

**Release Notes
RSoft Photonic Device Tools
Version 2020.09**

Photonic Solutions

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SYNOPSYS®

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Table of Contents

Changes to All Products.....	1
Changes to RSoft CAD.....	1
Changes to FullWAVE FDTD.....	2
Changes to BeamPROP BPM.....	2
Changes to ModePROP EME.....	2
Changes to DiffractMOD RCWA.....	2
Changes to FemSIM FEM	3
Changes to GratingMOD	Error! Bookmark not defined.
Changes to BSDF Utilities.....	3
Changes to Custom PDK Utility.....	3
Changes to Multi-Physics Utility and Sentaurus TCAD Interface	4
Changes to MOST.....	4
Changes to LaserMOD	Error! Bookmark not defined.

Changes to All Products

- Official support for Windows 7 and Legacy Linux versions has been removed in v2020.09.
- Changes to installation on Linux:
 - New combined Linux installer for the RSoft Photonic Device Tools, Photonic System Tools, and the PIC Design Suite. There are two installer variants, an .spf file that does not include SCL (Synopsys Common Licensing), and a .bin file that does include SCL. See the Installation Guide for more details.
 - Reduced dependency on required fonts for Linux platform, software will now warn about missing fonts, but run using substitute fonts.

Changes to RSoft CAD

In addition to the changes listed in the All Products section, the following changes apply to the RSoft CAD:

- New component filtering capability, allowing components to be grouped based on their materials, structure type, color, tags, etc. Groups can be easily selected, edited, and hidden/shown.
- Monitors can be hidden/shown using the component filter feature described above.
- New option to view simulation mesh on top of the refractive index profile.
- Native index viewer which more closely depicts the index as seen by different tools
- Added zoom capability to index viewer.
- Support for material-based color-coding, including RGB colors. Settings can be system wide and/or per design file.
- New feature to easily view 3D index profiles in slices (FullWAVE only).
- Fixed issue where hidden monitors were still able to be selected in the RSoft CAD layout pane.
- Better handle cases where material n/k data is not defined at simulation wavelength. A warning is now issued and the n/k value at the end of the data is used. Furthermore, the wavelength range is now displayed in the material editor when appropriate.
- Added new option to fixed issue where ‘Try Fit’ and ‘Accept Fit’ used a different number of resonances.
- Fixed issue with reported angle(s) for far-field output.
- Fixed issue with userdata() functions not correctly parsing filenames that included dashes.
- Fixed issues with helical segments.
- Fixed issues when using polygons with absolute user profile.
- Fixed issue with cross-sections of complex data.

- Changes to behavior:
 - Index profile display now uses the native simulator index and will be different than previous versions. The new output more accurately displays the index profile that the simulator will use.
 - Addressed index profiles issues averaging near the simulation domain when periodic boundary conditions are used

Changes to FullWAVE FDTD

In addition to the changes listed in the All Products and RSoft CAD sections, the following changes apply to FullWAVE FDTD:

- New spatial monitor option to measure absorption in specific materials on a per monitor basis.
- New feature to easily view 3D index profiles in slices (FullWAVE only).
- Additions to the FullWAVE simulation GUI: step size control and zoom capability
- New clustering cut direction options.
- Fixed issue with anisotropic simulation with periodic boundary conditions.
- Changes to behavior
 - New MPI implementation (Hydra). Several installation notes needed (need to start service manually for multi-computer clustering, disable/restart when updating.
 - Addressed index profile issue averaging near the simulation domain when periodic boundary conditions are used.

Changes to BeamPROP BPM

In addition to the changes listed in the All Products and RSoft CAD sections, the following changes apply to BeamPROP BPM:

- Added `vm_weight_bias=2` to absorption weight calculation to favor including interface points.

Changes to ModePROP EME

In addition to the changes listed in the All Products and RSoft CAD sections, the following changes apply to ModePROP EME:

- Added `vm_weight_bias=2` to absorption weight calculation to favor including interface points.
- Officially desupported lossy launch at non-normal incidence angles, a warning will be shown.

Changes to DiffractMOD RCWA

In addition to the changes listed in the All Products and RSoft CAD sections, the following changes apply to DiffractMOD RCWA:

- Added `vm_weight_bias=2` to absorption weight calculation to favor including interface points.
- Officially desupported lossy launch at non-normal incidence angles, a warning will be shown.
- Added warning when launching from a lossy material.

Changes to FemSIM FEM

In addition to the changes listed in the All Products and RSoft CAD sections, the following changes apply to FemSIM FEM:

- Added new warning if FemSIM's 'Seed Neff values in MOST' option is enabled when using MOST Clustering
- Added new warning that EIM is not supported

Changes to BSDF Utilities

In addition to the changes listed in the All Products, RSoft CAD, DiffractMOD RCWA, and or FullWAVE FDTD sections, the following changes apply to BSDF Utilities:

- Fixed issue where output angle of rays may not be set right in the unofficially unsupported case where there was an index mismatch between the BSDF data and LightTools data. This is a significant change of behavior and will change results for angles when there is an index mismatch (but ideally not power).
- Fixed issue where BSDF prefix that started with a number did not work.

Changes to Custom PDK Utility

In addition to the changes listed in other sections, the following changes apply to the Custom PDK Utility:

- OptoCompiler support
- Added warnings when unsupported simulation options are enabled.
- Added FemSIM support for phase shifter model creation.

Changes to LED Utility

In addition to the changes listed in the All Products and RSoft CAD sections, the following changes apply to LED Utility:

- Added new warning when periodic boundary conditions are used

Changes to Multi-Physics Utility and Sentaurus TCAD Interface

In addition to the changes listed in the All Products section, the following changes apply to Multi-Physics Utility and Sentaurus TCAD Interface:

- Fixed issue where Carrier Effects Utility did not work in some cases with a default material set.

Changes to MOST

In addition to the changes listed in the All Products and RSoft CAD sections, the following changes apply to MOST:

- Added new warning if FemSIM's 'Seed Neff values in MOST' option is enabled when using MOST Clustering
- Fixed issue for -min and -hide options when running from the command line
- Changes to behavior
 - New MPI implementation (Hydra). Several installation notes needed (need to start service manually for multi-computer clustering, disable/restart when updating).