

# MOVE 2022, IPM 13 – Overview

- MOVE 2022 is a part of the IPM 13 release:
  - Single installer with *MOVE, RESOLVE, REVEAL, GAP, PROSPER, MBAL, PVTP.*
  - Important for API and workflows that utilise both **RESOLVE** and **MOVE**.
  - New option for deploying MOVE with all IPM, or separately.
- **MOVE 2022** introduces the ability to create faulted 3D GeoCellular Volumes:
  - Create 3D Grids as input for reservoir simulation (e.g. REVEAL).
  - Creation method will honour faults and fault relationships.
  - New export Volume in REVEAL format.
  - Improved MOVE import and export to/from ECLIPSE format.
  - GeoCellular Volume Attributes are now saved in volume exports.
- *MOVE 2022* extends the API for either *RESOLVE* or *OPENSERVER* that was introduced in MOVE 2019.
  - More *MOVE* tools exposed to the API.
- Introduction of a **RESOLVE Data Object** (RDO), **MOVE Engine**:
  - Access MOVE Data and operations without GUI.
  - Complements the existing API.
  - Improve performance and efficiency of RESOLVE workflows using MOVE.
- Model Building improvements:
  - Resample Tool now includes preview functionality.
  - Surface with Boundaries Tool constraints now support multiple input faults
- Improvements in 2D Kinematic Modelling:
  - Display of Thermal subsidence and use of burial history curves.
  - 2D Decompaction tool with polygons.
  - Improvements to Depth Conversion to allow use of velocity volumes.
- Improvements in Fault Analysis:
  - Extract Vshale input from a GeoCellular Volume, in addition to wells.
  - Sessions functionality allows all modelling objects and scenarios to be saved and revisited, preventing repetition of work.
- **MOVE** links to Petrel and GST updated to support latest versions
- Numerous additions and improvement are listed in more detail in the *What's New in MOVE 2022 – IPM 13* section that can be found in the MOVE Knowledge Base



# MOVE 2022, IPM 13 – What's New

*MOVE* 2022 is now available and is part of the Integrated Production Modelling software (*IPM*) 13 release. The release date was 30<sup>th</sup> March 2022 and the new version is available to all our maintained clients and academic users.

There is a single installer which now includes Petex engineering and geological software, including *MOVE*, *RESOLVE*, *REVEAL*, *GAP*, *PROSPER*, *MBAL*, *PVTP* and *OpenServer*. This is important for the creation and execution of visual workflows that utilise both *RESOLVE* and *MOVE* via the Application Programming Interface (API). There is also an option to install all of IPM without MOVE, or alternatively, MOVE without the rest of the IPM suite.

The *MOVE 2022* release follows-on from the 2020 release of *MOVE* and includes new features, as well as improvements to existing functionality and usability. This section provides an overview of the new features, enhancements, and performance improvements, which include changes to Move Core, the Move modules, the Move Knowledge Base, and the 2022 additions to the *MOVE* Application Programming Interface (API) which was introduced in MOVE 2019.

Integrated modelling is achieved using the API, which provides a gateway for communication between *MOVE* and external applications. Modelling tasks in *MOVE* can now be automated and extended to include additional calculations and analysis in *RESOLVE* and additional external applications.



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# Generate 3D Volumes (reservoir models)

Structurally complex and faulted reservoirs provide one of the major challenges for reservoir modelling. One of the major additions to MOVE 2022 is the ability to generate 3D Volumes honouring faults and taking account of fault termination and cross-cutting relationships.

This allows users to work more easily with complex structural models. Fault parent-child relationships with single or double terminations and cross-cutting child faults can be incorporated into the volume creation. The new functionality makes it possible to use complex fault frameworks to create 3D grids as input for reservoir modelling using a simulator such as Petex's **REVEAL**, or any 3<sup>rd</sup>-party modelling and simulation packages.



Figure 2: 3D Volume generated from MOVE 2022.

Transfer of results to **REVEAL** is made easier with the creation of a new **REVEAL** format volume file export. As well as this new export there have been improvements to the import and export to ECLIPSE. This new volume export functionality is made more valuable because **MOVE** geocellular volume attributes, for example Vshale, are now saved in volume exports.



# Integrated modelling & API

MOVE 2022 builds further on the **Application Programming Interface (API)** that was first introduced in MOVE 2019.

Petroleum production systems incorporate many modelling domains and specialities. The multi-disciplinary nature of such systems risks isolation of modelling and imposition of artificial boundary conditions. This risks the model deviating from the reality in the field and therefore not being representative and predictive. Integrated modelling is the practice of using technology to remove artificially-imposed boundaries using automated and efficient communication between modelling software tools. This enables automatic review of a model in one domain against models and data from other disciplines, ensuring assumptions are consistent in all components of an integrated model. For geological modelling, integrated modelling will streamline the validation process with any available dynamic production data, as well as enable efficient update of the reservoir model as understanding evolves.

Integrated modelling is achieved using the API, which provides a two-way gateway for communication between *MOVE* and external applications. Modelling tasks in *MOVE* can now be automated. Doing so:

- Increases efficiency.
- Removes subjectivity.
- Makes analyses **documented** and **repeatable**.
- Encapsulates knowledge.

Additionally, by integrating *MOVE* with *RESOLVE*, users gain access to a broad range of new modelling tools and connections to a large network of software packages (Petex and third party). As an example, tools such as the optimised search and sensitivity modelling tools in *RESOLVE* can be combined with structural analysis in *MOVE* to perform modelling tasks that were previously not possible. *RESOLVE's* connection to many other programs, such as reservoir simulators (e.g. *REVEAL*), provides a mechanism to automatically connect structural modelling with dynamic modelling.

Several practical examples have been developed to demonstrate how automation and integration of *MOVE* adds value to current modelling practices, including:

- Integrated analysis of propagation folding, including automated fault prediction and identification of optimal trishear parameters.
- Fault and top seal calculator that determines the limiting factor on hydrocarbon column height accounting for fluid properties and using MICP lab data, as well as harnessing MOVE's fault seal calculations. This was presented at the Petroleum Experts Annual User Group Meeting 2021.



• Automatic modification of faulted geometry and fault-rock properties in a simulation grid and comparison with production data.

Workflow automation and integration using MOVE's API connection provide the flexibility to create workflows tailored to the needs of the user.



Figure 3: Assessment of how uncertainty in the interpretation of structural features impacts volumetric calculations. Uncertainty ranges are quantified (a) and the impact of the uncertainty on volumetric estimates is explored using the Sibyl sensitivity analysis tool in RESOLVE (b).

*IPM 13 – MOVE 2022* facilitates the connection of an even larger array of *MOVE* tools and operations through the API than in previous versions. User workflows can now incorporate the Create Surface and Snap tools, allowing the addition of basic model creation in 3D to automated validation and restoration analyses. The Duplicate tool can now be used to automatically save out restoration or forward modelling steps. The Project to Section tool can also be accessed using the API, providing flexibility when incorporating 2D analysis in integrated workflows.

Finally, workflows can now also include Strain Capture and Fracture Modelling analyses using the API. This takes the integration of kinematic restorations and forward modelling one step further, by automating calculation of deformation attributes and then using these attributes to generate discrete fracture networks. This provides the potential for user to automate the generation of discrete fracture networks for different pre-defined structural concepts.



# Introduction of new RESOLVE Data Object (RDO), MOVE Engine

The new MOVE Engine data object allows users to connect to MOVE models and perform specific optimised tasks through RESOLVE without opening the main MOVE software application. Because MOVE's graphical interface is not opened when using the MOVE Engine, a number of significant computing requirements are removed, such as graphical rendering, allowing tasks performed by the MOVE Engine to be greatly optimised for both speed and resource usage.

For the first iteration of the MOVE Engine, in IPM 13, the number of tasks that can be performed is limited to:

- Loading and extracting MOVE model object information, excluding Object Attributes.
- Performing Fault Analysis seal proxy calculations. A parameters file can be saved from MOVE to specify the required settings.
- Basic 3D rendering of MOVE model objects within RESOLVE to perform visual checks.

Future releases will expand on this functionality with the eventual aim being to expose the full range of operations in MOVE.

A valid MOVE Core license is required to run the MOVE Engine RDO (RESOLVE data object), and any Fault Analysis operations require a MOVE Fault Analysis license.



Figure 4: Workflow in RESOLVE using the Move Engine RDO



# Improvements in 2D and 3D Kinematic Modelling

*MOVE 2022* incorporates a number of improvements in the 2D Kinematic Modelling and 3D Kinematic Modelling modules.



Figure 5: Complex cross section adapted from JuraSection\_Buxtorf (1914)

For constrained model building, Fault Geometry now automatically recognizes footwall, hanging wall and fault lines when the user opens the tool Hith these objects selected. Faults created in the tool are built from the upper tip of the input fault.

For quick validation, the Simple Depth to Detachment method in the 2D Area-Depth tool now can handle a fault (besides the input horizon lines) for predictions in compressional settings (Excess Area mode). This improves the accuracy of calculations using the Simple Depth to Detachment model in faulted, compressional settings.

Restoration and forward modelling:

- For 2D and 3D Move-On-Fault, the performance of the Trishear algorithm has been improved, particularly increasing speed when carrying seismic data.
- In the 2D and 3D Thermal Subsidence tools, an option has been added to "Match Burial Depth at End of Rifting". When enabled it pins the Burial History curve to the calculated Thermal Subsidence at the end of the Syn-Rift period. This allows straightforward, direct comparison of the Burial History and Thermal Subsidence curves after this point.
- In the Strain Capture tool, Normalized Joint Intensity is now calculated based on finite strain (fe1) values.

Lastly, the 3D Depth Conversion tool now supports cubes with 'average velocity' attributes to be used for conversion, and it also allows setting up a Maximum Velocity if desired.



# Improvements in Fault Analysis

Lithological data for use in fault seal analyses can now be sourced from a pre-existing gridded Vshale volume. The data for each calculation point on the fault surface is sourced from the values in the first cells encountered in a direction perpendicular to the fault surface and completely within each side of the fault. For example: the hanging wall Vhsale value for a calculation point on a fault will be readfrom the first cell encountered moving away from that point, in a direction perpendicular to the fault, into its hanging wall, which is entirely within the hanging wall. This eliminates data being sourced from cells on the wrong side of the fault in the case of faults intersecting stair-step grid geometries.

The Fault Analysis module now has the ability to save all of the objects and parameters used in the calculation of fault displacement and seal properties, using the Sessions functionality. Sessions can be created at any time while the tool is open and will save all the variables used in the analysis including:

- Faults and cut-off lines being used;
- Lithological input (well log(s) or volume);
- Vshale calculation parameters (if used);
- All of the values defined in the 'Options' and 'Parameters' sheets of the Fault Analysis module.

Upon reopening a project within which Sessions have been saved, the user can simply open the Fault Analysis module and choose a previously saved Session from the drop-down list, and the toolbox will be populated with the data and variables previously defined. This new addition to the functionality precludes the need for repetition of previously completed work and allows multiple scenarios to be tested and compared easily and efficiency.



*Figure 6: Fault Surface colour mapped for lithological juxtaposition and ESGR showing cross-fault and along-strike variation in lithological input data* 

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# Other Highlights in MOVE 2022

In **MOVE 2022** Model Building has seen significant improvements. The Surface with Boundaries tool has a new option to ensure that the kriged surface will honour the object boundaries of the selected surface extent object when this is desired. This is particularly useful when dealing with data from a GIS system where the extents of any newly created surfaces must match exactly the extents of the input data.

The Ordinary Kriging algorithm itself has been improved to help remove artifacts when the best fit plane is close to horizontal. The Surface with Boundaries tool has also been updated to optionally use multiple faults for constraints, rather than just one fault, as input parameters. Please see the Help Pages for more information on this new development.



Figure 7: Surface with Boundaries Tool – multiple constraining faults

The Auto Polygons tool has been improved to give more user feedback and direction in cases where the data do not allow polygon creation. The Extend Surface tool, when using Dip/Strike Direction has a Preview option, making it much quicker to visualise the expected extension whilst changing the options before applying. To improve data visibility in the Horizons from Template tool, the Construction tab can now be un-docked.



There are some notable highlights in **MOVE 2022** in viewing and displaying data. In the Model Browser there is a new context menu called **Collapse All**. When working with very large models with many long sub-trees of existing data in the Model Browser containing 100s of items, this offers improved model management and avoids getting lost in the data.



Figure 8: MOVE Model Browser Collapse All functionality

In the Well Quick Editor interface, the Log and Dipmeter tabs can now be undocked allowing improved visibility and examination of data. There has been an addition to the file types listed in the Move Recent Files list to now include Move archive files (\*.movz).

After similar enhancement requests submitted by several clients as part of our annual User Meeting, **MOVE 2022** has the ability to save and load Camera positions between MOVE projects. This will allow users to quickly and easily match camera positions between different projects, widening the range of possible presentation images produced from MOVE.

**MOVE 2022** contains many under-the-hood performance improvements. An issue has been resolved with certain graphics cards for models with grids or meshes in MOVE of more than 2.5 million elements, allowing the GPU to be fully utilised rather than falling back to the CPU. Users will see much faster display and object picking/selection performance on very large models, with GPU shaders and VRAM being utilised more fully.

Significant improvements have been made to the render times for Map Views, especially in models containing hundreds of thousands of polyline elements. This release improves performance when loading ZGY seismic files.



## Model Catalogue Updates

*MOVE 2022* builds on existing compatibility with Petex's **Model Catalogue** which is a version control and model management system. The *MOVE* model can be loaded into *Model Catalogue* and the contents of the model are registered. The most up-to-date version of a model is maintained, and *Model Catalogue* notifies a user if the model is being worked on by someone else. Once a user has finished working on the model, any changes are tracked and recorded. Users can leave comments for other users outlining the work that has been completed or the changes that have been made.

# MOVE 2022, IPM 13 – Updates & Fixes

As well as the major changes and additions outlined above, please find below is a comprehensive list of updates and improvement to **MOVE 2022 – IPM 13** organised by the **MOVE** interface tabs.

Please note that some of the fixes rolled up in this release were back ported to the **MOVE 2020 – IPM 12.5** version as part of our regular updates to the commercial version throughout last year and are marked (\*).

## **General Application Changes**

- MOVE requires hardware OpenGL/GPU resources to function. Previously this was simulated to allow license administration. License administration is now outside of MOVE, so this support has been removed (\*).
- The Recent File list on the Open page of the File tab now lists recently opened MOVE Archive files (\*.movz).
- Fixed an issue where MOVE fails to launch if the environment variable GDAL\_DRIVER\_PATH is set (\*).

## **Display Changes**

• Fixed an issue where some seismic images were being displayed flipped along their I Axis in Map View (\*).



- Fixed an issue where displayed section orientation was not updated if Section View was switched by using display toolbar buttons or by dragging from the section browser (\*).
- Fixed an issue where Reset Trace/Posts would not adjust a section with only a single projected well (\*).
- Fixed an issue where under certain conditions Section Views failed to render after the Surface tool had been open (\*).
- Fixed an issue in 3D views where upon deleting an object belonging to a section the section remained highlighted (\*).

## **User Interface Changes**

- Added a new context menu option to the Model Browser, Collapse All, which allows for a folder and any associated sub folders to be closed simultaneously.
- The Number of Segments in a merged polygon is now listed in Object Properties.
- It is now possible to save out MOVE camera positions to a file and load them into other projects.
- The North compass rose in 3D view is now also red coloured underneath.
- Significant improvements have been made to the render times for Map Views.
- Fixed an issue where labels could not be displayed in 3D Views (\*).
- The Log and Dipmeter data tabs of the Well Quick Editor can now be dragged and displayed as separate windows to allow a clearer view of the data.
- Dipmeter data on wells can now be displayed as a log plot in addition to dip symbols.

#### File format and Import/Export

- Improve performance when loading ZGY seismic files (\*).
- GIS Raster Data import removed the 30000m limit on permitted Z values (\*).
- Shapefile import fixed issue where assigning Z for some attribute values failed (\*).
- Fixed an issue where non-standard ASCII characters caused unnecessary increases in saved file size (\*).
- Errors when loading or accessing ZGY seismic files are now saved to the MOVE log file
   (\*).
- An error message is now displayed if an invalid ZGY seismic file is loaded into MOVE (\*).
- It is now possible to export GeoCellular volumes in the REVEAL file format by right clicking on them and selecting the relevant option from context menu.
- 'HTML' (hexadecimal) colours in Gocad ASCII files are now supported in the GoCad importer.
- Improved the FAB file importer adding support for newer style FAB files (\*).
- In the Eclipse exporter, provided an option to export the GRDECL format to a single file.
- For OBJ files, material colours (\*.mtl) are now displayed when inserted. If "Merge all images and meshes" is enabled, material colour attributes will be created and displayed as a Colour Map. If "Merge all images and meshes" is disabled, an object is created for each material colour.
- MOVE project file names now support extended ASCII characters.
- Fixed issue where MOVE could crash when reading some ZGY seismic files into memory (\*).



- Fixed a data corruption issue when saving and loading projects containing more than 100 GeoCellular Volumes (\*).
- Fixed an issue where for some OBJ overlay images were not displayed correctly (\*).
- MOVE can now read ESRI WKT "Complex" projection types either in GIS files or as part of a PRJ file import (\*).
- Fixed an issue with the Rescue importer where the local grid origin for grids in feet was the wrong value, which in turn lead to inaccurate calculations e.g. Vertex Attribute to Property (\*).

## **Model Building**

- The Auto Polygons tool now displays the following message "Unable to create any valid polygons. Only complex polygons detected. Check selected lines using the Tidy tool." if no polygons have been created.
- Resample tool: Rational Reduction Edge Collapse the value of the Maximum Edge Length to Collapse can be set to values of less than 1 meter. Resample tool: Adaptive Sampling - the value of Maximum edge length and Maximum approximation distance can be set to less than 1 meter. (\*)
- It is now possible to Merge Point Data objects belonging to the same section. (\*)
- Fixed an issue where some coloured images displayed as grey scale. (\*)
- The Tidy tool now gives a warning if lines with multiple segments are detected. (\*)
- Fixed an issues where Well names with extended ASCII characters where not displayed correctly in 3D views.
- Extend Surface in Dip/Strike Directions now has a Preview option. If Preview is off, no pre-calculations are run or previews shown while changing parameters.
- In the Surface with Boundaries tool a new option has been added for the kriged surface to honour the Surface Extent Object Boundaries.
- In the Horizons from Template tool if the collected data has a single horizon assignment, this is now the default template horizon in Use Stratigraphy mode.
- Resample using Grid option, improved performance with invalid and multiple boundaries. (\*)
- The Isolated Faults sheet of Surface with Boundaries has been renamed to Faults and a new method to create surfaces that honour multiple faults has been added.
- In the Surface With Boundaries tool, the Honour Points option is now available when the Surface Extents option Use Object Boundaries is enabled.
- The limit on the maximum number of cells in a GeoCellular volume has been increased to 125 million. (\*)
- In the Topology tool, the minimum Symbol Size is now 0.1 m. (\*)
- Improved the Ordinary Kriging algorithm to remove artefacts created when kriging surfaces from points whose best fit plane is close to being horizontal.



- Fixed an error where additional horizon lines could not be edited if Freeze Frame tool was active. (\*)
- When projecting dip data onto a section, the projected dip data is now always created as a new dip data object.
- In the Surface with Boundaries too, fixed issue where corners of polygon boundaries were not being honoured when Honour Points was enabled. (\*)
- Average Dip / Average Dip Azimuth are now also displayed in Object Properties for individual mesh surfaces. (\*)
- Fixed an issue where MOVE could crash in some cases if a line was deleted using the context menu 'Delete' option while editing it using the 2D Edit tool within a section.
- In Horizons from Template, it is now possible to detach and resize the stratigraphy tables (the same as in Horizons from Fault).
- Improved the Horizons from Template Bisector algorithm to reduce errors.

#### **Data and Analysis**

- The Add and Remove row options are now disabled for part selection in the Attribute Analysers. (\*)
- The cell values can now be edited for partial selections in the Cell Attribute Analyser.
- Fixed an issue with the Well Log Analyzer where creating new attributes could cause MOVE to crash. (\*)
- In the Attribute Analyser, Create Vertex Cloud dialog, the Lineation option is now correctly initialised. (\*)
- In the Well Marker Analyser a warning is now given if the Create Vertex Cloud option is unable to create points for all markers in the table. This can occur if markers are above or below the current well track / drill hole. (\*)
- Fixed an issue the Create Vertex Cloud option in the Well Marker Analyser would fail for projected wells if the corresponding section view had not been opened.
- Fixed an issue were is "null" was not recognized in the Attribute Analyzer Calculator. (\*)
- Major improvements in performance and stability have been made when editing the Symbols Table with very large models, (models with 1000+ wells or drill holes and associated well data and well logs).
- Fixed an issue where changes to colour maps in Attribute Analyzers would not be maintained if other options were changed. (\*)
- When using the Create Vertex Cloud option in the Vertex Atribute Analyser the vertex cloud type selection is now honoured.
- When creating Dips from Well Markers, the Well Name is now added as a Vertex Attribute to the Dips.
- Fixed an issue with the Query Tool, using the Spatial Query and Closest to Vertex options when used with certain objects could select the wrong vertices. (\*)
- Well logs in the Well Log Analyser are now displayed in alphabetic order.
- Improved handling of data for wells with a large number of markers.
- Well Log analyzer now displays attributes in alphabetic order after Measured Depth, Dip and Azimuth.

#### 2D and 3D Kinematic Modelling



- Thermal Subsidence tools Added an option that when enabled causes the calculated Thermal Subsidence and Burial History curves to have the same Total Subsidence value at the end of the Syn-Rift Duration. This allows the curves to be easily compared after this point.
- In 2D Decompaction, the Use Polygons to Calculate Decompaction checkbox is now toggled on by default.
- 2D Elliptical Fault Flow: fixed a problem where in some cases when using Preview, then Apply Preview, the seismic movement was reversed. (\*)
- Faults created using the Fault Geometry tool now start at the start point of the input fault segment.
- Depth Conversion, support has been added for 'average velocity' cubes.
- 3D Depth conversion: Fixed an issue where 2D Seismic image were not properly converted when using the Velocity Cube method.
- In the Strain Capture tool, Normalized Joint Intensity is now calculated based on finite strain (fe1) values.
- The option to set a maximum seismic velocity is now fully implemented for the Fixed and Equation depth conversion methods.
- In 2D Area Depth: Simple Depth To Detachment, the Excess Area mode now can now handle a single fault and two top horizon lines (hanging wall and footwall) to predict detachment depth.

#### **Fault Analysis**

- Lithological data for use in fault seal analyses can now be sourced from a pre-existing gridded Vshale volume.
- The Fault Analysis module now has improved Sessions functionality with the ability to save all of the objects and parameters used in the calculation of fault displacement and seal properties.
- Fixed an issue where Cross Section plots on Fault Triangle and Fault History diagrams had incorrect backgrounds when using discrete colour maps.

#### **Fault Response Modelling**

• Fixed an issue where the defined displacement for some models did not match the calculated result. (\*)

#### **Fracture Modelling**

• The Relative Connectivity attribute is now stored with decimal points (previously values were integers). (\*)

#### **Stress Analysis**

- Non-linear stress profiles are now saved to objects when the module is closed allowing them to easily be reloaded. (\*)
- Fixed an issues where the Stress Gradients would not update as expected when the Maximum Profile Elevation was changed. (\*)

#### **MOVE connections to RESOLVE and OpenServer (API)**

- Fixed an issue where opening a MOVE file from RESOLVE with a Google Map View active caused error. (\*)
- The operations Cut, Copy and Paste of RESOLVE and OpenServer (API) no longer require MOVE to be the active view. They now work in both "Test run the workflow" and "Test run one step" mode.



- The following tools are now exposed to RESOLVE and OpenServer (API).
  - Project To Section.
  - Snap.
  - 2D Thermal Subsidence.
  - 3D Thermal Subsidence.
  - Create Surface.
  - Create Dip.
  - Create Point
  - Create Fold Structure.
  - Create Fault Structure.
  - Create Lineation.
  - Create Well Marker.
  - Create Horizon (From Points).
  - Colour Map.
  - Horizons from Template.
  - Duplicate Section.
  - Strain Capture.
  - Fracture Modelling.
- Creation and editing of Compaction Curves exposed to API (OpenServer / RESOLVE).
- The MOVE operations in RESOLVE are now arranged into folders with the Create/ edit a global function window.
- The Create Points At Cell Centres operation is now exposed to RESOLVE and OpenServer (API).
- Operation added to Select All Shown objects of the open MOVE view from RESOLVE and OpenServer.
- It is now possible to hide and show MOVE objects as desired from RESOLVE and OpenServer (API).
- It is now possible to sort columns in data analysis tables from Resolve and Openserver (API). (e.g. MOVE.VertexAttributes.TableViewSortColumnAscending(column number)).
- An operation has been added to toggle Zoom To Selection from RESOLVE and OpenServer ( "MOVE.ZoomToSelection(1)" ).
- Operations have been added to save and load camera positions from RESOLVE and Openserver (API).

#### **MOVE Link for Petrel**

- The MOVE Link for Petrel is now compatible with Petrel 2021.1 and Petrel 2021.2.
- When transferring Well logs, the unit of Permeability in MOVE is now the Darcy, where as previously it was meter squared.
- The MOVE Link for Petrel now supports the transfer of Dip Data.
- A new option has been added to the MOVE Link for Petrel that allows users to specify if All, Displayed or No Well Logs and Markers are transferred between Petrel and MOVE.
- It is now possible to transfer 2D Seismic Data from MOVE to Petrel using the MOVE Link for Petrel.
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### **MOVE Link for GST**

- 3D Regular Grids can now be transferred to and from GST. (\*)
- It is now possible to define Polygon shaped Spatial Extents when loading data from GST. This Polygon can be defined using either a Polyline or Polygon MOVE object. (\*)
- In the MOVE Link for GST, there is now a means of rounding the Spatial Extents to the nearest 10 m, 100 m or 1000 m. (\*)
- A button has been add to the MOVE Link for GST that allows the user to check for external updates to GST features in the MOVE project. (\*)
- MOVE objects connected to GST are now identified by a GiGa infosystems icon. (\*)
- A way to set the Spatial Extents to those of the currently selected MOVE objects has been added to the MOVE Link for GST. (\*)
- In the MOVE Link for GST, it is now possible to remove saved project extents from GST Storage. (\*)
- The version of MOVE Link to GST is now displayed in the Modules Panel and can be changed using a drop down menu. Once a connection has been established to a GST database, the version will be locked until another MOVE session is started. (\*)
- The Match MOVE Attribute to GST page has a more logical layout when pushing MOVE objects to GST. (\*)
- MOVE Link for GST now uses GST version 3.7. (\*)
- An option to detect name and colour changes made by GST Desktop and update these when the refresh button has been pressed has been added to the MOVE Link for GST.
   (\*)
- The "Check for Name and Colour Updates" option is now set to on by default. (\*)
- Feature Sets and Features are now displayed in alphabetical order. (\*)
- Improvements have been made to the handling of failure to obtain a connection. (\*)
- Fixed an issue where Objects linked to GST were incorrectly being reported as out of date, when their Name or Colour had been changed in MOVE. (\*)
- MOVE will no longer report a feature being out of date if it fails to obtain its Name and Colour from GST due to a bad connection. (\*)
- Object Attribute changes in MOVE are now properly updated in the GST database. (\*)
- In the Push to GST wizard, the GST features in the Match Objects Sheet are now ordered alphabetically. (\*)
- The order of tabs in the tool has been updated. (\*)
- It is now possible to pull sets containing Features which are at Unit Level from GST. (\*)
- When pushing new or updated objects to GST, after mapping the first feature, all subsequent features (of the same class) can now be automatically uploaded without the need to click "Next" for each object. This is even when there are ""absent"" values. (\*)
- When pulling from GST, the Load Sets from GST option is now disabled by default. When pushing to GST, the Update and Create GST Sets options are now disabled by default. (\*)
- Database icons in the Apply to Selected Features box are updated when features are locked/unlocked. (\*)



To find out more about the developments, enhancements and bug fixes in MOVE 2022 please visit the Petex Client Web User Area.