Road Doctor® 3 new features and bug fix list since January 2021 Release 3.5.50

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.

3.5.90 – 2021-08-04

Major New Features

- **Up to Date on-line manual (F1 key)**
- **Batch Link Video (A1)**
- **Distance poles/markers to Data view map and External map view as on the screen (km+m, areal coordinates based road address, .pol-file based distances, etc) (C6)**
- **New VLC-media player component for less jamming (C11)**
- **Table view with new powerful functions for data handling both in row and column direction (D2,D7)**
- **GPR Data on screen chainage adjustment also for reverse files (E6)**
- **GPR Data drawing speed improvement for reverse files (E10)**
- **Major speed improvement for converting LAS to RDPC (Road Doctor Point Cloud data format) (G5)**

Known Issues

- **3D Data cross-section interpretation, and semi-automatic interpretation does not work properly with interpolated 3D data views.**
- **Video may Jam, if moved quickly pressing mouse on data (Continues with Play-button, <Space>)**
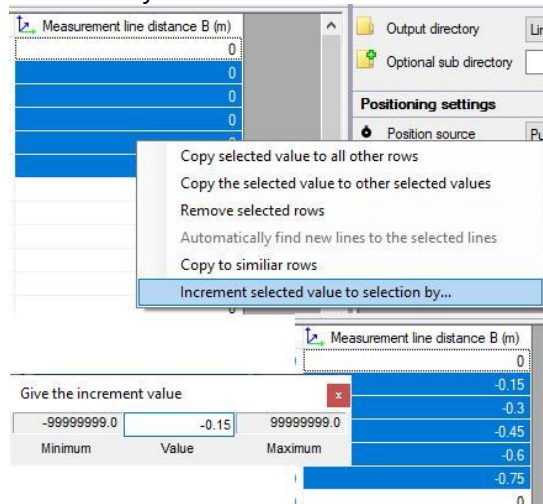- **Video settings may not work with all videos**

New Features:

A. Batch linking:
   1. **Batch link** GPR/RDLS**/Video**: (Diagnostics, Design, Surface, GPR)
      i. Improved the interpolation using spline near the edge of data.
      ii. Added option to copy the raw data to the target directory.
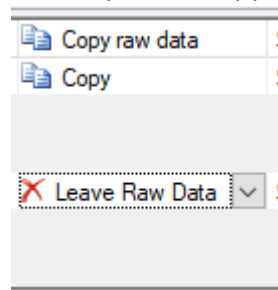
iii. Added a new option under right clicking numeric cells: Increment value to selection by…

iv. Improved the error handling of batch RDLS/Video/GPR by saving the error messages to a file in C:\ProgramData\Roadscanners\RoadDoctor\TEMP\RDProcessError.txt folder.

v. Ramboll specific video file support added for Batch Linking

vi. Batch link Video: Applying settings in simple view didn't work properly if you removed some files from the batch process.

vii. Batch link RDLS/GPR/Video: Obtaining metadata from file names now supports ramboll file name format

2. Batch link GPR (GPR)

i. Added pulse encoder as an option for position source.
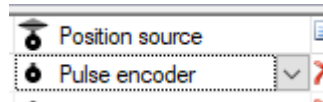
ii. Will now allow you to link to lines without coordinates if you don't use the coordinates in the scaling or in the position source.

iii. Added option to rename the GPR files using RDLS files
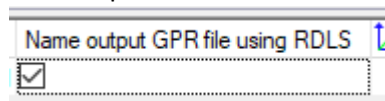
iv. Will now automatically search for RDLS files measured at the same time as the GPR.

v. Copy to similar rows now copies all the selected rows instead of just the main selected row.

vi. Batch link GPR: Linking air coupled data without a metal plate file didn't work.

vii. Batch link GPR: Offset from the line wasn't calculated properly if Line distance B wasn't 0.

B. RD Web Connection (ALL)

1. Road Data Center Graph display form. Added graph type selection and series coloring options.

C. Displaying data (ALL)
1. Drawing chainage - As default (Always) program does not let pole-locations read from .pol-files to overlap. This applies also to areal coordinate-files.
2. Data view: Increased the maximum number of columns in surface views to 3500. This is mostly useful in large point cloud views.
3. Road info from Areal Coordinate file - As default the interpolation distance was set o 1 instead of 0 to reduce unmatched line coordinate points.
4. Distance field width larger in View for holding longer distances with road information
5. Pole number from.pol-file output - Program now shows always the location from .pol-file on the top if km+m selected for horizontal axis.
6. **Distance pole drawing on map** - The mapview now shows the distance the same way as is shown in the current dataview and in Dataview Map. The mapview supports now also the areal coordinates file and .pol-file in the same way as dataview. If the Areal coordinate locations are recalculated in dataview, they are automatically updated to all mapviews where the line is. Map view properties has a new option, which enables using automatic pole settings, after which the pole drawing works as mentioned above.
7. **Map pole distance in data view** - value is now always using the same unit as is on the screen. It is not anymore converted to SI units or local units.
8. The data view map zooming has a new tooltip which tells correctly that at first the value is actually defining the bitmap size, not the map-zoom. Later the program shows the Map-zoom.
9. Drawing horizontal data axes - Drawing now horizontal data axes so that the priority is on the text which is read from .pol-files. Also drawing the start location of the section, if read from areal file.
10. Saving and loading Map pole distance - Now the map pole distance is saved to view and loaded when the view is loaded.
11. New version of VLC Mediaplayer component
12. Analysis field setting operations extended to also Design type :
After selecting fields with mouse and Ctrl/Shift key down, possible to select area and value (shify key down) or just value (ctrl key down) to selected fields.
13. Laser scanner Cross-section drawing: In cross-section search function it could happen that the nearest data row was never found, if it was very close to the latest point, but not the same.
14. Link Views: If the data on the screen is a database drawn with from-to type and Ctrl is pressed in view only mode with digitizing off, will select the actual columns instead of only the distance field.

D. Table View (ALL)
1. Shift + tab and Shift + enter are now implemented in grid view to go to the opposite direction of Tab and enter alone respectfully.
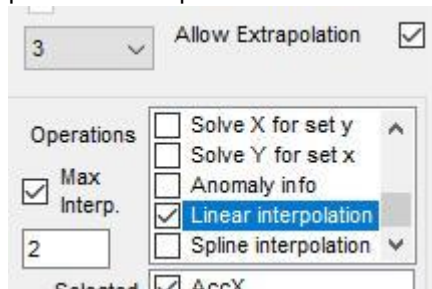
2. **Filter/Interpolate cells**: 4 new operations: Fixed distance standard deviation, Fixed Distance Variance, Fixed Distance Minimum, Fixed Distance Maximum
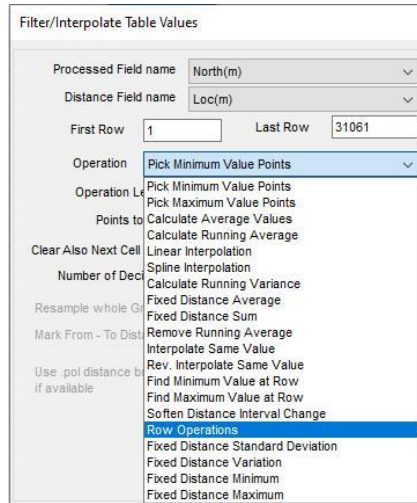
3. Filter/Interpolate cells: The linear and spline operations now allow multiple columns to be selected
4. Filter/Interpolate cells: Row operations has 3 new options: Anomaly info, Linear interpolation and spline interpolation
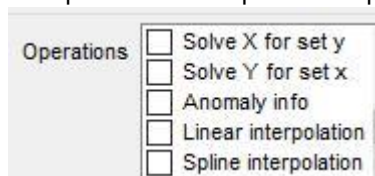
5. Filtering text DB: Text dB field names now support mixed case column names.
6. Grid view_Filter/interpolate cells: Added "Allow extrapolation" checkbox which affects row and column direction interpolation operations. (checked by default)
7. Grid view_Filter/interpolate cells_Row operations: Added "Max Interp." limit which prevents interpolation if the distance between data points is too huge.

8. Grid view_Filter/interpolate cells_Row operations_Anomaly info: Anomalies will now output the other information specified for each anomaly area in addition to the anomaly offset.

E. GPR
1. **GPR Cross-Section drawing** - Now takes in to account the breaks because of too long channel separation and extrapolating outside the channel location. This works the same way as for GPR slice views.

2. GPR Slice and Cross-section displays: Possibility to set no overlapping for GPR channels in cross-section and time-slice views. (GPR)
3. **Possible to Use buffered data oversampling** between Automatic, Linear, Cubic and None
4. Correlation operation in Interpretation didn't work properly.
5. GPR frequency analysis - Sometimes caused an error if multiple time windows were used in calculation of frequency response. (Rock, Concrete)
6. **3D Data on-screen rescaling tool** - Operation now supports also reversed GPR-files. Earlier supported was only in forward direction. (GPR)
7. Speedup for correlation operation in Interpretation. (GPR)
8. **Reverse GPR File Reading** - GPR Data reading functions changed to read data always forward. Speeds up reading specially from rotating hard disks.

F. Editing coordinates and map
1. Hiding line in Mapview Maplist generation: Hide line start and beg now hides also the drawn line itself, when the Maplist is created from Mapview. This cleans the map images so that line will not hide anything in the map, that would otherwise be left behind the copied line.
2. Possibility to use Areal coordinates and .pol-files with both the Data view Map and external Mapview the same way as on the data view's horizontal axes.
3. Chainage adjusting - New operations: Save- and Load Settings.
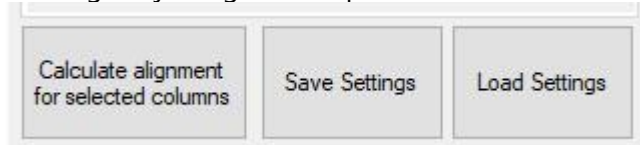
4. New CRD-file for Lines without it - If the line has only the old .lin file defined and it has valid x,y -coordinates, the program automatically creates a new line positions (.pox) file and asks for grid coordinate system (EPSG) for line.

G. Other
1. Single RDLS linking: Renamed advanced laser scanner settings to expert laser scanner settings to differentiate them from the advanced batch RDLS settings. (Surface)
2. Expert laser scanner linking settings: Positioning tab was getting too big, so I separated some settings to a linking tab. (Surface)
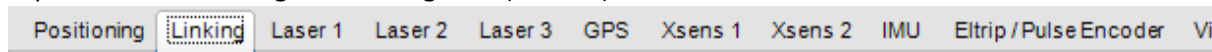
3. Project group menu: Item "Open Project in New RD Instance" activated
4. Linking point cloud data: Interpolating coordinates for the line is now optional. (Previously, it interpolated always when converting LAS to RDPC).
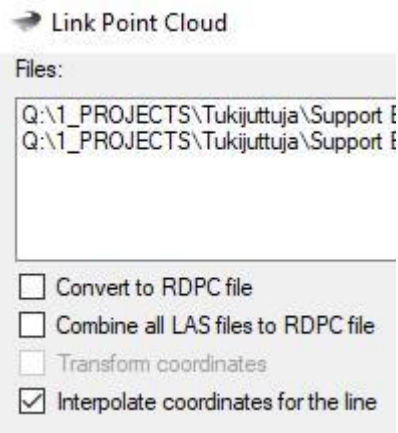
5. Linking point cloud data: Performance improvement with converting .las files to .rdpc files (Added parallelization)
6. Backup Project to Zip file: New files include to list for zipping/Copy directory:
   - RDMap+map images
   - POX which are not project line poxes
   - POR -files
   - POL -files
   - Vector files (*.RDDV)
7. Project data to Zip: adding data's POR and line's shapefiles to file list for zipping project data
8. Project view: Lines without coordinates will now be displayed as yellow balls instead of blue. (Like how missing data files are handled)
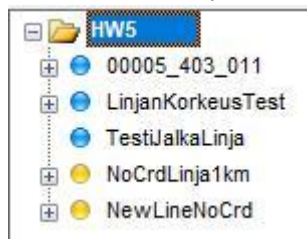
Bug Fixes:

A. Batch linking
   1. Batch link RDLS/Video/GPR:
      i.   Batch link Survey van: Some issues fixed when no RDLS files existed.
      ii. Batch link Video: Applying settings in simple view didn't work properly if you removed some files from the batch process.
      iii. Batch link GPR: Offset from the line wasn't calculated properly if Line distance B wasn't 0.
      iv. Batch link video: Creating a new line from direction 2 calculated the distances from the wrong end of the line

   2. Batch link GPR:
      i.   Scaling outputted the scaled file always to the directory of the previously processed file which wasn't necessarily in the proper directory. Bug introduced in 3.4

       ii.   Possibly fixed a bug with batch GPR showing as mostly empty.

      iii.   Fixed an issue when there were more different types of GPR files than measurement GPR files.

      iv.   Batch link GPR: Error occured when going from simple to advanced settings after setting the GPS data origin from metadata and then removing data rows.

   3. Batch Create projects from DB was removed. Because was not intended to be here. Is replaced by other batch link operations.

B.   Displaying data

1.   Point cloud view: Rotating around vertically and then going to the settings crashed the program.

2.   Loading a view: Progressbar went to odd places.

3.   Adding PC data to view: If the starting distance weren't near a PC breakpoint, it could cause memory overflow.

4.   Converting PC data to a grid: Function read a bit too much in certain situations causing odd data points to be added at every 300 MB intervals of data.

5.   Data view: Double clicking the location field caused the form to be displayed in an odd place.

6.   Data View: Inaccuracy when scrolling with long lines - Corrected scrollbar accuracy to be higher, earlier the accuracy was 1/30000 now it is 1/1000000000. The inaccuracy caused the start of screen to creep slowly to higher value, especially if the line length was very long, like >100km.

7.   View options: when adding map to view "Show with Other Data" is default selection even other selection used before

8.   Media player: Opening second video to view caused error but was possible to continue. Caused by handling audio files.

9.   Font view Settings: Fonts Didn't copy always to Change view settings correctly. Was text Comb, instead. Also, the program crashed, if the there was text written in box.

10.   Loading a premade view bug - If there were already a view including data and an empty view was opened on the screen and an existing premade view was clicked and opened, it was opened and mixed in the existing view, not opened in the empty view as it should have. The view could mix also different lines, which made the bug bad. Now works as intended.

11.   Database Filtering - In Variance calculation could happen a division by 0, which caused NaN values to come as result.

12.   Media player: prevent freezing video image, when moving around video (quickly) and applying video setting (brightness, contrast etc) to video.

13.   Data view - Scrolling low res GPR data: Bug fixed in scrolling GPR data with very low scan/m number on the screen. Left holes in the data when data was loaded in to memory.

14.   Extremely long drawings / views – Corrected potential bug with extra long data drawing crashing the program - may never have happened though.

15.   Printing view to bitmap or printer: map didn't move (or scroll) to correct position in printing in some cases.

16. Surface Analysis_Calculate rutting to table: Didn't work properly when the input data was a table instead of a surface view
17. Print to bitmap/ Print: If user doesn't enter value for 'Print only road' then all roads are printed. Before it didn't print anything
18. VLC Mediaplayer: Volume and Mute works also when video file has audio.
19. Data View_Changing point cloud settings: If you didn't reset the data grid, the RDPC filter settings was turned off. This mainly affected the view when using the setting "Show all points from point cloud"

C. TABLE VIEW and Databases
1. Filter definition to text DB: Decimal separator handling corrected in filtering options
2. Surface Analysis - Database filtering: Error occurred when selecting invalid database
3. Text DB handling: Text file empty values now handled.
4. Table view: Ctrl + C and Ctrl + V didn't work properly
5. Table view: Tabulator didn't work properly in the very first column.
6. Table view crashed when closing - If table view was in maximised size and it was closed, the program could crash, was possible to use "Continue" to go on.
7. Loading data in to a grid: Columns with floating point numbers filled the empty cells with NaN instead of empty when doing database filtering.
8. Link views: Any unit other than meters didn't work properly in grid view. Bug
9. Grid view_Right click_clear cells: Didn't update the status that the grid was changed.

D. GPR
1. Interpretation - Show interpretation toolbar: Could cause the program to crash
2. GPR Time slice view - If the view length was made longer in Time-slice the old length could be used anyway on the screen. Here the Time slice length is corrected to correspond correct length. Bug introduced in 3.5.50
3. Cross-section interpretation: Corrected offset calculation in the case of cross-section interpretation drawing
4. GPR data having Gaps on the screen if read from memory - low resolution view scale caused problems with leaving gaps in data. Now corrected, though still gaps can appear randomly.
5. Cross-section interpretation: automatic tracing failed in some cases. Operation now resamples the used automatic layer tracing model reflection to sampling used in data. Caused earlier problems, if the data was resampled down to something else than the original.
6. Interpretation bug - In automatic interpretation Trace matching didn't work well. Now uses slightly different function to get better results.
7. Coreless failed in using correlation operation. Now uses slightly different code to avoid failing
8.

E. Coordinates and map view

1. Linking RDLS data: During edit coordinates step, using the filter tool always showed 1 point removed when deleting points.
2. Areal Coordinates creation: DBF file reader handling now both decimal separators while reading floating point numbers (. ,)
3. Areal Coordinates file processing: creating fixed length segments from a data where position info column had data lengths more than 10 digits.
4. Areal coordinates: Areal coordinates loading progressbar was loaded in wrong position if RD was not on the primary monitor.
5. Bug in Map distance pole drawing - Bug in offset calculation caused map pole distance and offset calculation routines to fail, if start location of a line was not 0.
6. Map Data properties form can be resized
7. Map view in Data view: Position in map was lost when map was hided by user and position (pole) in data was moved and map was set visible again.
8. Map view in Data view: Map's zoom factor was reverted back to default when map was hided by user and then set back to visible. Program now also keeps the same map scale, if the map is already on the screen and map is just changed to another one
9. Map view in Data view: Correction in saving and loading view when several maps was added to view
10. Map view Db drawing: Crashed if more than 32767 rows - If there were more than 32767 rows in the database table, the program crashed and result an Overflow.
11. Adding data from view to to Map Control: Selected colours were missing in Classify form. Colours had to be selected every time when Classify form was opened
12. Adding data to external map control: didn't remove old data information from tree-view
13. Map scaling not changed anymore if new map loaded to view - Program now keeps the same map scale, if the map is already on the screen and map is just changed to another one.
14. Tools-Edit Coordinates: F1 didn't show the proper help context.
15. Areal coordinates file loading RIDS missing error message was show every time.
16. Map view: Improved using Map VMS services
17. Map view properties: Leave data theme transparent didn't work
18. Map view properties - second north arrow selection: crashed program - Now corrected
19. Map pole drawing with Areal coordinates file -Supports now better cases where the line is constructed of multiple short segments. Should also support reverse to areal coordinates line case.
20. Project Tree/External Map view - if only one map in project info control's map tab control, it can be undocked now
21. Project Tree/External Map view - removing or undocking last map from project info control's map tab control doesn't create new map anymore
22. External Map view correction to pin icon functionality - keeps external map topmost window.
23. External Map view - when closing external map in Edit Coordinates, RoadDoctor showed an error message
24. KML data output (multiple data): two data's had same color values. Last data's color settings overrided other data's color settings in KML output.

F. Other
    1. Multiple places: Sometimes when the program asked for a text value from the user, the OK and Cancel buttons were hidden.
    2. Multiple places: Entering a text value in a separate window didn't allow enter to be used
    3. Automatic analysis: Program crashed if your settings didn't have any analyzed properties
    4. Grid view: Set empty to 0 or setting 0 to empty didn't update the fact that the table values were updated.
    5. Exporting analysis - Only change points: Corrected bug where notes where not printed to own columns when using POL file
    6. Export analysis: Will now start in a more logical place
    7. Publish Analysis and Conclusions: KML file output did not work if only one variable was selected. Also, Table Save As Google Maps had same issue.
    8. Program crashing randomly but very rarely - very hard to reproduce - exact reason not known but error handling added to recover it.
    9. PDI linking - Reading .REP files: The process only updated the last changed ANA column. Not all the columns currently being updated.
    10. PDI linking: The program assumed the the .inv file header always contained the key information for all 10 keyboard columns and all 12 F-keys. HOX! This bug still exists for non-batch PDI linking.
    11. Link views: If the database column had spaces, periods or commas, the operation to link specific columns didn't work properly.
    12. Linking point cloud data: Converting .las to .rdpc rounded the coordinate values improperly.
    13. Backup Project to Zip File: some file and directory names where uppercase when extracting zip-file
    14. RD Web-connection new dataset creation, selected project was changed to first project in RDC database
    15. Reading inventory file: The program didn't understand the symbols ½ and À
    16. Web connection - Add rows to database: handling column values containing non numeric strings.