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Geoteric 2019.2 release notes

Geoteric 2019.2 has focused on two key areas: Performance and Usability.

Geoteric is Cloud agnostic and functions using whichever Cloud instance is launched. Performance bottlenecks have been resolved following a Cloud usability study. Machine resources are now optimised on software start-up, dependant on the memory and CPU available of the instance, as well as a focus on HDFD performance which has seen on average a 50% improvement in speed of calculation.

For workflows using the Validate license, the process can now be concluded by saving the results into the Geoteric project as full seismic volumes capable of being used in subsequent quantitative evaluations and calibration workflows.

Following feedback received from the transformation of the fault interpretation workflow in Geoteric 2019.1, Geoteric 2019.2 incorporates updates to the fault interpretation workflow. Key drivers were better usability and reduction in factors known to cause RSI. These included fault and horizon interpretation in both the 3D window and the interpretation window, more performant and accurate gridding of fault surfaces from interpreted fault sticks, and updates to the fault stick filter interface.

All functionality listed here is within the base "Interpret" license unless stated.

Key areas of updates in Geoteric 2019.2

- Cloud friendly for all major public clouds with performance optimisations and simple deployment

- Machine resource optimisation

- Support for high DPI screen resolution

- HDFD performance (Reveal licence)

- Fault surface gridding

- Seismic volume output (Validate licence)

- Link for Petrel 2019.2

- Usability updates for interpretation workflows

- Fault stick filtering and move to folder from 3D scene only

- Bug Fixes

Support high DPI screen resolution

Screen resolution is constantly increasing, and the Geoteric 2019 series of releases is fully compatible with high DPI displays, such as 2K and 4K resolutions.

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Machine resource optimisation

Static single-user desktop machines with non-varying memory and CPUs are now more routinely being replaced by on-prem or public Cloud distributed compute infrastructure. As such, Geoteric is now optimised to take advantage of increased and varying amounts of memory and number of CPUs which may be available each time Geoteric is launched, in each Cloud instance.

The actual amount of memory available to be used in each instance, and the number of CPUs enabled, can be controlled by the user and will scale dependant on the total available at the time of start-up of Geoteric.

HDFD performance

HDFD is a vital part of the interpretation workflow and is a computer resource intensive process. HDFD has been optimised to perform on average 50% faster than with previous releases. Optimisation has scaled for both desktop installations as well as distributed compute Cloud architecture, whether on-prem or public.

Fault surface gridding

The fault surface gridding algorithm has been re-written. Performance has been improved on average by 98% across a broad range of tested projects and fault stick-sets. The accuracy and reliability of the algorithm has also been improved, thereby enabling workflows to be completed in a timely and consistent manor.

Validate license – seismic volume output

At the conclusion of a workflow using Validate, you can now choose to output the results in the form of seismic volumes saved in the project. The final slice can be padded on either side with duplicate values and you can choose to output a volume to the lateral extents of an existing volume in your project.

This enables further quantitative workflows and calibration of amplitudes between multiple models. It also enables combination of multiple validate sections into single volumes, use of tools such as opacity blending to combine validate output with other seismic, and draping synthetic output onto surfaces.

Link for Petrel 2019.2

Geoteric 2019.2 is enabled for direct data transfer to Petrel 2017, Petrel 2018 and Petrel 2019 using the link included with the installer. This includes the link to Petrel 2019.2.

Links for versions of Petrel earlier than Petrel 2017 are not supported from Geoteric 2019.1.

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Usability updates for interpretation workflows

Select and activate a fault-set

In any fault stick editing mode, pressing the select tool (or 'J' shortcut key) will allow you to select and activate a different fault stick-set with one mouse click. Thereafter the mode will automatically return to the previously active mode.

This makes editing much easier particularly when grouping together fault sticks into sets, when a one-click change to the active set enables you to continue grouping without losing focus.

If this mode has been chosen by mistake, you can exit this mode by simply using a double click or pressing escape key, and you will return to the 'hand' movement mode and cursor.

3D Window and Interpretation Window: Fault Interpretation

Updated the short-cut keys:

- Enabled Ctrl-F to open and close the fault filtering window

- Changed the joining functionality for fault sticks to use 'G' as a short-cut

- Updated the 'select to activate and extend short-cut keys to 'J'

Interpretation window: fault stick interpretations

There have been several improvements to the workflow for fault stick interpretation following user feedback. These are workflow related issues when using the interpretation window.

All editing capabilities found within the 3D window are now also available in the Interpretation Window.

Updates include:

- Full editing and grouping of fault sticks in the same way as is possible in the 3D window, including the mode for moving fault sticks into groups.

- Being able to double-click to finish interpreting one fault stick.

- Continuing to interpret further fault sticks after a double-click. Previously a double click would revert the mode back to hand movement mode, which meant that you would have to reselect a picking mode. This required many more clicks and broke the flow of the interpretation, so this is now updated.

- A double click or escape in any fault mode other than the interpretation mode (as above) will take you to the hand/movement mode.

- A double click in fault /movement/hand mode will take you to the fault pointer mode.

- The fault stick functionality bar operates equally between both windows (3D and Interpretation windows)

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Interpretation window: horizon interpretations

There have been several improvements to the workflow for horizon interpretation following user feedback. These are workflow related issues when using the interpretation window.

All editing capabilities found within the 3D window are now also available in the Interpretation Window.

Updates include:

- Being able to double-click to finish interpreting one line of a horizon interpretation, and then be in pointer/movement mode to be able to zoom in and out.

- Continuing to update an interpretation on one inline or crossline slice, if the shift button is held, but have no impact if the shift button is not held.

- Whilst still in interpretation mode, the middle mouse button will move the slice a set step distance forward or backward and will then continue to be able to interpret a new line on the next slice.

Fault stick filtering and move to folder from 3D scene only

The fault stick filtering functionality was introduced in Geoteric 2019.1. The option to move fault sticks which matched the filter criteria to a new folder was applied across the project to every fault stick regardless whether they were visualised in the 3D scene or not.

User feedback was received and therefore this functionality has been amended. In Geoteric 2019.2 only those fault sticks which are visualised in the 3D scene will be moved to a new set when the option is chosen. Therefore, only those fault sets which are visualised in the 3D scene will be impacted, and then only those fault sticks which match the filter criteria. On applying the move, all visualised fault sticks will disappear from view since the newly created fault-set will not be visualised by default.

The fault stick filtering user interface in Geoteric 2019.2 has also been updated to make the filtering and visualization process easier to apply and easier to understand.

Bug Fixes

14 legacy bugs have been fixed in Geoteric 2019.2.

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Fixed 2019.2

Bug	Wells in noise and spectral expression and Validate were not displayed correctly when a project was in depth e.g. in feet, and the wells / survey had different depth units e.g. meters.
Bug	Fixed the accidental creation of a one-point fault stick. This could be created by hitting Escape after placing the first point. These points were impossible to see but were still existing in the Fault Stick folder and Fault Set file and skewed the Fault Stick Filter information.
Bug	Deleting a volume or colour blend which was in use by an Arbitrary Line (ArbLine) would leave a broken ArbLine.
Bug	Various issues with fault stick editing have been fixed. These include inconsistent cursor icon to the currently active mode, giving an incorrect impression as to which mode is active.
Bug 58	Using the segmentation on the 2D Colour Blend Viewer produced a Body Label volume but the geobody values were incorrect for floating point data when the blend had postscale values >1. If the blend had >1 postscale on any body then that data was not being included in the segmentation.
Bug	2D Colour Blend Segmentation Tool. When running segmentation against a colourblend with opacity values set, the segmentation volume contains less data than it should, it is missing out parts of the blend that should be visible. This happens when a blend contains high postscale values and does not happen when there are low/no postscale values set.
Bug	Fixed a bug where you are not able to zoom in and out using the mouse wheel in all 2D windows such as interpretation window or Frequency Decomposition.
Bug 223	Fixed the issue where you were unable to type a custom step-increment in the inline/crossline/z slice players.
Bug 279	Fixed the labelling for velocities in the Adaptive Geobody metrics table where velocities were shown in m/s but were actually in ft/s. Additionally, there was a 5000ft/s upper limit which is now increased to 10,000ft/s.
Bug 281	Fixed an adaptive geobody volumetric calculation issue when a depth project was in feet. Note that this impacted the volumetrics shown for the geobody (Properties->More Metrics->Volume), not the volumetrics shown within the volumetrics process (Geobody Tab).

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Bug 318 & 368	Errors transferring seismic to Petrel from Geoteric: Seismic Volumes with z-values less than 1 could be transferred to Geoteric from Petrel via the link for Petrel. However, they could not be transferred back to Petrel from Geoteric. On investigation these types of seismic volumes are not supported correctly in Geoteric, it is likely that the resultant seismic was incorrectly located Geoteric, therefore the transfer of such seismic volumes has been prevented with an appropriate error message.
Bug 367	Opacity settings are no longer duplicated (linked) between any volumes which have a "dot" in their name
Bug-381	Fixed a crash for the 2D Colourblend Viewer when selecting a horizon and the view button.