

## RadExPro 2025.1 release notes

We are happy to announce the next version of our software -- RadExPro 2025.1 !

Here is the list of the key new features and improvements:

• New module Unaliased Fourier 2D Interpolation conducts interpolation of 2D data in Fourier domain. Depending on the parameters and input data, this module can be used to regularize a 2D gather, fill holes in it (e.g., reconstruct missed shots on a common-channel gather or broken channels on a common-shot gather), or interpolate it onto a finer grid. For seismic streamers with changing receiver spacing, this module can be applied to create constant spacing. When interpolating/regularizing common-shot, common-receiver or common midpoint gathers, NMO can be applied before this module in the flow to decrease the probability of introducing aliasing into the interpolation result. The module has an antialiasing scheme and can, theoretically, reconstruct aliased data, so one may choose to interpolate such gathers without NMO to enable the interpolation of both reflected signals and various types of noise (for example, surface waves). It is an alternative solution to the existing Sparse F-K Interpolation with a different interpolation algorithm and additional capability for header interpolation.



Example application. Decimated data with 50% traces randomly removed (a); interpolation result (b); difference between the interpolation result and non-decimated dataset (c); nondecimated dataset (d).



Example application. Decimated shot gather with skipped odd channels for longer offsets (left); interpolated shot gather (middle); original shot gather before decimation (right).

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 New module OBN Multi-Component Rotation estimates the tilt and orientation angles of an OBN (Ocean Bottom Node) based on first-break energy polarization analysis and performs the corresponding rotations. If an OBN is not equipped with orientation sensors, the module can be used to compute and apply the necessary data rotation. Otherwise, it can serve as a quality control tool to verify the proper functioning of the orientation sensors. The module allows rotation of the X-component either toward the north or toward the source.



• Several new functions have been introduced in the **Trace Header Math** module. These functions calculate statistical values for the current trace using a list of headers and are particularly useful for post-processing results from various picking methods in the First Break Picking module:

**mean(x, y, z, ...)** – Computes the average value of the specified headers. Constants can also be included. An arbitrary number of headers and constants is supported.

**median(x, y, z, ...)** – Computes the median value of the specified headers. Constants can also be included. An arbitrary number of headers and constants is supported.

**mean\_alpha\_trimmed(alpha, x, y, z, ...)** – Computes the alpha-trimmed mean of the specified headers. Constants can also be included. An arbitrary number of headers and constants is supported.

**min(x, y, z, ...)** – Computes the minimum value among the specified headers. Constants can also be included. An arbitrary number of headers and constants is supported.

**max(x, y, z, ...)** – Computes the maximum value among the specified headers. Constants can also be included. An arbitrary number of headers and constants is supported.

Additionally, two functions have been added for azimuth computation:

azimuth\_rad(x1, y1, x2, y2) – Calculates the azimuth in radians. Both headers and constants can be provided as inputs.

azimuth\_deg(x1, y1, x2, y2) – Calculates the azimuth in degrees. Both headers and constants can be provided as inputs.

- A new module **Real-Time ASN OptoDAS Input** was added to the Real-Time configuration of the software to support real-time input of the Alcatel Submarine Networks OptoDAS files.
- **Source-Receiver Repositioning** module can now estimate an error of the new coordinate and save the value to a trace header.
- In the **Seismic Display** module, replica support was added to the Save Image sizes as well as to the 'Maximum number of visible traces' parameter.
- We have transitioned several modules to the new universal parameter style. These modules now offer full support for replicas and include standard export/import functionality. The affected modules are as follows:
  - Derive Match Filter FairField Rotation Data Filter Spectral Shaping F-K Amplitude Power Time Variant Amplitude Gain Power Of Trace Hilbert Transform

The following issues were fixed:

- Seismic Display, QC Viewer, Interactive QC crop legend when an image is saved at 300 dpi resolution -- FIXED!
- Seismic Display doesn't show horizontal scroll bar when maximum number of traces per screen is set to 1 -- FIXED!
- Easy Refraction error when importing an ASCII file with a model -- FIXED!
- Deblending module in version 2024.4 crashed the software -- FIXED!
- "The requested project does not exist" error message when attempting to open a project that exists but the path to the project folder is too long -- **FIXED!**

• Spherical Divergence Correction does not allow switching normalization off -- FIXED!

As always, if your licenses are under maintenance, feel free to contact us at <a href="mailto:support@radexpro.com">support@radexpro.com</a> to receive your complimentary update.

Please note, that with this release we will need to update the license in your protection key. This affects both new softlock keys as well as the old USB-dongles. We will send you instructions upon request.