AoFrio

USER MANUAL

Lab app

Document WT9785_i3

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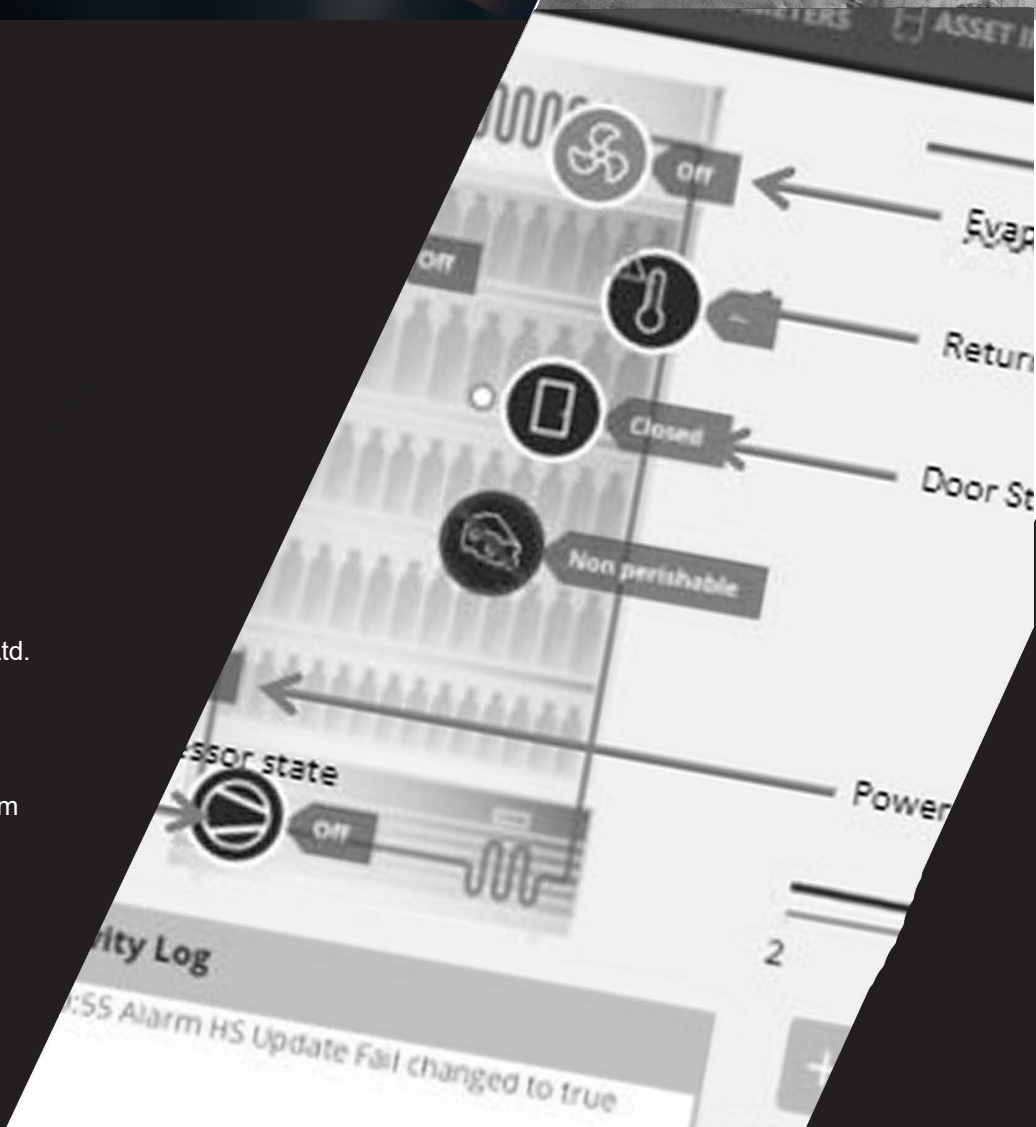

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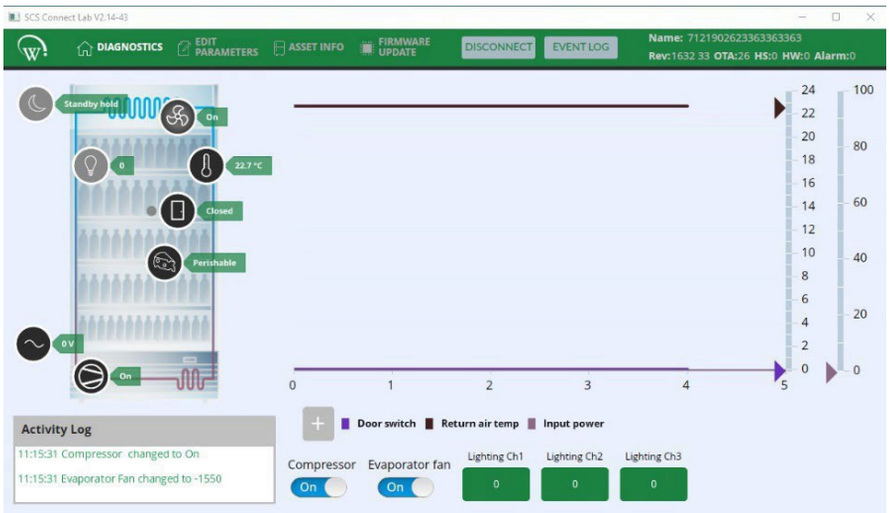
Introduction

AoFrio's Lab app (sometimes known as SCS Lab) is designed for desktop use by OEM's and manufacturers to create, check and save parameter files for later use by the Cradle app during production, and the Field app when in the field.

It requires:

- Windows 10+ PC with built in BLE interface. (Earlier versions of windows is supported with the use of a Blue-Giga USB Dongle)
- Adobe Air for Windows (installed as part of the package)
- An activation code linked to a role with access to Lab app
- Connection to an SCS controller

A basic 4-screen interface (with no hidden menus) offering functionality for diagnostics, parameter editing, asset information and firmware updates.



Download the app

Download and install Lab app on your desktop:

- Windows

Connect to another device

Before starting

- Check that Bluetooth is enabled on your PC

Scan for nearby devices

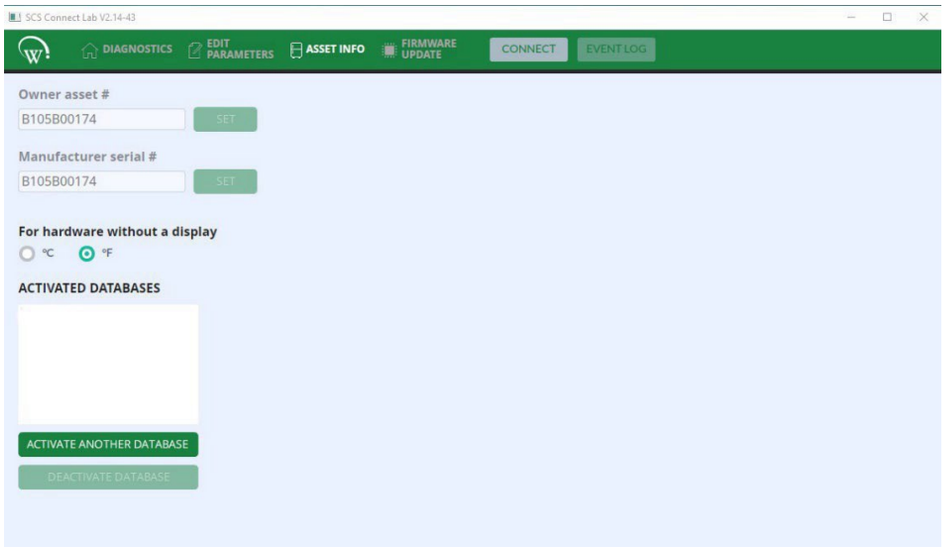
1. Open the app and click **CONNECT**.
2. In the **Scanning for coolers** list, click on the device you want to connect to and then click **CONNECT**.

NOTE: If you can't see the device number you want to update in the list, click **REFRESH** to scan again. If the device still doesn't appear, it's possible the Lab app hasn't been activated to the database via User Manager software. Contact your admin to activate with User Manager.

Set the asset information

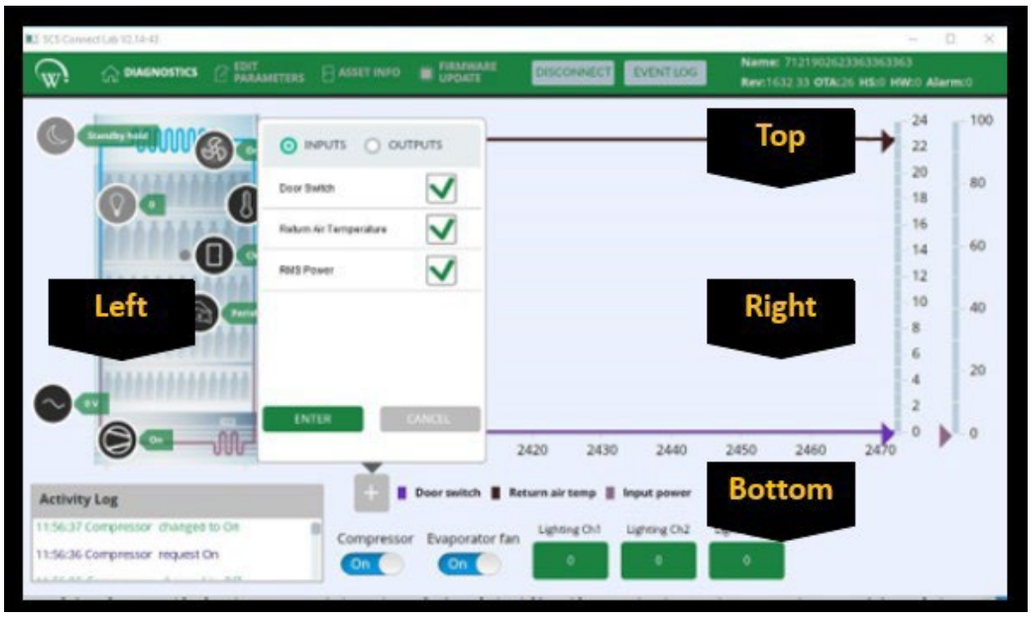
To customise the asset information for the controller:

1. Click the **ASSET INFO** menu heading to open the asset information screen.
2. Add **Owner asset** number and click **SET**.
3. Add **Manufacturer serial** number and click **SET**.
4. For hardware without a display, click on the radio button to set the temperature to Celsius or Fahrenheit.
5. View existing databases in the **ACTIVATED DATABASES** list.
    - (Optional) Click **ACTIVATE ANOTHER DATABASE** to add additional databases.
    - (Optional) Highlight an item and click **DEACTIVATE DATABASE** to remove the item from the list.



Check the diagnostics of the connected cooler

If you click **DIAGNOSTICS** menu heading, you will see real-time data for the device you have connected to.



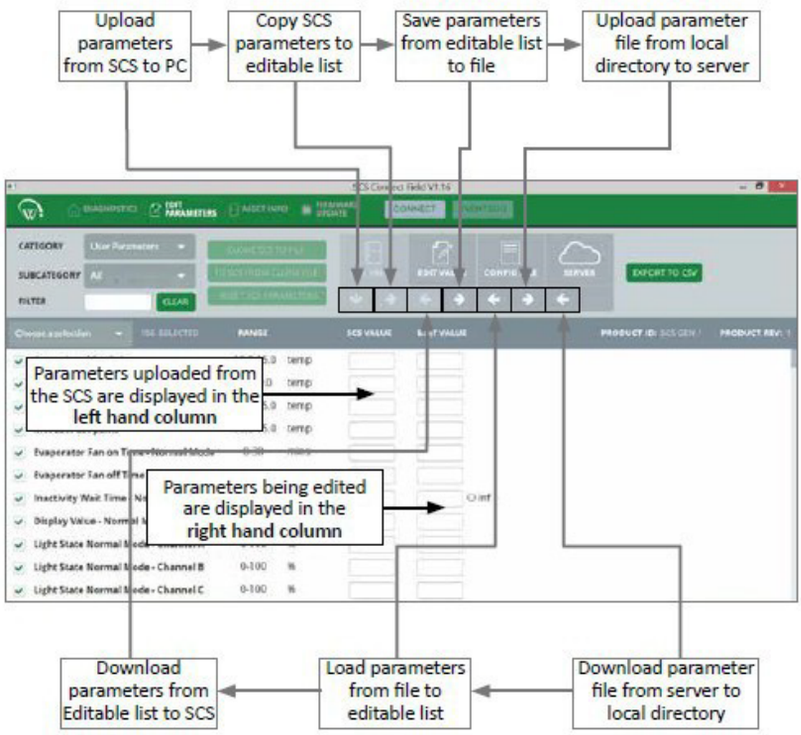
Location on page	Details
Top	• **Name:** Name of cooler • **Rev**: Firmware revision number • **OTA**: OTA or bootloader version number for facilitating the application firmware update • **HS**: firmware version number. This is the second processor on the Mains voltage or 'High side' of the controller. • **Alarm:** Current alarm status code. 0 = No alarms.
Left	The image of the cooler shows current statuses being monitored or controlled by the connected device. You can click on the icons for more detail and to adjust statuses. Depending on the device this may include functions such as: • Evaporator fan • Return air temperature • Light state • Door state • Perishable or non-perishable status • Power Supply • Compressor state
Right	A real-time graph with any changes to selected sensor readings since you connected i.e., Door switch, return air temperature, input power etc. If you click the **+** icon you can select or deselect the inputs and outputs to display in the chart.
Bottom	• **Activity Log**: This captures state changes since the beginning of the connection • **Control Buttons**: These temporarily turn on or turn off key functions associated with the connected device such as the Compressor fan, Evaporator fan, and Lighting Channels. (The output will revert to its controller state after two minutes).

Edit parameters

About

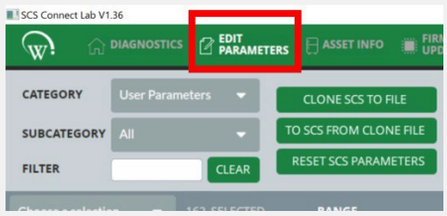
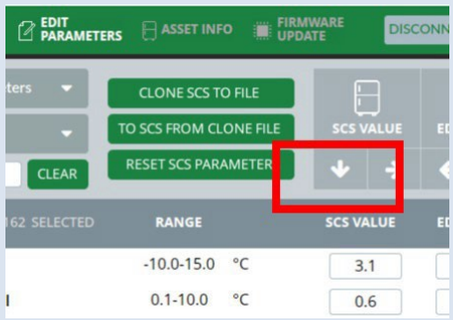
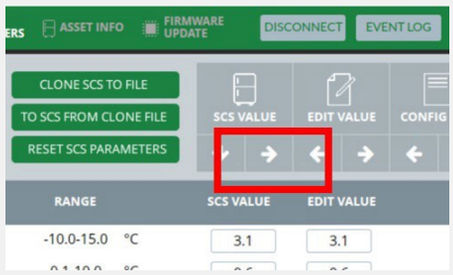
- If you are creating a parameter file which is to target a particular firmware version (eg the latest FW) it is important to first connect to a controller running that firmware. This triggers Lab app to load the correct definition file that contains all of the parameters for that version. It is not currently possible to manually select a firmware version to target a parameter file for.
- When applying a parameter file that was targeted at one firmware version to a controller running different firmware, Lab app will alert the user as to any parameter values that are either not applied or missing as they are incompatible
- Note that parameter visibility and ranges are also affected by the "Install type" parameter value programmed into a controller eg cooler, freezer etc

Overall editing process

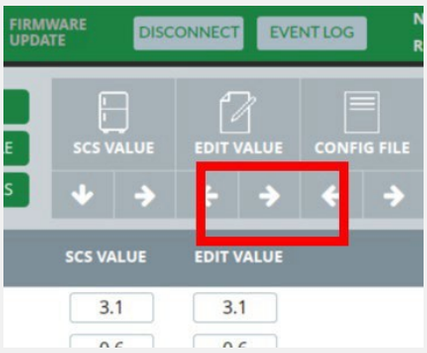


Editing step-by-step
There are two key phases to update and reload parameters into a connected device:

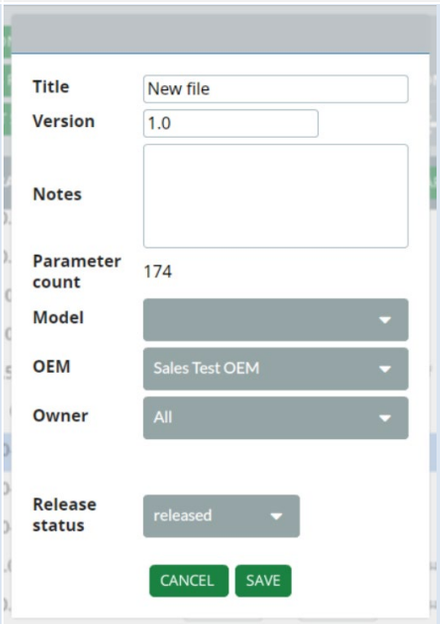
Phase One : Download files from the connected device and then edit them

Step	Detail
1. Click **EDIT PARAMETERS** menu heading to open the parameter editing section.	
2. Click the ↓ down arrow to read parameters from the connected device to the Lab app on your PC.	
3. Under **SCS VALUE**, click the → right arrow to copy the device parameters to the editable list on this page of the Lab app. They should now appear below the arrows in the right-hand column under **EDIT VALUE**.	
4. Under **EDIT VALUE**, make changes to the parameters by entering new data in the right-hand column.	

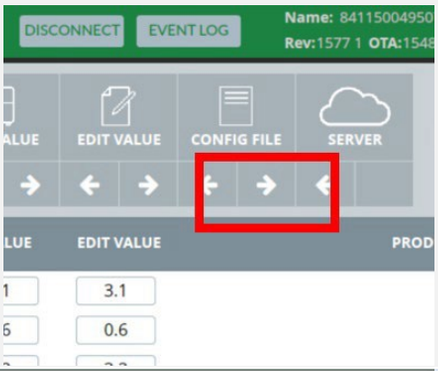
5. Once you have completed changing the values, click the ➔ right hand arrow under **EDIT VALUE** to save the edits to the file.



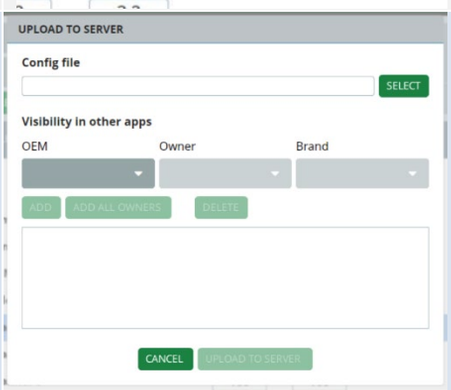
6. Complete details, making sure to change the **Release Status** to "released" then click **SAVE.**



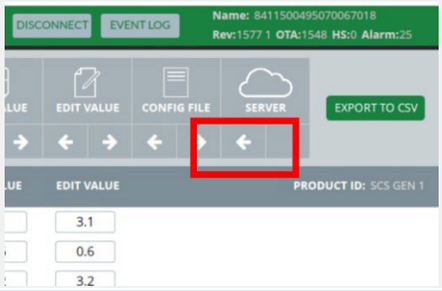
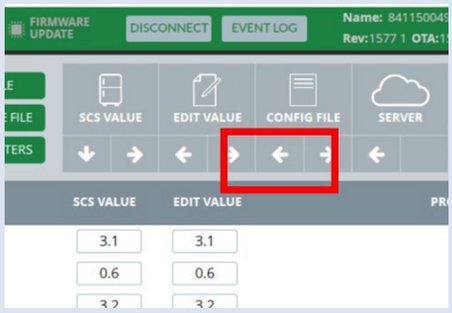
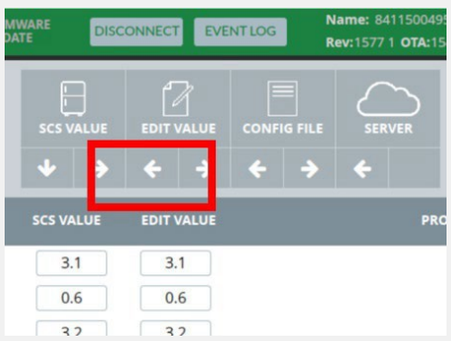
7. Under **CONFIG FILE,** click the ➔ right hand arrow to upload the parameter file from the local directory on your PC to the server. (An internet connection will be required for this step to work).



8. Complete the details being sure to select an **OEM**, **Owner** and **Brand** from the drop down lists so that the details appear in other applications, then click **UPLOAD TO SERVER**.



Phase Two: Write the updated parameters onto the connected device

Step	Detail
1. Under **SERVER**, click the ← left-hand arrow to download the parameter file from the server to the local directory.	
2. Under **CONFIG FILE**, click the ← left-hand arrow to load parameters from the file to the editable list.	
3. Under **EDIT VALUE**, click the ← left-hand arrow to download the parameters onto the connected device.	

Update firmware

About

- Firmware can be updated from either the Field mobile app or Lab desktop app. The steps are the same for both.
- The SCS contains two microprocessors:
    - **Hi-side micro** - Responsible for all voltage, power, and current monitoring and S1 and S2 Switching
    - **Main micro** - Responsible for all control algorithm
- When programming new versions of firmware, you will only be able to see any new parameters that might be available if you have the latest version of Lab app. Or alternatively AoFrio may supply you with an updated controller definition file that can be manually applied to your existing Lab app

Update firmware on your connected device

1. Click **FIRMWARE UPDATE** menu heading to open the parameter editing section.

2. Click **CLOUD STORE** to scan for Cloud-stored firmware files.

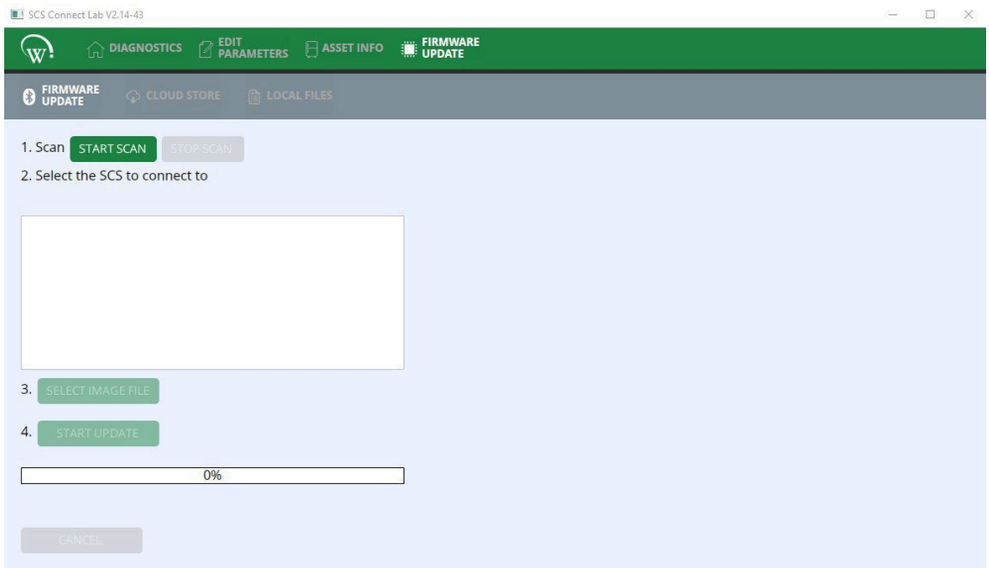
3. Select the file you want to use from the list and click **DOWNLOAD**. Files with the name “SCS_OTA” are main micro files while files called “SCS_DUAL” are main micro and hi-side files.

4. Click **START SCAN** to scan for nearby devices then select the IoT device’s BT name from the list to upgrade. If you are connecting to an SCS you will be able to see a Bluetooth Indicator light flashing once the SCS is successfully connected.

5. Click **SELECT IMAGE FILE** to select one of the locally stored firmware files that you have downloaded.

6. Click **START UPGRADE** to begin updating the firmware on the connected device.

Wait until you see a confirmation message “Firmware Update Complete” before navigating elsewhere. Otherwise, you will need to try again.



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