

# Tech Limit Toolbox

Release Notes

2023.1

24<sup>th</sup> March 2023

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for further information



## Tech Limit Toolbox

## Release Notes

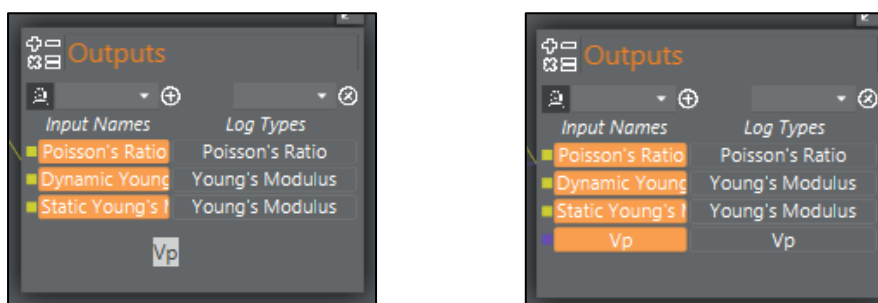
## 2023.1

## Overview

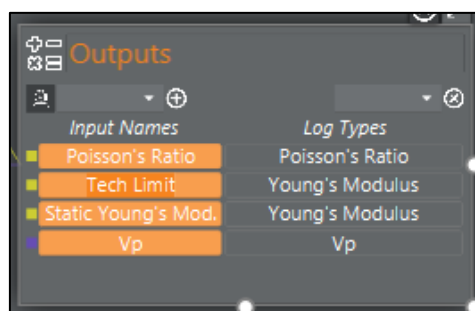
- Geomechanical assessment of faults and visualisation of risk in 3D. Complete solution for assessing CO2 containment risk.
- Added functionality for working with real-time data.
- Expanded toolset and extended workflow functionality.
- Improved flexibility visualising your data across a range of plot types.

## Workflows

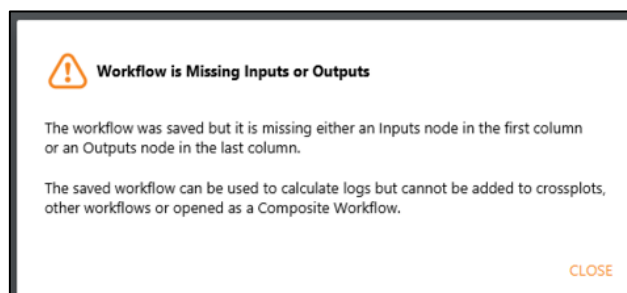
Dragging a log or log set onto the outputs node when building a workflow will automatically add a new log type to the outputs and select the applied log.



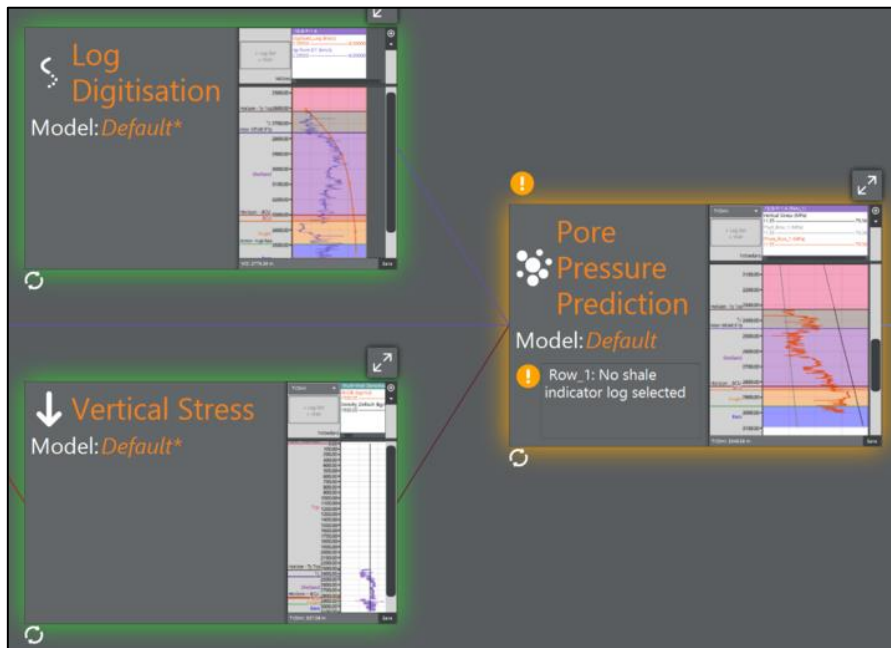
The names of logs within the 'Input Names' column of the output node can be edited in the workflow editor. This changes the name of the resultant output log when running the workflow.



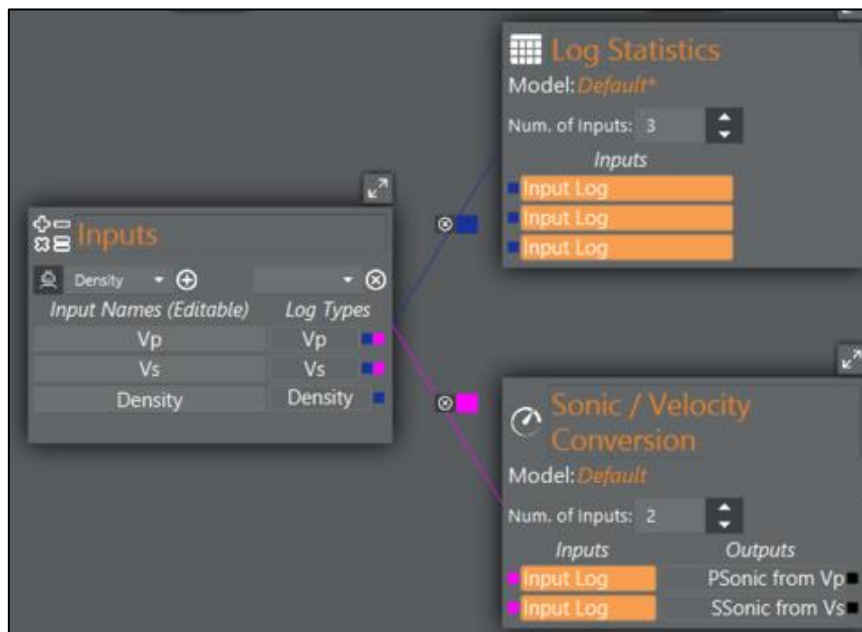
A warning is given when saving a workflow that does not contain an 'inputs' and/or 'outputs' node. The workflow can still be saved.



The Log Digitisation tool can now be used in workflows. The log type to be digitised is set on the Parameters tab before the output is connected to other nodes.

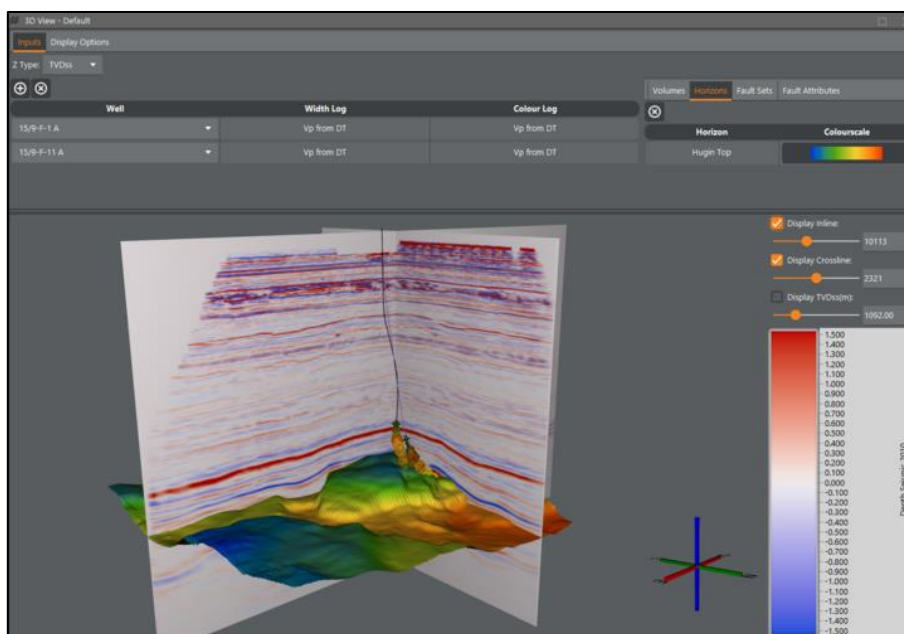


Multiple input logs are now accepted by any tool that accepts a variable number of inputs when used in workflows e.g. Log Statistics Tool and the Sonic/Vp Converter.



## 3D Viewer

3D Viewer Tool now available. Supports wells, logs, horizons, volumes (including virtual volumes), faults, and fault attributes.



3D Viewer has a "Point Selection Mode". When Point Selection Mode is turned on, clicking on a point will display its details in the message bar at the bottom of the view. The selected point is also shown on the view. Click + Ctrl to remove the selection or turn off Point Selection Mode.



## Virtual Volume Construction

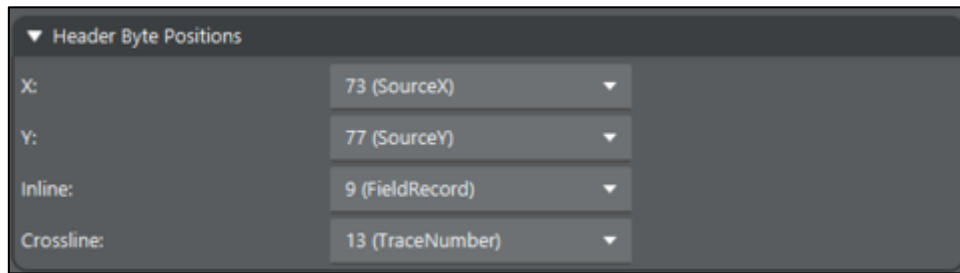
When making virtual volumes from Vertical Stress or NCT tools input volumes are now optional. The input volumes are particularly unnecessary for NCT calculations because they're not actually used in the calculation, they would only be used to define the volume geometry.

## The Volume Editor

The Volume Editor now displays a table summarising volume geometry.

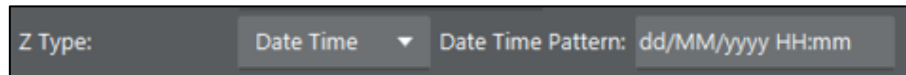
Volume Geometry				
	Min	Max	Number	Separation
Inline:	9961	10361	201	25.00 m
Crossline:	1961	2680	720	12.50 m
Depth (m):	4.00	4500.00	1125	4.00

The Volume Editor now has options to specify the header trace positions for x, y, inline and crosslines.

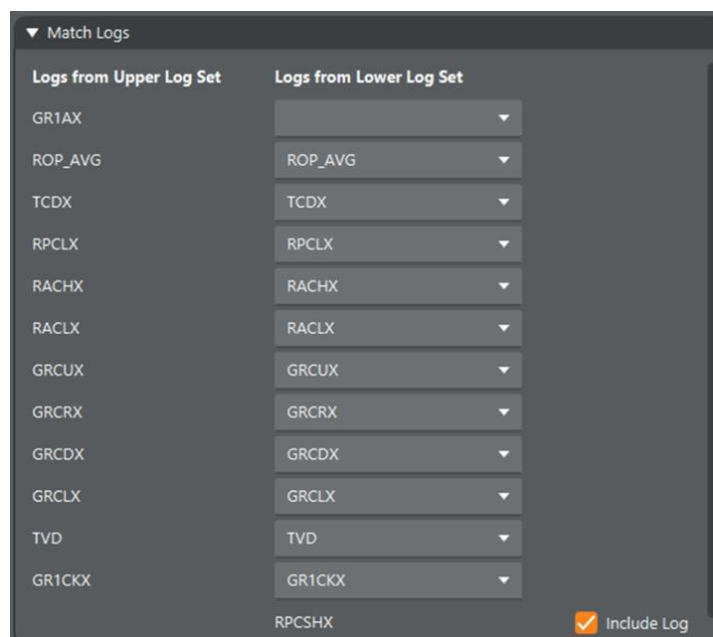
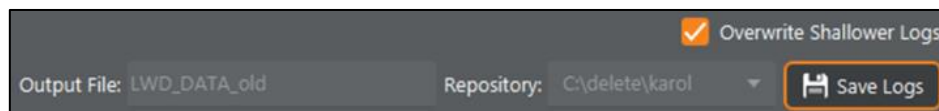
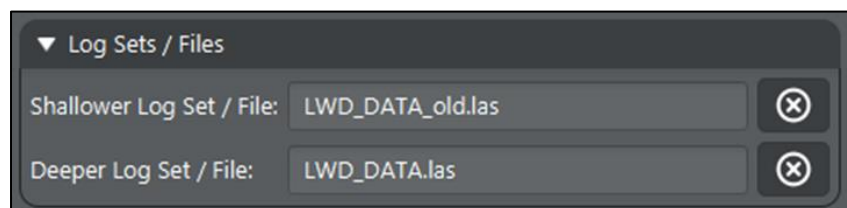
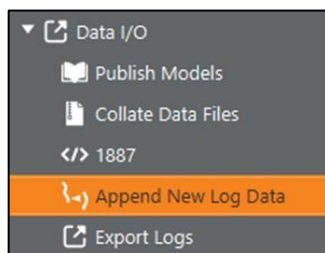


## Real-Time Data Related Enhancements

There is now an option to specify a Date Time pattern when parsing Date/Times in txt, xls or las files.



“Append New Log Data” tool accepts 2 log sets, the “Shallower” set and the “Deeper” set. The tool appends the logs from the deeper set onto the logs from the shallower set, matching logs automatically by name but allowing user override. If the “Shallower” log set is a .LAS file, there is an option on the Outputs tab to overwrite the logs, which will replace the file and all the logs in it with the calculated logs. This tool is designed to be used in real-time contexts where additional sections of log data are delivered over time, which requires existing logs to be updated to include the new values at the bottom.

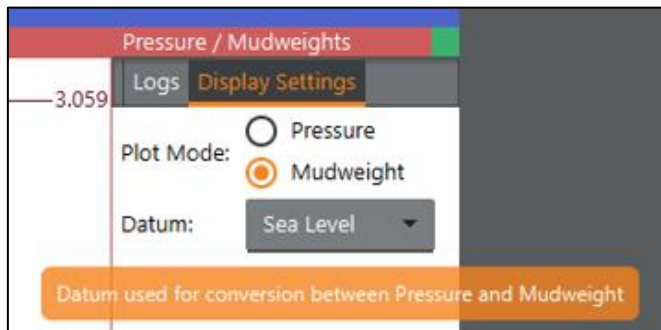


## Machine Learning Tools

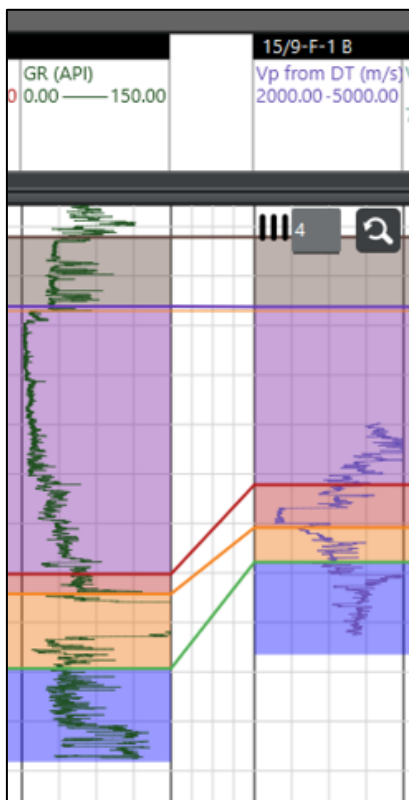
Added scikit-learn and pandas to the installed Python environment for users to build their own machine learning tools.

## Well Viewer Enhancements

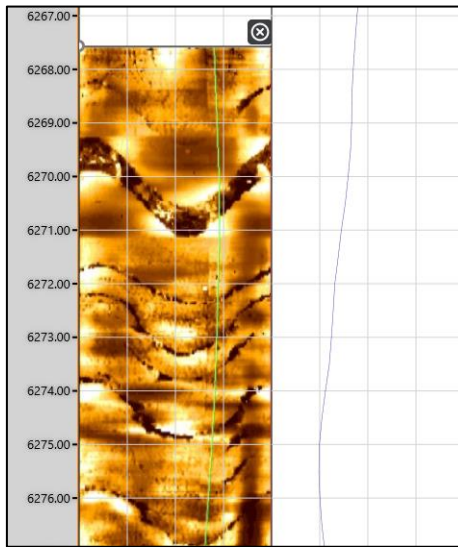
Datum selection added to pressure track header.



An empty track between two tracks with logs displayed will connect tops between adjacent tracks.



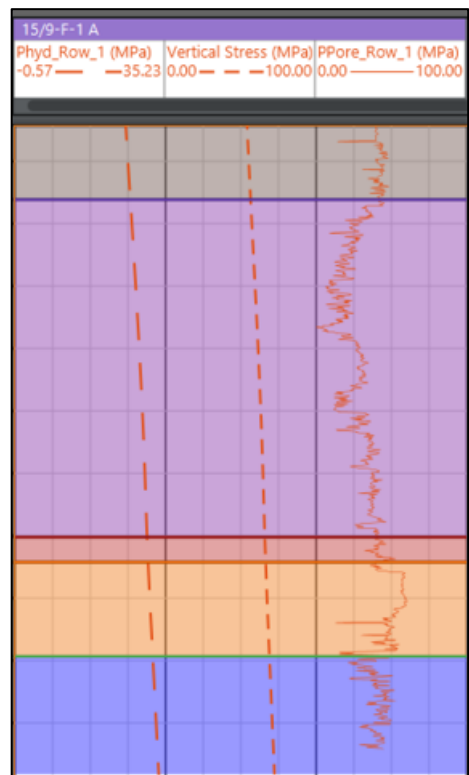
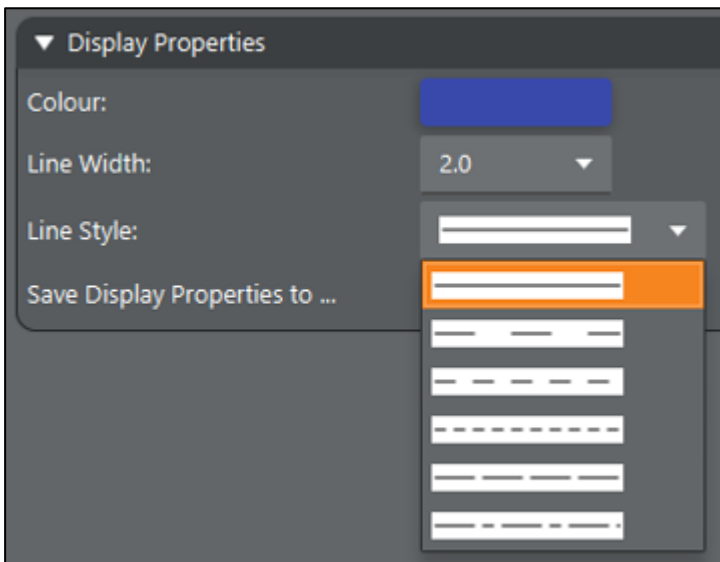
Ability to add image decorations to log tracks, map views, cross-plots and others.



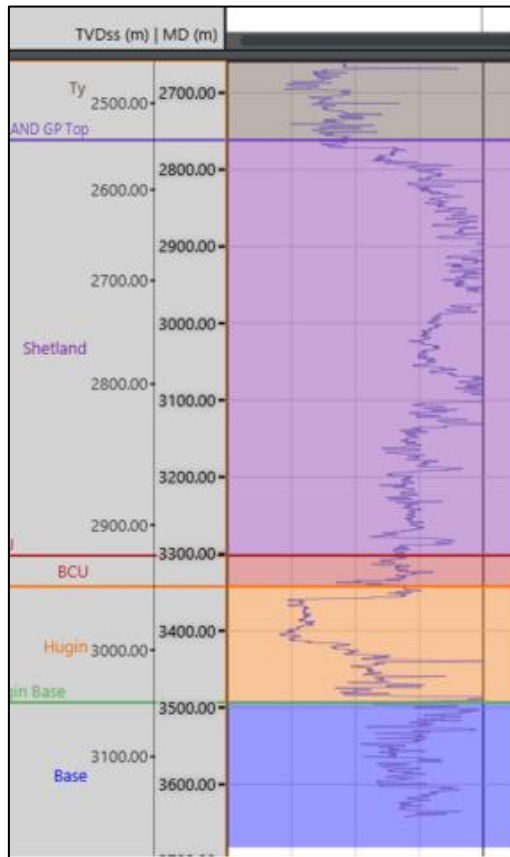
You can now remove a log from a log track by clicking on the log in the track header to highlight it, and then pressing the Delete key.

The well viewer can be scrolled horizontally by moving the mouse scroll wheel with Ctrl pressed. If Ctrl is not pressed scrolling is vertical, as before.

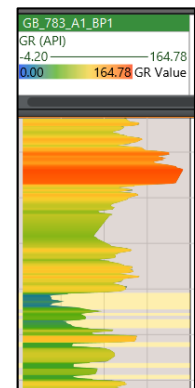
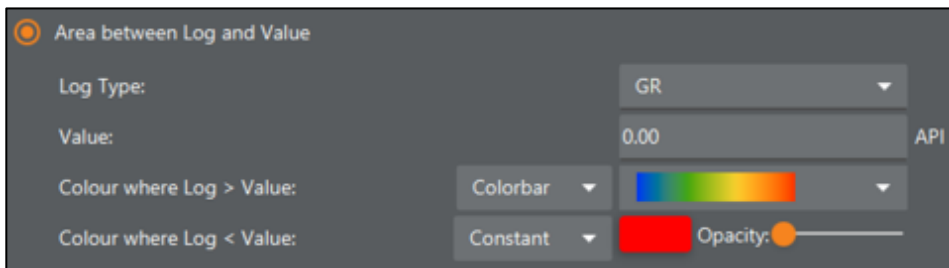
Added option in the Log Editor to plot continuous logs with alternative line-styles (dashed lines).



Added option to include a secondary scale in well viewer axis.



Added ability to apply colour bars to Log Fills. Colour is distributed via the scale of the log being filled. Fills are coloured based on their width.

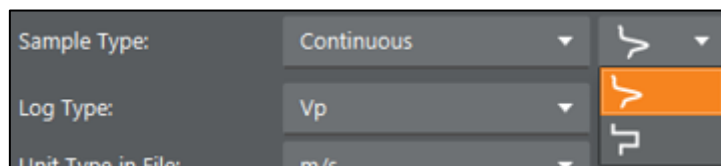


Double clicking on white space in log track header switches to edit mode for setting log scales etc.

Double clicking on a log or log fill within the Well Viewer opens the object in the Data Editor.

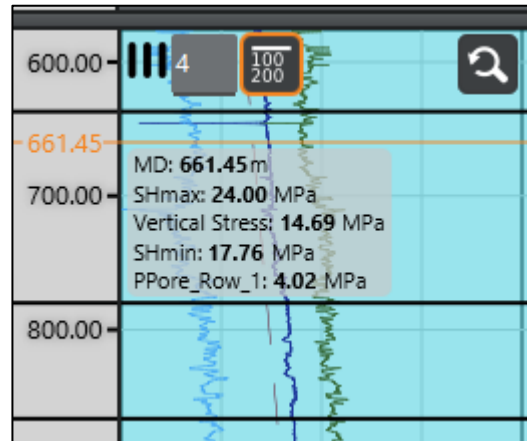
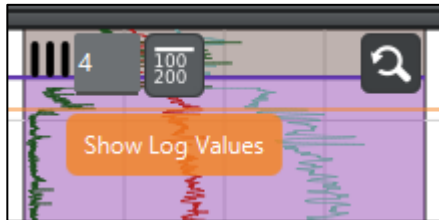
The plotting behaviour of discrete and continuous logs has been updated:

- Discrete logs now always plot as separate points.
- Continuous logs can plot as either a smooth curves or a stepped line. Log style is selected within the Data Editor.
- When previously created studies are opened mudweight logs will be switched to continuous and stepped automatically.





Log tracks have an additional option to "Show Log Values". This option displays log values on the track at the current depth of the user's mouse.

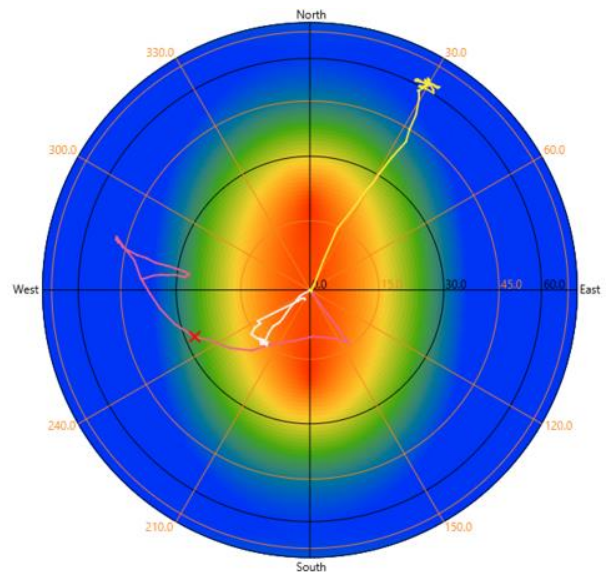
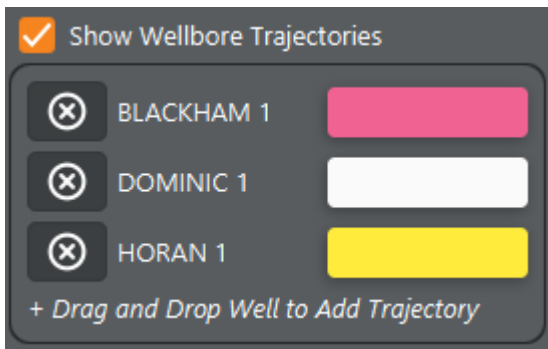


## Cross-Plotting Tool

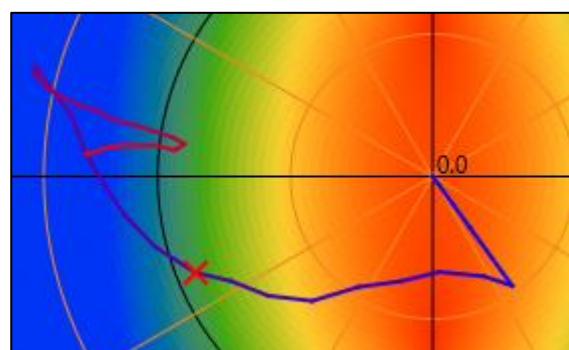
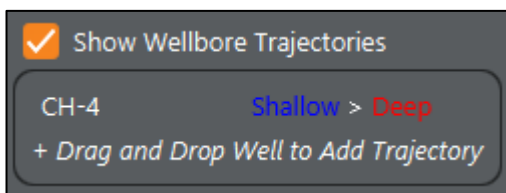
Added an option to toggle data on and off by well or zone from the cross-plot input tables.

## Stereonet Plots

Well trajectories from alternative wells can be included on stereonet plots. Drop wells from the data tree onto the designated area on the Display Options tab.

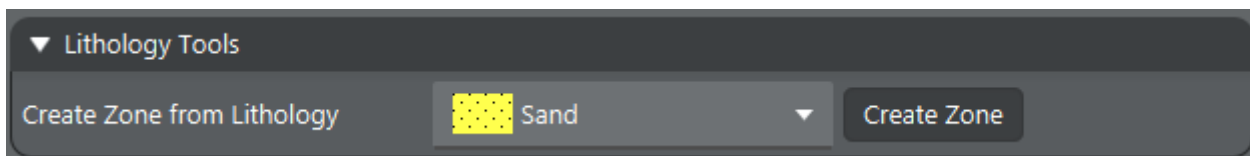


If only one well is displayed the Well trajectory is coloured blue to red with increasing depth for a single trajectory. Well trajectories for multiple wells will be coloured according to their assigned colour in trajectory table on the Display Options tab.

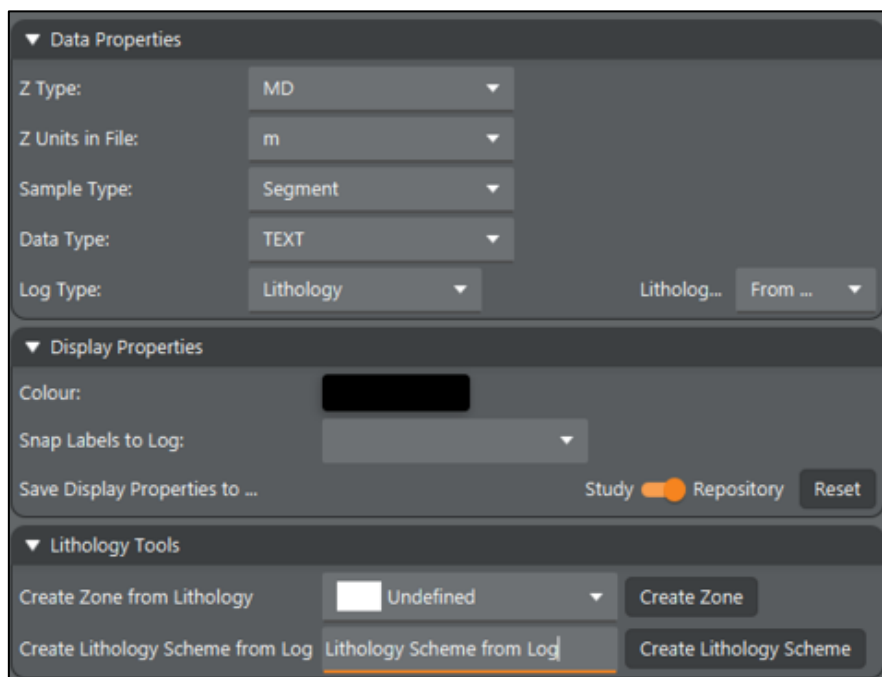


## Lithology Logs

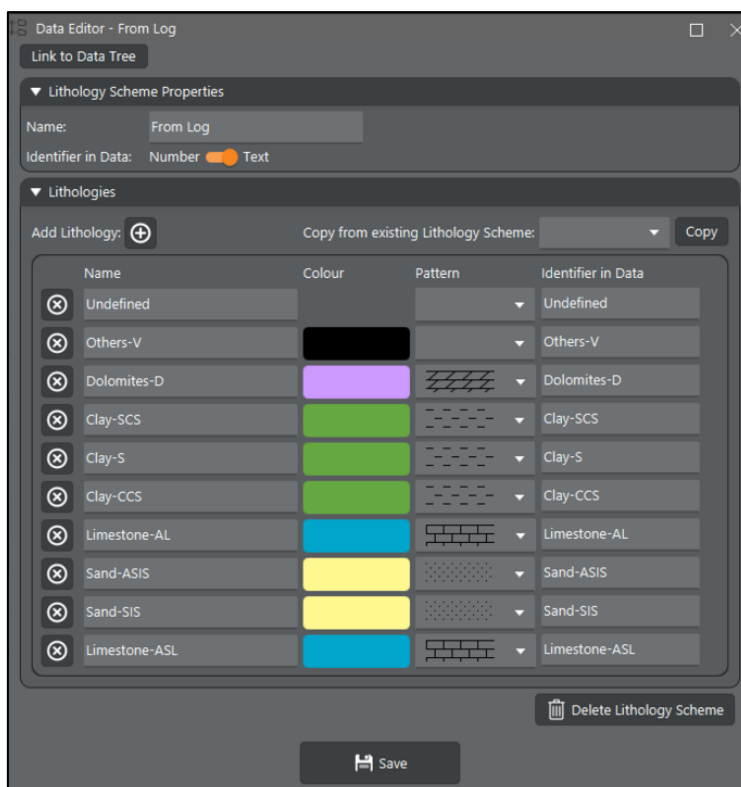
Can create lithology-based zones from a lithology log when editing it in the Data Editor.



Lithology logs can now be defined as discrete or segment type logs (in addition to continuous logs), and can contain numeric or text data. Discrete lithology logs are drawn by extending each lithology downwards until the next lithology point.

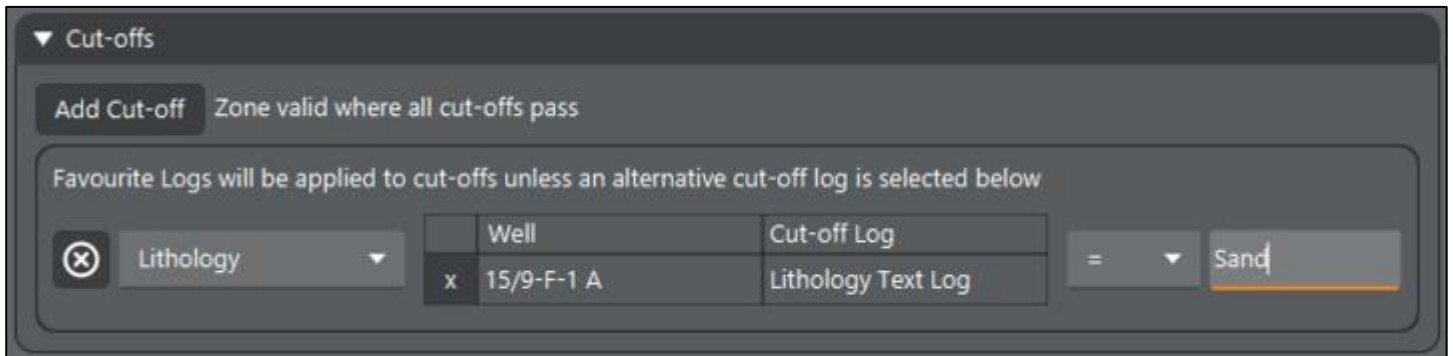


Added the option to define Lithology Schemes from text which can then be applied to discrete or segment-based lithology logs that contain text values.



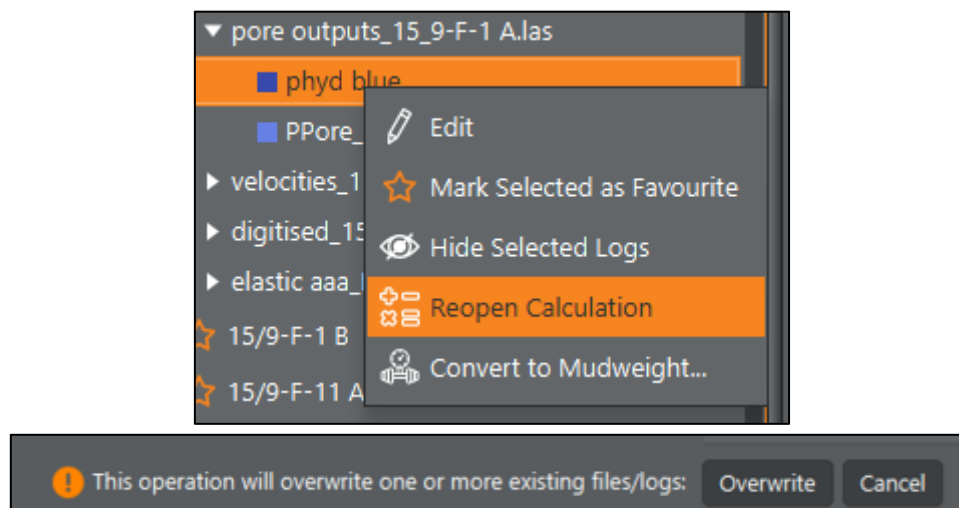
The Log Editor has an option to generate a Lithology Scheme from text-based lithology logs (discrete or segment). Unique identifiers from lithology log values are automatically assigned a colour and pattern by parsing the identifier labels for recognised names (sand, shale etc).

Zone cut-offs using lithologies can now be defined using text labels in the case where the cut-off log is a text log.



## Improved Reopening of Log Calculations

Reopening a log calculation via the "Reopen Calculation" option (on the data tree right click menu and in the log editor) now sets the output file name, log names, colours and selections as they were when the log was saved. This makes it much easier to overwrite a log with updated values, which is particularly useful for real-time pore pressure work. There is a warning on save that the logs will be overwritten, if this is not the required behaviour the output file name can be changed.



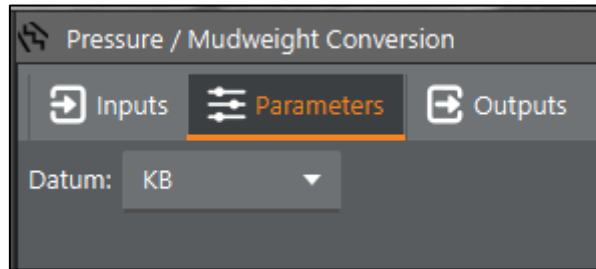
## Applying Models to Tools

When dragging saved models into a tool:

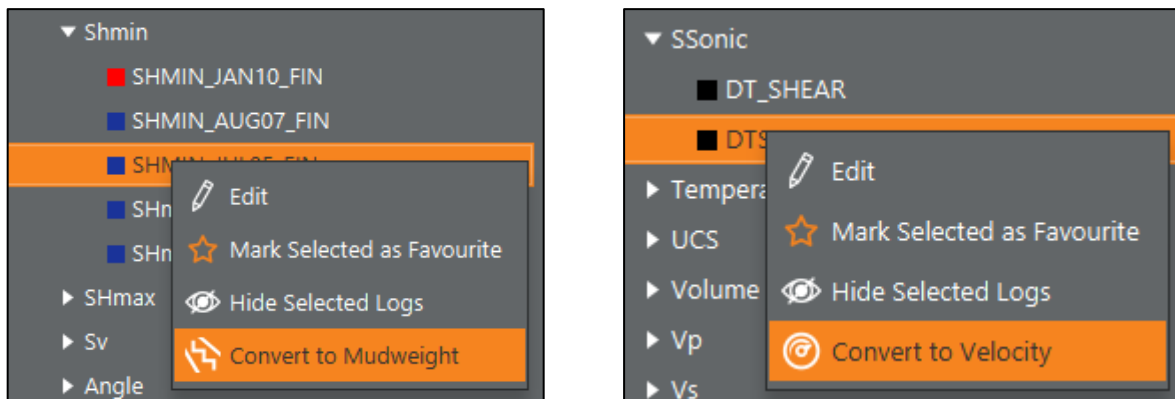
- If the model you are applying only has the 'Default' zone parameterised, when placed onto a model with multiple zones, it will only alter the parameters of the selected zone.
- If the model you are applying has multiple zones it will replace all zones in the target model.
- If you apply a model onto the simple model view of a tool (rather than dropping onto one of the zone tabs) it will replace all zones in the target model.

## Miscellaneous Enhancements

Pressure/mudweight conversion tool now has option to specify datum (KB or Sea level).

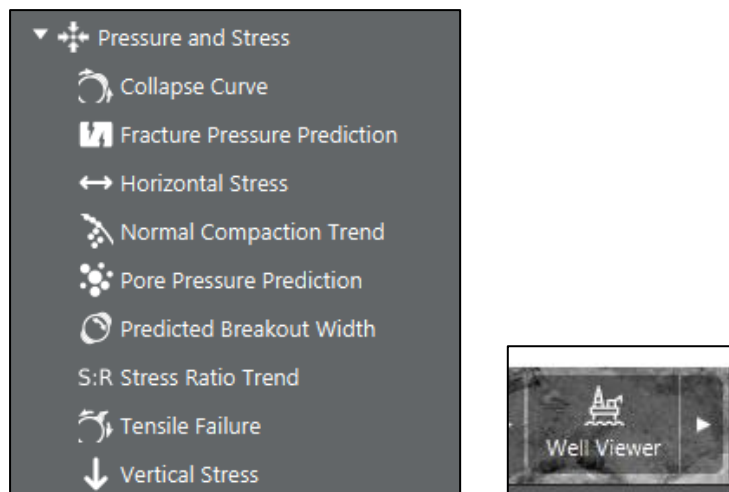


Right-clicking on pressure/stress/mudweight logs in the data tree shows a shortcut to launch the pressure/mudweight conversion tool.

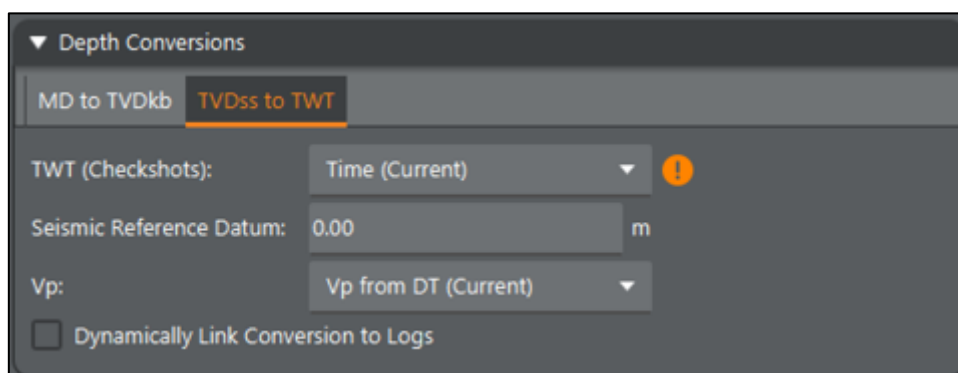


Right-clicking on sonic logs shows shortcut to the sonic to velocity tool.

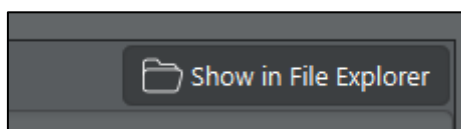
New tool icons, particularly in the Pressure and Stress menu and for the Well Viewer.



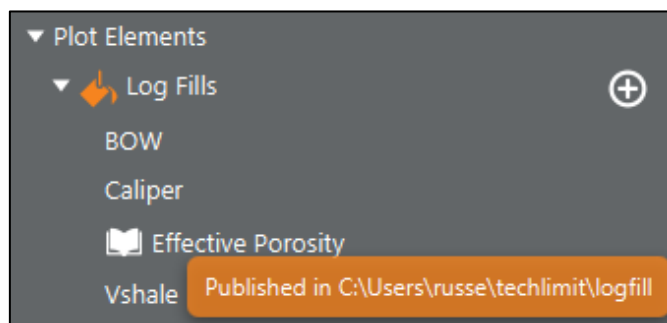
Added TVD to TWT conversions on wells, using checkshots and/or Vp logs.



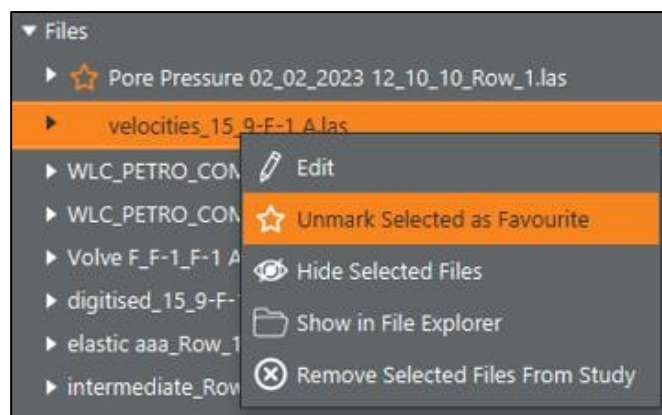
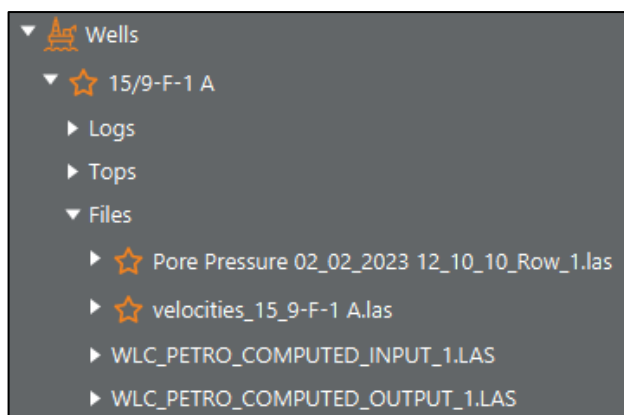
File editors now have a button in the top right corner to open the Windows File Explorer with the file selected.



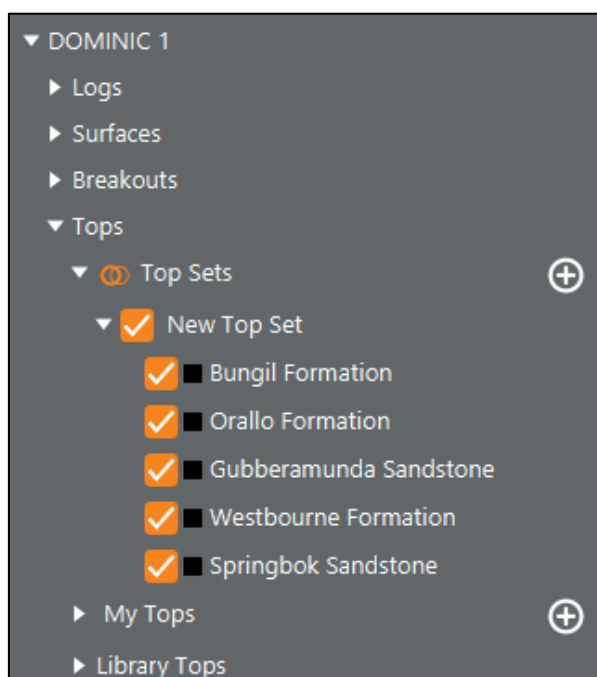
Custom Log Fills can be published for use by other users.



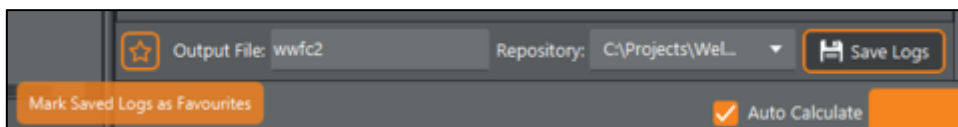
Added option to mark Files as favourites within the Data Tree and the File Editor. Favourite files are listed first in the Files node of the data tree.



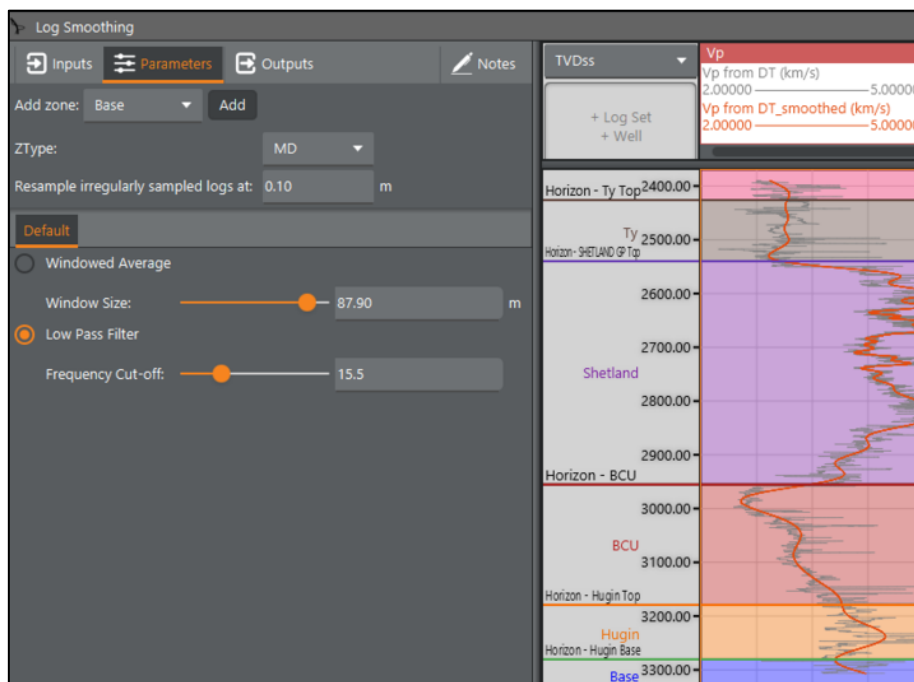
Added Top Sets to create groups of 'Tops' (horizon or other types of depth related markers). All Tops within a Set can be toggled on or off collectively.



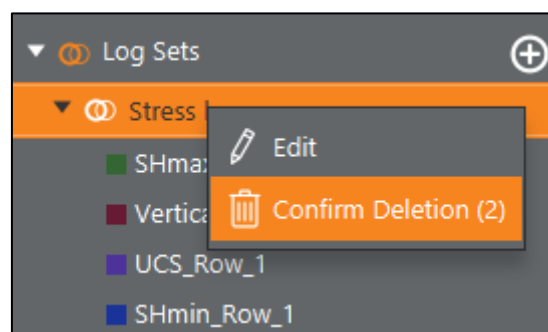
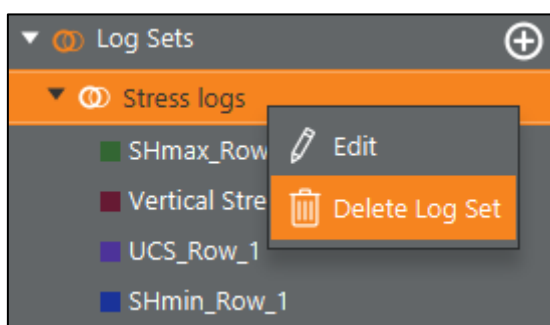
Added the ability to mark the output logs as favourites when saved from the Output tab within any tool or at the end of a workflow. The respective las file that is added to the output Repository is also marked as a favourite in the Files node on the Data Tree.



Low pass filter option to smooth logs in the Log Smoothing tool. When smoothing in TWT the cut-off frequency is in units of Hz.



Delete menu items have been added to right-click menus in all data trees. All Delete menu items now have a countdown confirmation to prevent accidental deletions.



Tensile Strength can now be either a log or discrete value in stress related plots (Hoop Stress, Mohr Diagram Stereonets etc).

