



the structural geology experts



# Release Notes

Version 2018.1.1

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## MOVE2018.1 RELEASE OVERVIEW

### Release Overview

The 2018.1 release of Move includes substantial new features, as well as improvements to the existing functionality and usability. This first section provides an overview of the new features, enhancements, and performance improvements to all current modules and tools and is followed by a more detailed breakdown of the changes to Move Core and the Modules.

One of the major additions to the Move2018.1 release is Elliptical Fault Flow: a brand new 2D kinematic algorithm. The algorithm has been developed by Midland Valley and models the deformation associated with isolated normal faults that exhibit decreases in fault displacements in all directions, away from the point of maximum displacement. Client feedback in the last year has led to the addition of a regional tilt (dip) to strata control in the Horizons from Fault tool, plus a more auto-population functionality in the 2D Move-on-Fault toolbox.

The 2018 release features substantial improvements to model building in 3D including the introduction of a brand new Surface with Boundaries tool which allows the user to create kriged surfaces with a user-defined outer boundary extent along with various constraints. The Extend tool in 3D has seen several key developments and functionality improved with new surface extension capabilities, namely extend surface using selected boundaries, and extend surface to lines.

The Fault Analysis module introduces Stochastic modelling of hanging wall and footwall cut-off positions using known data resolution (i.e. seismic, velocity) to provide P10, P50 and P90 juxtaposition and seal values.

The Fault Response Modelling module introduces Monte Carlo Stress Inversion. Stress inversion using Monte Carlo simulations combined with an iterative stress inversion using instability criterions, allows the uncertainty in stress regimes derived from focal mechanisms to be quantified and allows users to analyse the heterogeneity of the underlying dataset.

Move 2018 sees several notable additions to Move Core in terms of imports, exports, and data handling. There is a new GIS vector data (including Shapefiles) live stage connection that allows tracking of external changes and a bulk refresh within Move. Handling of 2D and 3D seismic data within Move has been improved to allow a new export in SEG-Y format. The 3D Depth Conversion tool now supports seismic. The attribute Query tool is a new tool for Move2018 that provides several advanced methods for interrogating and selecting object, vertex, face or cell attribute data in Move. A common client request was to add the ability to visualize surfaces in Map View in various mesh and colour map styles in a similar way to the 3D View – this has been implemented in Move2018, including support for displaying time slices from seismic.

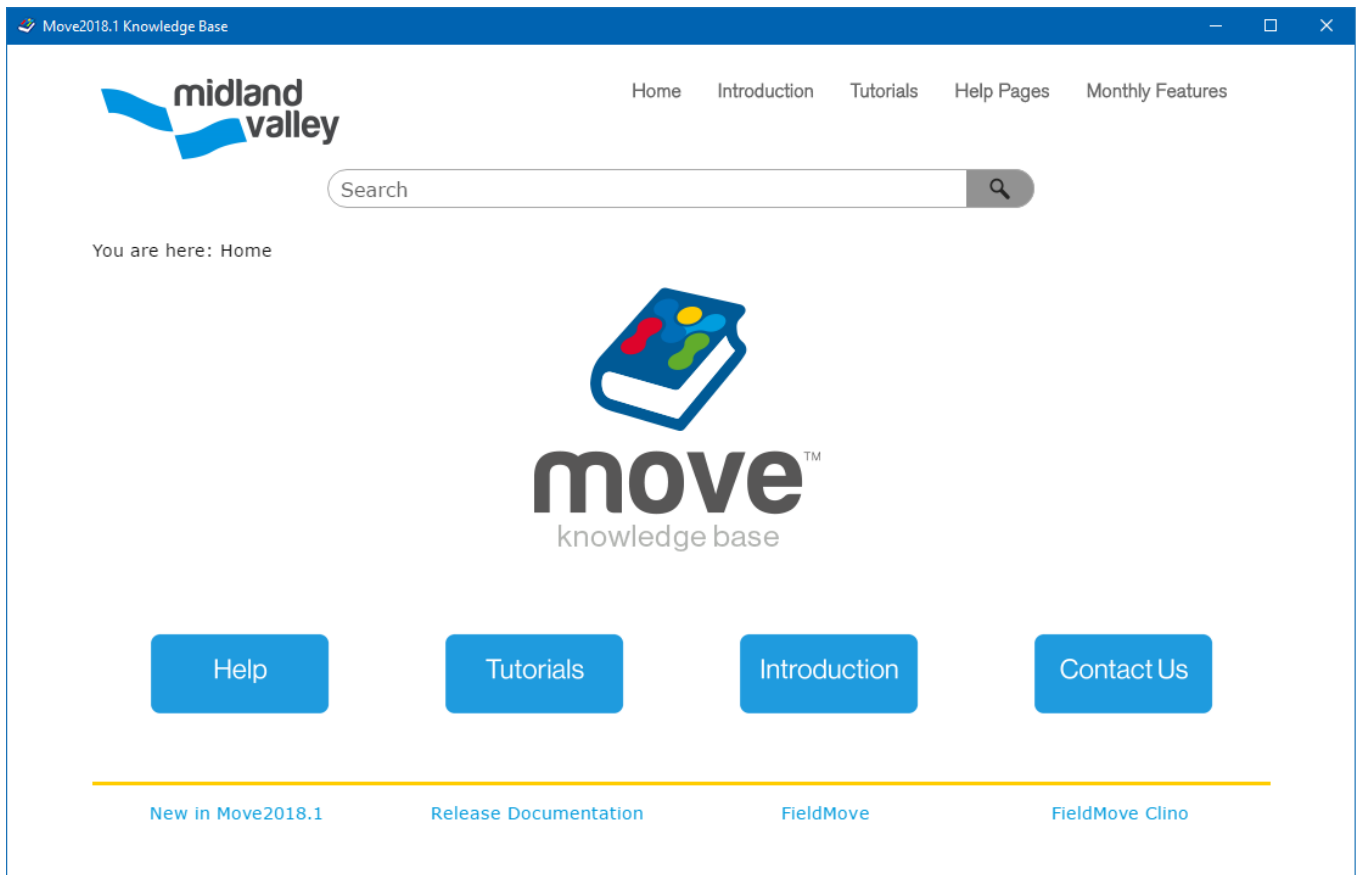
Stress Analysis has been enhanced by adding a number of display options for focal mechanisms, including a beachball representation in the stereonet plot, plus tensile (T) and compressive (P) direction plots also being available in the Stereonet plot.



## Move Knowledge Base

In Move2017.1 we introduced the first release of the Move Knowledge Base. This resource contains all Move Help Pages, Tutorials, and the release documentation presented in a single, offline, searchable entity, independent of Move. The material is cross-referenced and brings together tutorial workflows with more detailed help topics including algorithm theory and recommendations for tool application and parameter values. The Knowledge Base can be easily updated and made available to our users regularly therefore it is considered more up-to-date than the application help pages. This allows us to improve our teaching material, which is then independent of the Move software release cycle.

For 2018.1, the Knowledge Base has improved cross-referencing of tutorials and help topics and the addition of a new menu to the top bar. The new menu (Monthly Features) allows users to access the back catalogue of Move Monthly Features that form part of our monthly newsletter that is made available to registered users.



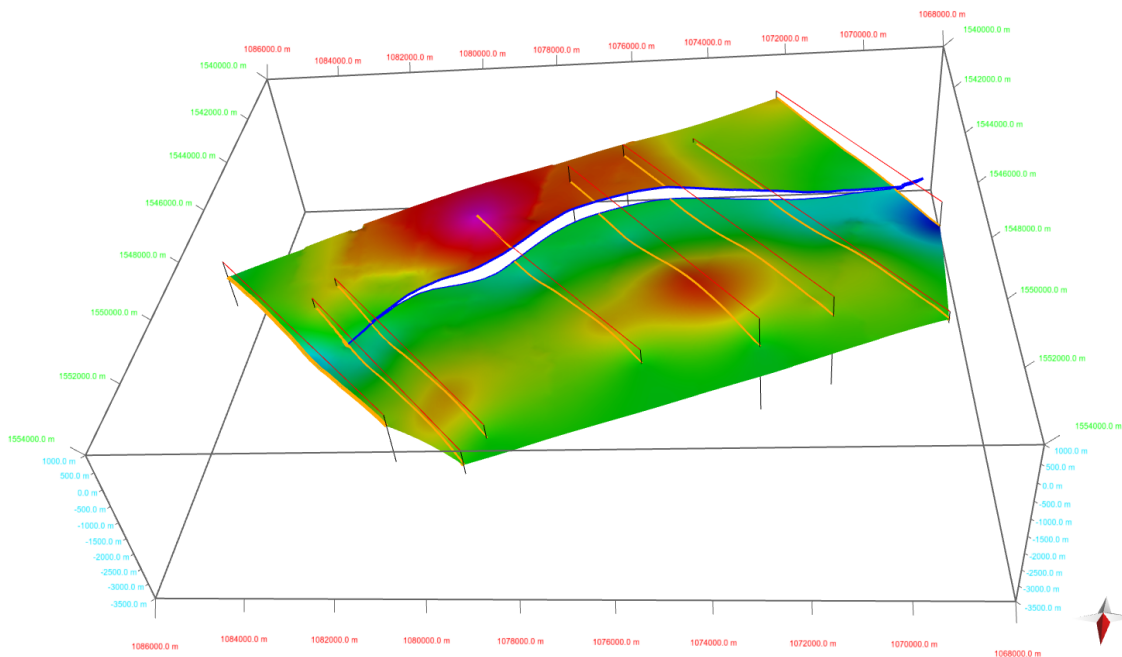
**Figure 1:** Opening window of the Move Knowledge Base – a platform on which the Move help pages, tutorials and monthly features have been integrated.



## Move Core

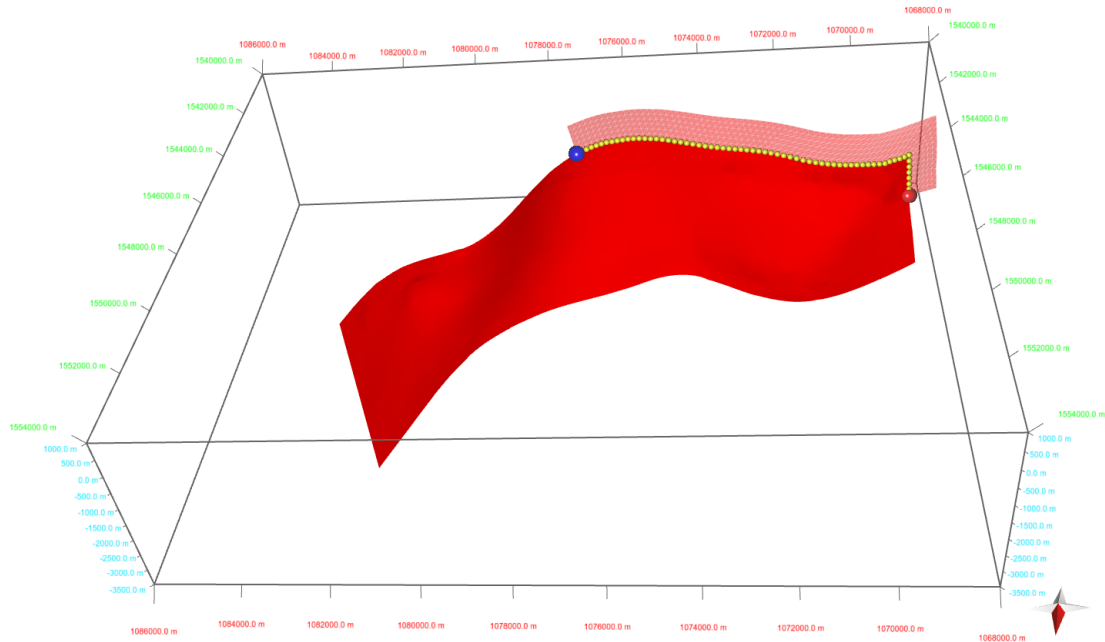
The GIS vector data (including Shapefiles) live stage connection allows users to work with Shapefiles within Move, whilst simultaneously editing the data in other applications such as those belonging to Esri ArcGis platform. When Shapefiles are imported, their time-stamp is recorded to detect external updates. In such cases, the user has the ability in Move to control how external and internal updates should be handled by replacing or duplicating modified objects.

The new Surface with Boundaries tool allows the user to create kriged surfaces with a user-defined outer boundary extent. Various constraints, such as inner holes, additional fault boundary surfaces and dip data can be applied to create more complex surface geometries. Also, an isolated fault can be used to tear and reshape a horizon surface locally.



**Figure 2:** Example of a surface constructed using Surface With Boundaries tool, input data for surface consisted of orange lines interpreted on section and green outline of fault gap. These were combined to ensure surface had appropriate geometry and internal hole where fault is present.

The Extend Surface tool has been improved with new surface extension capabilities, such as extend surface using selected boundaries and extend surface to lines. The line extrusion functionality has been moved from the Surface creation tool into the Extend tool and has been merged with existing functionality to tie all surface extension methods into a single place. When extending a surface using a selected boundary, the user has several options available to control the surface extent interactively. Furthermore, the underlying extension methodology is based on bisectors to improve the quality of the extended area.



**Figure 3:** Fault surface being extended using Selected Boundary. Surface is being extended using a partial selection of the object boundary.

The new Query tool provides several advanced methods for interrogating and selecting data in Move. User-defined conditions in the form of logical equations can be created to test values of objects, vertex, faces or cell attributes. In addition to these, various spatial conditions can be performed to examine the geometric relationships between objects. Spatial queries, for example Within Distance or Closest to Vertex can also be used to transfer attributes from one object to another.

The Object Analyser is new for Move2018 – this uses some of the functionality from the Object Browser but also allows selected objects to be viewed in a table form with any associated object attributes displayed. It will also automatically determine length, area and map area as appropriate. The analyser behaves the same as existing analysers such as the Vertex Analyser and allows the interrogation of data, a number of data plots and the manipulation of data.

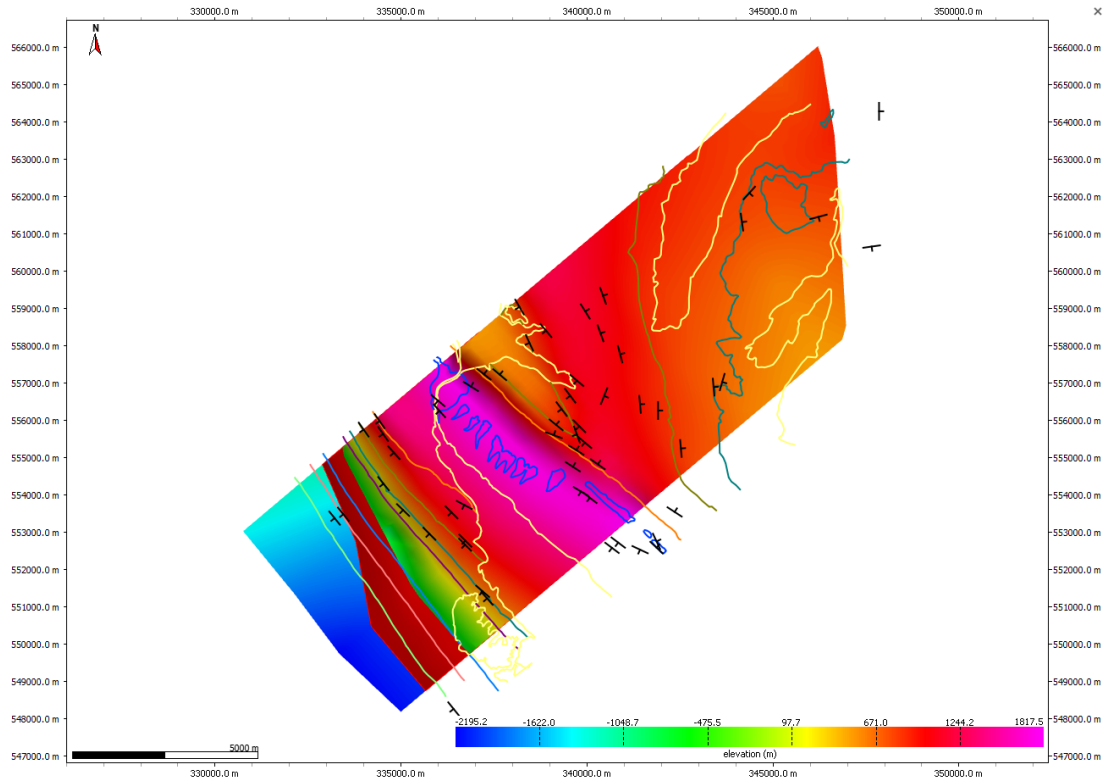
	1: Geoid	2: Name	3: Object Type	4: Horizon	5: Colour	6: InTime	7: Fault	8: closed	9: Data_Type	10: length	11: area	12: Map Area
Minimum	13									103.7		7524263
Mean	126									4487.3		35188368
Maximum	164									17950.5		98593815
Unit:										m	m <sup>2</sup>	m <sup>2</sup>
	5	105	DipData_Purple	Dip Data			<input type="checkbox"/>	<input type="checkbox"/>	Dip			
	4	104	DipData_Green	Dip Data			<input type="checkbox"/>	<input type="checkbox"/>	Dip			
	51	164	Fault_Section1	Fault Mesh Surface			<input checked="" type="checkbox"/>	<input type="checkbox"/>			11632379	7524263
	50	162	NEThrust_Section3	Fault Mesh Surface			<input type="checkbox"/>	<input type="checkbox"/>			35200999	22936136
	49	161	BackThrust_Section4	Fault Mesh Surface			<input checked="" type="checkbox"/>	<input type="checkbox"/>			29893900	16259675
	2	16	Fault	Fault Mesh Surface			<input type="checkbox"/>	<input checked="" type="checkbox"/>			57621400	42832401
	48	155	Kc	Line	Kc		<input type="checkbox"/>	<input type="checkbox"/>			1249.4	
	47	154	Kc	Line	Kc		<input type="checkbox"/>	<input type="checkbox"/>			103.7	
	46	153	Kf	Line	Kf		<input type="checkbox"/>	<input type="checkbox"/>			927.4	
	45	152	Kf	Line	Kf		<input type="checkbox"/>	<input type="checkbox"/>			148.5	
	44	151	TRPPcgta	Line	TRPPcgta		<input type="checkbox"/>	<input type="checkbox"/>			206.3	
	43	150	Mm	Line	Mm		<input type="checkbox"/>	<input type="checkbox"/>			1928.6	
	42	149	Mm	Line	Mm		<input type="checkbox"/>	<input type="checkbox"/>			1335.0	
	41	148	Mm	Line	Mm		<input type="checkbox"/>	<input type="checkbox"/>			1316.6	
	40	147	Mm	Line	Mm		<input type="checkbox"/>	<input type="checkbox"/>			1913.5	
	39	146	Mm	Line	Mm		<input type="checkbox"/>	<input type="checkbox"/>			3953.4	
	38	145	Mm	Line	Mm		<input type="checkbox"/>	<input type="checkbox"/>			3084.8	

**Figure 4:** Object Analyser with a number of different objects where the data has been sorted on Object Type.

In Map View, the user can now display surfaces and grids in different mesh styles as they would be displayed in 3D Views. The three different styles are: outline, flat fill, or shaded fill. With shaded and flat fill styles, wireframes, contouring and colour maps can be visualized. In addition to this GeoCellular and TetraVolumes,



Fracture sets and Time Slices from 3D Seismic can now be visualized in Map Views. With this extension, the Map View combines the best of both the 3D and Map views.



**Figure 5:** Map view with a surface colour mapped for elevation, highlighting the new solid fill state which is possible for mesh surfaces.

2D and 3D seismic data can now be exported in a SEG-Y format. This includes seismic profiles and volumes that were imported in time and depth converted in Move. The export also works on seismic reflection profiles that have been restored using the tools in the 2D Kinematic Modelling module. The 3D Depth Conversion tool will also support the conversion of seismic cubes.

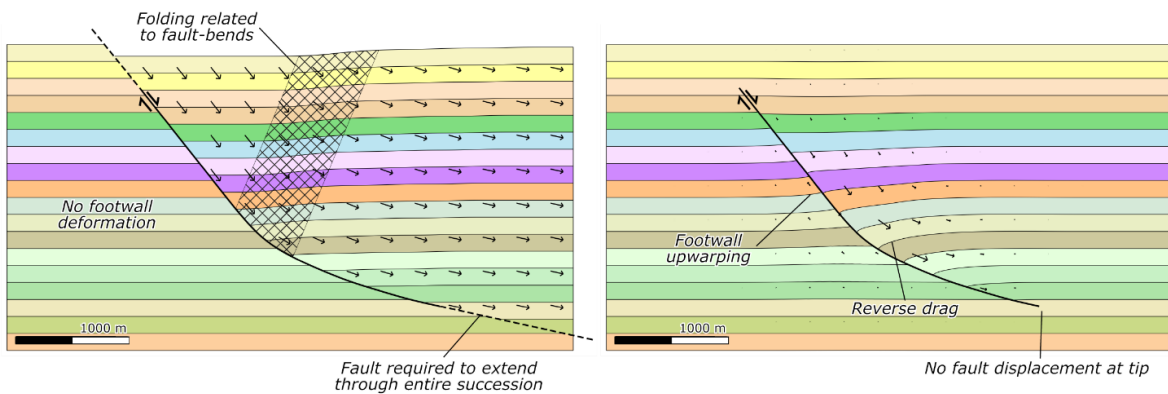


### Kinematic Updates

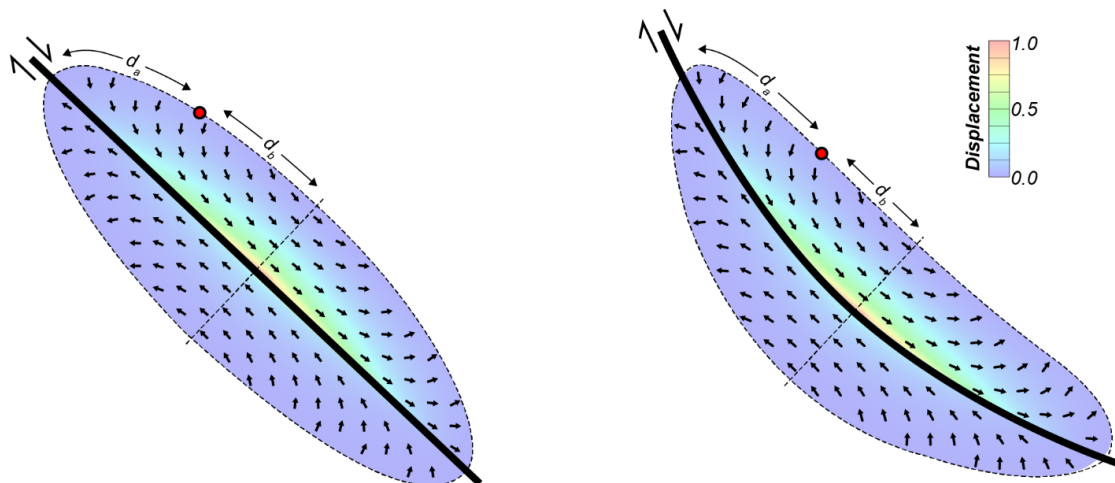
Elliptical Fault Flow provides a new way to model and restore faults with variable offsets. This new kinematic algorithm was created by Midland Valley and is accessed through the 2D Move-on-Fault and Horizon from Fault toolboxes. Elliptical Fault Flow is the first kinematic algorithm to fully incorporate non-uniform fault displacement profiles and gradients; as a result, the algorithm significantly expands the range of faulting styles that can be modelled using 2D Move-on-Fault algorithms.

As with other 2D Move-on-Fault algorithms, Elliptical Fault Flow predicts fault-related deformation for a given fault shape and offset using mathematical relationships derived from empirical field data (Watterson 1986; Barnett et al. 1987; Walsh & Watterson 1988; Gibson et al. 1989). In Move, the interface for the Elliptical Fault Flow algorithm has been optimised to allow the validity of interpretations to be quickly assessed, and to ensure that faults with non-uniform fault displacement profiles and gradients can be restored as easily as possible.

For more information on Elliptical Fault Flow, see the Move monthly feature available on the Midland Valley website or now as part of the Move Knowledge Base.



**Figure 6:** Forward model of normal fault using: (a) inclined Simple Shear with approximately uniform displacements in the hanging wall; (b) Elliptical Fault Flow, with displacements that decrease away from the centre of the fault.



**Figure 7:** illustration showing key parameters used to calculate displacement with Elliptical Fault Flow for: (a) a planar normal fault; (b) a concave upward curve, normal fault. Black dash lines represent the spatial extent of fault-related deformation. Area around faults are colour mapped for the normalised displacement, including 20% footwall movement.





Another highlight of the Move2018 release is the addition of a regional tilt (dip) to strata in the Horizons from Fault tool. This allows users to vary the pre-tectonic orientation of strata and construct more informative forward models of fault-related folds. This is particularly useful in orogenic wedges where strata usually dip towards the foreland.

Finally, the time required to perform most restoration workflows has been reduced through the inclusion of more auto-population functionality in the 2D Move-on-Fault toolbox. In 2018, when a fault is collected into the toolbox, the software will automatically identify the youngest stratigraphic horizon that is offset by the fault and set up the Join Beds collection boxes with the appropriate hanging and footwall line segments. For sections containing multiple faults, this means the user simply specify the Active Fault and click Apply, reducing the number of mouse clicks and saving lots of time.

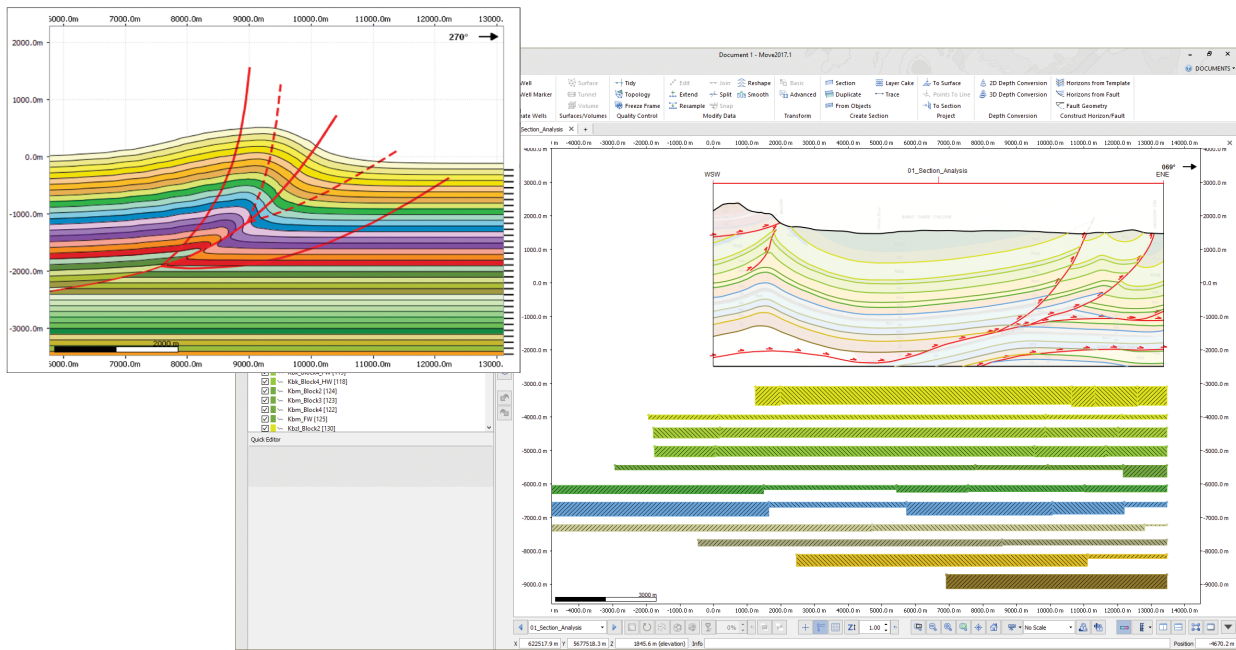


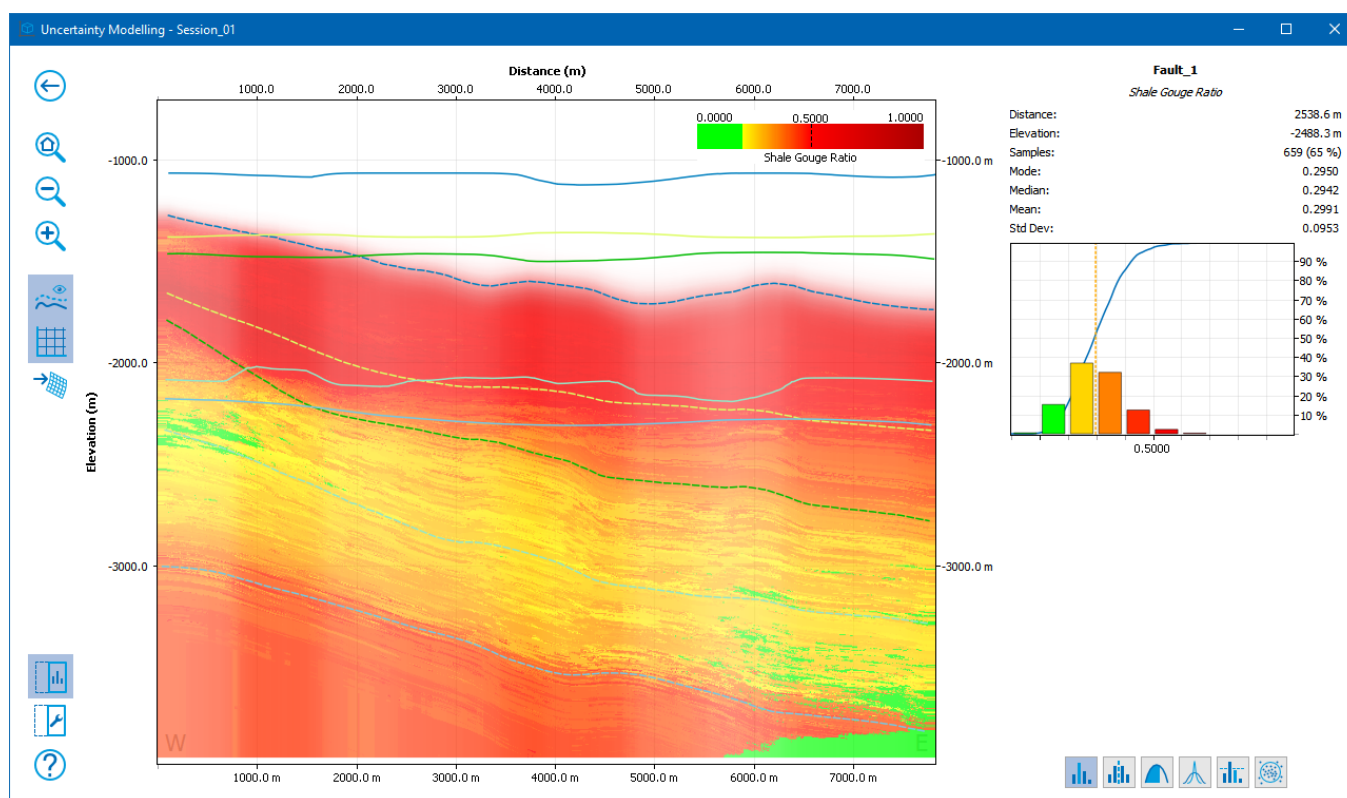
Figure 8: Move kinematic examples.



## Fault Analysis

Fault Analysis has been expanded to include Uncertainty Modelling for 2018. The tool allows users to run a Monte Carlo simulation that models deviations in fault cut-off position and Vshale log values. Using these simulations, the impact of data resolution can be investigated and the certainty of fault juxtaposition and seal proxies to be quantified. A strike projection of the modelled fault can be visualized and colour mapped for the mean, mode or percentile (e.g. P10, P50, P90) result. These values can be saved to the fault in 3D. A graphical display of any point or region on a fault gives each possible result and its likelihood, or the probability of a result to be determined.

Uncertainty Modelling quantifies the likelihood of a fault acting as a conduit or barrier to across fault fluid flow. This can add confidence to prospect generation and trap evaluation and reduce financial risk.



**Figure 9:** Strike projection of a fault surface colour mapped for the mode values of SGR based on 1,000 iterations in the uncertainty modelling tool. The graph on the right of the window shows the possible results and the probability of occurrence of each.

Strike projection of a fault surface colour mapped for the mode values of SGR based on 1,000 iterations in the uncertainty modelling tool. The graph on the right of the window shows the possible results and the probability of occurrence of each.

Additional developments to Fault Analysis in 2018 allow:

- Seal proxy colour maps can be customised.
- Seal proxies to be filtered by horizon displacement area.
- Fault Triangle diagrams to be calculated from well logs without stratigraphic markers.
- Charts allow guide lines to be created and optionally converted to mesh surfaces in the model.

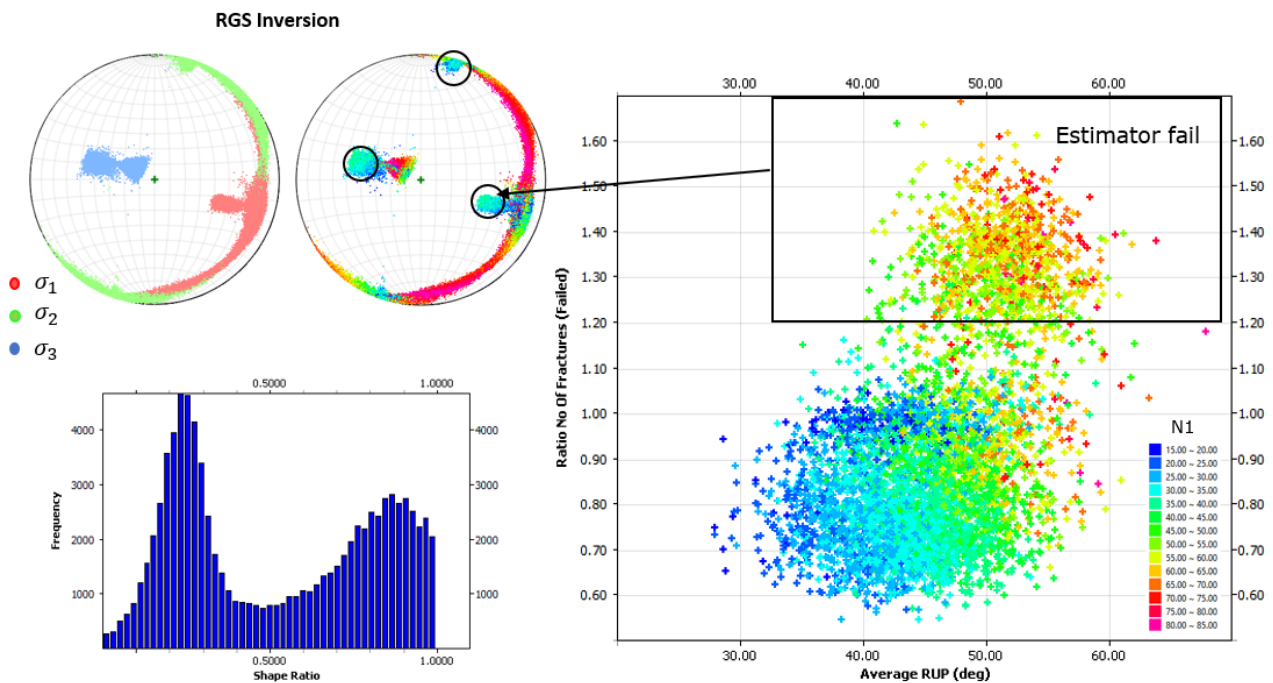


## Fault Response Modelling

For 2018, Monte Carlo Stress Inversion has been added to the Fault Response Modelling module.

This new technique introduces iterative stress inversion methods based on Monte Carlo simulations and direct inversion method to invert stress fields from focal mechanisms (Angelier 1990). Rather than using the grid search method, various fault plane realisations through Monte Carlo simulations will be directly inverted and the best fitting stress tensor is identified by investigating the resulting stress orientation pattern from many simulations. To gain further confidence several confidence estimators are cross plotted to approximate differential stresses.

The new functionality aims to reduce the effects of the two major challenges, the fault/auxiliary issue and the heterogeneity of the underlying dataset. The stress inversion methodology shows how statistical simulations can contribute to resolve these issues. In combination with estimator cross plots, this technique allows the user to quickly verify heterogeneity and helps to separate fault populations from each other. Furthermore, the statistical approach minimises the fault/auxiliary plane uncertainty inherent to earthquake focal mechanisms, resulting in stress orientation patterns and shape ratio variations as shown in the figure below.

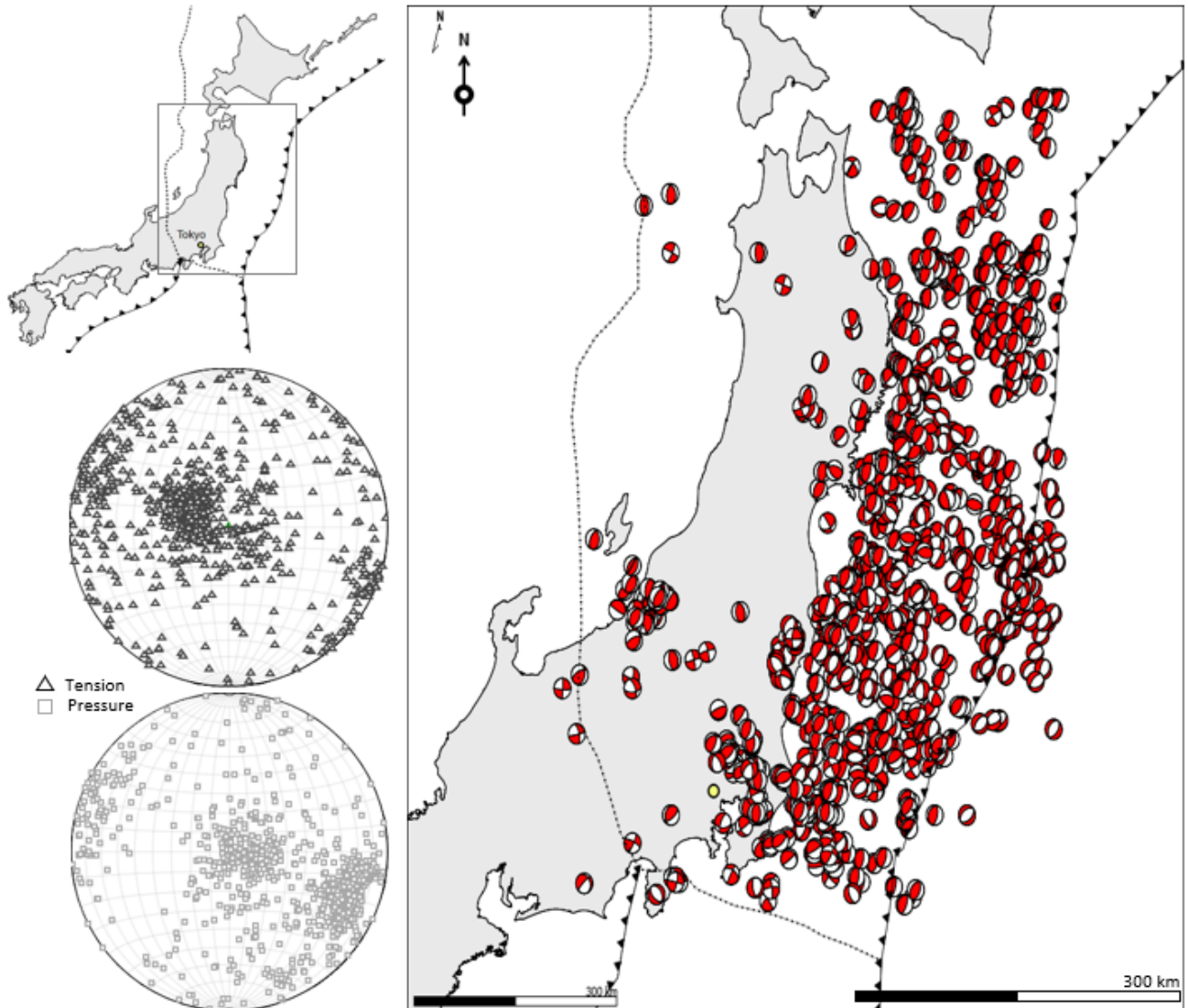


**Figure 10:** Focal mechanisms derived from a DC moment tensor decomposition have been applied to a RGS Inversion. On the Stereo net to the left, the principal orientations from 10.0 stress inversions are shown. On the Stereo net to the right, the principal orientations are colour mapped with the corresponding shape ratios. The Estimator cross plot on the right-hand side can be used to investigate the quality of the resulting stress regime.



## Stress Analysis

Stress Analysis now offers the user several options to display focal mechanism data. Once the moment tensors have been decomposed with either the shear or tensile source model (this functionality was introduced in Move2017), the results can now be displayed with a beachball representation in the stereonet plot (for a single focal mechanism), or in Map Views and 3D Views. In addition to this, the tensile (T) and compressive (P) direction plots are now available in the stereonet plot within the tool. Where only fault planes and their corresponding rake directions are available, the tool can now perform all necessary orientation attributes to produce beachball displays.



**Figure 11:** Tensile (T) and compressive (P) direction plots available in the Stereo net plot with the Stress Analysis tool. The beach balls shown on the Map View are generated from the Stress Analysis tool.



## Other General Improvements

Improvements have been made to the handling of data and the control of object and attribute visibility. A new context menu option has been added to the Sections Browser in the Model Browser to support the display of cross-sections. This option will allow the user more control over the display where there is a large number of cross-sections in the model. The Quick Editor for wells and fractures now includes options to control the display of marker data and the percentage of fractures displayed, respectively. Selection speeds have been improved when working with wells with many well logs.

To improve the handling of large files, two new options have been added to Preferences to control whether objects are visualized when a Move project is opened, or new data is imported into an existing Move document. These options will allow the data to be imported but will automatically render the objects invisible until the user wishes to show them by controlling object visibility from the Model Browser. This speeds up rendering times when working in a 3D View with a large number of objects.

New options have been added to the Quick Access tools to make it quicker to Close the document, Close All documents or Save the current document. Usability has also been improved with the introduction of a new shortcut – Ctrl + D to duplicate a cross-section. Due to this the Resample shortcut has been changed to Ctrl + R.

The support for Closed Lines and Polygons with internal holes has been enhanced to allow situations where a multi-line is converted to a polygon, if parts of a line form an internal boundary then this boundary is preserved in the polygon. Where polygons with an internal hole are converted to mesh surfaces, the new mesh surface will have an internal hole.



## Summary of Main Release Highlights

### Knowledge Base

- Improved cross-referencing of tutorials and help.
- Addition of the back-catalogue for the Move Monthly Feature articles.

### Move Core

- GIS vector data live link for Shapefile format.
- Map View control of 3D data - surfaces/grids/contours/colour maps.
- Query tool: logical attribute queries.
- Object Attribute Analyser – new analyser for 2018.
- Surface with Boundaries tool in 3D model building.
- Extend tool improvements and additions in 3D Model Building.
- Export 2D and 3D seismic in SEG-Y format.

### 2D Kinematic Modelling

- 2D Elliptical Fault Flow algorithm.
- Auto-population for 2D Move-on-Fault toolboxes.
- Support of a Regional Dip being defined in Horizon from Fault.
- Depth conversion of 2D Seismic.

### 3D Kinematic Modelling

- Depth conversion of 3D Seismic.

### Fault Analysis

- Addition of Uncertainty Modelling - Quantify uncertainty in juxtaposition and sealing behaviour of faults by simulating deviations in hanging wall and footwall cut-offs as well as Vshale logs based on known data resolution:
  - Run Monte Carlo simulations for a fault property by testing data deviation scenarios within given ranges.
  - Visualize aggregate statistics, distribution percentiles as well as probabilities of specific outcomes across a fault surface.
- Interrogate distributions of possible outcomes for a point or area on the fault.
- Seal proxy colour maps can be customised.
- Seal proxies can be filtered by horizon displacement area.
- Fault Triangle diagrams can be calculated from well logs without stratigraphic markers.
- Charts allow guide lines to be created and optionally converted to mesh surfaces in the model.

### Fault Response Modelling

- Monte Carlo Stress Inversion



## Stress Analysis

- New algorithm called Focal Mechanisms, which has its own sheet of options in the Stress Analysis tool.
  - Derive all necessary attributes and focal plane orientations from fault plane and rake information only (rather than deriving this from moment tensors).
  - PT Direction Plot (tensile T and compressive P).
  - Beachball display within the stereonet plot for a single selected focal mechanism.
  - Beachball display for Map Views and 3D Views with beachball scaling capabilities.



## Software Components delivered in Move2018.1

- Move modules and third-party software links:
  - 2D Kinematic Modelling
  - 3D Kinematic Modelling
  - Geomechanical Modelling
  - Fault Analysis
  - Fracture Modelling
  - Fault Response Modelling
  - Stress Analysis
  - Move Link for Petrel, OpenWorks, GST
- Move Link for Petrel software (Petrel installers).
- Midland Valley License Manager (FLEXnet 11.14.1) software.

## System Requirements Changes and Notifications

Move2018.1 is a 64-bit only release on Windows, Linux, and OS X platforms.

Move2018.1 has been tested and is fully compatible with Microsoft Windows 10; also, full support for Windows 7, Windows 8, and Windows 8.1. Move2018.1 is not support on Windows Vista.

Move2018.1 on Linux is supported on RHEL6 and RHEL7. Move2018.1 is not support on RHEL5.

As outlined last year Move support on OS X will be discontinued, therefore Move 2017.1 was the last Move OS X release.

### **Please note the following platform changes:**

- Move support on OS X is discontinued, Move 2017.1 was the last Move OS X release.





## Move2018.1 Software and Supporting Documentation

### Move2018.1 Release Software

The following software is provided with Move2018.1 and also can be found in the Client section of our website ([www.mve.com/clients](http://www.mve.com/clients)).

#### Move2018.1 Software Installers for Move and Knowledge Base

Move2018.1/Windows64	Installers for Windows (64-bit)
Move2018.1/Linux64	Archive for Linux (64-bit)

#### License Manager Software

LicenseManager/FLEXnet11.14/Windows64	License Manager for Windows (64-bit)
LicenseManager/FLEXnet11.14/Linux64	License Manager for Linux (64-bit)
LicenseManager/FLEXnet11.14/docs	License Manager Documentation

#### Move Link for Petrel Software Installers

MoveLinkforPetrel/Petrel 2015	MSI and PIP Installers for Petrel 2015
MoveLinkforPetrel/Petrel 2016	MSI and PIP Installers for Petrel 2016
MoveLinkforPetrel/Petrel 2017	MSI and PIP Installers for Petrel 2017

### Move2018.1 Release Documentation

The following documents, Tutorials, and Knowledge Base are provided with Move2018.1 and also can be found in the Client section of our website ([www.mve.com/clients](http://www.mve.com/clients)).

- Move2018.1 Release Notes PDF
- Move2018.1 Installation Guide PDF
- Move2018.1 Licensing Guide PDF
- Move2018.1 Tutorials.
- Move2018.1 Tutorial Data Files

With Move2018.1 we are distributing the third release of the Move Knowledge Base. The Knowledge Base resource contains all the Move Help Pages, Tutorials, and the release documentation presented in a single, offline, searchable entity, independent of Move.

- Move2018.1 Knowledge Base

### Software Downloads

Move2018.x (on-going maintenance updates) will be available to download from the 'Client' section ([www.mve.com/clients](http://www.mve.com/clients)). Clients can register for access to this area however certain files and documents are restricted to maintained clients and academic institutions that have purchased a support package.



## **FLEXnet License Manager™ – FlexNet 11.14**

After you install Move2018.1 please contact [support@mve.com](mailto:support@mve.com) as an updated license file is required.

Midland Valley is using version 11.14.1 of the FLEXnet License Manager™ for all Move components. This is a newer version of the License Manager version that shipped with Move2015, Move2016 and Move2017. If you are running Move2015, Move2016 or Move2017 you will need to install the new License Manager.

We have however incremented our license key versions to "2018.1", therefore the Move2018.1 software cannot be licensed with existing license files. Previous Move versions (Move2010 – Move2017) of the software however can be run and licensed with an upgraded license file.



## MOVE2018.1 NEW FUNCTIONALITY

### File Format, Imports, Exports, Help

#### Exports

- CPS-3 & ZMAP - Attribute values may be saved as Z values.
- SEG-Y - Move now supports the export of 2D SEG-Y.
- Shape File - Polylines with constant Z, where the Z is not 0, are exported as 3D polylines to preserve the non constant Z value.
- Open TeLink - The section age is exported correctly when exporting multiple sections.
- 3D PDF - When exporting polygons on a seismic section, they are now displayed with correct colours.
- 3D PDF - When exporting point data, 'Enhanced Symbol Style' is now turned on so that the data is rendered correctly.

#### Imports

- GIS Data - The Terrain Layer object types, and osgEarth file import are no longer supported in Move.
- General Imports - On opening multiple files at once, the import will fail if one of the imported files fails to import
- SEG-Y - With certain 2D seismic files, Move could display an invalid Top Position in the 2D SEG-Y Import.
- Well Import - When inserting dip/marker data data along a well, the overwriting/merging data will honour the type specified on import.
- ASCII Well Data - When loading or inserting well data using a user defined Type, the correct Type is now added to Markers tab of the symbols database.
- Eclipse Import - General improvements to support import of the different Eclipse ASCII formats for both importing and exporting.
- GIS Data - When importing part of a grid, negative elevations are no longer clipped to zero.
- File Open - Recent Documents now have the correct directory separators.
- Shape File - Units for z are now correctly handled.

#### Move Files

- When loading files that contain Terrain Layer objects, they will be automatically converted to grids for elevation layers, and horizontally-referenced images for image layers.
- When using Save or Save As, a warnings is now shown if a document is not saved properly due to excessive path lengths.

### Modules tab

#### 2D Decompaction

- No longer creates excessive vertices when upsampling sections with a length greater than 250 km.
- Fixed a number of problems when trying to work with simple flexural isostasy models consisting of just a load and a base.

#### 2D Move On Fault

- Using Join Beds with the Elliptical Fault Flow algorithm will now support reverse movement.
- Auto population of objects in 2D and 3D Move-on-Fault is now possible.



- An additional option has been added to the Sedimentation sheet to allow sediment to be added either in just the Hanging Wall or in both the Hanging Wall and Footwall.

### 3D Move On Fault

- Strain measurements are no longer incorrect when loading an existing file containing strain steps.

### Fault Analysis

- It is possible to Stochastically model hanging wall and footwall cut-offs to provide probabilistic juxtaposition scenarios.
- Large lists of well logs can now be filtered when assigning them to faults.
- Charts in Displacement and Seal Analysis now show task progress and error messages.
- Added button to restoration slider to quickly toggle between restoration methods.
- Image resolution can now be set with finer granularity using a slider.
- Seal Analysis now shows icon next to buttons to indicate when filter is active.
- Only show trim & inclusion distance pins when Faults sheet is active.
- Manually defined top and base horizons are now sized based on collected faults and horizons, rather than the model bounding box.
- In the Fault History chart horizontal guide lines can be created and optionally converted to mesh surfaces in the model.
- Seal proxies can now be filtered by horizon displacement area.
- Added help button to charts.
- The Fault Scaling chart now allows faults in the model to be selected by clicking on the respective data points.
- Fixed error in calculation of Clay Smear Potential.
- Improved assigning cut-offs to faults and improved progress display.
- Significantly improved performance of seal proxy calculations when Vshale logs are used.
- Created images are now overlaid in Map Views as well as 3D Views.
- Well log settings are now preserved when additional wells are collected.
- Checking the minimum size of collected horizon surfaces is now done against the bounding box of collected faults, rather than the model's bounding box.
- Seal Analysis charts now show a warning message when an incorrect stratigraphic order has been detected.
- When using non-proportional log alignment, Vshale values are now correctly taken only from the log segment for the respective horizons.
- Improved chart display on for high-DPI screens.
- Improved creation of cut-off lines.

### Fault Response Modelling

- Monte Carlo Fracture Response Modelling has been added.

### Fracture Modelling

- When a random length distribution is defined for fracture length, the minimum and maximum lengths of fractures produced can now be defined.
- The speed of calculating properties has been improved.



## Geomechanical Modelling

- Source line can be changed by clicking on the line's temporary nodes as well as the points on the source surface.

## GST Link

- Enabled Move Link for GST on Linux.
- Special, non standard, characters are now correctly handled when transferring objects from Move to the GST database.
- Objects that don't require to be renamed will not be renamed.
- Auto Match button now works when matching attributes for upload.
- When uploading objects to GST, and attributes between Move and GST, the source and target attributes are now similarly ordered.

## Openworks Link

- Each 3D Seismic data set can now only be linked to a single Seismic Cube in Move.

## Petrel Link

- IBM format data is now correctly imported when transferring seismic data.

## Strain Capture

- When switching to an attribute with an azimuth colour map then switching back to the previous attribute, the colour map associated with the previous attribute is no longer replaced with the azimuth colour map.

## Stress Analysis

- Max shear direction will now show the sense of slip
- It is possible to represent points in the stereonet plot, and the Map/3D view as beachballs.
- The default settings have been changed to more realistic values, pore pressure is now turned on by default. S3 is slightly above the hydrostatic pressure, and the pore pressure curve is equal to the hydrostatic pressure.
- Stress field auto-updates are now shown correctly.
- Pressure profile sigma labels now update when manually adjusting points.

## Surface Analysis

- Curvature attributes will be created with correct units.

## Thermal Subsidence

- Thermal properties are now stored on the top horizon object for 3D operations.



## View tab and Display

### 3D View

- Points from sections when visualized in 3D views will now have their symbols lying on the section plane to replicate how they are visualized in Section views.
- Zooming to a point, or to selection bounds in the 3D View will now allow you to zoom in closely to that point, rather than moving past it. Traversing the scene by zoom behaviour will be restored, by the camera home action, the absolute camera direction actions, going to a saved camera position, or toggling zoom to selection off.
- It is now possible to pick vertices on surfaces which have been coloured by a face attribute.

### Google Map View

- Improved support for polylines containing multiple segments and highly sampled lines.

### Lighting

- The lighting tool will now allow control of the lighting on meshes displayed in Map views.

### Map View

- Mesh and Grid faces, wireframes and points, plus tetravolumes, geovolumes and seismic volumes can now be shown in Map views in the same way that they are in 3D views.
- Colour mapped and contoured surfaces can now be viewed in the Map view.
- Fracture sets are now visible in Map views.
- Map and section views now have the same overlay control pop-up accessible from the Display Toolbar as 3D views.
- The default style for display meshes in Map Views can now be set from the Mesh Style button in the View Control Panel. This style will be set as default for all new map views.
- Posts can now be loop selected in Map View.

### Section View

- Horizon Colours are now properly updated when the Horizon names have changed in the Stratigraphy Database.
- Well logs with colour maps can now be displayed in all cases on both sides of the well track.

## General UI

### Backstage View

- The license page now shows scroll bars when the window is too small.

### Quick Access Toolbar

- The options: Close, Close All and Save are now available.



## Application, Model Browser, Quick Editor

### Context Menu

- Convert to Mesh - mesh surfaces created from polygons will maintain internal boundaries.
- Convert to Polygon - where a multi-line is converted with lines representing internal boundaries, the resultant polygon will contain holes to match internal boundaries.
- The Edit Line option is now available in the context menu when a line is selected in a 3D view
- Convert to Line - When loop selecting points to convert to a line, the points are by default sorting using coordinate positions.

### General UI

- All dockable Tools and Attribute Analyser panes now have Midland Valley blue headers, and narrow blue borders when floated.
- Object Properties and Selection Filter dialogs will have more appropriately styled headers and borders in Windows 10.
- The status bar has been restyled with reduced use of frames, in the manner of modern Office products.
- Move will no longer crash when opening a file using Ctrl-O from a default map view.

### Licensing

- Move license FlexNET feature number is now "2018.1"

### Model Browser

- Section Browser has new display options to improve control of section visibility in maps and 3D views.
- When merging fracture sets the new set takes the name of the first selected fracture set.

### Preferences

- In Performance Preferences, users can choose to hide all objects in 3D and Map views by default when opening, or importing files. This can greatly speed up loading times.
- Map and Section Views can be opened with navigator windows already open by default if 'Navigator' is enabled in Preferences.

### Quick Editor

- The percentage of individual fractures in a fracture set that will be rendered can now be controlled by a slider in the Quick Editor.
- Dips and Markers on a Well can now be visualized from the 'Markers' tab of the Well Quick Editor.
- The object name of a seismic cube can now be changed in the Quick Editor.
- If there is only one log, or one group of logs, then only the attribute name will be used to represent the name of the well log in the well log list.

### Selection

- Improved the performance when loading wells with large number of well logs.



## Shortcuts

- Ctrl + D will Duplicate Section. Ctrl + R is now the shortcut for Resample. Ctrl + M remains as the shortcut for Basic Transform.

## UndoRedo

- Undoing changes to objects no longer removes the strain data.
- Using Ctrl + Z to undo a line extension no longer changes the end of the line being extended.

## Data and Analysis tab

### Attribute Analyser

- Constrained Attributes can now be added as Face Attributes.
- Attribute Analyser - it is now possible to use the Tree View to hide/show all attributes at once.
- Stereonet Plot - It is now possible to use a grey scale contour map.
- The select tool should now work with Text Attributes when using the '=' method.
- Cross Plot - the user can now copy the diagram without axis. Furthermore, the size settings of the diagram are saved in order for the diagram to keep the same size when opened in different Analysers.
- Cross Plot - What is selected in the view corresponds to the selection in the cross plot.
- Calculator - The calculator now honours units correctly. The unit from the most left attribute is used to identify the unit of all constant values within the equation.
- Cell Analyser - When averaging orientation data from point data into the GeoCell volume, the data is now averaged using the mean principal orientation.
- Create Principal Strain Planes - e1-e2 and e1-e3 Principal Planes now produce results as expected.
- Histogram Plot - The correct unit is now shown when changing frequency options.
- Stereo Plot - when selecting points in the plot, invert selection is now enabled.
- Stereo Plot - Loop selecting points and modifying selected points with Modify Cells will no longer crash Move.
- Filter Table Data - will now recognise False as a value for Boolean attributes.
- When creating a new attribute, the attribute list will automatically find it in the list of attributes, if it already exists.
- Column width will no longer reset when a row is selected.
- Filter Table Data - When filtering values for X(East), Y(North) and Z, the unit is now taken into account.
- Variogram - Attribute Kriging now takes the correct attribute for Kriging even when some nodes are set invisible in the tree view.
- Modify Cells - the Attributes to Modify drop-down now only contains attributes from the selected cells.

### Document Properties

- Attribute Manager - it is now possible to delete any user created attribute using the Attributes & Units, Remove option. The attribute will be removed from all objects using the attribute. The changes can be undone.
- Journal - Menu option added to refresh the Journal if it has been open, and is not up to date.

### Measure

- Fixed a number of issues with the display of horizontal and vertical distances on the screen.
- The current settings are now maintained when the tool is closed and reopened.





## Query

- Spatial query Inside Polygon available in Map and Section views. This will find all objects within a specified polygon.

## Stratigraphy Table

- It is now possible to reset the Stratigraphy database to the initial default setting using the 'Reset Move Default' option in the Stratigraphy Database File menu.
- Fixed issue when creating parallel beds at an angle using stratigraphy, If a horizon had zero thickness and zero angle then beds above would not be created correctly.

## Well Log Analysis

- Creating Markers from Dip Meter Well Logs will now allow the user to merge as well as overwrite the current well marker data.
- The Type attribute now correctly populates the list of types depending on the Data\_Type setting.
- Attributes can now be renamed.

## Well Marker Analysis

- Modify Cells - now supports constrained attributes in the Well Marker Analyser.

## Model Building tab

### 2D Depth Conversion

- The accuracy and quality of 2D Depth Conversions has been improved when using large horizon velocity changes.

### 3D Depth Conversion

- Converting 2D seismic images using the database method now calculates the new top and base of the seismic correctly.

### Advanced Transform

- Rotation of Horizontal Image about centroid now works correctly.

### Basic Transform

- Move no longer crashes when using the Basic Transform tool with Lineation data
- Improved support for the rotation of very long seismic images.
- Basic Transform Manipulators are now in the correct position for fault mesh surfaces.
- When translating and cropping images simultaneously, the image no longer disappears.

### Create Guide Lines

- Guidelines on a section are now displayed correctly in a 3D View.



## Create Line

- The Resampling option is now maintained for each section while the Move file is open, even when working on a dog-leg section.
- The correct points are selected in 3D Views if the view is in depth

## Create Surface

- Create Surface will now display "Normal Displacement" rather than "Z" for changing the position of inclined grids. Z position is not correct when moving an inclined grid.

## Edit Lines

- When editing a line in a 3D View, the passive point settings are set automatically if the number of vertices on the line exceed a certain limit.
- Toggling show/hide passive points will now work correctly for nodes which have been manually changed from passive to active.
- When editing a line if active point sampling is switched on, if the end point of a line is deleted, the next to end point is now displayed as an active point.

## Edit Surfaces

- Fill Hole - Improved performance when filling the gap between a mesh surface boundary and a closed line.
- Fill Hole - Fixed possible crash when using the Fill Hole option with parts of a mesh boundary and a closed line selected.
- Remove Point - Surface normals are now calculated correctly.

## Extend

- Checkbox "Filter Thin Border Triangles" should get rid of the thin triangles if checked.
- New option to extend a surface to a line.
- When using Merged Segment mode, the tool no longer causes the line to disappear.
- Switching between sections using the previous/next buttons on the Display toolbar will now clear the temporary line displayed by the extend tool.
- It is possible to extend surface using surface boundary when the surface has an internal boundary.

## Horizons From Fault

- Support for regional dip.

## Horizons From Template

- Fixed issue with editing the template line if the template line consisted of only three or four points

## Model Building

- Separate / Merge Line - When using with closed lines, the new line will remain closed preserving internal boundaries.



## Snap

- Snap surface is now correct when source surface needs trimmed.

## Split Lines

- When Undo is selected after splitting a closed line, the closed setting is no longer lost.
- Splitting closed lines now produces consistent results.
- It is now possible to split lines belonging to a section in Map View.

## Split Surfaces

- When splitting a mesh surface with a fault which splits one edge of the mesh, points are now duplicated where the surface is split.

## Surface with Boundaries

- Offers better support for construction of surfaces from a combination of data types.
- The orientation of dip data may be used to constrain the geometry of the surface.
- Extrusion of lines with dip data control has been added to the Construct Surface with Boundaries tool.

## Tidy

- No longer identifies self overlapping lines that weren't overlapping.

## Topology

- After removing duplicate vertices, the fixed surface no longer falsely detects that the surface consists of multiple patches.



## MOVE2017.2 NEW FUNCTIONALITY

### File Format, Imports, Exports, Help

#### Exports

- PDF Export - Render mode for surface with faces and edges turned on is now Solid Wireframe and not Shaded Wireframe

#### Imports

- FAB – Aspect Ratio will automatically be calculated based on length.
- GIS Vector – Will now specify the file type on the import dialogue.

### Modules tab

#### 2D Move-on-Fault

- New algorithm: Elliptical Fault Flow.

#### 2D Section Analysis

- If a fault has only one point it is displayed as a node rather than a line.

#### Fault Analysis

- All charts now zoom to mouse position when using the wheel.
- Well log attributes containing 'Vsh' or 'Vcl' are interpreted in the 0.0 to 1.0 range in the tool's charts.
- Help now opens to the page that pertains to the active tool sheet.
- Fault History and Fault Triangle diagrams now show coordinates and property values below the main chart when hovering over their cross-section charts.
- Descriptors for custom length/throw data in the Fault Scaling chart can now be edited.
- Multiple wells can now be assigned to each side of each fault.

#### Fault Response Modelling

- The misfit calculation has been restored to how it was calculated in Move2016.

#### Stress Analysis

- The principal circle only can be copied now to the clipboard to paste this into MS office.
- Sigma 3 - depth relationship - has been changed to hydrostatic pressure.

#### Decompaction

- The Decompaction of well logs is now supported.



## Block Restoration

- Seismic images can now have their colour map changed after being restored. Previously after restoration the colour map was fixed.

## Fault Analysis

- A Triangle Diagram has been added to analyse hypothetical faults based on well data.
- It is now possible to assign a Vshale log to either side of each fault.
- Shale Smear Factor and Clay Smear Potential can be calculated.
- The calculated Vshale can be visualized.
- The colour map used for Shale Gouge Ratio now transitions to dark red at its maximum.

## Fault Response Modelling

- Fracture sets can be used as Master Faults. Hence, the strain transfer and interaction between fracture planes in DFN's (discrete fracture network's) can easily be performed.
- Slip Zone Modelling after Jeykumaran (1992) is now available for Master Faults. The slip on faults is derived from a regional stress, a driving stress, or a user defined traction which is applied onto the fault surface(s).
- A new tab 'Displacement on Master Fault' as been added to the 'Analysis Results: Displacement, Strain and Stress Colour Mapping' sheet. Here the user can colour map the master faults for slip in global and local coordinates resulting from the Slip Zone Modelling. Furthermore, when the Master Fault is used as an Observation Object for a Fault Response simulation, the positive and negative displacement (displacements from hanging wall and footwall) are calculated, and can be colour mapped via the new tab.
- A new sheet called 'Fracture Analysis: Angular Misfit' has been added to the tool. This allows the user to calculate the angular misfit between observation fractures and strain based fractures, which resulted from Fault Response simulation runs, geomechanical or 3D kinematic strain capture workflows.
- In the Options sheet, the user can specify whether to use infinitesimal strain or finite strain. The infinitesimal strain option is the default, as the triangular dislocation theory is based on infinitesimal strain. The finite strain option is useful, when 3D kinematic or geomechanical strain capture workflows are used, and the user wants to use these strain results for a Fracture Analysis within the Fault Response Modelling tool.
- In 'Fracture Analysis: Angular Misfit' the user has the option to search for the best fitting slip direction on faults by running multiple Fault Response simulations and trying to find the best angular misfit matching the observation data.
- The tool shows an approx. simulation time in order to give some runtime feedback when more than one fault and one observation object is used. The approx. simulation time is also shown, when running search runs in Fracture Analysis: Angular Misfit.
- In Fault Response Modelling, slip and opening magnitude have been removed from Slip on Fracture Planes per Object.
- Plunge and plunge azimuth attributes are created on Master faults, when using Max Shear Direction as the defined displacement, or when using Remote Loading or Traction displacement options. These can be then for example used to show as Lineation data in the Stereo Plot within the Regional Stress field tab.

## Fracture Modelling

- A unit called Per Volume has been added to the default units list. It is used by Fracture Modelling to represent the intensity when N is selected



- In Fracture Modelling view when collecting Intersections with fractures, we no longer create an undo when no intersection is found, a marker is no longer created at the top of the well when it does not contain marker data. It is now possible to collect intersections with fractures even if several wells are selected, and this process is now faster.
- In Fracture Modelling, the values defining the length are now verified before fractures can be generated

## Geomechanical Modelling

- Improved detection and prevention of triangular elements being overturned during Geomechanical Simulations.
- Improved the progress bar in Geomechanical to show progress during an incremental projection of the template/passive objects to their respective targets, including an estimate of time remaining in the simulation.
- Additional options when creating constrains to delete either the last point picked or the last line created.

## Move Link for GST

- The Move Link for GST will now connect to GST Storage version 2.9.0.

## Strain Capture

- The Strain Capture tool has been rewritten to enable better support when using the Kinematic tools and the Advanced transform tool.
- Lagrangian and Eulerian strain is supported
- Finite and Infinitesimal strain is supported. Strain attributes have been split into finite strains beginning with FE (FE1, FE2, etc) and Infinitesimal strains (E1, E2, etc).
- A maximum infinitesimal error attribute can be calculated, This indicates the percent error associated with using infinitesimal strain when the strain is not infinitesimally small.
- Strain can be captured using vertex clouds, mesh surfaces or tetravolumes.
- Strain can be captured using the 3D Decompaction, 3D Move-on-Fault and 3D Unfolding tools.
- Strain can also be captured using the Advanced Transform tool when using the scaling or rotation options.
- When capturing strain with mesh surfaces, it is possible to delete triangles without losing the recorder strain. It is not possible to split or upsample the mesh or add triangles.
- the Strain preview colour map options have been extended including support for transparency control.
- Colour map legends are displayed in the 3D view for temporary surfaces created by the Strain tool.

## Stress Analysis

- When analysing fractures in the Stress Analysis module, the specific orientation data that meet a failure criterion are shown as filtered points or as a filtered fractures in the view. All Stress Overlays with its appropriate tolerance can be used for this filtering method. Furthermore, the filtered information can be created as an object for further usage in projects.
- The stress state can be determined from slickenside data within the Lineation sheet. The method used for determining the stress state is from Angelier (1990).

## 3D Model Analysis

- The analysis table in 3D Model Analysis now reads "Surface Measurement" rather than "Line Measurement" for the measurement tab.



## View tab and Display

### 3D View

- There is now the option to perform faster 3D picking for very large point clouds which use the enhanced symbol style. It performs picking against the exact point location, rather than the entire visible marker geometry. This is enabled by default for point clouds of more than 10,000 points, and this threshold can be changed, or disabled altogether in the Performance Preferences.
- Improved rendering for polygons on dog-leg sections in the 3D view.

### Map View

- In Map View - Trace/CDP ticks are now drawn at exact intervals.

## Application, Model Browser, Quick Editor

### Field Image Browser

- The Field Image Browser now supports the Ctrl+A short-cut to select all images.
- Invalid bearing values are now displayed as Undefined, whilst valid values include the suffix deg.
- The Print All button has been removed. Printing or exporting to pdf now take into account the active selection.

### Model Browser

- Clicking in a Section View now updates the Model Browser filter, to show only Objects belonging to that Section.

### Preferences

- Using the File Preferences, Viewer and Display, 'Show Well Symbol at Start' option, the user can now choose whether to display Well Head symbols at the true position, or with an offset to aid visibility. Using the Quick Editor, it is also possible to show and hide the Well Head.

### Quick Editor

- The Horizon Assignment of an object can be set from the Quick Editor.
- Limitations to the amount of objects which would affect the current quick editor state have now been removed. Previously the current state of a maximum of 99 objects would be displayed.
- Strain Capture can now be activated from the Quick Editor for Surfaces, Tetra Volumes and Point Clouds.
- Using the Quick Editor, it is now possible to select which Attribute is used to label Points.

## Data & Analysis tab

### Attribute Analysers

- The Histogram now supports Kolmogorov-Smirnov (KS) plots for comparing how well two data sets match.
- It is now possible to create a vertex cloud at the cell corners of a Geo-Cellular Volume from within the Cell Attribute analyser.



- Fracture sets can be coloured by attribute in the same way as vertex clouds.
- The SCAT tool can no longer be opened from the cell attribute analyser.
- The Attribute Calculator will now remember if logical or string operations were being used.
- It is now possible to clear cells using the calculator by setting the cell value to 'null'
- Stereonet Plot and Cross Plot: If you hold the Ctrl. key, the user can loop select the visible data, when "Selected Data Only" is turned on.
- New context menu option: Copy Circle for Stereonet/Rose/Tangent plots.
- Histogram Chart: the data can now be copied to clipboard to paste into MS office.
- Histogram Chart: min, max, interval axis display can now be changed.
- For Point Clouds, can add & remove rows without pressing Apply.

### Colour Map Tool

- When selecting an azimuth attribute for colour mapping, an appropriate azimuth colour map (a colour map with matching colours for zero and 360) becomes the default colour map.
- The display of colour map legend has been improved by only displaying interval lines where numbers are shown.
- Pins can now be colour mapped in Section and Map views.

### Document Properties

- In the Document Properties, Default Display Units Tab, the Category names have been standardized.

### Object Properties

- The Object Properties Dialogue will now allow multiple attributes to be deleted at once.
- It is now possible to undo an attribute deletion in Object Properties.

### Well Log Analysis

- Vertex clouds can be created from dip meter data from within the well log analyser.

### Texture Map tool

- You can now map Seismic time slices onto mesh surfaces

## Model Building tab

### Construct Horizons from Fault

- New algorithm: Elliptical Fault Flow.

### Create Well Marker

- The shortcut keys 'c' and 'h', which can be used to select other objects and points of the same colour as a previously selected object or point, will now also work for well markers.

### Fault Construction

- Ability to Change Precision of Area Depth Regression Line.





## Resample tool

- Attribute Mapping is now multi-threaded, hence speed has been increased.

## Split tool

- Splitting a line or polygon will preserve attributes.

## Basic & Advanced Transform tools

- The Advanced Transform Tool has new options to rotate and scale objects about their centroids.
- When using the Basic Transform tool on a fault mesh surface, the Transform Manipulator will be aligned with the fault normal. This enables the fault to move in line with its azimuth and strike.
- With the Basic Transform tool, it is now possible to hide the original position of the object being transformed by pressing the keyboard shortcut 'o'.
- Seismic images can now have their colour map changed after being rotated. Previously after rotation the colour map was fixed.
- Scaling or rotating with the Advanced Transform tool now supports strain capture.

## Depth Conversion

- The Depth Conversion of well logs is now supported.

## Edit Tool (3D)

- The accuracy of the Edit tool has been improved, as previously it was difficult to drag to exact desired positions.
- When using the Edit tool, it is now possible to directly pick a surface within the 3D view .

## Context Menus

- Collecting surfaces intersections on wells is now faster if multi-threading (preference options) is on.
- A new context menu entry has been added to allow the user to Merge Fracture Sets.
- A new context menu entry has been added for Grids and Meshes, allowing the user to Set Rock Types for Texture Map. This option samples the texture at each vertex and creates rock types for each colour in the Stratigraphy database and the appropriate rock id is stored as an attribute for each vertex. The Fault Response Modelling module is connected to this rock attribute per vertex, which means that lateral varying rock properties can now be easily used and modified within the Rock Property database.

## Freeze Frame tool

- The Freeze Frame tool can now be launched from the Quality Control section of the Model Building panel. The new interface allows the user to manage Freeze Frames across multiple views and it is still available, when other tools are active.



## File tab, Help Pages, Knowledge Base

### File tab

- The Print and Print Preview functionality is now fully embedded in the Backstage View, accessed via the File tab.
- The previous Move2016 licensed modules page and controls are now in the File tab.

### Knowledge Base

- Improved cross-referencing between tutorials and help pages.
- Addition of a menu option to access the back catalogue of Move Monthly features that appear in the electronic newsletter sent out to registered users.



## MOVE2018.1.1 ISSUES FIXED

### File Format, Imports, Exports, Help

#### Imports

- DXF files can now be imported using the GDAL vector importer and no longer defaults to the dxf importer.

#### Move Files

- Rendering multi-textured surfaces without the necessary vertex attributes representing texture coordinates now works correctly.

### Modules Tab

#### Fault Analysis

- Guide line behaviour has been fixed in the Fault History chart.

#### Stress Analysis

- Move now takes the user-defined gradients and uses them to correctly recalculate the stress magnitudes at each depth.
- The pore pressure above sea level is now being used correctly.

### View Tab and Display

#### Map View

- Point clouds are not rendered in Map Views when using Monte Carlo Stress Inversion.

### Model Building Tab

#### Resample

- Output from rational reduction of surfaces now honours the original surface border.



## MOVE2018.1 KNOWN ISSUES

### File Format, Imports, Exports, Help

#### Exports

- 3D PDF - If the 3D view is set to Pixel mode and the user exports a 3D PDF point clouds and well markers will be rendered smaller than expected. Change the View settings to Metric to export correctly.

#### Mve Files

- Exporting as MVE Pre 2015 (MVE 1.6), Rock Property names will not be preserved in the Rock Properties database, however the properties will be.

### Modules tab

#### 2D Unfolding

- 2D Flexural Slip Unfolding, fixed problems when using either a non-linear pin or a pin with multiple points, flexural slip unfolding could fail to calculate all passive objects correctly.

#### Fault Analysis

- Decompaction of branchlines using a Fault History diagram is currently experimental. Consequently, the results may be inconsistent with 3D restoration and decompaction results. It is recommended that faults containing branchlines are restored using the Only Join Beds method.

#### Petrel Link

- When transferring Seismic Cubes from Petrel to Move using the Petrel Link, and choosing to store the Seismic Data external to the Move Document, the Seismic is now displayed properly when the Move document is closed and reloaded.

### View tab and Display

#### Google Map View

- Move may crash when opening a Google Maps views on machines which have: Lavasoft.dll installed.

#### Section View

- On some older graphics hardware, under some conditions (particularly if lots of different Move documents are open at the same time), users may experience problems with Medium and High quality seismic rendering in section views. In these cases, the seismic image may appear cropped, and the level of crop changes when the user zooms in and out. In these cases, closing and restarting Move, or restarting the computer may resolve the problem. If it does not, or if the user does not wish to do so, then setting 2D seismic quality to Low in the Performance Preferences dialog at runtime will make the seismic images appear correctly.



- Images larger than 20,000 pixels x 20,000 pixels cannot be displayed in Section views. These can be down-sampled on import.

## Application, Model Browser, Quick Editor

### General UI

- Linux - When using KDE, dragging the toolbar causes the whole window to be moved. As a work around go to System Settings > Window Behaviour. In the Window Actions tab, make sure the Left button option under Inner Window, Titlebar & Frame is set the Nothing and check what the modifier key is set to. In Move, the Tool Bar can now be dragged by holding the modifier key and dragging the Tool Bar as normal.
- Windows - Move may crash or freeze unexpectedly on machines running other 3rd Party Software, including: Dell Backup and Recovery software; PC Backup, HP Trust Circles, Box Sync and Druva inSync. Windows Event viewer will report this error as MSVCR100.dll or MSVCR120.dll is missing. To resolve this issue uninstall the problematic application via Control Panel > Programs and Features > Uninstall or Change a Program.

### Selection

- Linux - With some window managers, the Alt button in combination with loop-select will not perform the usual Move behavior of selecting full objects. This key combination may be reserved as a special window manager short-cut.

## Data and Analysis tab

### Survey Box Editor

- When working in a file with multiple surveys one of which has been edited, the survey box extents are not restored to custom extents, instead a default box is created from survey coordinates and model bounding box.

## Model Building tab

### Horizons From Fault

- Detachment Fold - Syn-tectonic beds may not be fully drawn correctly if the sediment thickness is less than the uplift in each step.



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