Dynamic flowsheet simulation system Dyssol

Get started

Dynamic simulation of complex process structures

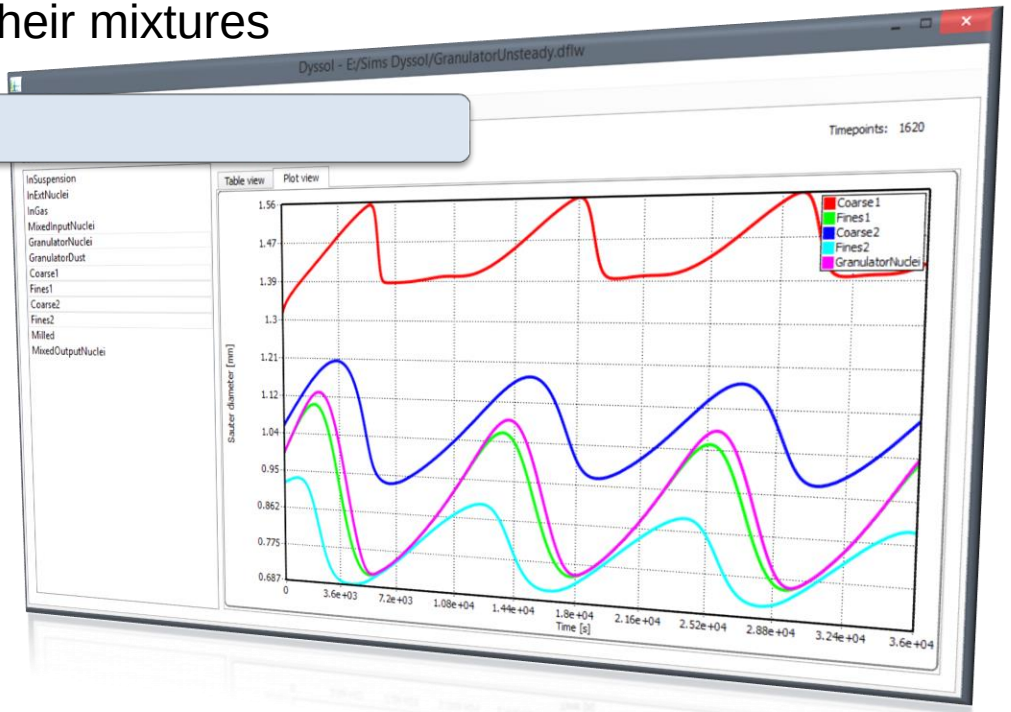
- Time-dependent parameters
- Waveform relaxation method

Advanced treatment of the solid phase

- Multidimensional distributed parameters of solids
- Transformation matrices
- Solid, liquid, gaseous phases and their mixtures

Extensibility of the system

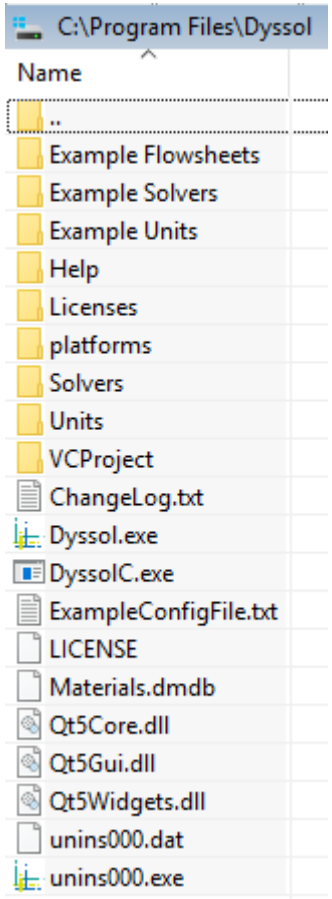
- Sequential-modular approach
- High modularity
- Standardized APIs
- Templates for new units



Installation

Installation directory structure

- Folders:
  - Example flowsheets – flowsheet examples
  - Example units – source code of units (C++)
  - Example solvers – source code of solvers (C++)
  - Help – documentation files (pdf)
  - Licenses – information about licenses
  - Solvers – libraries of developed solvers
  - Units – libraries of developed units
  - VCProject – template project for Microsoft Visual Studio
- Files
  - Dyssol.exe – executable of Dyssol
  - DyssolC.exe – command line utility
  - ExampleConfigFile.txt – example configuration file for command line utility
  - LICENSE – license agreement
  - Materials.dmdb – default materials database
  - unins000 – shortcut for Dyssol uninstaller



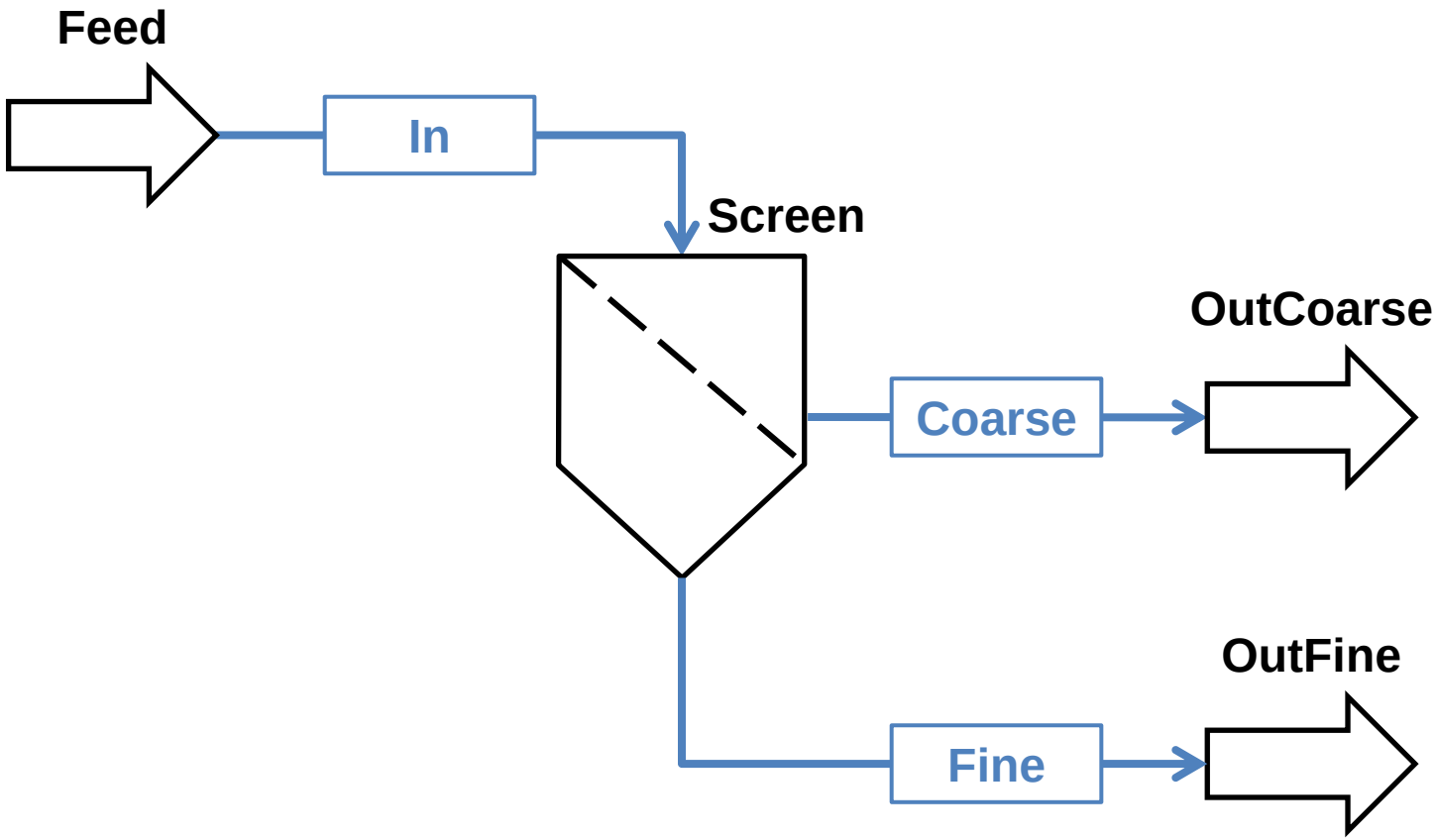
Associated file types

- *.dflw – Dyssol flowsheet file:
  - Structure of the flowsheet
  - All flowsheet settings
  - Previous simulation results
  - HDF5 file format is used

- *.dmdb – Materials database file
  - Compounds and their properties
  - Can be viewed or edited as a text-file or via a user interface

Screening process

Screening process

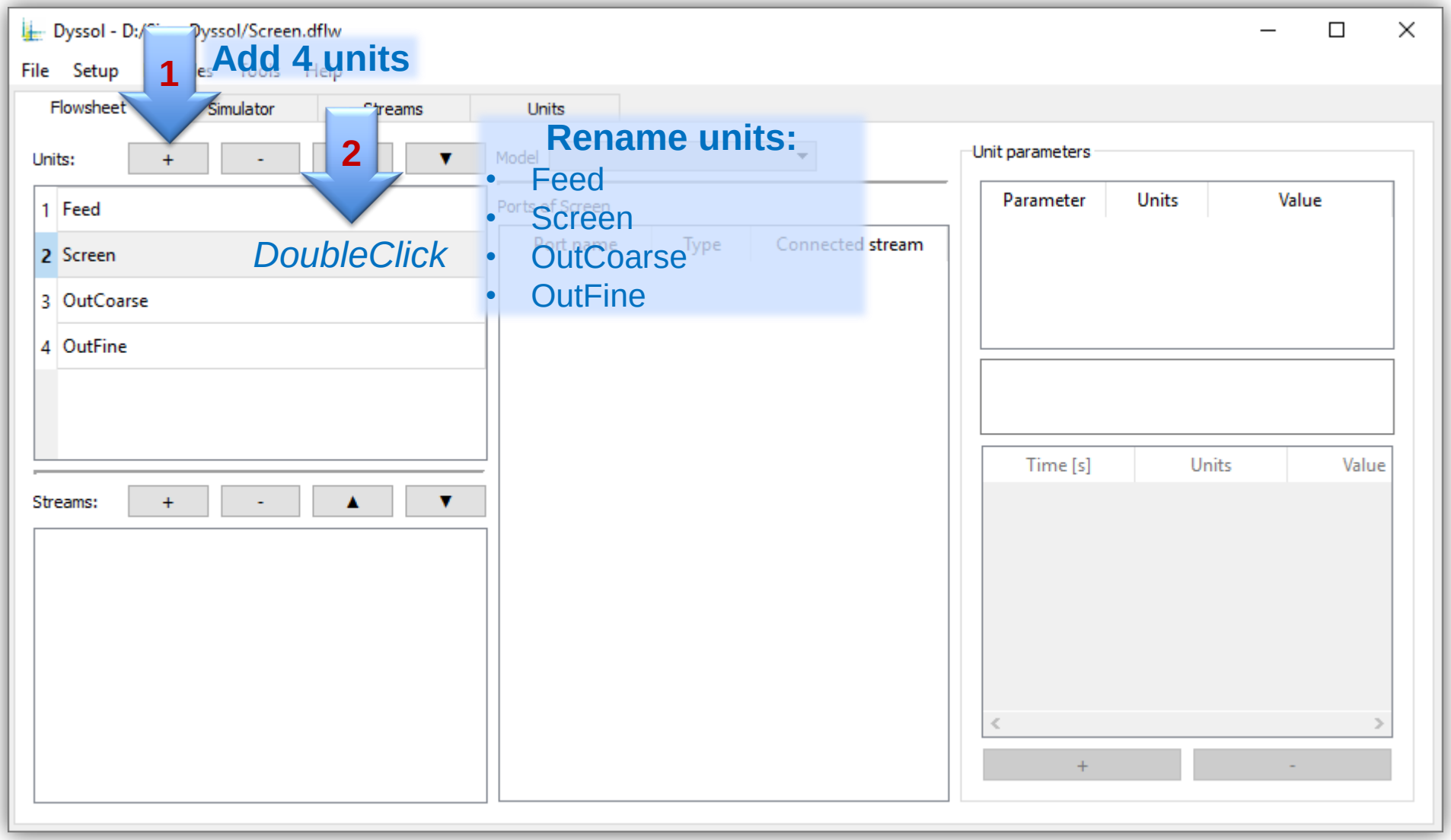


Steps to simulate a process

1. Add units to the flowsheet and give them names
2. Add streams to the flowsheet and give them names
3. Select a model for each unit on the flowsheet
4. Connect ports of each unit to the streams
5. Setup parameters of units
6. Add compounds to the flowsheet
7. Add phases to the flowsheet
8. Specify grids for distributed parameters of solids
9. Setup feeds of inlets and holdups of units
10. Specify the simulation time
11. Run the simulation
12. Analyze the results

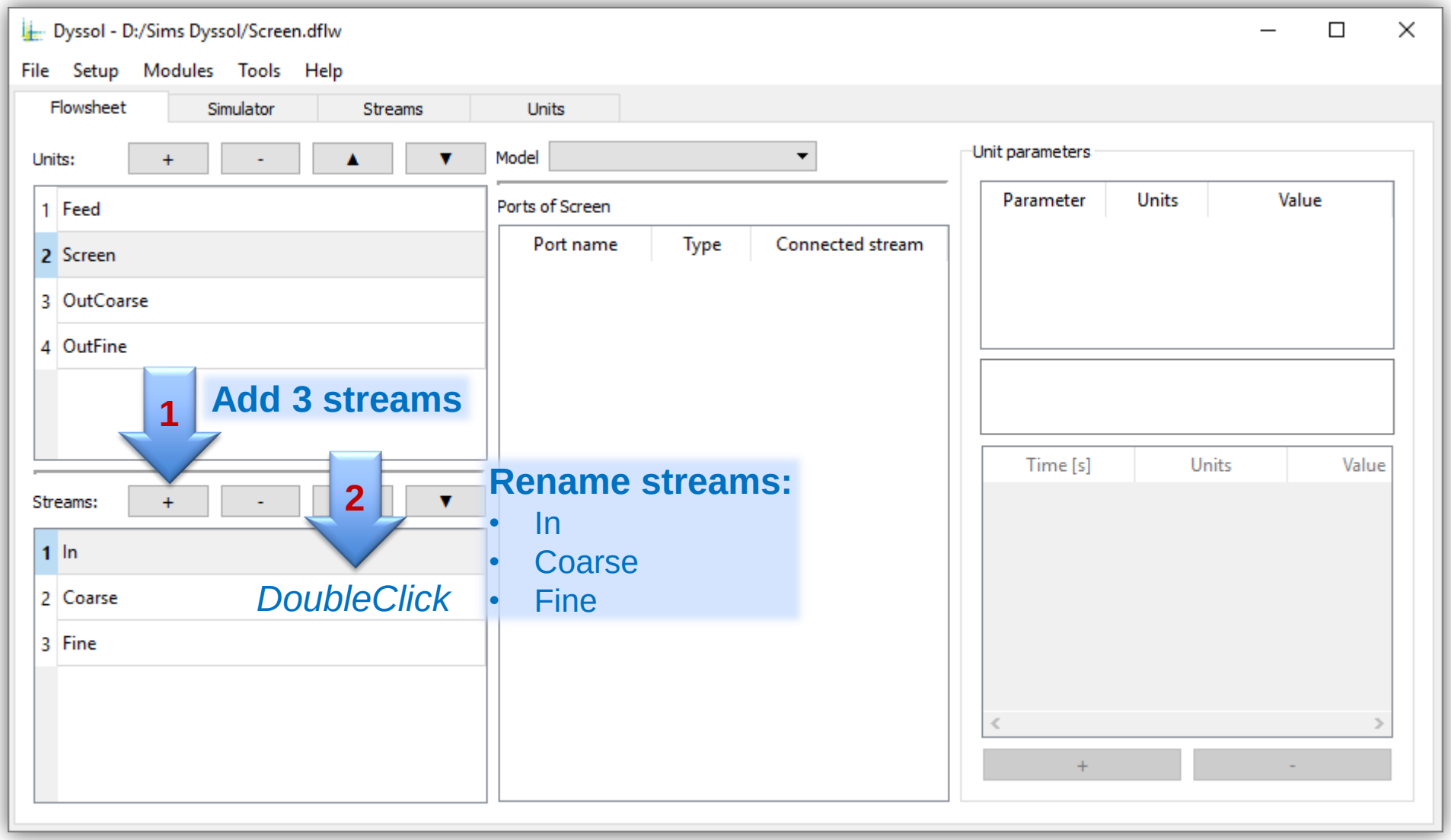
Add units

1 Add units to the flowsheet and give them names



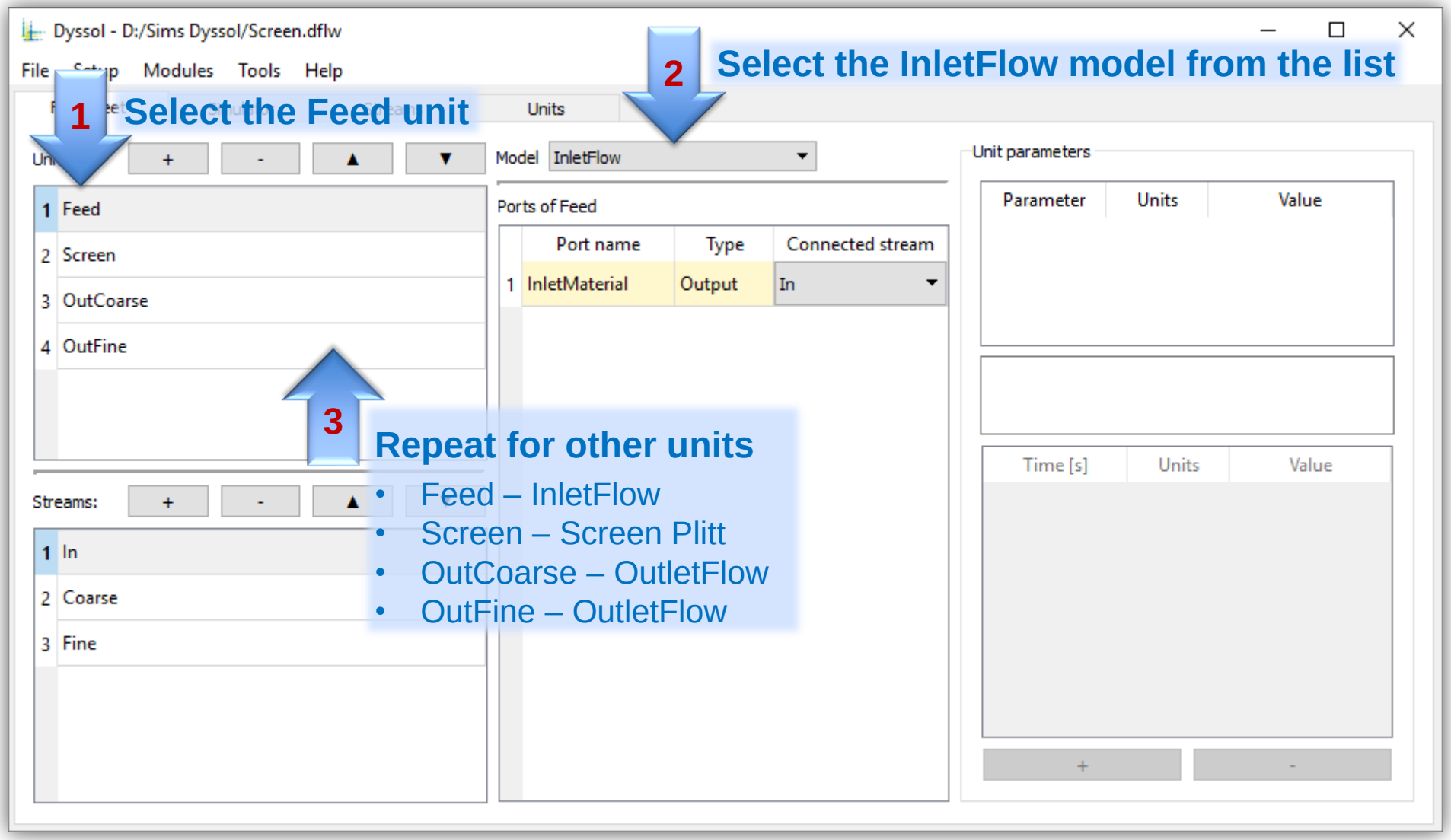
Add streams

2 Add streams to the flowsheet and give them names



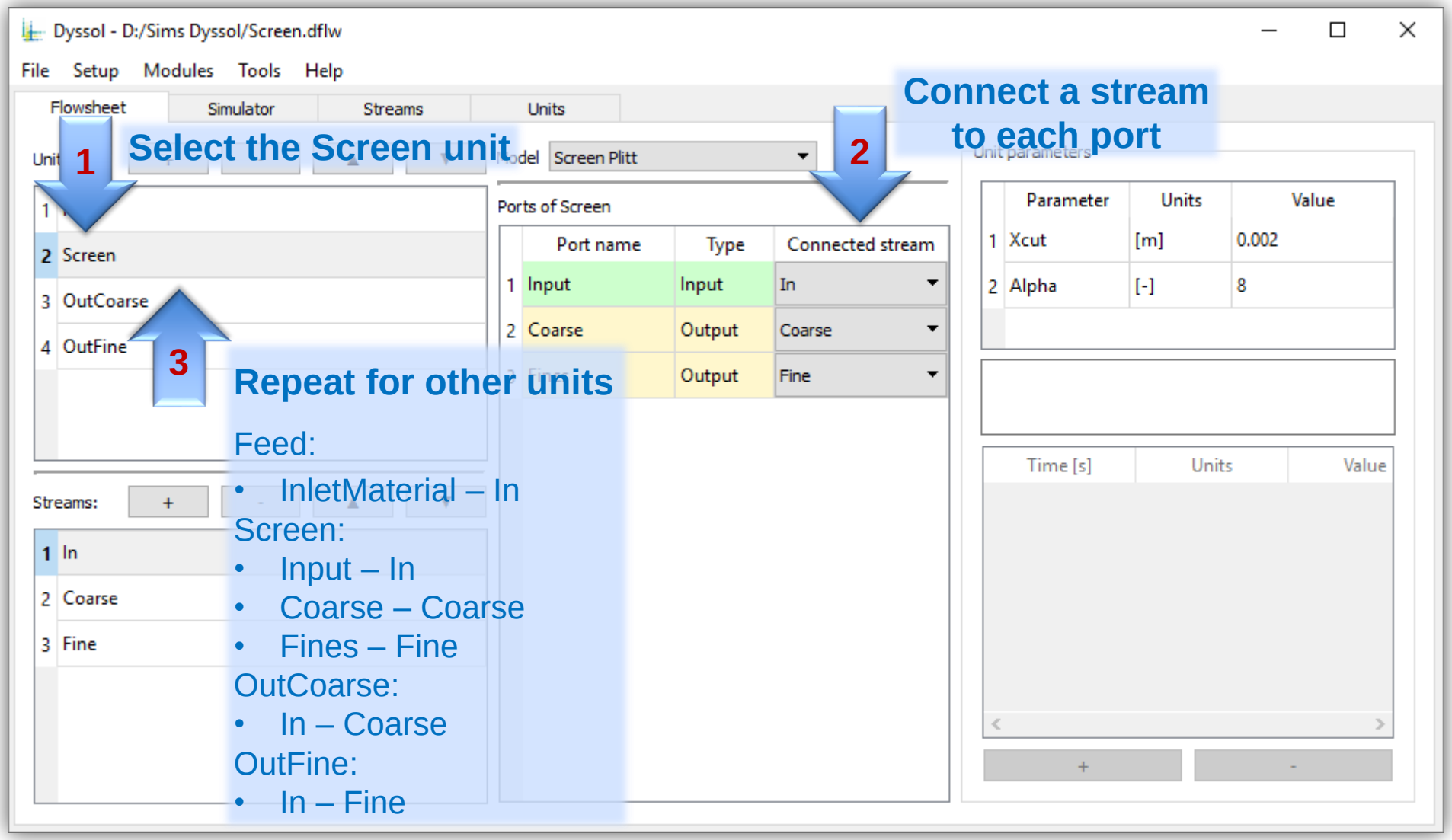
Select models

3 Select a model for each unit on the flowsheet



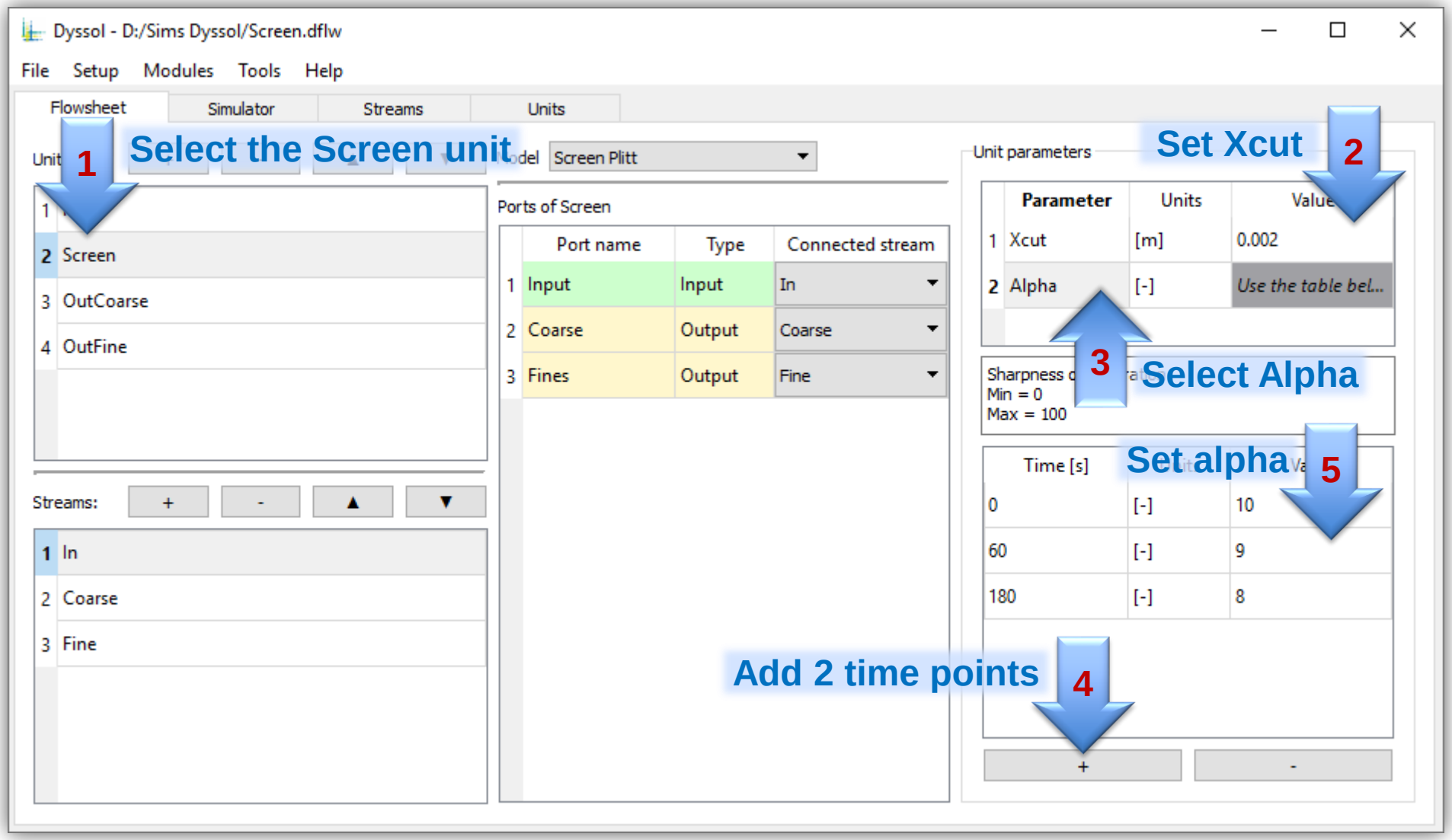
Connect units

4 Connect ports of each unit to the streams



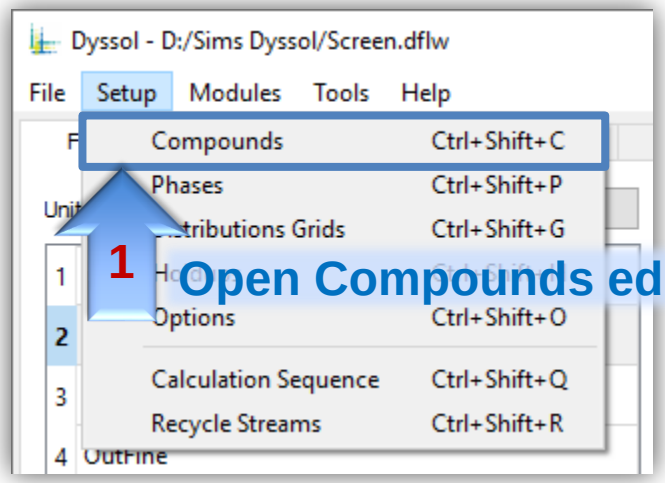
Setup unit parameters

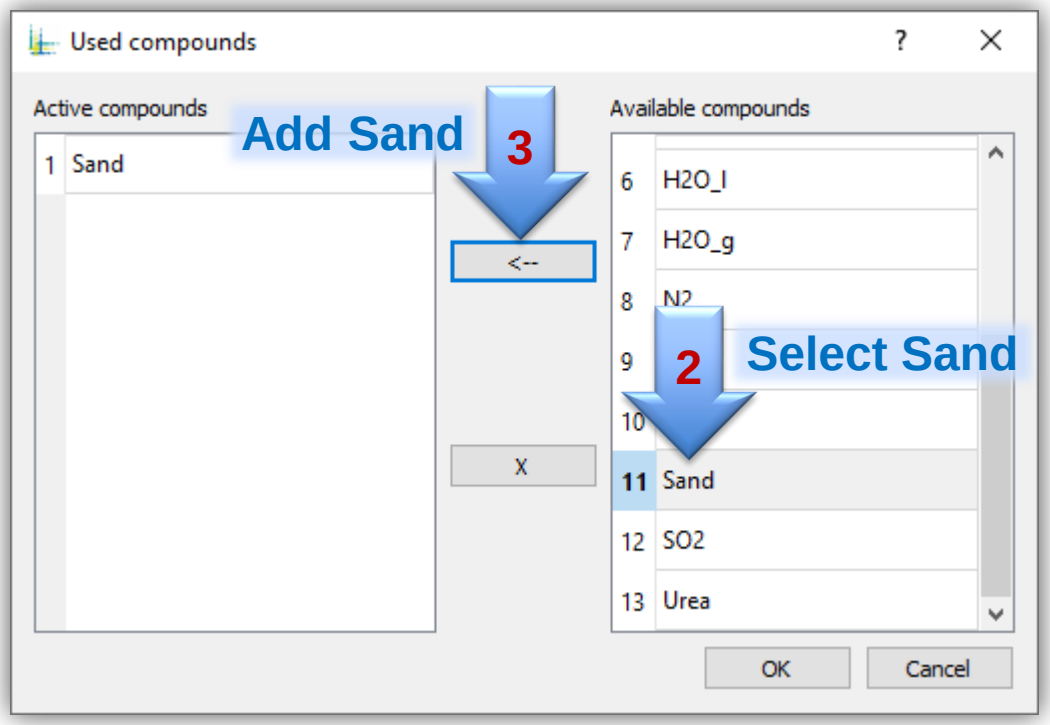
5 Setup parameters of units



Select compounds

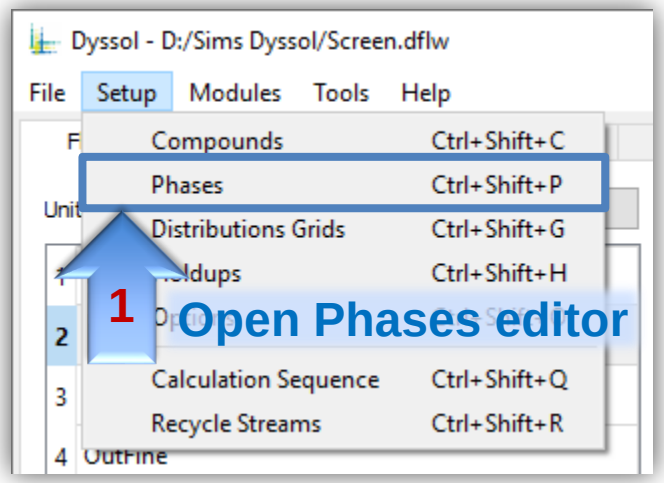
6 Add compounds to the flowsheet

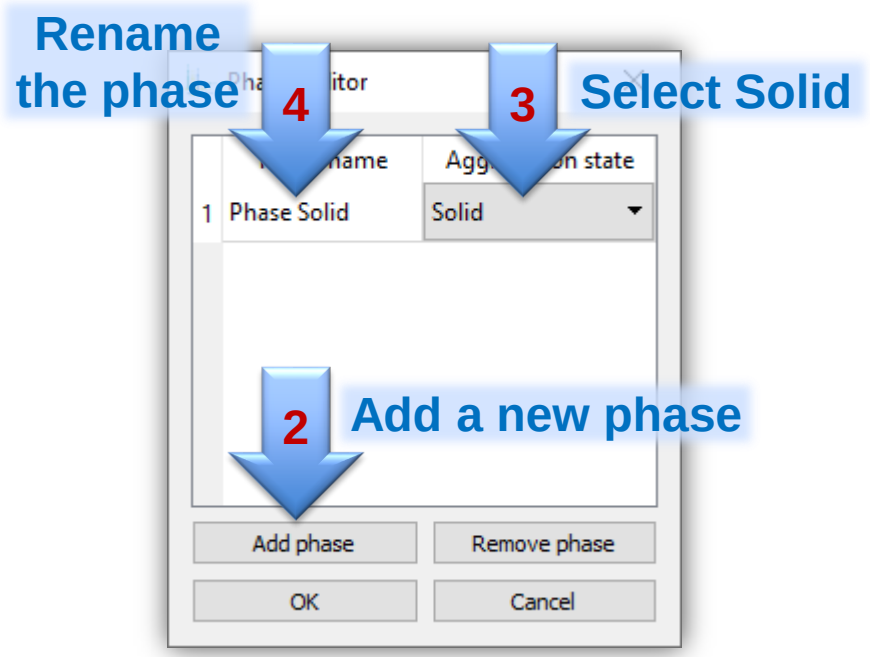




Select phases

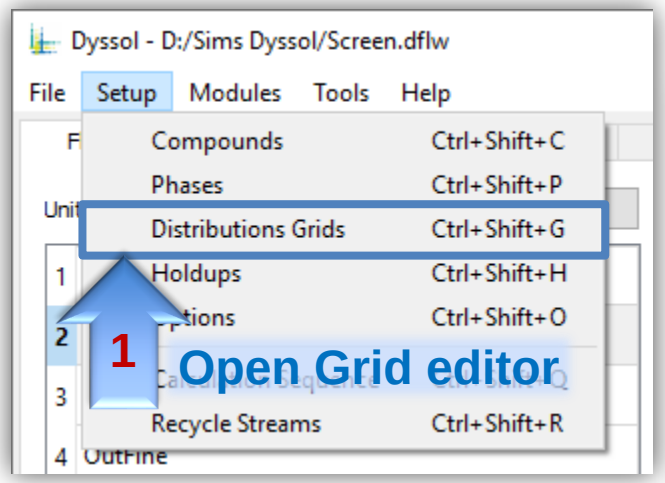
7 Add phases to the flowsheet

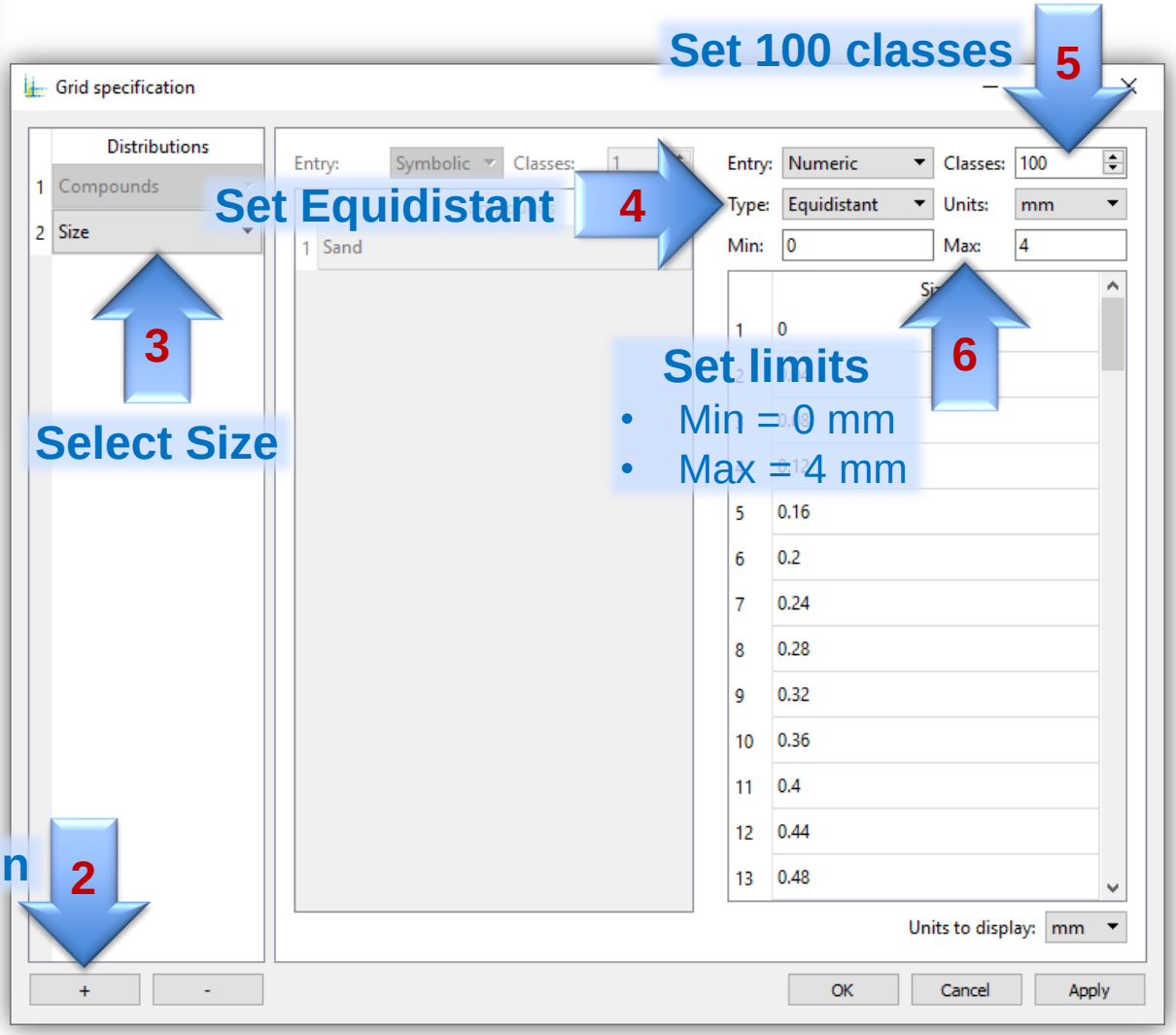




Setup grids

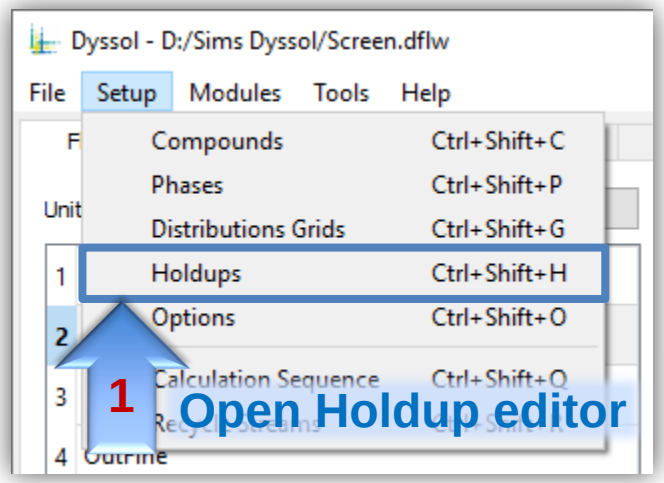
8 Specify grids for distributed parameters of solids

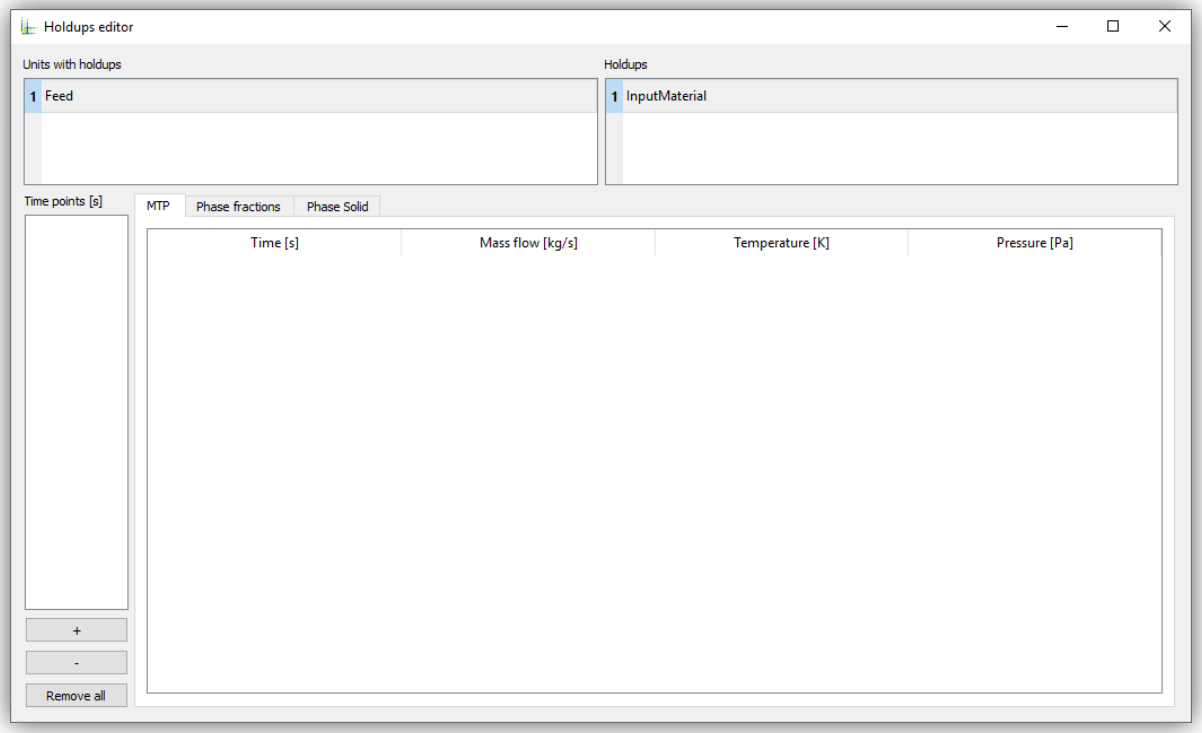




Setup feeds and holdups

9 Setup feeds of inlets and holdups of units





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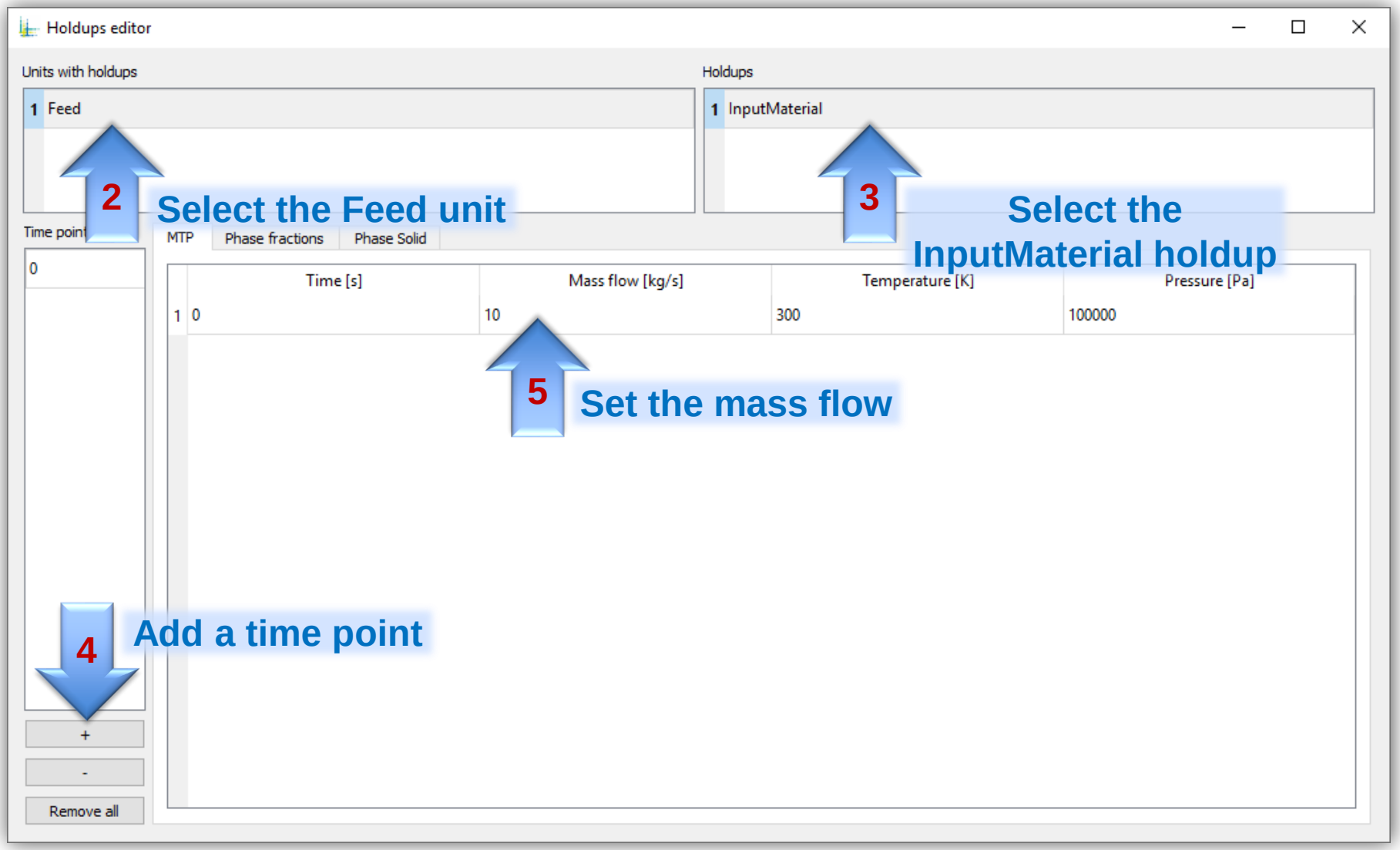

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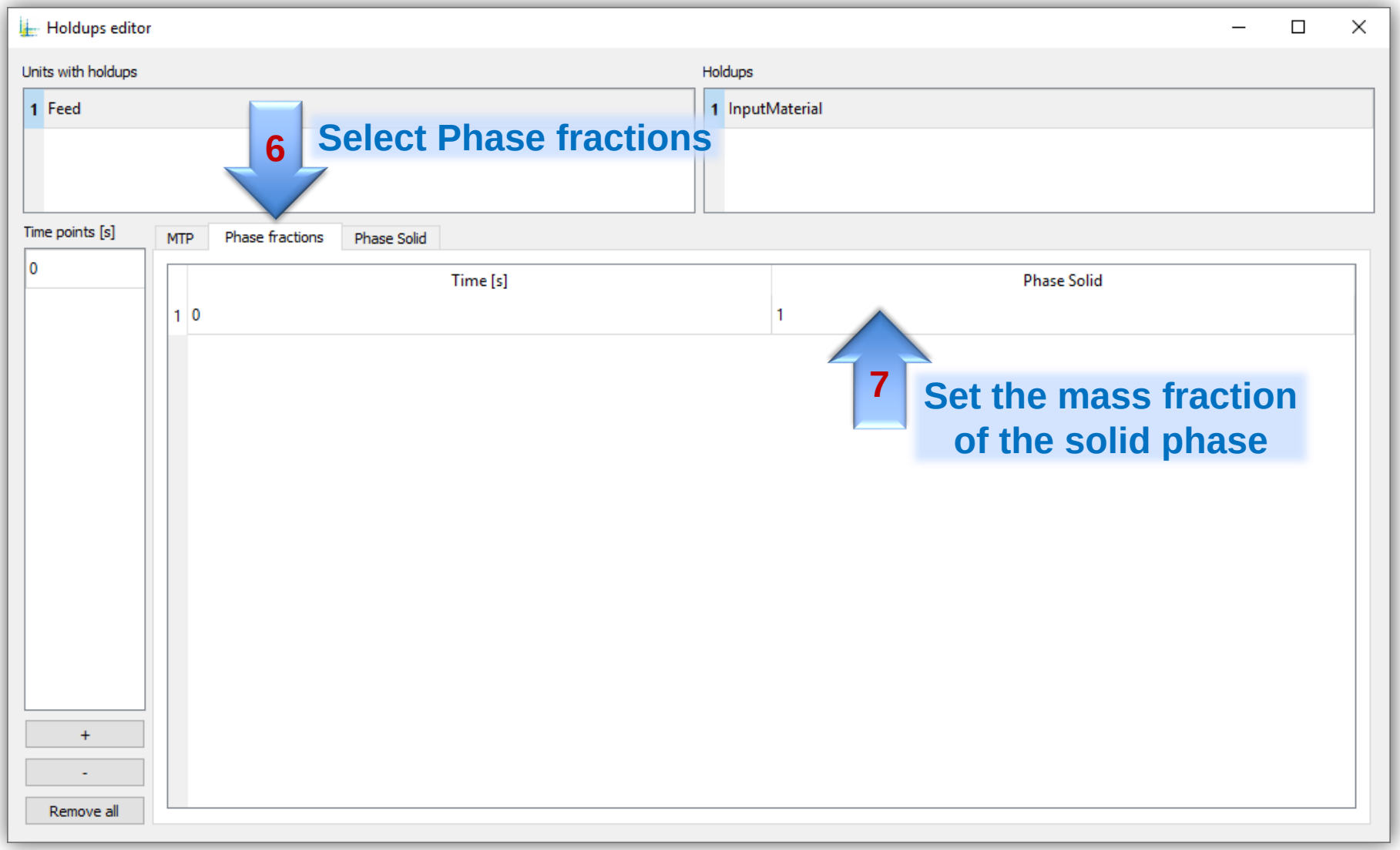

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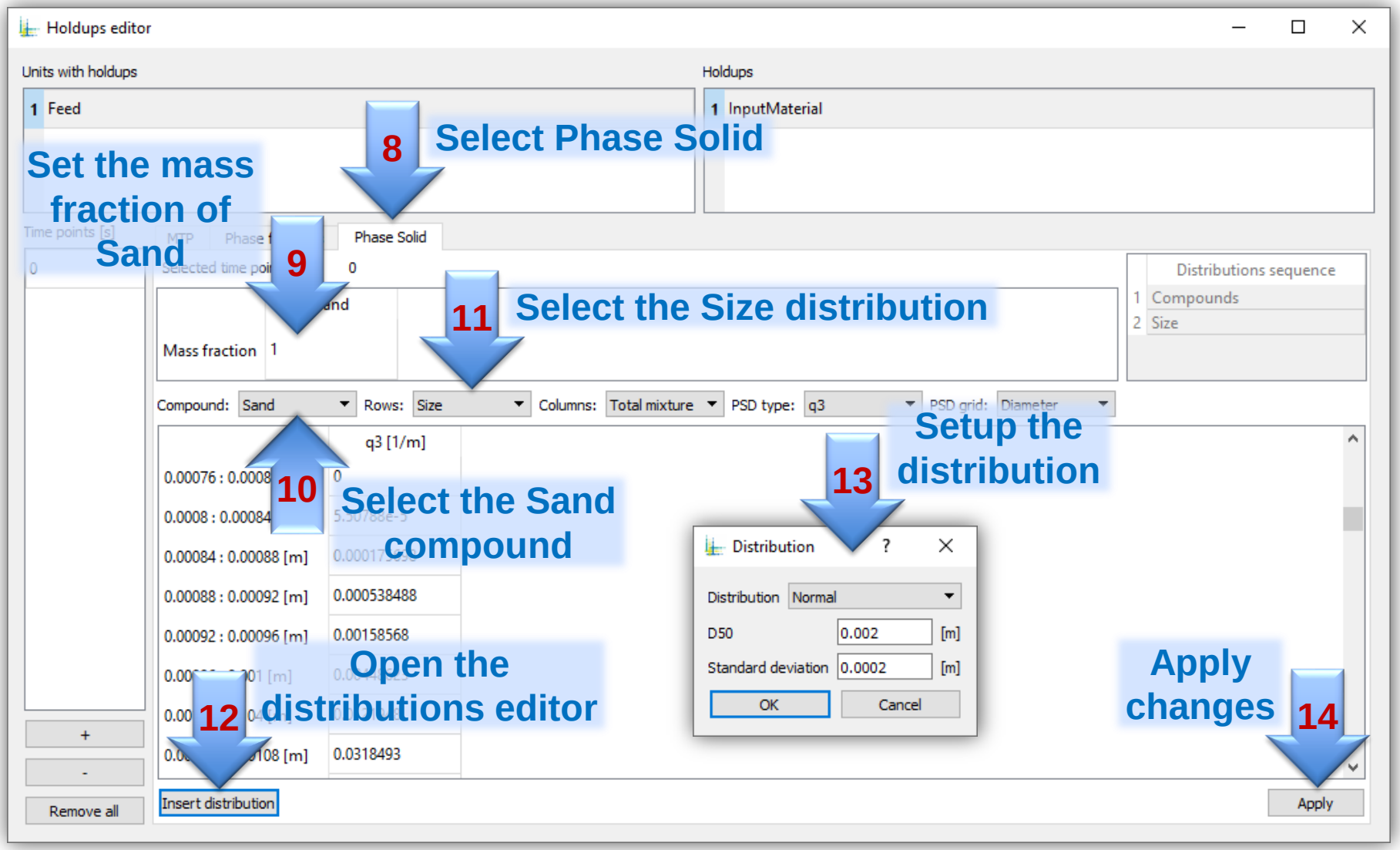
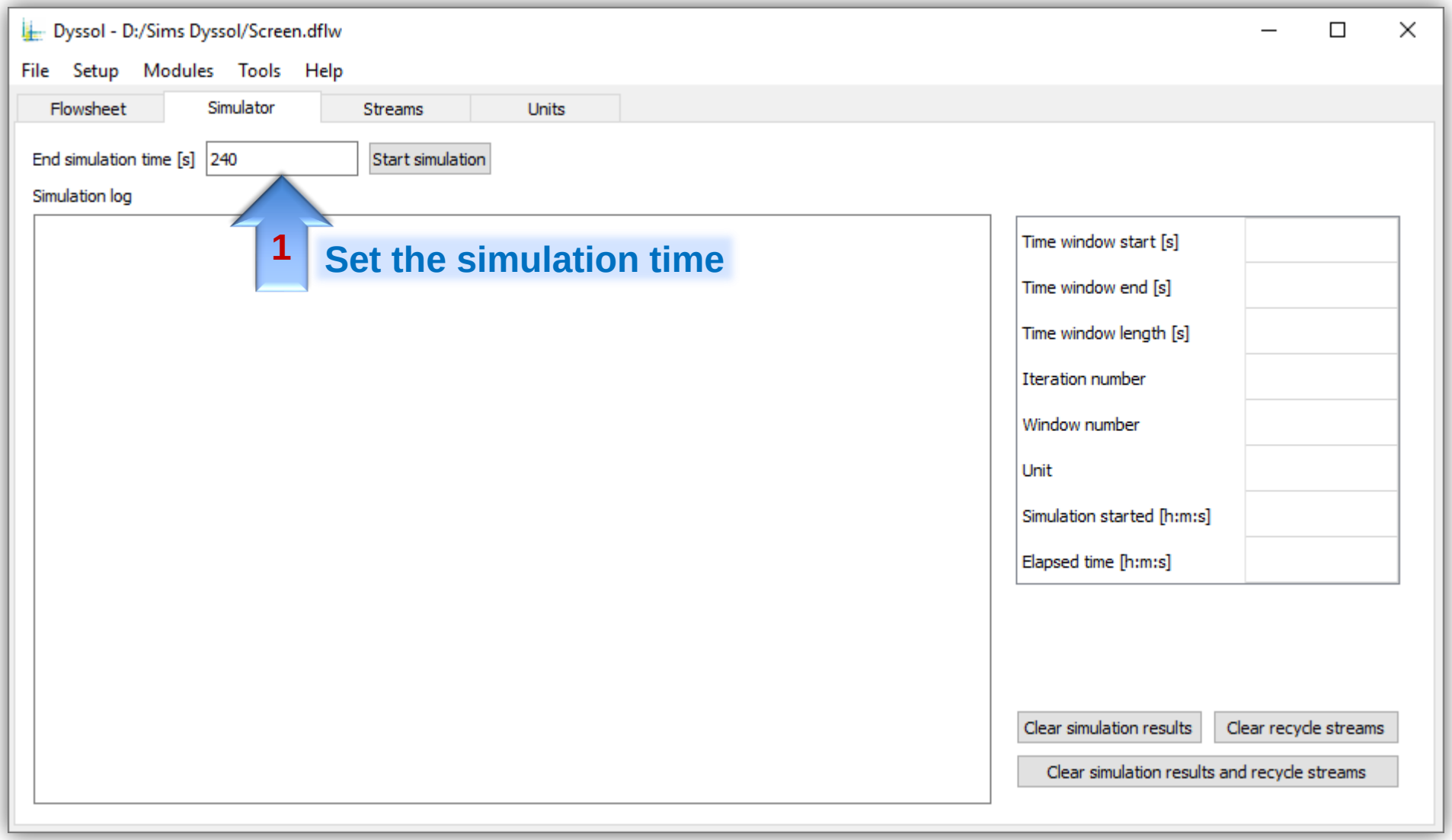
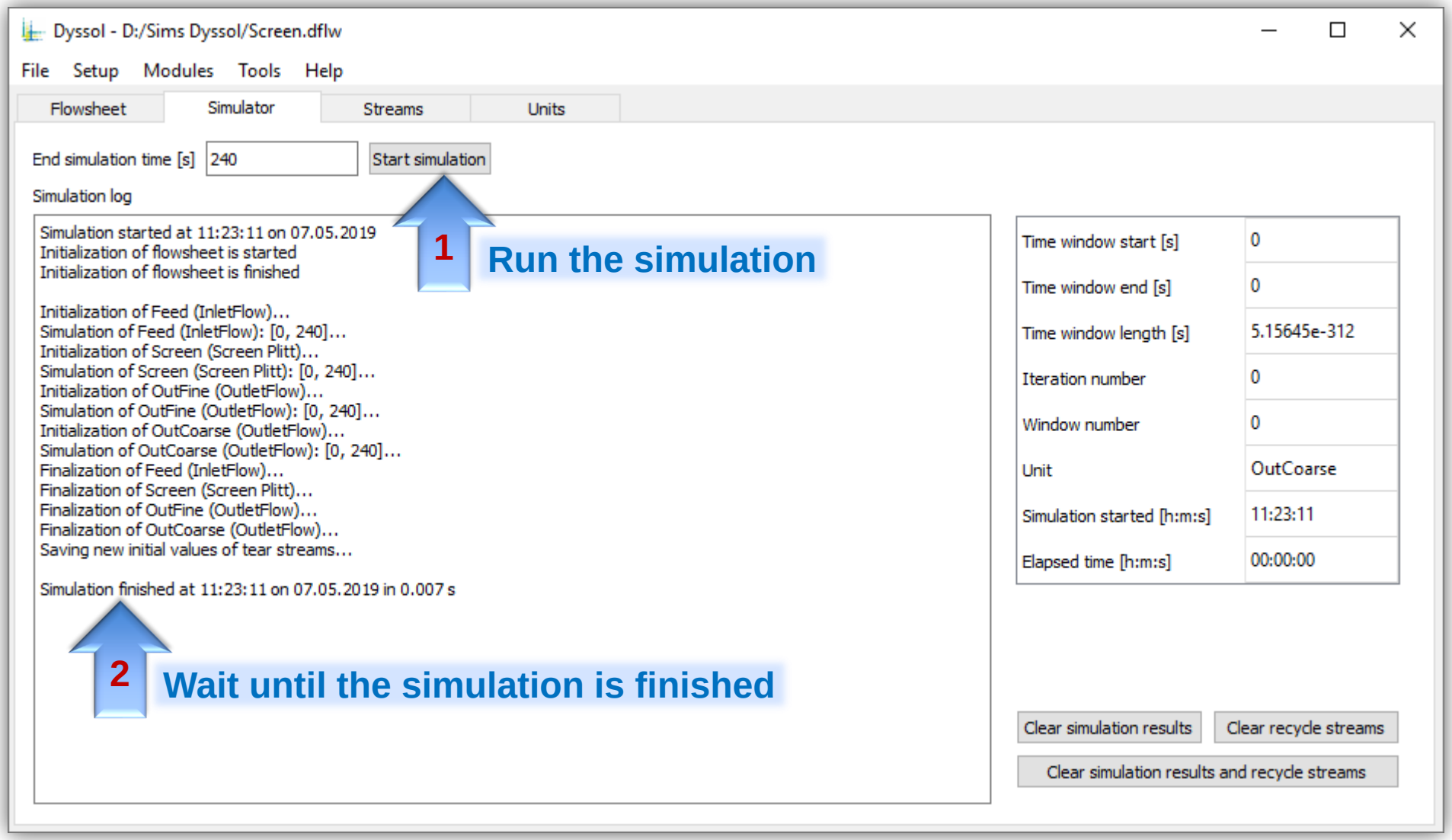


Set simulation time

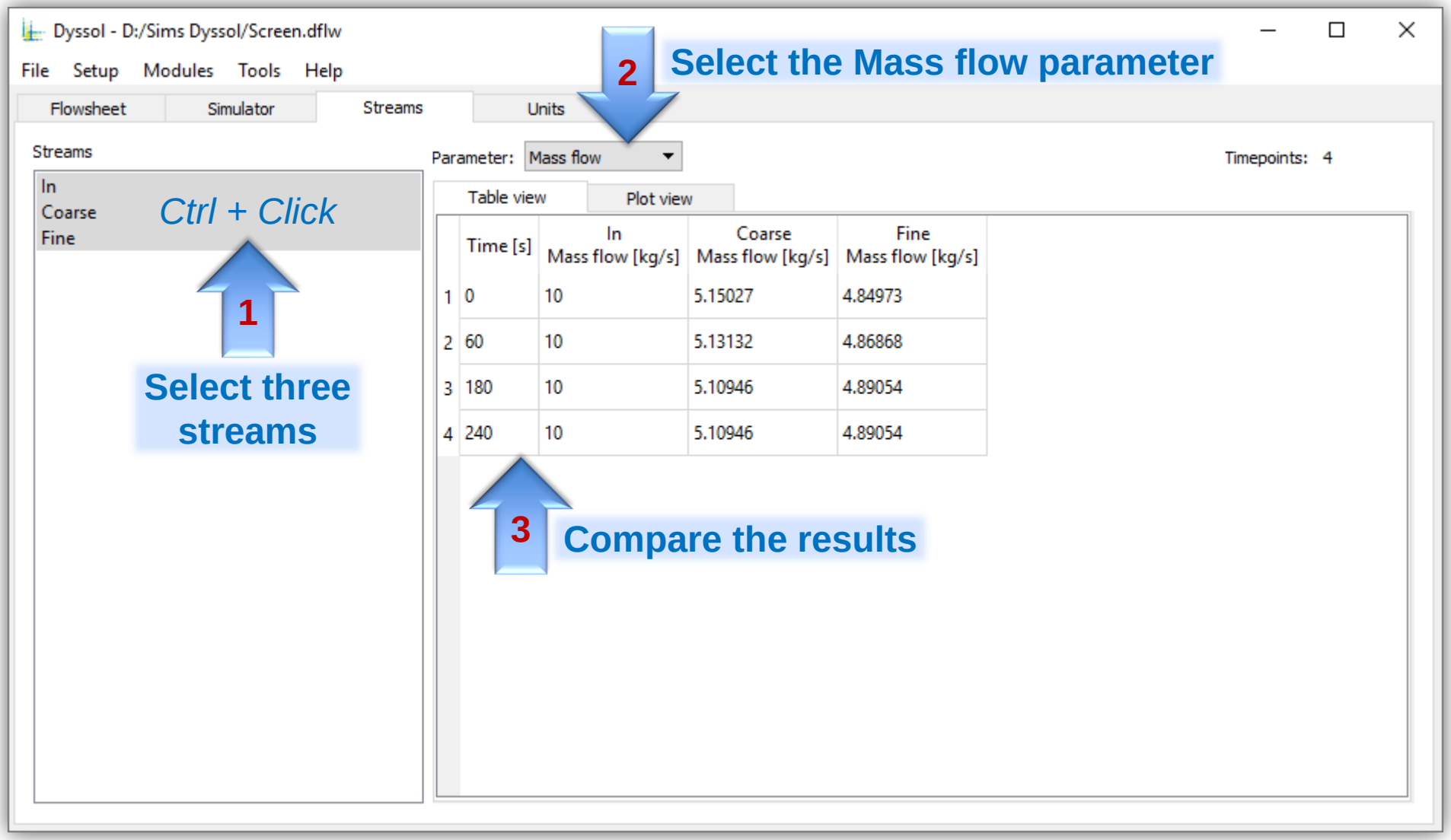
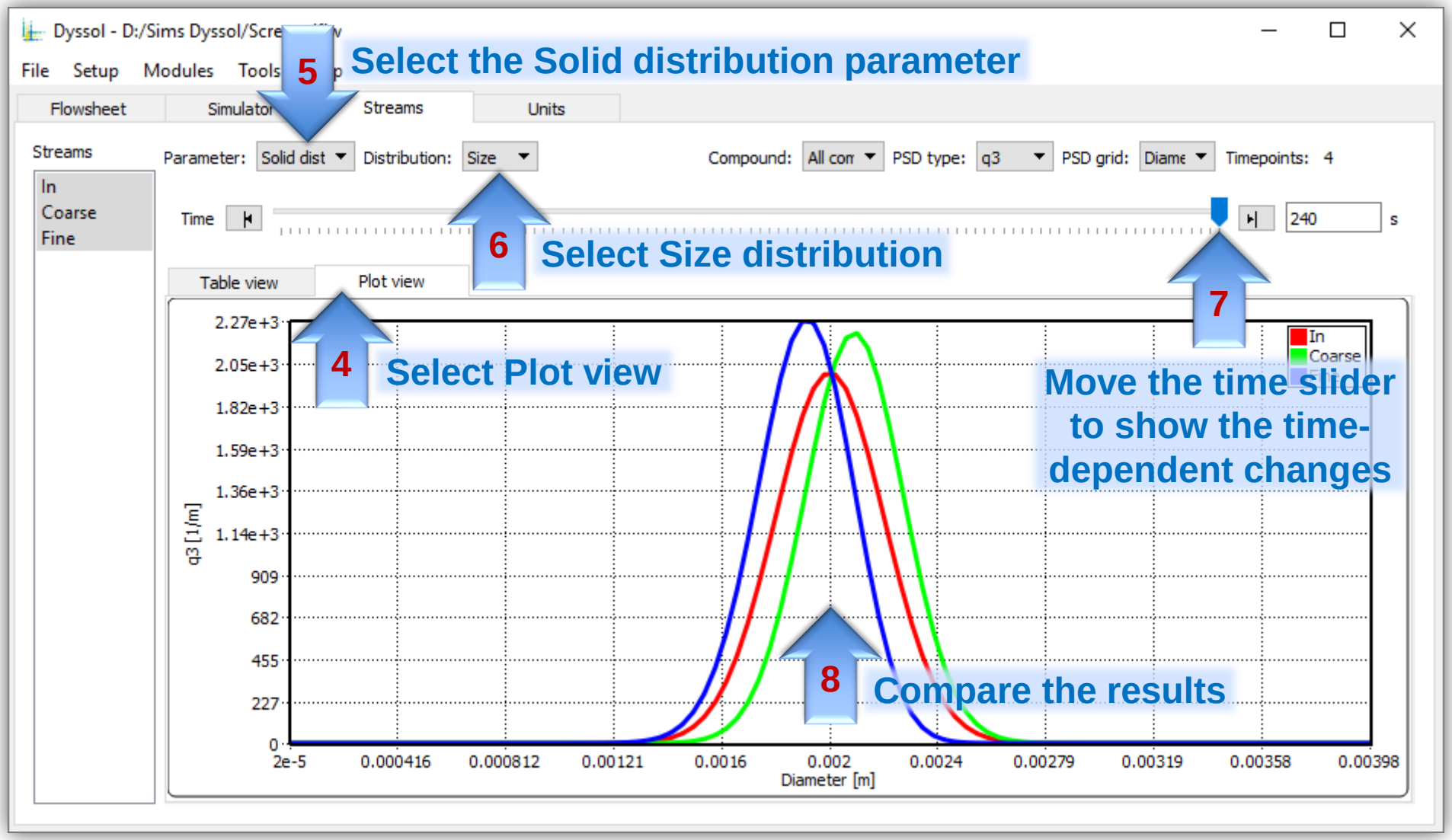
10 Specify the simulation time



11 Run the simulation



12 Analyze the results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