What's New in **Builder**

BUILDER

Pre-Processor:
Simulation Model Building

Version 2021.10

New Features and Improvements

Unconventional Wells

The following updates have been made:

Planar Fractures Created in Local Grid Refinement (LGR) (2021.10)

- Planar fractures can be created in or imported into local grid refinement. Fractures in LGR can keep refinement contained to a small area of the grid thereby reducing the need to split the entire grid. Fewer grid blocks results in improved simulation times. By refining along a hydraulically fractured well, the overall number of stages that can be defined along a well can increase without requiring smaller gridding throughout the entire model.

Bi-directional Permeability Gradient Support (2020.20)

- A new bidirectional permeability option has been added to allow for the specification of permeability in two directions using an exponential decline curve, linear gradient or constant values. The linear and exponential options support specifying the gradient as a function of decline rate or explicitly setting the tip value(s). Existing datasets will be upgraded to the new keywords when any modifications are made to the existing planar fracture template.

PDD (Property Distribution Data) keyword support (2020.20)

- The new PDD keyword will replace the existing RESULTS PDD keyword and will contain the original fracture data imported from a supported file format (*.cmgfrac, *.csv). The ALL qualifier and property values for SBG keyword will be removed from the dataset. The SBG keyword will now reference the PDD array directly and the SBG ALL property values will be dynamically calculated. The new PDD keyword will reduce the size of dataset, preserve the original fracture data and allow for operations like MODs/changes to half-length to be executed without modifying the array data.

Fracture NULL property support (2020.20)

- Hydraulic fractures can now pass through inactive blocks of all types. Permeability, porosity and netgross properties can now be specified in the planar fracture template. This option is enabled by using the *HF_IN_NULL *ON keyword which can be set from the hydraulic fracture template window. This will allow fractures to extend through and connect inactive regions of the reservoir.

Global Wildcard Property Modifier (2020.30)

- A new global wildcard property modifier option has been added to allow for the modification of fracture property values using wildcards (? or *). Properties can be set and/or modified from this new interface and modified fractures will be based on the wildcard name specified. This interface is a suitable alternative way for specifying property overrides in fractures.

Process Wizards

The following updates have been made:

Petronas AFM (Nanoparticle) Wizard (2021.10)

- A new wizard was developed for the modelling of nanoparticles in STARS to evaluate the effectiveness of those fluids for EOR processes. The Petronas AFM (Nanoparticle) wizard was created in order to simplify this workflow and capture the expert level knowledge necessary to enable reservoir engineers to easily simulate the effects of nanoparticles for EOR.

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Carbon Capture and Storage (CCS) Wizard (2021.10)

- A new Carbon Capture and Storage wizard involves the injection of CO_2. For large stationary sources of CO_2, like an oil refinery, use of CCS can help prevent these emissions from entering the atmosphere. The CCS wizard can help engineers build data sets using various trapping mechanisms by putting all inputs in one place before the necessary adjustments are automatically applied throughout the dataset.

Tracers

The following updates have been made:

IMEX Tracer support (2020.20)

- The IMEX Tracer interface has been completely re-designed to provide a more intuitive workflow. Additional support has been added that includes *Partitioning* and *Adsorption* with a new *Summary* tab to give a clear overview of tracers and how they have been assigned within the model. Tree view support has also been enhanced.

GEM Tracer support (2020.20, 2020.30)

- GEM tracers are component based but were designed using a tab-based intuitive workflow similar to IMEX. Currently, BUILDER supports specifying component and aquifer tracers for GEM. GEM Tracers supports the bulk creation of tracers for injection wells at all well dates or just the well definition date. An additional tracer summary tab has also been added to view the created tracers by well, component or aquifer.

Reservoir

The following updates have been made:

Discrete Fracture Network (DFN) (2020.30)

- Importing and displaying of DFN's from *.FAB files is now supported. DFN's are displayed as planes and special DFN properties (Permeability and Porosity) are available from the property drop down. Multiple *.FAB files can be imported into a single model and can be visualized by enabling the Show DFN planes option available when visualizing in 3D.

Copy Property (2021.10)

- Copying array data can now be done from within BUILDER by utilizing the Copy Property feature. It has support for copying to and from custom and simulator properties at a selected date.

General Improvements

The following updates have been made:

Block Selector (2020.20)

- The new block selector tool has been enhanced to support creation of block groups. Using the block selector, it is now possible to select blocks and then directly apply them using the property modification option or the sector creation tool. A third option is also available to create unassigned block groups.

Property Selection Enhancements (2021.10)

- The property selections list has been modified to only show properties that are defined in the model. Typing directly into the property selection list will provide a smart search autocomplete option to locate the desired property with ease.

Support for Importing both Production and Injection Data from a Single *.prd File (2021.10)

- Injection and production data can now be added to a single *.prd file to simplify the import of data.

CMOST-AI Quick Launch Button (2021.10)

- A CMOST-AI button has been added to the main toolbar to quickly and easily generate the CMOST-AI project file (.cmp) and project directory (.cmpd) required by CMOST-AI for parameterization.