Simulation case process steps

Defining a simulation case consists of specifying the input properties, then selecting predefined initial conditions and fluids models, rock physics functions, and development strategies. You can select the results that the simulation should generate and the type of simulator. The completed simulation case will appear in the list in the **Cases** pane.

How to define a simulation case

To add a new simulation case to the list in the **Cases** pane:

1. In the **Processes** pane, open **Simulation** and select **Define simulation case**. This will open the **Define simulation case** dialog.

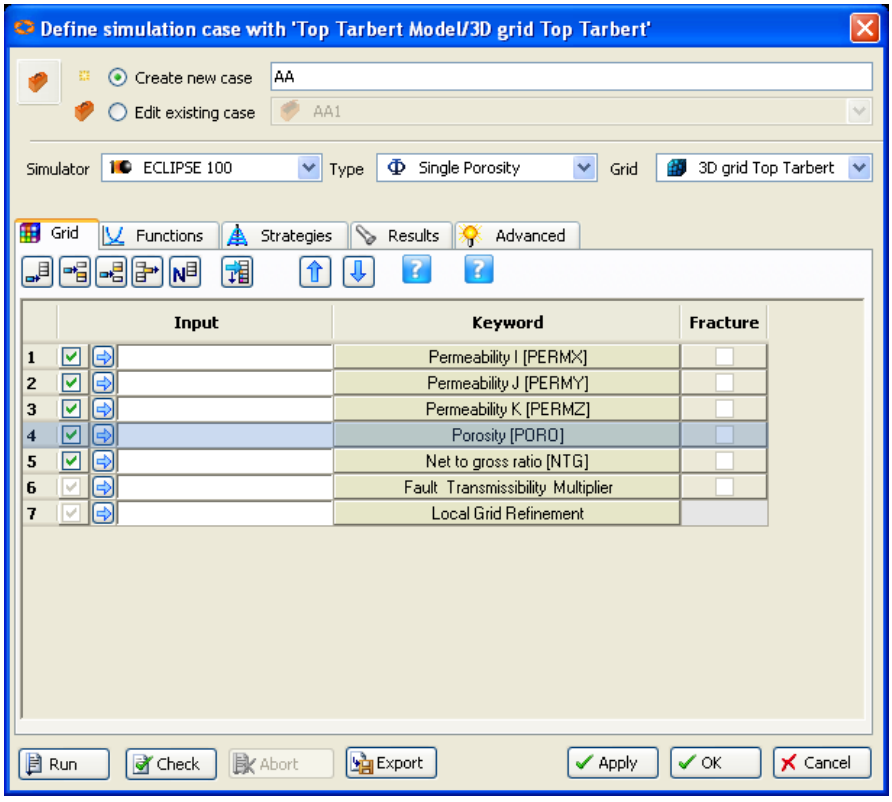

Fig.29.1: Define simulation case with "Top Tarbert Model/3D grid Top Tarbert

2. Select **Create new case** and enter the name for the new simulation case into the adjacent field.

3. Select the **Simulator** from the drop-down list.

4. Select the **Type** of simulation model from drop-down list. If you select **Dual Porosity** or **Dual Permeability** porosity models, then you are prompted for additional properties in the **Grid** tab. For most grid properties you can tick the checkbox in the final column on the Grid tab to define a different property for fractures as opposed to the rock matrix.

5. Select the **Grid** for the simulation from the drop-down list. This contains all the grids set up in the **Models** pane. The initial inputs for the simulation case will be extracted from the grid information, but you can change these if you want.

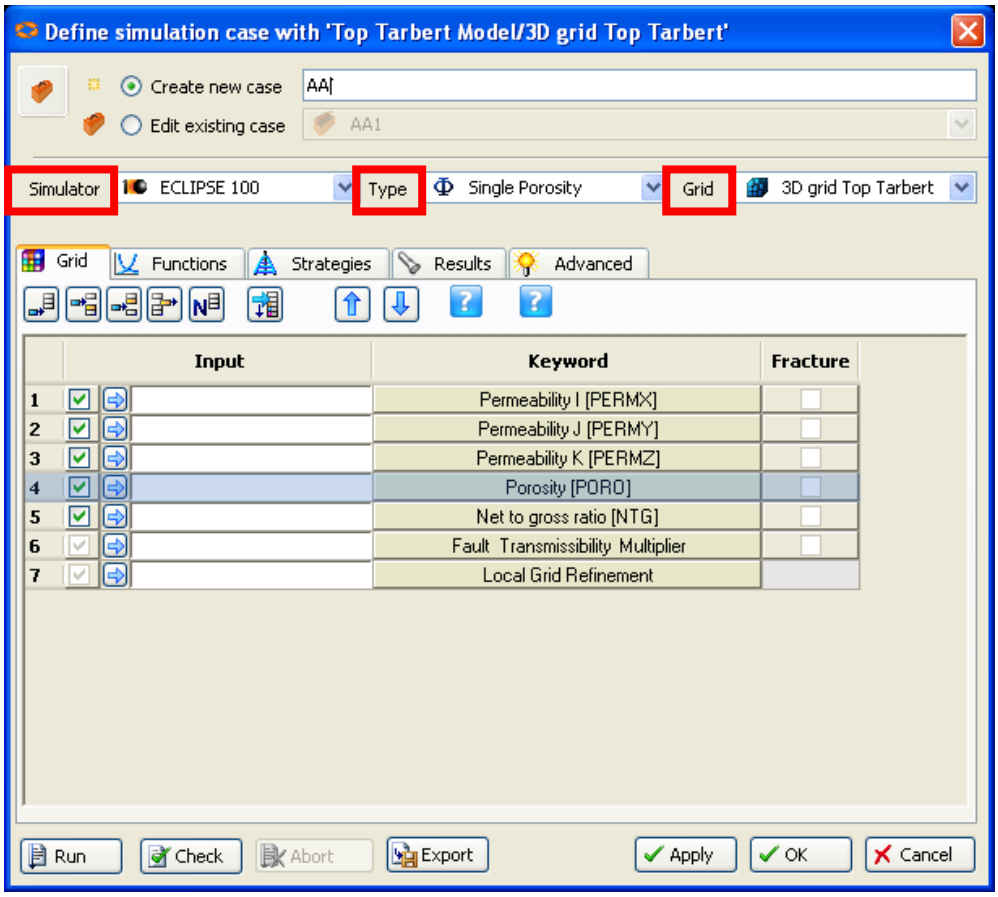

Fig.29.2: Define simulation case with "Top Tarbert Model/3D grid Top Tarbert.

6. To enter more inputs from an existing model into the **Grid** tab, add a new blank item at the appropriate place in the table using the buttons immediately above the table. Open the model in the **Models** pane, and then select a 3D grid property, a transmissibility multiplier, an aquifer or a local grid set. Click the **Drop in selected item** button A new input will be created and if there is a default **Keyword** this will be shown. If there is no default, or if you wish to change the current selection, click on the keyword column and select from the list of permissible **Keywords**.

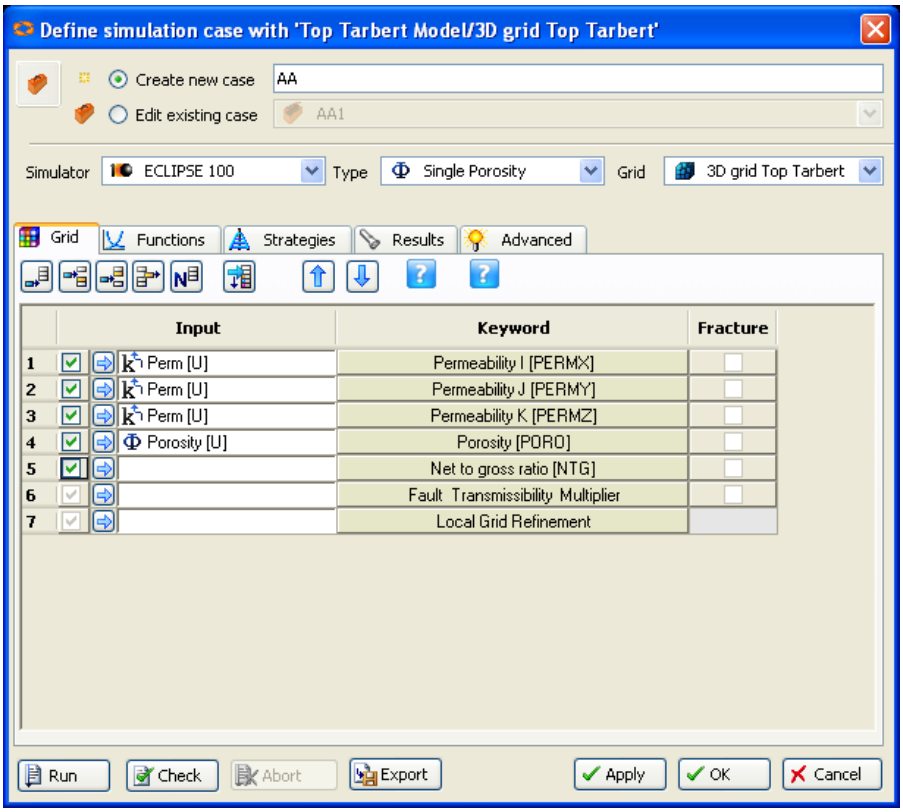

Fig.29.3: Define simulation case with "Top Tarbert Model/3D grid Top Tarbert with **Grid** tab

7. In the **Functions** tab, define your PVT, saturation and other rock physics functions. You add functions to the left hand list by selecting them from the top drop-down menu, and then define the functions by dropping in your fluids and rock physics functions into the right hand table. Only one instance of each function can be added to the list.

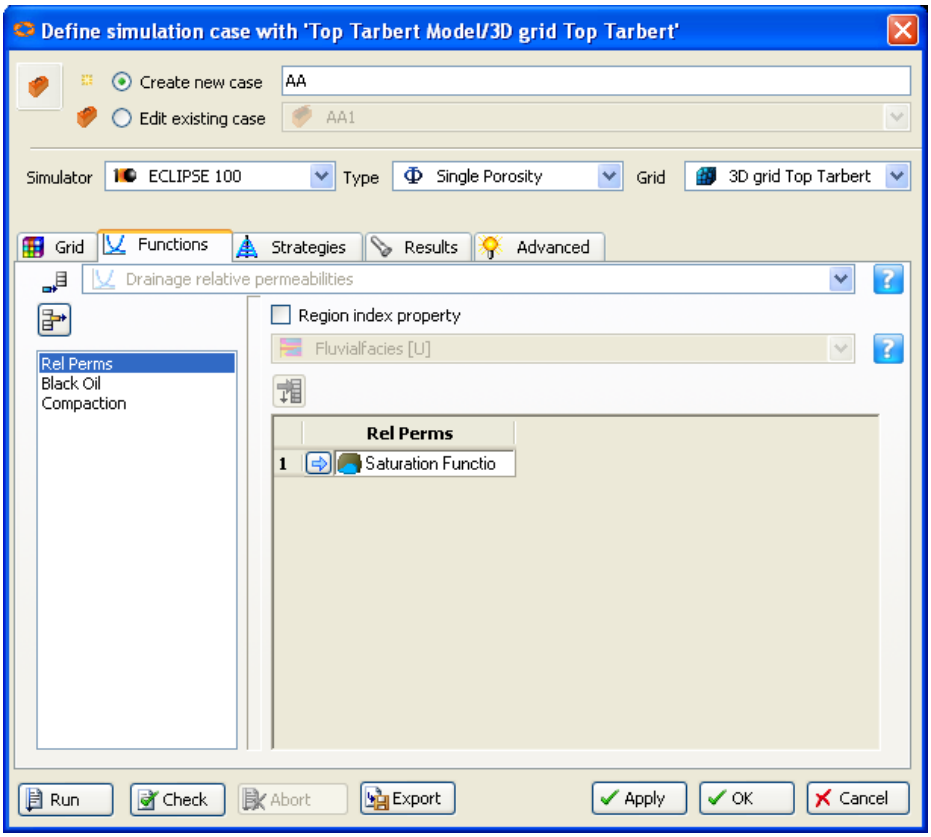

Fig.29.4: Define simulation case with "Top Tarbert Model/3D grid Top Tarbert with **Function** tab.

8. In the **Strategies** tab, add your development strategy or strategies. Add a new blank item at the appropriate place in the table using the buttons immediately above the table. Open the **Development strategies** folder in the **Input** pane then select the strategy that you want to add. Click on the **Insert** button The new strategy will be added into the table.

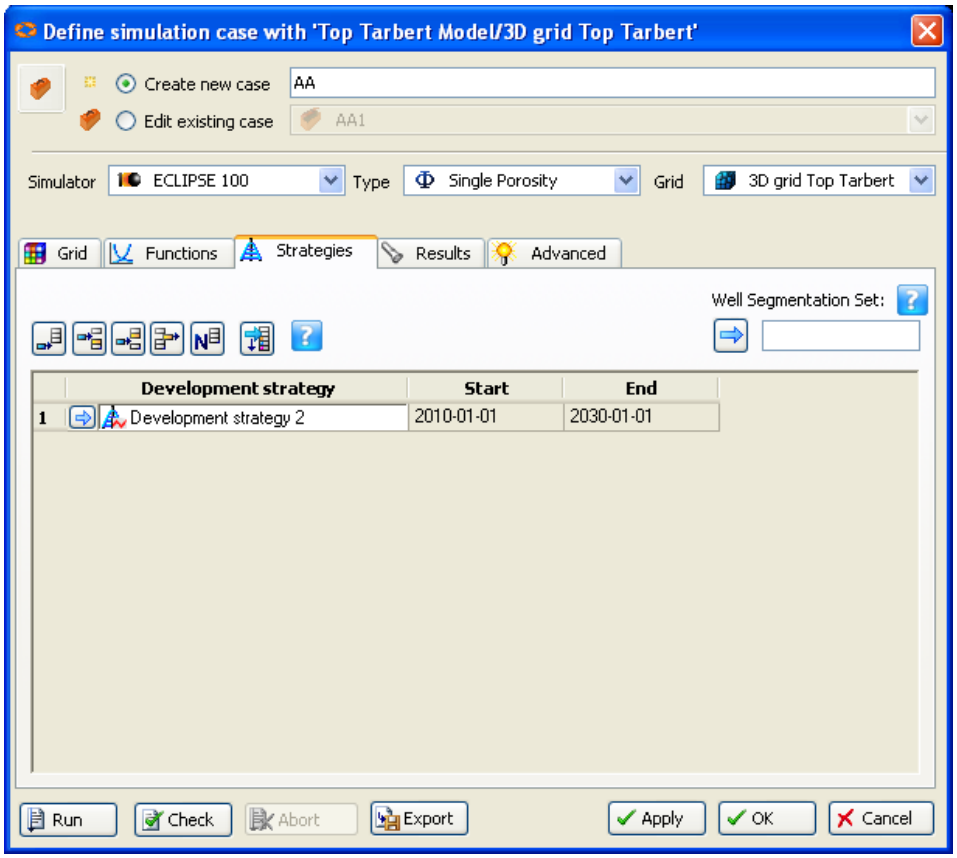

Fig.29.5: Define simulation case with "Top Tarbert Model/3D grid Top Tarbert with **Strategies** tab.

9. In the **Results** tab, set up the report properties and outputs that will be produced from the simulation when the case is run.

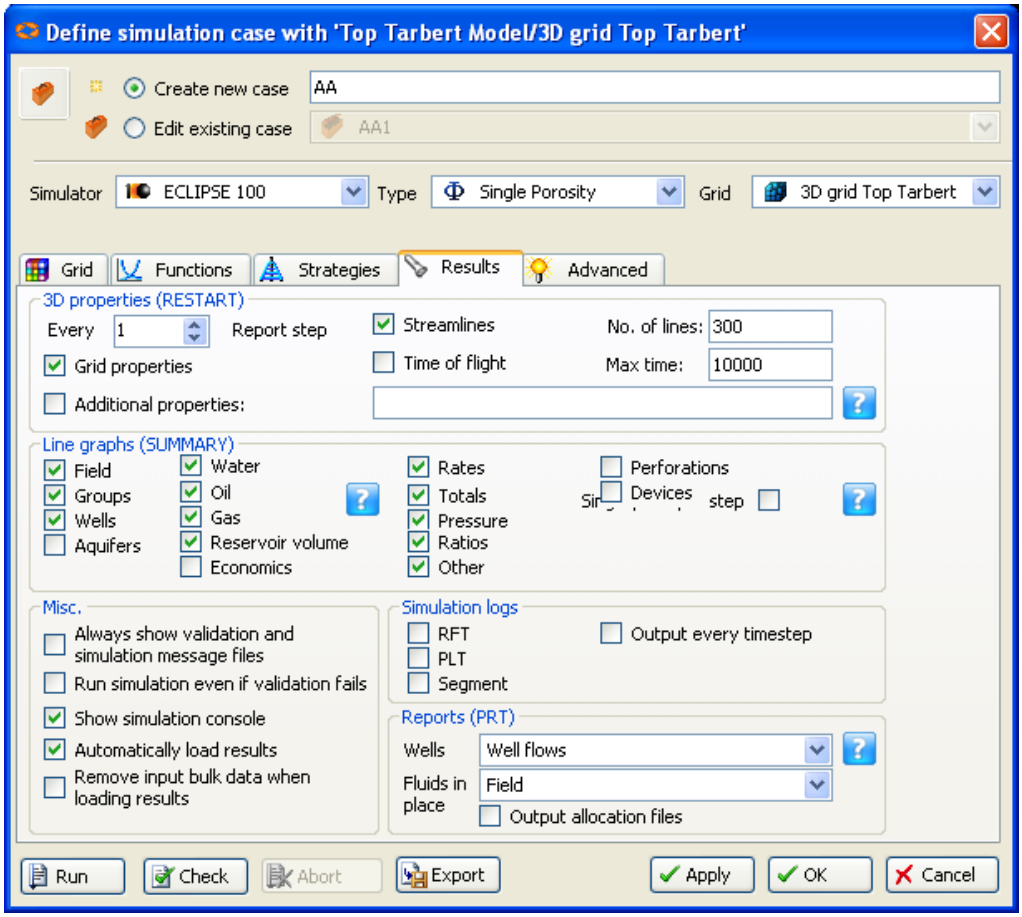

Fig.29.6: Define simulation case with "Top Tarbert Model/3D grid Top Tarbert with **Results** tab.

10. In the **Advanced** tab, specify the simulator version. If you are using FrontSim, this tab will also contain setup options for the simulator. Petrel will select default entries for these, and you must make changes only if you fully understand the consequences. If you have any doubts, please leave the default selections.

11. Click on **Apply** to create the new simulation case.

12. Repeat the process to create all your simulation cases.

13. Click on **OK** to close the dialog.

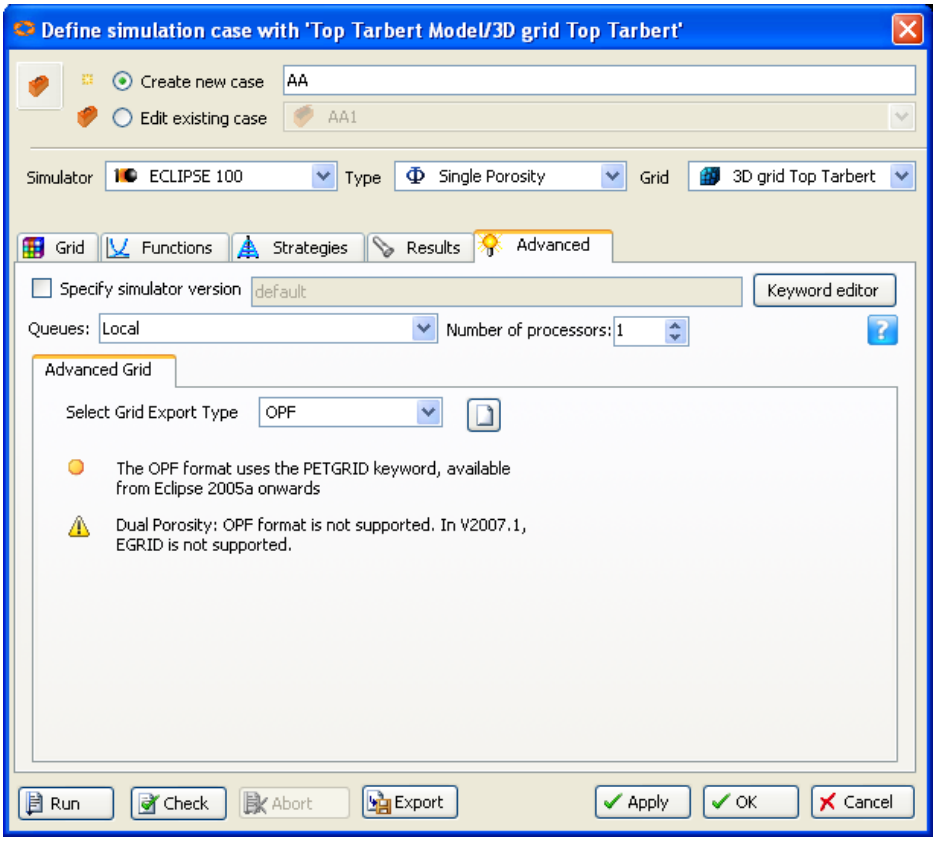

Fig.29.7: Define simulation case with "Top Tarbert Model/3D grid Top Tarbert with **Advanced** tab.

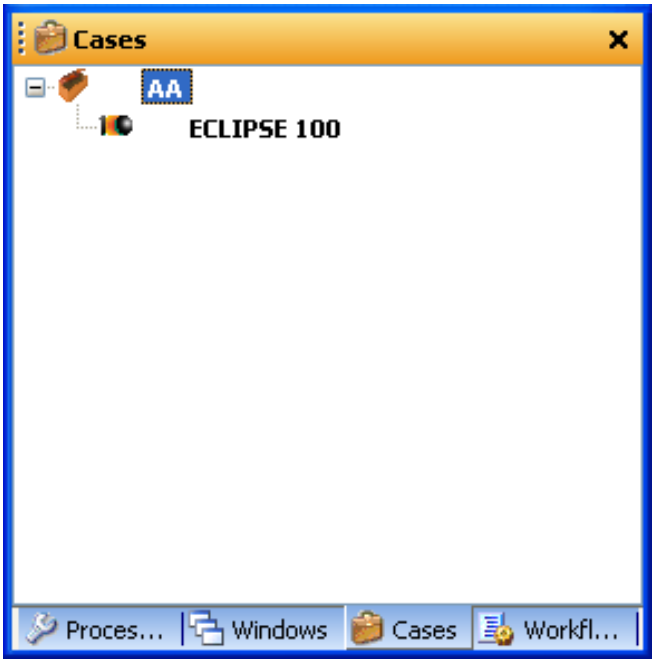

Fig.29.8: Anew simulation case name it **"AA"** in the **case** pane.