June 2024, Release of VirtualLab Fusion 2024.1

The New VirtualLab Fusion 2024

Overview of new features of version 2024.1

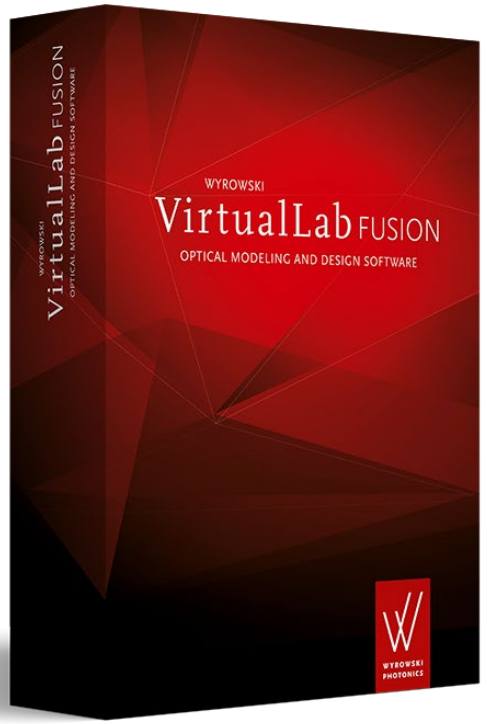
General Information

Version	2024.1 (Build 1.132)
Update Service	2nd quarter of 2024 is required.
Install Type	Standalone Installation VirtualLab Fusion 2024.1 is installed in parallel to your existing VirtualLab Fusion installations.

New Member in the VirtualLab Fusion Product Family

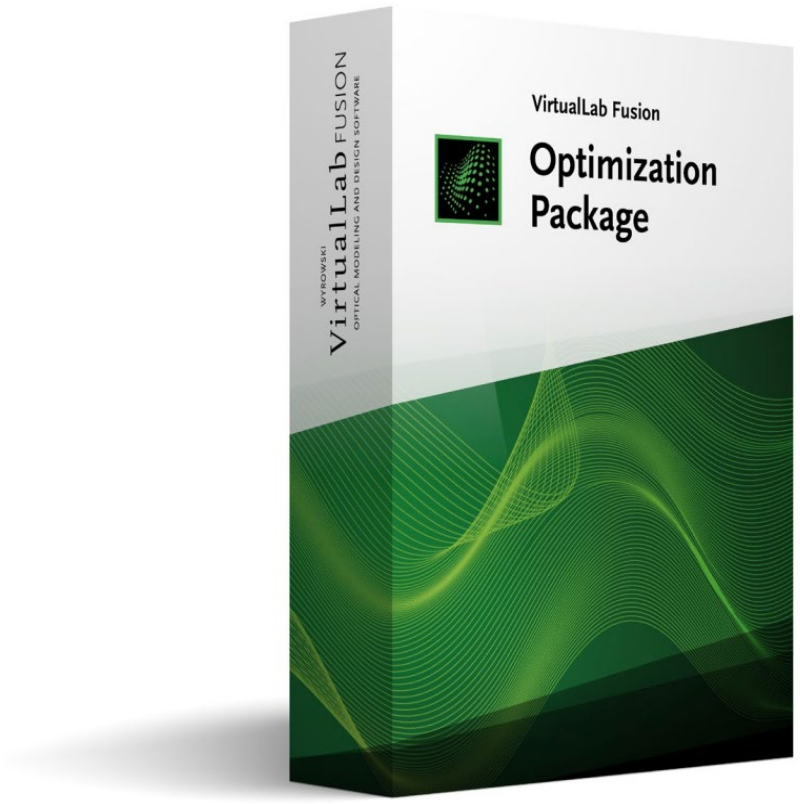
New VirtualLab Fusion Product Family - General

- With VirtualLab Fusion 2024.1 we offer different configurations of VirtualLab Fusion. We distinguish between the platform (**VirtualLab Fusion Standard**) and additional packages, which can be combined as needed.
- The following packages are available:
  - Grating Package
  - Diffractive Optics Package
  - Flat Lens Package
  - Light Shaping Package
  - AR/VR/XR Package
  - Distributed Computing Package
  - **Optimization Package (NEW)**



VirtualLab Fusion – NEW Optimization Package

- With VirtualLab Fusion 2024.1 the **Optimization Package** has been released as the newest member of the VirtualLab Fusion product family.
- It contains **powerful local and global optimization algorithms** to design a system according to your merit functions.
- The **intuitive and user-friendly interface** will guide you through the optimization process.
- **Powerful post-processing tools** will enable you to understand the development of merit function values during the optimization process.

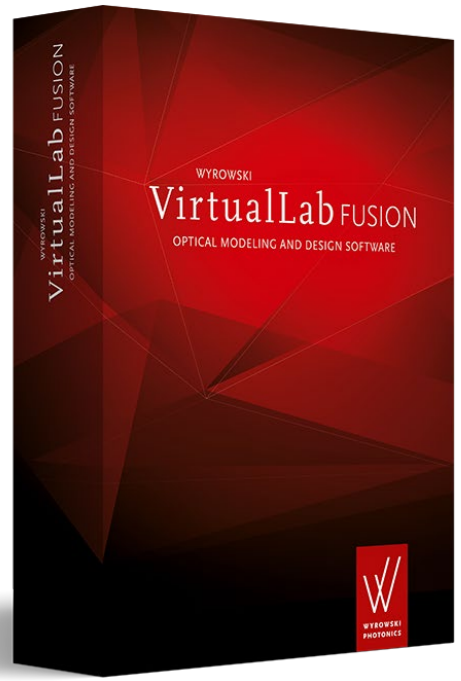


The New VirtualLab Fusion 2024.1

Major Development Directions

Major Development Directions of VirtualLab Fusion 2024.1

- VirtualLab Fusion enables optical modeling by combining different modeling techniques on one software platform.
- The development of VirtualLab Fusion never stops. VLF 2024.1* provides:
  - Higher Speed
  - Easier Use
  - More Physics
  - Deeper Transparency
  - Better Control



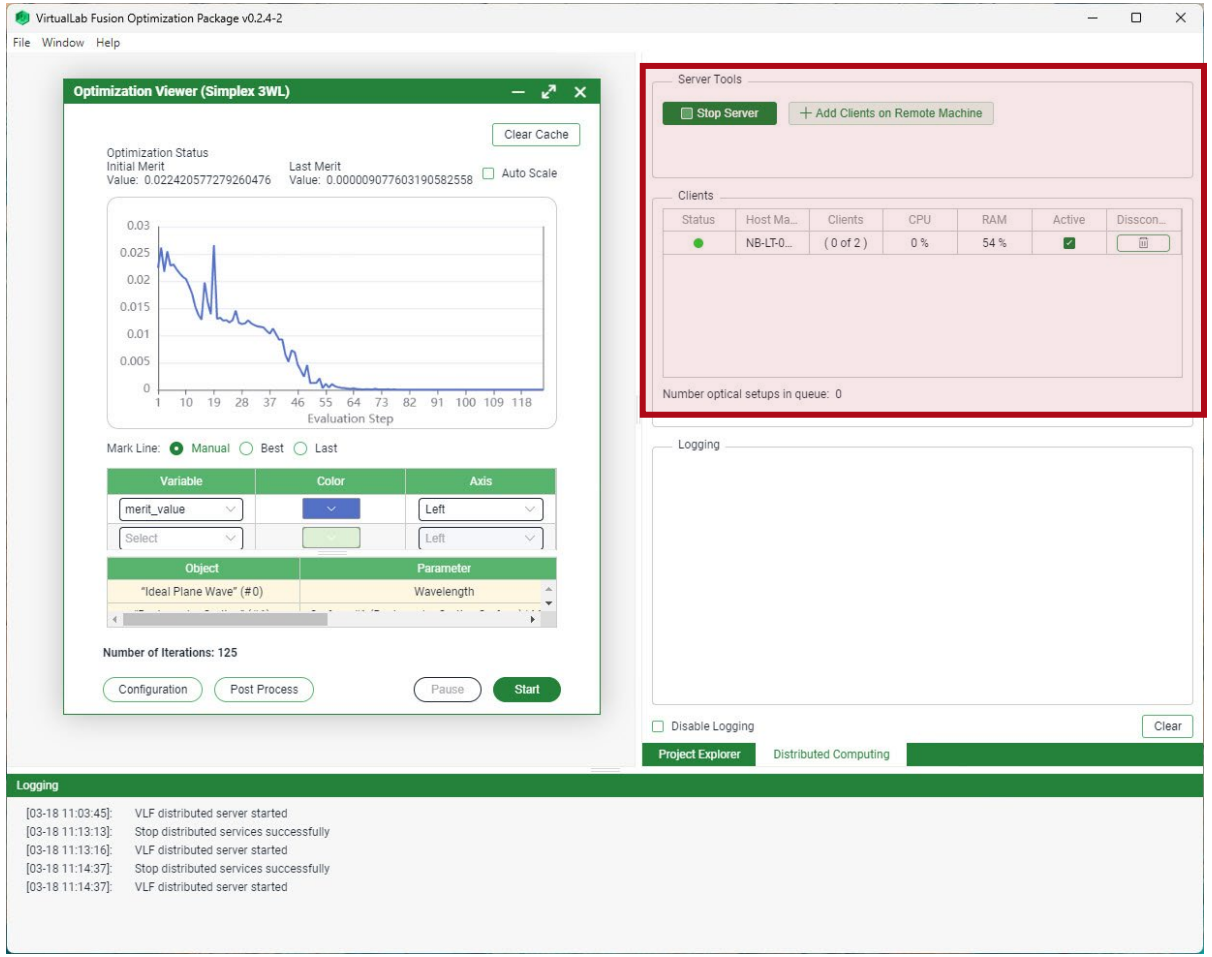
*Our customers often refer to VirtualLab Fusion as VLF. Therefore, in this feature overview we use VLF 2024.1 for VirtualLab Fusion 2024.1.

Higher Speed

Major development directions of VirtualLab Fusion 2024.1

Higher Speed by VirtualLab Fusion 2024.1

- **Distributed computing** technology is utilized in the new Optimization Package.
- Performance & handling of VirtualLab Fusion **data object** (e.g. data arrays) has been optimized.
- Enhanced **parallelization** and **memory** management boost our modeling algorithms' performance.



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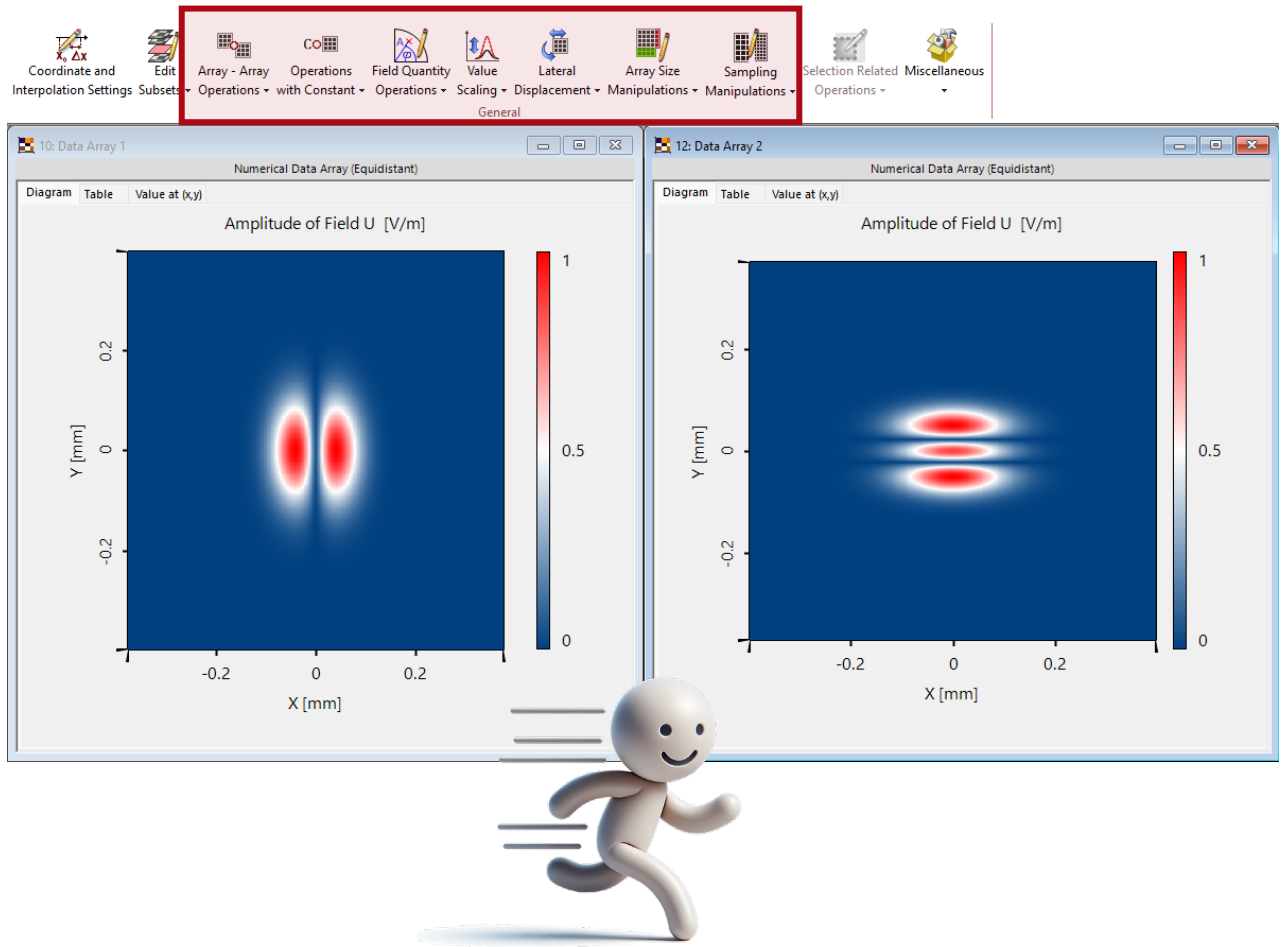

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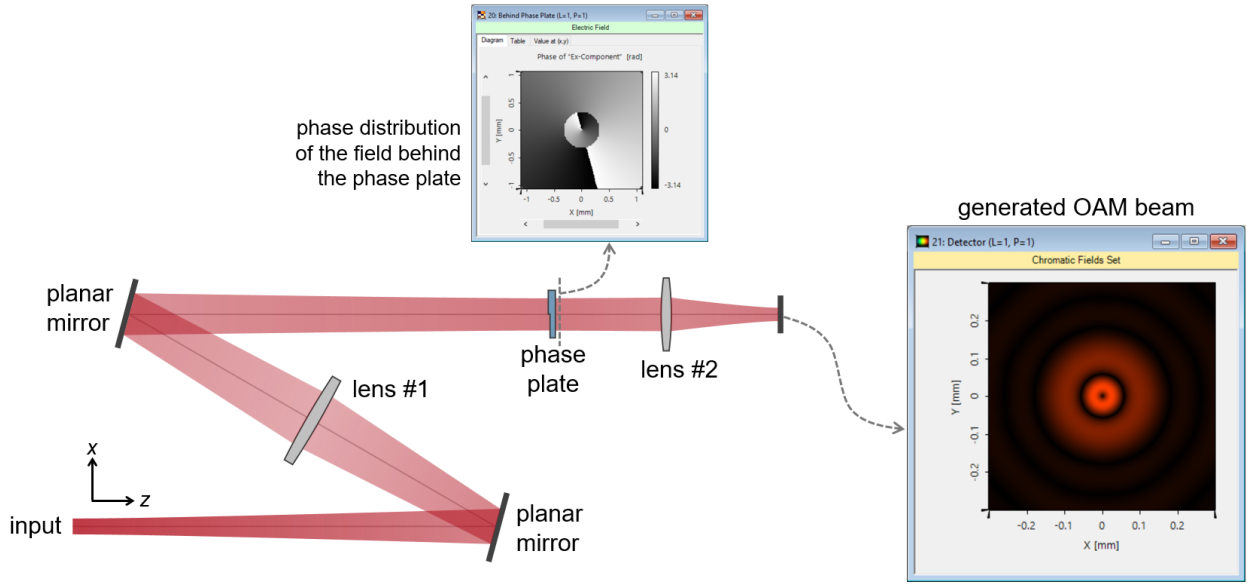


Simulation times

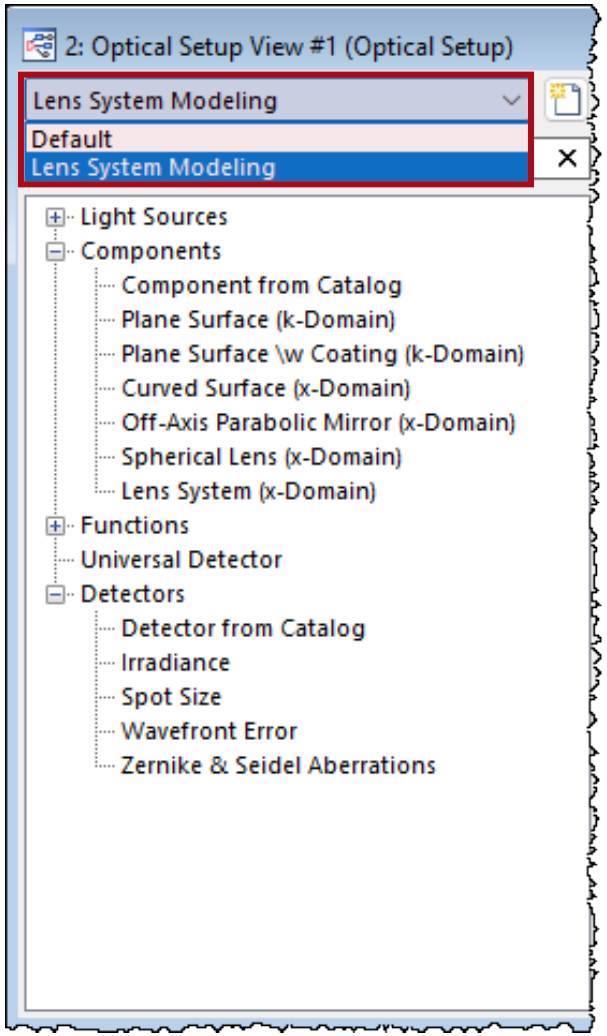
VLF 2023.2:	12 s
VLF 2024.1:	8 s

Easier Use

Major development directions of VirtualLab Fusion 2024.1

Easier Use of VirtualLab Fusion 2024.1

- New customization options for **optical setup trees** are now available.
- **Undo** operations are now supported for optical setups.
- Handling of **calculators** within VLF has been improved.
- Data import capabilities enhanced, including **import** for non-equidistant data.
- Advanced **export** options, such as copying to clipboard, are now supported.



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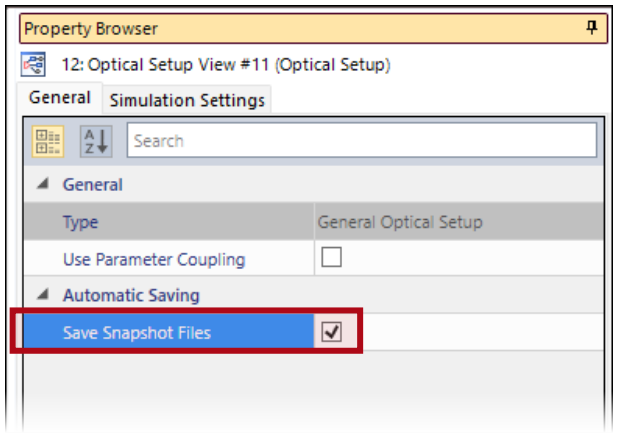

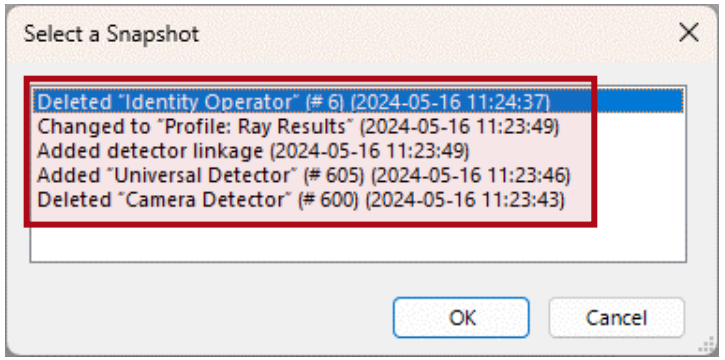

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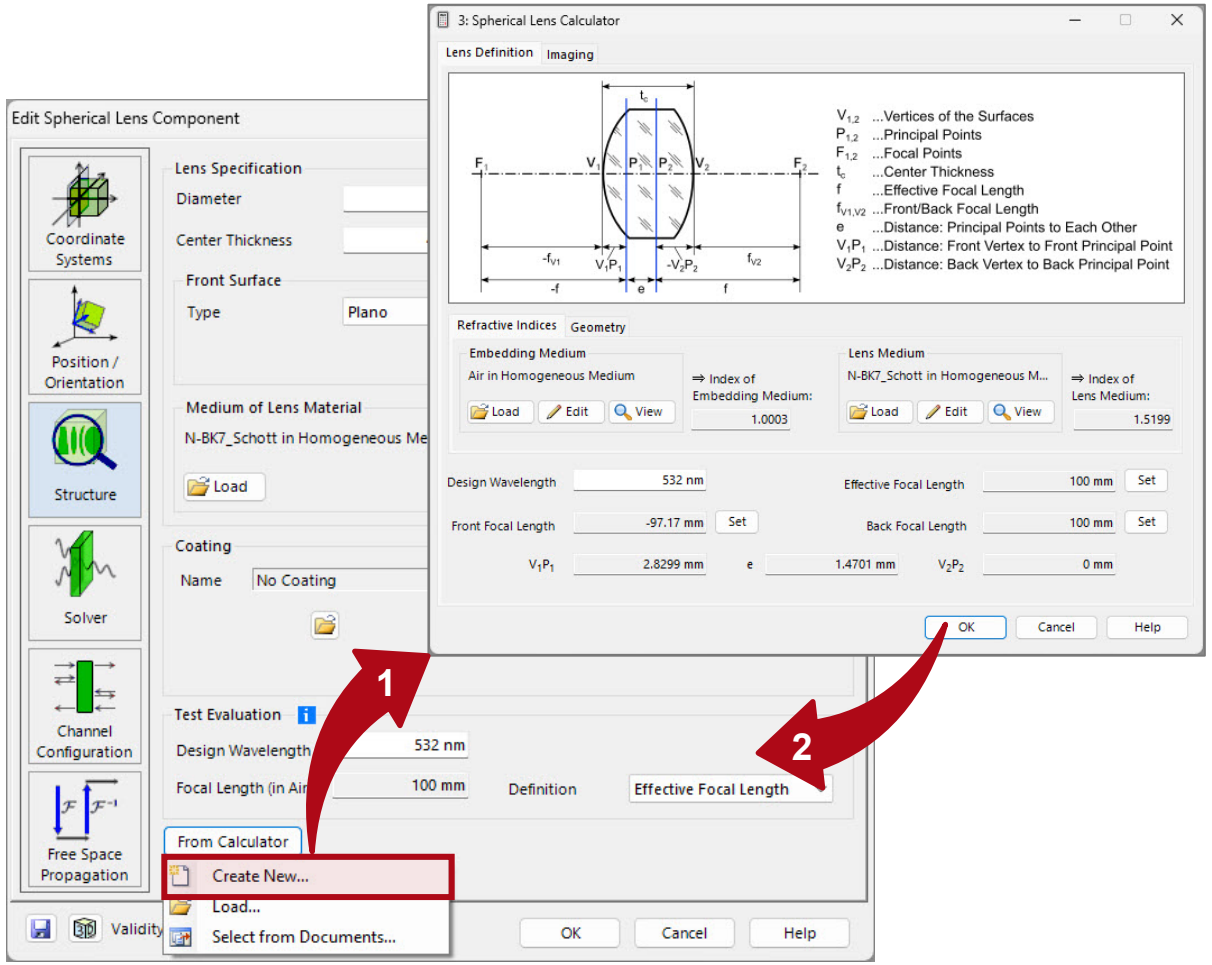

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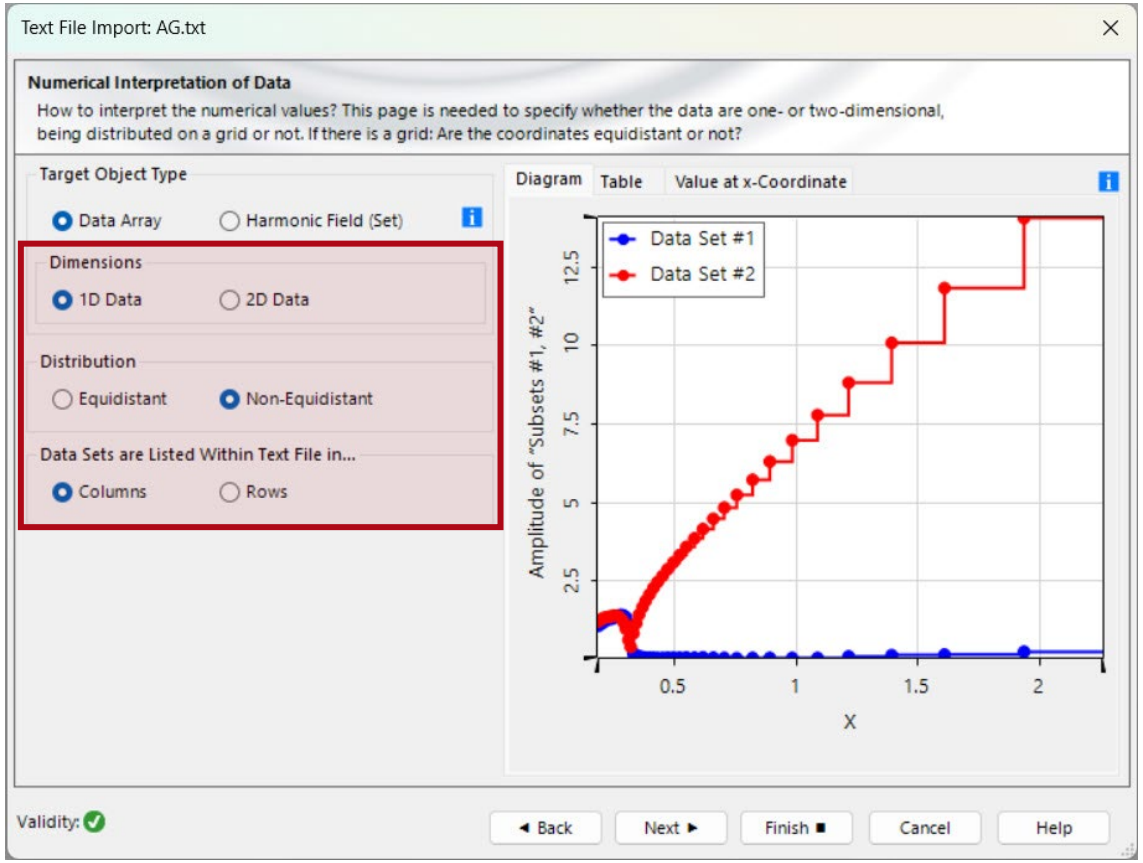

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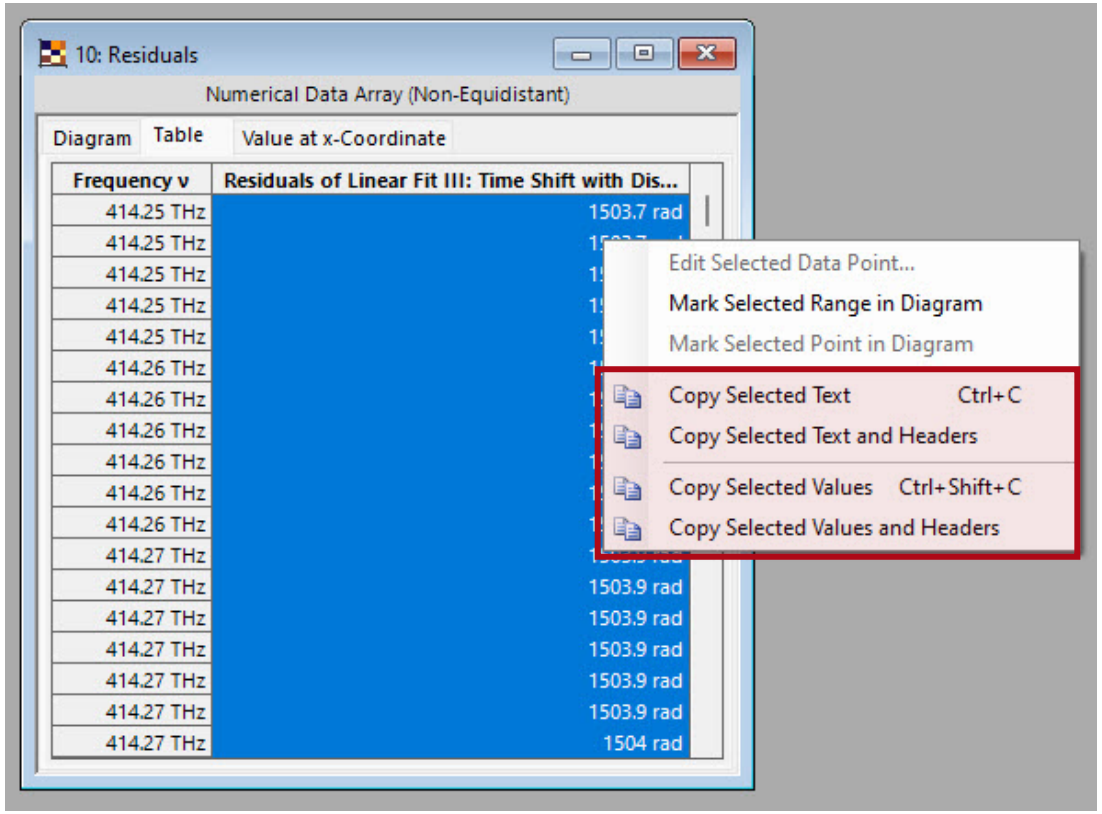
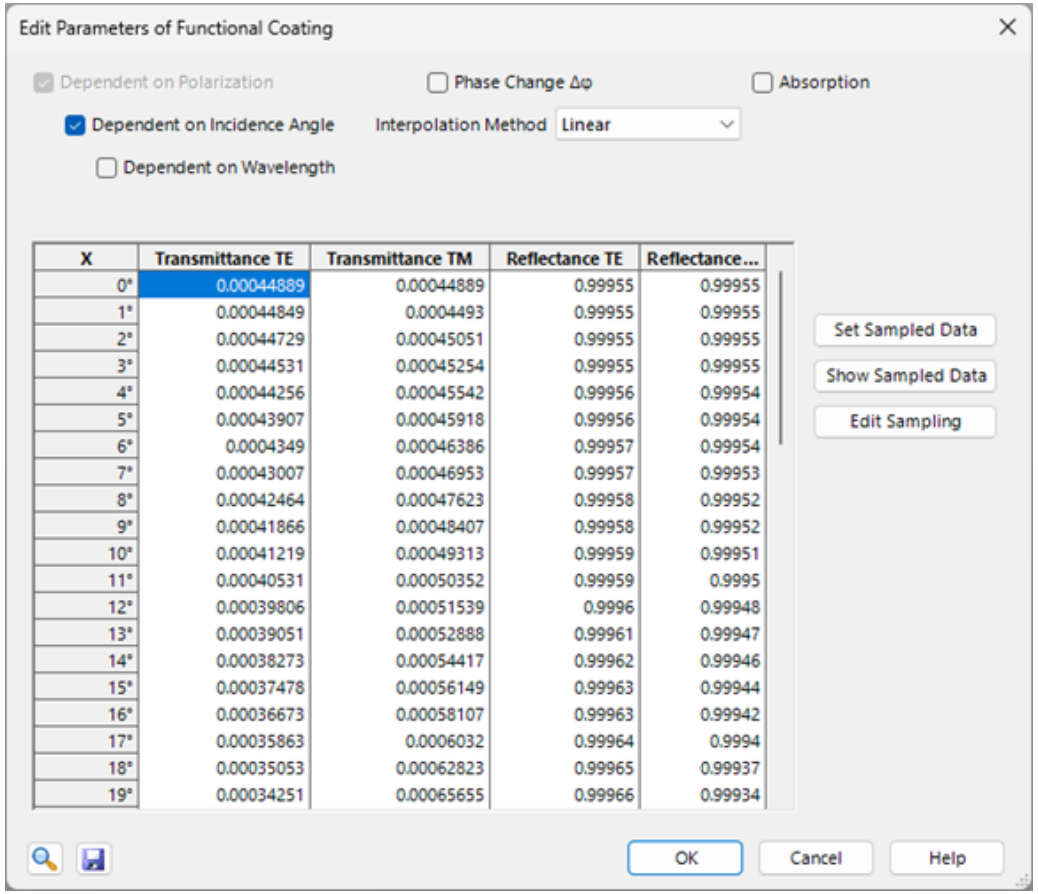


More Physics

Major development directions of VirtualLab Fusion 2024.1

More Physics in VirtualLab Fusion 2024.1

- The latest addition to our ever-expanding collection of simulation models has been introduced: **functional coatings**.
- Enhancements to the **volume grating medium** have been implemented.
- New **detector add-ons** have been introduced to enhance your detector toolkit.



X	Transmittance TE	Transmittance TM	Reflectance TE	Reflectance...
0°	0.00044889	0.00044889	0.99955	0.99955
1°	0.00044849	0.0004493	0.99955	0.99955
2°	0.00044729	0.00045051	0.99955	0.99955
3°	0.00044531	0.00045254	0.99955	0.99955
4°	0.00044256	0.00045542	0.99956	0.99954
5°	0.00043907	0.00045918	0.99956	0.99954
6°	0.0004349	0.00046386	0.99957	0.99954
7°	0.00043007	0.00046953	0.99957	0.99953
8°	0.00042464	0.00047623	0.99958	0.99952
9°	0.00041866	0.00048407	0.99958	0.99952
10°	0.00041219	0.00049313	0.99959	0.99951
11°	0.00040531	0.00050352	0.99959	0.9995
12°	0.00039806	0.00051539	0.9996	0.99948
13°	0.00039051	0.00052888	0.99961	0.99947
14°	0.00038273	0.00054417	0.99962	0.99946
15°	0.00037478	0.00056149	0.99963	0.99944
16°	0.00036673	0.00058107	0.99963	0.99942
17°	0.00035863	0.0006032	0.99964	0.9994
18°	0.00035053	0.00062823	0.99965	0.99937
19°	0.00034251	0.00065655	0.99966	0.99934

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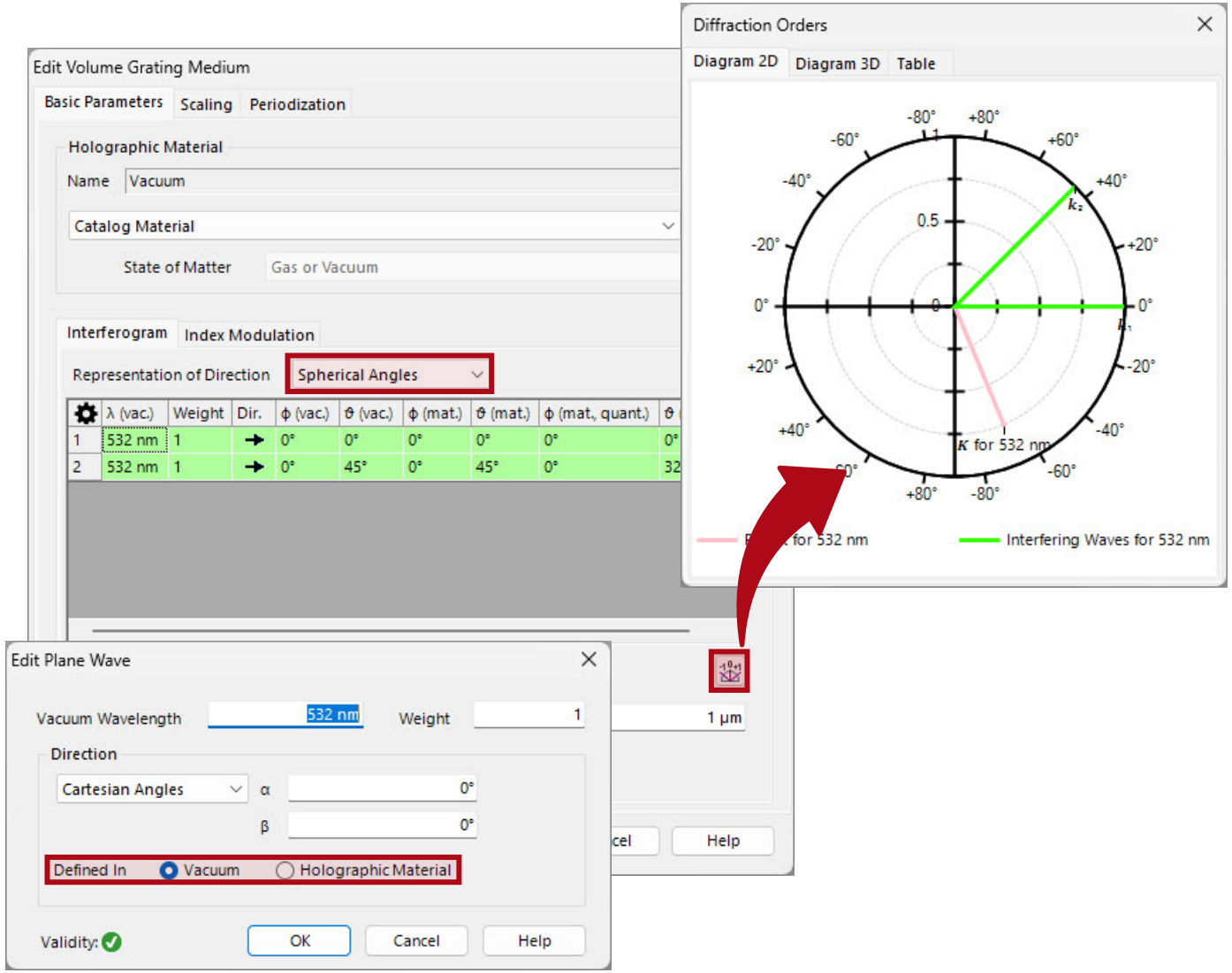

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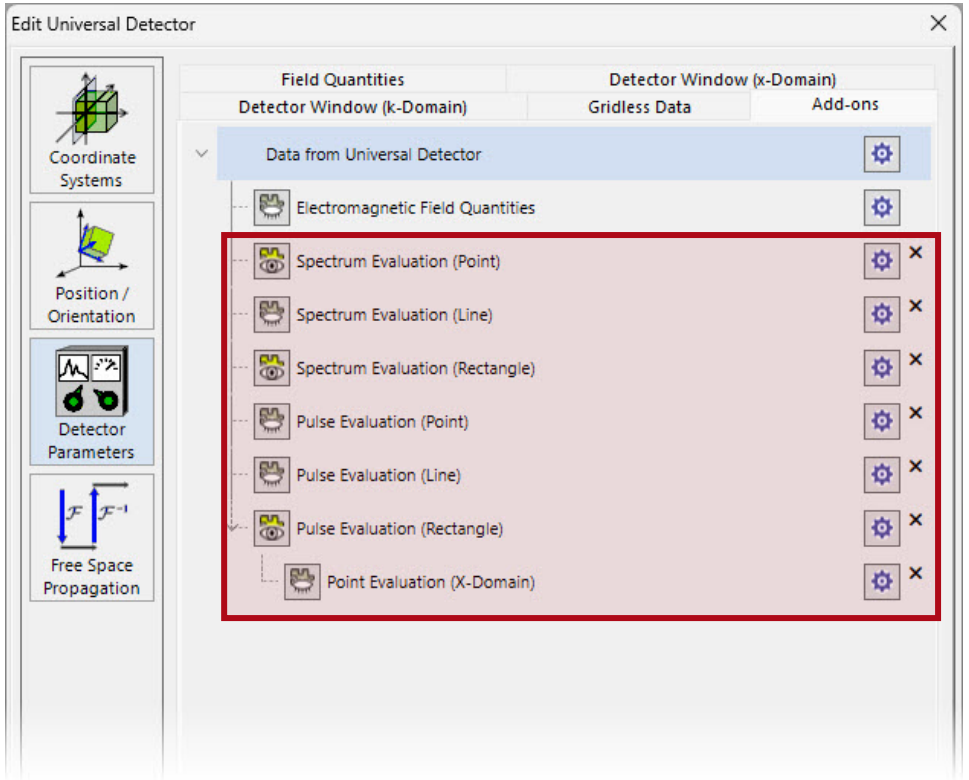

Deeper Transparency

Major development directions of VirtualLab Fusion 2024.1

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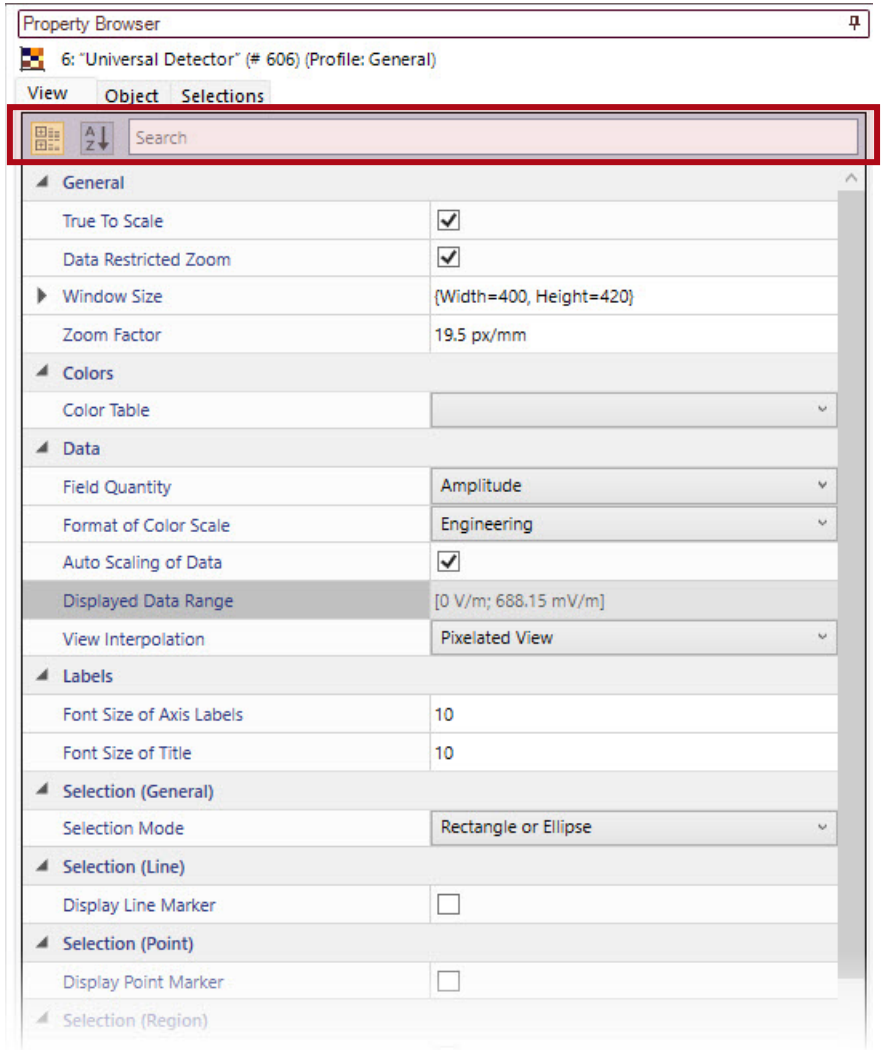
- The **property browser** has been redesigned and now features enhanced sort and search functionalities.
- All **parameters table layout** (e.g. within the parameter run) has been enhanced to provide a clearer overview across hierarchy levels.



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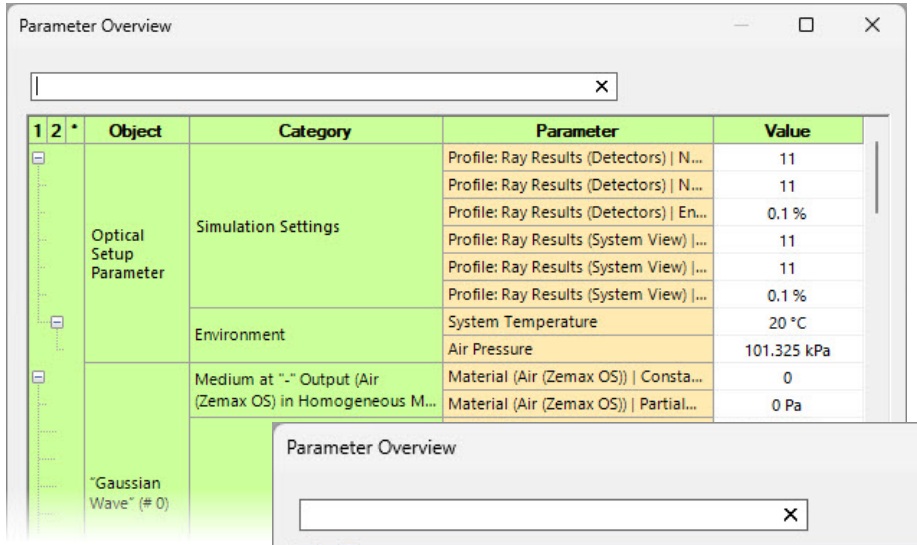
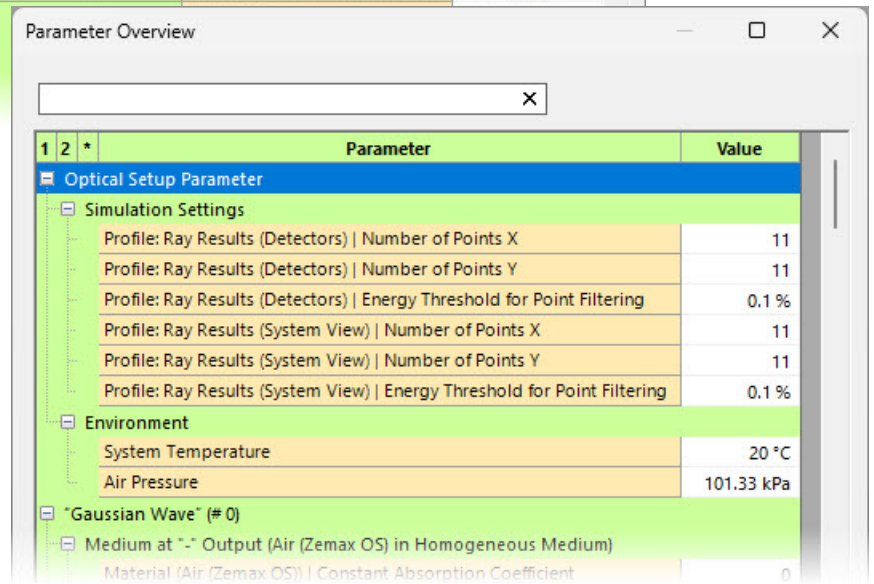
VLF 2023.2



VLF 2024.1



Better Control

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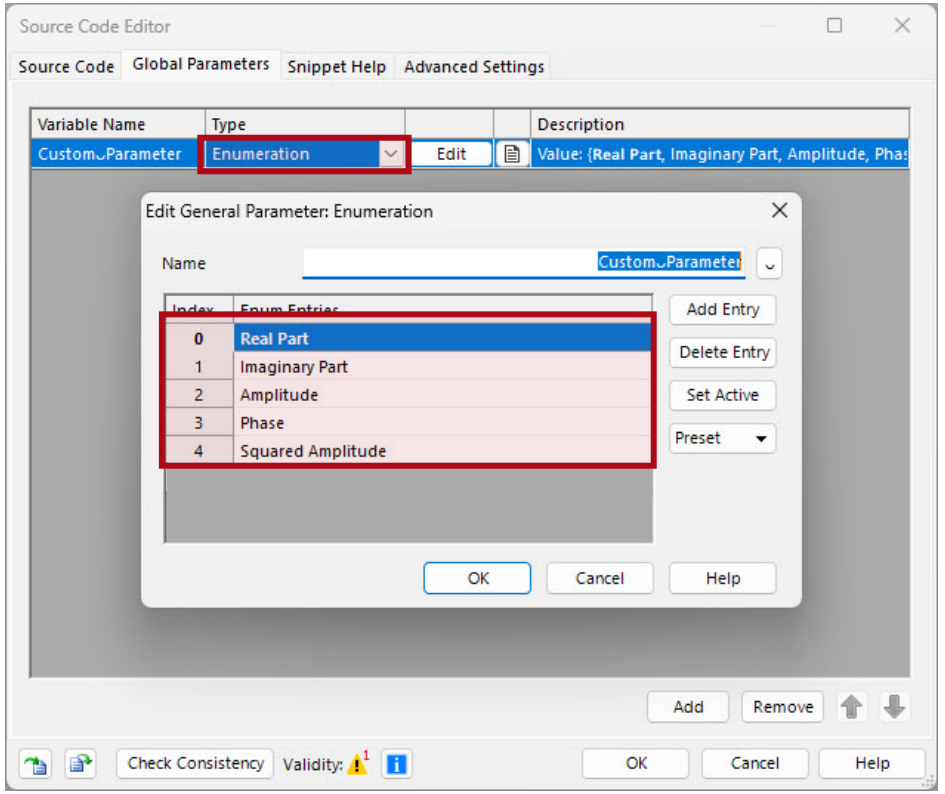
- A new parameter type, **Enumerations**, has been added to all snippets within VLF.
- New advanced options for defining **random distributions** in parameter runs are now available.
- **Parameter extraction** has been extended, enhancing functionalities such as parameter overview and parameter runs.



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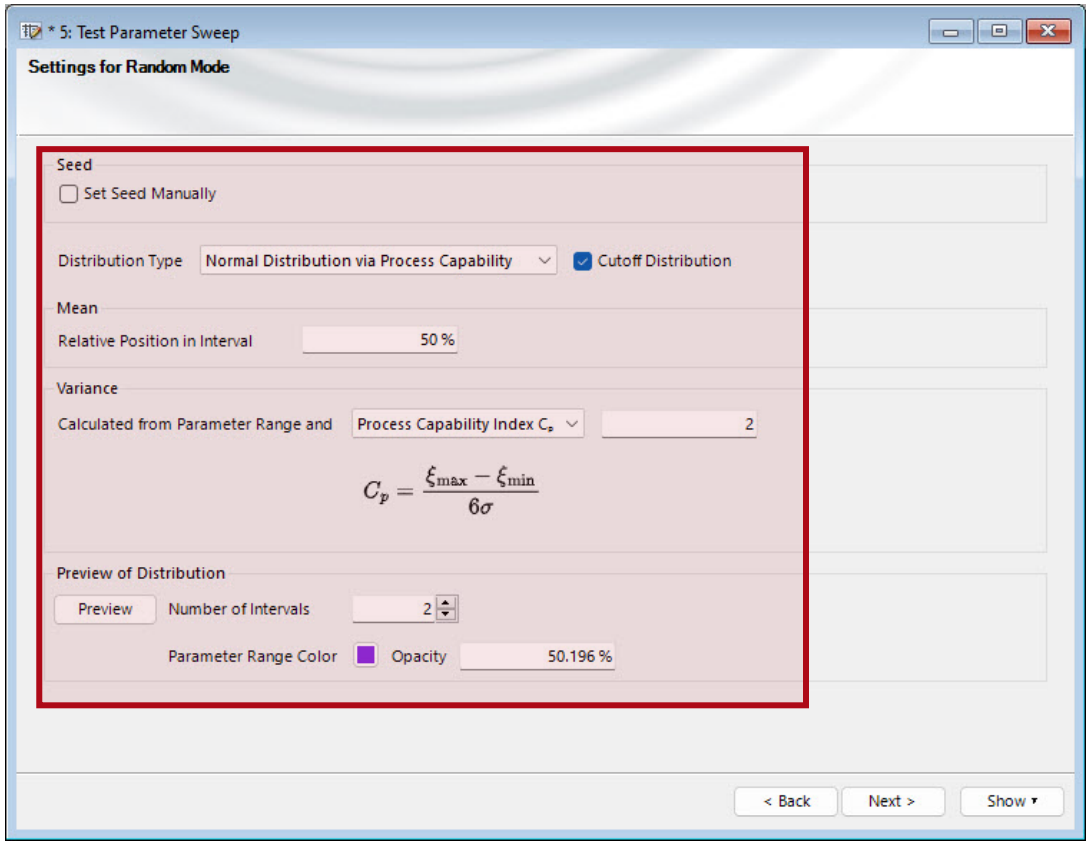

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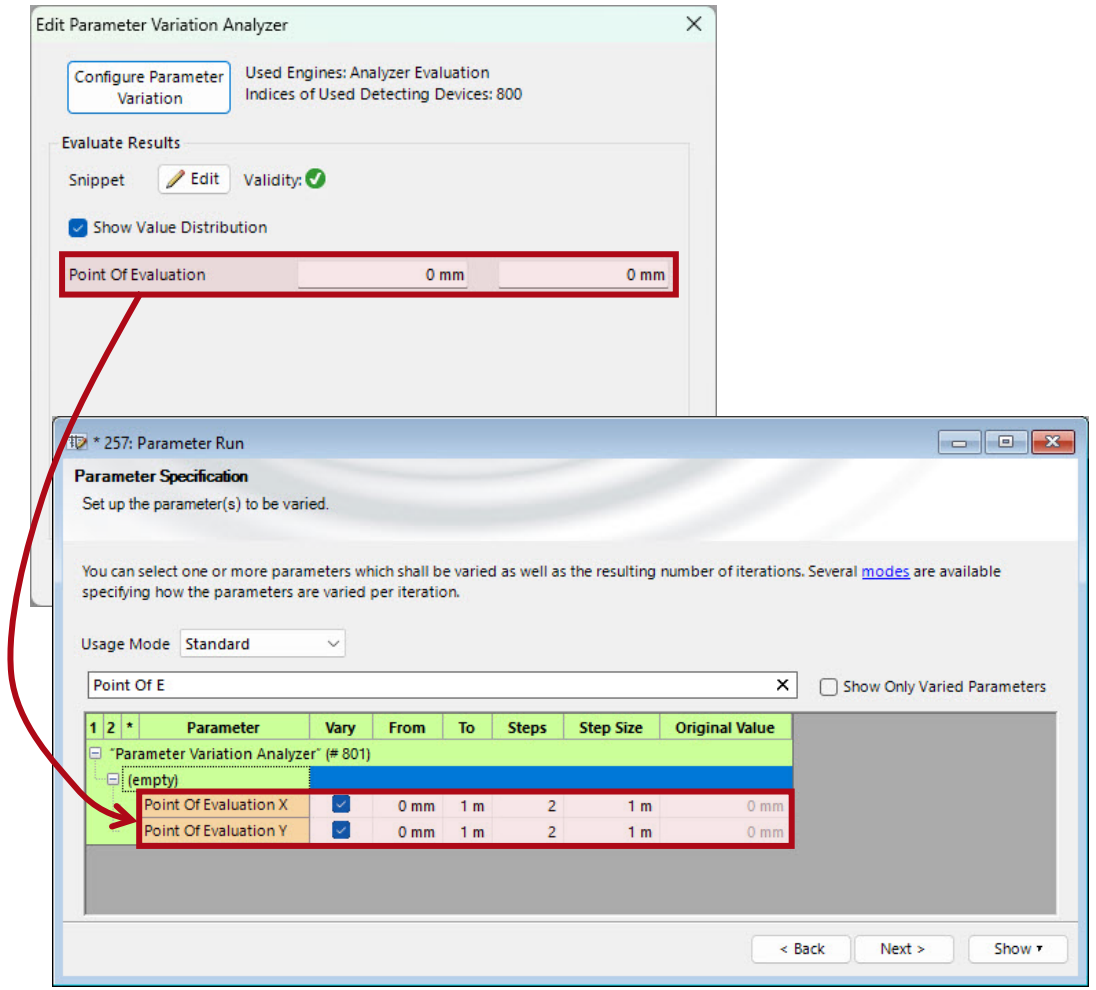


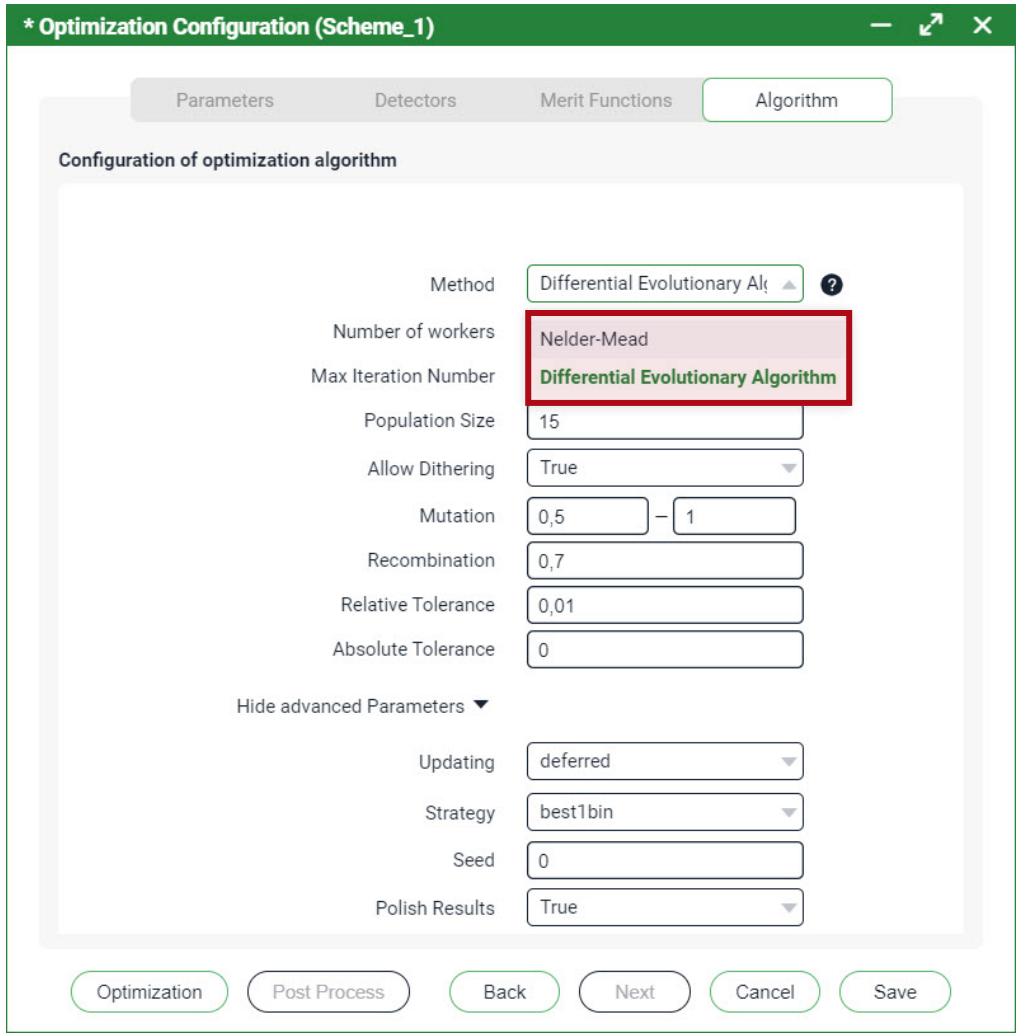
The All-New VirtualLab Fusion 2024.1

Feature Overview

VirtualLab Fusion - Optimization Package

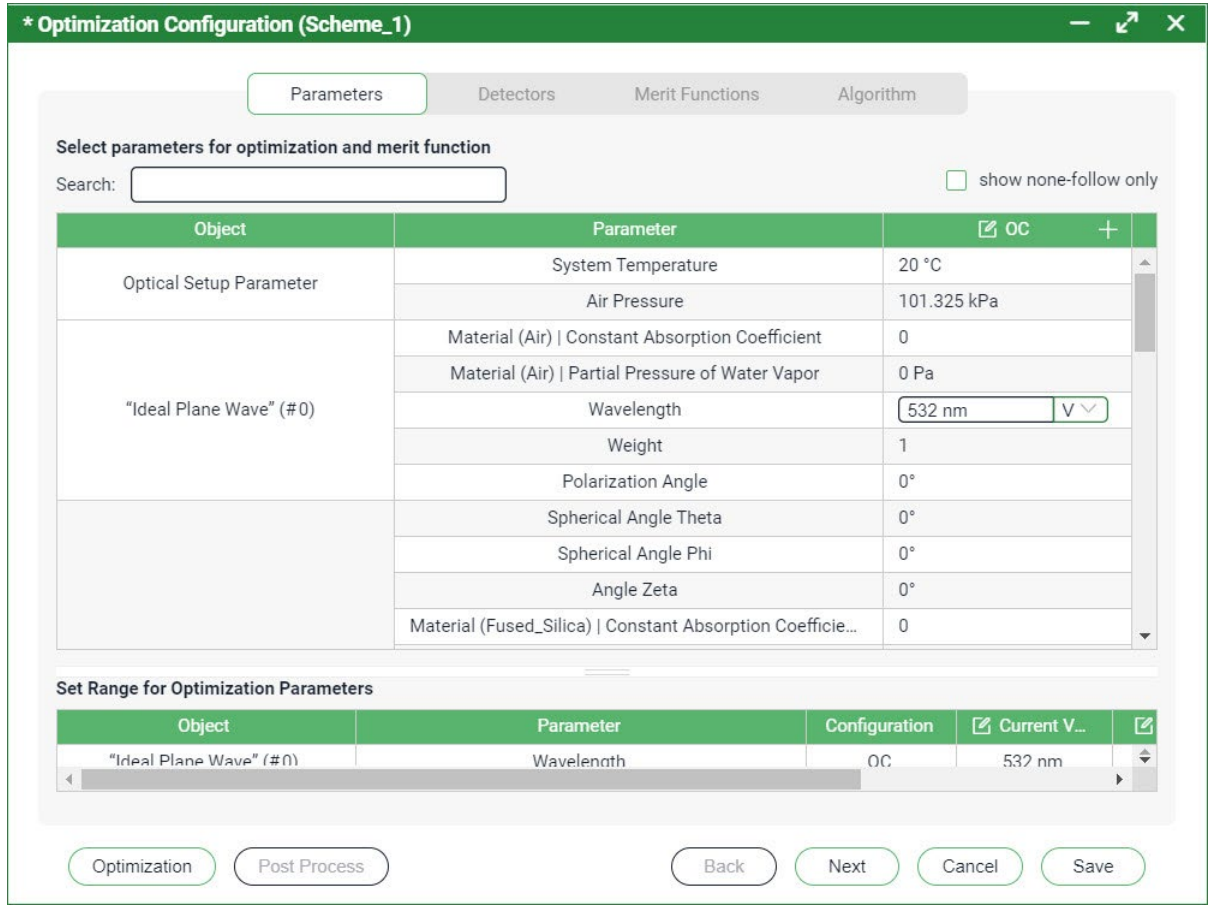
VirtualLab Fusion 2024.1 Feature Overview

The New Optimization Package

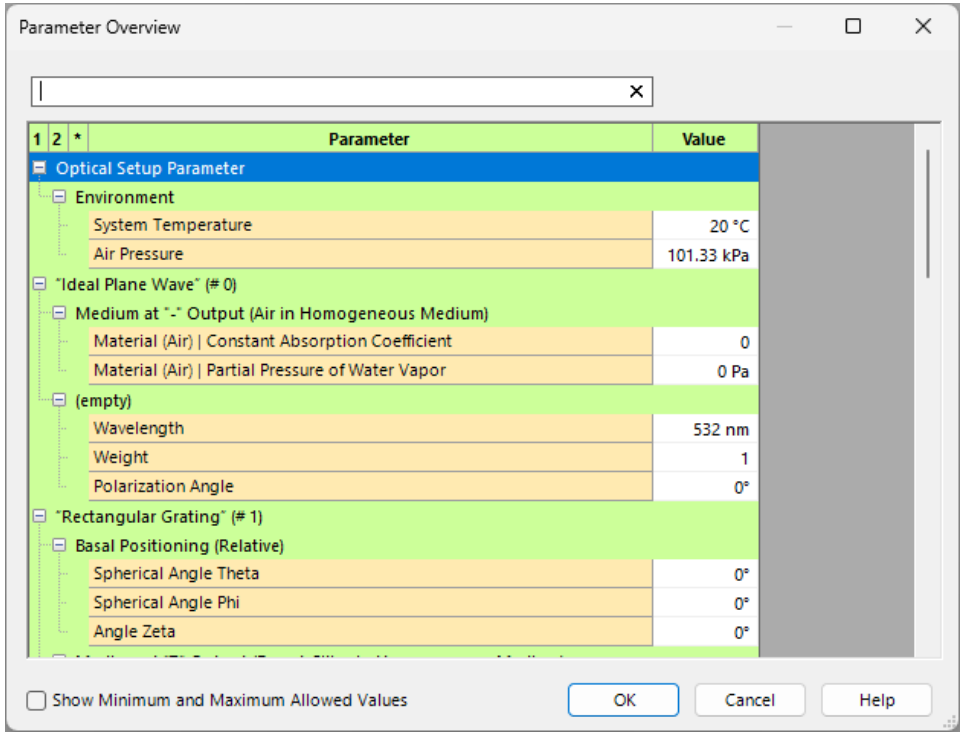


- The new Optimization Package comes with various mathematical optimization algorithms, such as
  - the Nelder-Mead method (also known as Downhill-Simplex) - a fast and estiablished local optimization algorithm.
  - the differential evolutionary algorithm - a global optimization algorithm, which can be used in combination with the distributed computing technology provided by VirtualLab Fusion.

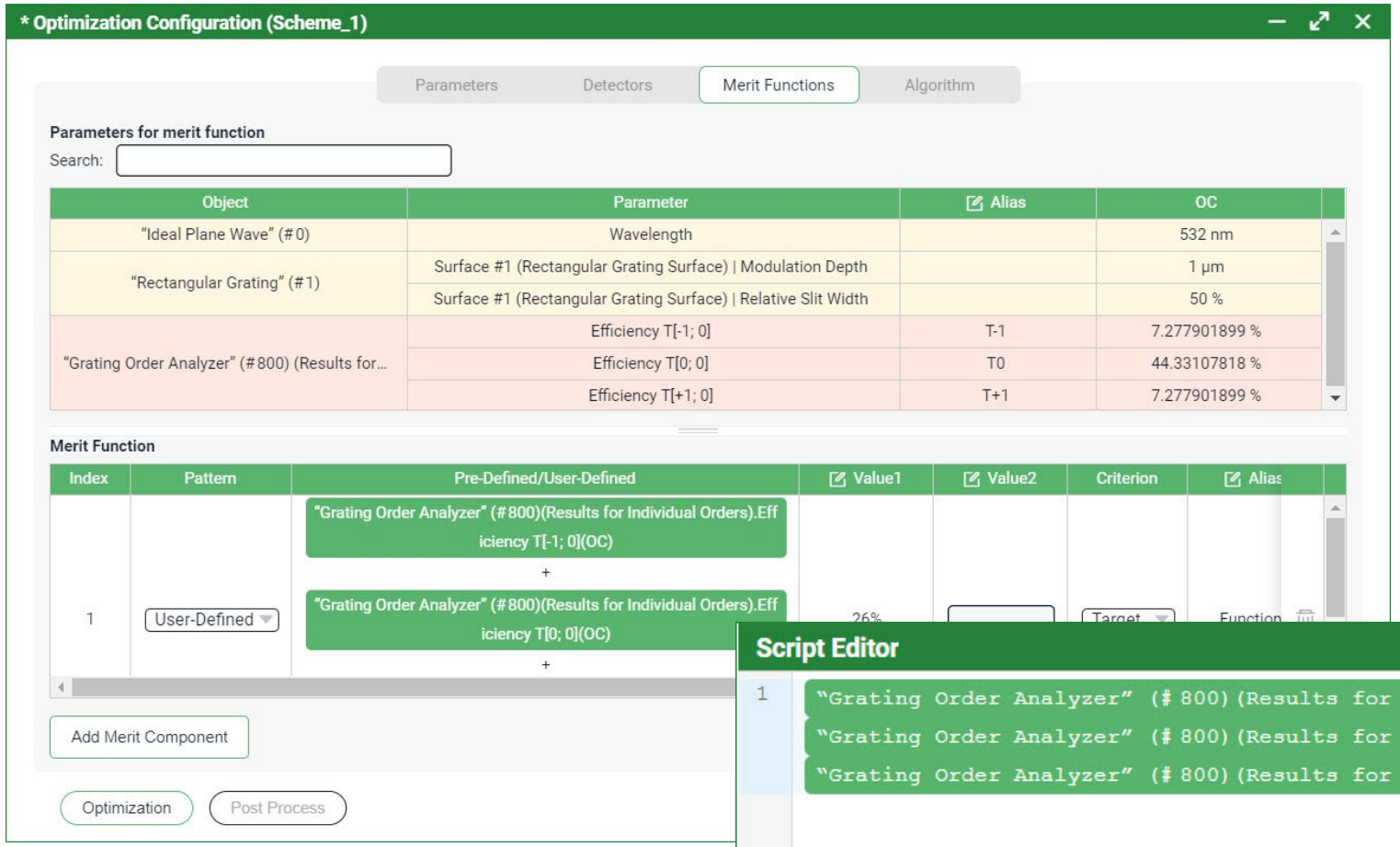
Familiar Workflow

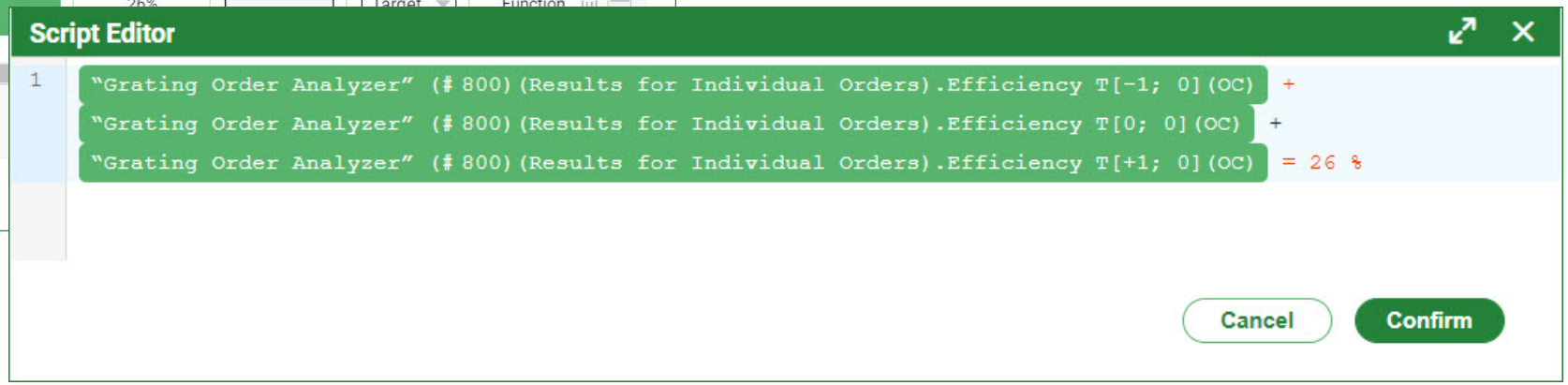


- Using the same user interface, users of VirtualLab Fusions will become easily familiar with the controls for the configuration.



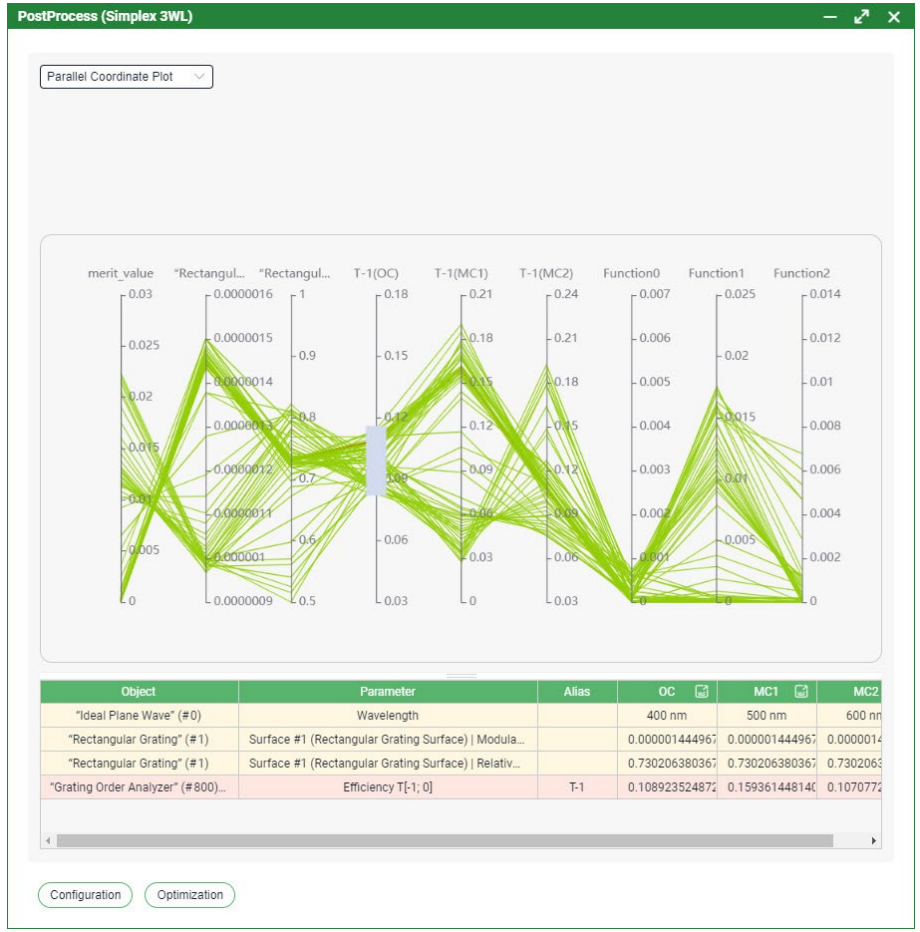
Optimization Process

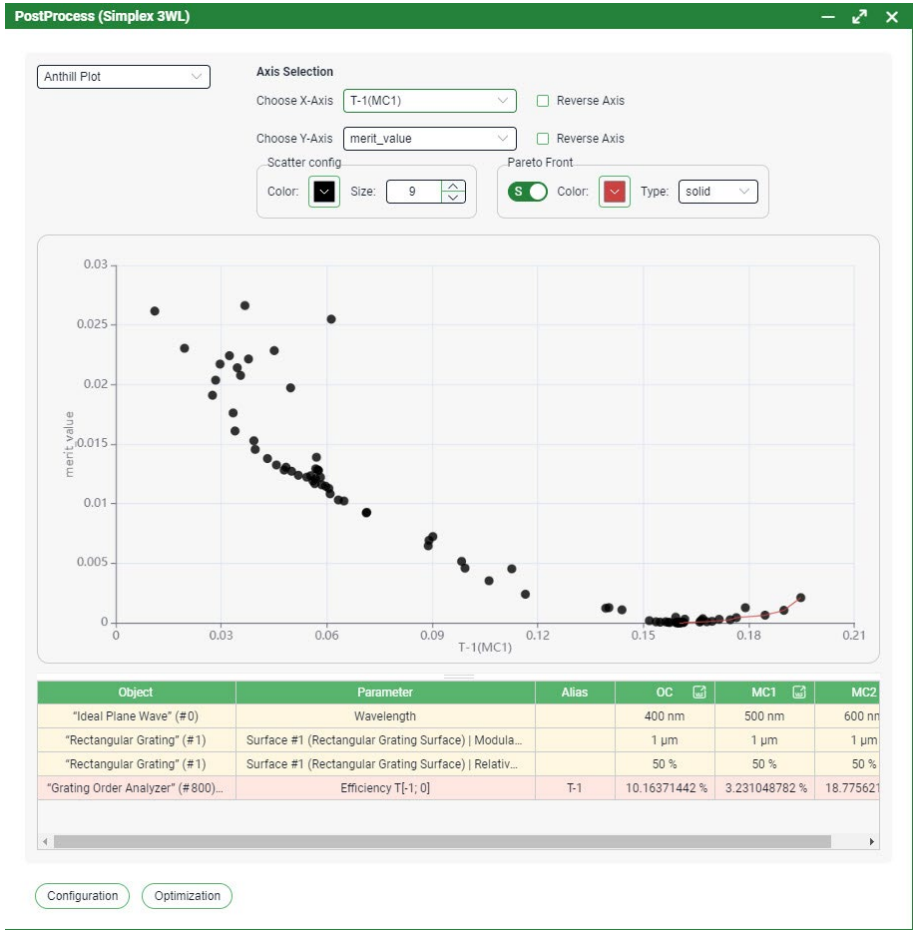




- The new package includes advanced options for defining and specifying merit functions.
- The merit function are available predefined or can be even specified using a built-in formula editor.

Post Processing





- The VLF Optimization Package also supports various post-process options, such as the calculation of pareto-fronts.

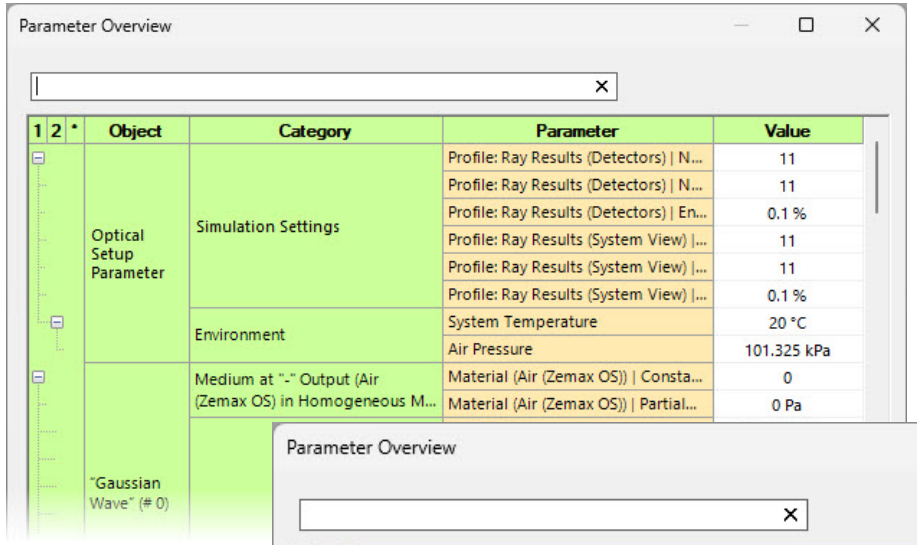
Views

VirtualLab Fusion 2024.1 Feature Overview

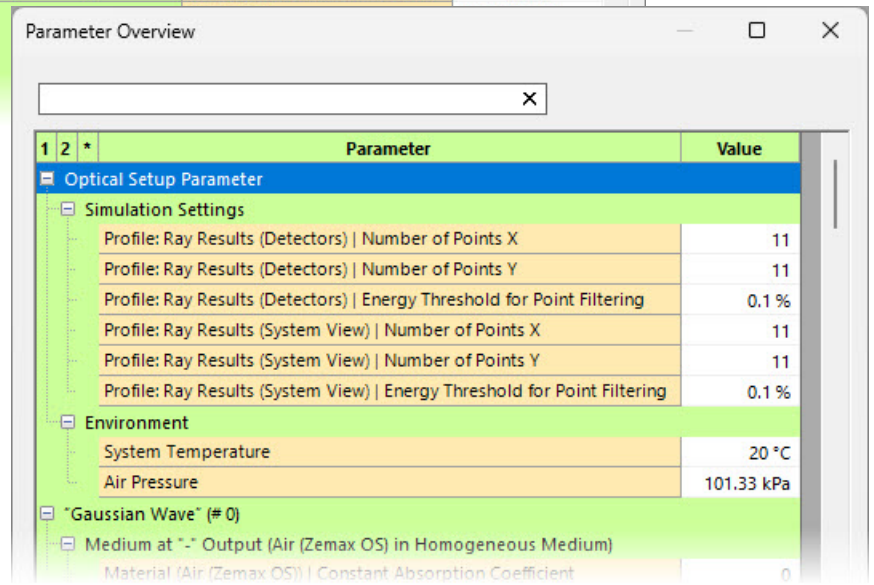
Parameter Extraction Tables

- Parameter extraction tables, like those in the parameter overview, have been restructured to enhance readability with broader column widths and new hierarchy levels.
- Additionally, a function to simultaneously select multiple parameters within the Parameter Coupling table has been added.

VLF 2023.2



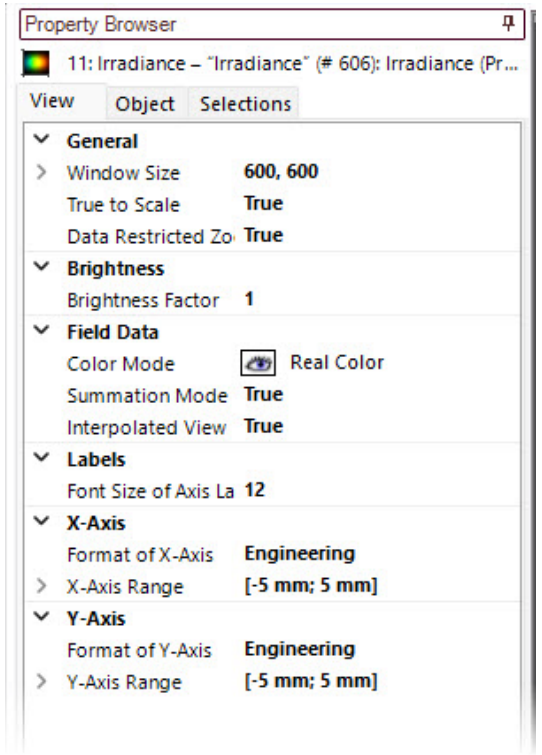
VLF 2024.1



Property Browser

- The property browser's design has been revamped for a more user-friendly interaction with its table entries.
- It now also includes alphabetical sorting for the entire table and a new search function for quick entry retrieval.
- In addition, a new color picking control is supported inside the property browser to select colors nicely for visualization purpose.

VLF 2023.2



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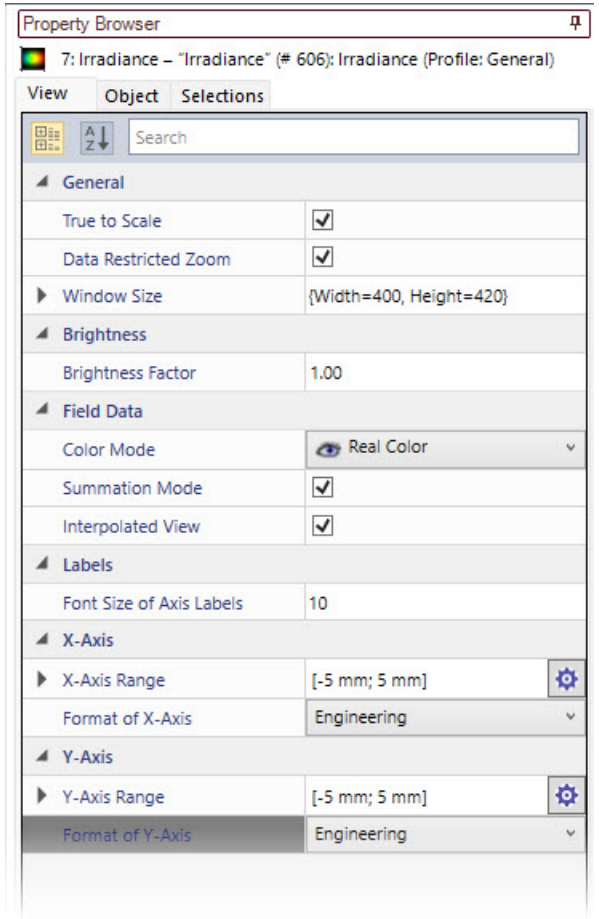
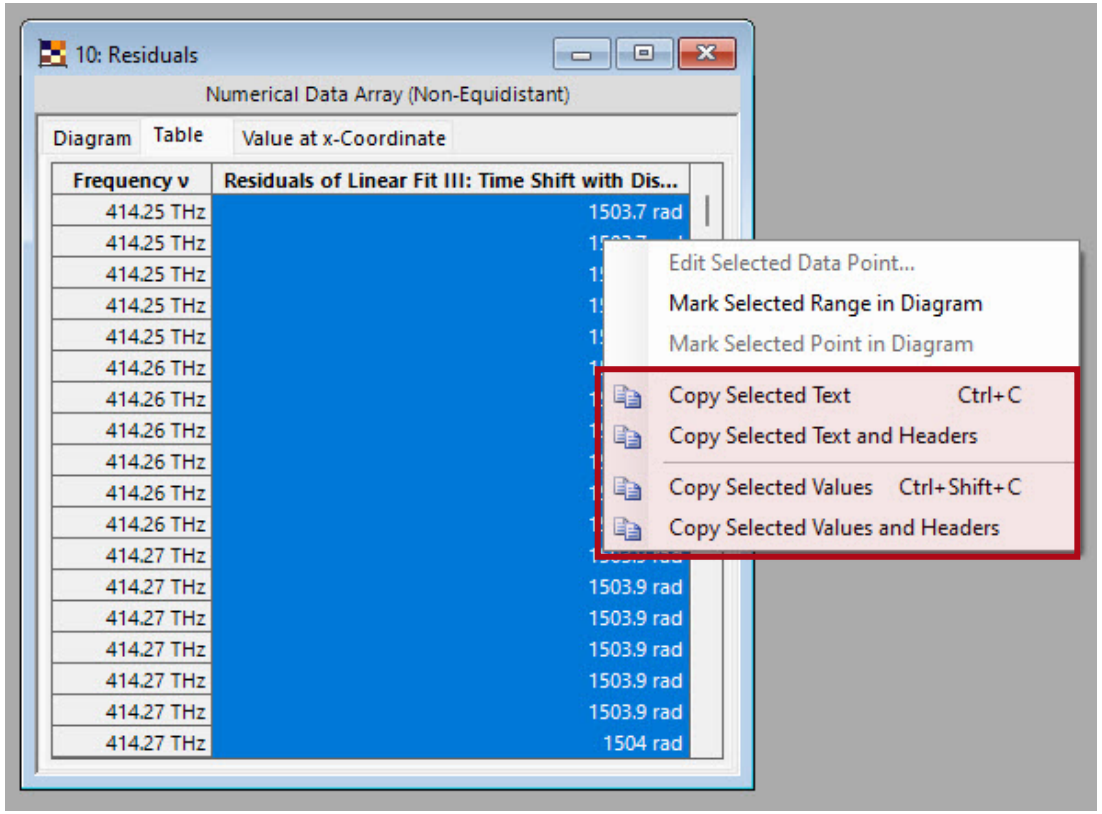


Data Array – Copy to Clipboard

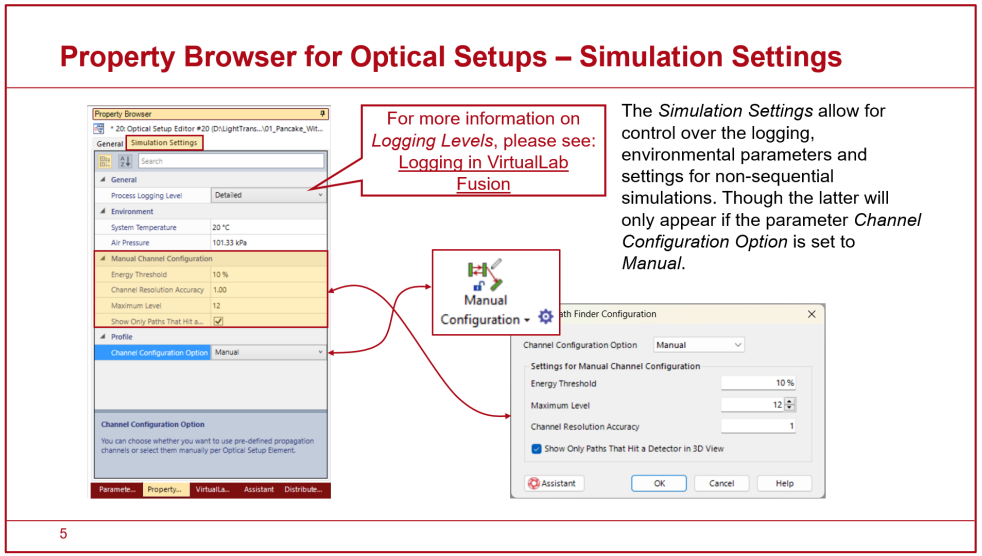
- Users can now customize table data copied to the Windows™ clipboard. Options include selecting inclusion of column and row headers and choosing to copy values as displayed or without units.
- This streamlined functionality replaces the previous "Show Physical Units" option, enhancing efficiency and flexibility in data management.



Learn More About Views in VirtualLab Fusion

Use Cases

- Working with the Property Browser in VirtualLab
- How to Format VirtualLab Fusion Results



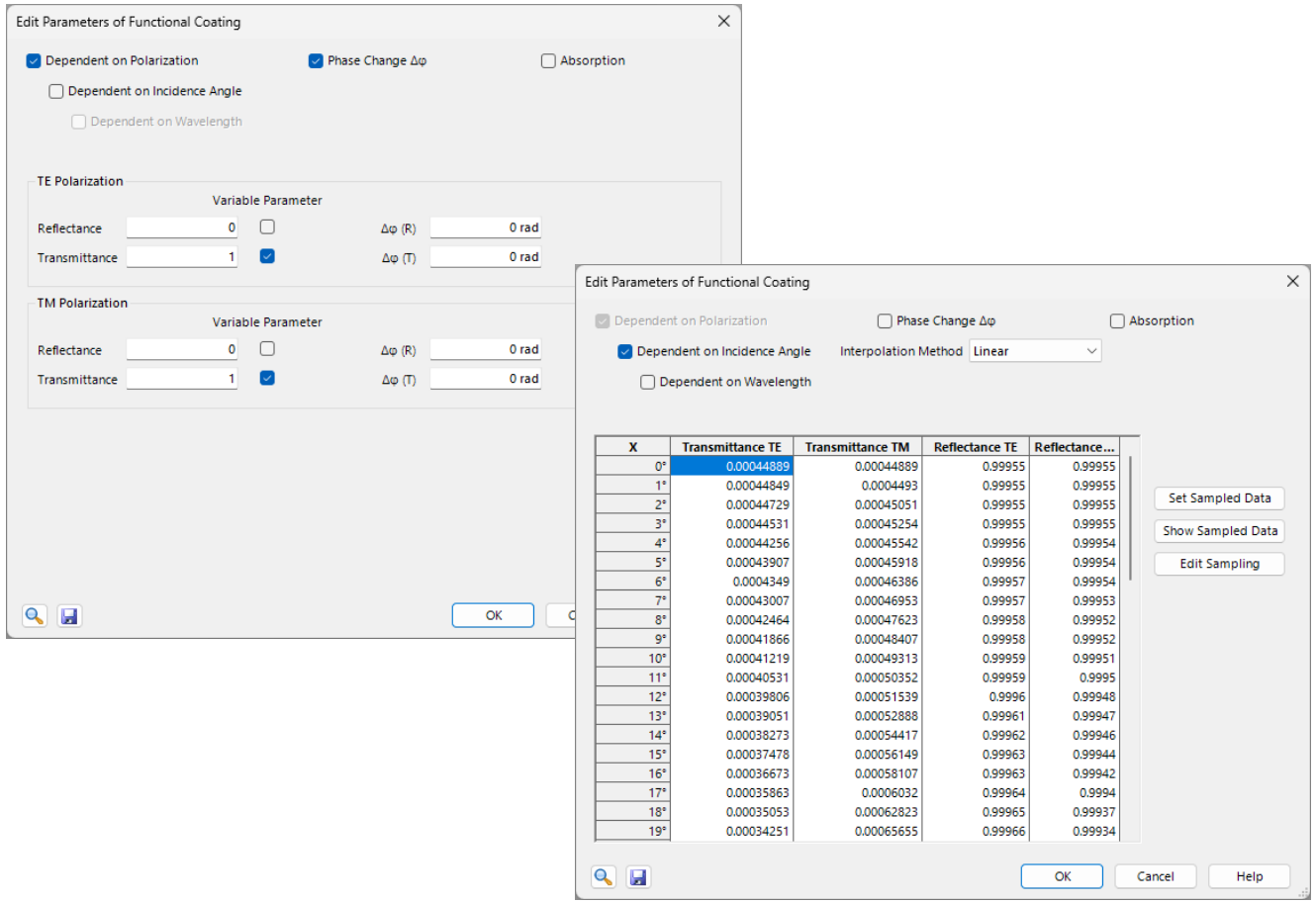
More examples & use cases coming soon!

Components

VirtualLab Fusion 2024.1 Feature Overview

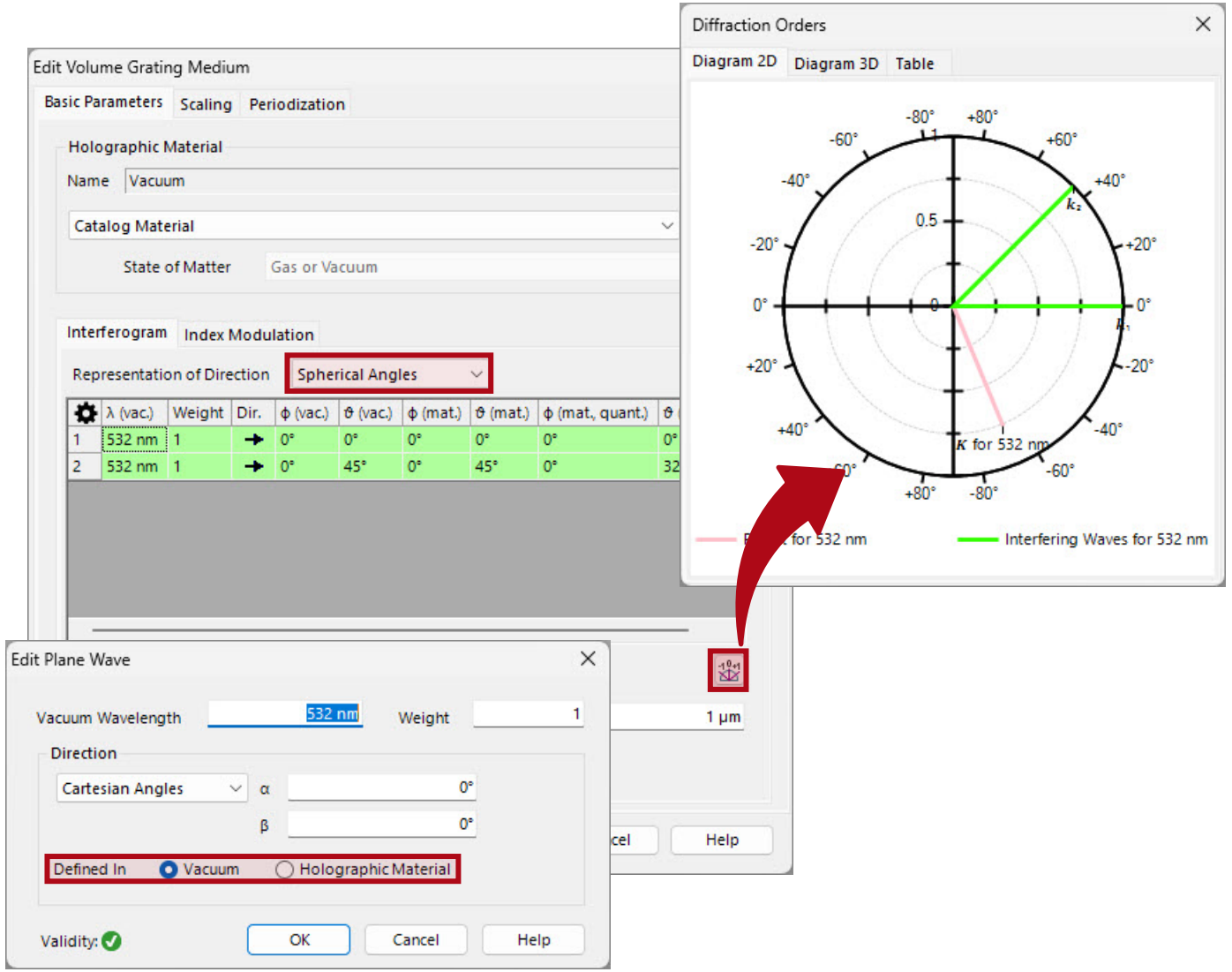
Functional Coatings

- With the new release, we have added functional coatings to our expanding component library. This feature enables users to specify or import reflectance and transmittance data for coating simulations.
- An extendable user interface allows the inclusion of polarization, incidence angle or wavelengths dependable data, as well as a predefined phase-shift and optional absorption.



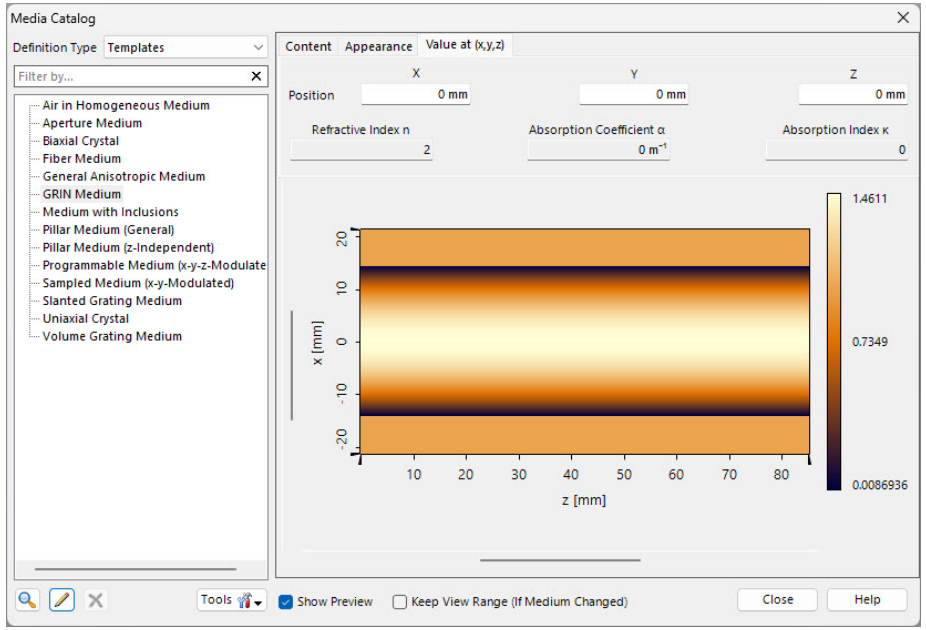
Volume Grating

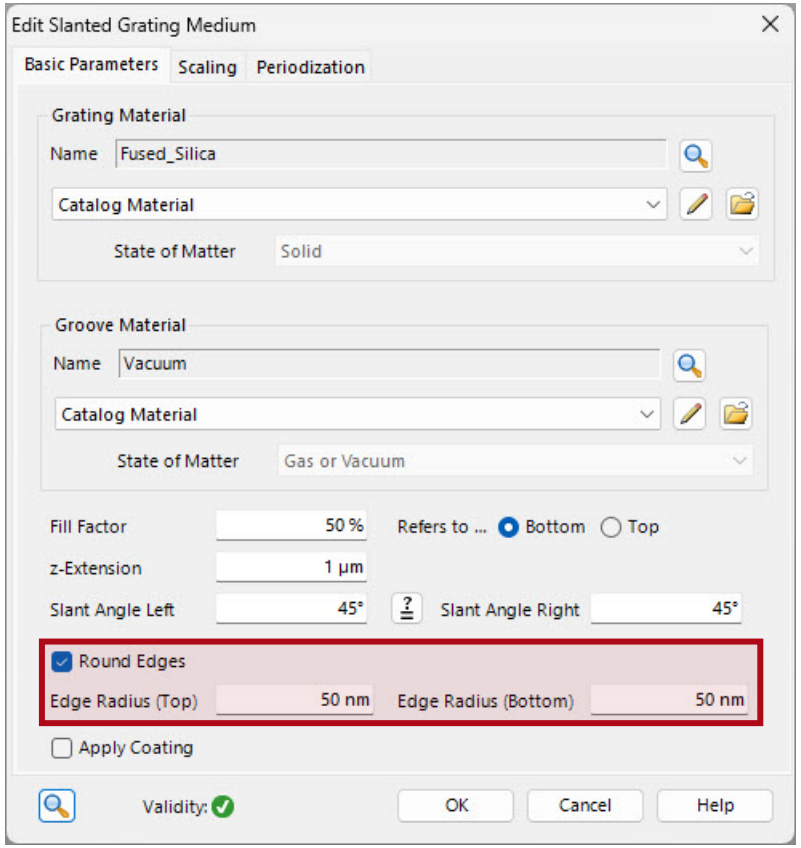
- Users can now specify per interfering plane wave if the direction is defined in vacuum or the holographic material and have more control over the input method for directions.
- Additionally, the interfering plane waves can be specified via spherical angles.
- A new preview of the direction and the resulting period vectors have been added.

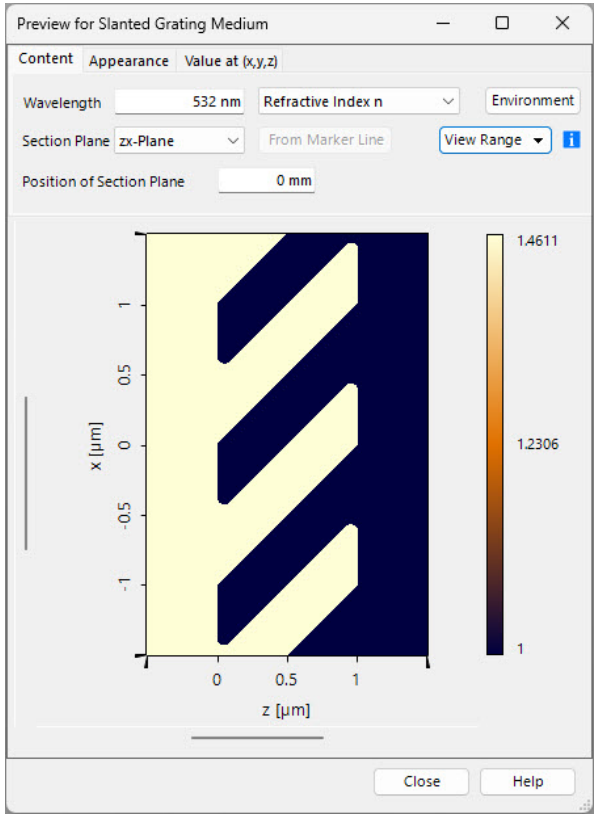


Media (Slanted Grating & GRIN Medium)

- The slanted grating medium now supports rounded edges.
- Several improvements for preview of GRIN Media are included.

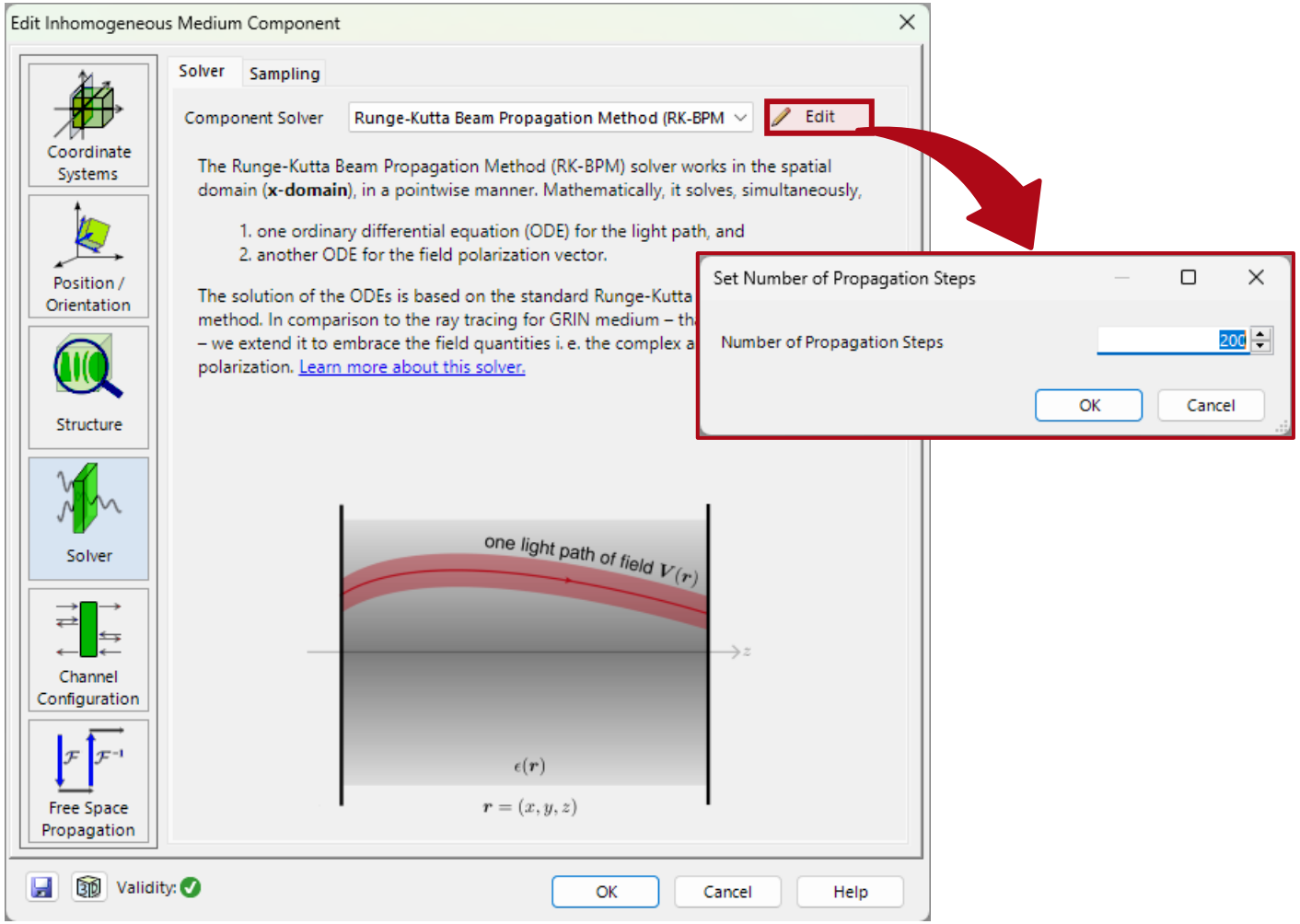






New Configuration Option for Runge-Kutta Beam Propagation

- To offer more modeling control, the Runge-Kutta beam propagation method (commonly used in the inhomogeneous medium component), allows the specification of the number of propagation steps.

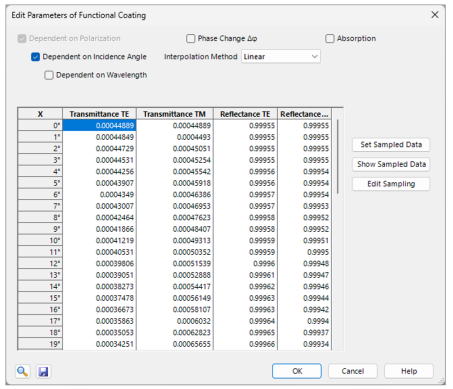


Learn More About the Components of VirtualLab Fusion

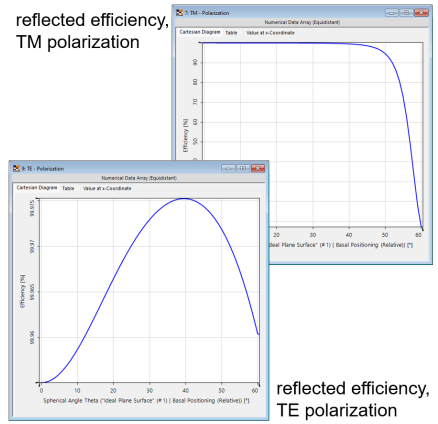
Use Cases

- Functional Coatings
- Catadioptric Imaging System Based on Pancake Lenses
- Angular-Filtering Volume Gratings for Suppressing Higher Diffraction Orders
- Modeling of Graded-Index (GRIN) Multimode Fiber

Example: Angle Scan of a HR Coating



imported data of the functional coating

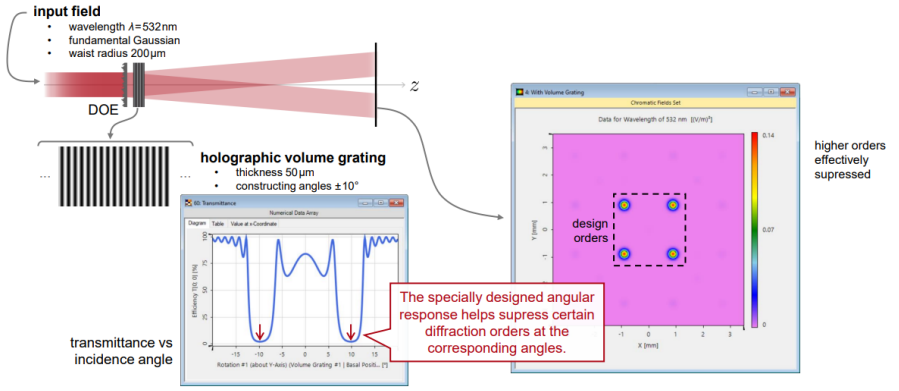


reflected efficiency, TM polarization

reflected efficiency, TE polarization

9

Angular Filtering Effect of Volume Grating



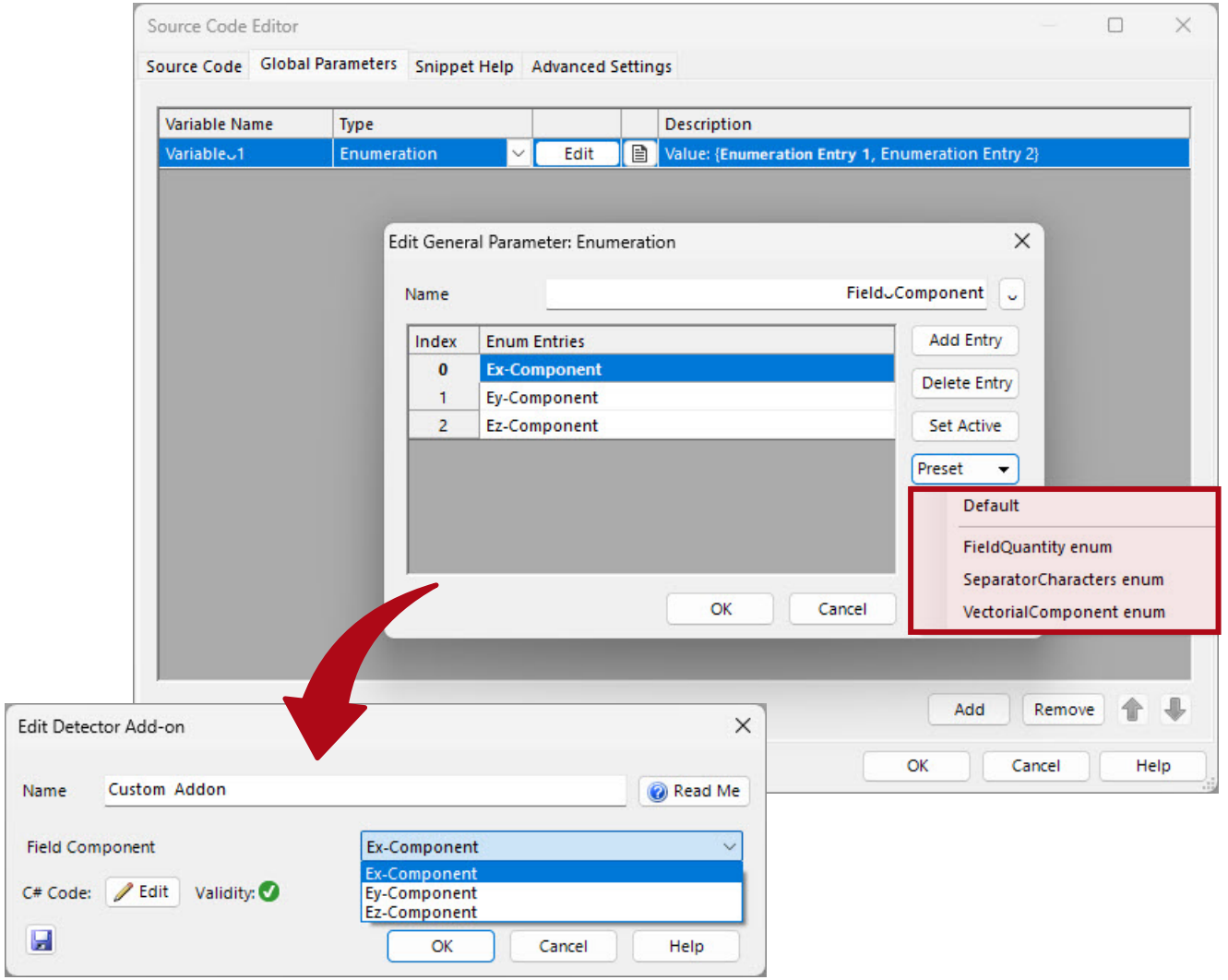
10

Customization (Modules & Snippets)

VirtualLab Fusion 2024.1 Feature Overview

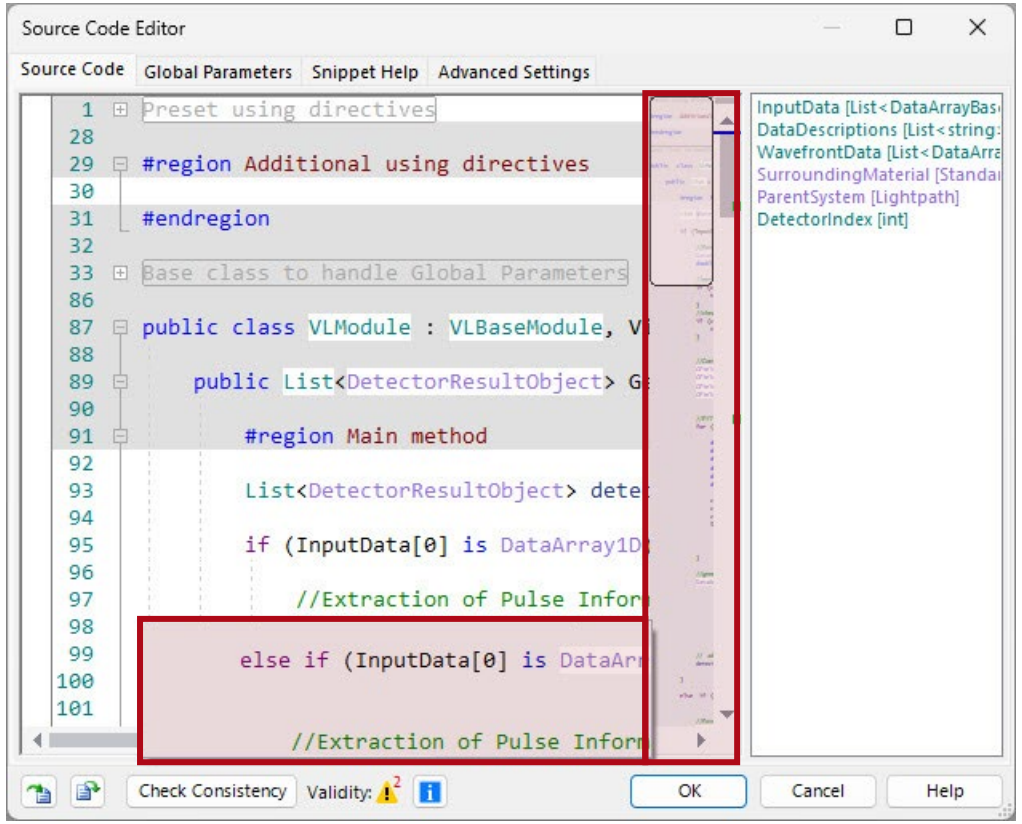
Enumeration Parameter

- A new parameter type has been added to the global parameters of snippets: Enumerations.
- Enumerations allows the definition of parameters that have a predefined selection of options.
- Pre-defined sets of useful configurations (such as field components or field quantities) are available with the new release.



Quality of Life Updates for Snippets

- The comments of the global parameters are now also shown in the syntax tooltips of the source code editor.
- A minimap in the source code editor gives you an overview of your complete snippet or module.
- Initialize method for snippets is provided, which enable advanced caching solutions.
- A series of quick-action (e.g. “Reverse for) has been added to the source code editor.
- New methods for VirtualLab.Programming:
  - `GetAllResultNames` in `VL_ParameterVariation`



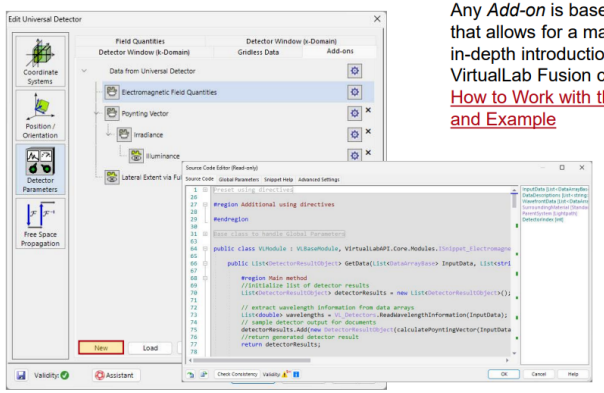
Learn More About Customization in VirtualLab Fusion

Use Cases

- Programming Detector Add-ons in VLF
- Universal Detector
- Parameter Variation Analyzer

More examples & use cases coming soon!

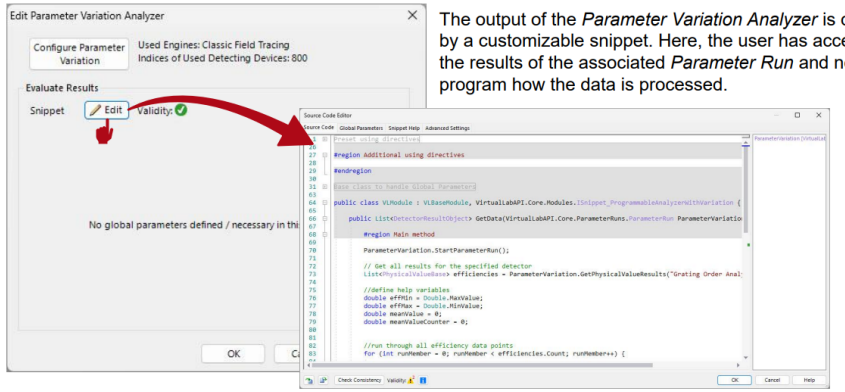
Detector Add-Ons – Programmable Snippets



Any *Add-on* is based on a programmable snippet that allows for a maximum of flexibility. A more in-depth introduction for programmable tools in VirtualLab Fusion can be found under:
How to Work with the Programmable Detector and Example

13

Evaluation of the Results



The output of the *Parameter Variation Analyzer* is defined by a customizable snippet. Here, the user has access to the results of the associated *Parameter Run* and needs to program how the data is processed.

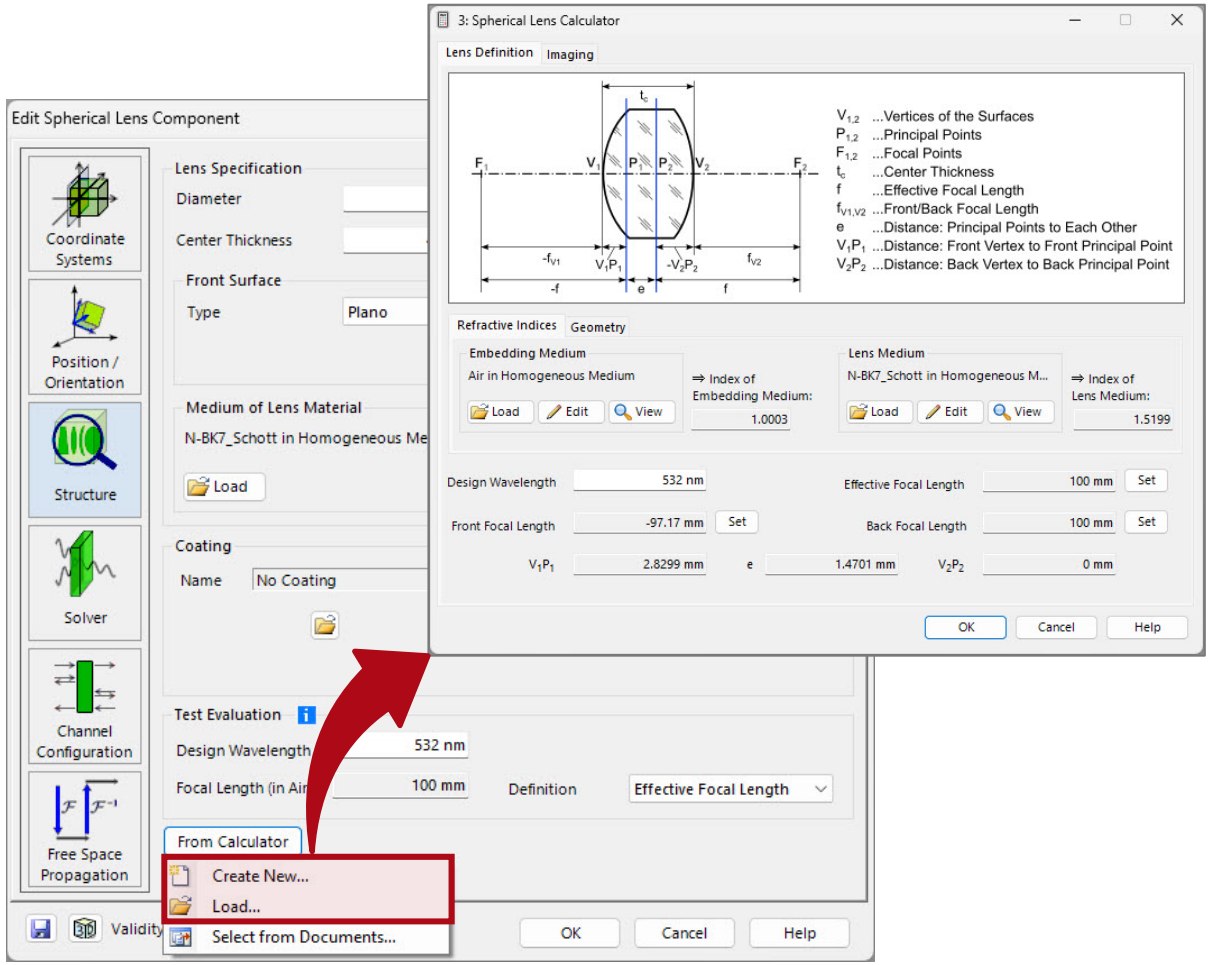
5

Calculators

VirtualLab Fusion 2024.1 Feature Overview

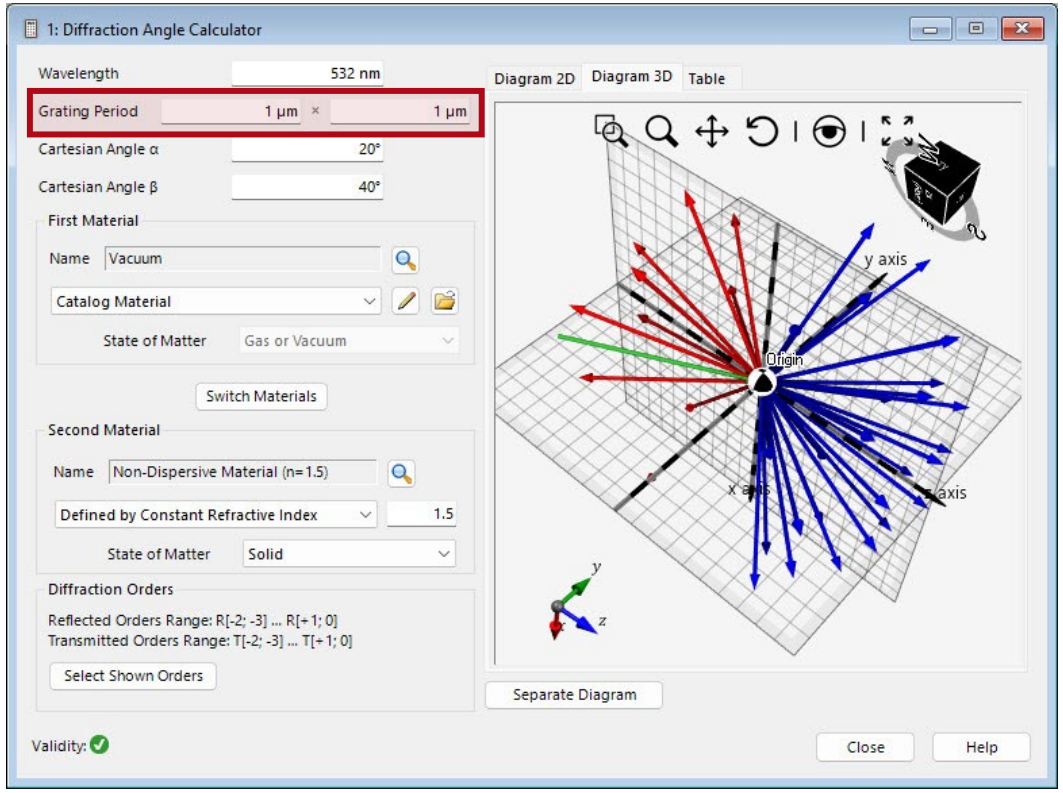
Direct Creation of Calculator Documents

- Users can now seamlessly generate new calculator documents directly from components/detector, a functionality previously limited to copying data from separate calculator documents, which need to be prepared in advanced.
- From this you can benefit for example in:
  - Spherical lens component
  - Universal detector

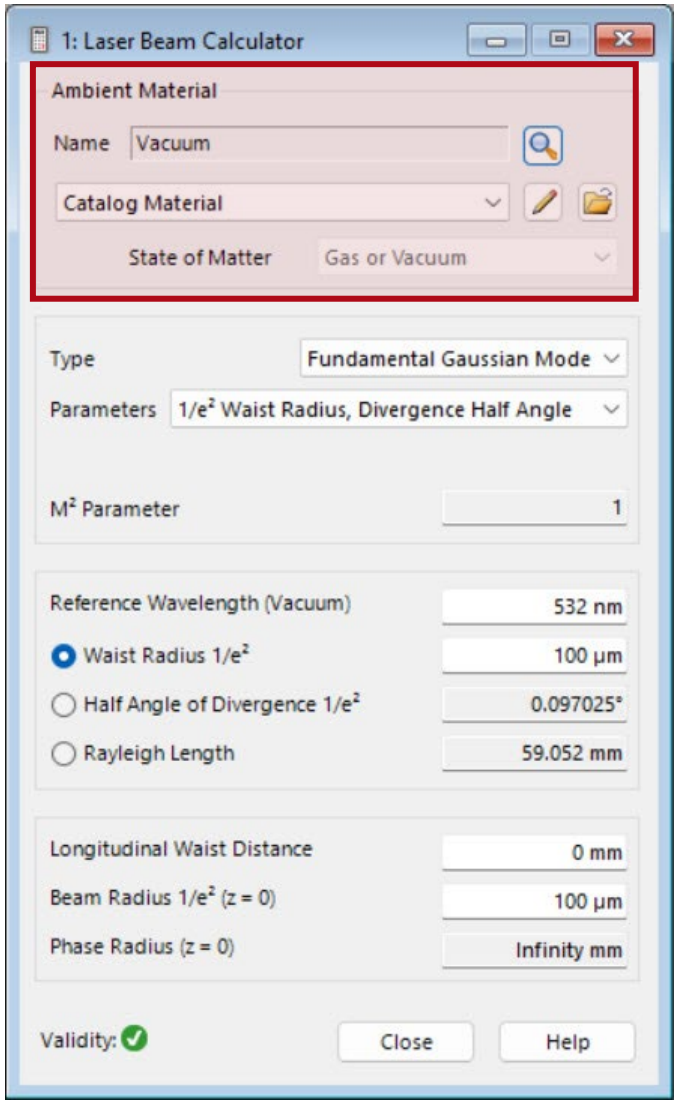


Improvements of Diffraction Angle Calculator

- The diffraction angle calculator now supports three-dimensional conical incidence.
- Fittingly, a new three-dimensional view has been added that shows the incidence as well as the reflection and transmission directions in a tiltable three-dimensional graph.
- Accordingly, diffraction order diagrams - generated by the grating order analyzer - can now also be shown in 3D.

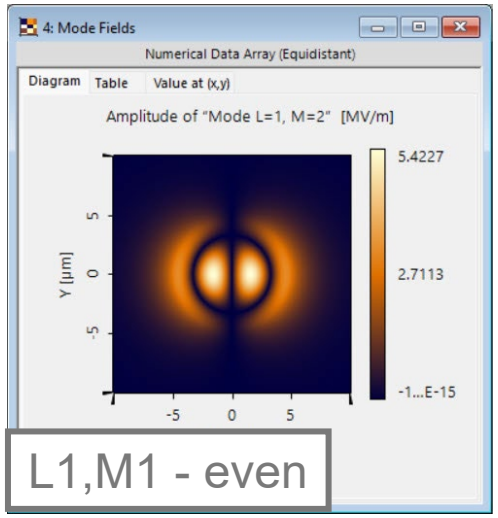


Laser Beam Calculator/ Fiber Mode Calculator

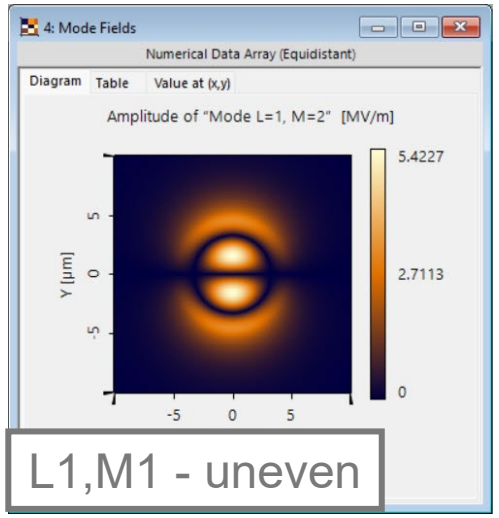


- The fiber mode calculator shows how many radial modes exist per azimuthal mode.
- The same functionality has been added to the fiber sources and detectors.

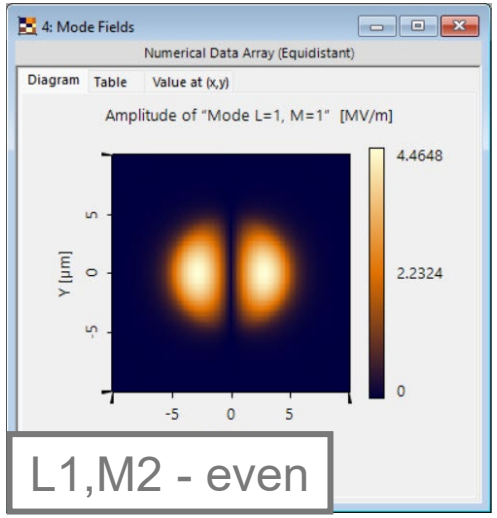
- The laser beam calculator can now consider different media.



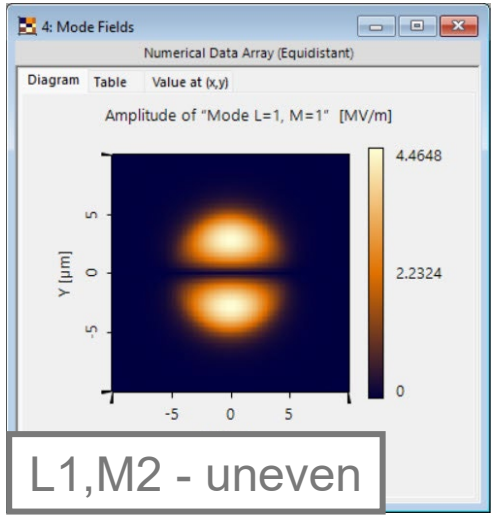
L1,M1 - even



L1,M1 - uneven



L1,M2 - even



L1,M2 - uneven

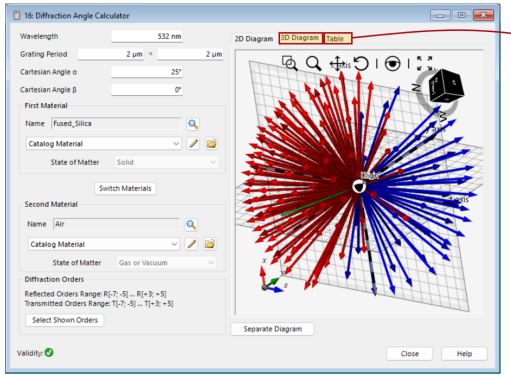
Learn More About Calculators in VirtualLab Fusion

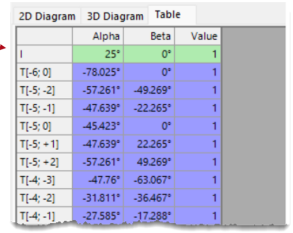
Use Cases

- Fiber Mode Calculator
- Aberration Effects on Focused Modes from a Fiber Source
- Diffraction Angle Calculator
- Spherical Lens Component

More examples & use cases coming soon!

Diffraction Order Diagram



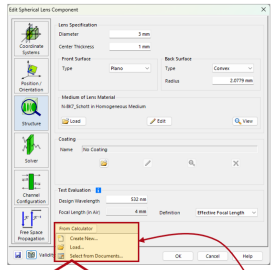


	Alpha	Beta	Value
I	25°	0°	1
T[-6; 0]	-78.025°	0°	1
T[-5; -2]	-57.261°	-49.269°	1
T[-5; -1]	-47.639°	-22.265°	1
T[-5; 0]	-45.423°	0°	1
T[-5; +1]	-47.639°	22.265°	1
T[-5; +2]	-57.261°	49.269°	1
T[-4; -3]	-47.76°	-63.067°	1
T[-4; -2]	-31.811°	-36.467°	1
T[-4; -1]	-27.585°	-17.288°	1

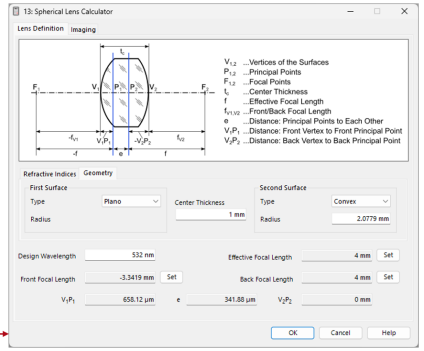
In *3D Diagram* all selected orders are shown. Additionally, a *Table* displaying the diffraction angles as well as the incident angle is also provided.

7 www.LightTrans.com

Creating Spherical Lens through Calculator



You can load an existing calculator or create a new one directly from this window.



Through the *Spherical Lens* calculator, one can automatically determine lens parameters by specifying the effective, front or back focal length.

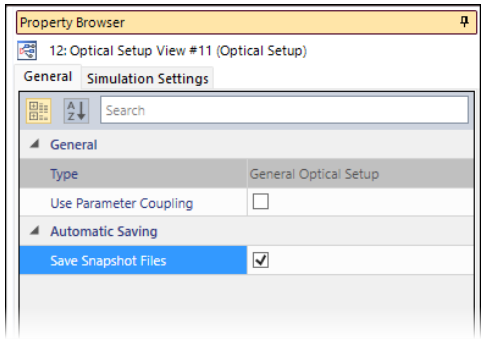
5

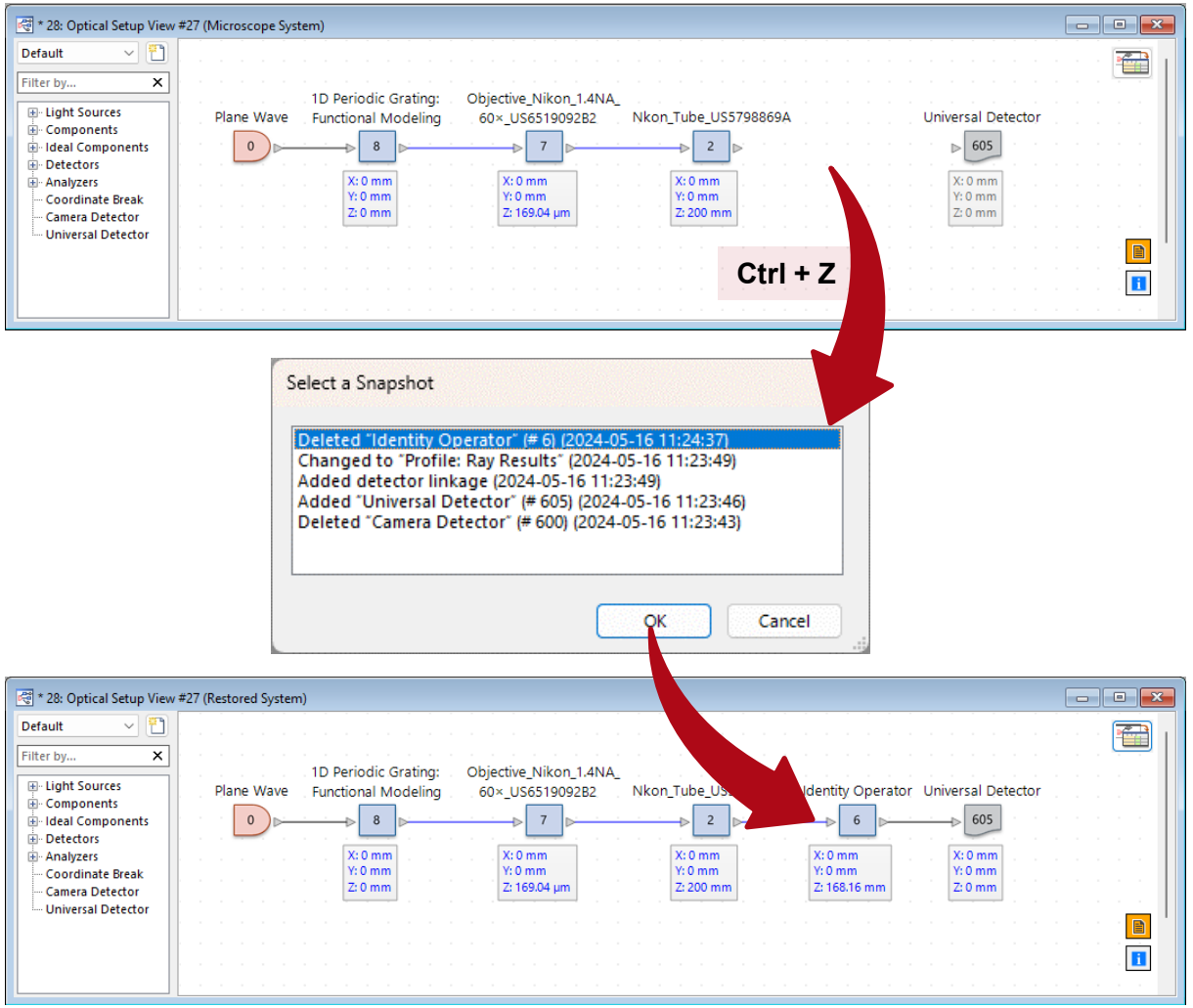
Optical Setups

VirtualLab Fusion 2024.1 Feature Overview

Save & Restore Snapshot Files

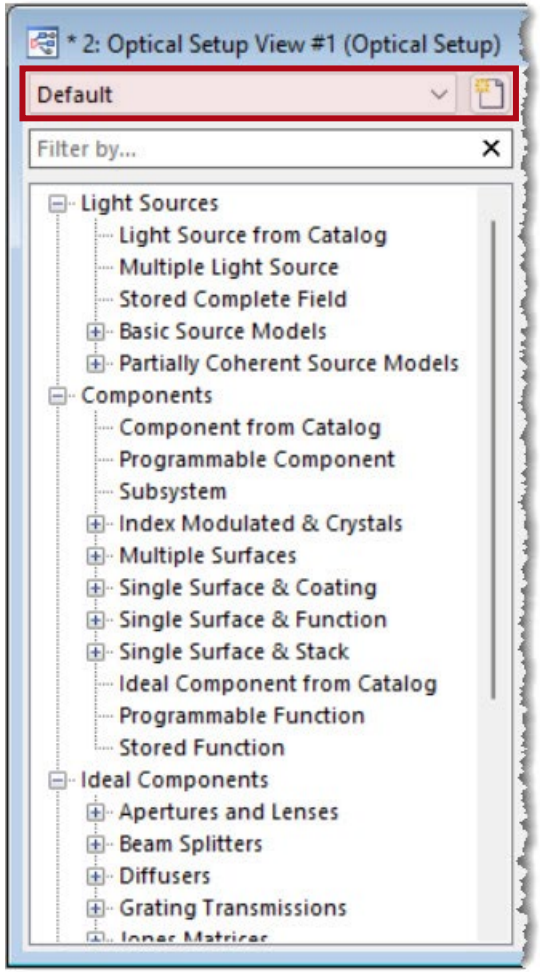
- The save & restore functionality of optical systems have been revamped.
- Users can activate the feature in the property browser to automatically save every change in the system.
- By using the shortcut CTRL + Z or by right-clicking the corresponding entry in the VirtualLab explorer user can undo all changes since activation of the function.

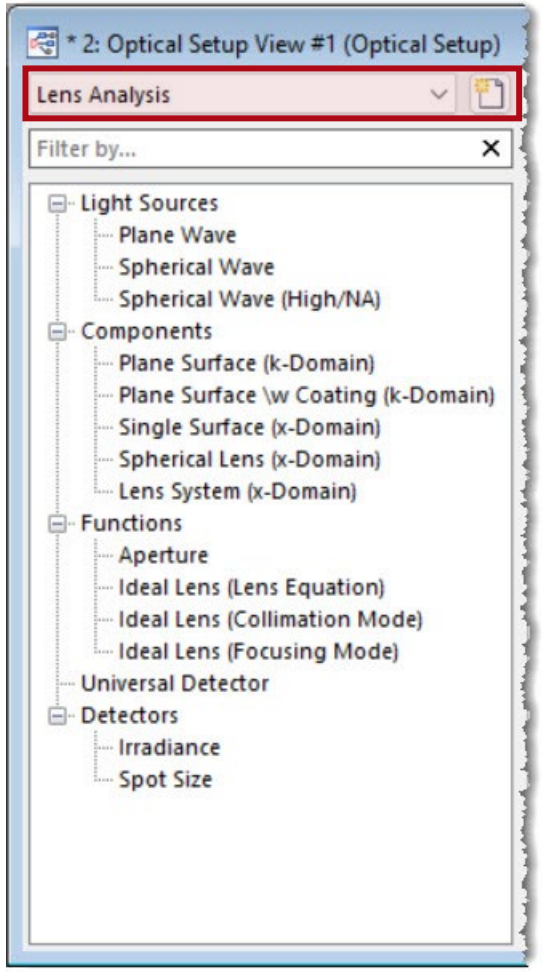




Custom Optical Setup Trees

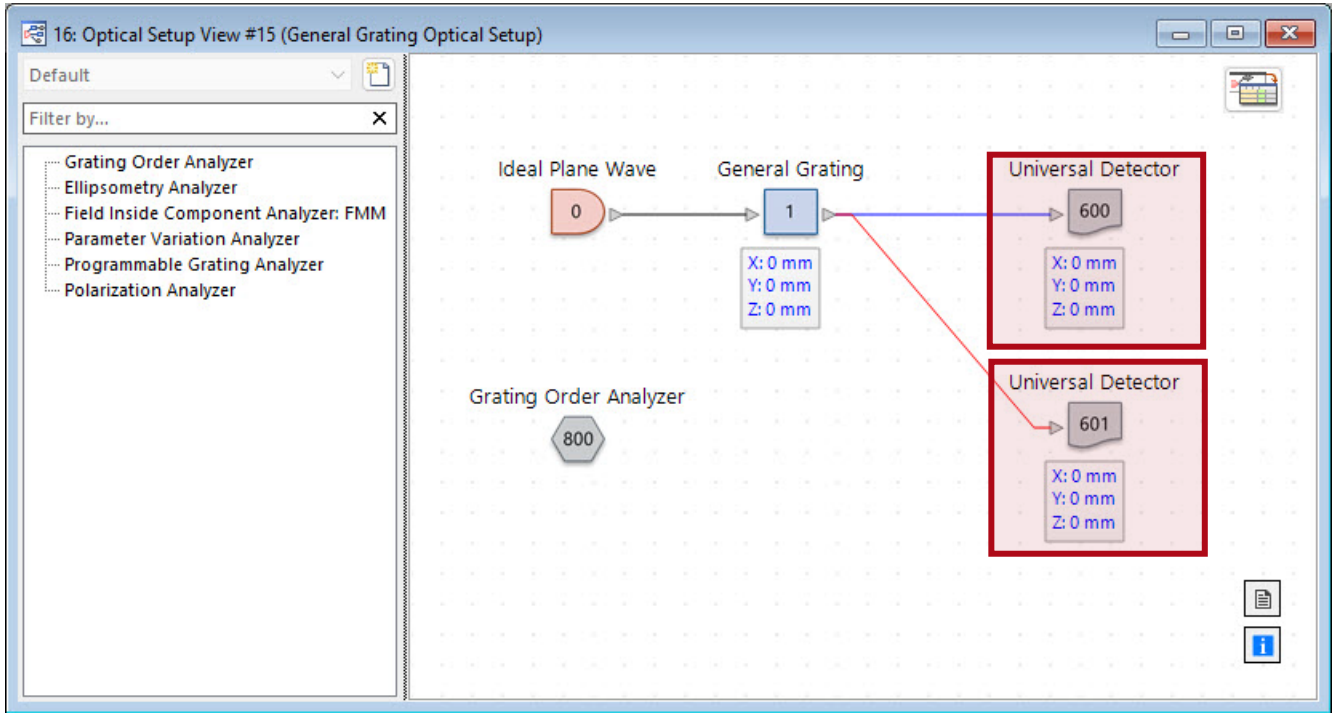
- VirtualLab allows the creation of customized optical setups trees tailored to your needs, choosing from a selection of sources, components, and pre-defined detectors.
- When pressing the button, a script will automatically open, in which the user can define the content of the customized optical setup tree for his needs.
- By saving the edited script, the customized tree will be available by default.
- The user can switch between different configured trees by selecting the tree of interest.





Grating Optical Setup

- The detectors of grating optical setups have been updated use to universal detectors. This comes with various improvements such as the ability to simultaneously depict Ex and Ey.
- By using the universal detectors, the user can benefit fully from the detector add-on technology of VirtualLab Fusion.



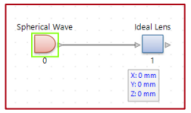
Learn More About Optical Setups in VirtualLab Fusion

Use Cases

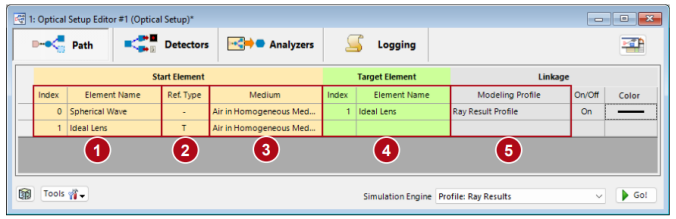
- Create Custom Optical Setup Trees
- Introduction to the Optical Setup Document
- Position and Orientation of Optical Elements in VLF

More examples & use cases coming soon!

Connecting Elements to Each Other



To connect an element to another, simply drag and drop a line between them.

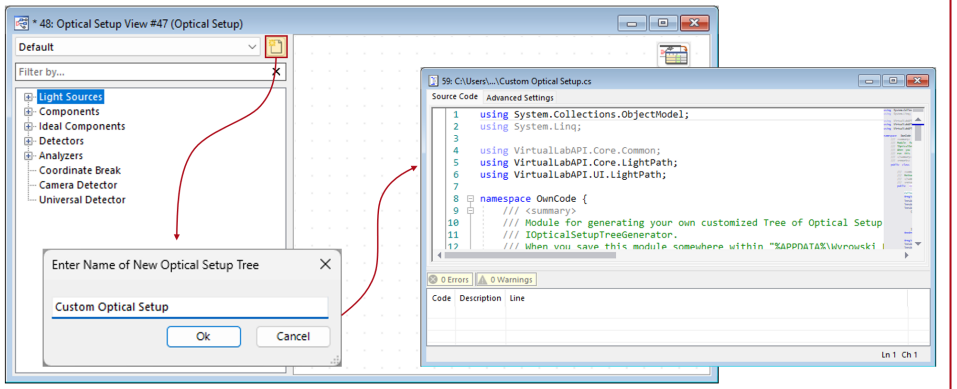


The connection will then automatically appear in the Optical Setup Editor, including information about:

1. Name and index (automatically assigned number) of the *Start Element* for each connection.
2. The Reference Type: R stands for *Reflection*, T for *Transmission*.
3. The homogeneous medium that fills the space between the two elements.
4. Name and index of the *Target Element*.
5. The modeling profile used (see: *Configuring Your Simulation in VirtualLab Fusion*)

5

Create Custom Optical Setup Trees



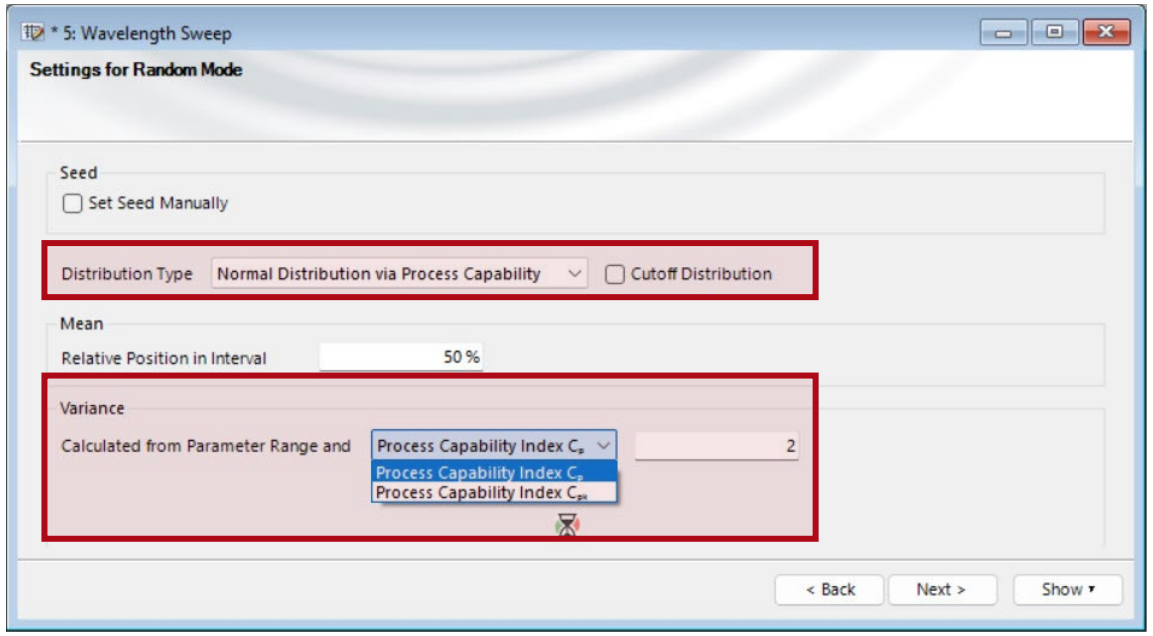
4

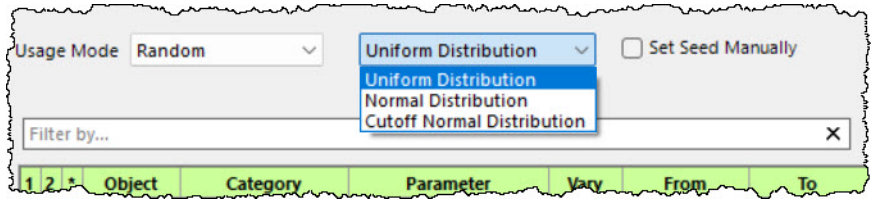
Parameter Runs

VirtualLab Fusion 2024.1 Feature Overview

Normal Distribution via Process Capabillity

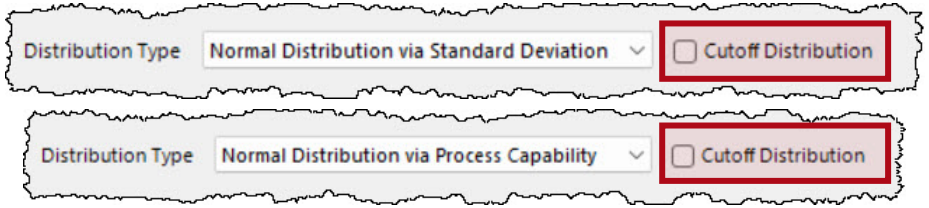
- Introducing an update for random usage mode: Customize asymmetric normal distributions using process capability indices.
- The mean of the normal distribution no longer requires symmetrical placement within the parameter interval.
- Cutoff distribution has been introduced as a togglable option to all normal distribution.





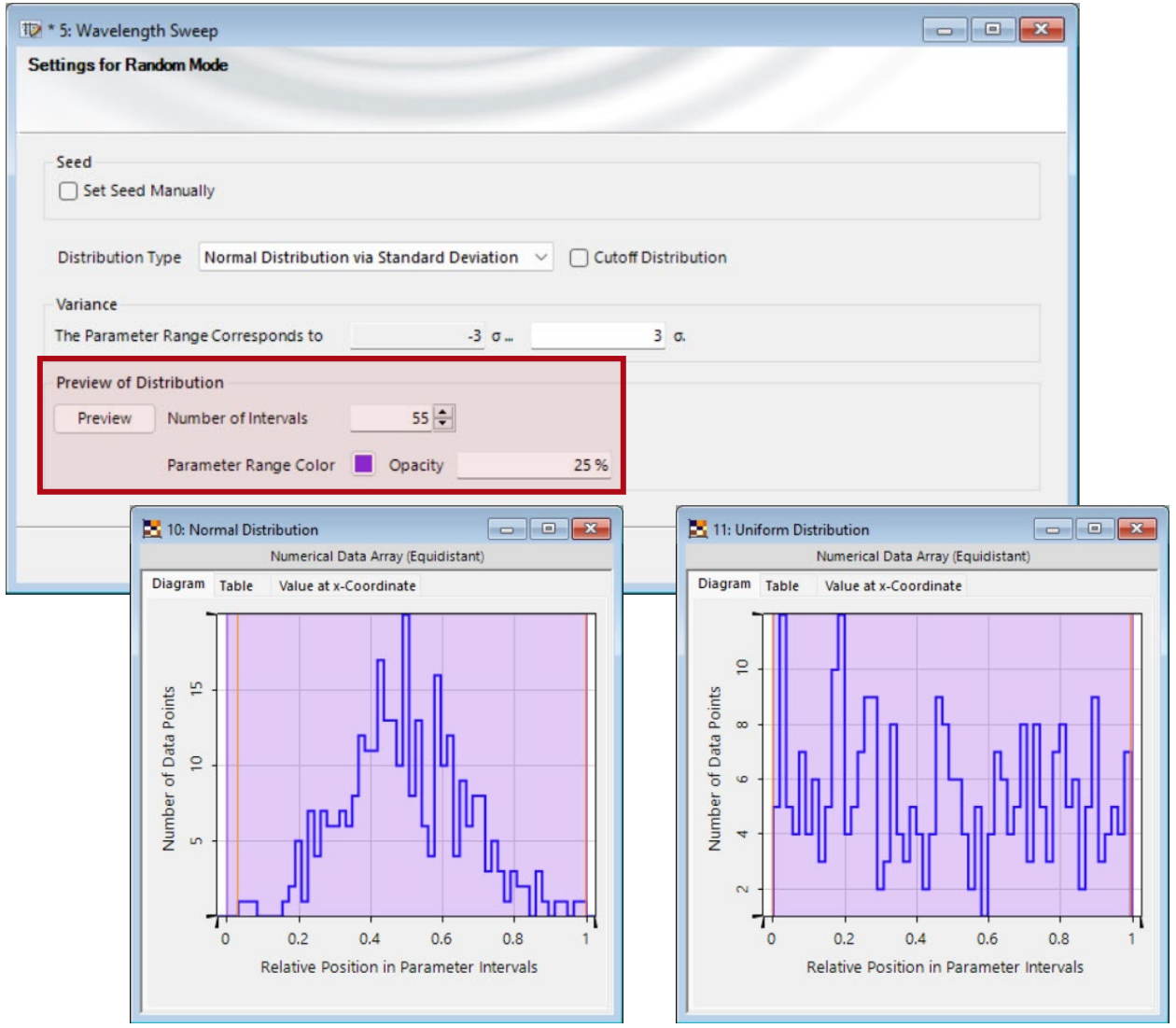
2023.2

2024.1



Preview of Random Distributions in the Parameter Run

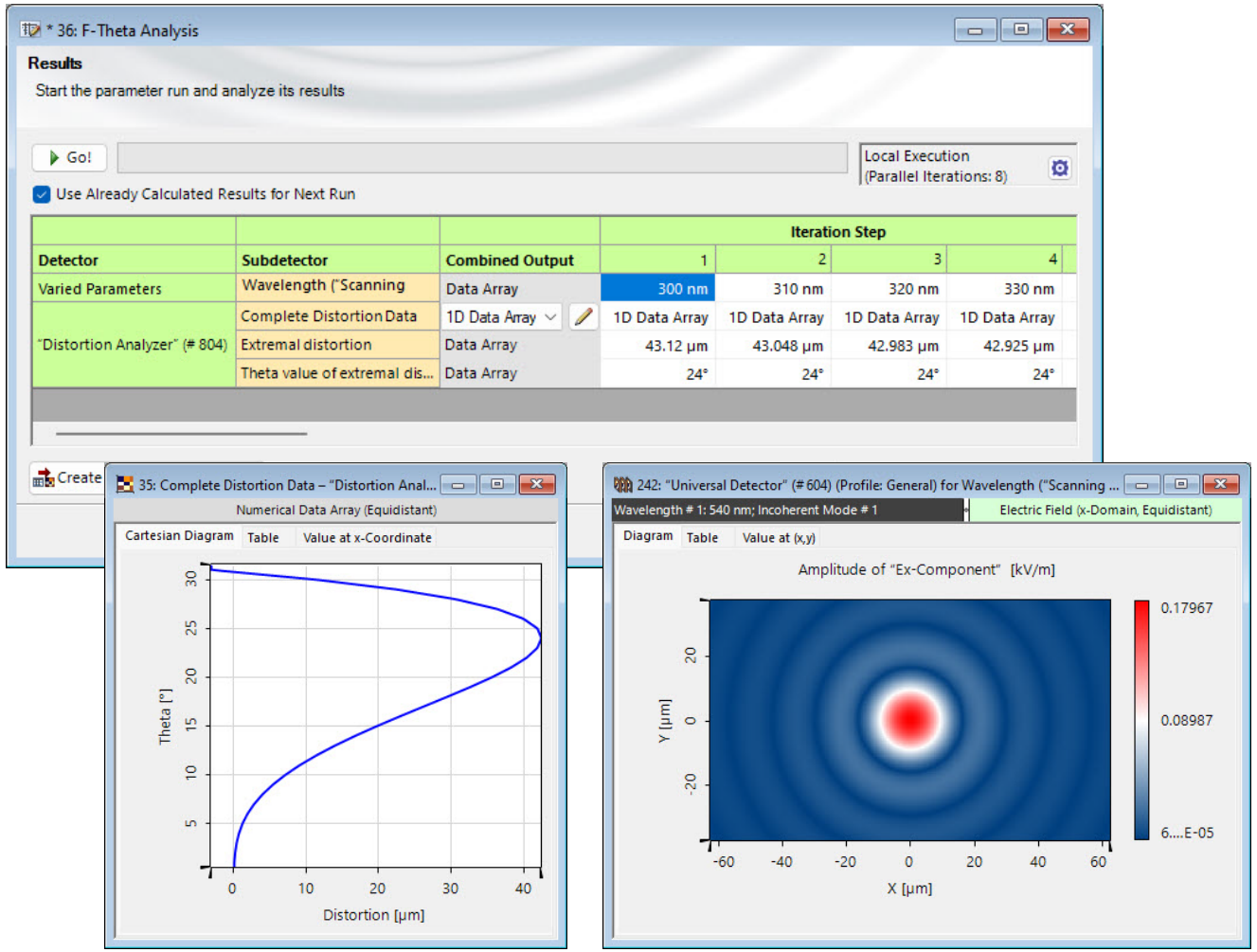
- A new preview has been added to normal and uniform random distributions, indicating the distribution of the chosen random values.
- User can adjust the color, opacity and the number of intervals in this preview.



View Settings for Documents Generated by the Parameter Run

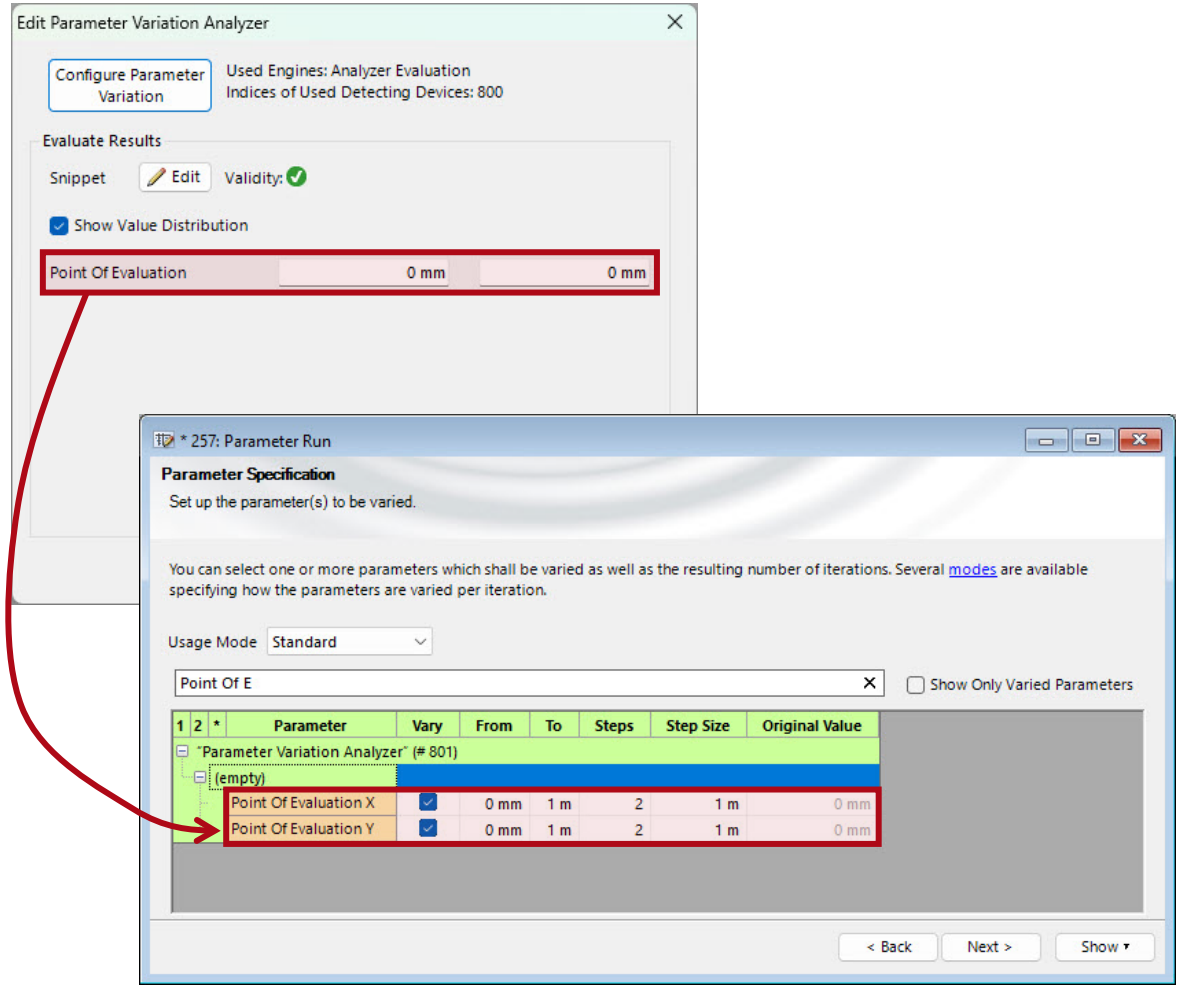
- Results from parameter run documents now also use pre-defined view settings from the detectors.
- The formats include for example:
  - Transposed view for distortion or field curvature analyzer
  - Real/false color view for camera detectors
  - Color lookup tables

(*) note: The Global Option "Store View Settings in the Parameter Run" needs to be active



New Parameter Extractions

- New parameters have been made available for parameter extraction.
- They now can be used in parameter overview, parameter runs or parametric optimization documents:
  - User-defined parameters in the snippet of the parameter variation analyzer
  - Radial and azimuthal orders for Laguerre modes in Gaussian sources
  - Source modeling power

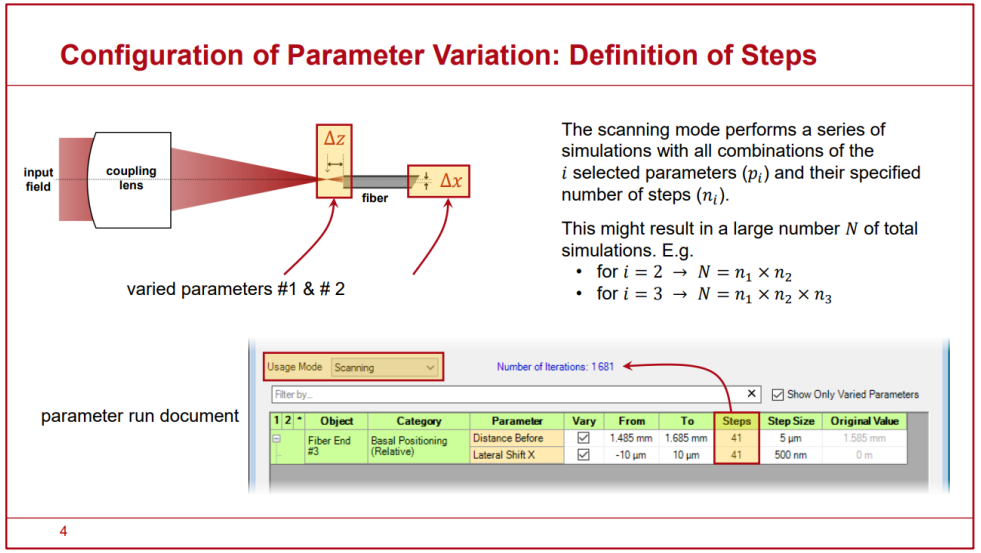


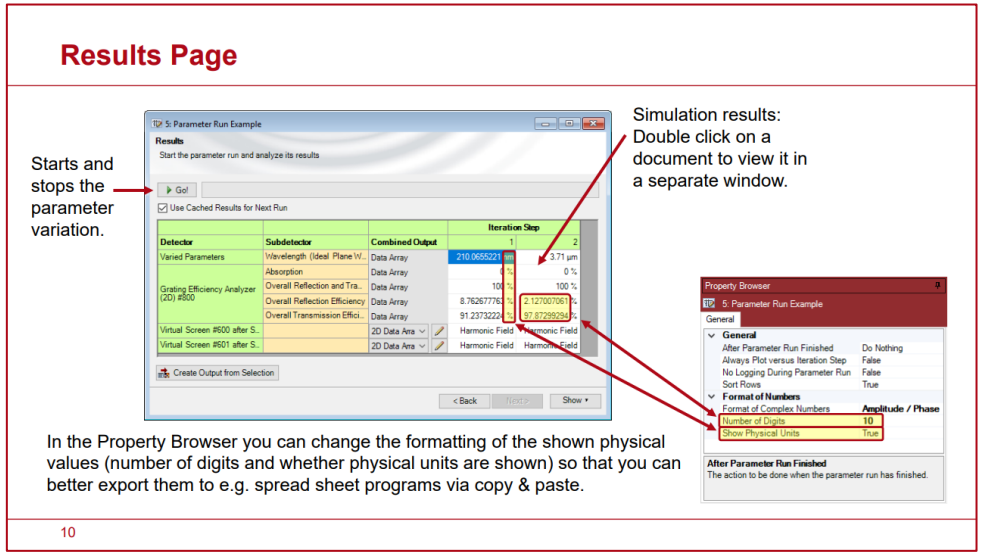
Learn More About Parameter Runs in VirtualLab Fusion

Use Cases

- Usage of the Parameter Run Document
- Tolerancing with Random Distributions
- Scanning Mode of Parameter Run

More examples & use cases coming soon!



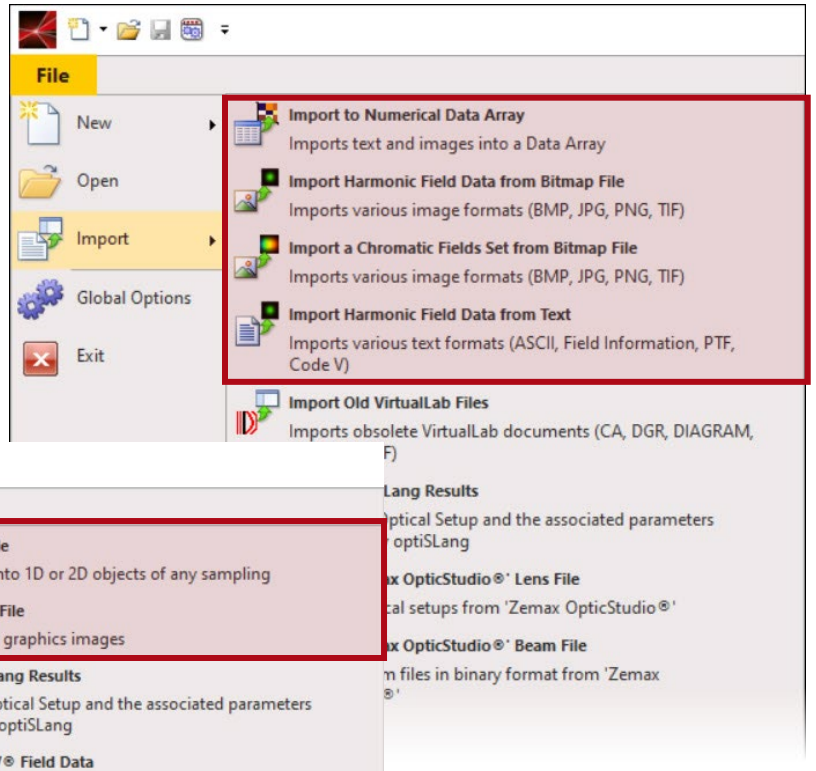


Import & Export

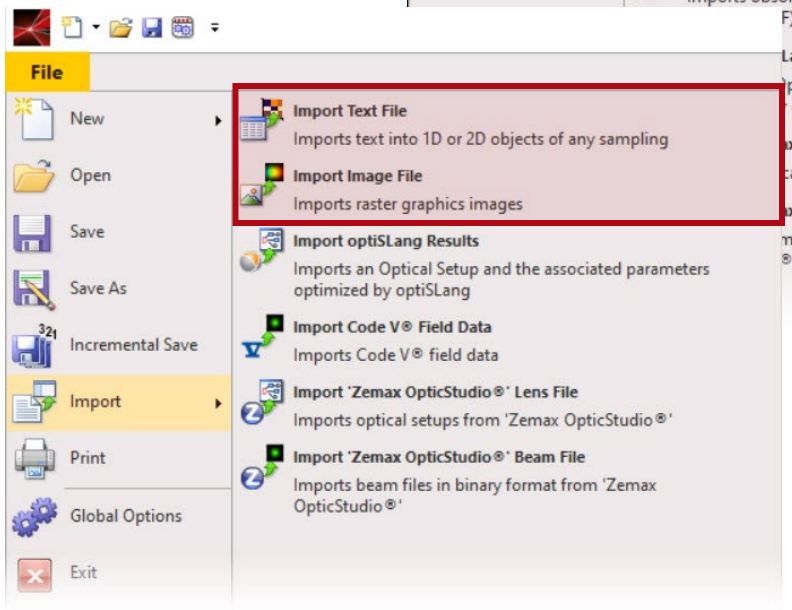
VirtualLab Fusion 2024.1 Feature Overview

Streamlined Import Tools

- The import tools for text and image files have been streamlined.
- Previously, there was a separate import tool for each of our internal data formats.
- Now, users can use two highly flexible import tools (one for text files, one for image files), which then guide them through the import process.
- In this process, users can then specify the properties of the imported data files, such as the internal data format, dimensions and axis descriptions.



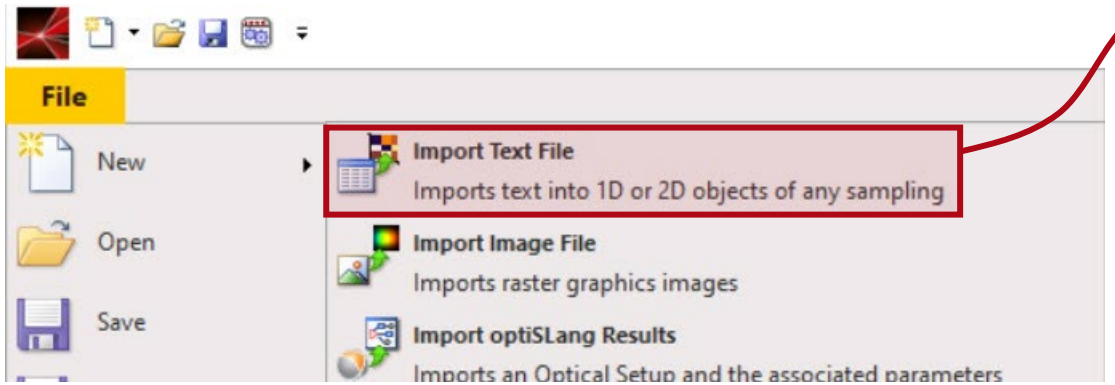
version 2023.2

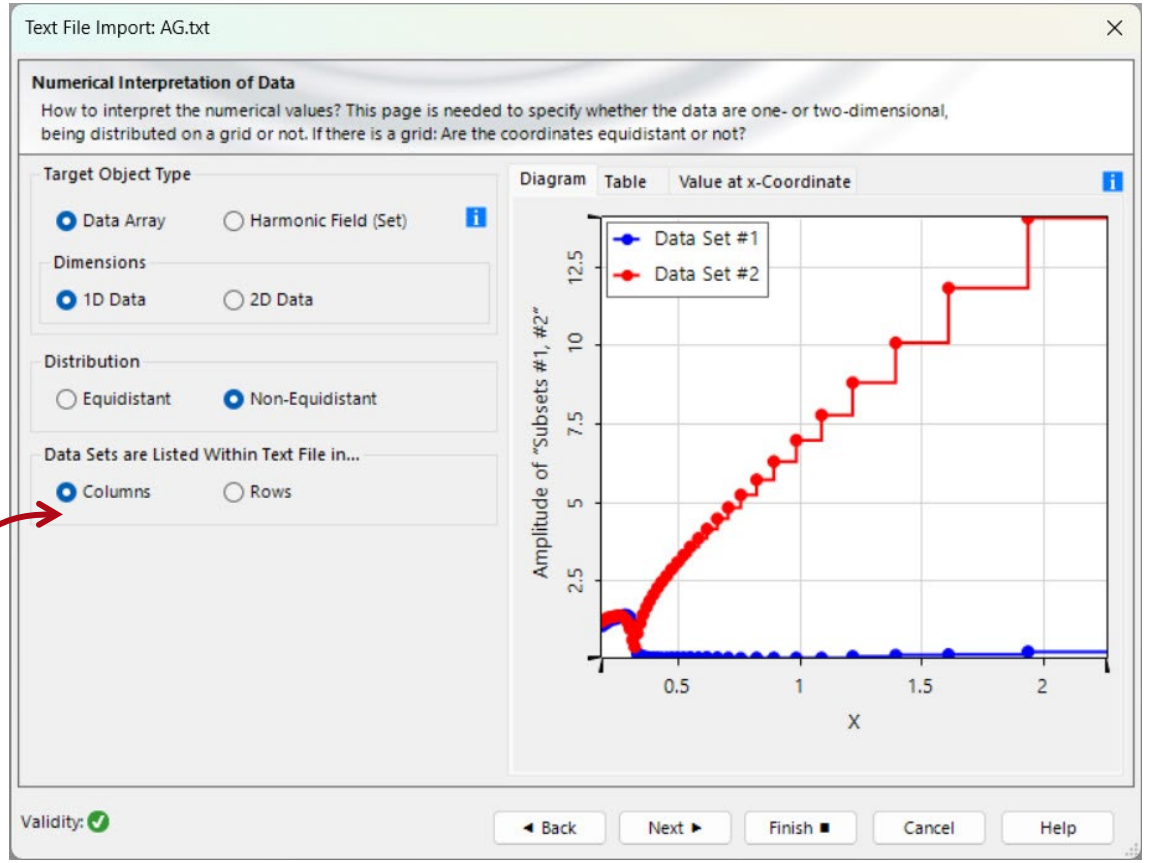


version 2024.1

Import of Non-Equidistant Data from Text Files

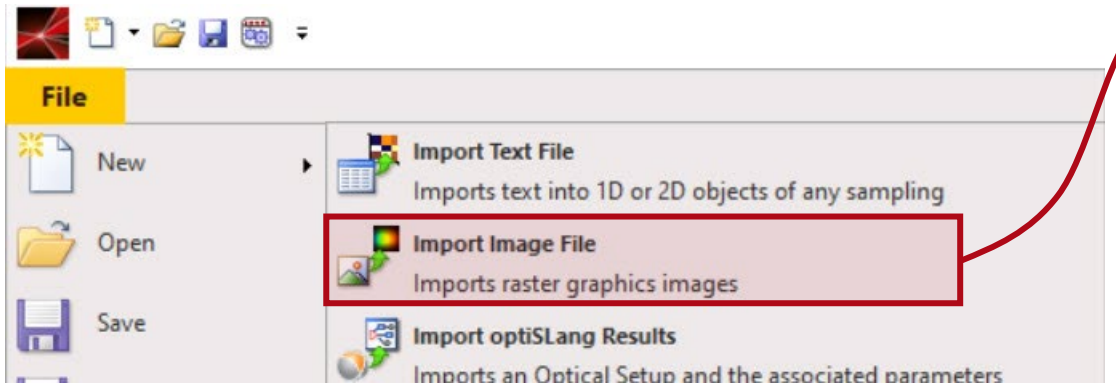
- The new import tool for text files also offers new functionalities, including:
  - Import of non-equidistant data, both in form of 1D lists and 2D files.
  - Import of multiple data files into a single document with multiple subsets.

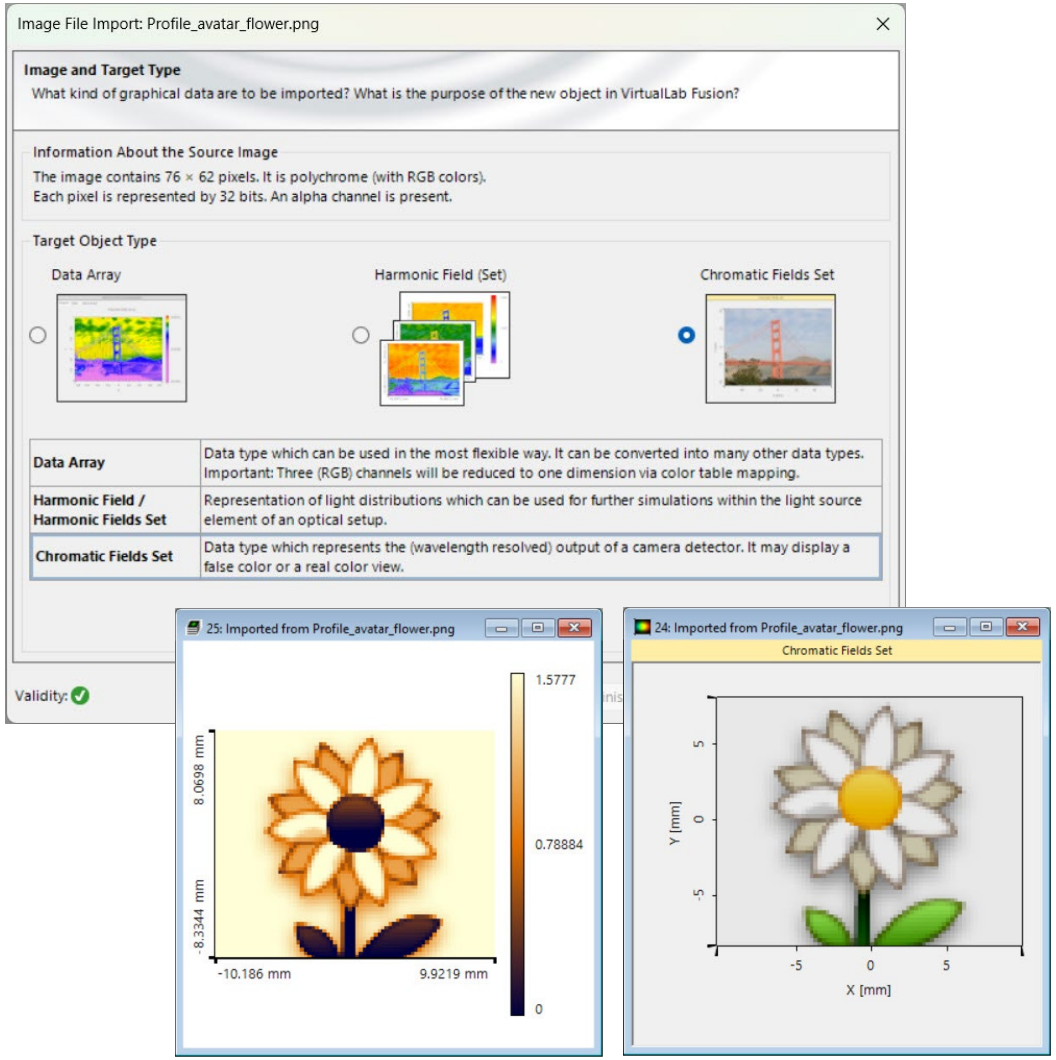




Import Image Files

- The new image import tool can work with all common image file types (PNG, JPG, BMP, …)
- Instead of using an individual tool per internal data format, a wizard will guide the user through the import process where a suitable data format can be selected.



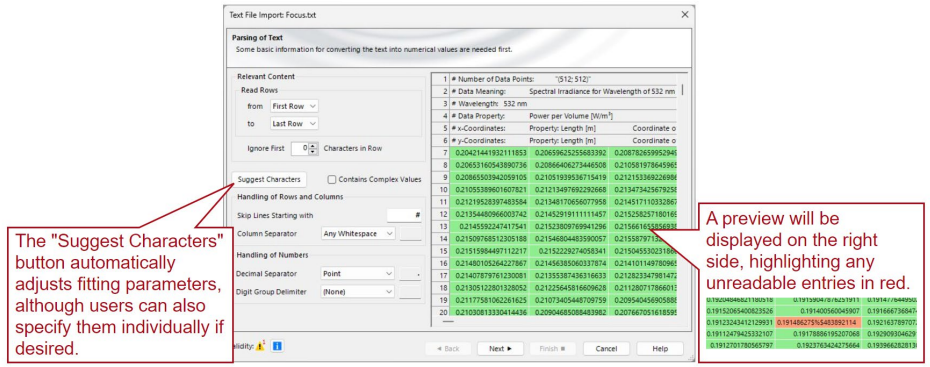


Learn More About Import & Export in VirtualLab Fusion

Use Cases

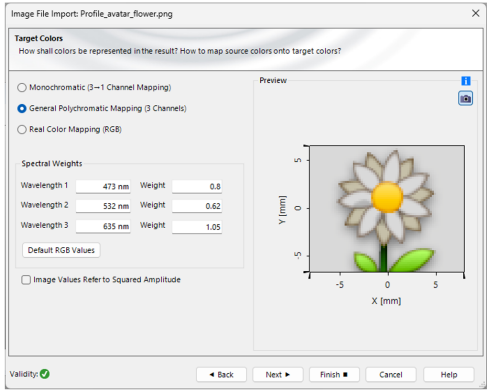
- Import of Data Lists to VLF
- Import of Images to VLF
- Import Material Data
- Import Height Data via Bitmap
- Import Lens into VirtualLab Fusion

Import Text Files

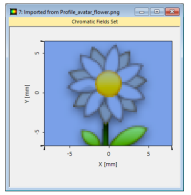


4

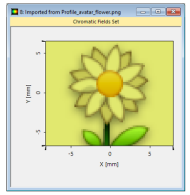
Target Colors – General Polychromatic Mapping



For *General Polychromatic Mapping* (applicable to both *Harmonic Field Sets* and *Chromatic Field Sets*), users can define the wavelengths and weights for the three channels, enabling the creation of arbitrary false color representations.



wavelengths: 473 nm, 532 nm, 635 nm
weights: 3,1,1



wavelengths: 473 nm, 532 nm, 635 nm
weights: 0.5,2,3

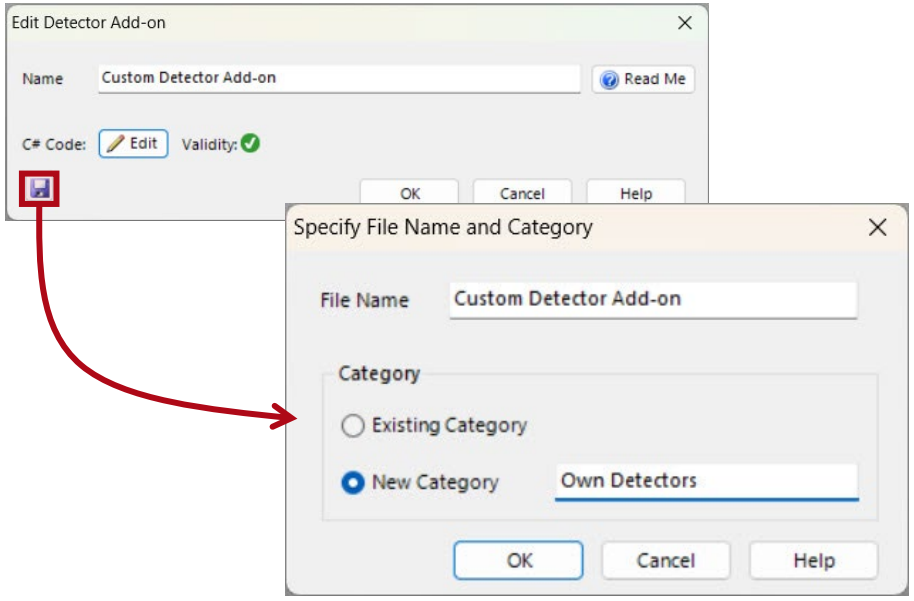
6

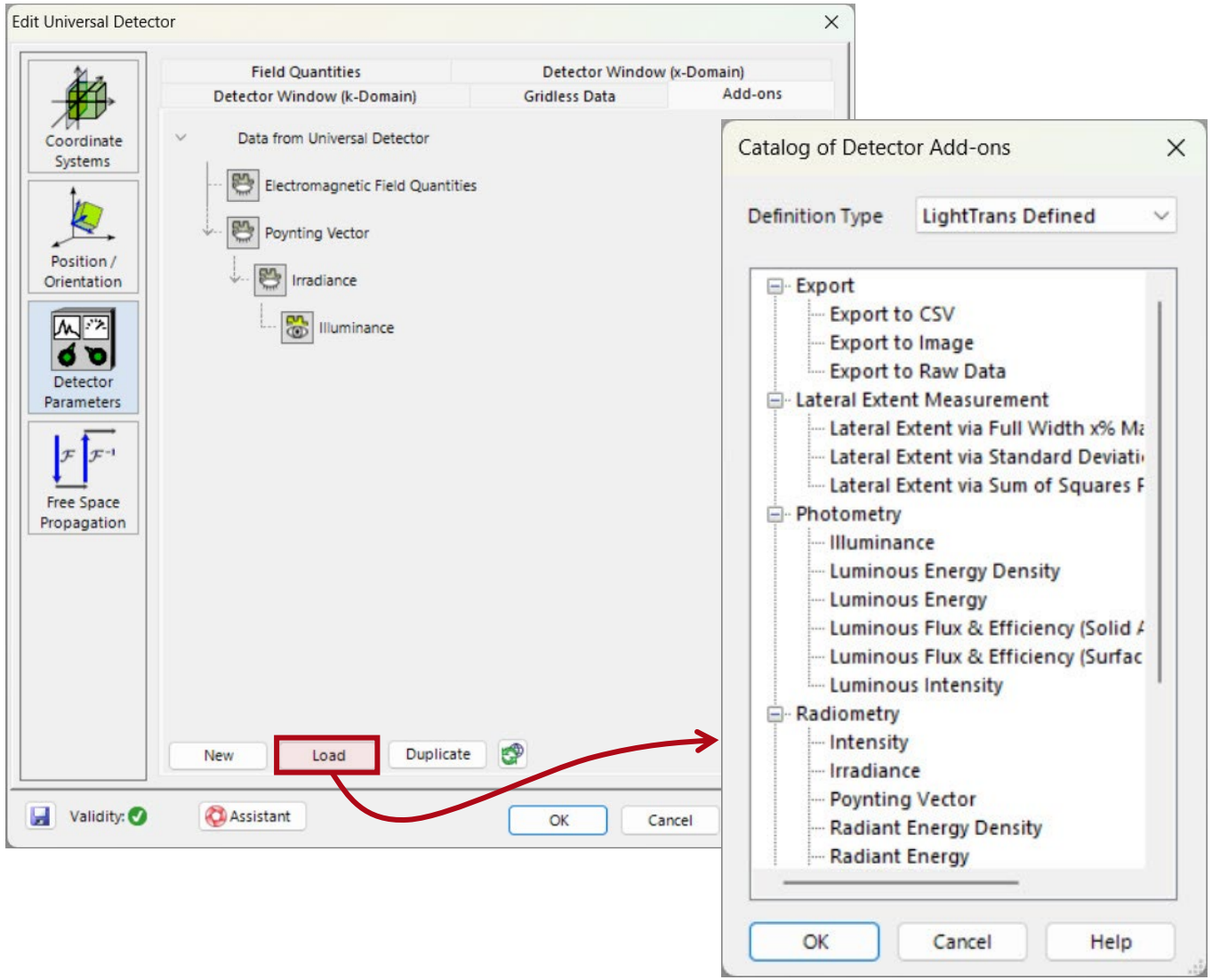
Detector Add-ons

VirtualLab Fusion 2024.1 Feature Overview

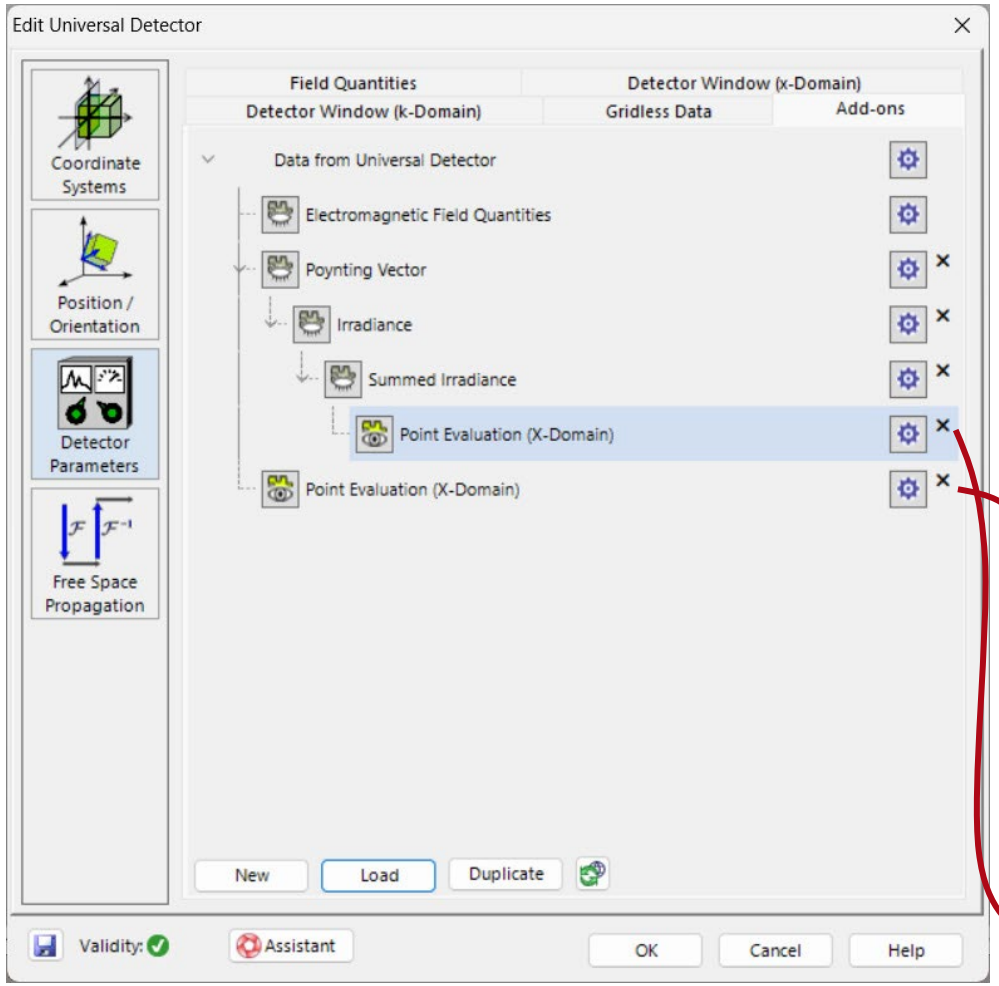
Detector Add-on Handling

- The access to detector add-ons is now handled via a more user-friendly interface, which also enables a version specific storage.





Universal Detector – Point Evaluation Detector Add-on

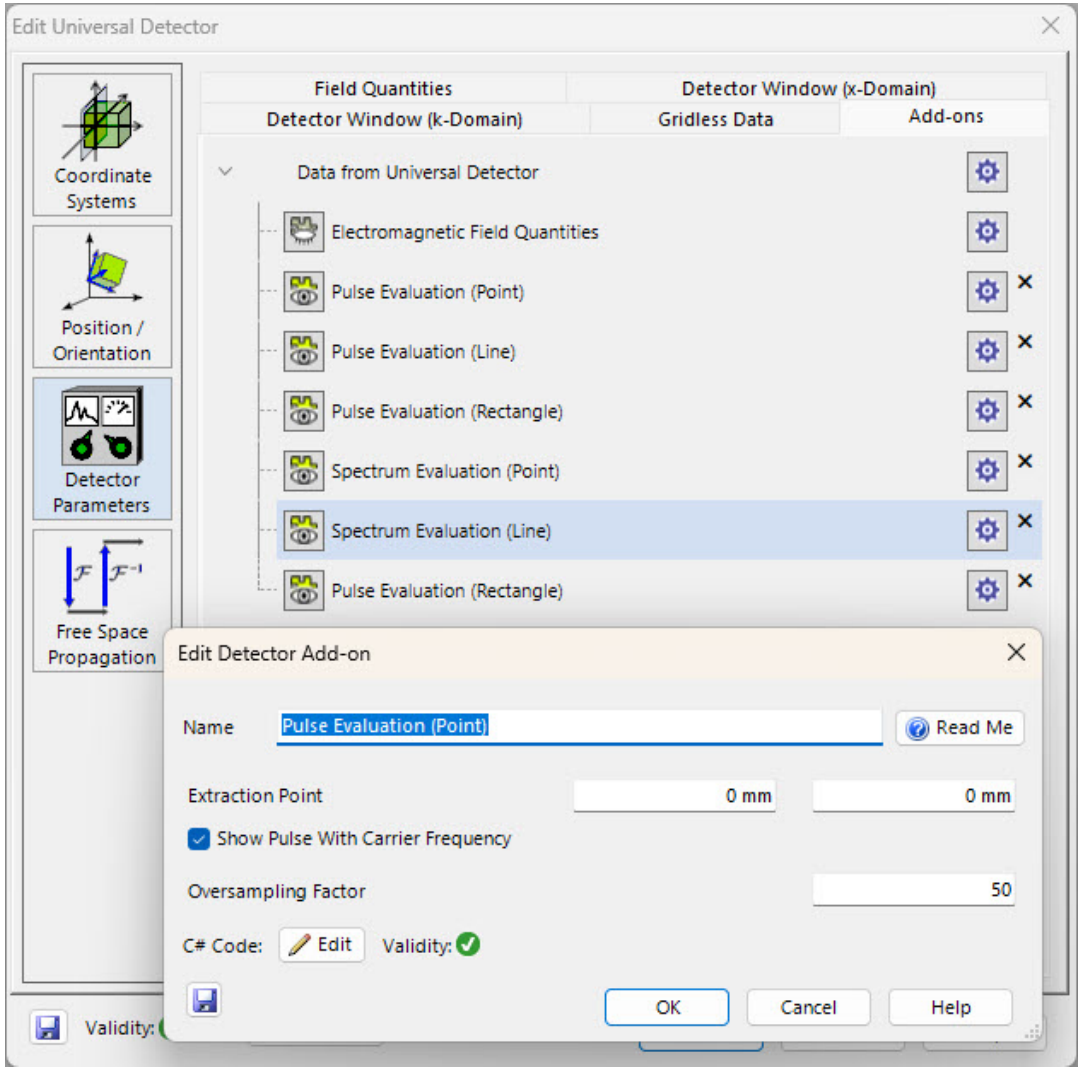


- A new detector add-on for point evaluation is available, which can be used after any other detector add-on generating a 1D or 2D data array with physical quantities.
- It extracts the value at a specific position. The unit will automatically be configured according to the input data. In case of complex values, amplitude and phase will be detected.

Value at [1 mm; 0 mm] for Ex-Component; Wavelength # 1: 532 nm	6.495587057 · exp(0.4228196969 · i) kV/m
Value at [1 mm; 0 mm] for Ey-Component; Wavelength # 1: 532 nm	0 V/m
Value at [1 mm; 0 mm] for Ez-Component; Wavelength # 1: 532 nm	0 V/m
Value at [1 mm; 0 mm] for Hx-Component; Wavelength # 1: 532 nm	0 A/m
Value at [1 mm; 0 mm] for Hy-Component; Wavelength # 1: 532 nm	17.24672272 · exp(0.4228196969 · i) A/m
Value at [1 mm; 0 mm] for Hz-Component; Wavelength # 1: 532 nm	0 A/m
Value at [1 mm; 0 mm] for Irradiance	56536.63683 W/m³

Universal Detector – Pulse Evaluation Detector Add-ons

- A series of new detector add-ons have been added to version 2024.1.
- Those add-ons include tools to evaluate temporal behavior of the detected fields at points, lines and rectangles.
- The list of added add-ons are:
  - Spectrum Evaluation (Point)
  - Spectrum Evaluation (Line)
  - Spectrum Evaluation (Rectangle)
  - Pulse Evaluation (Point)
  - Pulse Evaluation (Line)
  - Pulse Evaluation (Rectangle)

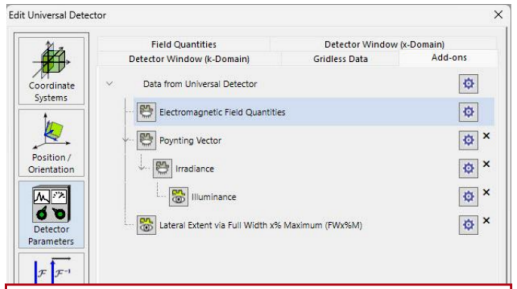


Learn More About Detector Add-ons in VirtualLab Fusion

Use Cases

- Universal Detector
- Coherence Measurement Using Michelson Interferometer and Fourier Transform Spectroscopy
- Frustrated Total Internal Reflection (FTIR) in a Cube Beam Splitter
- Pulse Focusing with High-NA Lens
- Pulse Front Tilt in SSTF – Setups

Detector Add-Ons – Hierarchy Tree



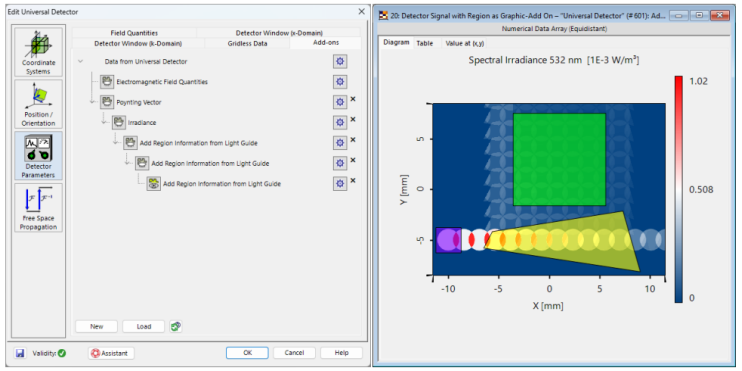
Note: Detector Add-ons can be moved in the tree by drag & drop to the desired position and branch.

By default, the Universal Detector provides all *Add-ons* with the electromagnetic field information based on the field components that are specified in the *Field Quantities* tab. Some *Add-ons* will require just single components, while other necessitate a full set of all 6 components (**E** and **H**). Further, some *Add-ons* require a different physical quantity as input (e.g. the Poynting-Vector). For this purpose, *Add-ons* can be arranged in a tree.

In the example, the *Poynting Vector* add-on is applied on the field data to calculate the Poynting-vector in x-domain. The resulting information can be used to calculate the (spectral) irradiance and moreover processed to calculate the illuminance. In contrast, the *Radiant Flux & Efficiency (Surface)* just requires the full set of field data. Hence, it is positioned at a new branch.

Illustration Example

It is also possible to use multiple detector add-ons in a nested manner in order to display all the regions of the lightguide in a single document.



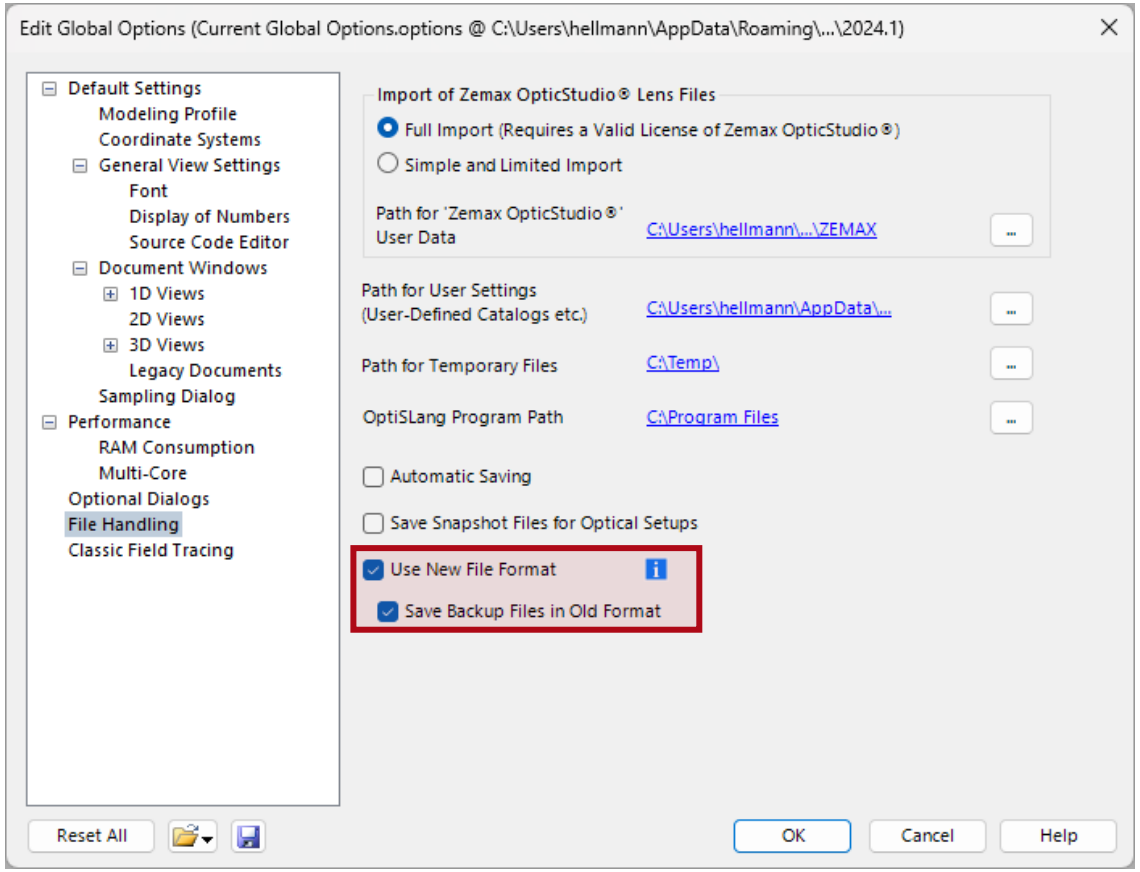
8

Miscellaneous

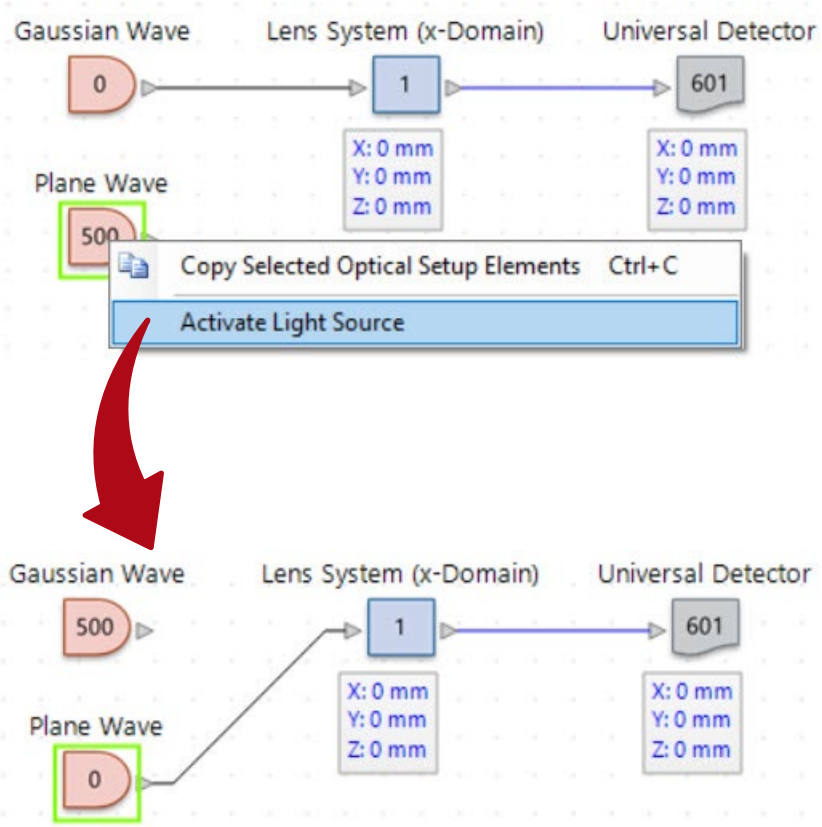
VirtualLab Fusion 2024.1 Feature Overview

New File Format

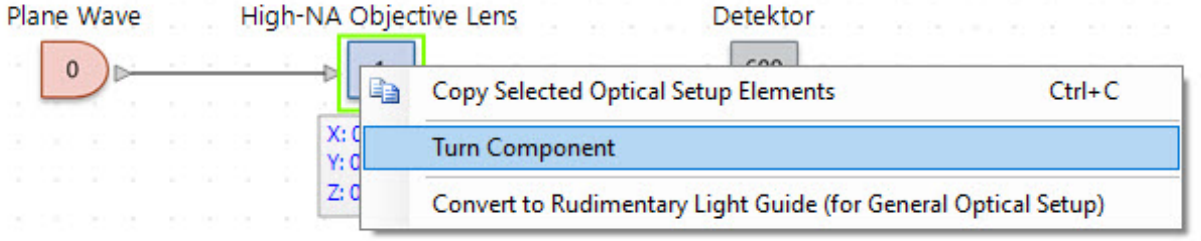
- In VLF 2023.2, we provided a new file format due to Microsoft discontinuing support for the previous one. With version 2024.1, this new file format has become default.
- Upon activating the new file format, users can configure in the Global Options dialog to automatically generate a backup file in the old format, saved alongside the original file in the same folder. These backup files are distinguished by a ⌚ symbol appended to their filenames.
- **It's anticipated that in the subsequent version, the old format will be phased out entirely.**

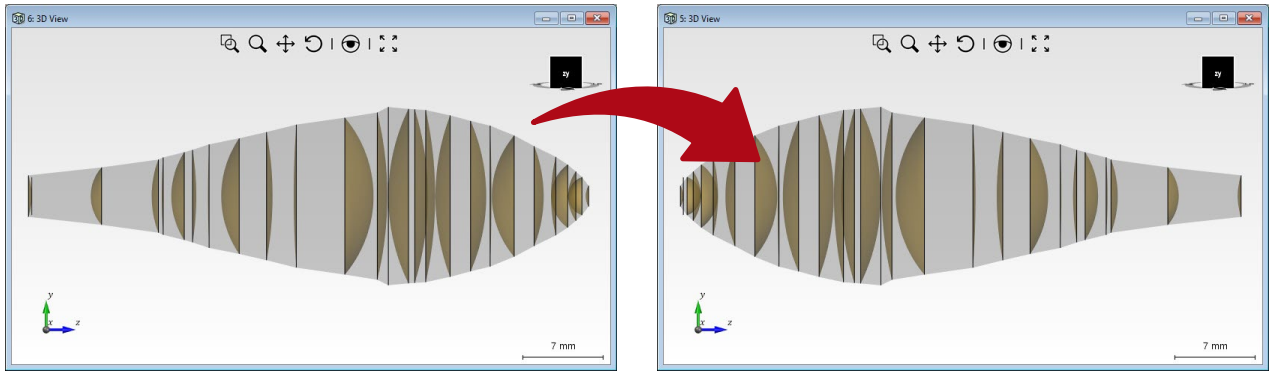


New Entries for the Context Menu



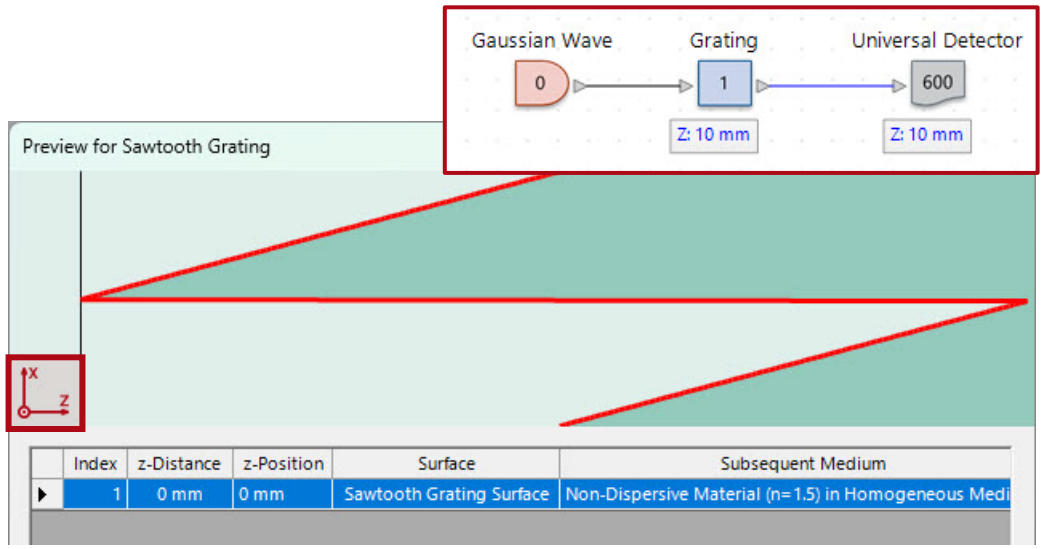
- A new functionality in context menu has been added that allows the change of the active source.
- Similarly, it is now possible to turn components with the click of a button.

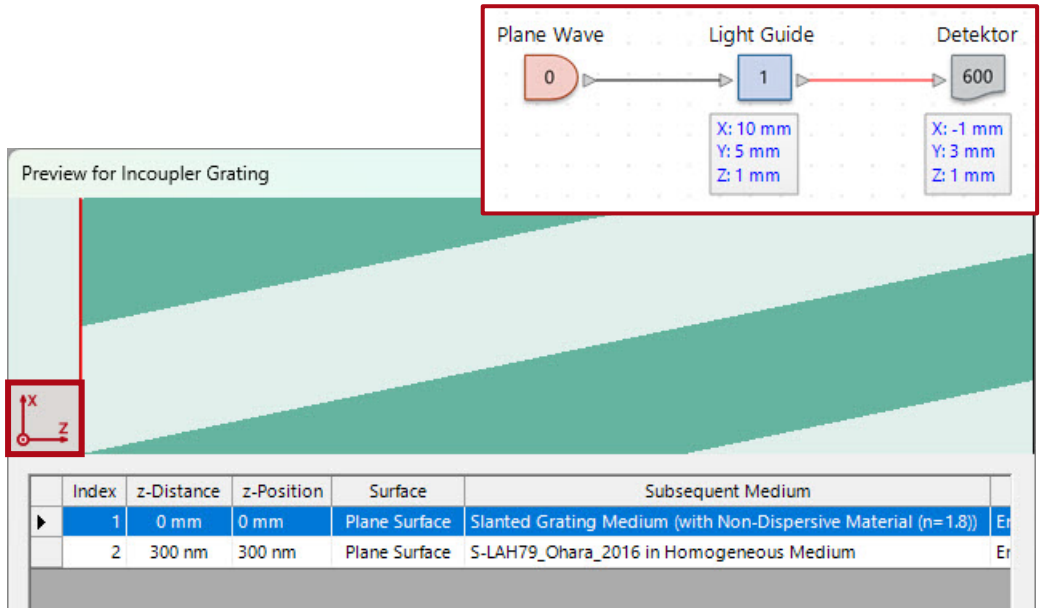




Preview for Grating Stacks

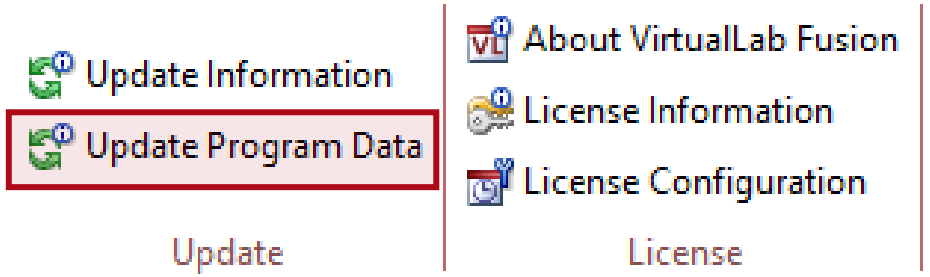
- The stack preview have been unified to depict its orientation via coordinate system indicator on all locations, where stacks are used.
- The following components have been adjusted
  - Grating component in the general optical setup
  - Light guide component (real grating option in a surface region)





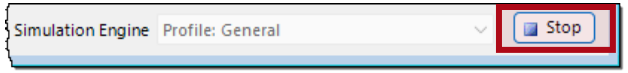
Data Handling

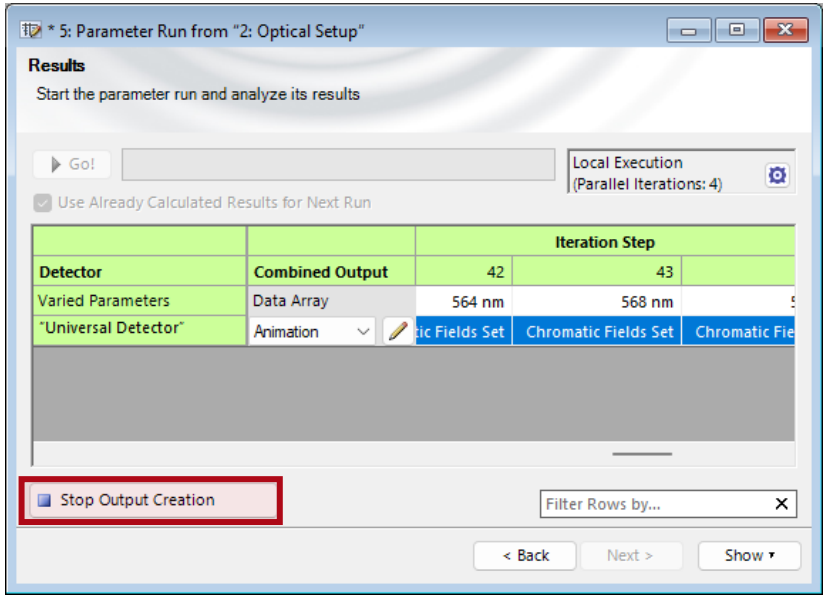
- VirtualLab 2024.1 now clearly distinguish between user-defined data and LightTrans predefined data. The predefined data can be synchronized automatically via internet. This includes:
  - User manual
  - Catalogs
  - Detector add-ons
  - Optical setup trees
- User-defined data is stored in the user data directory as before, defined in the Global Options dialog. LightTrans predefined data can be found in version-specific folders under C:\ProgramData.



Miscellaneous Changes

- Additionally, VLF 2024.1 introduces several changes and improvements:
  - Simulations can now only be aborted cooperatively, meaning they may continue to run in the background after being canceled. This approach avoids intermittent crashes and enable access to intermediate results for combined outputs and the modeling analyzer.
  - The light view has been removed for old complex amplitude and harmonic fields set views. The camera detector, that can be directly applied onto these documents, can be used alternatively, which is even faster and more performant than the old light view.
  - VirtualLab Fusion can now generate 2D Data Arrays with more than 2.1 billion sampling points, enhancing its capacity for handling large datasets.





VirtualLab Fusion 2024.1 – The Feature Firework

- VirtualLab Fusion 2024.1 provides amazing new features for:
  - Higher Speed
  - Easier Use
  - More Physics
  - Deeper Transparency
  - Better Control