order of objects in the system tree when importing lenses. – T6524

Update: Set the orientation of file source by using normal vector and up (Y axis) vector. – T6581

Update: Flux report updates unnecessarily after selection in the system when display all objects is set. – T6509

Update: Improvements to lens translators - better guesses at undefined apertures.

Update: It takes more than 2 minutes to apply surface property on object with 4000 surfaces. -T6487

Update: RepTile Display - not accounting for rotation about X in Ellipsoid RepTile Geometry. - T4443

Update: 3D Irradiance Map - When 3D Irradiance on, selecting row on Path Sort Table leads exception. – T6515

Update: (modify:rim-ray-reflector) scheme command may trigger warning message window that halts macro. – T6508

Update: Surface Property Editor - Attempt to view Composite BSDF type property results in CPropertyEditInfo::OnSelChangeName did not complete successfully. – T5767

Update: Image Source - the up vector of image source should auto-correct like gird source's up vector. – T6491

Update: Object and Surface Color – Changes to default color are ignored. – T6504  
Update: Macro record of modifying a lens is not correct. Missing object argument. – T6495  
Update: Add missing view commands: (view:eye), (view:target), (view:up), (view:perspective?), (view:width), (view:height). – T6495  
Update: Insert Lens Element - Surface tab data not updated with data from oml file – T6475, T6511, T6494, T6496  
Update: OSLO importer improvements: Import System Notes (SNO) into TracePro Notes Editor.  
Update: OSLO importer improvements: Handle systems specified by NA instead of entrance beam.  
Update: View Rotation function of the arrow keys - not working in TracePro 22.1. – T6465  
Update: Lens import - TracePro "gives up" when an exception is thrown, and no lens elements are created. – T6470  
Update: Selected face is no longer highlighted after moving mouse over geometry in silhouette mode. – T6284  
Update: Fix message when deprecated command solid:cylinder is used. – T6466  
Update: Highlight is slow compared to 21.6 when selecting many objects or a group with many objects. – T6451  
Update: Change color maps for Polar and Rectangular Iso Candela Plots to be the same as the irradiance maps. – T4775  
Update: Select Surface - anomalies with edge and wireframe display when selected and hovering. – T6392  
Update: Tilt second face of lens more than 11 degrees about X causes assertion failure. – T6493  
Update: Lens Element dialog: User should be warned when entering Normalization Radius smaller than aperture extents. – T6435  
Update: Texture Optimizer: Fix the font size issue on 4k display  
Update: Texture Optimizer: Fix the issue that the dimension of display in DMD generator cannot correctly set to boundary  
Update: Interactive Optimizer: Fix the Spline reflector profile causes errors when exporting as an extruded object - T6513  
Update: Interactive Optimizer: Fix the issue that cannot paste screenshot of TracePro model view onto surface editor.  
Update: Interactive Optimizer: Fix the issue that exporting TIR lens causes many scheme errors – T6482  
Update: Interactive Optimizer: Fix the issue that input values for variables cannot be retained – T6478  
Update: Analysis Toolkit: Add description to Photorealistic rendering or Luminance analysis in help – T6486  
Update: Lighting Toolkit: Update Help with descriptions about MAX\_VALUE() and similar cases – T6500  
Update: Source Builder: Fix the issue that if aborting the procedure of wizard, cannot close wizard dialog by pressing cross button

### ***TracePro 2022 Release (Version 22.1)***

New: New geometric modeler, Kosmos/KCM.  
New: New surface types and aperture shapes for Lens Element.  
New: New All-mouse mode for manipulating the view.  
New: New dynamic highlighting and tooltips for identifying surfaces in the Model View.  
New: New file format, \*.OMLB  
New: New CAD translators included with TracePro: STEP, IGES, Creo/Pro Engineer, Inventor, SolidWorks, SolidEdge, Catia, NX and AutoCAD. T4301 (5900), T5215 (6916), T5850 (7639)  
New: New KCM scheme commands  
New: Add Source Builder utility (Define\_>Source Builder...)  
New: Solar Emulator: Add new sun-tracing mode: a fixed focus with a reflector  
Update: Updated sketch/draw commands snap to planar faces to allow primitives to be started on planar faces.  
Update: Geometry/Lens Element - Geometry/Reflector - Biconic or Toroidal Surfaces - allow cylindrical lens with aspheric coefficients (create in TracePro / import from Lens Design Translators). T724 (745)  
Update: Flux Report - Sum the columns (e.g. - total "lost" flux, etc) and display Total Flux. T1122 (1445)  
Update: Rays/Objects disappear after repeated zooms. T1149 (1500)

Update: Boolean Subtract - Overlapping Object raytrace errors resolved by Boolean A minus B but not resolved by B minus A. T1490 (2069)

Update: Raytrace Error - rays leak through mirror surface after importing SAT file - lingering LAM\_LENSFACEDATA\_ attributes after re-import. T1558 (2212)

Update: Material and bulk scatter properties can be applied to the medium surrounding the geometry. See environment settings in View->Options->Model. T1729 (2458)

Update: Insert Lens Element dialog - accept aspheric polynomial with 216 coefficients. T1731 (2460)

Update: Display issue - anomalous display of aspheric surface (raytrace is correct). T2417 (3258)

Update: ACIS Error - Transform translation too large or possibly defective object message, but most distant object is less than 1km - 3 customer .oml files. T5161 (3502)

Update: STEP Translator - fails to export 20001 x 20001 x 20001 mm block. T3147 (4522)

Update: Revolve that creates erroneous geometry should result in an error message. T3533 (4946)

Update: Macro execution - executing (raytrace:grid) after (entity:scale) is not recognizing the need to perform an Audit. T4385 (6858)

Update: Insert Lens dialog - creates erroneous lens in case with parabolic surface and large aperture radius. T4723 (6371)

Update: Program crash - attempting to open ACIS 12 file which opened successfully in TracePro 3.3.8 thru 6.0.8. T5161 (6858)

Update: STEP export - fails to export model (exports OK if 4 spheres are removed). T5230 (6932)

Update: Zemax Translator - fails to create lens elements defined with Zernike Polynomials in 7.7.2. T5391 (7102)

Update: Display issue - erroneous display in model window after STEP import and Orbit cursor to rotate view. T5606 (7364)

Update: Display issue - anomalous lens surface. T5696 (7465)

Update: attempt to open ACIS 27 .sat file saved from SolidWorks 2018 results in TracePro crash and message "Error (spaacis/src:MATH\_DOMAIN)". T6087 (7901)

Update: Boolean unite fails - ACIS Error - Inconsistent face-body relationships (21.2). T5732 (7504)

Update: STEP Translator - erroneous geometry imported,(part:entities) shows that 23 entities when it should show just 1. T6035 (7841)

Update: Lens Element - erroneous display of aspheric surface. T6185 (8024)

Update: Zemax Translator - ISO Y-toric lens surface type - translation fails, but lens can be created in TracePro. T6399 (8272)

Update: Performance issue - Memory consumption - 2022 EV (21327) vs 21.5 - consumes more memory after series of 5 raytraces - Delete Raydata Memory recovering much smaller portion. 8291(T6413)

Update: Boolean subtract - After subtracting a geometry surface with surface source property, the surface source is still in the source tree. T6400 (8273)

Update: Grid Source - Spatial Gaussian - incorrect distribution of rays for all Grid Patterns except Random. T6291 (8149), T6419 (8298)

Update: Remove error message when environment bulk scatter is applied without material. T6436 (8315)

Update: TracePro crashes during raytrace after setting material property to <None>. T6437 (8316)

Update: TracePro crashes during raytrace after setting bulk scatter to non-existent property. T6438 (8317)

Update: Interactive Optimizer: Fix the issue when sending Advanced sweep object to TracePro, results in Unhandled exception error - T6445

Update: Interactive Optimizer: Change when exporting a reflector object, the surface property of the inner surface will be applied according to the selected surface property for the reflector profile – T6418 (8296)

Update: Interactive Optimizer: Fix then issue when inputting a non-numerical character as the first one, results in “Unacceptable input value” message – T6426 (8305)

Update: Interactive Optimizer: Fix the issue that scaling freeform surface (radial type), some of points are not scaled. - T6420 (8299)

Update: Interactive Optimizer: Disable the function of scaling face for Freeform-slice mode

Update: Lighting Toolkit: Fix the issue when attempting to add regulation results in Unhandled Exception (Value

cannot be null) – T6441 (8322)

### ***TracePro 2021 Release (Version 21.6)***

- New: Interactive Optimizer: Add the capability of applying Asymmetric/Anisotropic property to the generated object in TracePro - 7817
- New: IES/LDT Analysis: Add the capability of directly export the generated TracePro source property into TracePro database – 7631
- New: Analysis Toolkit: Add capability of smoothing data in Luminance analysis
- Update: Change check box to radio buttons for angular units in the Source Editor when working with image sources. - 8241
- Update: Update CodeMeter licensing software to version 7.30a.
- Update: Display message when license file update is required rather than starting troubleshooter.
- Update: Remove surface source from source tree after boolean removes or splits the surface that the source is attached to. - 8273
- Update: Texture Optimizer: Increase the sampling number of path searching for filling cell densities to prevent from missing cells
- Update: Solar Emulator: Fix the internet issue for connecting Google map service

### ***TracePro 2021 Release (Version 21.5)***

- New: Interactive Optimizer: Add options to control number format, position parentheses and separator of the surface export file - 8220
- New: Analysis Toolkit: Add options to select the data in saved file is from raw data or display data - 8219
- Update: Fix reverse ray tracing with image sources. - 8206
- Update: Increased limit for rows in Incident Ray Table and Flux Report to 10,000,000 rows. - 8232
- Update: RepTile - Export .3D dxf - saved file has two images of the surface. - 7616
- Update: RepTile Display - 64-sided polygon - display has erroneous flat area. - 7953
- Update: RepTile Export - Spherical RepTile Geometry with Hexagonal Tiles - exported dxf shows hexagons, but not spheres. - 7440
- Update: Raytrace Error - Thin Sheet coincident with surface of object, raytrace fails in one direction succeeds in the other, both should fail. - 7846
- Update: TracePro crashes (disappears) - when attempting to insert a specific File Source while the Macro Recorder is recording. - 8174
- Update: Macro Recorder - changes made in Source Editor not recorded. - 8175
- Update: Radian or Degree of Image Source's Half Angle value in Source Editor works in opposite way. - 8216
- Update: Fix file path name when recording a macro with raytrace:add-image-source or raytrace:modify-image-source.
- Update: Translate Object - selection of objects not retained after translation (all other Edit/Object functions retain the selection). - 8049
- Update: Fix performance issue when orbiting view in silhouette display mode. This would occur when an irradiance plot is displayed. -8073
- Update: Candela Options - sequence of steps with Log Scale, Set Max, and Set Min results in incorrect scales for the plot. - 8239
- Update: Texture Optimizer: Fix the program hangs when exporting text file after the first iteration. – 8249
- Update: Interactive Optimizer: Fix the issue where a Surface Property applied in Optimizer is missing in TracePro object. - 8207
- Update: Solar Emulator: Increased the size of the texts for the Time Filter - 8213
- Update: Surface Property Generator: Composite BSDF property exported from Surface Property Generator results in Error: Invalid value of B (0) in ABg BSDF model when viewed in Surface Property Editor and when tracing rays. 1. Check the model coefficients if smaller than 1e8. 2. Make some restrictions to the ctrl pts. –

### **TracePro 2021 Release (Version 21.4)**

- New: New scheme commands: geometry:get-block-parameters, modify:primitive-block. - 7981
- New: Add new utility – Stray light analyzer
- New: Lighting Toolkit: Add new regulations: ECE R7 2019, ECE R119 (2014), ECE R6 2008, SAE J588, SAE J222, SAE J592, SAE J594, SAE J845
- New: Interactive Optimizer: Add the capability of choosing the hole shapes between circular and rectangular for Reflector
- Update: Fix bug that prevented display of plots from simulation ray traces. - 8154
- Update: Fix program hang tracing first ray - Surface Property with Scatter Type 1D Table. - 8150
- Update: Surface sources are no longer deleted when modifying thin sheets, tubes and some other modifiable objects.
- Update: Retain face names when a geometric operation splits a face.
- Update: Interactive Optimizer: Fix the issue that if the same profile with variables used by multiple objects, the variable list will count them more than once.
- Update: Interactive Optimizer: Fix the issue that when logging the scheme commands, if the scheme to TracePro is not executed successfully, the log will be missed.
- Update: Interactive Optimizer: Lower the sensibility of moving mouse from clicking it - 6272
- Update: Interactive Optimizer: Improve the layout of Add/Modify object dialog
- Update: Lighting Toolkit: Update regulations: ECE R6 FMVSS108 Figure 17,27,28, ECE R3, ECE R91, ECE R98, ECE R1 (2010,2012), ECE R6
- Update: Surface Property Generator: Fix the issues related to importing SPEOS format file – 8161, 8162, 8163

### **TracePro 2021 Release (Version 21.3)**

- New: Exposure Compensation for photo realistic rendering and true color plots.
- New: New scheme commands geometry:make-circular-edge-3pt and geometry:make-circular-edge.
- New: Texture Optimizer: Add capabilities to Start and Stop MD smoothing in the dialog
- New: Analysis Toolkit: Add new feature to add polygon analysis shape for luminance analysis (by pressing ctrl+shift and use mouse to select region)
- New: Lighting Toolkit: Add ECE regulations: ECE R91 side-marker lamp, ECE R119 cornering lamp, ECE R77 parking lamp
- Update: Fix display after sketching cylinder or cone. - 8083
- Update: Set rays to plot to reverse in 3D Irradiance/Illuminance options when mapping reverse ray tracing results.
- Update: Fix angular units for edit:set-orientation scheme command. The angles are to be input in degrees. This was mistakenly changed to radians.
- Update: Avoid extra copies of custom colors when modifying geometric primitives. Repeated modification increased the size of the oml file. - 8077
- Update: Delete extra copies of custom colors when opening oml file. - 8079
- Update: Improvements in photorealistic realistic rendering with the handling of numerical noise in the calculations.
- Update: Fix bug with (file:save-copy-as) changing the model file name as well the new file.
- Update: Fix TracePro crash when opening a true color radiance map in Irradiance Viewer. Bug 8099.
- Update: Fix scheme command raytrace:get-grid-source-flag.
- Update: Tolerance for imported lens files when two aperture radii are nearly the same and should be treated as a single radii.
- Update: Texture Optimizer: Fix the issue when regenerating cells crashes if a cell or a dot is selected
- Update: Interactive Optimizer: Fix the issue that for some profiles, export model to TracePro is failed - 8076
- Update: Interactive Optimizer: Fix the issue that when deleting a symmetric control point pair, only one will be

deleted - 8032

Update: Solar Emulator: Fix the issue that the pupil normal calculation is wrong when setting Sun tracking to uni-axial and Aim to Sun - 8080

Update: Solar Emulator: Fix the Sun positions issue with Sun Tracking On - 8080

Update: Fix crash when entering double value for rotation angle in lamp rotation feature.

### ***TracePro 2021 Release (Version 21.2)***

New: Image Sources: Image files be inserted into a model and used as light sources. Rays are emitted from the image with flux and wavelength determined by the color and intensity of each pixel.

Update: The scheme command (geometry:elliptical-tube) now displays the new tube without having to run render:rebuild. - 7934

Update: Fix handling of error message boxes when updating Irradiance or Luminance maps. The message box is not displayed again when OK is picked.

Update: Improve accuracy when calculating RGB color from XYZ.

Update: The CDGM material catalog has been updated with the latest glasses and data from the manufacturer.

Update: Several incomplete scheme commands were removed from the Macro Reference. These were mistakenly included in the documentation before they were ready. – 8022,8050

Update: Interactive Optimizer: Fix the issue that when generating object with conic segment, an extra cone surface will be created.

Update: Interactive Optimizer: Fix bug exporting Fresnelized profile.

Update: Interactive Optimizer: Include missing after scheme command help.

Update: Interactive Optimizer: Prevent crash if there is a duplicate key in help list.

Update: Interactive Optimizer: Remove duplicate after-scheme command math: spline\_integration\_split.

Update: IES/LDT Analysis: Prevent unhandled exception when selecting Analysis/Candela Curves. - 8039

Update: Analysis Toolkit: Bug fix in uniformity and contrast calculation when dealing with zero value in irradiance Map.

Update: Analysis Toolkit: Fix the error of unhandled exception when right-clicking to Save as / Show Text result on the Spectrum Analysis plot – 8067

### ***TracePro 2021 Release (Version 21.1)***

New: Add edit:rotate-objects to match the rotate dialog options.

New: Interactive Optimizer: Add the capability of editing the values of points when defining the Irradiance profile operand - 7910

Update: Improve Photorealistic Rendering for Extra High and Extremely High quality settings.

Update: Fix exception thrown when opening file while recording a macro. This would occur when recording window changes and no other documents were open. - 8015

Update: Surface Source Property Generator: Fix the unhandled exception when exporting Volume file source - 8005

Update: Texture Optimizer: Fix the issue that X axis label shows non-integer value if the iteration number is small - 7850

Update: Interactive Optimizer: Add descriptions of cply in Pick-ups session to the help. - 7474

Update: Interactive Optimizer: Fix "Unhandled Exception ... Input string was not in correct format" when starting optimization with Photorealistic operand. - 8003

Update: Interactive Optimizer: Add warning message when user enters less than 3 control points for free BSpline surface. – 7833, 7834

Update: Interactive Optimizer: fix after-scheme command set\_view(...)

Update: Interactive Optimizer: Fix optimization failure (unhandled exception) in first iteration when Windows Language is set to Turkish. - 7896

Update: Solar Emulator: Add pipe server command to create trajectory surface.



Update: Analysis Toolkit: Improve correlation of Irradiance/Illuminance map with TracePro when using matching options. - 8006

New: Lighting Toolkit: Add FMVSS 108 regulations.

Table V: Motorcycle - Turn signal lamp - Right

Table V: Motorcycle - Stop lamp

Table V: Motorcycle - Taillamp

Table V: All Other - Turn signal lamp - Right

Table V: All Other - Stop lamp

Table V: All Other - Taillamp

Table V: All Other - Parking lamp

Table VI: Front Turn Signal Lamp - Base Requirements -1

Table VI: Front Turn Signal Lamp - Base Requirements -2

Table VII: Rear Turn Signal Lamp - Red-1

Table VII: Rear Turn Signal Lamp - Red-2

Table VII: Rear Turn Signal Lamp - Red-3

Table VII: Rear Turn Signal Lamp - Amber-1

Table VII: Rear Turn Signal Lamp - Amber-2

Table VII: Rear Turn Signal Lamp - Amber-3

Table VIII: Taillamp-1

Table VIII: Taillamp-2

Table VIII: Taillamp-3

Table IX: Stop Lamp-1

Table IX: Stop Lamp-2

Table IX: Stop Lamp-3

Table X: Side Marker Lamp - Red

Table X: Side Marker Lamp - Amber

Table XI: Clearance and Identification Lamps - Red

Table XI: Clearance and Identification Lamps - Amber

Table XII: Backup Lamp - Two lamp systems - Each Lamp

Table XII: Backup Lamp - Single lamp systems

Table XIII: Motorcycle Front Turn Signal Lamp-1

Table XIII: Motorcycle Front Turn Signal Lamp-2

Table XIII: Motorcycle Front Turn Signal Lamp-3

Table XIII: Motorcycle Red Rear Turn Signal Lamp-1

Table XIII: Motorcycle Red Rear Turn Signal Lamp-2

Table XIII: Motorcycle Red Rear Turn Signal Lamp-3

Table XIII: Motorcycle Amber Rear Turn Signal Lamp-1

Table XIII: Motorcycle Amber Rear Turn Signal Lamp-2

Table XIII: Motorcycle Amber Rear Turn Signal Lamp-3

Table XIII: Motor Driver Cycle Stop Lamp-1

Table XIII: Motor Driver Cycle Stop Lamp-2

Table XIII: Motor Driver Cycle Stop Lamp-3

Table XIV: Parking Lamp

Table XV: High-Mounted Stop Lamp

Table XVII: School Bus Signal Lamp Red

Table XVII: School Bus Signal Lamp Amber

Table XVIII: Headlamp Upper Beam-1

Table XVIII: Headlamp Upper Beam-2

Table XVIII: Headlamp Upper Beam-3  
Table XVIII: Headlamp Upper Beam-4  
Table XVIII: Headlamp Upper Beam-5  
Table XVIII: Headlamp Upper Beam-6  
Table XIX: Headlamp Lower Beam 1M  
Table XIX: Headlamp Lower Beam 1V  
Table XIX: Headlamp Lower Beam 2M  
Table XIX: Headlamp Lower Beam 2V  
Table XIX: Headlamp Lower Beam 3M  
Table XIX: Headlamp Lower Beam 3V  
Table XIX: Headlamp Lower Beam 4M  
Table XIX: Headlamp Lower Beam 5M  
Table XX: Lower Beam Motorcycle  
Table XX: Lower Beam Motor Driven Cycle  
Table XX: Lower Beam Motor Driven Cycle with Single Lamp System  
Table XX: Upper Beam Motorcycle  
Table XX: Upper Beam Motor Driven Cycle

### ***TracePro 2020 Release (Version 20.6)***

- New: Add new RepTile geometry shape (Circular Hip Roof) has been added. - 7974
- New: New scheme commands edit:copy-sources, edit:paste-sources, geometry:primitive-block and geometry:primitive-sphere. - 7811
- New: Surface Property Generator: Import Data - support ASTM file format
- New: Surface Property Generator: Import Data - support Rsoft MeshData format
- New: Surface Property Generator: Import Data - support OPTIS - brdf surface file v3.0
- Update: Fix bug where saved incident ray file doesn't match the settings in the save file dialog. - 8000
- Update: New arguments for edit:cut and edit:copy scheme commands.
- Update: Result of 7XX boolean produces Warning: Possibly defective Fiber is being added to the raytrace. - 7938
- Update: Raytrace errors, display problems and surface source ray density problems. - 7984
- Update: Fix rays incorrectly hitting cylindrical face inside of a hole in the face. This occurred with an .oml file saved from RayViz. - 7978
- Update: Fix performance of surface source ray generation from helical spline surface. - 7963
- Update: Fix faceting used for surface source, ray tracing and 3D irradiance maps for helical spline surface. - 7964
- Update: New argument for scheme command edit:move to return the copied bodies. It currently returns the original arguments that were moved.
- Update: High-resolution silhouette edge display will be restored after moving objects and with window:refresh-model.
- Update: Interactive Optimizer: Fix exception in Optimization Log - right-click/Update Model - right-click in blank column on the left results in Unhandled exception ... Index was out of range.. - 7868
- Update: IES/LDT Analysis: UGR calculation includes lamp height
- Update: Surface Source Property Generator: Volume File Source - attempt to add plot points results in Unhandled exception. - 7996
- Update: Surface Source Property Generator: Help - Operations of Volume File Source help shows Paste Image, UI shows Load Image. - 7995
- Update: Solar Emulator: Fix erroneous values in exported ray file. Reported values had exponents E+030. - 8001
- Update: Analysis Toolkit: Bug fix: Photorealistic Rendering Map Analysis Toolkit
- Update: Analysis Toolkit: Fix bug with Road Luminance - right-click/Options results in "Unhandled Exception ... Exception has been thrown by the target of the invocation -7849
- Update: Lighting Toolkit: Regulation Editor - attempt add User Define Spec results in "Unhandled exception ...

Object Reference not set to an instance of an object. - 7855

Update: Lighting Toolkit: Regulation Editor - Set Region dialog - list of items fixed on first 10, cannot see remaining items when selecting. -7997

Update: Surface Property Generator: Improve the accuracy of computing BSDF integral

Update: Surface Property Generator: Utility Name "Surface Property Generator" - 7921

Update: Surface Property Generator: Negative incident theta/phi should not be allowed. - 7820

Update: Lighting Toolkit: Add 9 SAE regulations:

"SAE J595 2014 Figure 1-W",

"SAE J595 2014 Figure 2-W",

"SAE J595 2014 Figure 3-W",

"SAE J595 2014 Figure 1-YELLOW",

"SAE J595 2014 Figure 2-YELLOW",

"SAE J595 2014 Figure 3-YELLOW",

"SAE J595 2014 Figure 1-RED/BLUE"

"SAE J595 2014 Figure 2-RED/BLUE"

"SAE J595 2014 Figure 3-RED/BLUE"

### ***TracePro 2020 Release (Version 20.5)***

New: Add scheme commands for setting and getting the current setting for the ray trace option ***Collect Path Sort Data***. (raytrace:set-collect-path-sort-data-on), (raytrace:set-collect-path-sort-data-off) and (raytrace:get-collect-path-sort-data?)

Update: Fix errors with identifying bodies in RayViz oml files. – 7979

Update: Fix errors in luminance values when using calculated wavebands with luminance map type in Photorealistic rendering.

Update: Record entity:get-by-name instead of entity # if body has a name when recording macros.

Update: Fix macro recording for revolve face.

### ***TracePro 2020 Release (Version 20.4)***

New: Interactive Optimizer: Remove the capability of adding segment into 2D and 3D path due to modeler issue.

New: Interactive Optimizer: Add two properties in Spline segment: Start direction and End direction for controlling the terminal slope of the generated spline. Keeping the two properties as zero vector (0,0,0) retains the same shape as before.

Update: Fix erroneous overlapping body message while ray tracing. - 7911

Update: Fix raytrace error due to missing facets on spline face.

Update: Fix voxelization error with specific spline face.

Update: Fix auto completion for TracePro scheme commands in NotePad++.

Update: Interactive Optimizer: Prevent the exception when fitting asphere.

Update: IES/LDT Analysis: Fix error "Invalid source size information" message when export a file source. – 7845

### ***TracePro 2020 Release (Version 20.3)***

New: Add arguments to geometry:baffle-vane for entering angles in degrees and naming the baffle vane.

New: Add scheme command modify:baffle-vane.

Update: Fix display of saved true color radiance/luminance files in the Luminance Viewer.

Update: Fix crash in Luminance Viewer when opening Unicode format radiance/luminance files.

Update: Fix the data saved to the clipboard when ctrl-C is entered and a radiance/luminance map is displayed.

Update: Fix the X order in saved radiance/luminance maps to match the order in the displayed map.

Update: Fix the issue that saved Luminance RGB file shows all zero - 7829

Update: Update display after geometry creation or modification to make sure that the selection is highlighted and just the modified geometry is displayed. - 7883, 7884

Update: Select thin sheets after they are inserted or modified like all other geometry creation and modification commands.

Update: Fix ray trace errors on ruled surface after Boolean and 3D irradiance map displays off of the surface. - 7549

Update: Fix print and print preview when the system/source/radiance tree window was the active window. – 7898, 6898

Update: Improve checks to determine when to display the warning message that properties may be lost when modifying lenses and reflectors.

Update: Adjust width of coordinate display fields in status bar based on the text size. The coordinates and flux values are now displayed properly on UHD or when the Windows User Interface scaling is changed. – 7681, 7685, 7871

Update: Install latest version of Notepad++ and install our plugin DLL in the folder required by newer releases of Notepad++. – 7828, 7832

Update: Fix assertion error message when interacting with the source tree. – 7923

Update: Texture Optimizer: Fix system hang when previewing the hip roof.

Update: Interactive Optimizer: Fix the issue that surf\_prop cannot be used in pickup for biconic surface - 7887

Update: Analysis Toolkit: Fix the typo of “spectrum” in setup dialog

Update: Analysis Toolkit: Fix the issue that option dialog cannot be opened

Update: Lighting Toolkit: Fix the incorrect CIE xy and CIE u’v’ values displayed in the Spectrum analysis.

## ***TracePro 2020 Release (Version 20.2)***

New: Scheme commands: view:set-raytrace-mode-prompt-on, view:set-raytrace-mode-prompt-off and entity:get-by-class

New: The Dow Silastic MS-series material catalog has been added.

New: Texture Optimizer: Add feature of Smooth dots

New: Texture Optimizer: Add new dot distribution – Random dots

New: Interactive Optimizer: Add new dialog for viewing the TracePro model (on-line help is not updated yet)

New: Lighting Toolkit: Turn on lighting toolkit for the TracePro LC edition.

Update: The default surface names (i.e. “Surface 1”) can now be used in entity:get-by-names.

Update: Download license file only if required to run TracePro or to check for updates when starting TracePro.

Update: Fix bug with tracing more than 4294967295 rays of a single wavelength from a surface source. The ray trace would have to be cancelled because it would continue tracing rays after the desired number of rays were traced. - 7842

Update: Fix a problem with repeated ray numbers when tracing more than 4294967295 rays of a single wavelength from a source of any type.

Update: Move the default locations of the define and tools toolbars to the first line so that the default dock of the large icons has two lines of toolbars on a 1920x1080 resolution screen.

Update: Fix bug with macro recording of the modification of a thin-sheet circle.

Update: The width and height of a rectangular thin-sheet now represent the full width and height of the rectangle. - 7837

Update: Fix some language translation problems with the About dialog and add the TracePro build number.

Update: Texture Optimizer: Correct dot preview for Block with z axis rotation.

Update: Lighting Toolkit: Update multiple regulations (ECE R6 R7 R23 R38 R87 R112)

Update: Surface Property Generator: Fix the issue that Zero axis setting is correctly set when importing measurement data

## **TracePro 2020 Release (Version 20.1)**

- New: Support for circular, elliptical, rectangular and regular polygon thin-sheets have been added. These shapes can now be created and modified. Corresponding scheme commands to create and modify these new thin-sheet types has also been added.
- New: TracePro can now modify newly created irregular-polygonal thin sheets.
- New: Macro Commands - add a command that returns the names of all the groups in the model, suggestion (edit:get-model-groups). - 7764
- New: Surface Property Generator: Add capability to import scatter data files from Surface Optics - 7781
- Update: Fix the display and input of total rays when above 4294967295 in the source editor.
- Update: Add Update from RayViz to the geometry menu when the UI language isn't set to English. This also fixes the geometry menu in the LC edition when the UI language isn't set to English.
- Update: Scheme command (entity:get-name ...) will now return the null string when the target entity is a surface with default surface name.
- Update: IES/LDT Analysis: Fix the issue that cannot launch multiple instances – 7687
- Update: Surface Source Property Generator: Improve error messages for (1) no angular distribution defined, (2) clipping region hasn't setup and update the on-line help for Image File Source Editor – 7470
- Update: Interactive Optimizer: Fix the issue that right click on Optimization Log item without highlighted, Update Model fails - 7690
- Update: Interactive Optimizer: Fix the issue that cannot create sweep object along 2D path - 7824
- Update: Interactive Optimizer: Fix the display issue in Object view for a sweep object along 2D path
- Update: Interactive Optimizer: Fix the issue that right click on Object without highlighted name, Send to TracePro is not working - 7689
- Update: Interactive Optimizer: Fix the issue that when changing conic type to Parabolic for a 2D path, the Conic constant not set to -1 - 7823
- Update: Interactive Optimizer: Fix the issue that Fresnelized property cannot be retained after save - 7822
- Update: Interactive Optimizer: Fix the issue that no warning message is shown when entering unacceptable value in lower/upper limits in property editor – 7819
- Update: Interactive Optimizer: Fix the unhandled exception when attempt to delete the point at angle = 190 in Candela target definer – 7804
- Update: Interactive Optimizer: Fix the issue that the assigned surface properties are not applied to the generated extruded object in TracePro – 7810
- Update: Interactive Optimizer: Fix the issue that fail to apply surface properties by after-scheme - 7818
- Update: Interactive Optimizer: Fix the unhandled exception after entering incorrect character in Value field - 7803
- Update: Interactive Optimizer: Fix the dialog caption for modifying object - 7802
- Update: Interactive Optimizer: Fix the misleading message when aborting optimization process - 7801
- Update: Interactive Optimizer: Fix the issue that the generated sweep object along 3d path, the orientation is not correct - 7826
- Update: Analysis Toolkit: Fix the issue that Type A Iso Candela Plot and Grid View – distribution center differs from Rect Iso Candela Plot - 7480
- Update: Lighting Toolkit: Fix the issue that Analysis/Check Spec does not add Result Column and show pass/fail results for 9 Regulation Tables - 7482
- Update: Lighting Toolkit: Fix the issue that Regulation Table showing data values = 0 for 90L and 90R data values that should not be 0 – 7704
- Update: Lighting Toolkit: Fix the issue that action of importing Candela data into Lighting Toolkit changes the Candela Options in TracePro - 7703
- Update: Surface Property Generator: Add a check to prevent the Incident Theta and Phi value from negative value – 7820

## **TracePro 2019 Release (Version 19.6)**

- New: New scheme function edit:get-faces.
- New: New scheme function geometry:create-sheet-from-planar-edges.
- New: Texture Optimizer: Allow the modification of dot coefficients by interactively dragging a spline curve in dot list editor.
- Update: Fix argument checking on edit:surface-sweep.
- Update: Cleanup Macro Reference scheme documentation and examples: fix various errors and modernize code.
- Update: Fix display of the Raytrace Mode options page and the translation of Bitmap Source in the define menu when the UI language is set to Korean.
- Update: Remove ACIS group-related commands from Macro Reference. - 7706
- Update: Fix crash when importing property in Surface Property Editor with language set to Italian. - 7705
- Update: Fix error message in Measure Tool: "GetResourceString: Failed to load string resource(5522)." when language is set to Italian. - 7702
- Update: Fix exporting/importing of coefficients for the Pyramid reptile property.
- Update: Fix the issue that no duplicate utility can launch at the same time - 7662
- Update: IES/LDT Analysis: Fix issue of different Luminaire classification plot in IES/LDT tool and in Analysis toolkit - 7709
- Update: Texture Optimizer: Fix the issue that when generating dots with assigned density larger than 1.0, exit and re-generate will crash
- Update: Texture Optimizer: Fix the exception error when displaying the preview of Enhanced Prism
- Update: Interactive Optimizer: Extend the allowed order to 20<sup>th</sup> for XY Polynomial surface
- Update: Interactive Optimizer: Add options of setting the sizes of saved irradiance map and Candela plot during optimization
- Update: Interactive Optimizer: Recover the after-scheme command - slinterface:skinning - 7678
- Update: Interactive Optimizer: Restore the responsiveness of the Interactive Optimizer user interface while a ray trace is running. - 7692
- Update: Interactive Optimizer: Fix the corrupted display for valid extruded object - 7765
- Update: Interactive Optimizer: Fix the issue that when changing control point numbers for BSpline surface, it cannot retain the change - 7783
- Update: Interactive Optimizer: Fix the exception error when loading io2 file which is okay with 19.4 - 7782
- Update: Analysis Toolkit: Fix reading of luminance file when path contains Chinese character.
- Update: Surface Property Generator: Fix the bug that cannot display the imported data

## **TracePro 2019 Release (Version 19.5)**

- New: Add macro commands raytrace:get-surface-source-scale and raytrace:set-surface-source-scale to get and set the scale value for a Surface Source (Surface Property Type) -7697
- New: Interactive Optimizer: Added after scheme command source:grid\_beam\_orientation to set the orientation of the beam for a grid source.
- Update: Fix the Lumen per lamp value in the IES File Auxiliary Data dialog when exporting a candela plot in IES format. This would always be the first opened one, unless the absolute/relative radio button was changed.
- Update: Fix bulk absorbed flux in Flux Report with Bulk Scatter property applied. For bulk scatter rays, bulk absorbed flux was double-counted. - 7696
- Update: Fix formula display in Bulk Scatter, Gradient Index and Material property editors with a Windows UI scaling above 175%. This was displaying a message box because LoadImage had failed. - 7683
- Update: Don't display a command window when the scheme function system:command is used. This window would grab input focus when running scheme macros and interfere with the ability use other programs.
- Update: Interactive Optimizer: Fix error when loading a file containing a reflector with a hole radius represented by an integral value.
- Update: Interactive Optimizer: Fix the issue when defined source is existing, selecting Silhouettes results in error

message – 7675

Update: Interactive Optimizer: Fix the issue that after editing the origin/normal value of the defined source, the source won't change – 7674

Update: Interactive Optimizer: Fix the issue that the segment property isn't applied to export object for an extruded object – 7673

Update: Interactive Optimizer: Correct the name to Interactive Optimizer in on-line help. – 7694

Update: Interactive Optimizer: Fix help links for after scheme commands that have the colon(:) character in the name.

Update: Lighting Toolkit: Additional corrections to ECE No.6 catalog 5 spec

### ***TracePro 2019 Release (Version 19.4)***

New: Support for ultra-high definition (UHD) monitors was improved. A new option for large icons was added to the Toolbars dialog. This feature improves the visibility of the toolbars when running on a UHD monitor while using smaller fonts. Note: The B&W toolbars were removed.

New: Surface Source Property Generator: Add the capability of copying and pasting data from Excel to wavelength grid view – 7654

New: Texture Optimizer: Add a new dialog for listing and modifying dot coefficients.

New: Texture Optimizer: Support DMD, Block and Chiseled log shapes

New: Interactive Optimizer: Add new feature of pasting TracePro model view onto surface view

New: Interactive Optimizer: Add new object type – Reptile Object

Update: Support higher resolution and 24-bit color bitmaps for formulas that are displayed in the property editors. The formula images will be clearer for all monitors. The most significant improvement will be on UHD monitors.

Update: Update to ACIS 2019 (file version 29.0.1)

Update: OHARA glass catalog has been updated – new data received from OHARA. Eight glasses obsoleted.

Update: Default communication with Utilities is now COM.

Update: Fix restoration of the default dock when the file or view tool bars are not on the left side of the frame window.

Update: Remove Help toolbar

Update: Download the license file when reporting entitled release for a permanent license. The entitled release displayed in Help|License and in the License Troubleshooter will now reflect the latest license information. This fix is in TracePro and in the Lambda Network Key Server - 7137

Update: Change the message in the License Troubleshooter when the entitled release can't be determined. Print a message "Could not determine entitled TracePro version." rather than "You are entitled to run TracePro 0.0.0".

Update: Display the resolve dialog when resolving a license in the License Troubleshooter that is not supported by the version of TracePro or the Lambda Network Key Server.

Update: Fix context sensitive help for the Apply Properties dialog and the View|Options dialog.

Update: Fix font scaling when a CIE (xy), CIE (u'v') or true color plot from a simulation file is resized.

Update: Use the same font as the irradiance maps for CIE (xy), CIE (u'v') and true color plots.

Update: Updates to TracePro Help and Macro Reference documentation

Update: Fix raytrace errors in supplied models – 7246, 7264, 7319

Update: Fix to Boolean operation on submitted model – 7475

Update: Texture Optimizer: Improved performance for dots created as real geometry

Update: Texture Optimizer: Fix bug with exporting Enhanced Prism to TracePro

Update: Texture Optimizer: Change the DMD exporter behavior from exporting texture file to creating dots in the main window

Update: Interactive Optimizer: Fix the issue that utility crashes after pressing Fit button if Enter was not pressed

after changing the value of no. of ASP. terms

- Update: Interactive Optimizer: Fix bug exporting Fresnel object to TracePro when using equal width mode
- Update: Interactive Optimizer: Changed the behavior of inserting new control point to the closest position on the curve – 7618
- Update: Interactive Optimizer: Fix the display issue with Advanced Sweep Object – 7629
- Update: Interactive Optimizer: Fix sending object to TracePro – this was a regression from 19.2 – 7634
- Update: Interactive Optimizer: Fix exception when checking absorptive in Property editor – 7672
- Update: Lighting Toolkit: Correct the regulation: ECE No.6 category 5
- Update: Surface Property Generator: Fix bug loading ISSA file correctly with multiple wavelengths

### **TracePro 2019 Release (Version 19.3)**

New: Add the following commands:

- (geometry:baffle-vane ... )
- (geometry:rectangular-tube ... )
- (geometry:baffle-vane ... )
- (geometry:baffle-vane ... )
- (geometry:baffle-vane ... )

and deprecate the following commands:

- (solid:baffle-vane ... )
- (solid:rectangular-tube ... )
- (solid:baffle-vane ... )
- (solid:baffle-vane ... )
- (solid:baffle-vane ... ) -- 7604

New: Add the command (geometry:ray-test ... ) to replace the obsolete Scheme command (solid:ray-test ... )

- Update: Fix program hang when displaying 3D Irradiance/Illuminance Map when setting Normalize to Average Emitted Irradiance. This hang would occur if there was file sources in the model. Add a message to warn user. – 7623
- Update: Fix bug associated with unpredictable ray colors when using the Path Sort Table and displaying the selected path
- Update: Improvements to potential grazing incidence surface intersections
- Update: Enhance (edit:surface-revolve ... ) to take either a radius or a position on axis of revolution. This will fully mimic the functionality of the Revolve Surface Selection dialog with the same calculation as selecting the ‘Calculate a Position using selected surface’ button if a radius is entered – 7586
- Update: Change name of menu selection from ‘3D Interactive Optimizer’ to ‘Interactive Optimizer’ since the ‘2D Interactive Optimizer’ has been removed
- Update: Turn off menu selections for 2D Interactive Optimizer, Texture Optimizer, and DMD Generator as these Utilities have been deprecated
- Update: Documentation updates – 7588
- Update: Fix exception -- CSysView::OnSelchanged did not complete successfully after a series of steps with geometry created by the Interactive Optimizer – 7591
- Update: Texture Optimizer: Fix the issue of Boolean subtraction of exported real dots – 7613
- Update: Texture Optimizer: Fix the issue of missing dots when export real geometries – 7620
- Update: Texture Optimizer: Surface name check – 7607
- Update: Interactive Optimizer: Fix the rename feature of the copy command fails in after-scheme – this is a regression from 19.2 – 7589
- Update: Interactive Optimizer: Fix the issue of profile is not perpendicular to path for 3D path sweep object – 7628



## ***TracePro 2019 Release (Version 19.2)***

- New: Texture Optimizer: Add new optimizable dot pattern - grid with varied pitch
- New: Interactive Optimizer: Press F5 in after-scheme editor to run the current code
- New: Interactive Optimizer: Press F10 in after-scheme editor to start the step execution mode, F11 to step forward
- New: Analysis Toolkit: Add options of max/min/log for Luminance analysis
- New: Lighting Toolkit: Add regulation SAE J914
- New: Lighting Toolkit: Add capability of setting min value in Log scale
- New: Lighting Toolkit: Contour modes can support log scale
- Update: Have the default Radius Ratio be 1 for parameterized Log and Chiseled Log RepTile geometry types in the RepTile Property Editor – 7561
- Update: Use appropriate caption for Luminance/Radiance map
- Update: Improve performance in updating the Apply Properties | Surface Source tab when modifying wavelength inputs – this can be substantial for some models – 7099
- Update: Fix issue with licensing message regarding different editions – 7548
- Update: Fix crash on submitted model when photorealistic rendering with a RepTile Property that contains a Surface Property with scattering
- Update: Updates to Help
- Update: Interactive Optimizer: Fix the issue that the surface property applied to surface is not retained after sending to TracePro – 7558
- Update: Interactive Optimizer: Fix the error when start optimize if PRR operand has not set map option
- Update: Interactive Optimizer: Improve the after-scheme editor and on-line help
- Update: Interactive Optimizer: Fix the NAN issue for Candela profile operand – 7542
- Update: Interactive Optimizer: Fix the error occurred when using uniformity operation – 7585
- Update: Solar Emulator: Fix sun source created after cancel – 7518
- Update: Solar Emulator: Fix the issue that cannot create model when Language is German – 7567
- Update: Surface Property Generator: Fix the issue that exporting property failed when Region/Language set is German – 7553

## ***TracePro 2019 Release (Version 19.1)***

- New: Add TIR as another intercept type in the Path Sort Table
- New: Enable path sorting feature on incident ray tables
- New: Add COM method BackgroundExecuteSchemeString to execute Scheme code and not wait for a return
- New: Add command (analysis:candela-viewer-open ... )
- New: Add command (analysis:candela-viewer-close ... )
- New: Add command (analysis:candela-viewer-save ... )
- New: IES/LDT Analysis: Support using Tab as the separator in IES file
- New: Interactive Optimizer: Add capability of using Surface Type D to create an extruded object
- New: Interactive Optimizer: Add new operand – Photorealistic for retrieving the luminance value from Photorealistic render result
- New: Analysis Toolkit: Add option of enabling/disabling showing analysis item info
- New: Surface Property Generator: Add capability of loading TracePro property files
- Update: Correctly process filters in open dialog
- Update: Photorealistic Rendering fix on user-supplied model – distribution appeared as a bright circle with dark corners of the square – 7550
- Update: Remove Help items for obsolete BSDF Converter – 7552
- Update: Refrain from doing fluorescence emission if the raytrace was canceled in the first stage of fluorescence raytracing (i.e. when the fluorescence sources were being created)

Update: Fix possible exception that would occur in models with Fluorescence turned on, but with no Fluorescence properties

Update: Generated fluorescence source files can now be larger than 2GB

Update: All True Color settings for brightness, contrast, gamma, and normalization are saved to the OML file

Update: Change the option of normalizing True Color plots to a checkbox and update all corresponding Scheme commands and documentation. Implement Set Defaults and ResetDefaults for all these changes. – 3167

Update: Properly check bounds on user-supplied contour levels in Candela Options

Update: Fix raytrace errors on submitted model

Update: Bug fixes and enhancements when reading ray simulation files – 7453

Update: Allow “quantities to plot” to be changed when viewing irradiance maps for simulation results – 5531, 6121

Update: Fix for Candela Plot Viewer – case insensitive check on extensions when opening a sim file. Assume text file when extension is not .sim.

Update: Better error reporting in (analysis:irradiance-viewer-open ... ), (analysis:irradiance-viewer-close ... ) and (analysis:irradiance-viewer-save ... )

Update: Fix to Irradiance/Illuminance viewer to display data saved in TracePro 2018

Update: (property:export-property ...) can now export BSDF properties

Update: Open file when there is no TracePro document open fixed in (analysis:irradiance-viewer-open ... )

Update: Close open sim files properly in (analysis:irradiance-viewer-close ... )

Update: Save open sim files also in (analysis:irradiance-viewer-save ... )

Update: Fix true color map display from simulation files

Update: Enable true color option in simulation Irradiance/Illuminance Viewer

Update: Fix centering of scatter distribution function for Retroreflectors with BRRDF to be around the retroreflective direction – 7525

Update: Print out more informative messages when using the Simulation File Manager with newer file formats

Update: Fix exception thrown when opening pre-18.5.5 simulation file – 7537

Update: IES/LDT Analysis: Fix the issue that the incorrect source size leads to incorrect UGR result

Update: Surface Source Property Generator: Fix the UI bug when creating image file source

Update: Texture Optimizer: Fix the issue that the generated Hip-roof object cannot be booleaned – 7531

Update: Texture Optimizer: Fix the issue that the min density input box is hidden

Update: Interactive Optimizer: Fix the wrong notation in exponential presentation in Tolerance analysis

Update: Interactive Optimizer: Fix the error when sending extruded object to TracePro with Language is set as German – 7547

Update: Interactive Optimizer: Fix the issue that when exporting Fresnel lens with Draft angle = 0.0 and Rounding radius = 0.0 will crash program

Update: Interactive Optimizer: Fix the issue that right-clicking on the Slice type freeform crashes

Update: Fix the bug that Hide all analysis items is not working

### ***TracePro 2018 Release (Version 18.6)***

New: Add command (analysis:get-sort-path-value ... )

New: Display max and min value in Select Rays dialog

New: 64-bit Notepad++ is now installed. This replaces the 32-bit version of Notepad++ – 7449

New: Add the following Scheme commands:  
 (analysis:enable-3d-irradiance-saturated-color ... )  
 (analysis:get-enable-3d-irradiance-saturated-color ... )  
 (analysis:enable-irradiance-saturated-color ... )  
 (analysis:get-enable-irradiance-saturated-color ... )  
 (analysis:enable-radiance-saturated-color ... )  
 (analysis:get-enable-radiance-saturated-color ... )

- (view:enable-photo-realistic-render-saturated-color ... )
- (view:get-enable-photo-realistic-render-saturated-color ... )
- New: Texture Optimizer: Add a new popup entry to modify the dot position in dots editing mode
- New: Texture Optimizer: Add capability of editing point in Edit Cell Density by Path dialog – 7523
- New: Texture Optimizer: Add capability of exporting real geometries along u- or v- direction on curve surface
- New: Texture Optimizer: Add minimum density when optimizing dot pattern
- New: Texture Optimizer: Add new dot pattern – Fix grid staggered and parameterized
- New: Interactive Optimizer: Add draft angle in Fresnelization of segment
- New: Interactive Optimizer: Add new feature of Fit Asphere for central symmetric segment
- New: Analysis Toolkit: Add capability of analyzing Photorealistic render raw data file
- New: Surface Property Generator: Link the catalog and property boxes with TracePro database
- Update: Prevent a crash when attempting to send an error message to the Message/Macro Window before it is properly initialized. A message box will be displayed instead.
- Update: Properly delete a partially downloaded installer file when the user confirms cancelling the download
- Update: Use new Windows known folders and migrate away from obsolete Win32SpecialFolder
- Update: Fix very slow ray intersecting with Surface Property that has an Elliptical Gaussian BTDF in supplied model – 7530
- Update: Updated internal URLs to secure versions for Help menu topics
- Update: Fix formatting issue for Total Rays and Min. Rays for surface sources in Source Editor – 7528
- Update: Allow for finer adjustments to Brightness, Contrast, and Gamma through shift and ctrl keys.
- Update: Convert Brightness, Contrast, and Gamma from integers to real numbers with the following ranges:  
Brightness: 0 to 1; Contrast: 0 to 1; Gamma: 0 to 3 – 7496
- Update: Add “Set Server Name” to main page of troubleshooter – 7381
- Update: CodeMeter have been updated to version 6.70a
- Update: Fix Ambient Luminance in Photorealistic Rendering – 7519
- Update: Fix axis labeling on certain 2D plots
- Update: Fix the issue of truncated texts on UI in some system
- Update: Texture Optimizer: Fix an issue with the generated real object of Hip-Roof being broken in TracePro
- Update: Interactive Optimizer: Display error values in Optimization log dialog will full digits – 7535
- Update: Interactive Optimizer: Add a check before starting optimization to find if there is any missing settings – 7534
- Update: Interactive Optimizer: Fix the issue that the freeform lens cannot retain the second linked surface when modifying object – 7529
- Update: Interactive Optimizer: Fix the issue that the generated object in TracePro cannot be exported as STEP file
- Update: Interactive Optimizer: Fix the error when the Src Config ID is empty or zero – 7527
- Update: Interactive Optimizer: Fix the extruded object with asymmetric profile, the properties don’t apply correctly – 7526
- Update: Interactive Optimizer: Fix the conic segment wrong behavior with the mirror control point
- Update: Interactive Optimizer: Fix the issue when closing the Candela target dialog, will lose the previous setting
- Update: Solar Emulator: Fix the wrong emission type reading from TracePro database
- Update: Solar Emulator: New maps used in this utility – 7517
- Update: Fix the analysis window caption
- Update: Surface Property Generator: Fix the error of importing BSDF data when language is set to French – 7521

### ***TracePro 2018 Release (Version 18.5)***

- New: Add command (analysis:path-sort-set-percent-rays ... )
- New: Add the following commands to set and retrieve background colors:

- (view:set-bg-up-color ...)
- (view:bg-up-color )
- (view:set-bg-down-color ...)
- (view:bg-down-color )
- New: Interactive Optimizer: Add capability of executing Scheme operand
- New: Interactive Optimizer: Add new surface type – Freeform – slice
- New: Interactive Optimizer: Add capability of saving the backup io2 file during optimization
- New: Solar Emulator: Add capability to create a solar source based on elevation angle and azimuth angle – 7507
- New: Solar Emulator: Add capability to import list of object names from TracePro model – 7477
- Update: Fix the exception when opening the flux report with a language other than English
- Update: Fix the initialization of rays coming off a surface source precisely in the x-direction with polarization on – 7509
- Update: Trace % of rays in File Source Dialog did not work correctly when the value is greater than 50% -- this is now fixed – 7434
- Update: Properly calculate flux for importance sampled rays for surface properties with formula-based BSDFs that vary versus angle of incidence
- Update: Fix issue with photorealistic rendering with surface properties with formula-based BSDFs that vary versus angle of incidence – 7491, 7492, 7493
- Update: Fix contour line display – regression from 7.8.4
- Update: Ensure consistent Windows version definition across all projects – target version is now Windows 7 for all products
- Update: Change to Vista-style file dialogs across all of TracePro – 7497
- Update: Fix photorealistic rendering issue with file sources (found internally)
- Update: Fix exceptions when updating the display of a body in certain cases – 7047, 7049, 7479, 7483, 7495
- Update: Fix crash when setting options when no document is open
- Update: Fix (view:set-view ... ) when model units are not millimeters
- Update: Fix errant Grid Source acceptance of Total Rays for large values – 7490
- Update: Fix errant Surface Source acceptance of Total Rays for large values – 7487, 7488, 7489
- Update: Interactive Optimizer: Fix the issue that cannot move object in Object mode
- Update: Interactive Optimizer: Fix the issue related to the error when running optimization – 7506
- Update: Solar Emulator: Fix issue that data file names not accounting for iterations in units of seconds – 7484
- Update: Lighting Toolkit: Fix the issue that Type A ISO Candela plot’s distribution center differs from Rect ISO Candela plot – 7481

### ***TracePro 2018 Release (Version 18.4)***

- New: Add command (view:set-high-resolution-silhouettes )
- New: Add command (view:define-named-view ) and record it when a new view is created or updated
- New: Add command (view:set-named-view ) and record it when a named view is set
- New: Fluorescence ray files have been consolidated to one file per fluorescing object – 7418
- New: Texture Optimizer: Add capability of loading DXF file with the current dot setting and replace the radius by the loaded value (only support reptile shape – sphere and cone)
- New: Interactive Optimizer: Add the capability of defining an empty list in after-scheme, ex. a={ }
- New: Interactive Optimizer: Add new operand – Spot size
- Update: Fix default initialization settings when running Photorealistic Render and the plot type is Luminance
- Update: Fix text of drop-down menu selections in Simulation File Manager – 7455
- Update: Fix crash when picking a file from the recent file list that doesn’t exist – regression from 18.2
- Update: Fix acis\_exception with (geometry:delete )
- Update: Fix macro recording bug of deleting a surface source or setting the emission type to none

Update: Fix macro recording bug when deleting an object with a surface source on it – extra surface source commands were recorded

Update: Fix unreported bug where zoom-to-window didn't work when the model Z axis was vertical

Update: Make zoom-to-window properly fit what was in the selected window – 1890

Update: Fix View • Rotate • About Axis – 2353

Update: Fix bug in (file:merge-file ) – center position should always be in millimeters as all lengths in Scheme

Update: Use Vista style dialogs for File • Merge, Geometry • Insert Part, and Geometry • Update from RayViz

Update: Fix raytrace error on spline surface in submitted model – 7378

Update: Ensure all fluorescence ray files are created next to the OML file

Update: Fix incorrect ray count in irradiance map with reverse ray trace on surface source with ray hitting the back of the source – 7398

Update: Interactive Optimizer: Fix the issue that when selecting any cell in the Variable list results in an Error message – 7476

Update: Interactive Optimizer: Fix the issue that the cply command for picking up the vertex point in freeform-radial mode surface results in an error – 7473

Update: Interactive Optimizer: Fix the issue of generating wrong direction of extruded object

Update: Interactive Optimizer: Fix the issue of failure in Object editor to synchronize view with TracePro

Update: Interactive Optimizer: Fix the issue that when saving io2 file without a running TracePro, the saved file is empty – 7445

Update: Interactive Optimizer: Fix the issue that pickup is not working with Freeform loop

Update: Interactive Optimizer: Increase the digit number when sending scheme to TracePro for better accuracy

Update: Interactive Optimizer: Fix the error when exporting geometry with periodic pattern – 7460

Update: Interactive Optimizer: Fix the error when applying surface property with an extruded object – 7461

Update: Lighting Toolkit: Fix the issue that when loading IES file results in an unhandled exception – 7478

### ***TracePro 2018 Release (Version 18.3)***

New: True colors options have been enhanced with 'Saturated color' for Irradiance/Illuminance Maps, 3D Irradiance/Illuminance Maps, and Photorealistic Rendering Options – 7396, 7437

New: Add command (geometry:primitive-block ) This command has the same inputs as the dialog box in the User Interface.

New: Add command (view:photo-realistic-render-close ) to close the photorealistic rendering window

New: Lighting Toolkit: Add new regulation ABYC

Update: Fix the issue that Radiance/Luminance raytrace shuts polarization raytrace off, leaves checkbox checked, but then forward raytrace does not include Polarization – 7439

Update: Fix the mouse hovering coordinates on the photorealistic render with integer value mode

Update: Use transparency values consistently as they were stored

Update: Fix issue in photorealistic rendering to include the proper surface sources

Update: Eliminate some errant overlapping body messages on user-supplied model

Update: Fix updating display on objects with Color Transparency after moving them in the model – 7432

Update: Use the correct wavelength weight with photon maps and file sources

Update: Fix exception caught by a Material Property with an index of refraction of 0 – 7422

Update: Fix issues with HA\_UpdateEntity – 7413, 7414

Update: Fix display and system tree after a Boolean fails

Update: Fix display bug after undoing a Boolean operation – regression from 18.2

Update: Fix issues regarding color transparency in render view

Update: Fix issue with order of operations with file sources used in the photon map

Update: Fix Table BSDF integration issues – 7365, 7380

Update: The BSDF Converter has been removed. All users should use the Surface Property Generator instead

Update: IES/LDT Analysis: Fix file saving in a consistent way – 6911  
Update: Interactive Optimizer: Fix unhandled exception due to non-English characters – 7419  
Update: Interactive Optimizer: Fix ray display error – 7415  
Update: Interactive Optimizer: Allow Tilt X, Y, Z to be set as variable – 7411  
Update: Surface Property Generator: Fix the issue that the integrated values are different in Surface Property Generator and TracePro – 7365

### ***TracePro 2018 Release (Version 18.2)***

New: Add functionality to update models from RayViz – 5427, 6254  
New: File Sources now contribute to Photo Realistic Rendering – 6381  
New: Add new option in Option dialog for user to specify the temp folder to resolve the issue that when user name contains special character, the optimization process will fail – 7384  
New: Interactive Optimizer: Add new segment type – Custom Fresnel  
New: Interactive Optimizer: Add new option in Option dialog for user to specify the temp folder to resolve the issue that when user name contains special character, the optimization process will fail – 7359  
New: Analysis Toolkit: Irradiance/Illuminance Map – Add option for units in  $W/m^2$  – 7375  
New: Lighting Toolkit: Add capability of defining a spec with Max, Min, Average value in Regulation editor – 7390  
Update: Fix error message (Error loading string resource ID = 7922) when attempting to register the TracePro COM interface when not running as administrator.  
Update: Update geometry:block and edit:move to work properly with (view:set-update-system-tree #f )  
Update: Fix the language name displayed in the message box when changing languages  
Update: Fix exception entering data into Surface Source dialog – 7391  
Update: Document how to set the number of increments on the x → INF band – 7389  
Update: Several corrections to Help  
Update: Fix several issues with undo/redo  
Update: Fix internal query function that could lead to a crash due to its use on an improper state of geometric modeler  
Update: Fix crash attempting to select surface after a Boolean Subtract on supplied model – 7397  
Update: Do not reset model units using the units of the sat/oml file when the file is not in mm – 7287  
Update: Fix crash in Korean raytrace due to ill formatted warning message  
Update: Class and User Data can now be applied to surfaces – 7351  
Update: Changes to menu selections on Macros menu:  
    ‘Execute’ was changed to... ‘Load...’  
    ‘Output’ was changed to... ‘Messages/Macros’  
Update: Updates and enhancements to the Help system – 7153, 7383  
Update: Macro documentation updates and fixes – 7394  
Update: IES/LDT Analysis: Fix the issue that labels for the polar and azimuth angles always face the viewer – 7245  
Update: User Interface improvements – 7309, 7310, 7311  
Update: Fix the issue that if the asphere radius is less than  $1e-3$ , fitting the asphere coefficient causes exception  
Update: Fix the issue when exporting dots as real object to TracePro model – 7322  
Update: Interactive Optimizer: Fix the error when loading a saved io2 file – 7410  
Update: Interactive Optimizer: Fix the issue of an object having two extra surfaces that should not exist – 7349  
Update: Interactive Optimizer: Fix typos in Help – 7267

### ***TracePro 2018 Release (Version 18.1)***

New: Add COM support to TracePro – 7129

New: Fluorescence Property Generator: Add new option of straight line to fit the excitation spectrum curve

New: Interactive Optimizer: Add the capability of Irradiance/Illuminance map to do radiance/luminance analysis if the input data is Candela, IES, LDT, text file source or incident ray table

New: Surface Property Generator: Add new feature of showing simulated specular signal

Update: Fix issues with RepTile coincident faces – 2459, 6180, 6276, 6986

Update: Improvements to RepTile ray trace performance

Update: Do not allow SolveFor BRDF nor Solve For BTDF for surface properties with Table BSDFs – 7342

Update: Properly convert pixel dimensions to mm when applying RepTile properties – 7140

Update: Fix incorrect integrated BSDF value of the Table BSDF input – 7368

Update: Set all negative values of BSDF to zero when retrieving from the database cache – 7356

Update: Fix ray trace issue involved with the 3D Optimizer

Update: Fix memory issue in Photorealistic rendering – 7357

Update: Fix ray display error – rays traced to infinity on PCs with Intel HD Graphics Chips – 7032

Update: Fix issue with rays terminated by RepTile Error messages – 6276

Update: Update to ACIS 2018 (file version 28)

- Fixes to CAD Geometry – 3655, 6662, 6706, 6817
- Fixes to Display Issues – 5661, 5668, 5923, 6301, 6420, 6839, 7062, 7090, 7158, 6295, 7050
- Fixes to STEP Translator – 6160, 6212, 7162, 7114
- Fixes to Inventor Translator – 6916

Update: Fluorescence Property Generator: Fix the wrong flag of user data in the exported fluorescence property file

Update: Interactive Optimizer: Fix the issue that an exception occurs when deleting an existing Path

Update: Interactive Optimizer: Fix the issue that when using TypeA and TypeB surfaces to form a lens, an exception occurs

Update: Interactive Optimizer: Fix the issue that when creating Advanced Sweep Object, if the involved circular profile has offset, an exception occurs

Update: Interactive Optimizer: Fix the issue that the peak location for Periodic segment cannot be a function

Update: Interactive Optimizer: Fix the exception error when deleting a XY-polynomial surface

Update: Interactive Optimizer: Fix issue with Send To TracePro not retaining the Surface Property – 7350

Update: Analysis Toolkit: Fix the wrong spec. in ECE No.6

Update: Analysis Toolkit: Change the name and the unit of irradiance map to Illuminance map and lux – 7374

Update: Analysis Toolkit: Fix unhandled exception when attempting to view Spectrum Analysis – 7358

Update: Analysis Toolkit: Fix erroneous message regarding wavelengths – 7362

Update: Surface Property Generator: Fix unhandled exception when attempting to save \*.txt file – 7361

### ***TracePro 7.8.4 Release***

Update: Only set the position of the main window on program startup to a valid window position. Certain invalid data could lead to an out-of-memory condition in the graphical display.

Update: Fix Geometry|Insert Part when importing .stp files into an existing model – 7353

Update: Properly refresh dialog data when the Grid Source dialog is displayed – this is a regression in 7.8.3 – 7352

Update: Fix display issue on sphere representing the location of file sources after a coordinate transformation – this is a regression in 7.8.3

### ***TracePro 7.8.3 Release***

New: Interactive Optimizer: Add the capability of reading file saved by 2D Interactive Optimizer

New: Interactive Optimizer: Add new operand – “Scheme” for doing custom task after each iteration, such as saving Incident ray table – 7253

New: Interactive Optimizer: Add new feature of slider wheels – 6856

New: Lighting Toolkit: Add capability of scaling the flux of the imported data  
 Update: Fix ray generation for checkerboard grid sources with annular boundaries – 7344  
 Update: Improve efficiency in ray generation for file sources  
 Update: Fix exception when view was changed when the measure dialog was displayed – 7335  
 Update: Fix issue with Photorealistic Rendering in models with bulk scatter – 7249, 7324  
 Update: Fix crash if a Scheme command throws an exception during DDE execution of Scheme – this is a regression in 7.8.2 – 7328  
 Update: Only refresh visible dialogs  
 Update: Add a check for min and max values in the Photorealistic Rendering Options Dialog – 7262  
 Update: Properly update the selecting and deselecting of Grid and File Source in the source tree – 7323  
 Update: (edit:move... ) will always return the bodies that were moved  
 Update: Fix access violation in (view:perspective? ), (view:eye ), etc. -- this is a regression in 7.8.2  
 Update: Texture Optimizer: Save the control points of Density path dialog to saved file – 7332  
 Update: Interactive Optimizer: Fix the issue that when revolving a profile, the resulting object will have additional surfaces – 7345  
 Update: Interactive Optimizer: Fix the issue when loading the saved file, the name of target surface is missing – 7296  
 Update: Interactive Optimizer: Fix the issue that TIR lens cannot successfully generated in TracePro – 7291  
 Update: Interactive Optimizer: Changed how variable displays and behaves in optimization window – 7295  
 Update: Interactive Optimizer: Fix the issue that system shows error message when loading a saved biconic surface file – 7341  
 Update: Analysis Toolkit: Correct the wrong calculation for ISOCandela plot's type A & B  
 Update: Lighting Toolkit: Correct the unit used to check ECE No6 regulation from lux to cd

## ***TracePro 7.8.2 Release***

New: Add capability of saving luminance data from Photo Realistic render result  
 New: Add command (view:get-view-mode ) to retrieve the current view mode  
 New: Add the following commands to retrieve Candela distribution option values:  
 (analysis:get-candela-distribution-cdklum )  
 (analysis:get-candela-distribution-smooth )  
 (analysis:get-candela-distribution-smooth-factor )  
 (analysis:get-candela-distribution-horizontal-angles )  
 (analysis:get-candela-symmetry )  
 New: Add command (analysis:get-irradiance-symmetry ) to retrieve the symmetry condition for the irradiance maps  
 New: Add capability of model view as jpg and png formats  
 New: Add capability of saving analysis plots as jpg and png formats  
 New: Add capability of saving Photorealistic Rendering images as jpg and png formats  
 New: Add capability to normalize True Color options on an Irradiance/Illuminance Map  
 New: A new Utility, the Surface Property Generator, has been added  
 New: BSDF Converter: Add capability of importing Luminit's proprietary file format – 7273  
 New: Texture Optimizer: Add new FOV coefficient in the Photo Realistic Render target dialog  
 New: Texture Optimizer: Add new supportive optimization target – Photo Realistic Rendering – 7172  
 New: Texture Optimizer: Open the accessibility of Boundary editor  
 New: Texture Optimizer: Add new capability of optimizing inverted dot pattern  
 New: Texture Optimizer: Add new capability of creating partitions – Import from file  
 New: Interactive Optimizer: Add Save/Load capability in Tolerance analysis window



New: Interactive Optimizer: Add capability of pasting bitmap on all types of surface

New: Interactive Optimizer: Add new dialog to setup view manually

New: Interactive Optimizer: Add new measure tool in surface editor

New: Interactive Optimizer: Add new Tolerancing feature

New: Interactive Optimizer: Add option of saving result bitmap's format, bmp, jpg and png are selectable – 7297

New: Interactive Optimizer: Add four new path types: Helix path, Free helix path, Square spiral path and Free square spiral path

New: Interactive Optimizer: Add capability of multiple source configurations

New: Interactive Optimizer: Add capability of picking up value from segment properties – 7227

New: Interactive Optimizer: Add new parameter – Rounding radius to the Fresnelized segment to create the rounded corners

New: Interactive Optimizer: Add new parameter – Rounding radius to the Periodic segment to create the rounded corners

New: Surface Property Generator: Add capability of importing Luminit's proprietary file format – 7273

New: Lighting Toolkit: Add new regulation ECE R87 Daytime Running Lamp

Update: Aspheric sag terms imported in Zemax translator – 7286

Update: Fix issue in (analysis:ray-sorting) of an empty flux view when specifying the sorting wavelength of 0

Update: Fix documentation of smoothing range for Candela Distributions in Candela Options – 7278

Update: Resolve inconsistency between Insert Lens dialog and documentation regarding “center” vs. “vertex” – 1797

Update: Fix incorrect flux on fluorescence rays with bulk scatter – 7303

Update: Write out ray counts as an integer for (raytrace:get-wavelengths ... )

Update: General improvements to exception handling

Update: Properly refresh the analysis data on initial display of the Rectangular and Polar Candela Distribution Plots – 7300

Update: Save the View|Option of view rotation when using the arrow keys as a floating point number – 7298

Update: Fix luminance calculation in photorealistic rendering with Gegenbauer bulk scatter – (part of 7262)

Update: Fix failure to recognize overlapping bodies during ray trace

Update: Update controls properly in Irradiance Map Viewer Options Dialog

Update: Fix translation of Gradient Index and Material Property data in Zemax Translator – 7276

Update: Fix to drawing RepTile geometry for enhanced prisms – 7248

Update: Fix internally found issue that could lead to memory corruption in rare cases involving volume flux calculations and changes to the voxelization

Update: Fix Scheme commands (solid:elliptical-tube ... ), (solid:rectangular-tube ... ), (solid:tapered-tube ... ), and (solid:baffle-vane ... ) and improve error handling in these commands

Update: Fix erroneous luminance values for Photorealistic Rendering with Calculated Wavelengths – 7266

Update: Fix exception caught when displaying an irradiance map when CHT or CHS languages are used

Update: Fix the issue of erroneous luminance value when a surface source is defined by Calculated Wavelengths with a scale factor other than unity – 7247

Update: General improvements to macro recording

Update: Fix macro recording bug for creation of rim-ray-reflector

Update: Fix macro recording bug for modification of elliptical 3D-compound-reflector

Update: Modify hip roof texture geometry display to now include the bottom profile

Update: Fix issue in the reading of the irradiance value for an irradiance surface source from an oml file written from RayViz – 7244

Update: Update graphic on Polarization tab of Grid Source dialog box – explicitly state propagation direction of beam

Update: Photorealistic rendering now works with bulk scatter in model – 6745

Update: Improvements to license updating

Update: Fix check for proper file on server when using Help|Update Property Database -- 7229

Update: Fix RepTile display for ring tiles and enhanced prism geometry – 7209

Update: Fixes to macro commands (raytrace:set-grid-irradiance... ), (raytrace:set-grid-total-flux ... ), and (raytrace:set-grid-flux-per-ray ... ) – 7199

Update: Fix to Photorealistic Rendering in model with RepTile – rendering did not agree with Radiance Map from same Eye Position – 7221

Update: Fix crash on submitted model when attempting Photorealistic Rendering in model with RepTile/Texture file with surface property on RepTile geometry – 7216

Update: Help updated for enhanced face selection

Update: Only permit the proper scatter models in the Surface Property Editor for each edition of TracePro – 7212

Update: Combine multiple messages into one for importance sampling and birefringent materials when traced in LC

Update: IES/LDT Analysis: Change the label text from “Angle of LUX in 50%” to “Full Width XX% Maximum” – 7275

Update: IES/LDT Analysis: Fix the issue of saving LDT file and its error message erroneously refers to IES file not LDT file – 7285

Update: Surface Source Property Generator: Fix the issue that when attempt to load TracePro property results in DDE connection error with LC edition – 7240

Update: Texture Optimizer: Fix the issue that cannot fill-in dots as cell density when the current dot is Pyramid

Update: Texture Optimizer: Fix the issue that optimization is not working when dot is Polygon or Pyramid

Update: Texture Optimizer: Fix the issue that cannot export Pyramid feature to TracePro

Update: Interactive Optimizer: Fix the error when opening a .sod file with Windows language set to Turkish – 7306

Update: Interactive Optimizer: Fix the issue when edit location of Segment point, the segment does not update to meet the new location of the Segment Point when language is set to Turkish – 7317

Update: Interactive Optimizer: Fix the error when loading io2 file with an obsolete conic base line – 7316

Update: Interactive Optimizer: Changed the default target of the irradiance profile operand is uniform

Update: Interactive Optimizer: Add new button in the Irradiance map option dialog to retrieve the current setting from TracePro

Update: Interactive Optimizer: Fix the issue of duplicate variable shown in the optimization dialog

Update: Interactive Optimizer: Fix the issue of wrongly interpreting number if Windows Language is set to Spanish (Spain), Decimal Symbol to “,” and Digit Grouping Symbol to “.” – 7304

Update: Interactive Optimizer: Fix the issue that the surface name is not changeable when selecting uniformity operand

Update: Interactive Optimizer: Fix the issue that the right bound point in the function plot cannot be moved when it was picked up by the left bound point

Update: Interactive Optimizer: Fix the issue that the step value is not loaded correctly from file for setting with the user-defined variable and function point

Update: Interactive Optimizer: Fix the issue that pick-up of function will be lost when reloaded from file

Update: Interactive Optimizer: Fix the issue that pickup won't be updated when optimizing

Update: Interactive Optimizer: Fix the bug that using circular or tri-circular as periodic feature causes profile miscalculation

Update: Interactive Optimizer: Fix the issue that wrong scheme command sent to TracePro if the surface/object name has “/” in it – 7228

Update: Interactive Optimizer: Fix the issue that loading saved io2 file, the function points are not setup correctly – 7224

Update: Interactive Optimizer: Fix the issue that always launch Expert edition of TracePro if there is no TracePro existing – 7222

Update: Solar Emulator: Fix the issue that the Uni-axial Sun tracking parameter parameters are not read when .seu file is loaded – 7277

Update: Analysis Toolkit: Change the label text from “Angle of LUX in 50%” to “Half Width XX% Maximum” – 7275

- Update: Surface Property Generator: Fix the scientific representation of -90.0 degrees in BSDF profile display.
- Update: Surface Property Generator: Add a message dialog indication the BSDF integral are calculating when opening the export BSDF dialog
- Update: Lighting Toolkit: Fix the wrong setting for ECE No.6 and No.50 regulations
- Update: Lighting Toolkit: Add regulation editor description to help – 7272

## **TracePro 7.8.1 Release**

- New: Add an application-wide random number generator accessible through Scheme:  
(tracepro:get-random-number )
- New: The Face Selector Tool has been enhanced. Previously, the face selector tool selected all faces that had any portion of their bounding box inside the selection region. Now, this tool can also be used to select only the faces whose entire bounding box is inside the selection region. There are two ways the user can implement this. 1.) By creating the selection region in a right-to-left manner. OR 2.) By holding the shift key while creating the selection region.
- New: Add new RepTile geometry shape – Pyramid. Allow control of number of faces and angles on pyramid geometry – 6939
- New: Enhance (geometry:part ) to accept all formats that TracePro can open
- New: Surface Source Property Generator: Add header and version info in the saved file
- New: Surface Source Property Generator: Add capability of editing spectrum in log scale
- New: Texture Optimizer: Add new supported reptile geometry - Pyramid
- New: Texture Optimizer: Add new dot pattern – 1D grid
- New: Texture Optimizer: Add new boundary operation – Reflection
- New: Interactive Optimizer: Add new features of setting segment length and y-angle
- New: Interactive Optimizer: Add capability of pasting bitmap in the Candela and Irradiance target editors
- New: Interactive Optimizer: Add capability of pasting bitmap from a copied file – 7170
- New: Interactive Optimizer: Add capability of setting map options for each operand
- New: Interactive Optimizer: Add new features of copying/pasting operand
- New: Interactive Optimizer: Add “Uniform profile” button in the Irradiance profile definer as a short cut to generate uniform target
- New: Interactive Optimizer: Add new variable type – Function for the Periodic segment
- New: Interactive Optimizer: Add a “Point Info” Button in the Surface List Window for displaying the control point is set as pick-up and symmetric
- New: Interactive Optimizer: Add new properties – “Center feature option” for the Periodic segment
- New: Interactive Optimizer: Add new properties – “Shift” for the Periodic segment
- New: Interactive Optimizer: Add new segment properties – “Absorptive” as the flag that ray stopped when hitting it in 2D real-time raytrace
- New: Interactive Optimizer: Add new object type – “Advanced Sweep Object” – 7163
- New: Interactive Optimizer: Add new capability of generating a thin sheet object in TracePro by extruding a path
- New: Interactive Optimizer: Add capability of saving visible flag in Object Window and Output flag in Optimization window in the saved file
- New: Interactive Optimizer: Add Post-after-scheme row in the Optimization window
- New: Interactive Optimizer: Add new periodic feature – Trapezium
- New: Interactive Optimizer: Add new method for pasting bitmap – Vector mode
- New: Interactive Optimizer: Add new support to asymmetric profile for a biaxial object
- New: Interactive Optimizer: Add sorting of wavelength in the Irradiance map option
- New: Analysis Toolkit: Add new switchable mode – Multiple document interface
- Update: Fix crash in property editors when deleting some data
- Update: Fix multi-byte conversion issues in the path for CAD file export

Update: Fix temperature interpolation issues on surfaces that contained temperature distributions whose boundary was smaller than the surface boundary

Update: Data directory can now be nulled out with an empty string

Update: Properly truncate ray distribution to match Grid Boundary in a Grid Source with Spatial Gaussian Distribution – uniform flux / weighted position – 7191

Update: Fix uninitialized temperature issue with temperature distributions on surfaces

Update: Restore code to calculate local bounding box for a Coating DLL

Update: Fix raytracing of anisotropic grating where only the azimuth = 0 data was used – 7196

Update: Update macro reference description of (property:apply surface ... )

Update: Fix localZ calculation for irregular cylinders

Update: Allow the application of cylindrical Temperature distributions to irregularly bounded surface sources

Update: Disable origin entry when circular and cylindrical faces match the surface boundaries for Temperature Distribution properties

Update: Fix Help for surface property import/export format

Update: Improve documentation for coincident surfaces – 7164

Update: Disable importing of Zernike polynomials which led to a crash – 7102

Update: Fix Anisotropic surface property with ABg BSDF – the azimuthal variation of the BSDF was ignored – 7079

Update: The macro command (property:remove-importance-targets ) now also removes body targets as well as face targets – 7184

Update: Fix in 1D Table BSDF and Asymmetric Table BSDF when used for BTDF beyond the critical angle

Update: Fix for hanging bug with 1D Table BSDF found internally

Update: Change wording in message to handle all types of Surface Properties that cannot be plotted in the Surface Property Viewer – 7155

Update: Fix file format issue of exported LDT files when using different symmetry options in Candela Plots – 7130

Update: Fix bug in Path Sort filtering

Update: Fix internally found bug importing lenses with central obscurations from OSLO

Update: Fix unclear error message when ray tracing with grating with zero grating spacing – 7111

Update: Resolve issue in Check For Updates for Early Access releases

Update: Fix to TIR calculation on a medium with large extinction coefficient – 7132

Update: Update macro reference documentation for example listed for (face:spline ) – 3459

Update: Fix typo on syntax line for (entity:selected? ) – 7096

Update: Properly update model tree after Boolean Unite operation – 7094

Update: BSDF Converter: Fix the issue that when attempt to export property results in “Action Forbidden! Negative Solved Absorptance!” message – 7160

Update: IES/LDT Analysis: Fix the issue that when using ultra high resolution display, the UI layout is wrong

Update: IES/LDT Analysis: Fix the issue of importing LDT file with symmetry option 3: C90-C270 - 7130

Update: IES/LDT Analysis: Fix the issue that sending Candela result to the IES/LDT tool will result in the error – “Incorrect file format” – 7165

Update: Surface Source Property Generator: Fix the issue that when using ultra high resolution display, the UI layout is wrong

Update: Texture Optimizer: Remove the option of loading boundary from file which is not completely support

Update: Texture Optimizer: Fix the issue that when 3 continuous worse result occurs, the optimization won't stop

Update: Texture Optimizer: Fix the issue that when loading void bitmap, press Accept button will crash program – 7185

Update: Texture Optimizer: Fix the issue that when minimizing the Dot generator window or Optimization window, the utility crashes

Update: Texture Optimizer: Fix the issue that when deleting or clearing source in the density map editor, the deleted source is still showing

Update: Texture Optimizer: Fix the issue that when finishing density map editor, the main window is behind

Update: Texture Optimizer: Fix the issue that generating dot as density map is not working

Update: Interactive Optimizer: Fix the issue that when modifying object the surface list is not updated if there is any newly added surface

Update: Interactive Optimizer: Fix the issue that generated object doesn't agree with surface view – 7195

Update: Interactive Optimizer: Fix the issue that changing position in property window cannot be undo/redo

Update: Interactive Optimizer: Fix the issue that the name of new object always be "Object 0"

Update: Fix the issue that control point sometimes lose the capability of moving – 7014

Update: Fix the issue that when editing Freeform surface – Radial type, if moving control points on base profile to one side, program crashed.

Update: Fix the issue that when setting language and Region to Turkey, loading io2 file throws exception – 7181

Update: Interactive Optimizer: Change the default value of opacity to 0.5

Update: Interactive Optimizer: Fix the issue that the variable setting with a local position in Conic segment is not saved – 7175

Update: Interactive Optimizer: Fix the issue that post-scheme is not working in optimization

Update: Interactive Optimizer: Refresh TracePro model tree view after export Object or Surface from Object and Surface Viewer – 7167

Update: Interactive Optimizer: Fix the issue that generated ellipsoid in TracePro has different dimension with the setup in 3D Interactive Optimizer – 7091

Update: Interactive Optimizer: Fix the issue that fail to generate an Extruded Object in TracePro when Windows Language and Region is set as Spanish – 7112

Update: Interactive Optimizer: Fix the issue that the light source's divergence is incorrect – 7109

Update: Interactive Optimizer: Fix the issue that when modifying light source, utility hangs – 7108

Update: Interactive Optimizer: Fix the issue when updating model from the Optimization Log window, all disabled variables will be enabled automatically

Update: Interactive Optimizer: Fix the issue that selecting control point in variable list will crash program

Update: Interactive Optimizer: Fix the issue that after updating variable, the optimization dialog has not been updated as well

Update: Interactive Optimizer: Fix the error that loading a saved file crashes utility if the saved file contains control points with ID that is larger than the number of control points

Update: Interactive Optimizer: Fix the issue that in pickup mode, selecting a 3D path will deactivate the pickup mode

Update: Interactive Optimizer: Fix the issue that Sweep body cannot be copied

Update: Interactive Optimizer: Fix the issue that 3D Path is not editable if there are other profiles selected

Update: Interactive Optimizer: Fix the issue that when loading a saved file with missing pickup link, an error will show up. Now it will automatically remove the missing pickup from the object

Update: Solar Emulator: Fix the issue that the result of exporting Sun model has different center of the exported Clear Sky model – 7159

Update: Set the 3D Candela view opened when launching utility

Update: Lighting Toolkit: Fix Regulation Table output from a Rectangular Iso Candela Plot – 7174

### ***TracePro 7.8.0 Release***

New: Path Sort Filtering

New: Adjustable Brightness, Contrast, and Gamma for True Color Plots

New: Add command (raytrace:only-these-sources ...) to support UI capability of right-click/Trace Selection in the Source Tree – 7060

New: Enhancements to the use of Temperature Distribution properties – 7002

New: Add capability to select "hollow" or "solid" when inserting a tube – 7012

New: Add capability to select all object/surfaces with the same name – 7017

New: Add “OK to All” button in Surface Property Editor to respond to Solve For messages – 3740

New: IES TM-25 Ray File format is now supported – 6953

New: BSDF Converter: Add support to RPC Photonics Rawdata files

New: Fluorescence Property Generator: Add new capability of multiple emission spectra

New: Interactive Optimizer: Add the feature that when user clicking on the variable the corresponding control point will be selected in the surface view

New: Interactive Optimizer: Add the capability of Importing/Exporting profile surface from/to file – 7055

New: Interactive Optimizer: Add the capability of copying bitmap layer

New: Interactive Optimizer: Highlight the worst solution in Optimization Log – 6782

New: Interactive Optimizer: Add capability of exporting to /importing from text file for a typeB surface

New: Interactive Optimizer: Add new option for converting a symmetric profile to an asymmetric profile

New: Solar Emulator: Add lines for the attentions needed for the exported file source and surface source property – 7098

New: Analysis Toolkit: Add capability of reading binary source file

New: Analysis Toolkit: Add capability of reading irradiance map

New: Analysis Toolkit: Add new analysis – NEMA Types

New: Analysis Toolkit: Add new analysis – “RCG Rectangular Map”

New: Analysis Toolkit: Add support to TracePro irradiance map format

Update: Fix RepTile display for the case with Use Surface Bounds and the Origin for tile(0,0) is not at the center of the surface – 7084

Update: Fix the incorrect luminance value for calculated wavelength in Photo Realistic Rendering

Update: Update documentation to (property:apply-annular-importance-target ) and (property:apply-rectangular-importance-target ) – 7043

Update: Fix problem of incorrect bulk absorbed flux with bulk scatter and fluorescence property and Fluorescence setting turned Off

Update: Documentation updates to the Macro Reference – 7053

Update: Fix photo-realistic rendering problem with sources with calculated wavelengths

Update: Fix program crash due to stack overflow on a specific customer model – 7068

Update: Fix Surface Property Editor’s incorrect display of Phase Refl after copying or editing a property – 7065

Update: Fix potential crash that could occur when using two-sided surface properties

Update: Fix small memory leak that could occur when switching databases in-session (rare)

Update: Limit raytrace warning messages that are so prevalent that they adversely impact the raytrace time – 6487

Update: Limit conserve energy error messages to 10 for any given property that has conservation of energy issues

Update: Fix database transaction problem that could occur when performing a Solve For on a very large data set – 7058

Update: 3D Irradiance Maps now work on RepTile surfaces

Update: Fix issue with Table BSDF property as part of a composite BSDF

Update: Add an optional argument to the following Scheme command to explicitly turn on or turn off the display: (view:set-display-objects ... ), (view:set-display-wcs ... ), and (view:set-display-object-wcs ... ). Without the optional argument the display flag is toggled.

Update: Fix RepTile Analysis results – some analysis results erroneously include the incident ray with the CAD surface and the RepTile surface. The results should only include the RepTile surface. – 7054

Update: Fix raytracing problem with gratings with ray splitting off and polarization on

Update: Do not allow the creation of direction sensitive surface properties that have the same material property on both sides – 7035

Update: Fix the object name being displayed in the Progress dialog if it was previously changed in-session – 7046

Update: Add scheme command: (tools:measure-distance ... ) – 7029

Update: Fix raytracing issue on a surface with a Direction Sensitive Grating and a Temperature Distribution – 7026

Update: Save single zoom window option

Update: Correction to calculation of plane of incidence in BSDF evaluation when ‘Use fixed axis for zero-azimuth for asymmetric scatter’ is not checked

Update: Decouple the asymmetric scatter axis from the grating up vector

Update: Turn on ‘Asymmetric Axis’ page for asymmetrical scatter for grating properties too if an asymmetric scatter model is used

Update: Ensure the grating vector is always available for data entry when a grating property is to be applied – it was turned off for rare cases

Update: In the Surface Property Editor - fix indexing issue into Table BSDF array when a grating is also in the property

Update: Fix file naming when importing CAD files with 4 letter extension (such as \*.step)

Update: Fix minor glitch in checking for updates on startup

Update: Fix indexing problem in evaluating surface temperature distributions

Update: Update documentation with regards to Display Selected Rays for Irradiance/Illuminance Maps – 6221

Update: Update documentation for Photorealistic Rendering with regards to brightness, contrast, and gamma – 7025

Update: Fix displaying multiple objects bug – 7033

Update: Fix ray generation for Gaussian Spatial and Angular Distribution in Grid Sources. Some rays were being generated outside the grid boundary – 7030

Update: Fix crash on user-supplied model – 7031

Update: Implement database converter for very old Access property databases – 5052

Update: Keep group nodes intact when inserting a part – 6624, 6945

Update: Improve macro performance by limiting reloading of the system tree to model modifications only – 6828

Update: Fix raytrace error – rays incident on temperature-dependent Grating were not responding to Temperature Distribution – 7020

Update: Documentation fix to corrupted Macro Reference pages – 7018, 7019

Update: Skip message for non-ANSI characters – 6165

Update: Add an optional string parameter to the following macro commands to rename an entity, grid source, or file source:

- (edit:scale ... )
- (edit:move ... )
- (edit:rotate ... )
- (edit:move-grid-source ... )
- (edit:move-file-source ... )
- (edit:rotate-grid-source ... )
- (edit:rotate-file-source ... )

Update: Set ‘Solve For’ in dialog using value in database and automatically use this solve if the property does not conserve energy – 7011

Update: Restore and improve raytrace performance on machines with many cores and using new series of Quadro graphics cards – 7001

Update: Save material property when importing an OSLO file

Update: Enable tooltip on “Set Defaults” button. Add a page in options to reset defaults. – 7000

Update: Installer will proceed with TracePro installation even if Notepad++ is not successfully installed to the (proper) default directory – 6764

Update: Add units to the legend of luminance view in Photorealistic Rendering – 7009

Update: Greatly improve performance of displaying selected paths – 7008

Update: Fix to Photorealistic Rendering raytracing in cases with a Perfect Absorber applied to a RepTile Surface and/or RepTile Geometry – 6995

Update: Improvements to Grid Source settings in lens design import

Update: Fix incorrect raytrace with octree voxels on customer-supplied model – 6999

Update: BSDF Converter: Fix the file support to DiffractMod format – 6983

Update: IES/LDT Analysis: Fix the issue that the button to save file or close dialog is missing – 7044

Update: IES/LDT Analysis: Changed the wording “Wanted Intensity (ratio)” to “Intensity (ratio)”

Update: Texture Optimizer: Fix the issue that Enhanced Prism cannot be created as real geometries in TracePro correctly

Update: Texture Optimizer: Fix the issue that different sign of CV will cause different sag

Update: Texture Optimizer: Changes the behavior that when changing conic type to any except Free, the “Use Asphere terms?” option will be automatically set to false

Update: Texture Optimizer: Add message to remind users the emitting flux or the collected energies on target plane probably is too low – 7021

Update: Texture Optimizer: Fix the issue that the dots are not loaded when loading position files in the current cells

Update: Texture Optimizer: Fix the issue that saved distribution method cannot be updated to UI when loading the saved file – 6998

Update: Texture Optimizer: Fix the crash when starting optimization if the input parameters are empty – 6998

Update: Interactive Optimizer: Fix the issue that after added/modified object, the application will go behind when the dialog closed

Update: Interactive Optimizer: Fix the issue that For-Next loop cannot allow the start value is negative

Update: Interactive Optimizer: Fix the issue that optimization fails when Target Surface Name includes a quotation mark – 6996

Update: Interactive Optimizer: Fix the issue that the pickup point is movable

Update: Interactive Optimizer: Fix the issue that loading radial freeform surface with pickup will produce error message

Update: Interactive Optimizer: Fix the issue that saving bitmap layer, the opacity value will affect the saved bitmap

Update: Interactive Optimizer: Improve the responsibility of After-scheme editor

Update: Interactive Optimizer: Fix the issue that if the TIR lens is too tall, the generated object is truncated

Update: Interactive Optimizer: Fix the issue of calculating beam width if the peak is not at center

Update: Interactive Optimizer: Fix the issue that value type will not be recognized correctly for user-define variable

Update: Interactive Optimizer: Fix the issue that entering XY Polynomial setup dialog will crash utility

Update: Interactive Optimizer: Fix the issue that for some cases, updating property dialog will leave one row empty

Update: Interactive Optimizer: Fix the issue if change point value in the irradiance profile target by manual input with path definition, the new data won't be updated

Update: Interactive Optimizer: Fix the issue of wrong calculated conic curve if the asphere terms are existing

Update: Interactive Optimizer: Fix the issue that after left clicking on the checkbox for a surface (1) the box is NOT checked and (2) the text of the surface name is NOT highlighted in blue – 7039

Update: Interactive Optimizer: Fix the issue that right-click on one of the item in optimization log is not doing anything – 7038

Update: Interactive Optimizer: Fix the issue that if the material property containing ‘\’ character, TracePro will crash – 7010

Update: Solar Emulator: Fix the wrong rotation direction of the sky source when pupil shape is rectangular

Update: Solar Emulator: Rewording “Hot limit” to “Tilt limit”

Update: Solar Emulator: Fix the issue of mapping location on Google map due to IE compatibility issue – 6549

Update: Analysis Toolkit: Fix saving of new regulation results – 7069