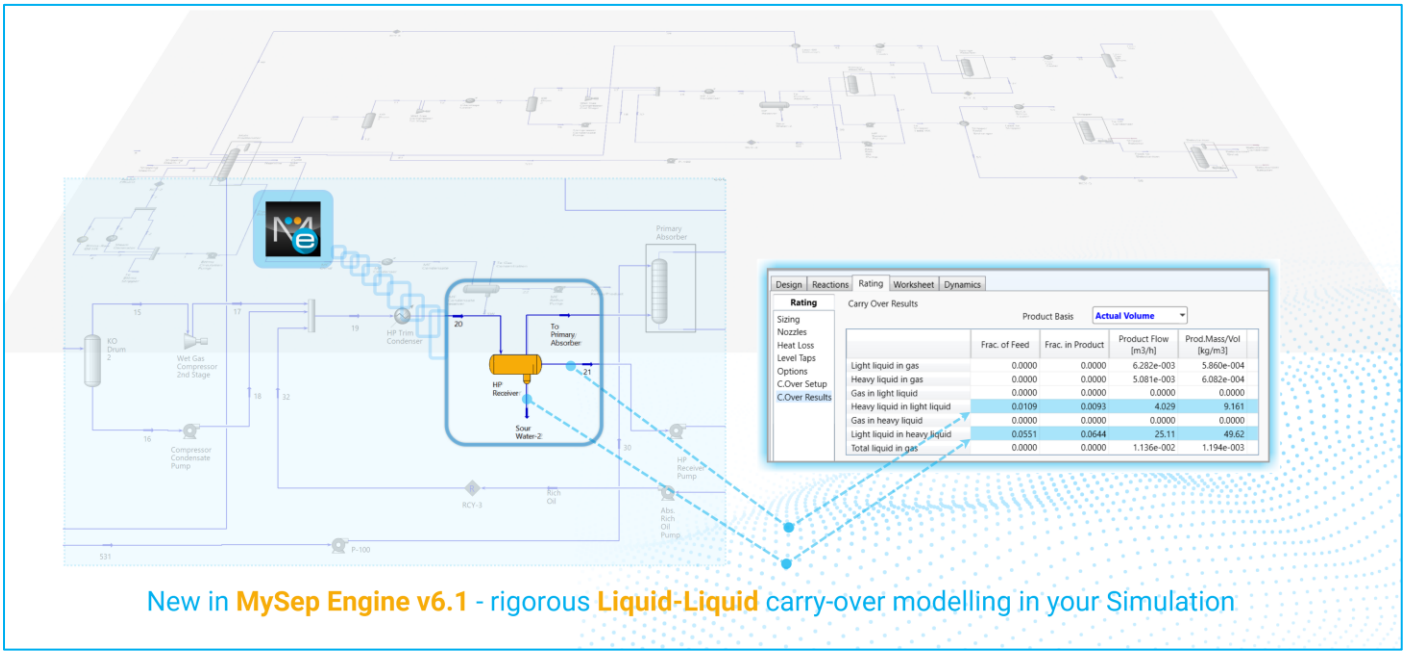
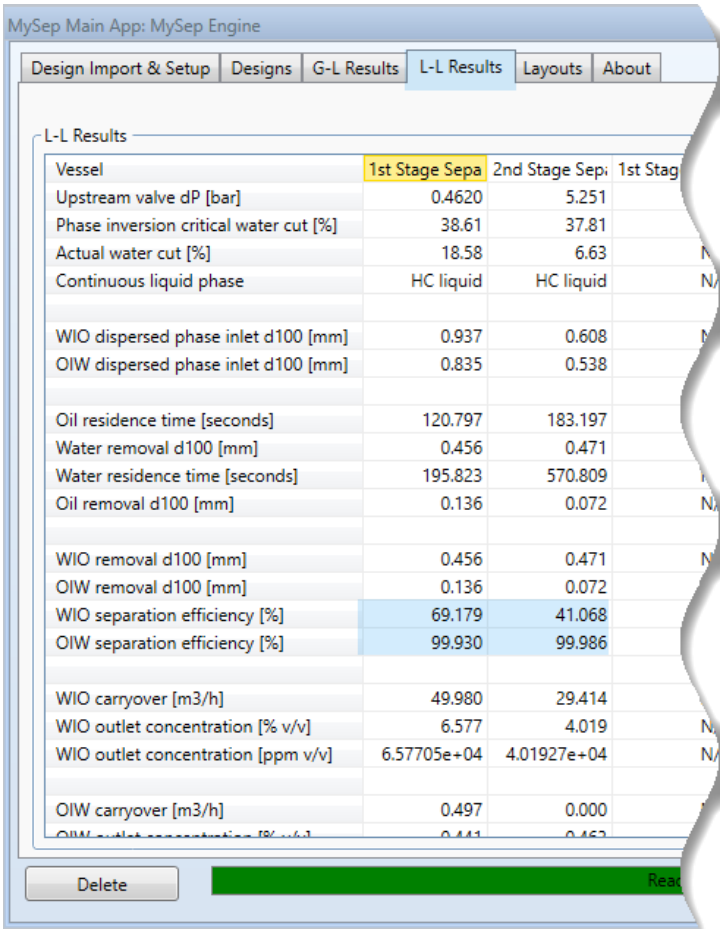
What's New in MySep Engine v6.1



New in **MySep Engine v6.1** - rigorous **Liquid-Liquid** carry-over modelling in your Simulation

Introducing release of **MySep Engine v6.1**, synchronized with the **MySep Studio v6.1** launch. This update represents a major advance for the industry, offering robust Oil-in-Water and Water-in-Oil predictions at the core of your **Process Simulations** and **Digital Twins**. For customers focused on developing dynamic, real-time simulations to optimize facility operations, this enhancement has been our **most-requested** feature. It integrates the enhanced proprietary liquid-liquid separation modelling introduced in MySep Studio v6.1 for any separator in a simulation where the user requires this rigour. These advances are recognisably a significant boon for those seeking comprehensive process design-optimization across upstream, midstream, and downstream oil and gas facility design, as well as those optimising operation of existing facilities. We are delighted that our research and development has at last enabled us to provide these key capabilities.



Liquid-liquid Separation Modelling

The new v6.1 release allows you to select MySep prediction of the concentration of oil-in-water and water-in-oil, in the product streams of 3-phase gas-liquid-liquid separators and 2-phase liquid-liquid separators, within your steady-state or dynamic process simulations. When you have activated the MySep Engine modelling of separators through the "MySep Engine extension" in Aspen **HYSYS®** or Honeywell **UniSim® Design**, you will now have Liquid-Liquid results in addition to Gas-Liquid results.

Within a simulation, the MySep Engine "main app" unit operation details liquid-liquid separation analysis (the L-L Results tab), in a summary for all separators activated. Users can review the complete incremental analysis from the inlet

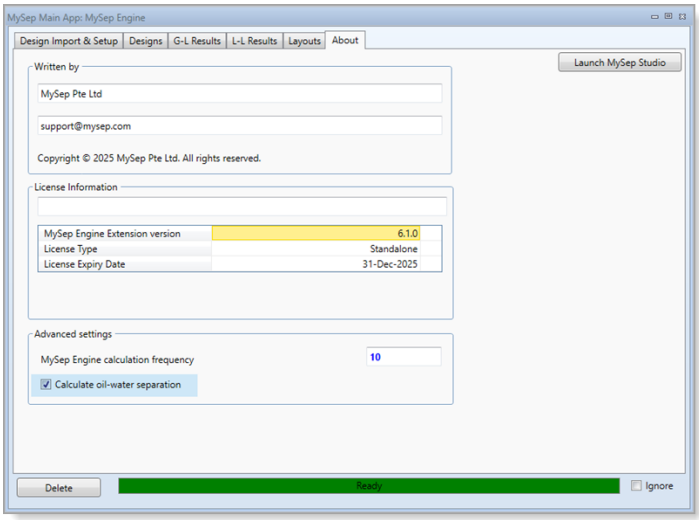
maximum droplet size predictions to outlet concentration of oil-in-water and water-in-oil.

For customers using other process simulators, similar capabilities are provided with our MySep "Engine application."

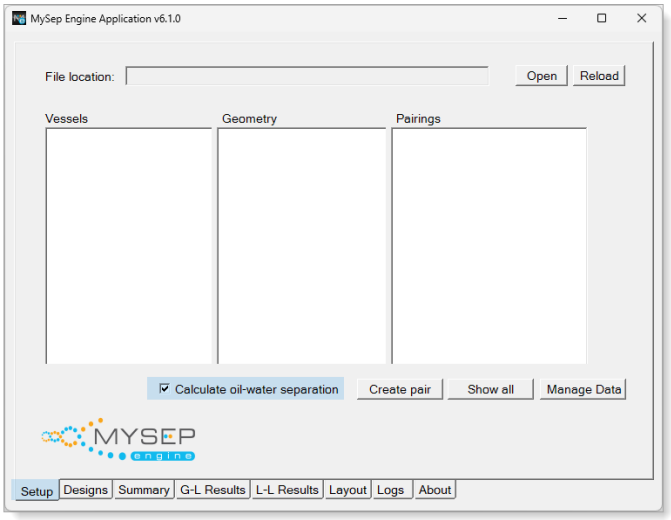
If you want to drill down into the details of modelling for individual vessels, liquid-liquid separation analysis is now also available within your simulation. When you open a separation vessel, look to **Rating > C.Over Setup > Overall Correlation > View Correlation.** Here you can review tabs for the Gas-Liquid results, with Liquid-Liquid now added, and in addition, you can also see the vessel layout. This is also where you can review details of any operational warnings MySep Engine has flagged.

Selecting Option of Liquid-Liquid Calculations

Liquid-liquid calculations are optional within your process simulation.



Selecting Liquid-Liquid in HYSYS and UniSim



Selecting Liquid-Liquid for other simulators

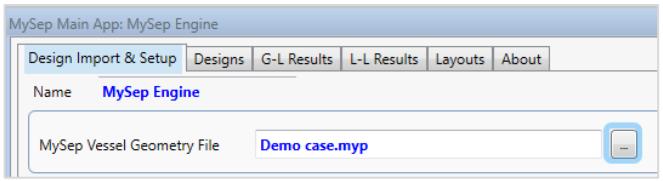
For HYSYS and UniSim, the full liquid-liquid analysis is selected in the "extension": **Main App > About > Advanced settings** [click the "Calculate oil-water separation" Checkbox].

The MySep Engine Application carries the same option under the **Setup** tab.

Common Project File

From v6.1 onwards MySep Studio and MySep Engine share a common project file. Projects containing single or multiple vessel models, configured in MySep Studio v6.1 and higher, may simply be saved in the project **(.myp)** file.

To access the geometric configuration of a vessel or vessels, which have been prepared in MySep Studio, from MySep Engine go to: **Main App** > **Design Import and Setup >** a click of the "**…**" button will open a file browser. Simply **Highlight** your selected .myp file and >**Open.**



You may also open legacy .myg files.

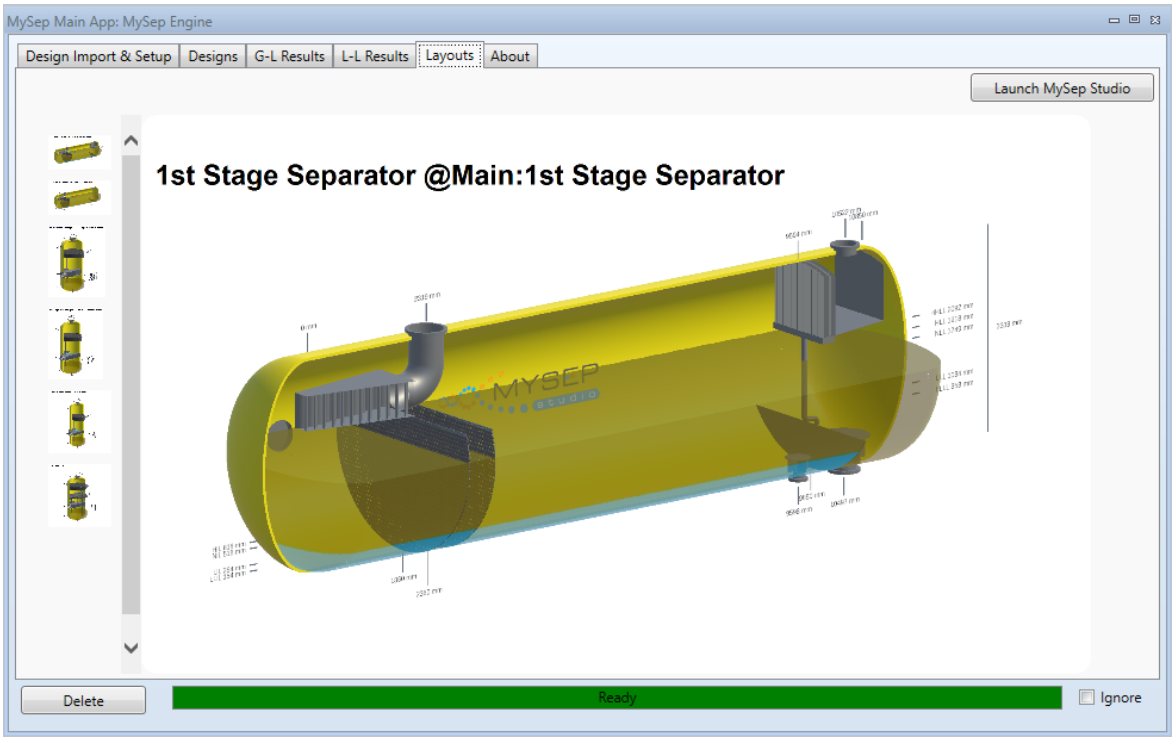
The process of pairing vessel geometries, with simulation vessel unit operations, is unchanged.

Vessel Layout Images

New in MySep Engine v6.1 is the provision of to-scale 3-D vessel layout images within the simulation environment.

In the MySep Engine Main App. The **Layouts** tab provides a thumbnail image summary-view of all the vessels currently paired within the active simulation. The user may click on a thumbnail to view the full expanded image of any vessel.

Images are captioned with appropriate “pair names,” as shown below.



Layout images are also included with each individual separation vessel unit operation in your simulation which has an active MySep Engine pairing. This is accessed by opening a vessel unit operation, then: **Rating > C. Over Setup > Overall Correlation > View Correlation > Layout.**

Vane Agglomerator and Vane-pack Demisting Devices

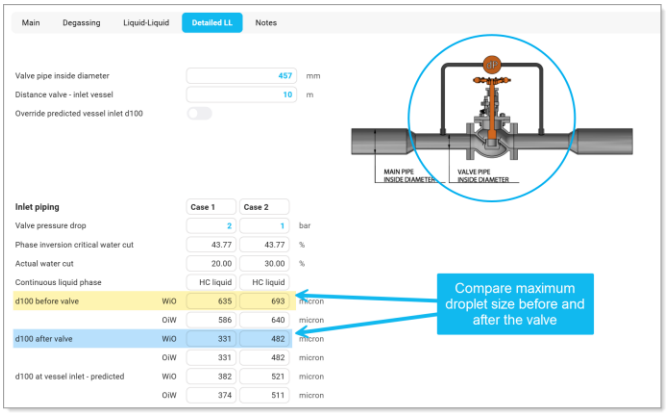
As with MySep Studio v6.1, modelling of these devices in MySep Engine, now includes improved calculations providing performance predictions above the flooding, or re-entrainment point.

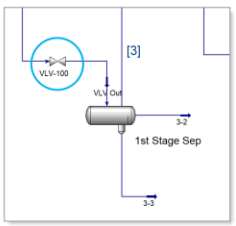
Calculation Frequency

In MySep Engine extension for HYSYS and UniSim Design, the calculation frequency can now be set on the “About” tab. This can be used in dynamic simulations to control how often MySep Engine calculations are performed by the simulation solver (the default is once every 10 time-steps). This can be important for efficient simulation of transient behaviour.

Effect of Upstream Valves on Liquid-Liquid Separation

The MySep Engine v6.1 release accurately models the impact of upstream valves on liquid-liquid separation in simulations and process Digital Twins.





Users can define valve locations and attributes in MySep Studio and save them in the project .myp file. During simulations, MySep Engine detects upstream valves and combines the valve pressure drop, location, and pipe diameter to determine liquid phase inlet droplet size distributions, affecting Oil-in-Water and Water-in-Oil separation performance.

Miscellaneous

A range of bug fixes and improvements are also included, for example, a recently detected error in representing the performance of horizontal mesh-pad demisting devices has been corrected.