PE Limited

Engineering & Geological Software Development

IPM 13.5

New Features and Software Enhancements

HARDLOCK 13.5

IPM 13.5

GAP

- Process equipment added:
    - Generalised component splitter
- Additional compressor options added:
    - Temperature dependent adiabatic constant
    - Enthalpy balance method
- Solver speed improvements
- Extension of parallelisation to optimisation calculations
- Bug fixes

PROSPER

- New CO_2 injector well type added which uses NIST data for pure CO_2.
- Pipe matching - encapsulated and made thread safe to allow matching in parallel
- Gradient matching - encapsulated and made thread safe to allow matching in parallel
- VLP matching in VLPR/IPR - encapsulated and made thread safe to allow matching in parallel
- Ability to specify the rate distribution of gas lifted gas for PC generation for gas lift design
    - New, Existing and Coiled Tubing
- Improved reporting for vaporised water in gradient calculation
- Improved sucker rod pump model - made thread safe with improved discharge pressure calculation
- Improved intermittent gas lift model for better convergence
- Bug fixes

RESOLVE

- Integration with OLGA
    - as a data object for standalone workflows
    - as an application driver for connected workflows in Resolve
    - as a provider in Model Catalogue
    - included with the Generic OpenServer
- Integration with Petrel
    - As a data object for standalone workflows
    - as a provider in Model Catalogue

- Engine-only (non-UI) version of **RESOLVE** for efficient usage in a containerised or clustered environment
- Integration of statistical tools (sensitivity analysis, probabilistic modelling) with PetexOnlineServer
- New Data Objects
    - Multilateral IPR
    - Insight ICD
- Logs are now saved for scenario runs
- Module schedule added to allow individual modules to have separate run schedules
- Additional IPR Scaling tuning options made available for some reservoir simulators
- Ability to replay a system using previously saved data from a reservoir simulation, without needing to run the full model.
- Bug fixes

MBAL

- Ability to specify gas lift injection rate in prediction wells added
- Ability to search for tanks/wells in the fractional flow matching plots added
- Export of transient IPR to **PROSPER** added
- Tight gas IPR results can now be accessed via **OpenServer**
- Bug fixes

PVTp

- Maximum number of PT stages that can be performed no longer is limited
- The regression calculation is no longer limited to 100 regression variables, an 'unlimited' number can be selected.
- Hydrogen has been added to the equation of state component database
- Bug fixes

REVEAL

- Oil and gas gravity tracking added
    - Allows a variable API and different gas gravities to be specified and for blending of PVT models when flowing between different PVT regions
- Automatic ICV optimisation to equalise zonal rates
- Oedometric stress boundary conditions may be applied to all faces, especially for lab test modelling
- Pure CO_2 TPD type added
- Ascii file import options expanded:
    - Units may be over-ridden
    - Import stress data with keywords YOUNG, POISSON, BIOT, THERMEXP, KIC, STRESSXOFF, STRESSXGRAD, STRESSYOFF, STRESSYGRAD, STRESSZOFF, STRESSZGRAD, STRESSREVP, STRESSREVT, STRESSREG, STRESSXYOFF, STRESSXYGRAD, STRESSYZOFF, STRESSYZGRAD, STRESSZXOFF, STRESSZXGRAD, KICVERT
- Wormhole data entry method extended
- New OpenServer commands
    - EXPORT_POINTCLOUD_STATIC
    - RUN_WELL_INJECT_TPDENTHALPY

- DELETE_RESULT_STREAM
- Bug fixes

MOVE

- Kinematic Modelling:
  - Sessions support for 2D Move-on-Fault and Horizons from Fault has been added improving efficiency when restoring/ forward modelling fault movement.
  - New horizon-fault angle compatibility check between hanging wall and footwall in the 2D Section Analysis tool.
- Constrained model building and data analysis:
  - Horizons From Template can now use overturned dip data for kink band construction from point data.
  - Query tool improvements: Multiple objects can now be used as a source; Queries are now saved and recalled.
  - Surface from Points (Delaunay) has a new constrain to boundary line option.
  - Added option to preserve boundaries when using Adaptive Sampling.
- Fault Analysis:
  - New Hydrocarbon Column Height Calculation (Yielding et al. 2010).
- This release further extends the API for both RESOLVE and OpenServer:
  - More MOVE tools exposed to the API including the MOVE Calculator tool.
  - Addition of 2D Move-on-Fault and MOVE Sessions functionality without GUI via the MOVE Engine RESOLVE data object.
- Import and Export format improvements and general UI and view improvements:
  - Improved the ASCII import of data with known headers / attributes.
  - Added brand new Alias Wavefront OBJ export format.
  - Improved DXF and TSURF import and export compatibility.
  - New export Grid and Mesh Surfaces as GeoTIFF or Points ShapeFile format.
- MOVE links to Petrel and GST updated to support latest versions.
  - Dramatic speed improvement in communicating Petrel project contents.
  - Transfer dipmeter data from Petrel to MOVE.
  - GeoCellular Volumes can now be transferred from MOVE to Petrel.
- Numerous additions and improvements are listed in more detail in the What's New in MOVE 2024, IPM 13.5 section that can be found in the MOVE Knowledge Base.