Release Notes for ViewR 1.3.0

Previous Release Version: 1.2.5

Spectrum Tool

A spectrum tool has been added to the Radargram View. You'll now find a tab named "Spectrum" on the right side of the radargram.

Key points about the spectrum tool:

- **Single Trace Mode:** Move the cursor (Ctrl + Left Mouse Button) in the radargram to select a single trace.
- **Select Multiple Traces:** Click on the select icon in the Spectrum View to select an area in the radargram. Then, use the mouse to drag out a rectangle over the area you want to analyze. The spectrum for each sub-trace within the selected area will be plotted, along with the average spectrum for the entire selected area.
- **Scale Options:**
  - Full: The full spectrum is displayed. Zoom (mouse wheel) and scroll are enabled.
  - -10 dB: The spectrum within the range of 0 to -10 dB is displayed. Zoom and scroll are disabled.
  - -3 dB: The spectrum within the range of 0 to -3 dB is displayed. Zoom and scroll are disabled.
- The spectra reflect the data with the selected filters applied, but do not include display filters such as gain and contrast. This approach is consistent with the trace view.

Bugfixes

X, Y, and Z Offset Adjustments in Cut Export

The principle of "What you see is what you get" is now applied to all exports, including cut export and Condor export. This means that the output positioning data will be adjusted with the offset you specified during the cut/export process.

If you then open the cut export in ViewR or the Condor export in Condor, it will show that the X, Y, Z offset is zero, since the positioning data was adjusted according to the specified parameters when the cut was made.

UTM Zone Bug for Condor Export

In some situations, Incorrect UTM zone written to the condor export files for Total Station Projects and projects with Manual Positioning which caused Condor to crash during the import procedure of the project. This has now been fixed.

Other Improvements

Improved Handling of Corrupt Position/Time Files

- ViewR now handles cases where a position/time file contains duplicate entries for the same line.
- ViewR also manages situations where a row in the time file has an invalid time tag.

Release Notes for ViewR 1.2.5

Previous Release Version: 1.2.0

Import Positioning Data

A new import function has been integrated, allowing seamless import of positioning data from alternative sources, such as a post-processed trajectory file. This functionality is specifically tailored to align with .csv files exported from the Trimble MX9 system. If your .csv file format differs, some modifications may be needed.

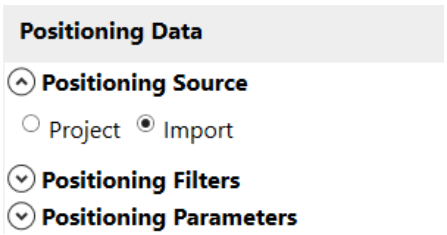
For a smooth import, ViewR requires the following fields in the .csv file:

- gps_seconds[s]
- latitude[deg]
- longitude[deg]
- altitude_ellipsoidal[m]

- Optional field: quality/status (ViewR searches for a column containing the string "quality" or "status". If not found, it will set the status to 6 for all coordinates).

Key points about the import function:

- ViewR requires a single .csv file covering the entire Raptor project.
- Only swaths successfully matched with positioning data in the .csv file will be loaded.
- If the .csv file lacks a GPS quality field, ViewR will set all coordinates to status 6.
- The .csv file can be comma-separated or tab-separated.
- It's possible to toggle between the imported positioning data and the original positioning data for the project.
- When exporting a project or cutting the project, the selected positioning source will be used.



Improved Cut Functionality

- Option to open a new subproject directly after the cut has finished has been added.
- Time files are now included in the subproject.

Radargram Toolbar

The radargram window now contains a bottom toolbar with fields for trace, sample, and traveling speed (km/h and mph) based on the positioning data.

Bugfixes

- ViewR now ignores duplicate lines from the positioning files.
- ViewR Is now able to load Projects without positioning data.
- UTM zone letter now exports correctly to Condor for project with Total station as positioning source.

Other Improvements

- Improved loading time for positioning data.
- Improved stability.

Release Notes for ViewR 1.2.0

Previous Release Version: 1.1.6

Surface Features

Surface features in ViewR now accurately reflect the color, symbol, and size specifications from Talon.

Markers

- Markers are now visible in the top view in ViewR. They are displayed with a pink color and the symbol "M".
- A checkbox for markers has been added in the ViewR interface under the "Display" section.
- When exporting a project to Condor, markers are now included and exported correctly.
- When cutting a project in ViewR, markers within the selected area will also be included.

Condor Export - Time Files

ViewR now includes time files in the Condor Export, ensuring that the correct time span of the project/swath is displayed in Condor.

Note: ViewR will only export data from the first valid position to the last valid position. For example, if the raw swath contains 1000 traces, with the first valid position starting on trace 5 and the last valid position on trace 995, ViewR will export swath data from trace 5 to 995, totaling 990 traces. This approach also applies to positioning files, time files, and marker files.

Condor Export/ Cut Export – Positioning filters and Parameters

The export will from now on reflect the selected positioning parameters and filters. The exported coordinates will be adjusted for the x, y, z-offset and all other parameters and filters that have been applied on the project. For example, if a z-offset of 1.0 m was applied on the project in ViewR, the coordinates exported to Condor will have been adjusted for this offset. And the header file for the export will say that the z-offset is 0.

UTM Zone Code

Total Station

In ViewR, it's now possible to specify the UTM zone code for projects using Total Station as the positioning source. The UTM zone code will be correctly exported in the Condor export files.

UTM Zone Format

The UTM Zone Format used in ViewR has been replaced from the “Grid Zone Designator” to the “Zone Designator” format, which is considered a standard in GIS applications.

- Zone Designator: Zone number + N/S (e.g., 33N)
- Grid Zone Designator: Zone number + Zone code (e.g., 33T)

Invalid Swaths

ViewR now provides a warning and will ignore the loading of corrupted swaths when opening a project. Please note that since ViewR doesn't open corrupted swaths, they will not be exported to Condor.

Adjust Antenna Separation and Channel Spacing

ViewR now allows users to adjust channel spacing and antenna separation settings.

Note: ViewR will never manipulate the raw data files; these new parameters will only be applied within ViewR and reflected in the Condor Export files.

Swath Coverage Width

The Swath Coverage Width has been updated to align with the visualization method employed by Condor, which is widely adopted in the industry. In ViewR, the coverage width of a swath is now depicted as the distance between the center of the leftmost and rightmost channels.

- New Calculation Method:
  *SWATH_WIDTH = CHANNEL_SPACING * (NUMBER_OF_CHANNELS – 1)*
- Old Calculation Method:
  *SWATH_WIDTH = CHANNEL_SPACING * NUMBER_OF_CHANNELS*

Example: 8-channel Raptor

New Method: SWATH_WIDTH = 0.084m * (8-1) = 0.588m

Old Method: SWATH_WIDTH = 0.084m * 8 = 0.672m

GPR Data Interpolation

Interpolation of GPR data is now optional. A checkbox in the “GPR Data” section has been added to ViewR. The interpolation width is fixed. All empty pixels that has at least one neighbor containing GPR data will be interpolated.

Total Station Delay Compensation

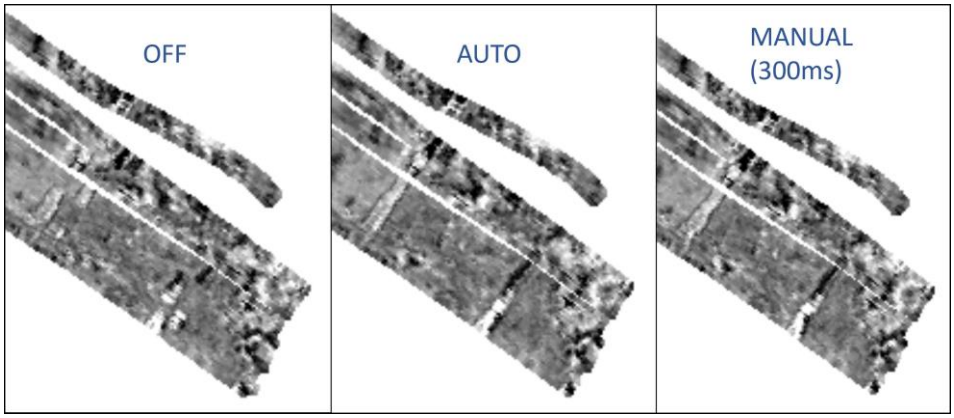
When using a Total Station, there is no time sync between the coordinates and the GPR data. This means that there always will be a delay between the Total Station and the time the coordinate is

registered in Talon. When Talon receives a coordinate from the Total Station, it tags it with the current trace number. This will not be the correct trace number since there is a delay.

Our recommendation has therefore been to make sure that the GPR system is stationary during start/stop and to run the system in a constant speed. When doing so, ViewR can automatically compensate and approximate the correct trace number for each coordinate. This has been the default approach in earlier versions of ViewR.

If not following our recommendations regarding start/stop and speed, the automatic function will not work. We have therefore introduced a manual delay option where we assume that the delay is constant throughout the whole project. The default value is 300 ms. It is recommended to use this method if you have a running start/stop. To summarize, there are three options for delay compensation:

- OFF (No delay compensation)
- AUTO (Automatic delay compensation, ideal for stationary start/stop)
- MANUAL (Ideal for running start/stop).



Bugfixes

- The depth line in the Trace Viewer had an incorrect position when "Auto Adjust Zero Level" was disabled. This bug has now been fixed.
- If a CUT-area contained several intervals of one Swath, only one interval was exported. This bug has now been fixed.