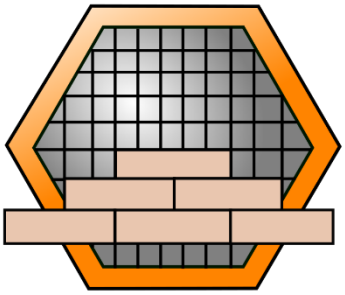


S3quickbuild

S3quickbuild v2025 Release Notes

Table of Contents

1 Introduction to S3quickbuild New Features

The following new features have been added to the latest build of **S3quickbuild 2025.1**:

- Dual Porosity Designer
  - Allows simple dual porosity models to be created for builder models
  - Specifies Matrix cell blocks within fractured cell rows and columns

- The INPUT reader now supports UTCHEM 2021 and 2022

- Rock Property Scaling
  - Scales rock property arrays on loading

- Rock Property Log Normal Distribution
  - Rock properties can be given values based on a log normal distribution curve

- Initialisation Reference Depth
  - Initial reservoir pressure can be set a specified reference depth for builder models
  - Water/oil contact depth can now be set for builder models

- Skin Factor
  - Well skin factors can be set

- ECLIPSE Connection Factor Scaling
  - Connection factor scaling is now available in the builder wells page

- Copy Profile Components
  - Sector models given the Convert Sector Schedule routine can now use the new Copy Compositions routine allowing the copying of multiple slug EOR components to be copied to other profiles

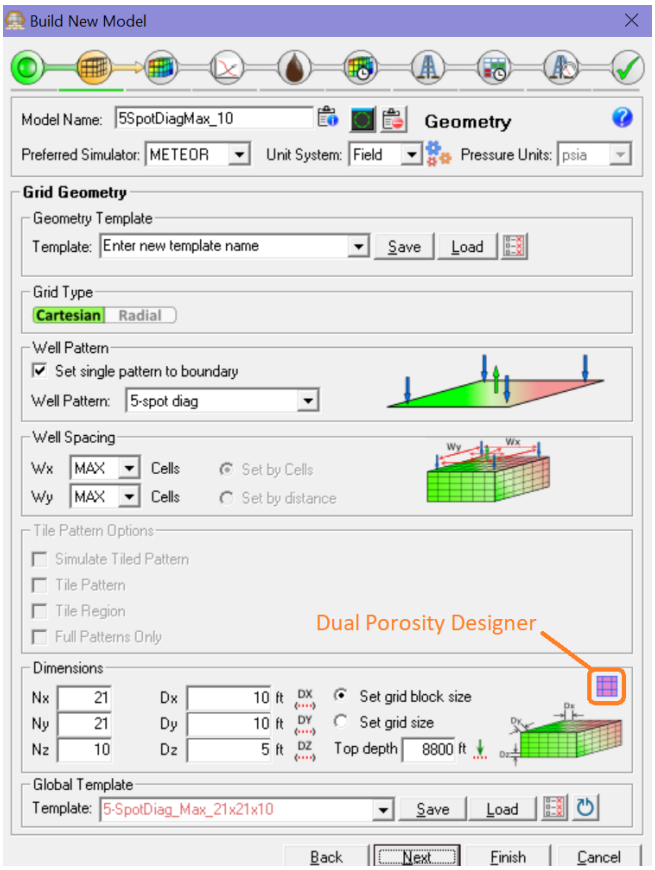
- New default text editor and export dialog features
  - A default text editor can be set for viewing exported files.
  - Open containing folder button allows for quick navigation to export folder

- New builder patterns
  - Fractional patterns
  - 1/4 5-spot
  - 1/4 5-spot diagonal
  - 1/4 9-spot diagonal
  - 8th 5-spot diagonal
  - 8th 5-spot diagonal transform
  - 8th 9-spot diagonal

8th 9-spot diagonal transform

2 Dual Porosity Designer

There is a new Dual Porosity button on the Geometry page of the Builder as illustrated below



Dual Porosity Designer button

This opens the Dual Porosity Designer

Dual Porosity Designer (default settings)

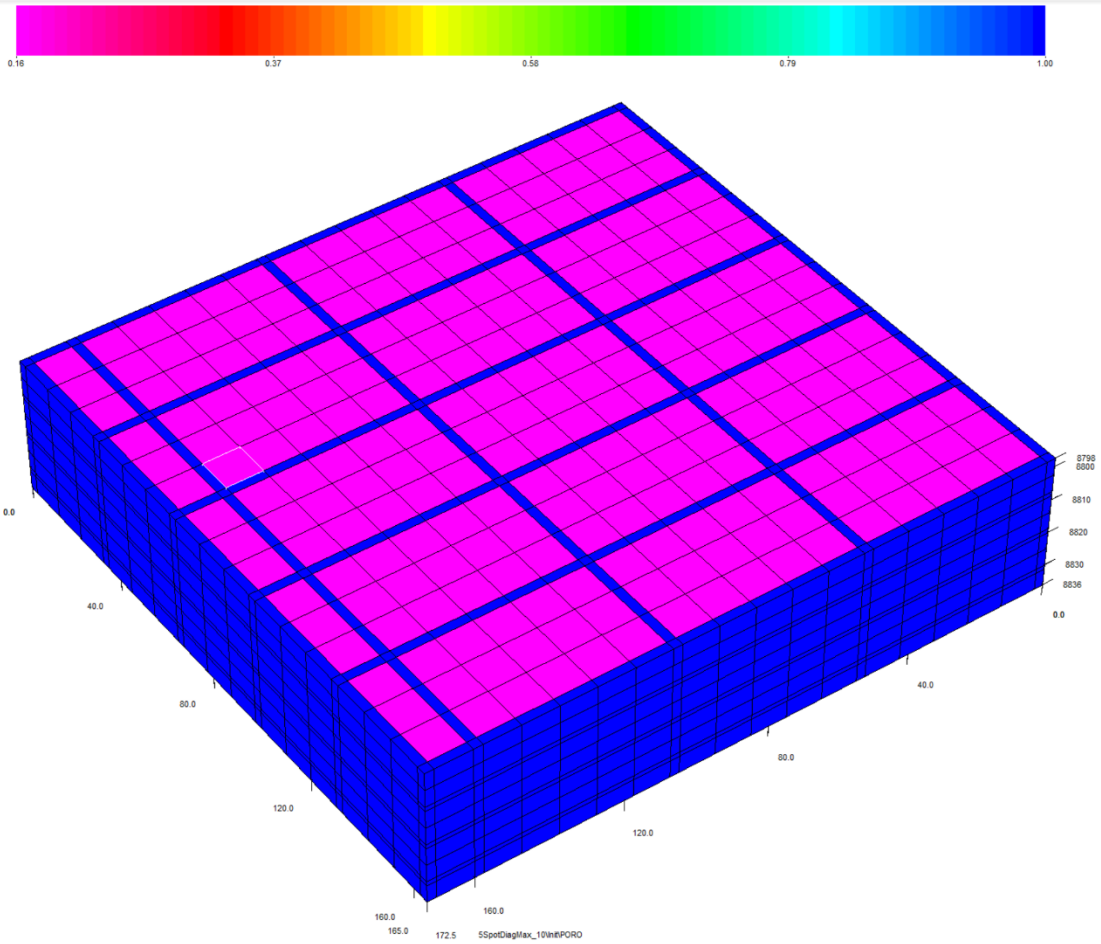
The Dual Porosity Designer allows the grid to be split into Matrix and Fracture cells.

2.1 Matrix and Fracture Cells

The cell dimension for matrix and fracture cell rows and columns in the x, y and z-axes can be set as well.
The span of matrix cells can also be set.
Porosity and permeabilities and water saturation can also be set.
External faces of the grid can be set to be either a matrix or fracture cell
Inactive cells can be overwritten and made active if required.
There is also an option to stretch the grid in the designer so that it appears square to help visualise the matrix/fracture pattern.
The image below shows the same grid with changes made to rock properties and water saturations.
The grid has also been displayed *squared* better illustrating the layers

Dual Porosity Designer (user defined settings)

Below is the resulting grid with the porosity vector applied.



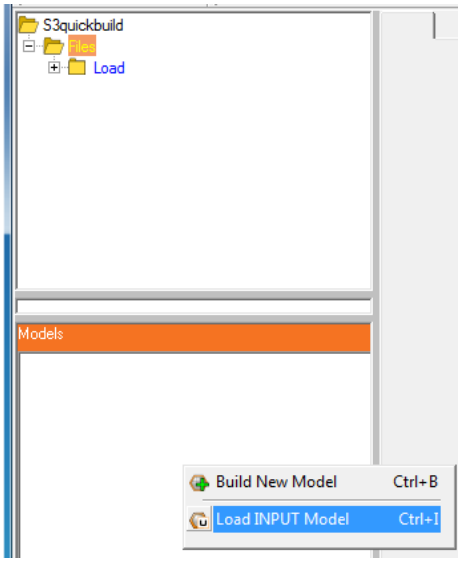
Grid showing porosity applied to grid with dual porosity set

3 INPUT Reader Extended

The UTCHEM INPUT reader has now been extended to load in INPUT files 2021 and 2022. This can be performed.
There are 2 methods of loading INPUT files:

- Using the right-click menu in the sector treeview
- Using drag-and-drop features loading an INPUT file into the sector treeview.

Both creating builder models and loading INPUT files are only available in builder mode i.e. when the no Eclipse models have been loaded
Figure 1: Right click on the blank Sector Treeview window and select Load INPUT Model
The Load INPUT file form indicates the successfully loaded UTHCM and Builder model components including the option to include inactive cells if present.

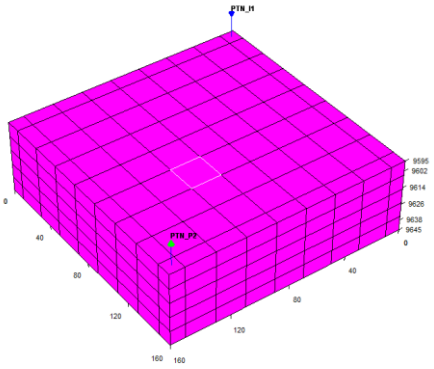


Load INPUT file

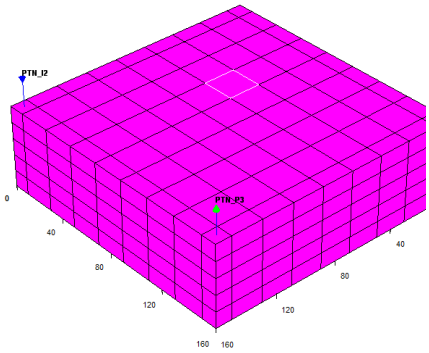
4 Fractional Patterns

The built-in pattern list has been extended in the Builder. The list now includes the following patterns based on a 9 x 9 x 5 grid:

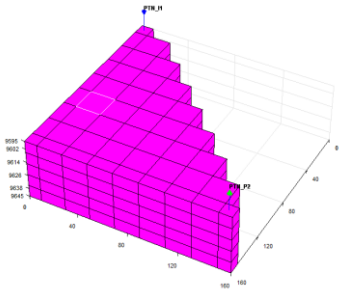
- Fractional patterns
- 1/4 5-spot
- 1/4 5-spot diagonal
- 1/4 9-spot diagonal
- 8th 5-spot diagonal
- 8th 5-spot diagonal transform
- 8th 9-spot diagonal
- 8th 9-spot diagonal transform



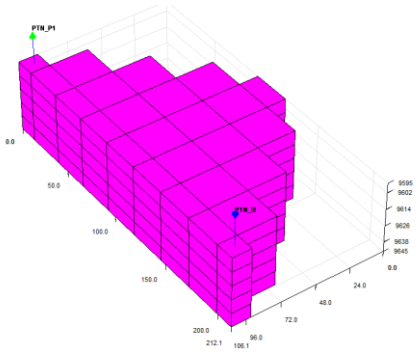
1/4 5-spot diagonal pattern



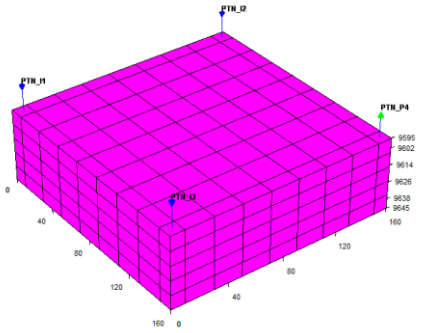
1/4 5-Spot



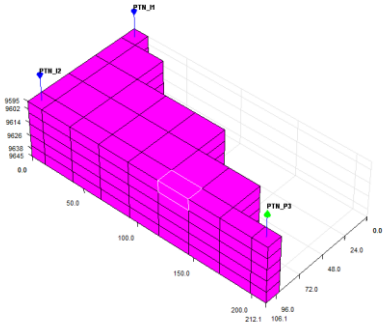
8th 5-spotDiag



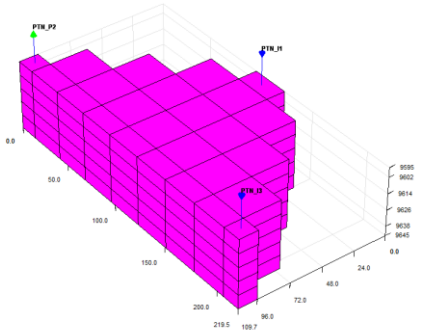
8th 5-spotDiag Transform



1/4 9-spot diagonal 1



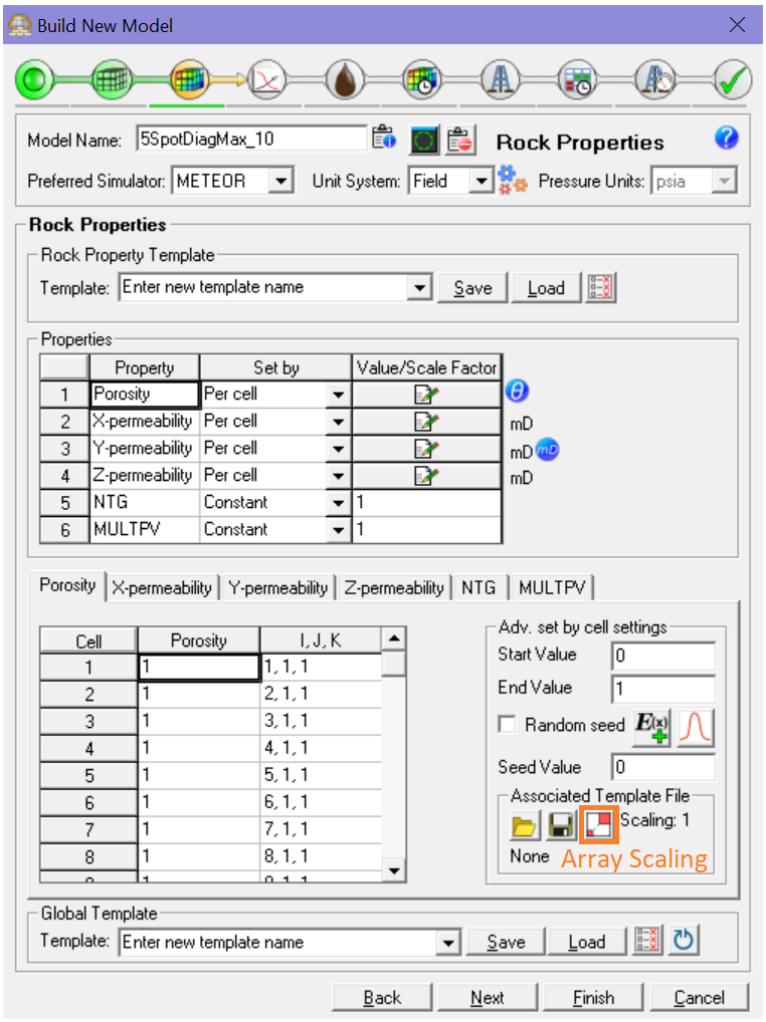
8th 9-spot



8th 9-spot transform

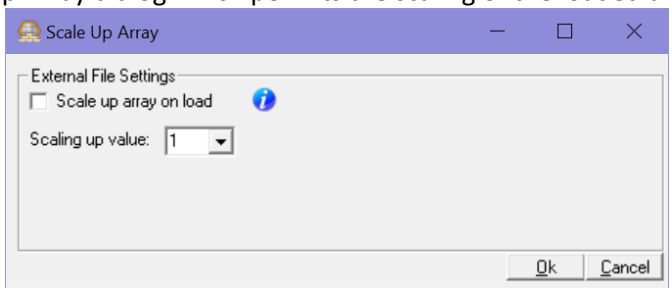
5 Rock Property Scaling

External rock property arrays can now be scaled during the load process. The array scaling button is located in the advanced cell settings section of the Rock Properties page in the builder as illustrated below.



Rock Properties array scaling button

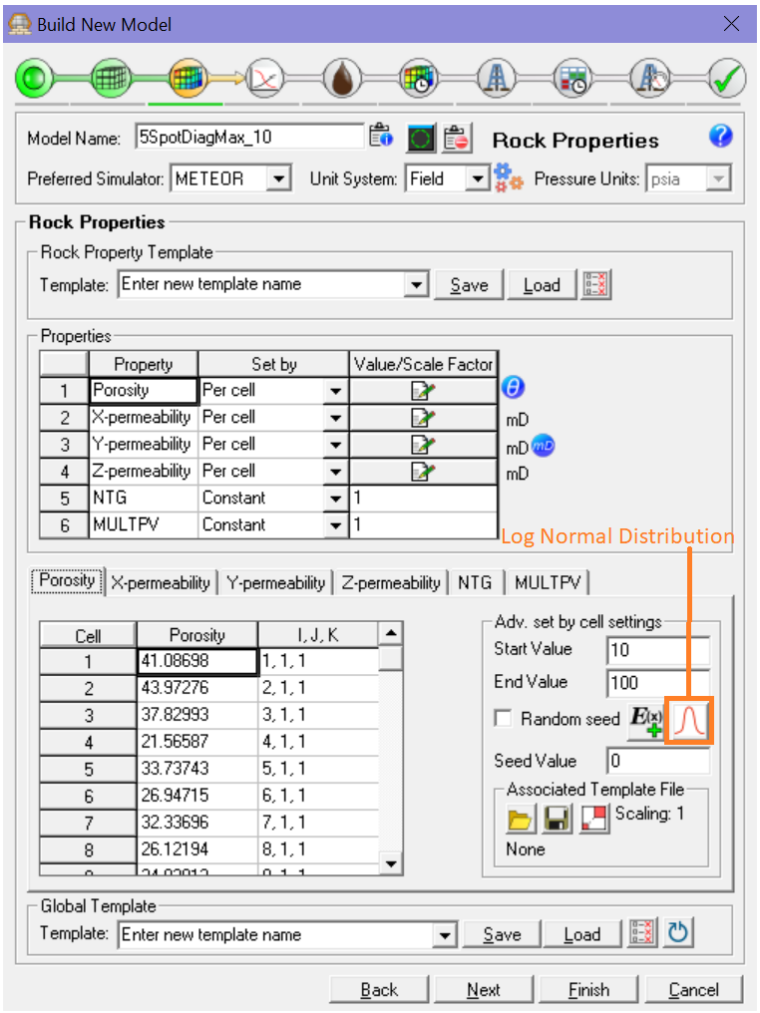
This opens the Scale Up Array dialog which permits the scaling of the loaded array from 1 -5.



Scale Up Array dialog

6 Rock Property Log Normal Distribution

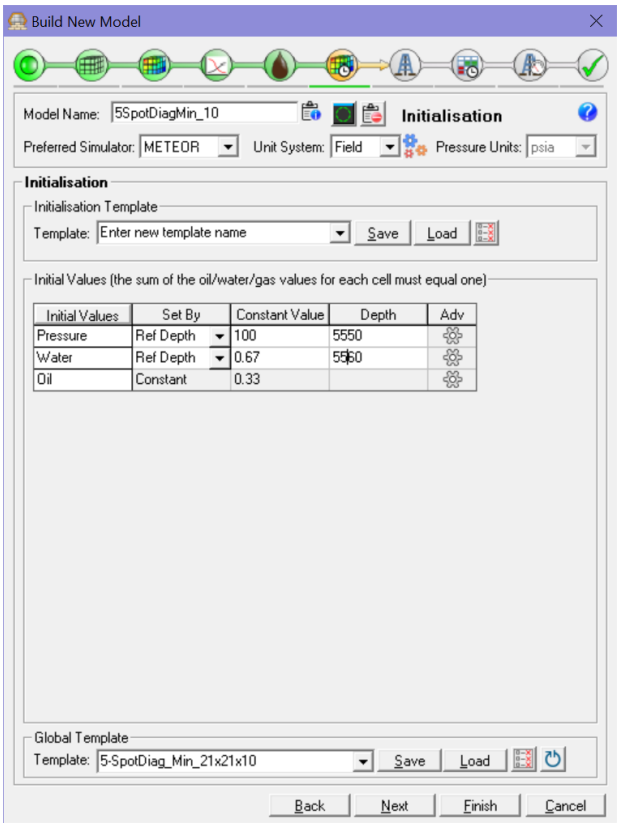
Rock properties can be defined using a Log Normal Distribution based on the start and end values set in the advanced set by cell settings section of the Rock Properties page.



Rock Properties Log Normal Distribution button

7 Reference Depth

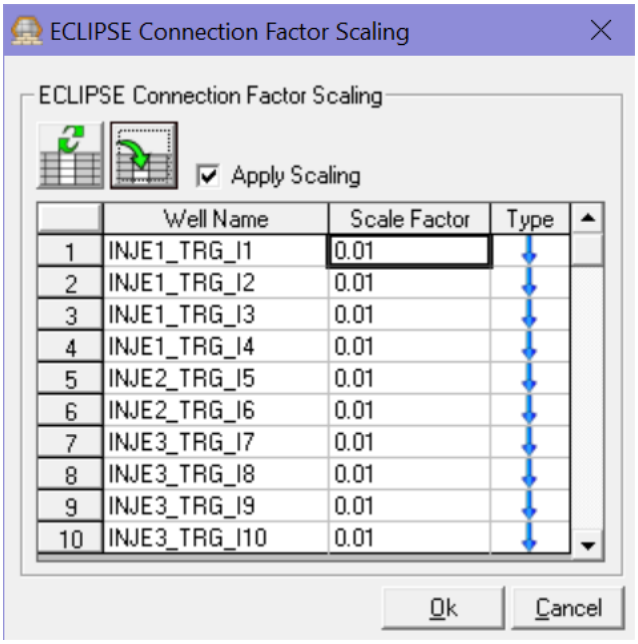
The Initialisation page in the Builder now allows the initial reservoir pressure to be set at specified reference depths.
Oil/water contact depth saturations can also now be set.



Reference Depth settings

7.1 Eclipse Connection Scaling

Connection factor scaling can be set from the Wells page on the builder  . This is available for builder and sector models.
The scaling factors can be set but will be applied on ECLIPSE export if the Apply Scaling checkbox is selected.

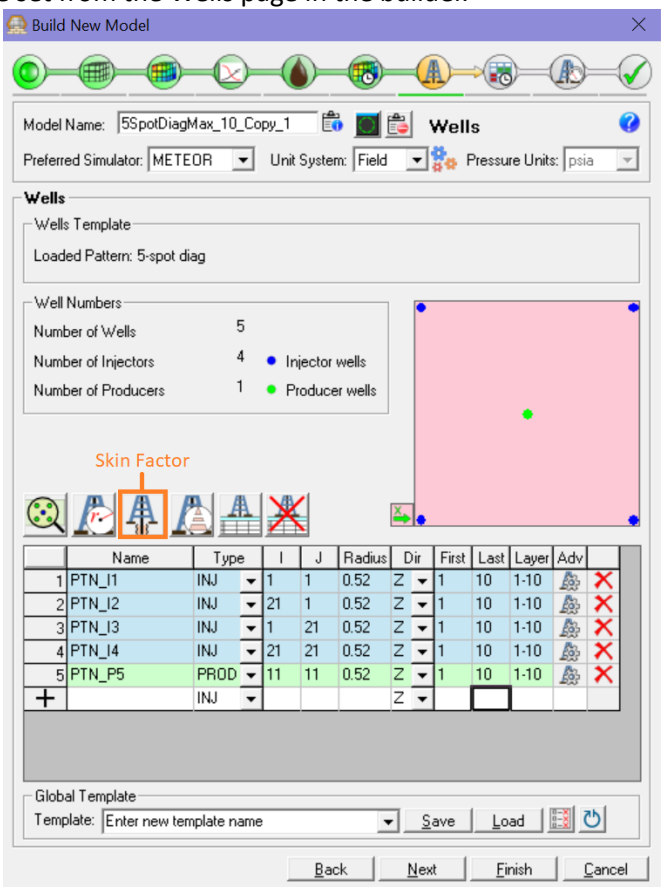


ECLIPSE Connection Factor Scaling

8 Skin Factor

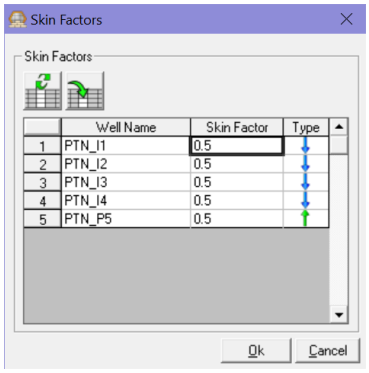
8.1 Builder Models

Well skin factors can be set from the Wells page in the builder.



Builder well Skin Factor settings button

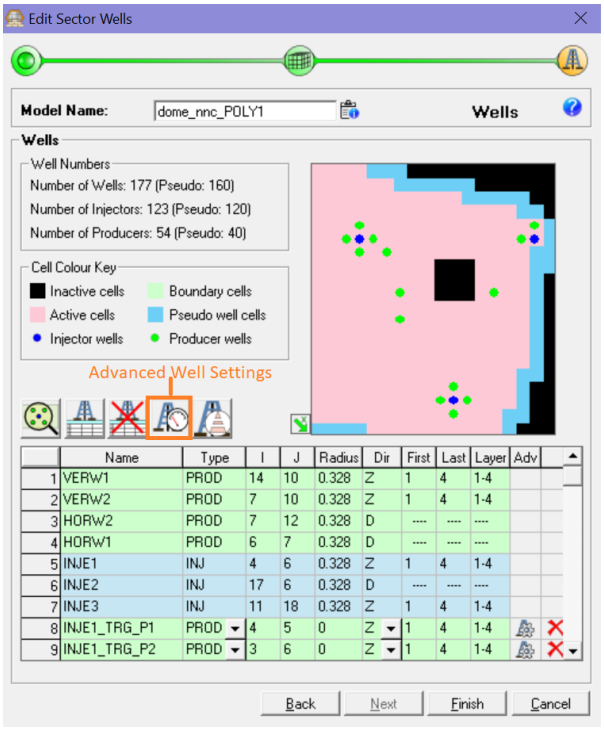
This opens the Skin Factors dialog where the skin factor can be set for each well and for each timestep.



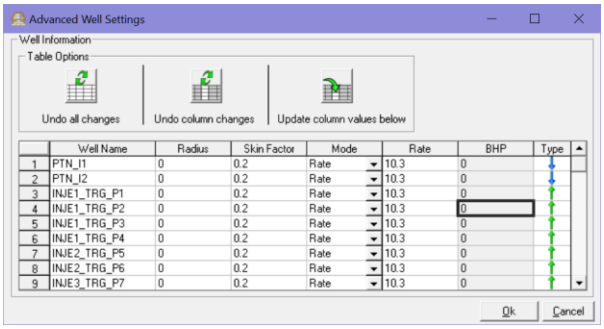
Well Skin Factor dialog

8.2 Sector Models

The Advanced Well Settings button opens a dialog where well Radius, Skin Factor, Mode, Rate and BHP value can be set for each well.

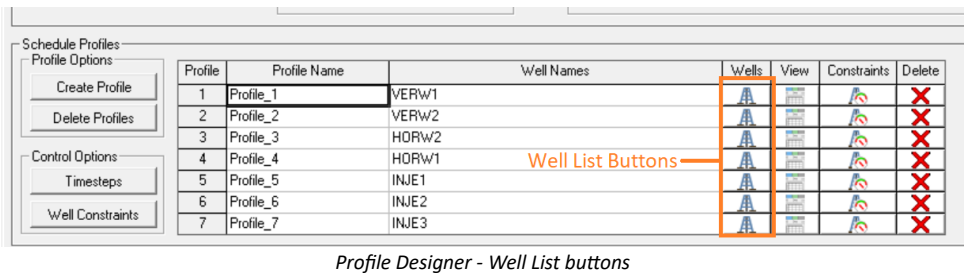


Sector model advanced well settings button

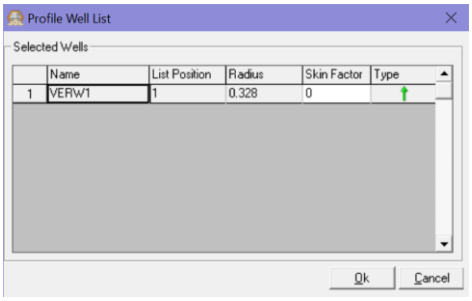


Sector model advanced well settings dialog

If a schedule design has been created the skin factor can also be set from the Schedule Profiles table Well List Buttons.



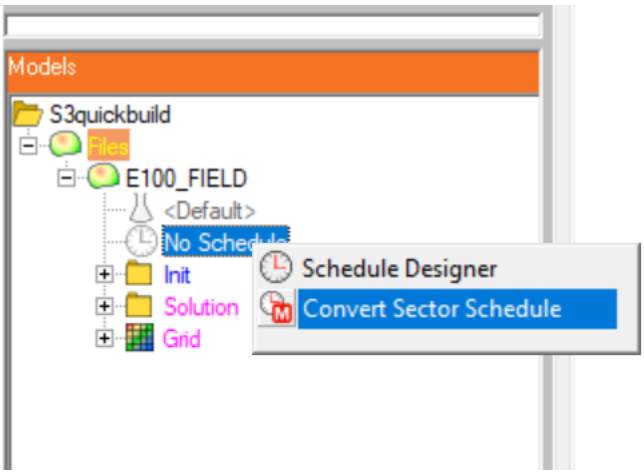
Profile Designer - Well List buttons



Profile Well List dialog

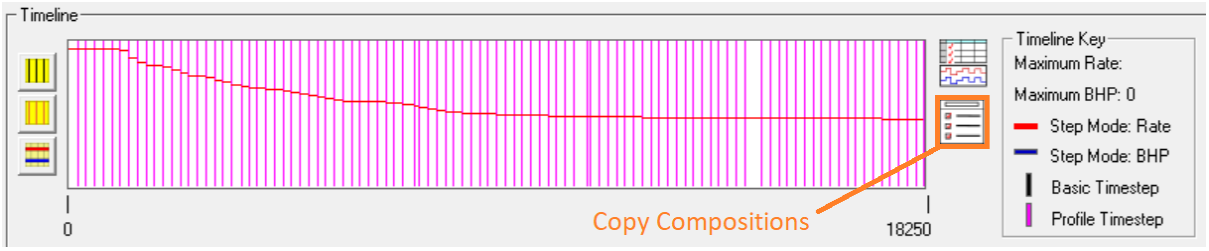
9 Copy Compositions

Copy Compositions is available for Eclipse models only where Convert Sector Schedule has been implemented.



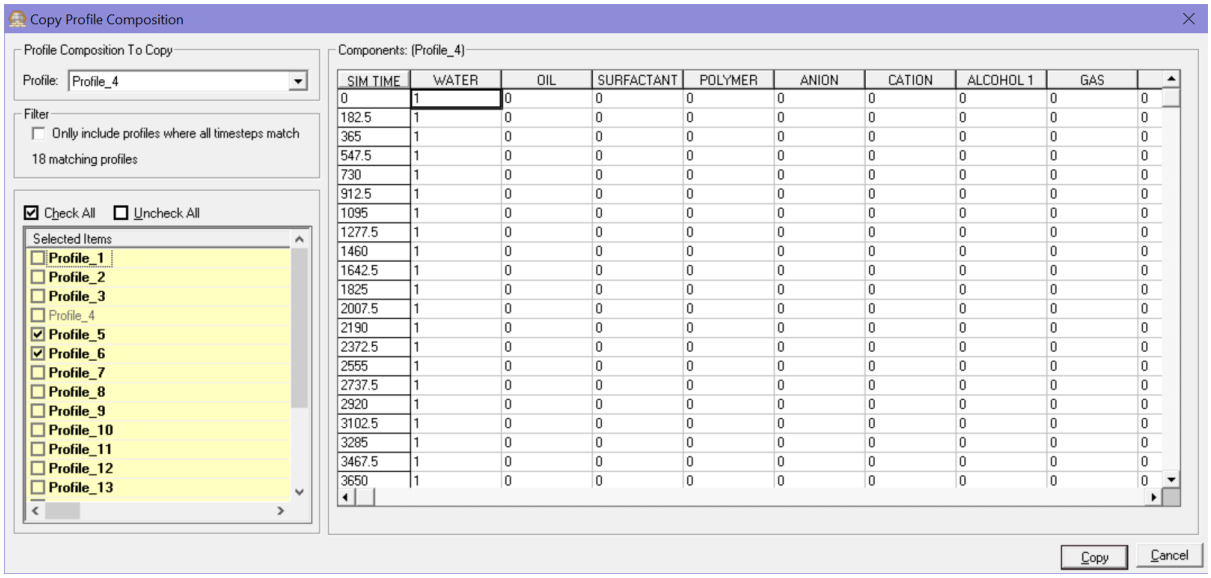
Sector model right-click – Convert Sector Schedule

This allows the injection schedule from one profile to be copied to a selection of other profiles



Profile Designer Timeline settings (copy compositions button)

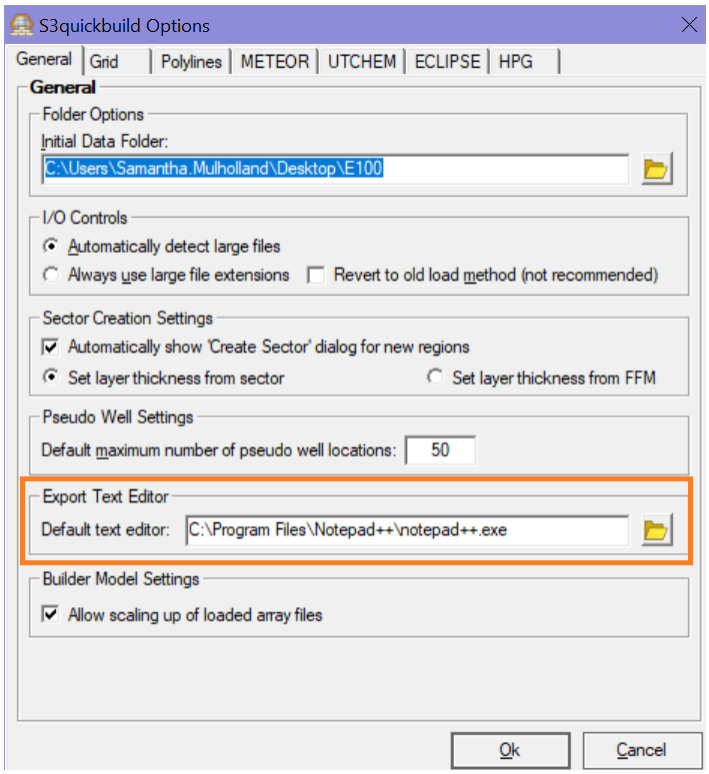
The following screen shows the compositions from Profile_4 being copied to profiles {Profile_5 and Profile_6)



Copy Compositions - Profile 4 copied to profiles Profile_5 & Profile_6

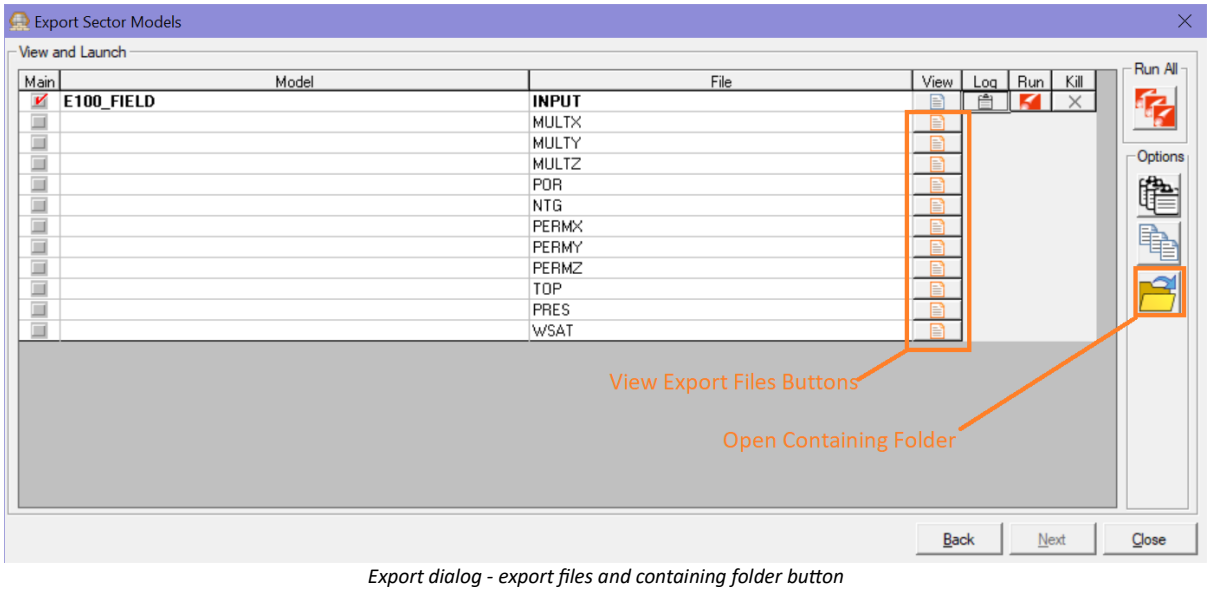
10 Default Text Editor

The default text editor used for viewing exported files can be set from the Tools -> Options->General Tab.



Tools Options - Export Text Editor

The exported files can be viewed by double-clicking on the View buttons on the View and Launch table after exports.
There is an additional button which will open an Explorer window in the exported folder path.



Export dialog - export files and containing folder button