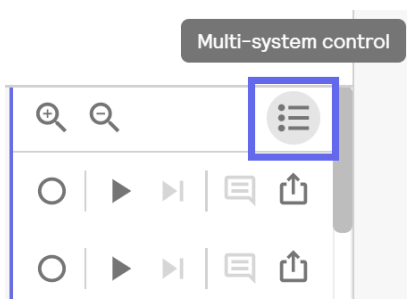


1) labCONSOL v1.1

Parallel system functionality

Systems with multiple reactors can now start/stop plans, start/stop logging, add comments, and export data from multiple reactors at the same time. This is a considerable improvement in ease of use for the user. Either selected or all reactors can now be operated via the new “Multi-System Control” button, located above the “Plan Action” buttons:



Selecting the Multi-system control allows the user to select which systems they want to operate and then select the appropriate action with the same Plan Action buttons. (Note: the “Skip Step” button has been removed for Multi-system control. This is a safety precaution, as different reactors could be at different steps in their plans. Thus skipping multiple reactors to the same step might not be suitable.)

More details on this Multi-System control can be found in the labCONSOL v1.1 manual.

Automatic database entry naming

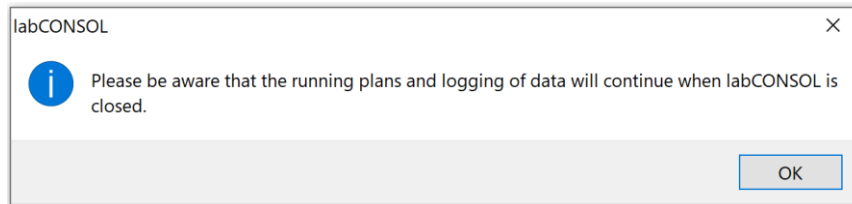
To help reduce the amount of user input, names of database entries are now automatically generated. The general format is “ReactorX – Plan Name (Date – Time)”. An example is shown below:

A screenshot of the "Start Plan" dialog box in the software. The dialog has a title bar "Start Plan". Below the title bar, it says "Reactor2 is loaded with Heating and Cooling Test". Underneath, there is a section for "Data table name" which shows the automatically generated name: "Reactor2 - Heating and Cooling Test (04/27/2021 12-51-28)". There is a checkbox for "Test Data" which is currently unchecked. Below that is a field for "Saving Interval (seconds per data point)" with a value of "20" and an information icon. At the bottom, there are two dropdown menus: "Continue Logging" set to "mins" and "Until plan ends" set to "n/a". At the very bottom, there are two buttons: "CANCEL" and "START PLAN".

The user still has the ability to rename the database entry if needed.

Other improvements and bug fixes

- The user can now move and re-order tabs.
- Closing labCONSOL while a plan is still active brings up a warning message so that the user knows that the plan will continue to run:



- More consistent UTC date format, allowing for the time and date of the computer to be changed to local time without affecting the performance of labCONSOL.
- Corrected errors with warning messages and playing of the audible siren.
- iQ now allows for multiple data handlers. It has Turbidity Analysis and HLC data handlers as default, but more can be easily added.

2) labCONSOL v1.2

Calibration Tools

Having all the right software tools at your fingertips is necessary to run your H.E.L systems effectively. This first iteration of the Calibration Tools allows users to define the operational parameters of their system and perform some calibrations. This is accessed via the new App “Calibration Tools”. This App is available for all H.E.L systems.



Calibration Tools: Click to open, or drag in to place

This App displays all the properties within a system that an end-user can edit. It can be sized and located like any other labCONSOL App. To ensure our parallel system users don't have to repeat the same process multiple times, we allow changing these operating parameters on multiple systems simultaneously.

Edit Properties

	Kp	Ti	Td	MaxOut	MinOut
<input type="checkbox"/> All					
Reactor1	6	200	20	100	0
Reactor2	6	200	20	100	0
Reactor3	6	200	20	100	0
Reactor4	6	200	20	100	0

DISCARD CHANGES SAVE CALIBRATION

More details on this functionality control can be found in the labCONSOL v1.2 manual.

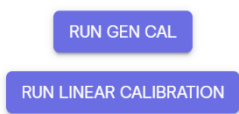
Other minor improvements and bug fixes

- Multiple files can now be removed from the Datatable Manager at once by selecting and holding “Ctrl”.
- Fixed a bug with incorrect timestamps being applied to datapoints when using a high save rate.
- Automatically directed to select a parameter when adding a warning condition or shutdown state.

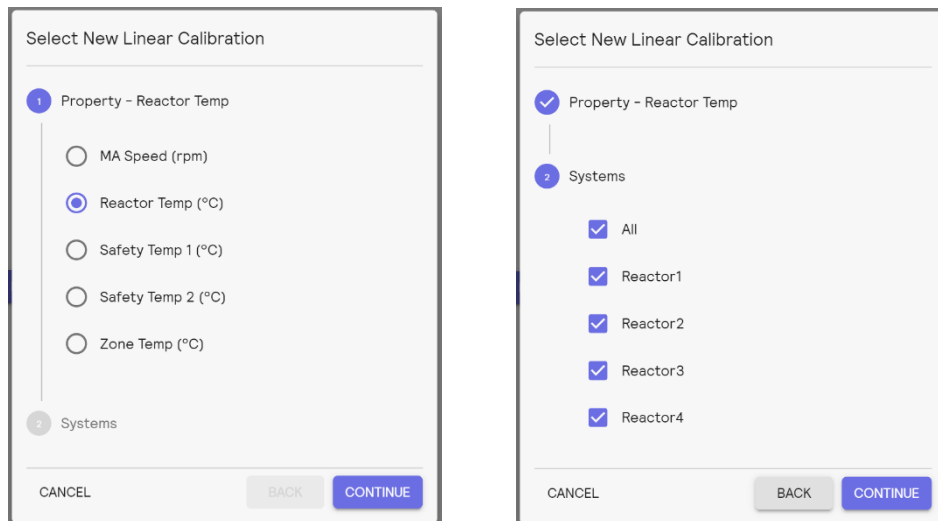
3) labCONSOL v1.2

Linear Calibrations

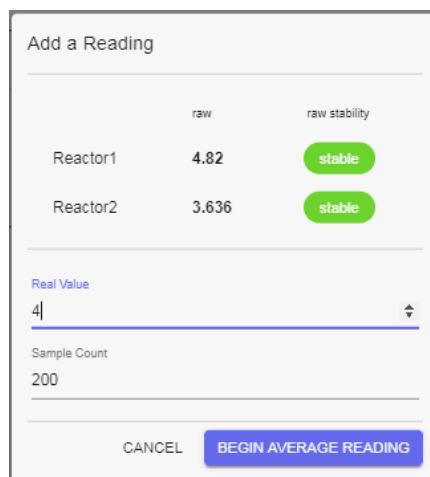
Being able to re-calibrate the analog sensors is critical to using H.E.L equipment. labCONSOL now offers an easy-to-use calibration method that allows for the simultaneous calibration of multiple probes. This is accessed from the Calibration Hub application, which has two options. The first is to open Gen Cal, used to view and modify the system's operational parameters. The second is the new linear calibration functionality.



After selecting "Run Linear Calibration," the user will be guided through the calibration procedure. First, a sensor is selected, and then which reactors you want to calibrate.



The user can then complete a two-point calibration, with one high and one low value. When entering one of these values, the stability of the value is displayed to help the end-user know when it's appropriate to calibrate the sensor.



More details on this functionality control are covered in the labCONSOL V1.3 manual.

Other improvements and bug fixes

- There have been significant improvements in performance within labCONSOL. This has improved response times and minimized the risks of the system freezing. If the system does freeze, labCONSOL auto-recovers with no loss of data or operating conditions.
- Correctly displays all properties in the high-pressure ChemSCAN's configurable plan.
- iQ can now read the step breaks in .csv files exported from labCONSOL.
- Fixed a bug with the Timeline not correctly displaying steps breaks in a plan.