

# TracePro Revision History

## **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.
- 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

## TracePro Utilities Revisions...

### Interactive Optimizer:

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

Update: Send to TracePro results in Unhandled Exception ... The length of the components are not reasonable for B-spline. - T6667  
Update: 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: Send To TracePro - Object with XY Polynomial surface - edit:surface-sweep did not complete successfully - T6655  
Update Object - Send To TracePro - geometry:sweep-along-path did not complete successfully. - T6651  
Update: Surface - Send To TracePro - geometry:sheet-from-planar-wire - wrong number of arguments. - T6650

#### Analysis Toolkit:

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

#### Source Builder:

New: Show the viewing ray file name in the ray file analysis dialog  
New: Add feature of inserting file source array into TracePro  
Update: 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  
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

#### TracePro Utilities Revisions...

##### Texture Optimizer II:

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

##### Interactive Optimizer:

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

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

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

Update: Fix error with boolean intersect, fails with "Could not separate body." exporting object to TracePro – T6626  
Update: Fix the issue when exporting a biaxial object to TracePro – T6615  
Update: Fix unhandled exception selecting X Y Polynomial surfaces. – T6620  
Update: Fit Asphere - (1) coefficients do not match Property Editor, (2) raytrace results in TracePro differ. – T6619  
Update: Double sided object - BiConic surface - Send To TracePro - edit:boolean-intersect did not complete successfully. – T6611  
Update: Double sided object - XY Polynomial surface - Send To TracePro crashes (exits). – T6609  
Update: Boolean intersect failure during send to TracePro. – T6568

#### Surface Source Property Generator:

Update: 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

#### Solar Emulator:

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

#### Stray Light Analyzer:

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

#### Source Builder:

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

### ***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.

TracePro Utilities Revisions...

IES/LDT Analysis:

Update: Fix the Template editor problem – T6590

Interactive Optimizer:

Update: 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.  
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

#### TracePro Utilities Revisions...

##### Texture Optimizer II:

New: Add new uv remapping tools convert uv dots created in TracePro 2021 to TracePro 2022 – T6489  
Update: Fix the font size issue on 4k display  
Update: Fix the issue that the dimension of display in DMD generator cannot correctly set to boundary

##### Interactive Optimizer:

Update: Fix the Spline reflector profile causes errors when exporting as an extruded object - T6513  
Update: Fix the issue that cannot paste screenshot of TracePro model view onto surface editor.  
Update: Fix the issue that exporting TIR lens causes many scheme errors – T6482  
Update: Fix the issue that input values for variables cannot be retained – T6478

##### Analysis Toolkit:

Update: Add description to Photorealistic rendering or Luminance analysis in help – T6486

##### Lighting Toolkit:

Update: Update Help with descriptions about MAX\_VALUE() and similar cases – T6500

##### Source Builder:

New: Add supports to convert Lucidshape and Zemax rayfile to TracePro rayfile  
Update: 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  
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)

#### TracePro Utilities Revisions...

##### General:

New: Add Source Builder utility (Define\_>Source Builder...)

##### Interactive Optimizer:

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

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

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

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

Solar Emulator:

New: Add new sun-tracing mode: a fixed focus with a reflector

Lighting Toolkit:

Update: Fix the issue when attempting to add regulation results in Unhandled Exception (Value cannot be null) – T6441 (8322)

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

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

TracePro Utilities Revisions...

Texture Optimizer II:

Update: Increase the sampling number of path searching for filling cell densities to prevent from missing cells

Interactive Optimizer:

New: Add the capability of applying Asymmetric/Anisotropic property to the generated object in TracePro - 7817

IES/LDT Analysis:

New: Add the capability of directly export the generated TracePro source property into TracePro database – 7631

Solar Emulator:

Update: Fix the internet issue for connecting Google map service

Analysis Toolkit:

New: Add capability of smoothing data in Luminance analysis

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

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

#### TracePro Utilities Revisions...

##### Texture Optimizer II:

Update: Fix the program hangs when exporting text file after the first iteration. – 8249

##### Interactive Optimizer:

New: Add options to control number format, position parentheses and separator of the surface export file - 8220

Update: Fix the issue where a Surface Property applied in Optimizer is missing in TracePro object. - 8207

##### Solar Emulator:

Update: Increased the size of the texts for the Time Filter - 8213

##### Analysis Toolkit:

New: Add options to select the data in saved file is from raw data or display data - 8219

##### Surface Property Generator:

Update: 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. - 7980

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

New: New scheme commands: geometry:get-block-parameters, modify:primitive-block. - 7981

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.

#### TracePro Utilities Revisions...

##### General:

New: Add new utility – Straylight analyzer

##### Interactive Optimizer:

New: Add the capability of choosing the hole shapes between circular and rectangular for Reflector

Update: Fix the issue that if the same profile with variables used by multiple objects, the variable list will count them more than once.

Update: Fix the issue that when logging the scheme commands, if the scheme to TracePro is not executed successfully, the log will be missed.

Update: Lower the sensibility of moving mouse from clicking it - 6272

Update: Improve the layout of Add/Modify object dialog

##### Lighting Toolkit:

New: Add new regulations: ECE R7 2019  
ECE R119 (2014)

ECE R6 2008  
SAE J588

SAE J222  
SAE J592  
SAE J594  
SAE J845

Update: Update regulations: ECE R6 FMVSS108 Figure 17,27,28  
ECE R3  
ECE R91

ECE R98

ECE R112 (2010,2012)  
ECE R6

Surface Property Generator:

Update: 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.

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.

TracePro Utilities Revisions...

Texture Optimizer II:

New: Add capabilities to Start and Stop MD smoothing in the dialog

Update: Fix the issue when regenerating cells crashes if a cell or a dot is selected

Interactive Optimizer:

Update: Fix the issue that for some profiles, export model to TracePro is failed - 8076

Update: Fix the issue that when deleting a symmetric control point pair, only one will be deleted - 8032

Solar Emulator:

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

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

Analysis Toolkit:

New: Add new feature to add polygon analysis shape for luminance analysis (by pressing ctrl+shift and use mouse to select region)

#### Lighting Toolkit:

New: Add ECE regulations:  
ECE R91 side-marker lamp  
ECE R119 cornering lamp  
ECE R77 parking lamp

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

#### TracePro Utilities Revisions...

##### Interactive Optimizer:

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

Update: Fix bug exporting Fresnelized profile.

Update: Include missing after scheme command help.

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

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

##### IES/LDT Analysis:

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

##### Analysis Toolkit:

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

Update: 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.

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

#### TracePro Utilities Revisions...

##### Surface Source Property Generator:

Update: Fix the unhandled exception when exporting Volume file source - 8005

##### Texture Optimizer II:

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

#### Interactive Optimizer:

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

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

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

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

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

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

#### Solar Emulator:

Update: Add pipe server command to create trajectory surface.

#### Analysis Toolkit:

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

#### Lighting Toolkit:

New: 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  
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.

TracePro Utilities Revisions...

Interactive Optimizer:

Update: 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

IES/LDT Analysis:

Update: UGR calculation includes lamp height

Surface Source Property Generator:

Update: Volume File Source - attempt to add plot points results in Unhandled exception. - 7996

Update: Help - Operations of Volume File Source help shows Paste Image, UI shows Load Image. - 7995

Solar Emulator:

Update: Fix erroneous values in exported ray file. Reported values had exponents E+030. - 8001

Analysis Toolkit:

Update: Bug fix: Photorealistic Rendering Map Analysis Toolkit

Update: Fix bug with Road Luminance - right-click/Options results in "Unhandled Exception ... Exception has been thrown by the target of the invocation -7849

Lighting Toolkit:

Update: Regulation Editor - attempt add User Define Spec results in "Unhandled exception ... Object Reference not set to an instance of an object. - 7855

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

Update: 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"

Surface Property Generator:

New: Import Data - support ASTM file format

New: Import Data - support Rsoft MeshData format

New: Import Data - support OPTIS - brdf surface file v3.0

Update: Improve the accuracy of computing BSDF integral

Update: Utility Name "Surface Property Generator" - 7921

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

### **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)**

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++.

TracePro Utilities Revisions...

Interactive Optimizer:

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

New: 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: Prevent the exception when fitting asphere.

IES/LDT Analysis:

Update: 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

TracePro Utilities Revisions...

Texture Optimizer II:

Update: Fix system hang when previewing the hip roof.

Interactive Optimizer:

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

Analysis Toolkit:

Update: Fix the typo of "spectrum" in setup dialog

Update: Fix the issue that option dialog cannot be opened

Lighting Toolkit:

Update: 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.

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.

TracePro Utilities Revisions...

Texture Optimizer II:

New: Add feature of Smooth dots

New: Add new dot distribution – Random dots

Update: Correct dot preview for Block with z axis rotation

Interactive Optimizer:

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

Lighting Toolkit:

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

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

Surface Property Generator:

Update: 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
- 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.

### TracePro Utilities Revisions...

#### IES/LDT Analysis:

- Update: Fix the issue that cannot launch multiple instances – 7687

#### Surface Source Property Generator:

- Update: 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

#### Interactive Optimizer:

- Update: Fix the issue that right click on Optimization Log item without highlighted, Update Model fails - 7690
- Update: Fix the issue that cannot create sweep object along 2D path - 7824
- Update: Fix the display issue in Object view for a sweep object along 2D path
- Update: Fix the issue that right click on Object without highlighted name, Send to TracePro is not working - 7689
- Update: Fix the issue that when changing conic type to Parabolic for a 2D path, the Conic constant not set to -1 - 7823
- Update: Fix the issue that Fresnelized property cannot be retained after save - 7822
- Update: Fix the issue that no warning message is shown when entering unacceptable value in lower/upper limits in property editor – 7819
- Update: Fix the unhandled exception when attempt to delete the point at angle = 190 in Candela target definer – 7804
- Update: Fix the issue that the assigned surface properties are not applied to the generated extruded object in TracePro – 7810
- Update: Fix the issue that fail to apply surface properties by after-scheme - 7818
- Update: Fix the unhandled exception after entering incorrect character in Value field - 7803
- Update: Fix the dialog caption for modifying object - 7802
- Update: Fix the misleading message when aborting optimization process - 7801
- Update: Fix the issue that the generated sweep object along 3d path, the orientation is not correct - 7826

#### Analysis Toolkit:

- Update: Fix the issue that Type A Iso Candela Plot and Grid View – distribution center differs from Rect Iso Candela Plot - 7480

#### Lighting Toolkit:

- Update: Fix the issue that Analysis/Check Spec does not add Result Column and show pass/fail results for 9 Regulation Tables - 7482
- Update: Fix the issue that Regulation Table showing data values = 0 for 90L and 90R data values that should not be

0 – 7704

Update: Fix the issue that action of importing Candela data into Lighting Toolkit changes the Candela Options in TracePro - 7703

Surface Property Generator:

New: Add capability to import scatter data files from Surface Optics - 7781

Update: 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.

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.

TracePro Utilities Revisions...

General:

Update: Fix the issue that no duplicate utility can launch at the same time – 7662

IES/LDT Analysis:

Update: Fix issue of different Luminaire classification plot in IES/LDT tool and in Analysis toolkit – 7709

Texture Optimizer II:

New: Allow the modification of dot coefficients by interactively dragging a spline curve in dot list editor.

Update: Fix the issue that when generating dots with assigned density larger than 1.0, exit and re-generate will crash

Update: Fix the exception error when displaying the preview of Enhanced Prism

Interactive Optimizer:

Update: Extend the allowed order to 20<sup>th</sup> for XY Polynomial surface

Update: Add options of setting the sizes of saved irradiance map and Candela plot during optimization

Update: Recover the after-scheme command – slinterface:skinning - 7678

Update: Restore the responsiveness of the Interactive Optimizer user interface while a ray trace is running. - 7692

Update: Fix the corrupted display for valid extruded object - 7765

Update: Fix the issue that when changing control point numbers for BSpline surface, it cannot retain the change - 7783

Update: Fix the exception error when loading io2 file which is okay with 19.4 - 7782

Analysis Toolkit:

Update: Fix reading of luminance file when path contains Chinese character.

Surface Property Generator:

Update: 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
- 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.

### TracePro Utilities Revisions...

#### Interactive Optimizer:

- New: Added after scheme command source:grid\_beam\_orientation to set the orientation of the beam for a grid source.
- Update: Fix error when loading a file containing a reflector with a hole radius represented by an integral value.
- Update: Fix the issue when defined source is existing, selecting Silhouettes results in error message – 7675
- Update: Fix the issue that after editing the origin/normal value of the defined source, the source won't change – 7674
- Update: Fix the issue that the segment property isn't applied to export object for an extruded object – 7673
- Update: Correct the name to Interactive Optimizer in on-line help. – 7694
- Update: Fix help links for after scheme commands that have the colon(:) character in the name.

#### Lighting Toolkit:

- Update: 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.
- 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

TracePro Utilities Revisions...

Surface Source Property Generator:

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

Texture Optimizer II:

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

New: Support DMD, Block and Chiseled log shapes

Update: Improved performance for dots created as real geometry

Update: Fix bug with exporting Enhanced Prism to TracePro

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

Interactive Optimizer:

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

New: Add new object type – Reptile Object

Update: 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: Fix bug exporting Fresnel object to TracePro when using equal width mode

Update: Changed the behavior of inserting new control point to the closest position on the curve – 7618

Update: Fix the display issue with Advanced Sweep Object – 7629

Update: Fix sending object to TracePro – this was a regression from 19.2 – 7634

Update: Fix exception when checking absorptive in Property editor - 7672

Lighting Toolkit:

Update: Correct the regulation: ECE No.6 category 5

Surface Property Generator:

Update: 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

TracePro Utilities Revisions...

Texture Optimizer II:

Update: Fix the issue of Boolean subtraction of exported real dots – 7613

Update: Fix the issue of missing dots when export real geometries – 7620

Update: Surface name check – 7607

3D Interactive Optimizer:

Update: Fix the rename feature of the copy command fails in after-scheme – this is a regression from 19.2 – 7589

Update: Fix the issue of profile is not perpendicular to path for 3D path sweep object – 7628

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

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

TracePro Utilities Revisions...

Texture Optimizer II:

New: Add new optimizable dot pattern - grid with varied pitch

3D Interactive Optimizer:

New: Press F5 in after-scheme editor to run the current code

New: Press F10 in after-scheme editor to start the step execution mode, F11 to step forward

Update: Fix the issue that the surface property applied to surface is not retained after sending to TracePro – 7558

Update: Fix the error when start optimize if PRR operand has not set map option

Update: Improve the after-scheme editor and on-line help

Update: Fix the NAN issue for Candela profile operand – 7542

Update: Fix the error occurred when using uniformity operation – 7585

Solar Emulator:

Update: Fix sun source created after cancel – 7518

Update: Fix the issue that cannot create model when Language is German – 7567

Analysis Toolkit:

New: Add options of max/min/log for Luminance analysis  
Lighting Toolkit:  
New: Add regulation SAE J914  
New: Add capability of setting min value in Log scale  
New: Contour modes can support log scale  
Surface Property Generator:  
Update: 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 ... )  
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

TracePro Utilities Revisions...

#### IES/LDT Analysis:

New: Support using Tab as the separator in IES file

Update: Fix the issue that the incorrect source size leads to incorrect UGR result

#### Surface Source Property Generator:

Update: Fix the UI bug when creating image file source

#### Texture Optimizer II:

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

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

#### 3D Interactive Optimizer:

New: Add capability of using Surface Type D to create an extruded object

New: Add new operand – Photorealistic for retrieving the luminance value from Photorealistic render result

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

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

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

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

#### Analysis Toolkit:

New: Add option of enabling/disabling showing analysis item info

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

#### Surface Property Generator:

New: Add capability of loading TracePro property files

### ***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 ... )

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

TracePro Utilities Revisions...

General:

Update: Fix the issue of truncated texts on UI in some system

Texture Optimizer II:

New: Add a new popup entry to modify the dot position in dots editing mode

New: Add capability of editing point in Edit Cell Density by Path dialog – 7523

New: Add capability of exporting real geometries along u- or v- direction on curve surface

New: Add minimum density when optimizing dot pattern

New: Add new dot pattern – Fix grid staggered and parameterized

Update: Fix an issue with the generated real object of Hip-Roof being broken in TracePro

3D Interactive Optimizer:

New: Add draft angle in Fresnelization of segment

New: Add new feature of Fit Asphere for central symmetric segment

Update: Display error values in Optimization log dialog will full digits – 7535

Update: Add a check before starting optimization to find if there is any missing settings – 7534

Update: Fix the issue that the freeform lens cannot retain the second linked surface when modifying object – 7529

Update: Fix the issue that the generated object in TracePro cannot be exported as STEP file

Update: Fix the error when the Src Config ID is empty or zero – 7527

Update: Fix the extruded object with asymmetric profile, the properties don't apply correctly – 7526

Update: Fix the conic segment wrong behavior with the mirror control point

Update: Fix the issue when closing the Candela target dialog, will lose the previous setting

Solar Emulator:

Update: Fix the wrong emission type reading from TracePro database

Update: New maps used in this utility – 7517

Analysis Toolkit:

New: Add capability of analyzing Photorealistic render raw data file

Update: Fix the analysis window caption

Surface Property Generator:

New: Link the catalog and property boxes with TracePro database

Update: 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 )

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

#### TracePro Utilities Revisions...

##### 3D Interactive Optimizer:

New: Add capability of executing Scheme operand  
New: Add new surface type – Freeform – slice  
New: Add capability of saving the backup io2 file during optimization  
Update: Fix the issue that cannot move object in Object mode  
Update: Fix the issue related to the error when running optimization – 7506

##### Solar Emulator:

New: Add capability to create a solar source based on elevation angle and azimuth angle – 7507  
New: Add capability to import list of object names from TracePro model – 7477  
Update: Fix issue that data file names not accounting for iterations in units of seconds – 7484

##### Lighting Toolkit:

Update: 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  
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

TracePro Utilities Revisions...

Texture Optimizer II:

New: 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)

3D Interactive Optimizer:

New: Add the capability of defining an empty list in after-scheme, ex. a={ }

New: Add new operand – Spot size

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

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

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

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

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

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

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

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

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

Lighting Toolkit:

Update: 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

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

TracePro Utilities Revisions...

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

IES/LDT Analysis:

Update: Fix file saving in a consistent way – 6911

3D Interactive Optimizer:

Update: Fix unhandled exception due to non-English characters – 7419  
Update: Fix ray display error – 7415  
Update: Allow Tilt X, Y, Z to be set as variable – 7411  
Lighting Toolkit:  
New: Add new regulation ABYC  
Surface Property Generator:  
Update: 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  
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  $x \rightarrow$  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

### TracePro Utilities Revisions...

#### IES/LDT Analysis:

Update: Fix the issue that labels for the polar and azimuth angles always face the viewer – 7245

#### Texture Optimizer II:

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

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

#### 3D Interactive Optimizer:

New: Add new segment type – Custom Fresnel

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 – 7359

Update: Fix the error when loading a saved io2 file – 7410

Update: Fix the issue of an object having two extra surfaces that should not exist – 7349

Update: Fix typos in Help – 7267

#### Analysis Toolkit:

New: Irradiance/Illuminance Map – Add option for units in W/m<sup>2</sup> – 7375

Lighting Toolkit:

New: Add capability of defining a spec with Max, Min, Average value in Regulation editor – 7390

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

New: Add COM support to TracePro – 7129

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

TracePro Utilities Revisions...

Fluorescence Property Generator:

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

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

3D Interactive Optimizer:

New: 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

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

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

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

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

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

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

Analysis Toolkit:

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

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

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

Update: Fix erroneous message regarding wavelengths – 7362

Surface Property Generator:

New: Add new feature of showing simulated specular signal

Update: 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**

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

#### TracePro Utilities Revisions...

##### Texture Optimizer II:

Update: Save the control points of Density path dialog to saved file – 7332

##### 3D Interactive Optimizer:

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

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

New: Add new feature of slider wheels – 6856

Update: Fix the issue that when revolving a profile, the resulting object will have additional surfaces – 7345

Update: Fix the issue when loading the saved file, the name of target surface is missing – 7296

Update: Fix the issue that TIR lens cannot successfully generated in TracePro – 7291

Update: Changed how variable displays and behaves in optimization window – 7295

Update: Fix the issue that system shows error message when loading a saved biconic surface file – 7341

##### Analysis Toolkit:

Update: Correct the wrong calculation for ISOCandela plot’s type A & B

##### Lighting Toolkit:

New: Add capability of scaling the flux of the imported data

Update: 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
- 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

#### TracePro Utilities Revisions...

##### BSDF Converter:

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

##### IES/LDT Analysis:

Update: Change the label text from "Angle of LUx in 50%" to "Full Width XX% Maximum" – 7275

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

##### Surface Source Property Generator:

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

##### Texture Optimizer II:

New: Add new FOV coefficient in the Photo Realistic Render target dialog

New: Add new supportive optimization target – Photo Realistic Rendering – 7172

New: Open the accessibility of Boundary editor

New: Add new capability of optimizing inverted dot pattern

New: Add new capability of creating partitions – Import from file

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

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

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

##### 2D Interactive Optimizer:

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

##### 3D Interactive Optimizer:

New: Add Save/Load capability in Tolerance analysis window

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

New: Add new dialog to setup view manually

New: Add new measure tool in surface editor

New: Add new Tolerancing feature

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

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

New: Add capability of multiple source configurations

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Solar Emulator:

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

Analysis Toolkit:

Update: Change the label text from "Angle of LUx in 50%" to "Half Width XX% Maximum" – 7275

Surface Property Generator:

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

Update: Fix the scientific representation of -90.0 degrees in BSDF profile display.

Update: Add a message dialog indication the BSDF integral are calculating when opening the export BSDF dialog

Lighting Toolkit:

New: Add new regulation ECE R87 Daytime Running Lamp

Update: Fix the wrong setting for ECE No.6 and No.50 regulations

Update: 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

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

#### TracePro Utilities Revisions...

##### BSDF Converter:

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

##### IES/LDT Analysis:

Update: Fix the issue that when using ultra high resolution display, the UI layout is wrong  
Update: Fix the issue of importing LDT file with symmetry option 3: C90-C270 - 7130  
Update: Fix the issue that sending Candela result to the IES/LDT tool will result in the error – “Incorrect file format” – 7165

##### Surface Source Property Generator:

New: Add header and version info in the saved file  
New: Add capability of editing spectrum in log scale  
Update: Fix the issue that when using ultra high resolution display, the UI layout is wrong

##### Texture Optimizer II:

New: Add new supported reptile geometry - Pyramid  
New: Add new dot pattern – 1D grid  
New: Add new boundary operation – Reflection  
Update: Remove the option of loading boundary from file which is not completely support  
Update: Fix the issue that when 3 continuous worse result occurs, the optimization won't stop  
Update: Fix the issue that when loading void bitmap, press Accept button will crash program – 7185  
Update: Fix the issue that when minimizing the Dot generator window or Optimization window, the utility crashes  
Update: Fix the issue that when deleting or clearing source in the density map editor, the deleted source is still showing  
Update: Fix the issue that when finishing density map editor, the main window is behind  
Update: Fix the issue that generating dot as density map is not working

##### 3D Interactive Optimizer:

New: Add new features of setting segment length and y-angle  
New: Add capability of pasting bitmap in the Candela and Irradiance target editors  
New: Add capability of pasting bitmap from a copied file – 7170

New: Add capability of setting map options for each operand  
New: Add new features of copying/pasting operand  
New: Add “Uniform profile” button in the Irradiance profile definer as a short cut to generate uniform target  
New: Add new variable type – Function for the Periodic segment  
New: Add a “Point Info” Button in the Surface List Window for displaying the control point is set as pick-up and symmetric  
New: Add new properties – “Center feature option” for the Periodic segment  
New: Add new properties – “Shift” for the Periodic segment  
New: Add new segment properties – “Absorptive” as the flag that ray stopped when hitting it in 2D real-time raytrace  
New: Add new object type – “Advanced Sweep Object” – 7163  
New: Add new capability of generating a thin sheet object in TracePro by extruding a path  
New: Add capability of saving visible flag in Object Window and Output flag in Optimization window in the saved file  
New: Add Post-after-scheme row in the Optimization window  
New: Add new periodic feature – Trapezium  
New: Add new method for pasting bitmap – Vector mode  
New: Add new support to asymmetric profile for a biaxial object  
New: Add sorting of wavelength in the Irradiance map option  
Update: Fix the issue that when modifying object the surface list is not updated if there is any newly added surface  
Update: Fix the issue that generated object doesn’t agree with surface view – 7195  
Update: Fix the issue that changing position in property window cannot be undo/redo  
Update: 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: Change the default value of opacity to 0.5  
Update: Fix the issue that the variable setting with a local position in Conic segment is not saved – 7175  
Update: Fix the issue that post-scheme is not working in optimization  
Update: Refresh TracePro model tree view after export Object or Surface from Object and Surface Viewer – 7167  
Update: Fix the issue that generated ellipsoid in TracePro has different dimension with the setup in 3D Interactive Optimizer – 7091  
Update: Fix the issue that fail to generate an Extruded Object in TracePro when Windows Language and Region is set as Spanish – 7112  
Update: Fix the issue that the light source’s divergence is incorrect – 7109  
Update: Fix the issue that when modifying light source, utility hangs – 7108  
Update: Fix the issue when updating model from the Optimization Log window, all disabled variables will be enabled automatically  
Update: Fix the issue that selecting control point in variable list will crash program  
Update: Fix the issue that after updating variable, the optimization dialog has not been updated as well  
Update: 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: Fix the issue that in pickup mode, selecting a 3D path will deactivate the pickup mode  
Update: Fix the issue that Sweep body cannot be copied  
Update: Fix the issue that 3D Path is not editable if there are other profiles selected  
Update: 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

Solar Emulator:

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

Analysis Toolkit:

New: Add new switchable mode – Multiple document interface

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

Lighting Toolkit:

Update: 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

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

## TracePro Utilities Revisions...

### BSDF Converter:

New: Add support to RPC Photonics Rawdata files

Update: Fix the file support to DiffractMod format – 6983

### Fluorescence Property Generator:

New: Add new capability of multiple emission spectra

### IES/LDT Analysis:

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

Update: Changed the wording “Wanted Intensity (ratio)” to “Intensity (ratio)”

### Texture Optimizer II:

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

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

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

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

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

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

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

### 3D Interactive Optimizer:

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

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

New: Add the capability of copying bitmap layer

New: Highlight the worst solution in Optimization Log – 6782

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

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

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

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

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

Update: Fix the issue that the pickup point is movable

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

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

Update: Improve the responsibility of After-scheme editor

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

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

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

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

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

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

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

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

### Solar Emulator:

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

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

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

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

Analysis Toolkit:

New: Add capability of reading binary source file

New: Add capability of reading irradiance map

New: Add new analysis – NEMA Types

New: Add new analysis – “RCG Rectangular Map”

New: Add support to TracePro irradiance map format

Update: Fix saving of new regulation results – 7069

## ***TracePro 7.7.2 Release***

Update: Restore (read-event ) macro functionality – this is a regression in 7.7.0 – 6992

Update: Fix erroneous ‘does not conserve energy’ message for a grating in the Surface Property Editor – 6993

Update: Label the flux column with either radiometric or photometric units in the Apply Surface Source dialog – 4680

Update: Fix Photorealistic Rendering with RepTile and scattering Surface Property on RepTile geometry – 6902

Update: Replace combo boxes with text boxes in Surface Source Property Editor – 5420

Update: True color options for brightness, contrast, and gamma now use spin controls instead of sliders

Update: Fix bilinear interpolation in ies type A and type B files – 6988

Update: Fix problem with progress dialog for photon tracing in photorendering with surface sources in photometric units.

Update: Improve exception handing during ray tracing

Update: Fix save-as bmp accidently pops up ies dialog – 6985

Update: Fix save-as bmp problem – 6984

Update: Fix ray history file header with exit surface name – 3575

Update: Save each exit surface ray history to a separate file – 6838

Update: Fix problem in photorealistic rendering where more photons were traced than specified by the user

Update: Display the cancel raytrace warning message from the progress dialog when the option is set

Update: Set last ray direction to null in ray history to avoid errant data

Update: Change default to use axis for asymmetric BSDF properties

Update: Change simulation filename after saving as another document – 6693

TracePro Utilities Revisions...

General:

Update: Fix the truncated text issue – 6956

IES/LDT Analysis:

Update: Fix the issue of displaying incorrect value for Field Integration Lumens – 6978

3D Interactive Optimizer:

Update: Fix the issue that program crashes when input “()” in the after-scheme editor

Update: Fix the issue that when loading a saved conic reflector, the cc and cv values are not correctly updated

Update: Fix the issue that when moving the segment points for a conic reflector, the control points will move by double distances

Update: Fix the issue that TracePro hangs after sending a biaxial TIR object to TracePro – 6899

Update: Fix the European Decimal Separator issue – 6987

## **TracePro 7.7.1 Release**

- Update: Fix problem interpolating customer-supplied 2-sided grating property for edge case – 6976
- Update: For measurements involving a surface, allow the surface to be selected in the system tree – 6881
- Update: Change grid source beam spatial profile label – 6775
- Update: Greatly improve performance in Path Sort Table – 6968
- Update: Ensure context file is generated from the correct license in the Troubleshooter – 6970
- Update: Fix erroneous flux value for selected rays on a Polar Iso-Candela Plot – 6914
- Update: Remove menu item “Open in IES...” for polar iso plot – 6934
- Update: Properly remove progress dialog in the event of an exception during raytracing
- Update: Fix exception thrown when tracing without a source (this is a regression in 7.7.0) – 6975
- Update: Save and restore min rays setting when doing photorealistic rendering
- Update: Properly handle user interactive with the color grid control
- Update: Fix crash when picking in the Path Sort Table of a model that isn’t active when there is an Irradiance Map displayed. Also fix crash for closing the Path Sort Table under similar circumstances.

### TracePro Utilities Revisions...

#### BSDF Converter:

- Update: Fix the issue that loading an Imaging Sphere Version:1.5.10.0 BSDF file with all data equal to 0.0, utility crashes – 6964

- Update: Fix the issue that the file type of Diffract Mod is not in the list – 6972

#### IES/LDT Analysis:

- Update: Fix the issue that when opening LDT file errors and omissions in display and text – 6973

#### 3D Interactive Optimizer:

- Update: Change the method of creating biaxial object to avoid crash when sending to TracePro – 6946

## **TracePro 7.7.0 Release**

- New: Candela Viewer
- New: Raytrace Mode Prompt
- New: Property Database Update
- New: Viewing Candela Plots from the Simulation File Manager
- New: New Options for Photorealistic Rendering
- New: Automotive Lighting Toolkit – this is available as BETA software
- Update: Performance improvements for Photorealistic Rendering
- Update: The Scheme command (edit:surface-sweep ... ) now works with wires and edges
- Update: Fix crash that could happen when using an anisotropic property from GSolver – 6937
- Update: Fix Progress Dialog which errantly reported pessimistic estimates to complete photon trace for large photorealistic renderings – 6865
- Update: Fix rare crash when a ray hits the improper branch of a lemon or apple torus used in RepTile
- Update: Change location of online user manual – 6940
- Update: Fix torus raytracing issue on submitted model – 6930
- Update: Fix normalization of weights in Apply Properties Surface Source when using Surface Source property with discrete wavelengths – 6913
- Update: Each property editor’s import function will now import all properties within the file, regardless of their type – 3579
- Update: Fix hyperbolic reflector UI problem – incorrect values were displayed in dialog box – 6906
- Update: Fix loading of IES data for certain Candela options – 6907
- Update: Fix crash after changing surface source type in source editor – 6908

Update: The Scheme function (analysis:candela-save-ies ...) has been deprecated. It has been replaced with the following functions:  
    (analysis:candela-save-ies-type-a ... )  
    (analysis:candela-save-ies-type-b ... )  
    (analysis:candela-save-ies-type-c ... )

Update: Overhaul of saving IES files – 6852, 6955

Update: Fix bug associated with Candela options regarding setting contour levels – 6893

Update: Expose better information to user if a file exception occurs. Some examples of this are sharing violations or a full disk.

Update: Fix failure to import GRIN data with the OSLO translator – 1025

Update: Add two scheme commands: (analysis:ray-history-close ) and (analysis:polarization-maps-close ) – 1119

Update: Documentation update to Scheme Macro Reference descriptions for Path Sort table commands

Update: Fix surface selection when the surface is blocked by an importance target in Render, Wireframe, or Hidden Line view – 6760

Update: Ensure path sort table is properly cleared before each raytrace

Update: Change dialog name to “Path Sort Table” to agree with name on Analysis menu – 6835

Update: Fix issues with updating the status bar on the Select Rays dialog – 6879

Update: Add a retry capability to open sim files on a sharing violation. This is a rare occurrence that was discovered with an aggressive virus-checking program interfering with a long simulation run.

Update: Fix a rare race condition with regards to the static random number generator

Update: The Raytrace Report has been simplified – 6872

Update: Fix GRIN ray tracing error at coincident surfaces – 6887

Update: Ensure all text files saved to disk adhere to the “Save text file in Unicode format” TracePro option

Update: Include model name in header of RGB raw data file from photorealistic rendering

Update: Immediately save oml file to disk after open a CAD translated or lens design translated file

Update: Prevent crash when adding another wavelength, temperature, or incident angle to a property with no scattering – 6877

Update: Enhancements to saved ies format – 6834, 6738

Update: More efficient use of random number generator when generating a random ray direction

Update: Improvements to lens design import of designs with global reference surfaces

Update: Fix OSLO translator bug – OSLO files specifies “tilt, then decenter” but TracePro is translating as “decenter, then tilt” – 4009

Update: Updates to online help – 2652, 4829, 6245, 6842

#### TracePro Utilities Revisions...

##### Bitmap Source:

New: Add new capability of exporting ray file in binary format – 6595

New: Add option for rays to start from the Scene, Target or a third plane between the Scene and Target – 5779

##### BSDF Converter:

New: Add capability of loading data from Diffract MOD – 6894

Update: Fix the issue that getting error message when attempting to update BSDF-beta plot after entering ABg values, when no data file is loaded – 6623

##### IES/LDT Analysis:

New: Add more preset views for the 3D plot – 6935

Update: Fix issue of loading IES TypeA, TypeB, TypeC

Update: Fix issue of erroneously number of horizontal angles – 6952

Update: Increase the accuracy of RCG analysis

Update: Fix the incorrect RCG report in Street light analysis – 6890

Update: Fix the issue when an IES file is loaded, the value that appears in the Emission Field is incorrect (the



integrated value should appear instead) – 5583

Texture Optimizer:

Update: Fix issues when language is set to Finnish – 6864

Texture Optimizer II:

New: Add new tool to edit density map

New: Add capability of saving and loading density files

New: Add capability of importing cells from data sheet and TracePro faces

Update: Fix issue that editing density map by sheet is not working correctly

Update: Fix issue that when optimizing dot pattern with many rows, the resulting pattern looks unsmooth

Update: Fix the issue that the last dot won't be read when importing the text file

Update: Fix issue with invalid conversion during optimization – 6880

3D Interactive Optimizer:

New: Add the capability of opening the linked model in TracePro when loading the io2 file – 6784

New: Add the feature of setting step number for a radial symmetric object with asymmetric profile – 6747

New: Add new supported profile – freeform loop

New: Add new supported surface type – freeform radial

New: Add the ability to click on an iteration in the trend chart and have it highlighted in the optimization log – 6783

Update: Fix the issue that pickup on segment point for the Freeform Radial Surface is not working – 6950

Update: Fix the issue that extruded object created from symmetric profile with detailed structure, object only has structure on half the surface – 6943

Update: Fix the issue that extruded object created from asymmetric profile with detailed structure, object has extra geometry – 6944

Update: Fix the issue that when setting operand to Intensity, the optimizer will give an unhandled exception error when trying to start raytrace – 6928

Update: Fix the issue that cannot re-open the saved io2 file with an intensity operand – 6928

Update: Add description for the relationship between the control point locations and the resulting conic constant and curvature – 6848

Update: Fix the issue that an error indicating a conversion error when launching program if the Window region and Language is set to French – 6884

Solar Emulator:

Update: Changed the input of vector data to 3 different fields to make input easier – 6910

### **TracePro 7.6.4 Release**

Update: Improve the Scheme commands (property:apply-importance-target ...) and (property:remove-importance-targets ...) by permitting their use for multiple surface at once. The first parameter can now be either an entity or an entity list.

Update: Fix for opening large binary ray files (larger than 2GB)

Update: Fix rotational symmetry issue with Candela distribution plots – 6857

Update: Fix to macro recording of file path when recording the saving of a path sort

Update: Adjust conservation of energy tolerance for diffraction gratings slightly to account for numerical round-off – 4234

Update: Fix File/Send – 6851

Update: Fix updating to Display Selected Paths – 6863

Update: Disable saving as ies or ldt formats from Iso Candela plots. These options are only available from Candela distributions plots. – 6853

Update: Re-establish tabular file format for Candela distribution files, improve angular resolution of smoothed data, add header information for future use – 4320, 6827

Update: Restore the use of an energy conservation tolerance for diffraction gratings (this is a regression from 7.4.3)  
Update: Add wavelength weight argument to (raytrace:apply-source-wavelengths ... ) – 6833  
Update: Ensure proper menu selections are available for TracePro Standard and TracePro LC  
Update: Fix crash when doing Path Sort Table on rays with GRIN intersections  
Update: Prevent low level attributes from being shared when they should not have been. This could have happened in very rare circumstances.  
Update: Slight performance improvement in radial polynomial calculations

#### TracePro Utilities Revisions...

##### General:

Update: Updates to understand tabular file format of Candela distribution files that was re-established and improved with this release  
Update: Fix the issue that if the length of string sent to TracePro thru DDE exceeds 255, the exceeding string will be dropped

##### IES/LDT Analysis:

Update: Fix the issue of importing Polar and Rectangle ISO Candela files from TracePro – 6844, 6867  
Update: Fix the issue when loading the Candela Distribution file saved by TracePro 7.6.3 and the Language setting is French, the operation will fail – 6866

##### Surface Source Property Generator:

New: Add a unit selector of mm or nm for wavelength in defining the spectrum range – 6790  
New: Add new capability of displaying CIE chromaticity diagram when mouse is hovering on the color box – 6791  
Update: Fix the issue that cannot export property directly when using imported Candela file – 6843

##### Texture Optimizer II:

Update: Fix the broken function of optimizing dot pattern with the current dot positions

##### 3D Interactive Optimizer:

New: Add new capability of pasting an irradiance map on the uniformity defining dialog  
New: Add “Remove background” button in the uniformity operand definition dialog  
Update: Fix the issue that cannot get the incident Candela profile on a specified surface if TracePro is running in Simulation mode  
Update: Fix the drawing issue with the lens object

### **TracePro 7.6.3 Release**

Update: Fix Copy/Paste issue when save text as Unicode is selected – 6829  
Update: Efficiency improvement in raytrace for ABg BSDF when g is an integer  
Update: Add Photorealistic Rendering Options to popup menu for all languages --previously it was only there for English  
Update: Fix bug that caused extra simulation files to be errantly created  
Update: Make insert icons work under Geometry menu – 6825  
Update: Fix a tree node bad state that occurred after a specific editing sequence – 6800  
Update: Properly delete property cache after importing from a file – 6824  
Update: Fix crash in non-English versions of TracePro when launching the Candela Options dialog – 6822  
Update: Improve raytrace performance of rotationally symmetric aspheric surfaces – 6796  
Update: An optional argument has been added to the macro command (raytrace:add-file-source ... ) to define a wavelength when the file source doesn't contain wavelength information – 5341  
Update: The macro command (raytrace:set-wavelengths ... ) can now set the wavelength weights for file sources

#### TracePro Utilities Revisions...

#### IES/LDT Analysis:

Update: Fix issue that the orientation of the export file source & surface source property doesn't match the loaded IES file – 6446

#### 3D Interactive Optimizer:

Update: Fix the issue that when changing ray type the cell of surface is not editable if the selected operand is Beam width

Update: Fix the issue that when creating a radial symmetric object with an initial TIR profile, an error indicating null array occurs

Update: Fix the issue that cannot modify the position of bitmap

Update: Fix the issue that if the material catalog name contains colon, the property will be missing when loaded – 6821

Update: Fix the issue that fail in optimization due to new Candela distribution format – 6820

#### Solar Emulator:

Update: Fix the issue that error occurred after starting analysis – 6823

#### Analysis Toolkit:

Update: Fix the issue that the feature of spectrum analysis is failed due to new incident ray table format – 6826

### ***TracePro 7.6.2 Release***

New: Add the capability of displaying Luminance value when moving mouse over a Photorealistic Rendered image

New: Add the capability of adjusting the gamma value of the rendering result

New: Add the capability of saving raw data including r,g,b and luminance as a text file

New: Macro commands added for Photorealistic Rendering Setup dialog

Update: Fix issue with sweeping a planar surface with Sweep Angle – 6815

Update: Fixes to Auto Level settings in Simulation File Manager / Irradiance Viewer – 6802, 6803

Update: Simulation File Manager / Irradiance Viewer Options – auto levels setting are now available for editing – 6804

Update: Improve calculation of default brightness level for Photorealistic Rendering – 6814

Update: Fix performance issue in volume flux calculation – 6812

Update: Fix errant message in progress dialog – 6797

Update: A valid orientation vector is not required if a 2-sided surface property is isotropic – 6806

Update: Fix issue with applying a 2-sided surface property

Update: Context file for requesting a license is now saved to the desktop instead of the ProgramData folder

Update: Improvements to OSLO translator

Update: Fix raytracing error on submitted lens. Moving this lens in-session and re-raytracing produced incorrect raytrace results – 6770

Update: Enable GRIN raytracing to aspheric surfaces

Update: Improve the brightness calculation of a photorealistic rendered image

Update: Improve calculation of missing aperture semi-diameter on imported lenses

Update: Improve handing of ray files with bad wavelengths which previously confused the ray counters – 6755

Update: Do not allow saving of IES or LDT files unless the Analysis Units are set to Photometric – 6762

Update: Fix the irradiance map surface outline to properly account for the scale – 6758

Update: Fix an access violation tracing surface sources on objects that have been removed from the ray trace

Update: Fix an issue on the Polar Iso Candela Plot where the Total Flux is incorrect in some circumstances – 6416

Update: For models with multiple instances of the same file source, read that file from disk only once – 6754

Update: Fix an error in calculating the bulk scatter in RGB mode

Update: Lost flux in an object (e.g. due to bulk scatter) was not correctly reported in the flux report. This is now fixed. – 6635

### TracePro Utilities Revisions...

#### BSDF Converter:

Update: Fix the issue that cannot read the SPEOS anisotropic bsdf file – 6099

Update: Fix the issue that cannot auto-detect the file type if the extensions are all .txt – 6543, 6544

#### Surface Source Property Generator:

Update: Fix the issue of failing to export property when the loaded spg file contains multiple profiles – 6813

#### Texture Optimizer II:

New: Add Polygon shape support

Update: Fix the issue when importing texture file in the current cells but there are not cells existing, program crashes

Update: Fix the issue when importing texture file in uniform cells, program crashes

Update: Fix the issue that program crash when adding cell with blank boundary

Update: Fix the issue that program crash when the combined cell has the same position with current existing cell

Update: Fix the issue that uv mapping method is missing in the Export Real Geometry dialog

Update: Fix the issue that program hangs when after select optimization from Action menu when Dot Preview is selected – 6810

#### 3D Interactive Optimizer:

Update: Fix the crash when copying a radial symmetric object

Update: Fix the crash when drawing a radial symmetric object with an across profile

Update: Improve the abridged after-scheme command window in after-scheme editor – 6746

Update: Fix the issue that surface property not applied to surfaces when surface is the result of setting “Steps” in the Object dialog – 6741

Update: Fix the issue that program crash if the weight value of an operand is empty – 6808

Update: Fix the bugs when selecting missing ray as the target of intensity operand – 6794

#### Analysis Toolkit:

Update: Correct the tip text for the Exit button

## **TracePro 7.6.1 Release**

Update: Fix a file opening error with models containing irradiance surface sources – this is a regression in 7.6.0 – 6751

## **TracePro 7.6.0 Release**

New: For a complete description of all new features in TracePro 7.6, please refer to the update guide on the TracePro Manuals webpage

New: Add macro command (analysis:sort-path-sort-columns ...) to sort on the columns of a Path Sort Table – 6701

Update: Fix Solve For calculation in Surface Property Editor for 1DABg BSDF model – 6715

Update: Performance improvement of rotational symmetry calculation for Candela plots – 6440

Update: Fix incorrect result for volume flux with a grid source inside object – 6708

Update: Save max photons setting for photorealistic rendering to the OML file – 6740

Update: Fix message that gives incorrect wavelength – 6737

Update: Fix raytrace error in repeated raytrace of RepTile DMD – 6725

Update: Fix issue with smoothing on Polar Iso Candela plots – 6735

Update: Fix raytrace error for RepTile with “Use Surface Bounds” set as RepTile bounds – 6694

Update: Explicitly set directory for Simulation File Manger to make sure it can be loaded

Update: Ensure deactivated license keys are resolved before upgrading the key, don't list remote keys with the licenses removed, and include server name for remote deactivated keys

Update: (insert:lens-element ... ) macro now contains support for "Decenter of Second Surface Relative to the First" and "Tilt of Second Surface Relative to the First" – 6674

#### TracePro Utilities Revisions...

##### BSDF Converter:

Update: Fix the issue of failing to load Radiant Imaging ISSA file saved in older version – 6508

Update: Fix the issue with handling large data files – 6616

Update: Fix the issue of failing to load the .BSDF file when Language is set to Turkish – 6660

##### IES/LDT Analysis:

Update: Fix the incorrect orientation setup of the Street Light Analysis – 6685

##### Texture Optimizer II:

New: Add capability of saving position file in XYZ format for UV mode

Update: Fix the issue that an error shows when expert real geometry to a surface in TracePro – 6724

Update: Fix the incorrect geometry parameter error message when trying to enter values for any parameter while Pointed cone is selected as the dot shape – 6723

Update: Improves the speed of generating dots

Update: Fix the issue of incorrectly filling density/target in cells as a path

##### 3D Interactive Optimizer:

New: Add capability of scaling surface

New: Add new after-scheme command: raytraceflag

New: Add the display of total flux on the irradiance map when viewing it on the Log history window

New: Add new supportive surface type – freeform surface

New: Add new after-scheme commands: export\_surface\_as\_surface and export\_surface\_as\_wirebody

New: Add capability of displaying rays in different color

New: Add capability of deleting rays in selected color

Update: Fix the issue that if conic constant changed to zero, the curve won't be generated in some cases

Update: Fix the issue that when copying an object with surface that has duplicated name, the copied object refers to wrong object

Update: Fix the issue that when changing segment type from conic to spline, program crashes in some cases

Update: Add example to commands unite, subtract and intersect to clarify the difference between the object ID and object name – 6563

##### Solar Emulator:

New: Add capability of defining the rotational axis for Sun tracking options: Uni-axial and Aim to Sun

New: Add the display of Sun attitude and Azimuth angle in the 3D preview window

## **TracePro 7.5.7 Release**

Info: No changes from TracePro 7.5.6

#### TracePro Utilities Revisions...

##### 3D Interactive Optimizer:

Update: Fix the issue that a file saved with a cSegLoop will not open – this is a regression in 7.5.5 – 6720

## **TracePro 7.5.6 Release**

Update: Enhancements to license troubleshooter – clearer messages and more information in emails sent back to

## Lambda Research

- Update: Fix bug where deactivated keys were not listed in the troubleshooter – 6718
- Update: Fix copy/paste issue with irradiance sources – 6717
- Update: Improve parsing and handling of OSLO commands in OSLO importer
- Update: Fix insert lens issue with 90 degree rotated cylindrical face – 6713
- Update: Fix crash in fluorescence raytracing when levels were so low that no fluorescent rays were created at certain wavelengths – 6714
- Update: Fix smoothing factor issue on some Candela plots – this is a regression in 7.5.5 – 6716
- Update: Internal improvements to licensing and the Troubleshooter
- Update: Change grid source Gaussian Spatial Profile label – 6710
- Update: Fix issue with launching license tool
- Update: Fix Rectangular Iso Candela plot color map – this is a regression in 7.5.5 – 6704
- Update: Fix luminance viewer with photometric units – 6703
- Update: Modify menu obtained from right-clicking in the system tree is only available for objects created from TracePro dialogs

## TracePro Utilities Revisions...

### General:

- Update: Change the temp folder to \AppData\Local\Temp which is Microsoft compliant – 6705

### IES/LDT Analysis:

- Update: Correct the message string to improve the clarity of the error message when the loaded IES file doesn't have the Lamp size info in its file header – 6601

### 2D Interactive Optimizer:

- Update: Fix the issue that fails to optimize when windows Region and Language is set to German – 6711

### 3D Interactive Optimizer:

- Update: Add icons in surface window of Y-Z and Z-Y view when a 2D profile is displayed – 6287
- Update: Fix the issue that fails to build geometry in TracePro when Language is set to Italian – 6515
- Update: Fix the wrong behavior when changing curvature on an angled conic segment
- Update: Modify the description about how to define a light source in the object view – 6445
- Update: Add description to the periodic segment in the on-line help – 6696

## **TracePro 7.5.5 Release**

- New: Added the Scheme command: (view:set-update-system-tree ... )
- New: Added the following Scheme commands: – 6668, 6669  
(edit:set-model-window-size ... )  
(edit:get-model-window-size )  
(analysis:candela-set-window-size ... )  
(analysis:candela-get-window-size ... )
- Update: Restore proper names to Tools | Change Language submenu -- this is a regression in 7.5.2
- Update: Fix issue with Photorealistic Rendering image when surface source is using calculated wavelengths – 6686
- Update: Add “Set Default” button in Irradiance Viewer Options dialog – 6687
- Update: Fix issue with saving Polar ISO Candela data when Contour plotting was selected
- Update: Fix crash in Photorealistic Rendering that appears when making an object, that contains a surface source, invisible
- Update: Fix erroneous raytrace results in case with RepTile/Texture using Surface Bounds – 6694
- Update: Make Simulation File Manager dialog resizable – 6692
- Update: Fix default file extension in File|Save As... – 6689

Update: Disable Save menu pick for the irradiance viewer – 6688  
Update: Fix crash when performing a Boolean Subtract when the subtracted body has a surface source – 6683  
Update: Fix color issue in Photorealistic Rendering – 6682  
Update: Fix reported crash in Table BSDF – 6691  
Update: Efficiency improvement for optical aspheres  
Update: Fix crash in Photorealistic Rendering – 6681  
Update: Improve memory management in Photorealistic Rendering – 6413  
Update: Add warning to Volume Flux when a fluorescence property exists – 4664  
Update: Have Export Rays consider the Ray Sorting selection for Flux Display Range – 4839  
Update: Improve performance in system, source, and radiance calculation tree controls  
Update: Several enhancements to the license troubleshooter

#### TracePro Utilities Revisions...

##### Surface Source Property Generator:

New: Add new capability of loading Candela file and IES file as radiation pattern

##### Texture Optimizer II:

New: Add new preference setting for dithering boundary dots

New: Add capability of updating density value by the real generated density value during optimization

New: Add new button to retrieve the center position of the current boundary in the Scale boundary dialog

New: Enable the cell profile display even unchecked the cell display option

New: Add new feature of Gaussian smoothing in the density/target value editors

New: Enable the display of mouse position in the density/target filling dialogs

Update: Fix the issue that when generating dots, the progress bar is glitter

Update: Fix the issue that after rebuilding cells, the selected cell is the old one

Update: Fix the issue that in the optimization dialog, the popup menu on the target map is not functional

Update: Fix the issue that when start optimization with the current texture file, program will crash

Update: Fix the issue that the target map only can display in gray scale

Update: Fix the crash when filling density map if there is no any path defined

Update: Fix the issue that when aborting optimization during the phase of generating dots, program will crash

##### 3D Interactive Optimizer:

New: Add new tool for logging the DDE commands

New: Add capability of creating Fresnel profile on a curved baseline

Update: Fix the issue that sending to TracePro results in error messages when Region and Language is set to German – 6697

Update: Add descriptions about Fresnelization in on-line help – 6698

Update: Fix the issue that one row of facet will be missing to tweak as curved when rotating a TIR profile

Update: Fix the issue that when there are invalid values obtained during optimization, viewing trend chart will hang the program - 6666

Update: Fix the issue that when reducing the number of Asphere terms, the program will crash

##### Solar Emulator:

New: Add spectrum info for both Sun model and Sky model

New: Add option of ray sampling method for Sky model generation

New: Add new feature that export Sky model as a surface source property

Update: Fix the issue that the slider won't update with the simulation – 6200

## **TracePro 7.5.4 Release**

New: Add option to troubleshooter to set server name when network key is on a different subnet. – 6572

Update: Fix reported irradiance value for surface sources in Property Report  
Update: Fix application of irradiance surface source property to multiple faces at once  
Update: Change define source menu item order to make it consistent across TracePro – 6667  
Update: Improvements to source tree performance  
Update: Fix irradiance value round off problem in UI of grid or surface sources. Models saved from this version forward will not have this problem. – 6661  
Update: Improve macro recording of inserting/modifying grid sources to a more efficient way  
Update: Fix internally found crash when interacting with the Surface Source Editor and multiple documents  
Update: Fix drag/drop issue in the system tree that lead to a crash – 6664  
Update: Fix for incorrect flux in Table BSDF – 6658  
Update: Improvements to memory allocation when a large number of sources are used  
Update: Performance improvement. After inserting a Ray File into the model and performing a ray trace, the file was inefficiently read twice. We now only read the file once. – 6596  
Update: Fix issue with exclude flag errantly toggling in the source tree when modifying a source – 6655  
Update: Fix Source Editor issue where a modification to a source could delete the wavelengths on the source – 6657  
Update: Improve messages and cleanup previously downloaded installers when running Check For Updates  
Update: For all Property Editors, catalog names are case insensitive while property names are case sensitive. Ensure combo boxes in the UI adhere to this.

TracePro Utilities Revisions...

Texture Optimizer II:

New: Add new capability of placing dots on UV surface and creating dots as real geometries

Update: Fix the issue that the progress bar generates repeatedly when launching the density path dialog

Solar Emulator:

New: Add new capability of exporting sky model in multiple wavelengths

### ***TracePro 7.5.3 Release***

New: BrightView diffuser surface properties are in database shipping with this release

Update: Fix Check For Updates message that referred to a new update as “Early Access” instead of stating the new version number – this is a regression in 7.5.2

Update: Fix errant error message when adding a new property to the database through the Property Editors – this is a regression in 7.5.2 – 6653

Update: Fix incorrect Incident Ray Table on coincident surface in submitted model – 6638

Update: The conservation of energy message was erroneously displayed for some properties in the Surface Property Editor. This is now fixed. – 6649

Update: Fix UI in Rotate Source dialog so all required data can be entered for a customized rotation – 6651

Update: Fix macro recording of (edit:rotate-grid-source ...) and (edit:rotate-file-source ...). The angle being recorded was incorrect. – 6652

Update: Fix problem in OSLO translator for ISO Symmetric Asphere -- this is a regression in 7.5.2

Update: Fix crash when deleting an object with a surface source on it -- this is a regression in 7.5.2 – 6650

Update: Ensure all name comparisons in the property database are case sensitive

Update: Permit newly created fluorescence properties to be edited in the Fluorescence Property Editor

Update: Provide the proper behavior in Display Selected Rays mode when navigating the Incident Ray Table with the up and down arrow keys – 6619

Update: Fix to (analysis:refresh) command to ensure all Candela plots properly refresh – 6648

Update: Only allow positive scale factors in Scale Selection dialog box – 6646

Update: Enhancements to Check For Updates regarding license checking and messages to the user



TracePro Utilities Revisions...

3D Interactive Optimizer:

Update: Fix the issue that the user-defined operand is not working

## ***TracePro 7.5.2 Release***

New: Add the following Scheme command to clear the output window – 6642

(macro:clear-output ... )

New: Add the following Scheme commands to support Display Selected Paths and Path Sorting – 6634

(analysis:display-selected-paths ... )

(analysis:update-selected-paths ... )

(analysis:get-sort-path-count ... )

(analysis:path-sort-close ... )

New: A Ray File Wavelength Editor has been added to the Define menu – 4421

Update: Fix issue with Table BSDF integration

Update: Improvements to internal caching of property data to minimize database transactions and improve performance

Update: Properly handle ray tracing invisible objects for Photo Realistic Rendering

Update: Improve error checking when querying license and put up message box if query fails

Update: The default model temperature is now used to interpolate surface source properties. 300K was previously used.

Update: Auditing performance improvement on large models

Update: Fix incorrect ray trace in Gegenbauer bulk scatter models with g coefficient not equal to zero – 6633

Update: Performance improvement on models with many sources when all sources have the same number of wavelengths

Update: ACCOS and Sigma2000 lens design translators have been removed from this release

Update: Fix Set Defaults in Raytrace Options >> Advanced and Raytrace Options >> Thresholds for all languages. Issues were found due to improper translations in Chs, Cht, Ita, and Esp.

Update: Double-click to open a file from Windows Explorer now works even if the full path to the filename contains a space – 6628

Update: Fix crash in Surface Property Solve For with no scatter – 6621

Update: Improve efficiency when looking for group nodes in system tree

Update: Fix bug reading fluxtype default from tpdef.ini. The setting was ignored.

Update: Use correct object and surface names in overlapping body error message. This was incorrect if the names were changed in-session – 6614

Update: Change naming convention of views in default model view combo box

Update: Fix issues with Zernike polynomials translation in ACCOS and OSLO translators

Update: Add six more view modes to the View toolbar – 6588

Update: Fix crash in Surface Source dialog – 6612

Update: Use user defined orientation in Irradiance Viewer – 6604

Update: Fix ray sorting crash – 6602

Update: Documentation fix for Predefined Irradiance Map Orientation dialog – 6603

Update: Documentation update for new Merge dialog

Update: Default view mode has been set to yz – 6608

Update: Improved messages while checking for updates

TracePro Utilities Revisions...

Texture Optimizer II:

Update: Fix issue that progress bar is not working in the Path density dialog  
Update: Fix the issue that optimization stops at the first iteration when failing to read irradiance map  
Update: Fix the crash when updating trend chart when no data exists  
3D Interactive Optimizer:  
New: Add capability of creating a lightpipe with one end polygon and the other end circular  
New: Add new features of Flipping, Translating for surface operation  
New: Add new after-scheme command-Applybulk  
New: Add capability of creating period pattern on curved segment  
New: Add capability of creating lightpipe with one end polygon and the other end circular  
Update: Fix the issue when selecting Luminance as the operand, the simulated result cannot be recognized correctly  
Update: Fix the issue when there are two Tab in front of keyword, the text color won't be turned to blue  
Update: Fix the crash when loading file with conic segment – 6620  
Solar Emulator:  
New: Add capability of inputting range of sampling wavelength for the Sun model  
Update: Fix the issue of no response from TracePro when creating Sun model, the model won't be created and a misleading error message is shown – 6606, 6607  
Update: Fix the issue that when pupil is set as rectangular the Sky model traces incorrectly – 6597

### ***TracePro 7.5.1 Release***

New: Source Editor now handles all types of sources – 2442, 4543, 5485, 5770, 5827  
New: Add Optical Path Length to Incident Ray Tables – 1409  
Update: Fix issue with large source files – 6594  
Update: Fix macro recording of applying RepTile Property with Use Surface Bounds selected – 6568  
Update: Fix (property:apply-reptile... ) when using “Use Surface Bounds” to move the origin to the tilted plane automatically  
Update: Sort ray file by wavelength when cache is on – 6552  
Update: Add default view mode options  
Update: Increase wavelength grid size to eliminate need for horizontal scrolling – 6579  
Update: Add merge file option to merge new model into a group node – 5385  
Update: In the macro command (analysis:set-3d-irradiance-contour ... ), if the contour option is turned ON, smoothing is turned ON and gradient display is turned OFF to match the behavior in the UI  
Update: For setting 3D Irradiance Map options , do not permit setting the Smoothing or Gradient Display option if the Contour Plot option is ON. This matches the UI behavior.  
Update: Fix RepTile display for variable row RepTiles – 6578  
Update: Fix program crash attempting to trace rays in model with Parameterized RepTile set to Use Surface Bounds – 6577  
Update: Fix to allow the Solar Emulator to export the correct irradiance values for a solar source – 6569  
Update: Improvements to ‘Modify Selection’ in the Source Editor  
Update: Fix issue with sending email for licensing purposes – 6566  
Update: Allow Source Editor to change multiple combo cells in one edit  
Update: Documentation updates for Photorealistic Rendering  
Update: Fix crash in Photorealistic Rendering on submitted model – 6557  
Update: Allow property with long name over 50 characters – 6558  
Update: Changed internal link to user manual website  
Update: Add angular convention to Candela text files – 6555  
Update: Add width and height to Candela text file header

## TracePro Utilities Revisions...

### 3D Interactive Optimizer:

- New: Add new option - Missed ray to range selection for Candela target – 6586
  - Update: Fix the syntax error in help for the command - var – 6587
  - Update: Fix the issue that when changing aperture shape from circular to rectangular for a lens object, utility will crash – 6590
  - Update: Fix issue that opening optimization window crashes program when the conic reflector has control point as variable – 6562
  - Update: Fix issue that no option available to set the thickness of a lens object – 6576
  - Update: Add documentation of optimization log window to online help – 6551
  - Update: Fix the issue that geometry becomes corrupted after transformed – 6503
  - Update: Fix the issue when creating lens object crashes – 6554
- ### Solar Emulator:
- Update: Change the format of string for Google map mapping – 6548

## **TracePro 7.5.0 Release**

- New: New type of BSDF: Composite BSDF
- New: New type of BSDF: 1D BSDF
- New: New BSDF Editor for BSDF properties
- New: Add group node related Scheme commands
- New: Improved licensing using CodeMeter – 2448, 3538, 3980, 4967, 5408, 5833, 6057, 6058, 6059, 6447, 6478
- New: Added “Check For Updates” capability to automatically check for and download newer releases
- New: The user can now set the maximum number of photons to trace in the Photorealistic Rendering Setup
- New: Add group node icon – 6458
- New: Add Scheme commands: (property:get-catalogs ... ) and (property:get-properties ... )
- New: Add Scheme commands: (property:get-catalogs ... ) and (property:get-properties ... )
- New: Add Scheme commands: (analysis:display-selected-rays ... ), (analysis:get-selected-flux ... ), and (analysis:get-selected-size ... ) to support Display Selected Rays feature – 5806
- Update: When applying a Surface Source to an object, the Surface Source is applied to all surfaces in that object – 6542
- Update: Fix tab order in Surface Property tab of Apply properties dialog – 6532
- Update: Fix erroneous Luminance Map for case with Lambertian Surface Source property with cone angle less than 90 degrees – 6472
- Update: Fix to Irradiance Maops for irradiance type surface sources when “Normalize to: Average Emitted Irradiance” is chosen – 6530
- Update: Require the same version of TracePro when reading ray data files
- Update: Prevent audit when opening an oml file if the ray data file is not compatible with release
- Update: Clean up warning messages associated with ray data importing
- Update: Ensure Editor window is visible regardless of previous window placement – 6533
- Update: Use 64-bit integer ID internally – 6526 (REMOVE FROM REV HISTORY)
- Update: Improve error handling associated with opening ray files
- Update: Restrict property type by edition – 6511
- Update: Fix unit issue when defining Luminance/Radiance calculation with the model in inches – 6529
- Update: Fix UI updating issues and better error handler with Grid Source dialog – 5197, 5604
- Update: Macro Recorder now records (raytrace:radiance ... )
- Update: Macro Recorder now records (raytrace:all-sources ... )
- Update: Replace incorrect Scheme command example about (property:apply-flux-surface-source ... ) and when this command is applied to an object, all surfaces of the object will get this Surface Source – 4722

Update: Improved performance in system tree node traversal

Update: Do not record "(view:set-view ... )" if "Record window change" is not selected when starting the Macro Recorder

Update: Record newer macro commands: (insert:sphere ... ), (insert:cyclone ... ), (insert:block ... ) when sketching geometry instead of older commands: (solid:sphere ... ), (solid:cylinder ... ), (solid:cone ... ), and (solid:block ... ). All sketched geometry can now be modified using the Insert Primitive Solid dialog box.

Update: Increase precision for rotation and translation when Macro recording

Update: Redesigned system tree group nodes to allow duplicated names – 6465

Update: Fix crash during raytracing of Texture RepTile in submitted model – 6501

Update: Fix ray color button initialization issue

Update: Relabel column title in Path Sort Table – 6502

Update: Truncate solar spectrum properly to avoid unwanted solar irradiance

Update: Greatly improve performance on Polygon texture RepTiles -- 6496

Update: Path Sort Table now includes a column for number of surface intersections – 6494

Update: Photorealistic rendering now pays attention to the display flag. During the Photorealistic Rendering process the forward raytrace pays attention to the Raytrace Flag, whereas the backward raytrace pays attention to the Display Flag

Update: When hovering over a photorealistic rendered image, the RGB value are shown in the Status Bar

Update: Reintroduce stitch and geometry healing options – 6489

Update: Fix crash in Photorealistic Rendering which may occur when a surface source is disabled

Update: Update values in the Set View dialog after a Zoom All or Zoom Selection operation

Update: Modify and Delete added back to the top of the popup menu when right-clicking on an object in the system tree (NOTE – Remove this from the Revision History since it was introduced after 7.4.3 was released – it never was released to customers.) – 6480

Update: Clear the ray file cache when needed to improve performance when processing ray files – 6456

Update: Fix crash when closing the Print Preview window

Update: Eliminate the path sort limit on the number of paths – 6468

Update: Update title on help pages – 6451

Update: Update macro reference documentation for (raytrace:set-file-source-rotation ... ) and (raytrace:get-file-source-rotation ... ) – 6452

Update: Fix issues with regards to Surface Property plotting in the Surface Property Editor

Update: Resolve memory leaks with regards to importing files from TracePro Bridge for SolidWorks

Update: Disable non-applicable buttons in the Surface Property Editor when the property has no grid data

Update: Fix issue regarding property recognition for an Ellipsoid RepTile Property – 6450

Update: Properly toggle the display of working coordinate systems for a multi-selection in the system tree

Update: Fix memory leaks associated with certain database interaction

Update: Sort properties on catalog export and whenever property lists are obtained

Update: Fix a RepTile conversion bug importing RepTile property files from a previous database version

Update: Properly handle the importing of surface properties on files that don't contain "SAVE-DATA" and have extra lines near the end of file

Update: Ensure that a valid SolveName is entered into the database when importing properties

Update: Removed a memory leak associated with the lens design translators

Update: Removed a memory leak associated with RepTile

Update: Change "Data Directory" to "Coating DLL Directory" and only make it available for TracePro Expert – 3190

Update: Add capability to delete a group from the system tree that contains objects, also nodes within a group can be copied to the top level – 5126

Update: Fix documentation for (property:apply-reptile ... ) macro. If this macro is used on a non-planar surface, warn the user and continue processing, instead of throwing an error.

Update: Properly record (property:apply-reptile ...) macro when the boundary is set to 'Use Surface Bounds'  
Update: Fix the calculated wavelength in the Apply Properties | Fluorescence dialog when the wavelength range is specified as 0 to infinity – 5446  
Update: Ensure S and P values match at zero degrees incident angle for polarization dependent properties – 5774  
Update: Removed memory leaks associated with database interactions  
Update: Improve performance for Display Selected Rays for Incident Ray Tables when multiple rays are selected  
Update: Permit processing of the Cancel button when the message window is being flooded with messages – 715

#### TracePro Utilities Revisions...

##### General:

New: Added new Utility: Texture Optimizer II

##### BSDF Converter:

New: Add new capability of importing Radiant imaging (Imaging sphere) file.

Update: Fix the issue when importing Alanod file when Language is Italian – 6444

##### Surface Source Property Generator:

Update: Add descriptions about Image File Source and Volume File source – 6473

Update: Fix the issue that crashes when choosing Gaussian or Lambertian radiation pattern for generating the Image File Source

##### Texture Optimizer II:

New: Add new feature of placing dots in UV coordinate

New: Add capabilities of adding/deleting cells

New: Add new capability of placing dots in fix-grid, fix-hex distribution with the specified coefficients

##### 3D Interactive Optimizer:

New: Add feature of moving control point by arrow keys

New: Add feature of increasing/decreasing move step by +/- keys

New: Add new operand of radiance target

New: Add help of import from/export to text file for BSpline surface – 6499

New: Add new option for Flux operand - Normalized

New: Add new after-scheme command - exportsurface

New: Add new segment type - Periodic

New: Add new capability of importing/exporting BSpline surface from/to file – 793, 5376, 5959, 6072

New: Add new after-scheme commands to retrieve position of control point

Update: Fix the issue that when creating reflector object, if the Boolean operation fails when cutting the hexagonal facet, the objects will be removed from TracePro

Update: Fix the issue that the uniformity target is not changed when modifying the default values – 6512

Update: Fix the issue that ray display is wrong – 6528

Update: Change the behavior of moving conic segment when the Conic type is locked to Circular

Update: Increasing the sampling number for Candela profile comparison to improve the accuracy

Update: Fix the issue that when using asymmetric profile to create radial symmetric object, if the profile has any edge on the revolving axis, the object cannot be created in TracePro – 6497

Update: Fix the issue that cannot export multiple lens objects to TracePro – 6497

Update: Fix the issue that Trend chart is displaying data with an "off by one" error for variable scan – 6432

Update: Fix the issue that Biaxial object won't be saved to file

Update: Fix the issue that moving a symmetric profile will crash if there is any non-mirrored control point in it.

Update: Fix the issue that pickup is failing in some cases

Update: Fix the issue that variables for control point on Spline reflector are not appearing in Variable list in Optimization window – 6459

##### Solar Emulator:

New: Add the new function of loading analysis report

New: Add new capability of adjusting the y axis range of the report

New: Add new Sun tracking mode - Uniaxial-Suntrack

Update: Fix the incorrect expression of Solar altitude in Sky model - Darula and Kittler.

^^^^^^^^^^^^^^^^^^ ***official revision history begins here*** ^^^^^^^^^^^^^^^^^^^