



| Office Hours

Introducing Multisector Simulation

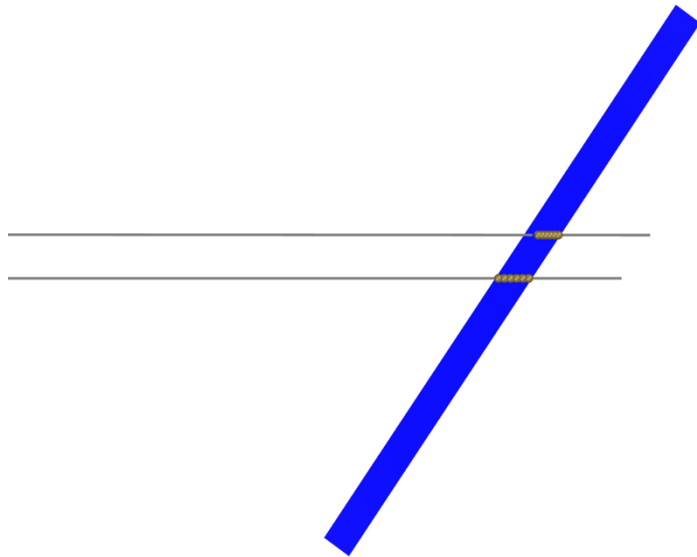
May 12, 2026

Outline

- Problem Statement
- Concept Overview
- Key Advantages
- How to Use
- Current Limitations

Problem Statement

- Currently, we simulate a representative sector of the well and apply multipliers to scale the results to the full well(s).



PRODUCTION VOLUME MULTIPLIERS ? 📄

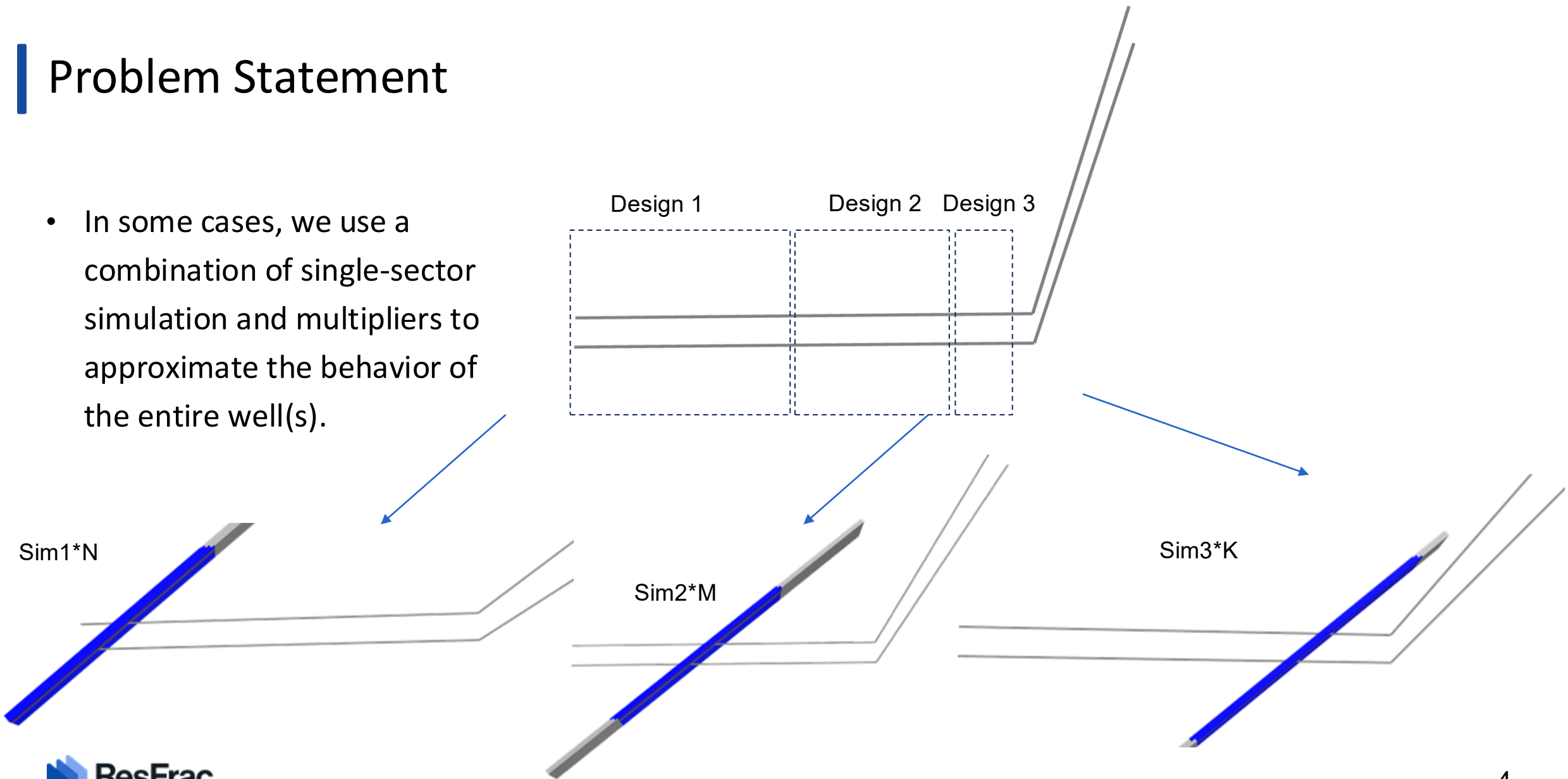
	Well name ?	Production volume multipliers ?
1	Well_TF	17
2	Well_MB	20

LATERAL LENGTH PER WELL IN THE MODEL [FT] ? 📄

	Well name ?	Lateral length per well in the model [ft] ?
1	Well_TF	250
2	Well_MB	250

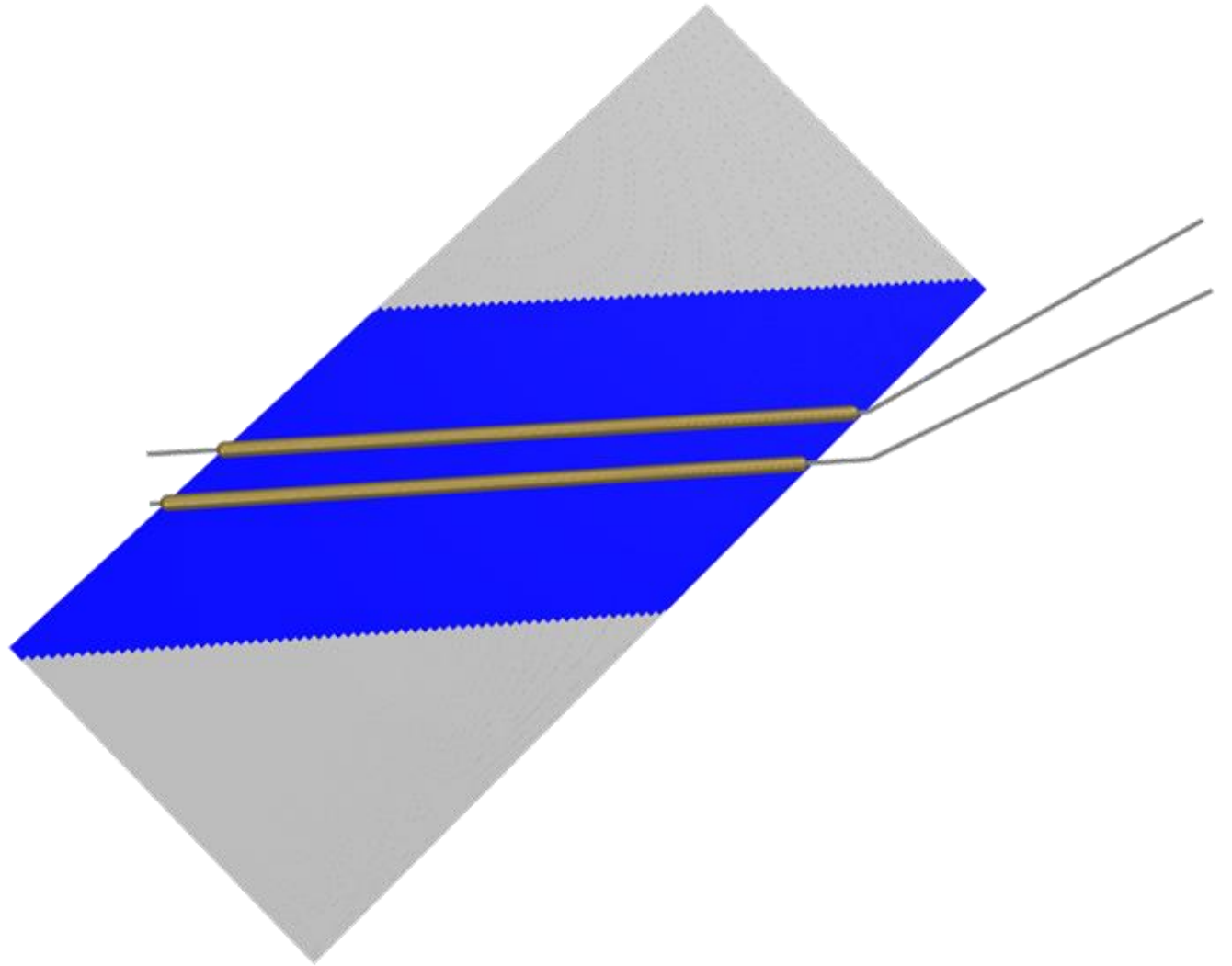
Problem Statement

- In some cases, we use a combination of single-sector simulation and multipliers to approximate the behavior of the entire well(s).



Problem Statement

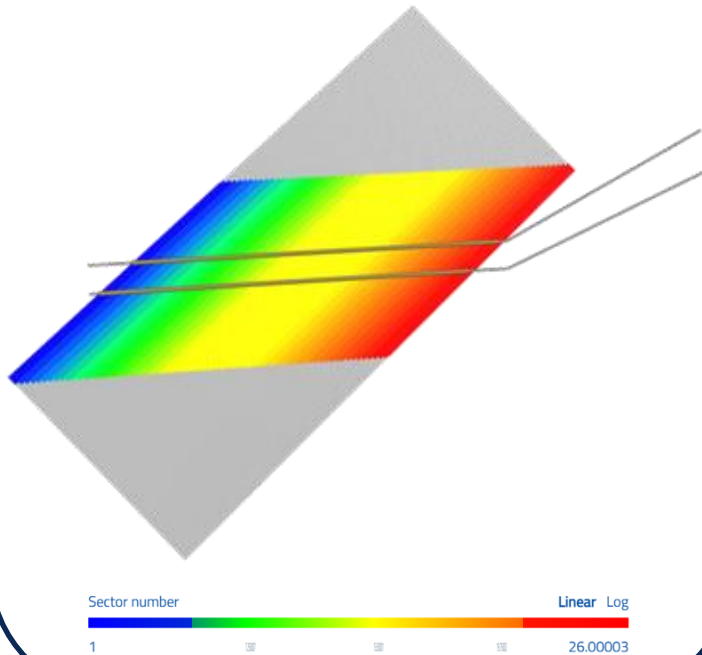
- The multisector option eliminates this complexity by enabling a single model that represents the full lateral of the well(s).



Concept Overview

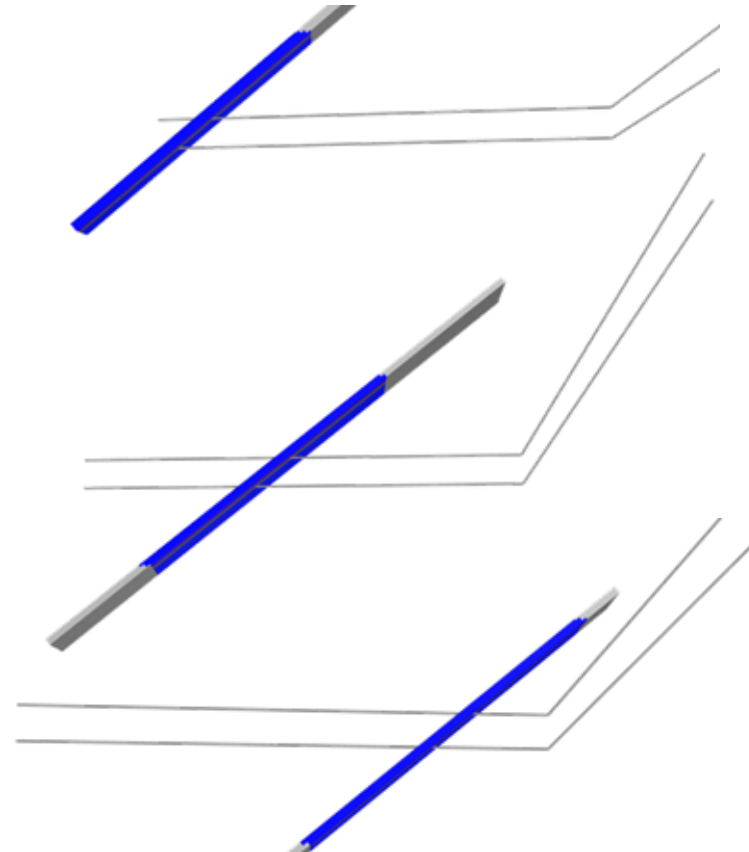
Builder:

- Build the multisector model and define sector boundaries



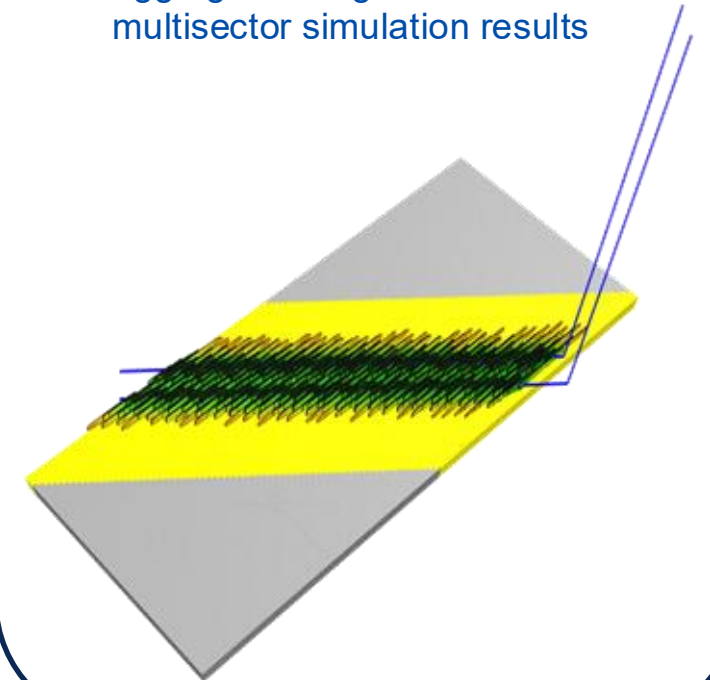
Simulator:

- The multisector model is divided into multiple single-sector models
- Each sector is run on a virtual machine (VM)
- VMs run in parallel and communicate with each other



Results:

- Individual sector results are aggregated to generate the multisector simulation results



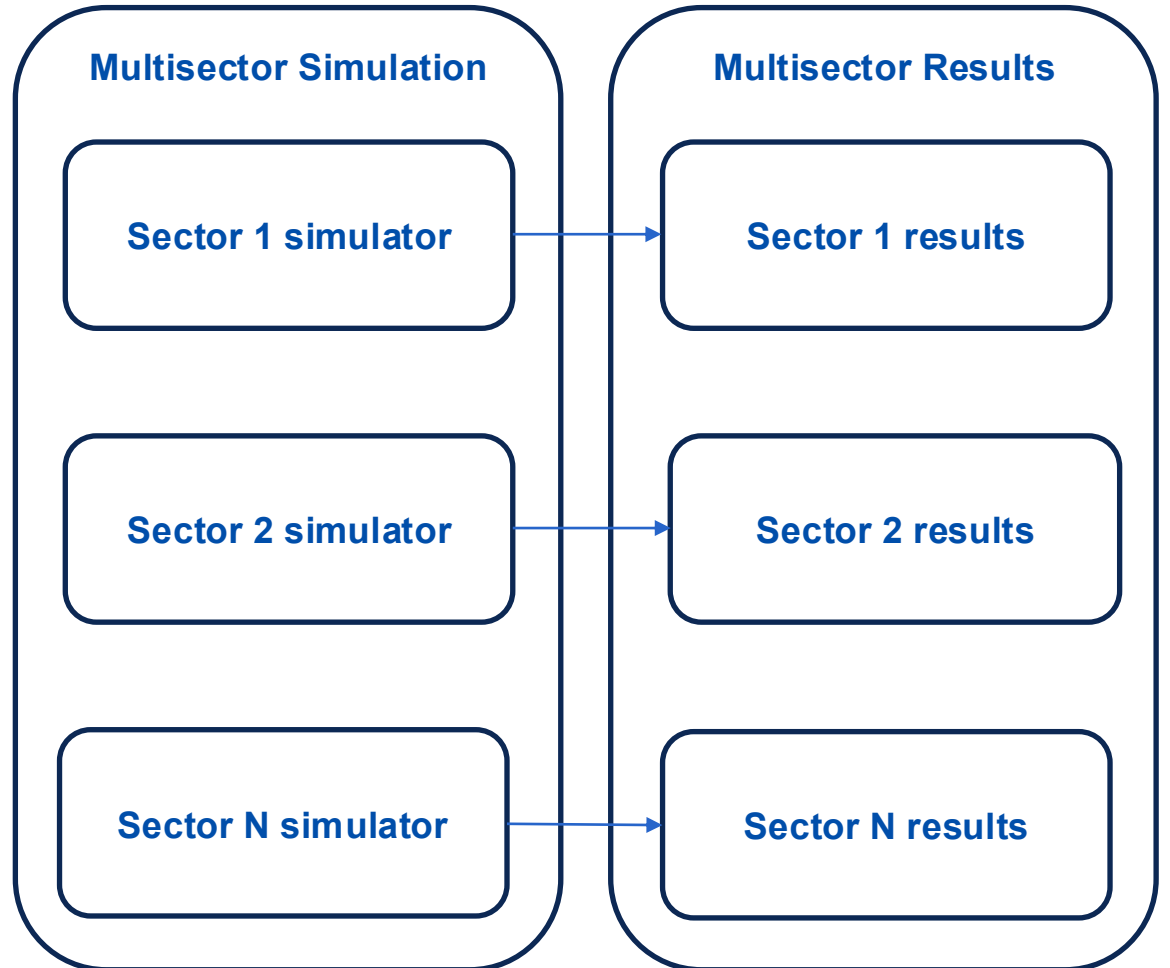
Concept Overview

Sector communication depends on user selection and simulation settings

Uncoupled Mode

- Sector models run independently
- Results are shared to generate multisector results

Uncoupled mode

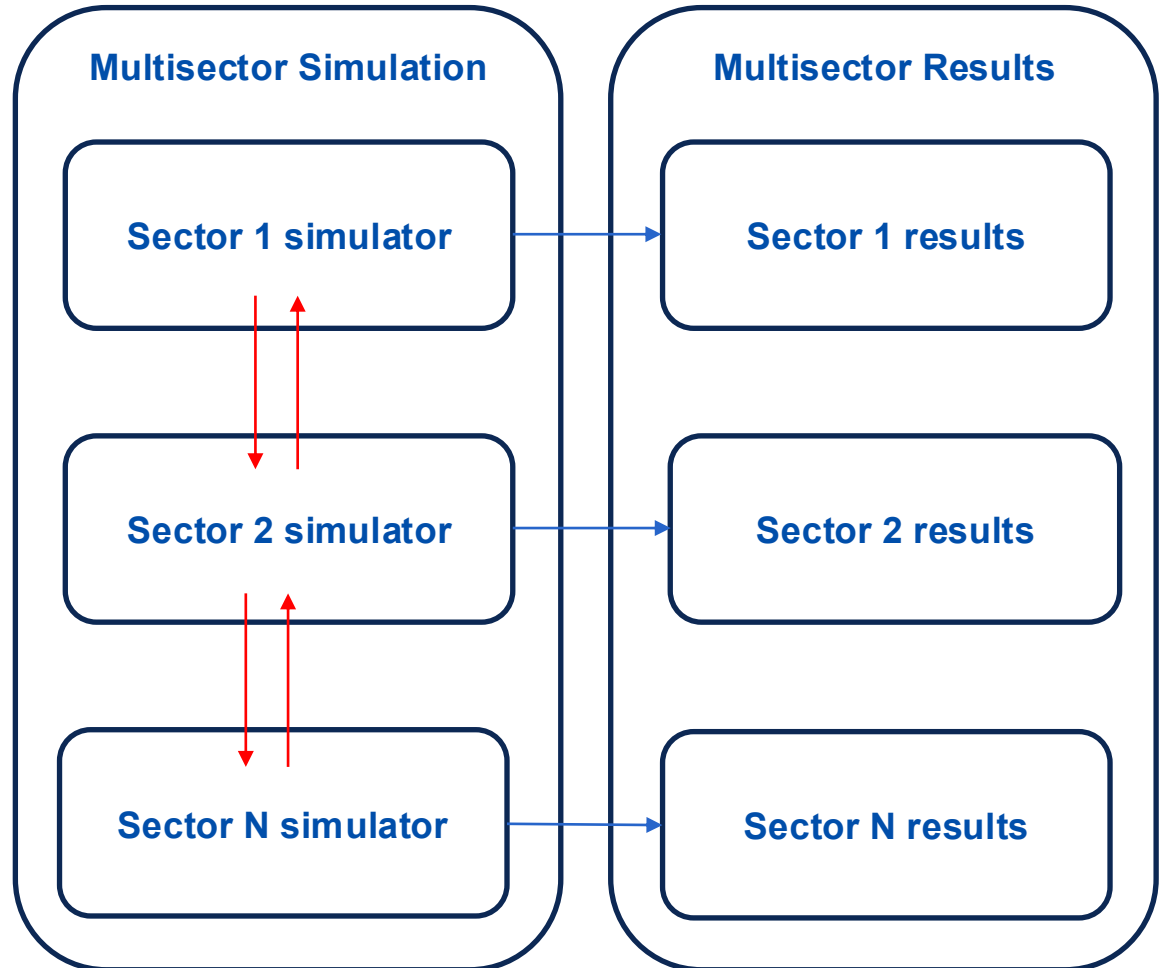


Concept Overview

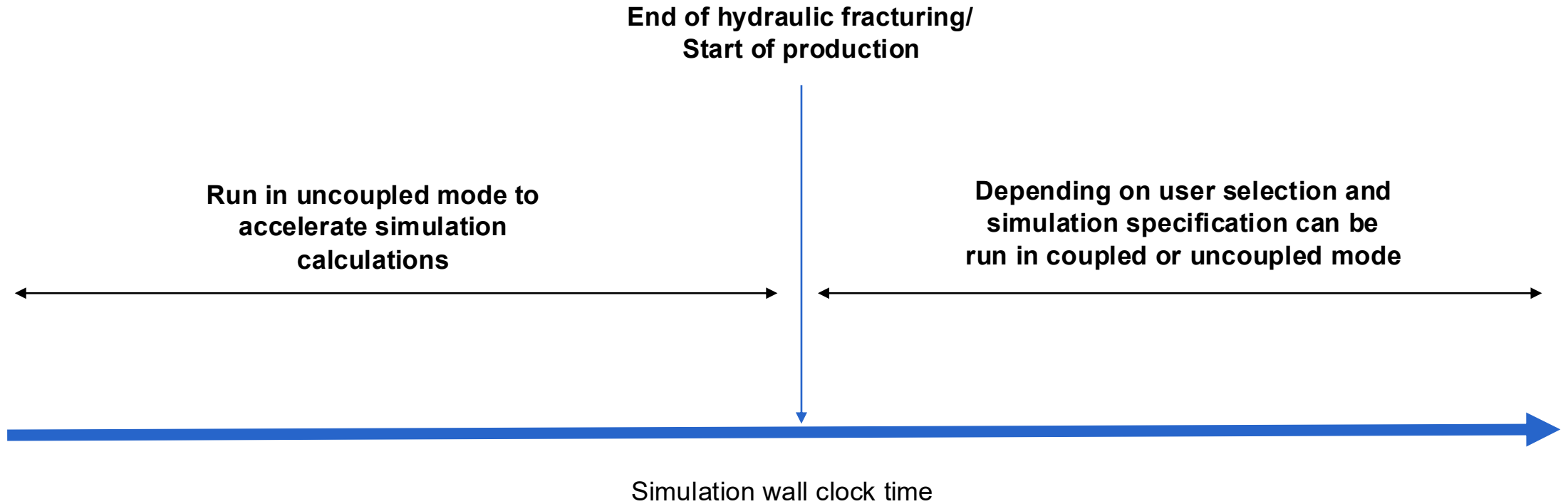
Coupled Mode

- Sector model solvers exchange information at each timestep
- Results are also shared to generate multisector results

Coupled mode

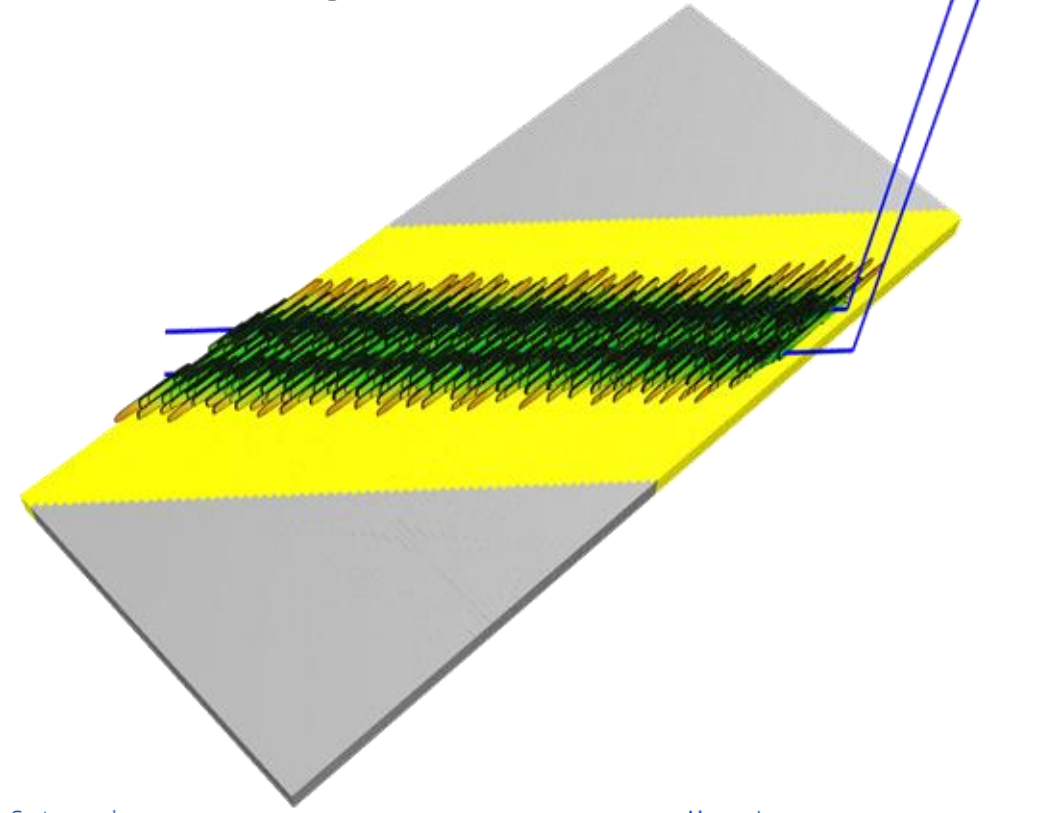
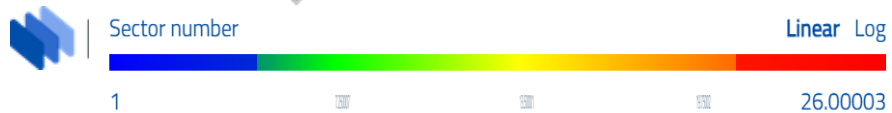
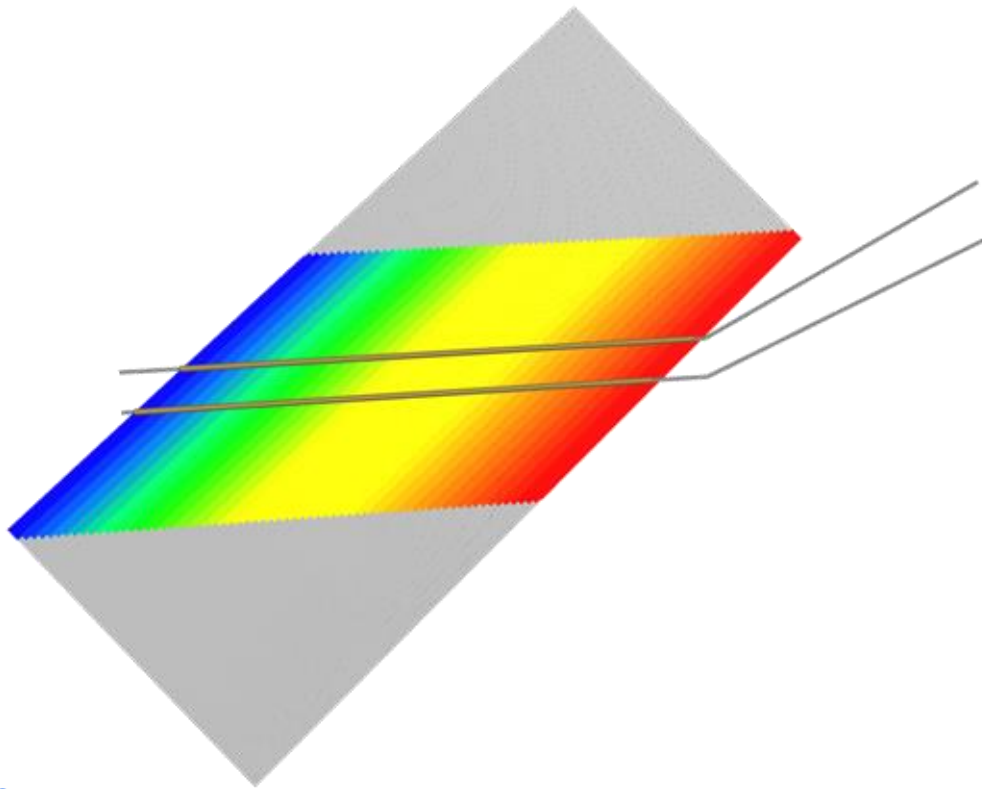


Concept Overview



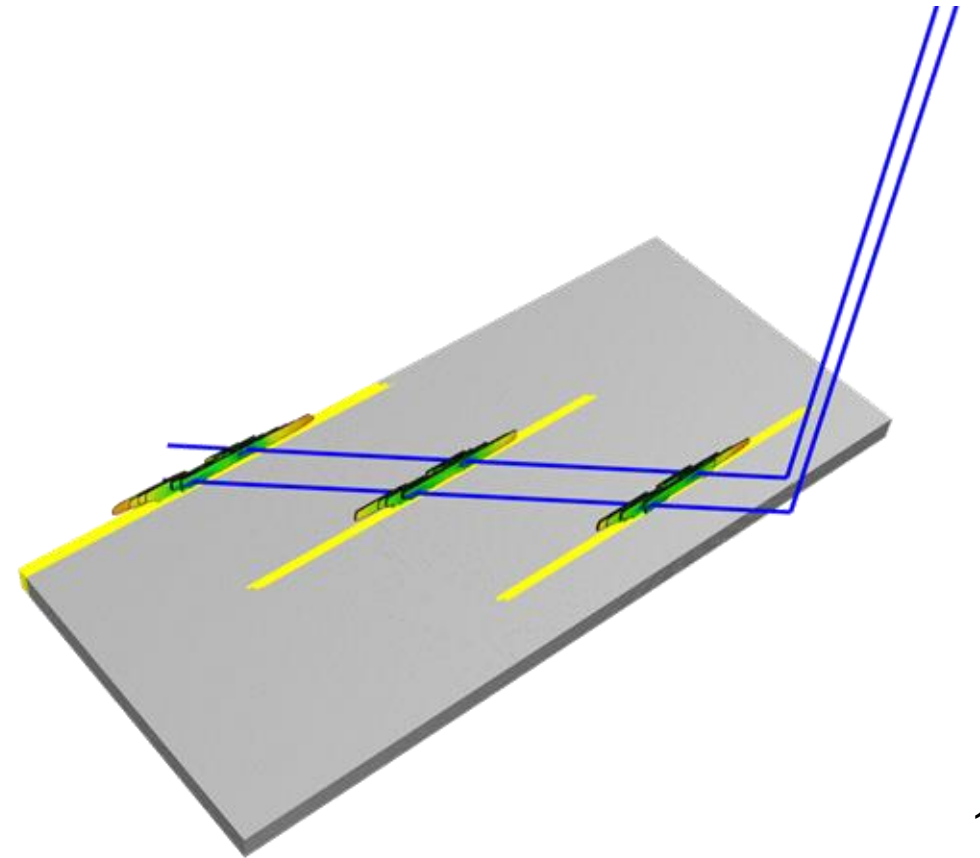
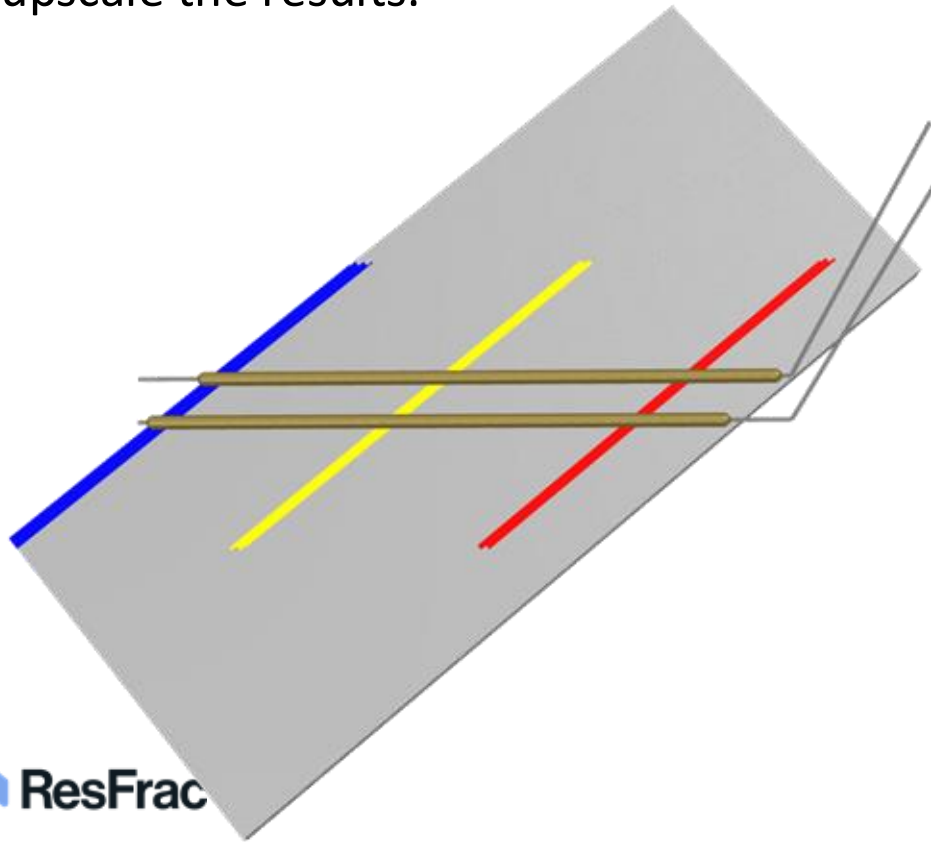
Concept Overview

Full lateral multisector model: Users can choose to simulate all sectors along the lateral.



Concept Overview

Composite multisector model: Users can choose to simulate only representative sectors and apply multipliers to upscale the results.



Key Advantages

- Enables users to capture variations along the well within a single model
- Eliminates the need for additional post-processing to combine results from multiple single-sector simulations
- Provides a more realistic representation of the physics in certain applications (e.g., geothermal)
- Delivers a significant improvement in simulation time compared to running a large model as a single sector

How to Use

←

Home Welcome

✔ Startup

- Static Model and Initial Conditions
- Curve Sets
- Wells and Perforations
- Meshing Options
- Fluid Model Options
- Fracture Options
- Proppants
- Water Solutes
- Well Controls

Startup

Define overall characteristics of the simulation

Editor Search

Recommended settings wizard ?

✔ Use advanced unit system ?

✔ Rotate simulation mesh to align with stresses ?

Multisector option ?

- None
- Uncoupled
- Coupled

Maximum wallclock time [hours]
120 ?

←

Home Welcome

✔ Startup

- Static Model and Initial Conditions
- Curve Sets
- ✔ Wells and Perforations
- Meshing Options
- Fluid Model Options
- Fracture Options
- Proppants
- Water Solutes
- Well Controls
- Other Physics Options

Wells and Perforations

Specify parameters related to wells and perforations

Editor Search

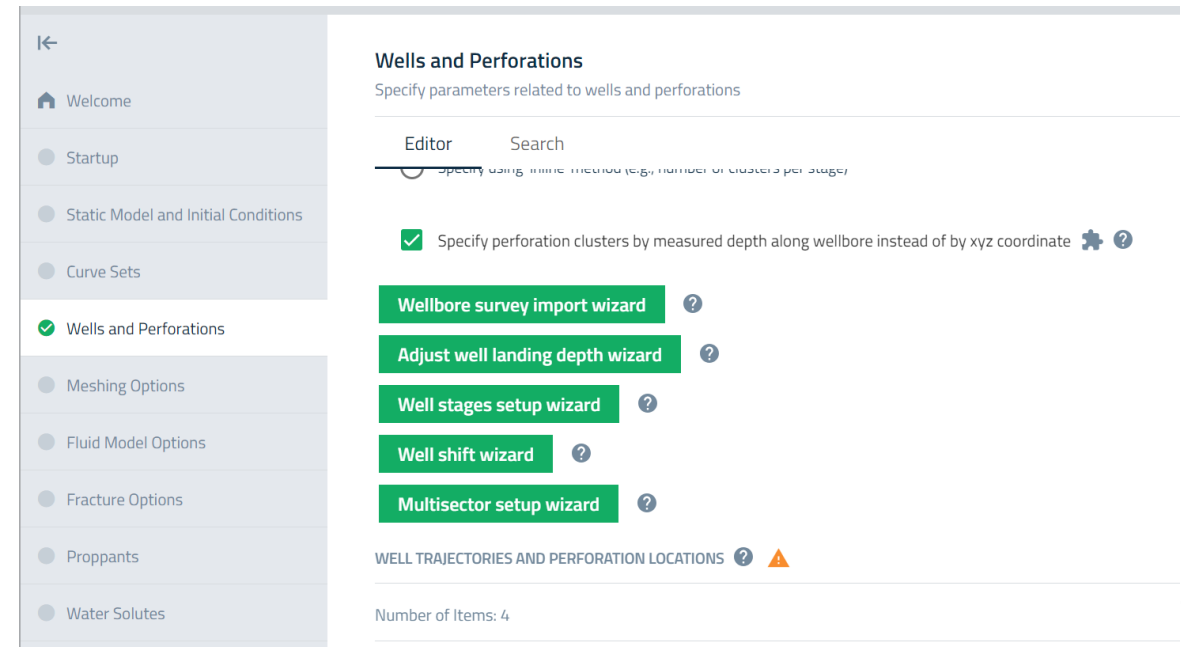
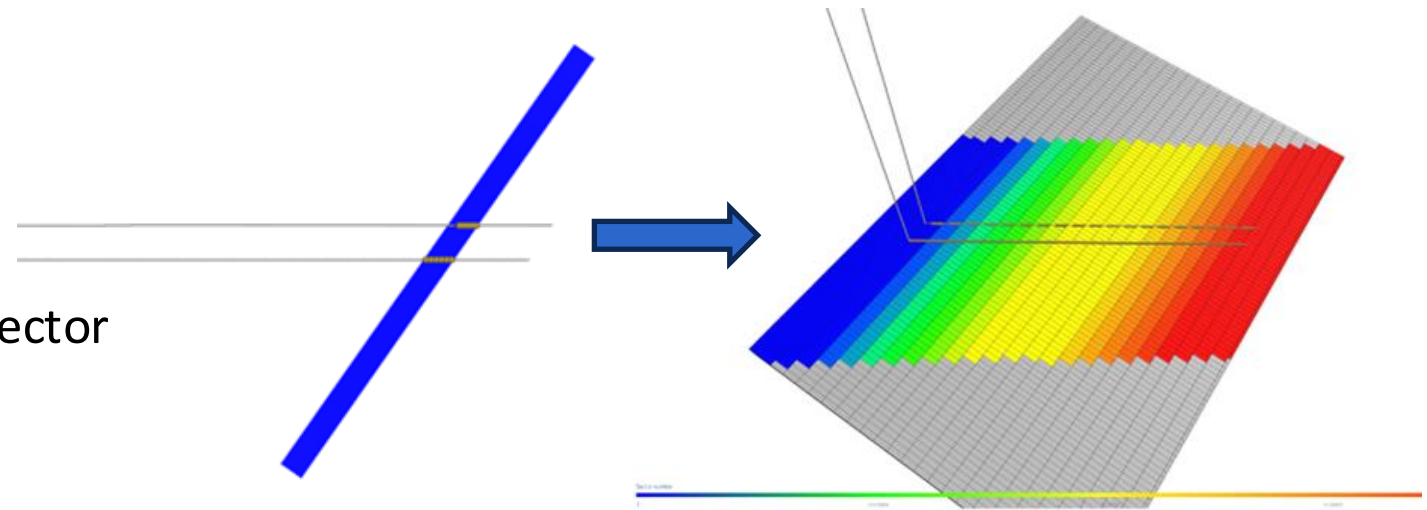
SECTOR MODEL ASSIGNMENTS ?

	Sector number ?	Sector name (optional) ?	Min stage number in Well_A028-B ?	Max stage number in Well_A028-B ?	Min measured dep Well_A028-B (
18	Sector 18	D4	9	9	2489.0631
19	Sector 19	D4	8	8	2681.854
20	Sector 20	D4	7	7	2873.4556
21	Sector 21	D5	6	6	3064.7021
22	Sector 22	D5	5	5	3258.5743
23	Sector 23	D5	4	4	3451.85
24	Sector 24	D6	3	3	3645.2535
25	Sector 25	D7	2	2	3836.6328
26	Sector 26	D7	1	1	4028.8472

How to Use

Multisector setup wizard: Convert a single sector model to a multisector model

- Matrix region
- Zero perm outside cube
- Economic models
- Production volume multipliers
- Lateral length per well in the model
- Well vertices and Perforation clusters
- Wellbore boundary condition controls
- Preexisting fractures
- zero perm inside cube
- Visualization output times
- Sector model assignments



How to Use

Multisector setup wizard: Inputs

Multisector setup wizard ?

This wizard allows you to convert a single-sector simulation to a multisector simulation. You can open 3D visualization in Builder and set the 'Ruler Grid' tool to heel of the reference well. Based on your inputs, the wizard will use the current sector mo

Choose the method for defining the matrix region in the multisector model ?

- By corner coordinates
- By number of sectors (toe/heel of reference well)

X-coordinate of first corner [m] ? !

Y-coordinate of first corner [m] ? !

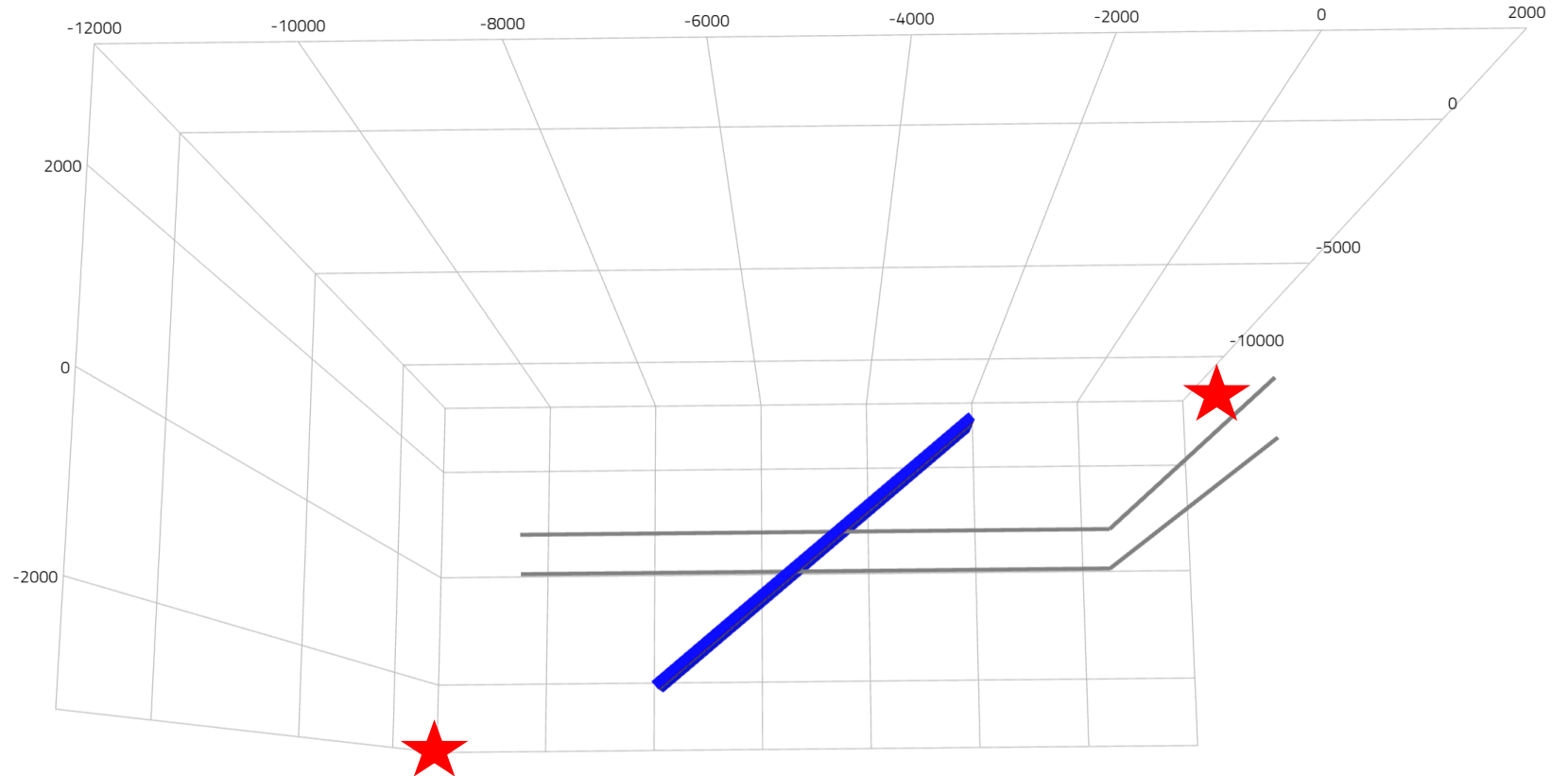
X-coordinate of second corner [m] ? !

Y-coordinate of second corner [m] ? !

Keep production sequence start time constant ? !

Apply

Reset to default values



How to Use

Multisector setup wizard: Inputs

Multisector setup wizard ?

This wizard allows you to convert a single-sector simulation to a multisector simulation. You can open 3D visualization in Builder and set the 'Ruler Grid' tool to the heel of the reference well. Based on your inputs, the wizard will use the current sector mode:

Choose the method for defining the matrix region in the multisector model ?

- By corner coordinates
- By number of sectors (toe/heel of reference well)

Reference well name

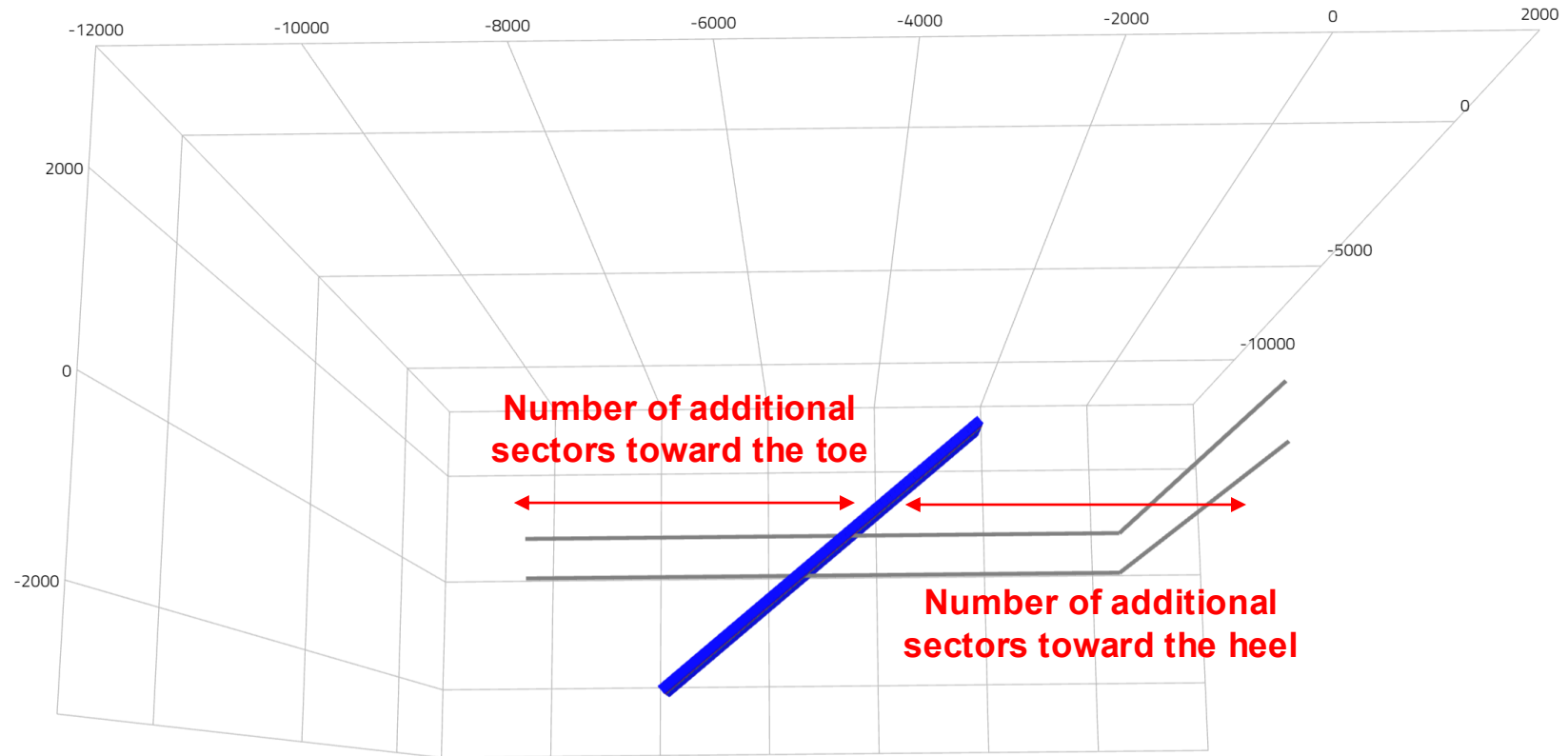
Number of additional sectors toward the toe of reference well ?

Number of additional sectors toward the heel of reference well ?

Keep production sequence start time constant ? ⚠

Apply

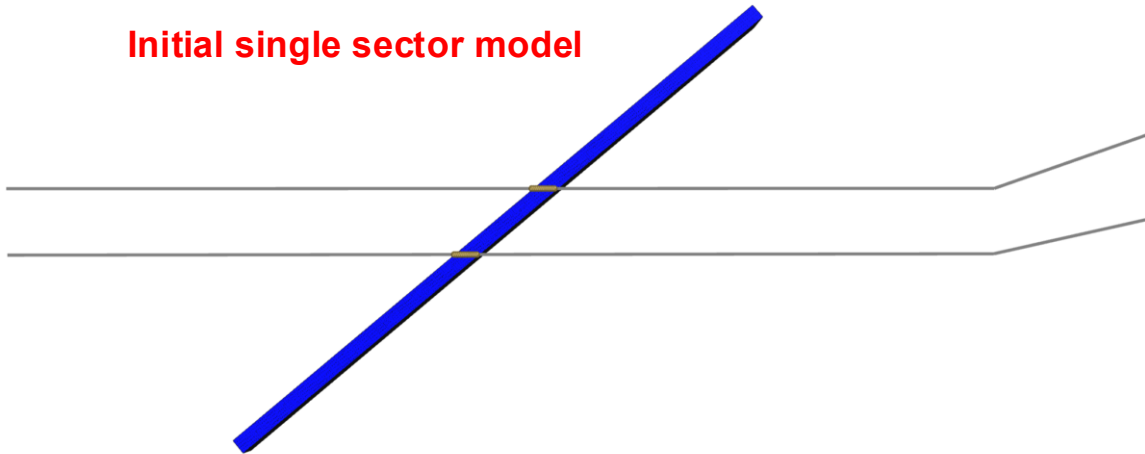
Reset to default values



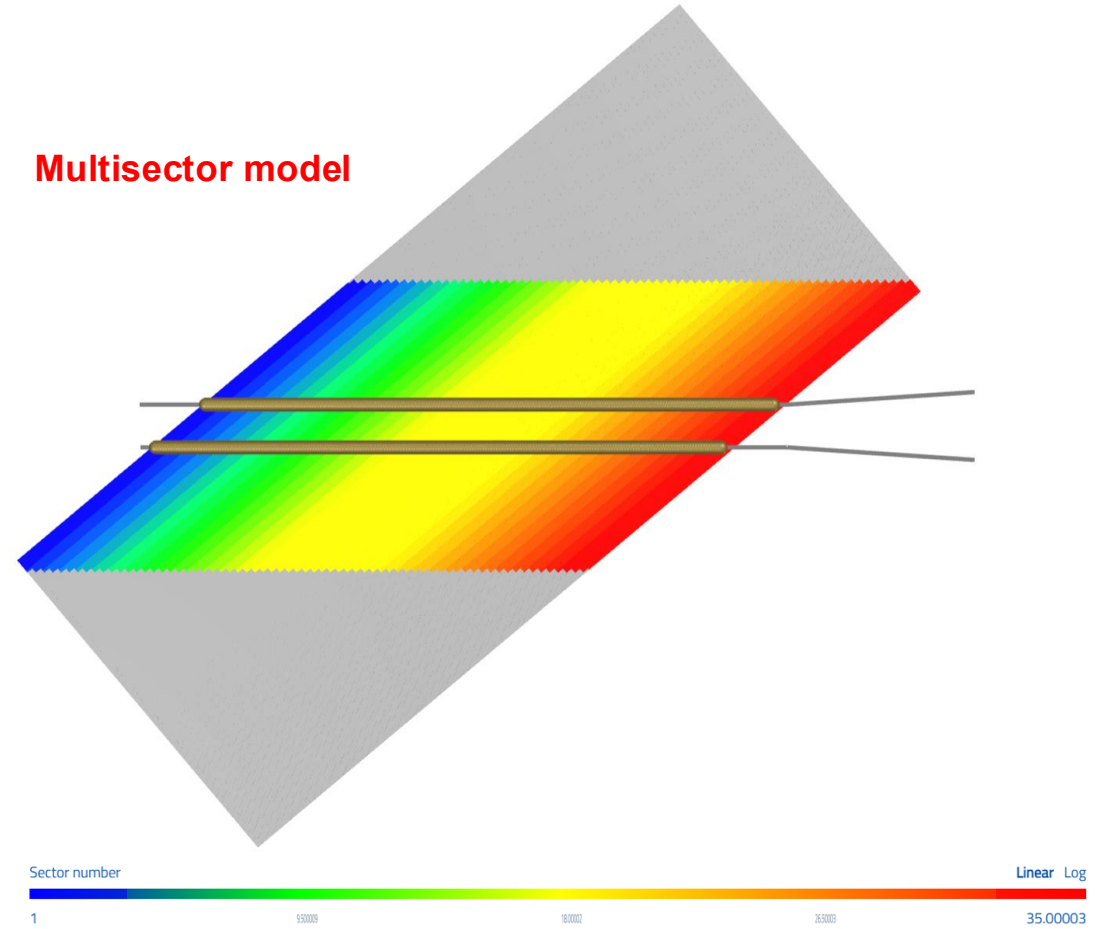
How to Use

Multisector setup wizard: Matrix region

Initial single sector model

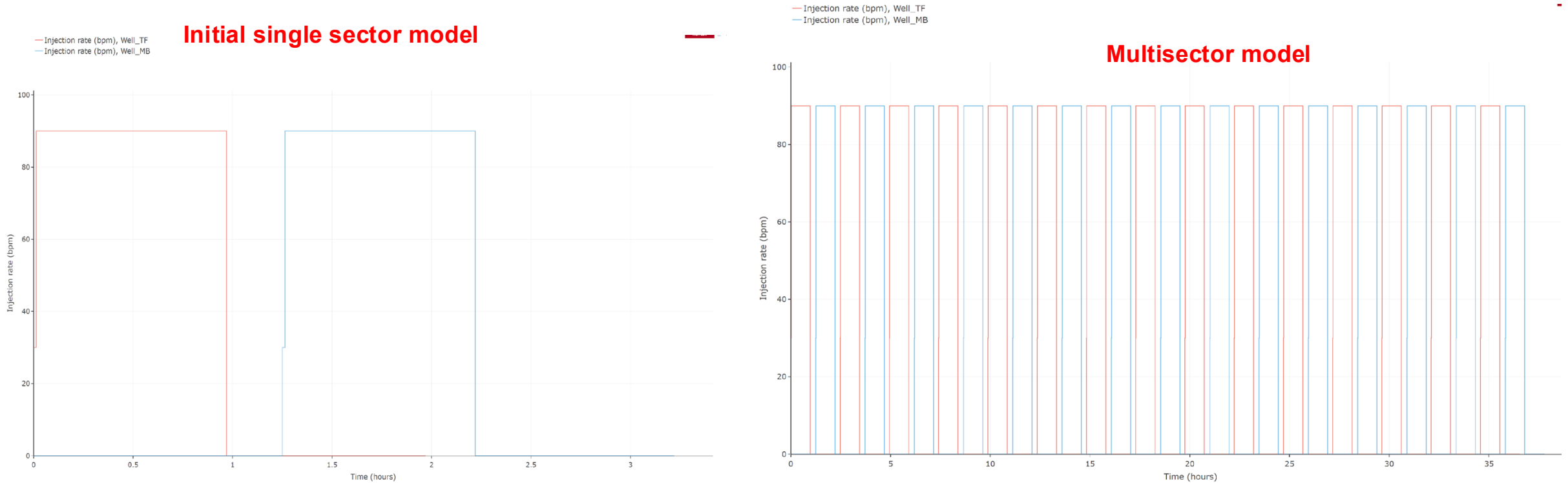


Multisector model



How to Use

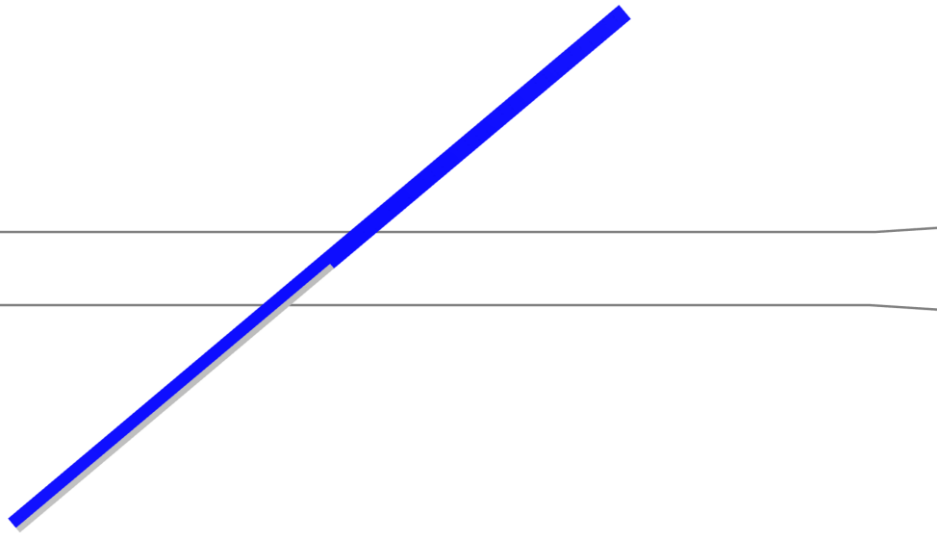
Multisector setup wizard: Wellbore boundary condition controls



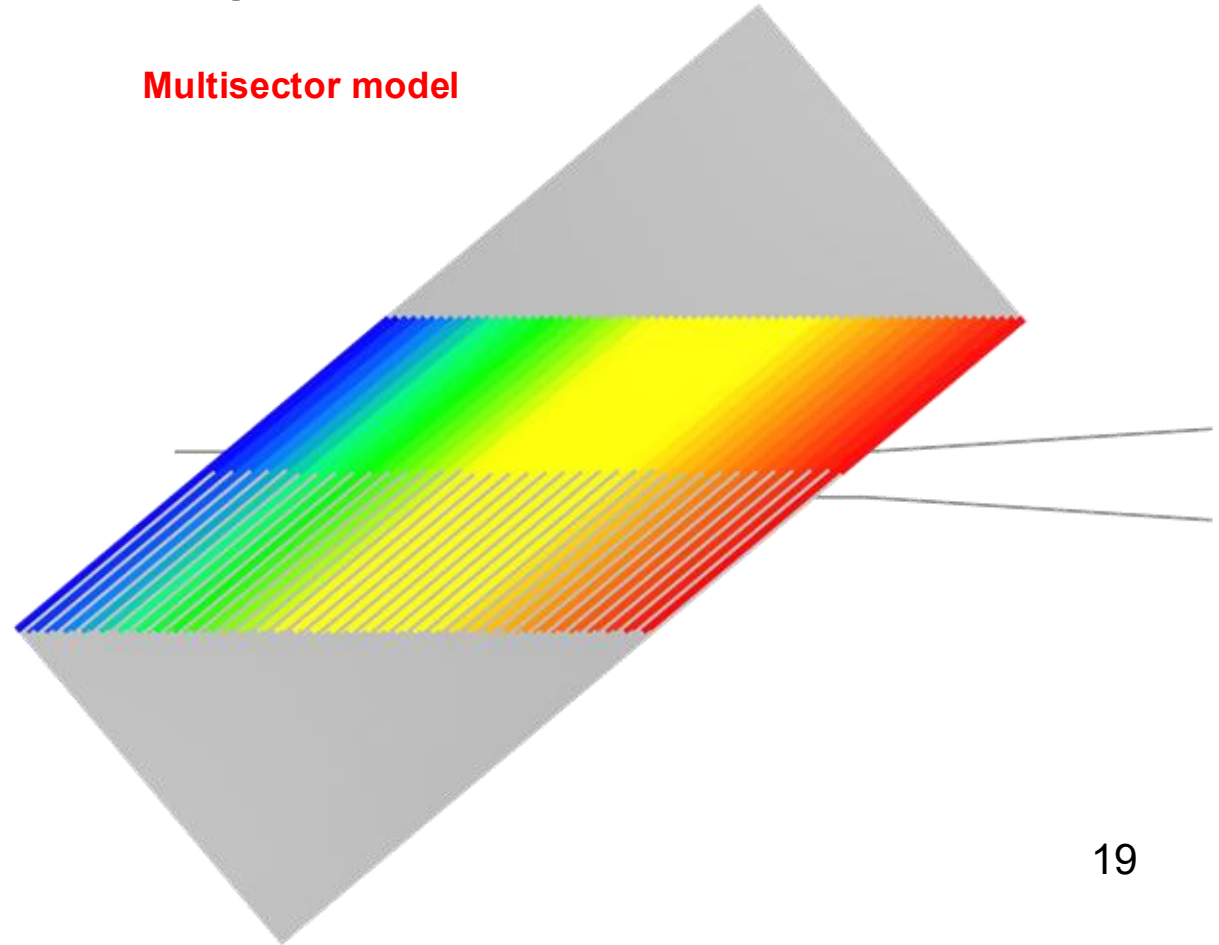
How to Use

Multisector setup wizard: Zero perm inside cube and pre-existing fractures

Initial single sector model



Multisector model



How to Use

Multisector setup wizard: Sector model assignments

SECTOR MODEL ASSIGNMENTS ? 📄

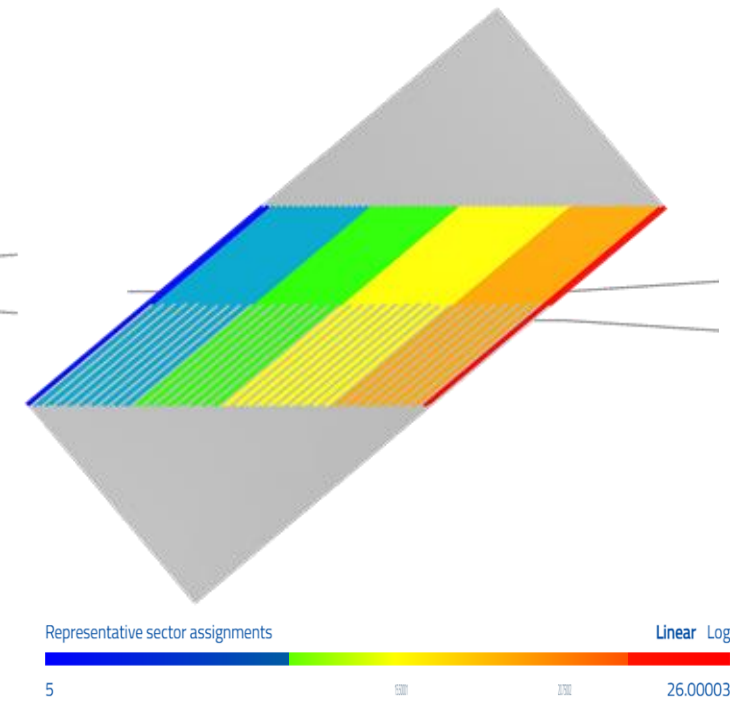
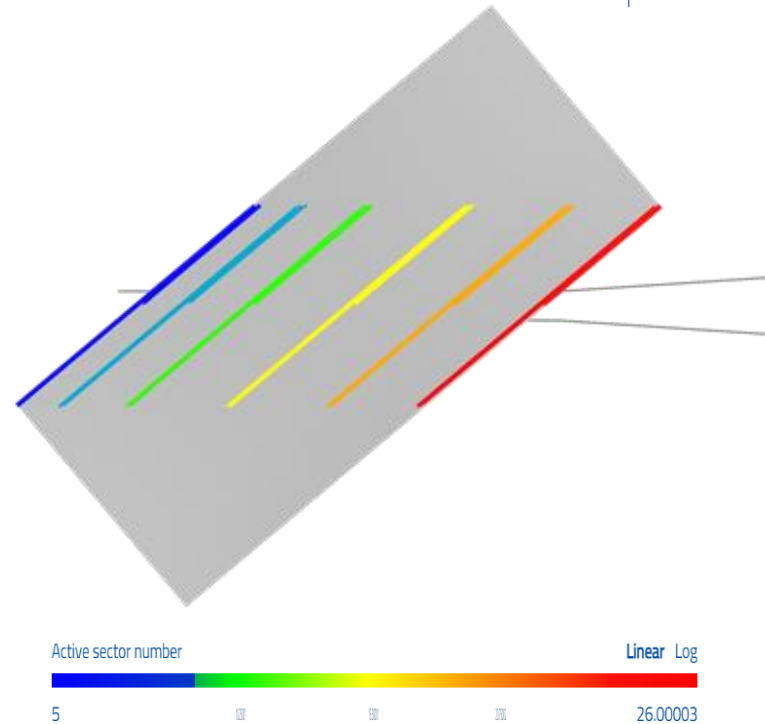
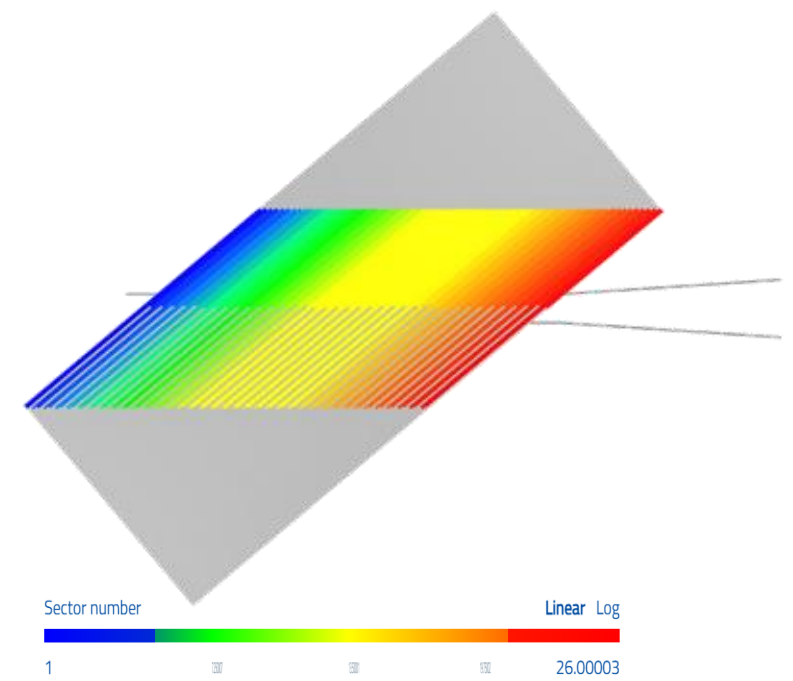
	Sector number ?	Sector name (optional) ?	Representative sector (optional) ?	Min stage number in Well_A028-B ?	Max stage number in Well_A028-B ?	Min measured depth in Well_A028-B [m] ?	Max measured depth in Well_A028-B [m] ?
16	Sector 16		[BLANK] ▼	0	0		
17	Sector 17		[BLANK] ▼	10	10	2294.42621766052	2489.06312176833
18	Sector 18		[BLANK] ▼	9	9	2489.06312176833	2681.8543727651
19	Sector 19		[BLANK] ▼	8	8	2681.8543727651	2873.45568886272
20	Sector 20		[BLANK] ▼	7	7	2873.45568886272	3064.70213002759
21	Sector 21		[BLANK] ▼	6	6	3064.70213002759	3258.57434570235
22	Sector 22		[BLANK] ▼	5	5	3258.57434570235	3451.857408185
23	Sector 23		[BLANK] ▼	4	4	3451.857408185	3645.25357995961
24	Sector 24		[BLANK] ▼	3	3	3645.25357995961	3836.63280566645

How to Use

Multisector setup wizard: Sector model assignments

SECTOR MODEL ASSIGNMENTS ? 📄

	Sector number ?	Sector name (optional) ?	Representative sector (optional) ?
18	Sector 18	D4	[BLANK] ▼
19	Sector 19	D4	Sector 18 (D4) ▼
20	Sector 20	D4	Sector 18 (D4) ▼
21	Sector 21	D5	[BLANK] ▼
22	Sector 22	D5	Sector 21 (D5) ▼
23	Sector 23	D5	Sector 21 (D5) ▼
24	Sector 24	D6	[BLANK] ▼
25	Sector 25	D7	Sector 26 (D7) ▼
26	Sector 26	D7	[BLANK] ▼



How to Use

Submit a multisector simulation

Run Simulation

Simulation Name*
Exp1

Description

Simulator Version *
2026-04-13 15:02:33 -0600 e626f83

Job Priority *
Normal

Number of Nodes(one node per sector)
7

Vm Size
Regular (1x new CPUs, 1.2x cost per hour, approx 20 percent reduction in runtime)

Run Simulation Cancel

- Simulation Details
- Edit Simulation in Builder
- Open Economics Navigator
- Run Simulation
- Copy Simulation
- Copy Simulation to a Sandbox
- Check for New Results in Next Sync
- Re-Download All Results
- Export Simulation Folder
- Open Simulation Folder in File Explorer
- Open Comments File
- Open Text Settings File
- Open Text Input File
- Download Restart Files
- Download Single Sector Simulation**
- Import Additional Files
- Visualize Simulation Results
- Visualize Results with Layout
- Set Up Sensitivity Analysis
- Set Up History Matching
- Set Up Optimization
- Go To Workflows Based on This Sim
- Share Simulation
- Move to Trash

Download Single Sector Simulation

Choose which sectors to download from server for simulation "Exp1_CMS_t4". Sectors marked with a check mark will be downloaded.

- Exp1_CMS_t4_S14
- Exp1_CMS_t4_S16
- Exp1_CMS_t4_S18
- Exp1_CMS_t4_S21
- Exp1_CMS_t4_S24
- Exp1_CMS_t4_S26
- Exp1_CMS_t4_S5

OK Cancel [Select All](#) [Deselect All](#)

Current Limitations

- The initial release only supports “Uncoupled” mode.
- The initial release does not support corner-point grids.
- The initial release does not support sensitivity analysis, history matching, or optimization workflows.
- Sector boundaries and well vertices must be aligned across all wells in the model.
- In a layer-cake static model, geological units are horizontal. Therefore, if wells are dipping, the landing zone cannot be adjusted independently across sectors.