
Summary of New Features

The following new items are included in this official release version of FRED 23.10

New Charting (Preview)

The charting in FRED has been modernized to a newer charting technology (LightningChart) with the aim of making charting analyses faster, more responsive, more feature rich and thereby improve overall useability.

Notable usability enhancements include:

- Simple controls in a new Chart Navigator pop-out to set custom max/min chart scaling and increase / decrease text font sizes.
- The ability to create Analysis Result Nodes (ARNs) directly from existing charts
- Dynamic rescaling of axes in the charts (via click and drag on the axes)
- The addition of a text “Info window” pop-out that features pertinent information to the chart such as total power and ray counts to avoid having to refer scroll back through the output window.
- An optional “Dark Mode” setting

The new charting supports the vast majority of the existing analysis functionality in FRED but is not considered complete and is being released in preview form to solicit user feedback to improve it further whilst its development continues. Please take a look, tell us what you think and what you'd like to see by emailing us at support:

fredsupport@photonengr.com.

Note it is possible to revert to the legacy charting at any time by deselecting the “Use LightningChart” option in Tools... Preferences... Charting, then restarting FRED.

General Updates

- The object tree isolation feature has been expanded to include options to add and remove objects from the isolated view. This useability enhancement makes it easier to adjust an existing isolated view rather than having to start from scratch.
- A new Gaussian Diffuse surface scatter model has been added and supports anisotropic scatter in addition to super-gaussian parameters to achieve flat-top like behaviors as typically seen in engineered diffusers.
- Total Internal Reflection (TIR) is now counted as its own event in ray path analyses and a new set of ray selection filters have been added to identify TIR events within paths.
- The Zernike surface has been expanded to 231 terms (order 20) and the optic import utility updated to support import of Zernike surfaces up to this order from lens design programs.
- Ray Path Filters now support selections of Custom Elements and SubAssemblies to work better in conjunction with surfaces which have been grouped via the Ray Path Node Number(s) feature.

- Traceable Detector Entities now print summary data (total power and ray counts) to the output window at the end of a trace, and also support Incident/Absorbed power tracking in the same way as other geometry surfaces.
- The Glass Catalogues of Hikari, Hoya, NHG, and Sumita have been updated.

Miscellaneous Updates and Bug Fixes

In addition to the improvements described above, this release contains several smaller features and bug fixes. Please refer to the Release Notes found on the Help menu inside of FRED for a complete listing of all enhancements and defect resolutions.