Road Doctor® 3 new features and bug fix list since August 2021 Release 3.5.90

This list includes new features and bug fixes. Some of the bugs may not have appeared in released versions. Some of the items apply only to certain modules of Road Doctor.

3.5.99 – 2021-12-01

Major New Features

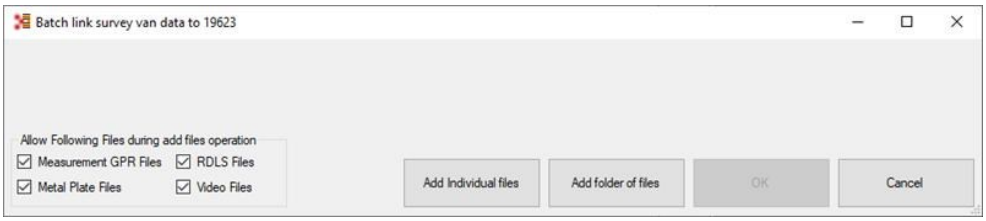
- GPR Cross-section interpretation now uses Correlation of scans similarly as in profile direction interpretation.
- Possibility to show GPR data overlayed in the same window, also if it is loaded into memory.
- Possibility to disable database rescaling in loading the database.
- RODOS Falling Weight Deflectometer DDX-format support.
- Longitude and latitude visible in user interface.

New Features:

A. **Batch linking:**

1. Batch Link Survey Van

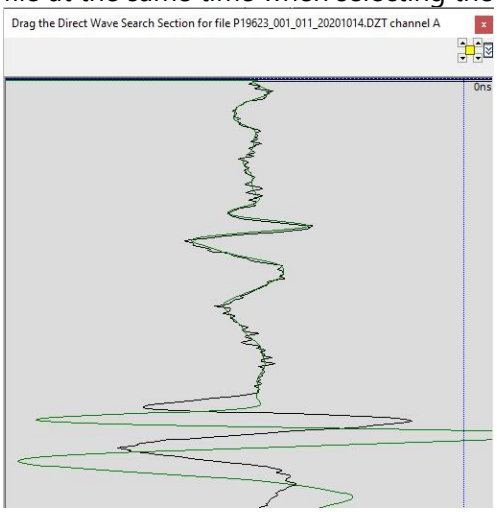
i. Batch link survey van: Will not start by asking the directory at the beginning. Will instead open to an empty settings form from which you can add new files.



ii. Batch link Survey van: Improved the initial folder handling.

2. Batch link GPR

iii. Batch link GPR: Will now show the measurement file and the metal plate file at the same time when selecting the direct wave search section.



iv. Batch link RDLS/Video/GPR: Instead of warning about every missing project file individually, will now print the erroneous projects all at once.
v. Batch link RDLS/GPR/Video: Improved error description on projects in project group which were unable to be opened.

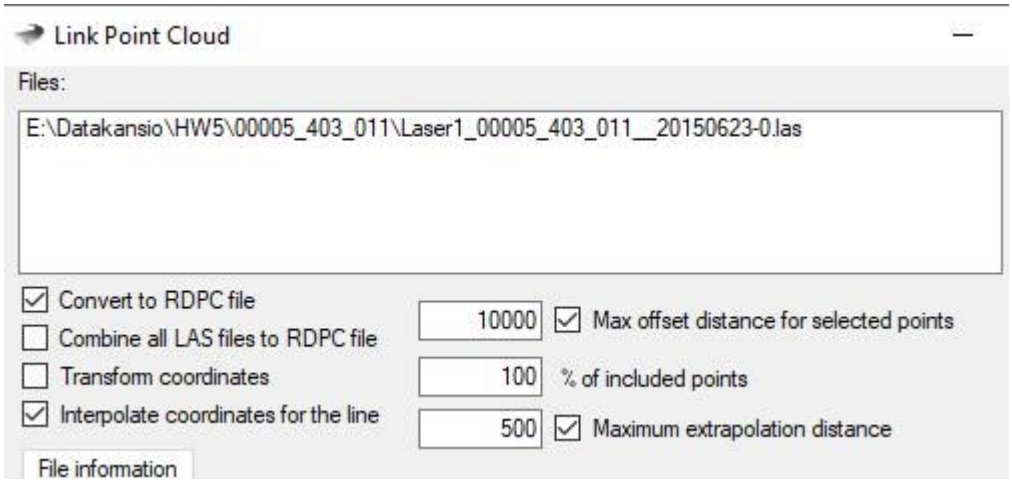
B. **RD Web Connection (ALL)**

1. Web Graph: Added user possibilities to modify graph drawing parameters and updated the graph header and legend. Added possibility to save graph into file (.emf, .wmf, .png and .jpg formats supported)

2. RD Web Connection - Export table data: automatic form updates based on dataset column definitions

C. **Displaying data (ALL)**

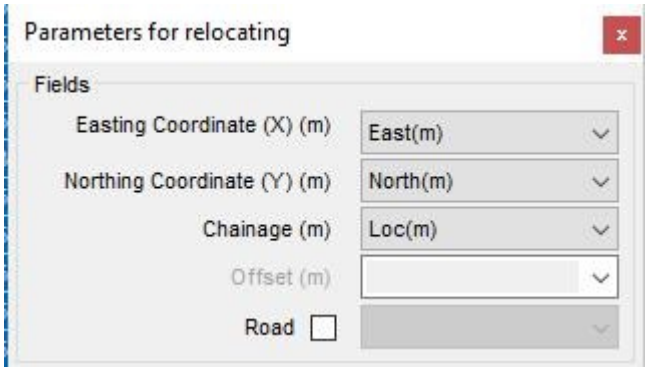
1. Use view template: Selecting a view item form is automatically expanded to its longest item.
2. Linking PC data: When converting from LAS file to RDPC, added option to not use offset filter



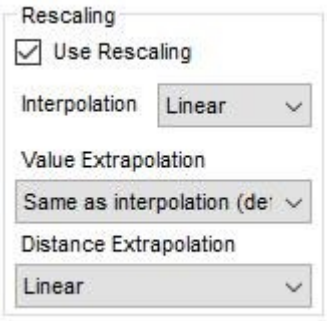
3. Linking PC data: When converting from LAS file to RDPC, added option to use extrapolation distance filter
4. Show coordinates: Added degree coordinates to the coordinates view.

D. **Table View (ALL)**

1. Table view - Read chainage for X, Y: Added option to use a column to limit the road instead of specified minimum and maximum values.



2. View options - Database - rescaling: Added option to not use file based rescaling
3. View options - Database - rescaling: Added different extrapolation options for values
4. View options - Database - rescaling: Added different extrapolation options for distance values



E. **GPR**

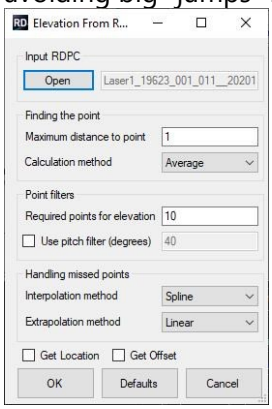
1. New functionality for tracing in cross-section direction - uses now also cross-correlation as matching the same way as in longitudinal direction interpretation. If <Shift> pressed with mouse in cross-section at layer, the tracing is to both direction at cross-section direction, If <Ctrl> is pressed the program uses the existing interpreted points as start and as fixed points. If <Alt> pressed the program starts interpreting the cross-sections forward.
2. Possibility to add muted traces by clicking mouse or "+" button. Also removing possible with "-" Now also prints the muted scan number.
3. Processing Trace muting - Number of Mute traces increased to almost unlimited from max 200.
4. Showing multiple GPR Data in same sub-window: Possibility to enable showing GPR data mixed in the same view although loaded into memory. Earlier the data had to be read from disk.
5. Hiding some GPR 3D elements in user interface if they do not need to be shown.
6. GPR Cross-section view can also be refreshed with <Ctrl>+<R>

F. **Editing coordinates and map**

1. Edit Coordinates - Open raw coordinate file: In the case of a failure, the user will be shown why opening the raw coordinate file failed
2. Original map EPSG is saved in the case of saving the Maplist from MapView. This avoids problem with image edges not matching, if coordinate transform were not

having the same calculation origin or almost the same. Earlier the corner coordinates were transformed to line coordinates, which caused the mentioned problems.

3. Data View Map and Line can have different EPSG.
4. Edit coordinates - Elevation from RDPC: Added option to filter out points which cause too high pitch values. This enable the program better track the surface avoiding big “jumps” in elevation values.



G. **Other**

1. Database Filtering Options: support for string comparison.
2. Showing timed messages to the user: If the user is asked a question, will increase the amount of time the user can think of the response.
3. RODOS DDX format added to the list of supported formats in Falling Weight Deflectometer linking.
4. Linking Ladybug 360 image list to project: It is now possible to set parameters (image size etc) in Road Doctor when creating image list from .PGR file
5. Linking Reference point from DMC file: File can include the line name, where point belongs to (Ln=NNNNN). This makes possible to link several reference data to the same file, instead of having a huge number of separate small reference files.
6. Show statistics from analysis: Shows date in yyyy-MM-dd format. Earlier used longer format could cause dropping parts of the date away.

Bug Fixes:

A. Batch linking

1. Batch link RDLS/Video/GPR:
    a. Batch link video: Creating a line from sync file didn't work. Bug introduced in 3.5.49
    b. Batch link survey van: GPR wasn't initialized properly if the best RDLS files project didn't match the GPR files best project. Bug introduced in 3.5.20
    c. Batch link RDLS/Video/GPR: Copying projects caused an exception to occur.

2. Batch link GPR:
    a. Batch link GPR/Video/RDLS: Didn't properly show the EPSG number selector setting in all cases
    b. Batch link GPR: Icon for PDI data was incorrectly visible. Bug introduced in 3.5.49

c. Batch link GPR: When scaling by chainage, the scans per meter value wasn't properly set if "can change scale type to constant" was off. Bug introduced in 3.4
d. Batch link GPR: rescaling data where the first GPS point didn't match the first scan caused an error in distance through the whole data equal to that difference. Bug introduced in 3.4
e. Batch link GPR: Didn't properly set the scale method of 3dr, vol and 3rd files to not support modifying the file itself, but only using .posd-file to scale the data. This doesn't mean that those file formats currently work in the batch process.
f. Linking data: Some errors might have occurred with feet-based distances.

B. Displaying data

1. Small fixes to displayed texts
2. Media player: video settings were not applied correctly from video settings file. Also, some problems setting video settings from video settings dialog.
3. Media player: Opening non-native 360 video to view could fail.
4. Data View - Add Line point cloud to point cloud view: Crashed if no data was added to the view.
5. Horizontal axes pole drawing - Bug fixed. Program cut first parts of the pole test in the first pole, specially if the text was long.
6. Point Cloud View: Rotating a lot caused RD to crash
7. Dragging Scrollbar had problems - Dragging scrollbar could not move the data to the beginning or to the end of line every time. Bug corrected - now moves.
8. Loading a view: Sometimes loading a view didn't fully set the distance unit to be the unit specified by the view.

C. TABLE VIEW and Databases

1. Right click - Save as: Always assumed that the grid wasn't modified. Bug introduced in 3.5.02
2. Link views: Table view didn't work in all cases. Bug introduced in 3.5.4
3. Data classification: Class grid automatic text update corrections
4. Database Filtering Options: Sometimes added double brackets to the field name causing the filter to not work properly.
5. DB Connection to postgreSQL: Sometimes caused an "Object reference not set to an instance of an object" error.
6. DB connection handling: Updated the postgreSQL connection DLL to the latest stable version which hopefully improves the connections to the DB
7. RD Web Connection - Export table data: Point data export to RDWEB
8. Table view - Save as... ArcGIS shape file: Incorrectly obtained the format for the number from the first row of data. Now will go through the whole table to find out the format of the number.
9. Calculating line coordinates: Incorrectly added points to coordinate 0,0 when there were multiple points in the same place.
10. Chainage adjustment: When using multi DB or GPRs as the data source, it showed the wrong column names during alignment. Bug introduced in 3.5.16

11. Chainage adjustment: When using multi DB, the reference field was not set correctly. Bug introduced in 3.5.16
12. Chainage adjustment: When using multi DB, somehow the settings grid didn't have the correct width for the columns.
13. In Database filtering dialog, Linking table as database dialog was opened under Database Filtering Dialog (if it is over main window) and was not visible.
14. On-line help didn't open in Combine DBs dialog
15. Corrected bug: If database filtering set for DB data in view, loading data for database failed
16. Database filtering: didn't work ok all cases when adding database data to data view with filtering.
17. Chainage adjusting: Apply caused some settings to revert to the moment the dialog was opened.

D. GPR

1. On screen GPR processing: Now shows the GPR file name in the case of single GPR measurement or the first opened measurement in a multichannel view.
2. Semiautomatic interpretation malfunction in special cases - Possible Bug in Overwriting amplitude interpretation file header most likely corrected. Tracing matching method in Cross-section interpretation not used anymore, because it did not work correctly.
3. Program resetting GPR File header information if opened separately - In some case the program did not read Vector interpretation file header correctly, which caused the separately (out of line) opened GPR-file lost their header information. Corrected by rereading the header from original source.
4. Combine AC -> GC interpretation function crashed if the header of ERA (AC amplitudes) file was corrupted.
5. Batch link GPR: Invalid characters in the sub directory setting was accidentally allowed.
6. Scale Normalization - The program didn't draw the marker location poles in all the scale normalization cases.
7. In multichannel GPR Data program could not always load all the processing settings.
8. The trace muting could have a one offset in trace location
9. 3D GPR cross-section view - In some cases program could crash when drawing the cross-section interpretations if there were very steep changes in parallel profiles in interpretation.
10. Handling 3DR data: Some 3DR files didn't work with RD. Bug introduced in RD 3.0
11. Reading 3DR data: Reading the meta-information (Like spacing of antennas) didn't work unless the file was in a very specific format. Bug introduced in RD 3.0
12. Reading 3DR data: Reading only worked if you linked 3DR data in the same RD session. Bug introduced in RD 3.0

E. Coordinates and map view

1. Chainage adjustment: Calculating RMSE always added 1 extra erroneous point for each column.
2. Coordinate transformation: Didn't properly use the UK grid file.
3. Opening map: If the settings cause the used bitmap to be too large, instead of throwing an error, will reset the bitmap size to 2000*2000 pixels

4. Edit Coordinates - Tools - Export to ArcGIS shape file: negative grid coordinates handling was allowed
5. Linking map from Map View using save and link to project tree -option. Updated coordinates to use line EPSG instead of map view EPSG
6. Adding DB data to external map (Map data properties): when adding second DB data to external map control, it wasn't visible until colour scale was reselected
7. Create pox from RDPC: Didn't properly set the degree coordinates to describe that they exist.
8. Showing POX file as point cloud in external Map data view: all points were not drawn and sorting (after showing data) didn't work
9. WMS Map Server Settings: Reverse axis orientation setting was not working properly. It was overrun by setting from EPSG type.
10. External Map: Showing/hiding RDMap caused problems in coordinate conversion in some cases (line or map was not shown)
11. External Map: Point cloud data was not drawn in correct place if data EPSG was different than Map EPSG

F. Other

1. Ditch and cross geometry tracking: Minimum ditch depth filter incorrectly compared the ditch bottom elevation to the road center elevation instead of road edge elevation like it should.
2. Opening a project: If another person had the project open, the program didn't properly display the name of that person.
3. Linking PC data: When converting from LAS file, behaved oddly around the line ends.
4. Corrections to 'Show statistics from Analysis' and 'Output Summary/Average' in 'Export Analysis': some values where metric when imperial units used.
5. Linking inventory data: The symbol 'Ö' didn't work.
6. Linking inventory data: 'Ö' and '-' were switched around for non-standard keyboard symbols. Bug introduced in 3.5.67
7. Point Cloud View crashing, if pointing outside the line limits in very rare cases.
8. Opening a project group: If a project group file or the directory, where the project group was, had the ';' symbol, the program didn't remember that group file correctly.
9. Correction to linking image list/video from Ladybug PGR files: Updating coordinates to extracted images failed during linking.
10. Ladybug MakeVideo: Correction to extracting frames from Ladybug PGR files: Updating coordinates to images failed during extracting.
11. Show Statistics from Analysis – Now, supports also feet in stepwise classification.
12. Closing RD: If "Show coordinates" floating window was visible when RD was closed, RD didn't close.