CD8 Pro/Home Freeze Dryer
User Manual

CRYODRY®

For Version 5.0.x

Rev. 1

Declaration of Conformity

We, CryoDry Pty Ltd, located at 31A/1 Talavera Road, Macquarie Park, NSW, 2113 under our sole responsibility that the product:
Product Name: Freeze Dryer
Model/Type: CryoDry CD8(x), SKU: 40100230105T(H)(P)
to which this declaration relates, is in conformity with the following directives an

Directives

- 2014/30/EU (EMC Directive)
- 2014/35/EU (Low Voltage Directive)
- AS/NZ 4417.1 (Regulatory Compliance Mark)
- 2011/65/EU (RoHS Directive)
- 2014/53/EU (Radio Equipment Directive)

Standards

- EN IEC 61326-1:2021
- EN 61010-1:2010 + A1:2019
- EN 61010-1:2010, AMD1:2016
- EN IEC 61010-2-012:2022/A11:2022
- AS 61010.1-2003:2003 (Rec 2016)
- UL 61010-1
- CAN/CSA-C22.2 No. 61010-1-12
- UL 61010-2-010
- CSA C22.2 No. 61010-2-010:19
- UL 61010-2-011
- CSA C22.2 No. 61010-2-011:19
- CFR 47 FCC Part 15 subpart B
- ANSI C63.4-2014
- FCC 47 CFR Part 15, Subpart B, Class B Digital Device

The product has been independently assessed and found to comply with the applicable directives and standards. This declaration is issued under the sole responsibility of the manufacturer.

Place of Issue: Sydney, Australia
Date of Issue: 13 August 2025
Name and Position: Daniel Kind, COO

Signature:

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1.Revision History

Revision	Date	Description
1	13/08/25	Release

2. Disclaimer, Terms and Conditions

- CryoDry Terms and Conditions, 20.12.2012 apply.
- The intellectual property rights for this manual belong to CryoDry Pty Ltd (hereinafter referred to as “the Company”).
- The Company reserves the right to change product specifications without notice.
- The contents of this manual are subject to change without notice.
- The contents of this manual must not be copied, extracted, or modified in any form without the Company’s permission.

3.Safety

DANGER! (may cause serious damage to property and or casualties)

1. No user-serviceable parts inside. Service by authorized personnel only.
2. Read this manual prior to operating CD8 and observe and verify that all connections are properly secured.
3. Utility requirements: Ensure that the electrical connections meet the local standards and that the power supply is compatible with CD8 nameplate. The power source must be properly grounded.
4. Do not operate CD8 if there is any damage to the power cables.
5. The chamber and shelves may be extremely cold or hot – Check temperature before opening the chamber or touching the chamber's internal components, to avoid injury from frostbite or burns.
6. Do not force open the chamber door while the chamber is under vacuum. Doing so may cause serious injury and cause significant damage to CD8.
7. Do not expose any body parts or entire bodies to vacuum.
8. CD8 has been exclusively designed for freeze drying of non-flammable, non-corrosive, and non-hazardous solids or liquid containing products.
9. There is no user replaceable battery.

WARNING! (may cause property damage or personal injury)

1. CD8 may not be operated prior to reading this manual.
2. CD8 must only be opened by authorized service personnel.
3. Do not place heavy objects on top of or stand on CD8.
4. It is prohibited to install any unauthorized software onto CD8.
5. Keep hands away from the chamber door during pump down, to prevent crushing injuries.
6. Ensure all ventilation openings are not obstructed, and air can flow freely.
7. Do not use mechanical devices or other means to accelerate the defrosting process.
8. CD8 contains flammable refrigerating equipment. Do not damage the refrigerant circuit. While handling, moving, and operating, avoid physical damage to reduce the risk of a leak.
9. Ensure that all accessories and pumps adhere to specifications.
10. Connect and disconnect the accessories only while the machine is unplugged.

ATTENTION! (may affect operational performance or service life)

1. The overall safe operation of CD8 is the responsibility of the owner of CD8 and their assigned operator(s), who in turn are responsible for ensuring the user manual guidance is applied, to ensure the safety and protection of personnel and CD8 before, during, and after freeze drying operation.
2. CD8 must be placed on a suitable surface of at least 77cm x 75cm (DxW), with a weight handling of a minimum 100 kg. Allow an additional 20cm space in each dimension for ventilation. Allow good access to power connections in case of emergency. Ensure CD8 can be unplugged easily during an emergency.
3. Timely maintenance of CD8 MUST be conducted to ensure continued safe operation and to optimize CD8's service life.
4. Only accredited and qualified professional repair technicians can open CD8 or conduct repairs. Persons performing repairs on CD8 other than those selected or approved by the Company shall void any warranty for the product and are at risk of personal injury.
5. CD8 must be used in a well-ventilated, dry environment.
6. CD8 should be kept in a shaded area, without direct sunlight.
7. CD8 must not be used in hazardous areas, or underground.

FIRE HAZARD!

1. R290 - Refrigerant used in this instrument.
2. H220 - Extremely flammable gas.
3. In the case of refrigerant leak, DO NOT operate CD8. Ensure CD8 is disconnected from power supply and contact support immediately.

3.1. Panel Warnings

Rear Panel	CAUTION – RISK OF FIRE OR EXPLOSION due to puncture of REFRIGERANT TUBING. Follow Handling Instructions Carefully. FLAMMABLE REFRIGERANT used.
Door	WARNING – CRUSHING OF HANDS between the door and front panel, hinges, and door lock. Operate with caution.
Chamber Wall, Shelves, and Trays	WARNING – FREEZING CONDITIONS. FROSTBITE HAZARD. Thermal gloves are required for extreme temperatures.
Shelves and Trays	CAUTION – HOT SURFACE. Shelves and trays can be very hot. Thermal gloves are required for extreme temperatures.

3.2. Lifting and Moving

To ensure safety when lifting or moving the machine, follow the below notes:

- Adjust the feet to reduce pinching hazards when positioning the machine.
- Lift or move the machine on the base only.
- Keep the machine oriented upward.
- Lift or move the machine after removing the shelf stack and disconnecting all accessories.
- Avoid dropping or any severe shock and vibration. Avoid sharp objects. Avoid penetration of the housing.
- Two people are required to lift. Lift from each corner of the machine, near the feet. Hold onto the base plate.

4.Sécurité

DANGER ! (peut causer de graves dommages aux biens ou faire des victimes)

1. Aucune pièce réparable par l'utilisateur ne se trouve à l'intérieur. L'entretien doit être effectué uniquement par du personnel autorisé.
2. Lisez ce manuel avant d'utiliser le CD8 et vérifiez que toutes les connexions sont correctement fixées.
3. Exigences utilitaires : assurez-vous que les connexions électriques sont conformes aux normes locales et que l'alimentation électrique est compatible avec la plaque signalétique du CD8. La source d'alimentation doit être correctement mise à la terre.
4. N'utilisez pas le CD8 si les câbles d'alimentation sont endommagés.
5. Le caisson et les étagères peuvent être extrêmement froids ou chauds. Vérifiez la température avant d'ouvrir le caisson ou de toucher ses composants internes, afin d'éviter les gelures ou les brûlures.
6. Ne forcez pas l'ouverture de la porte du caisson lorsque celle-ci est sous vide. Vous risqueriez de vous blesser gravement et d'endommager fortement le CD8.
7. N'exposez pas des parties du corps ou des corps entiers à la machine.
8. Le CD8 a été exclusivement conçu pour la lyophilisation de produits solides ou liquides ininflammables, non corrosifs et non dangereux.
9. Il n'y a pas de batterie remplaçable par l'utilisateur.

AVERTISSEMENT ! (peut provoquer des dommages matériels ou corporels)

1. Lisez ce manuel avant d'utiliser le CD8.
2. Le CD8 ne doit être ouvert que par le personnel d'entretien autorisé.
3. Ne placez pas d'objets lourds sur le CD8 et ne vous tenez pas debout dessus.
4. N'installez aucun logiciel non autorisé sur le CD8.
5. N'approchez pas les mains de la porte du caisson pendant la descente de la pompe, afin d'éviter les blessures par écrasement.
6. Assurez-vous que toutes les ouvertures de ventilation ne sont pas obstruées et que l'air peut circuler librement.
7. N'utilisez pas de dispositifs mécaniques ou d'autres moyens pour accélérer le processus de dégivrage.
8. Le CD8 contient des équipements frigorifiques inflammables. N'endommagez pas le circuit de réfrigération. Lors de la manipulation, du déplacement et de l'utilisation, évitez tout dommage physique afin de réduire le risque de fuite.
9. Veillez à ce que tous les accessoires et toutes les pompes soient conformes aux spécifications.
10. Branchez et débranchez les accessoires uniquement lorsque la machine est débranchée.

ATTENTION ! (conséquences possibles sur les performances opérationnelles ou la durée de vie)

1. La sécurité générale du fonctionnement du CD8 relève de la responsabilité du propriétaire du CD8 et de son (ses) opérateur(s) attitré(s), qui doivent à leur tour s'assurer que les conseils du manuel de l'utilisateur sont appliqués, afin de garantir la sécurité et la protection du personnel et du CD8 avant, pendant et après l'opération de lyophilisation.
2. Le CD8 doit être placé sur une surface appropriée d'au moins 77 cm x 75 cm (DxL), avec une capacité de charge d'au moins 100 kg. Prévoyez un espace supplémentaire de 20 cm pour la ventilation. Prévoyez un bon accès aux connexions électriques en cas d'urgence. Veillez à ce que le CD8 puisse être débranché facilement en cas d'urgence.
3. La maintenance du CD8 DOIT être effectuée en temps utile pour garantir un fonctionnement sûr et optimiser la durée de vie du CD8.
4. Seuls des techniciens de réparation professionnels accrédités et qualifiés peuvent ouvrir le CD8 ou effectuer les réparations nécessaires. Les personnes effectuant des réparations sur le CD8 autres que celles sélectionnées ou approuvées par la société annuleront toute garantie sur le produit et s'exposeront à des risques de dommages corporels.
5. Le CD8 doit être utilisé dans un environnement sec et bien ventilé.
6. Le CD8 doit être conservé dans un endroit ombragé, sans exposition directe au soleil.
7. Le CD8 ne doit pas être utilisé dans les zones dangereuses ou souterraines.

RISQUE INCENDIE !

1. R290 - Réfrigérant utilisé dans cet appareil.
2. H220 - Gaz extrêmement inflammable.
3. En cas de fuite de réfrigérant, NE faites PAS fonctionner le CD8. Assurez-vous que le CD8 est débranché de l'alimentation électrique et contactez immédiatement le service d'assistance.

4.1. Avertissements du panneau

Panneau arrière	ATTENTION -RISQUE D'INCENDIE OU D'EXPLOSION dû à la perforation du TUBE RÉFRIGÉRANT. Suivez attentivement les instructions de manipulation. RÉFRIGÉRANT INFLAMMABLE utilisé.
Porte	AVERTISSEMENT -ÉCRASEMENT DES MAINS entre la porte et le panneau avant, les charnières et la serrure de la porte. Utilisez avec précaution.
Mur, étagères et plateaux du caisson	AVERTISSEMENT -CONDITIONS DE GEL. RISQUE DE GELURES. Des gants thermiques sont nécessaires en cas de températures extremes.
Étagères et plateaux	ATTENTION -SURFACE CHAUDE. Les étagères et les plateaux peuvent être très chauds. Des gants thermiques sont nécessaires pour les températures extrêmes

4.2. Levage et déplacement

Pour garantir la sécurité lors du levage ou du déplacement du CD8, veuillez respecter les consignes suivantes:

- Ajustez les pieds pour réduire le risque de pincement lors du positionnement du CD8.
- Soulevez ou déplacez le CD8 sur la base uniquement.
- Maintenez le CD8 orienté vers le haut.
- Soulevez ou déplacez le CD8 après avoir retiré la pile d'étagères et débranché tous les accessoires.
- Évitez les chutes, les chocs et les vibrations. Évitez les objets pointus. Évitez toute pénétration dans le boîtier.
- Deux personnes sont nécessaires pour soulever l'appareil. Soulevez chaque coin du CD8, près des pieds. Tenez la plaque de base.

5.Introduction

Users are advised to carefully read this manual prior to operating the machine so that they are aware of all precautions outlined, and to ensure operation is in accordance with the instructions contained within this manual.

5.1. After Sales Support

If problems are encountered, or technical support is required when installing or operating the machine, contact your local agent or email support@cryodry.biz.

The Company may provide technical assistance and information regarding the machine, equipment, or service without charge, at its sole discretion. The buyer assumes sole responsibility for any reliance on or use of such assistance and information, and the Company makes no warranty thereon.

Upon contact, the following information is required:

- Product serial number (located on CD8 nameplate).
- Description of issue or problem.
- Method and/or operating steps that have been undertaken towards resolution.
- Your contact details, inclusive of telephone number and email address.

5.2. Proper Use

The machine has been exclusively designed for freeze drying of non-flammable, non-corrosive and non-hazardous solids or liquid containing products. Freeze drying flammable, corrosive or hazard solids or liquids could damage the freeze dryer, void the warranty and cause accidents. The machine must not be used in an environment with a potentially hazardous or flammable atmosphere. The machine must not be used underground.

The machine is primarily designed for non-residential commercial use and is to be used only in conjunction with accessories recommended within this manual.

5.3. Product Disposal

The machine should not be disposed of with other household or electronics waste. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle responsibly to promote the sustainable reuse of material resources. To return your used device, use the return and collection systems, or contact the distributor where the product was purchased. This product contains polyurethane (PU) and R290 (propane). PU is flammable and recyclable. R290 is an extremely flammable refrigerant.

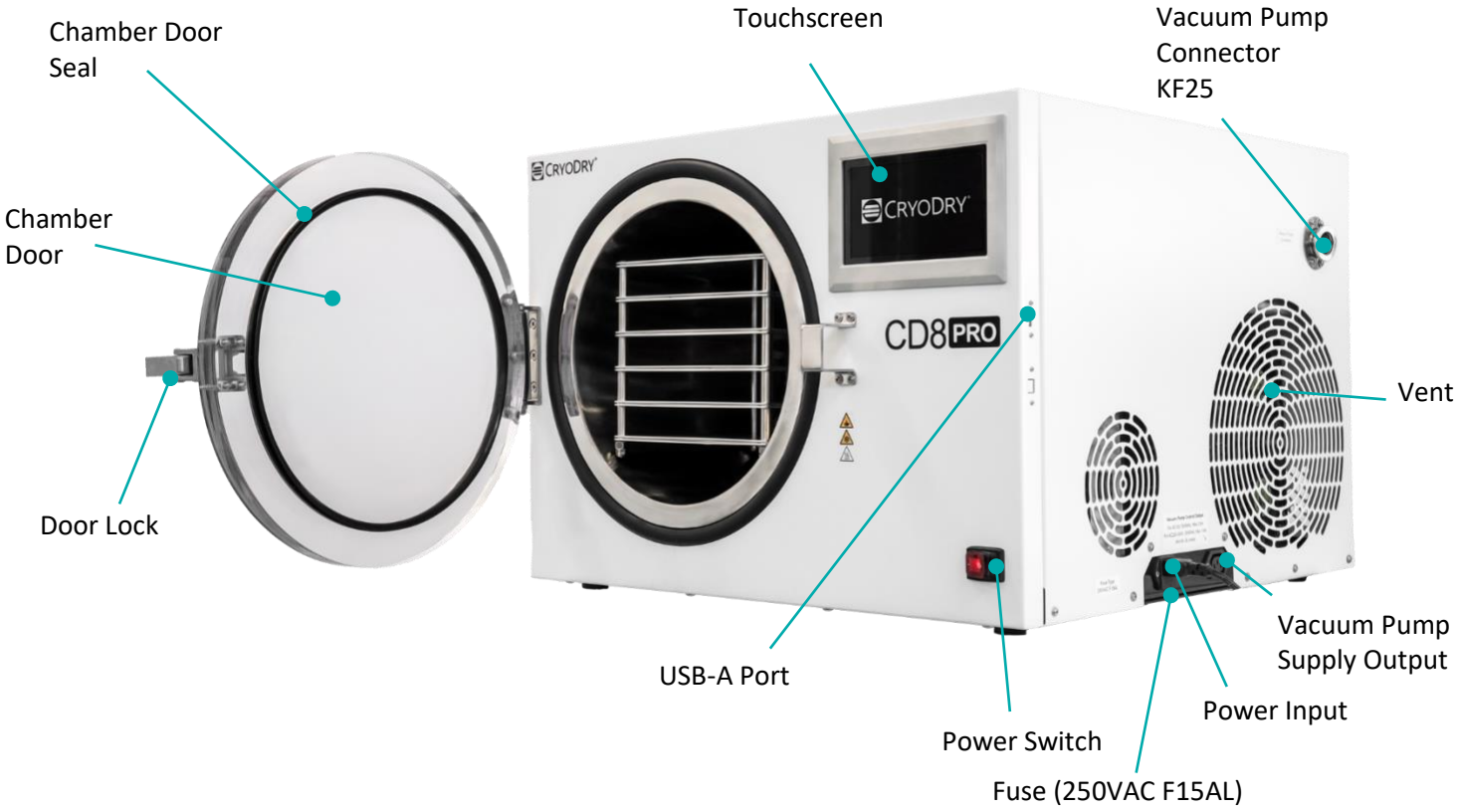
6.Technical Specifications

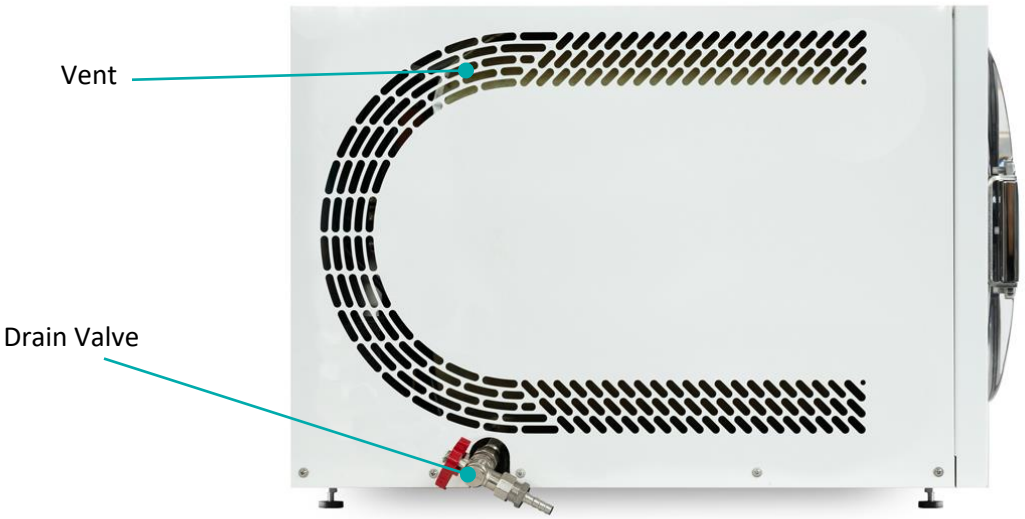
Product Name	CD8 Pro / Home
Product Weight	87 kg
Max Vacuum Pump Current	AC120V, 50/60Hz, 2.8A AC220-240V, 50/60Hz, 1.6A (Not for UL-mark)
Total Condenser Volume	11 litres
Ice Condenser Capacity	8 kg
Condenser Performance	4 kg per 24 hours
Ice Condenser Temperature	< -45 °C
Ultimate Vacuum	1.5 x 10-1 mbar
Minimum Shelf Temperature	-40 °C
Maximum Shelf Temperature	+60 °C
Tray Dimensions (mm)	9-shelf tray: 200 (W) x 450 (L) x 12 (H) 7-shelf tray: 200 (W) x 450 (L) x 15 (H) 5-shelf tray: 200 (W) x 450 (L) x 20 (H) 3-shelf tray: 200 (W) x 450 (L) x 20 (H) 1-shelf tray: 200 (W) x 450 (L) x 20 (H)
Number of Trays	1 tray per shelf
Shelf Stack Options	9, 7, 5, 3, 1 shelf
Shelf Stack Dimensions (mm)	465 (L) x 210 (W) x 240 (H)
Typical Product Capacity	9.6 kg at 80% moisture
Shelf gap	1-self: 188 mm 3-shelf: 59 mm 5-shelf: 33 mm 7-shelf: 22 mm 9-shelf: 17 mm
External Dimensions (mm)	770 (D) x 748 (W) x 507 (H)
Operating Altitude	< 2000m
Environmental Specification	10°C to 30°C 10% to 80%, non-condensing
Area of Operation	Indoors only
Overvoltage Category	Category II
Voltages and Frequencies	**For North America with UL mark** AC120V 50/60Hz **For the rest of the world** AC100-120V, 50/60Hz AC220-240V, 50/60Hz
Pollution Degree	2

7.Precautions

- Pressure changes in the chamber during shipping may make the door difficult to open. To equalize the pressure, open the drain valve before attempting to open the chamber door.
- The machine should be connected to electrical outlets safely. Operate with dry hands to minimize the risk of electric shock.
- A suitably fused power supply (according to CD8 nameplate) is required. An alternative supply voltage or frequency may damage the machine or reduce its working lifespan.
- The electrical power cord is designed to be connected to the power outlet without knots, sharp bends, or heavy materials placed on the cord.
- If the power cable is damaged, replace with same specification or contact support@cryodry.biz.
- The machine must be properly grounded according to local electrical codes.
- No residual water or foreign matter should be present inside the chamber prior to freeze drying.
- If an abnormal sound, excessive heat, smoke, etc. is detected, stop the process immediately, disconnect the machine from the power supply, and contact support@cryodry.biz. The machine operates with a low level of noise when running; if any significant changes occur, stop and contact support.
- If a power outage occurs when operating the machine, open the drain valve and let the chamber pressure return to normal before opening the door to retrieve the product.
- When the freeze-drying process has finished, first turn off the vacuum pump, and then open the drain valve.
- Ensure the door seal ring and the chamber door remain clean. Only clean with soapy water and avoid using solvents or other cleaning agents.
- Do not rapidly power on/off the machine. Wait for at least a minute after powering off the machine to power it on again.
- It is recommended that the machine be unplugged from the wall outlet, or the outlet switched off, when not in use.
- Water may escape from the machine if it is operated outside of recommended operating conditions. Regularly check the vacuum pump for potential water contamination. Depending on the pump, replace the oil, and service as needed.
- Do not rapidly enable the compressor, as it may damage the component. Wait at least 30 seconds before enabling it again.
- While the compressor is running, do not directly power off machine. Turn it off from the software first, before turning off the power.
- When not in use, keep the drain valve and the chamber door open to prevent micro bacterial and mould growth due to residual moisture. Only seal off for storage if the chamber is entirely dry.

8.Components Overview





Power Input

AC 120V, 12A, 50/60Hz
AC 220-240V, 8A, 50/60Hz (Not for UL-mark)

Fuse (250VAC F15AL)

Vacuum Pump Supply Output

AC120V, 50/60Hz, Max 2.8A
AC220-240V, 50/60Hz, Max 1.6A (Not for UL-mark)

Drain Valve Closed

Drain Valve Open

9.Differences between Home and Pro

In this user manual, the default colour scheme is for Pro. There is a lot of software similarities between the Home and Pro, but with some limitations, outlined below:

CD8 Home	CD8 Pro
AutoDry Mode inclusive parameter editing	
Manual Mode	
Recipe Mode, 3 Recipes	Recipe Mode, Unlimited Recipes
Local Network and Internet Access	
1 Cloud Account	Unlimited Cloud Accounts
1 Local Account	Unlimited Local Accounts
Download Autodry and Recipe Logs	
View logs only	Rename Logs
1 Machine control on Console	Multi-machine control on Console
No live graph	Live Graph
SMS/Email Notifications	
Remote Support	

CryoDry Pro products are usually sold through our local commercial full-service providers.

10. Software Operation

10.1. Initial Setup

1. Shortly after powering on the machine, the Welcome screen is shown (Figure 1).

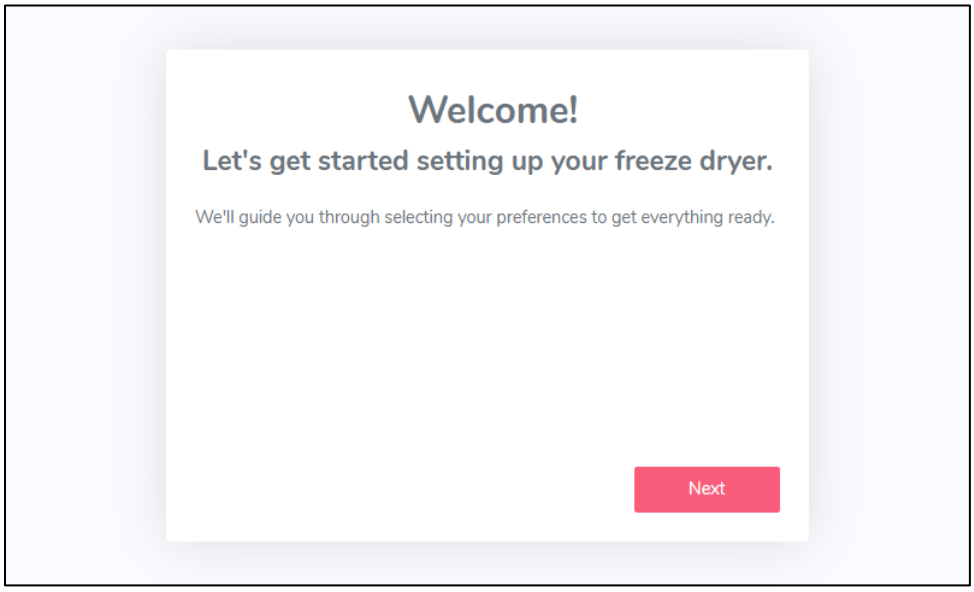


Figure 1

2. From the Welcome screen tap on the 'Next' button, then select Country (Figure 2).

Country
Select your country from the list below:
Australia
1
Next
2

Figure 2

3. Similarly, select a time zone in the next step (Figure 3).

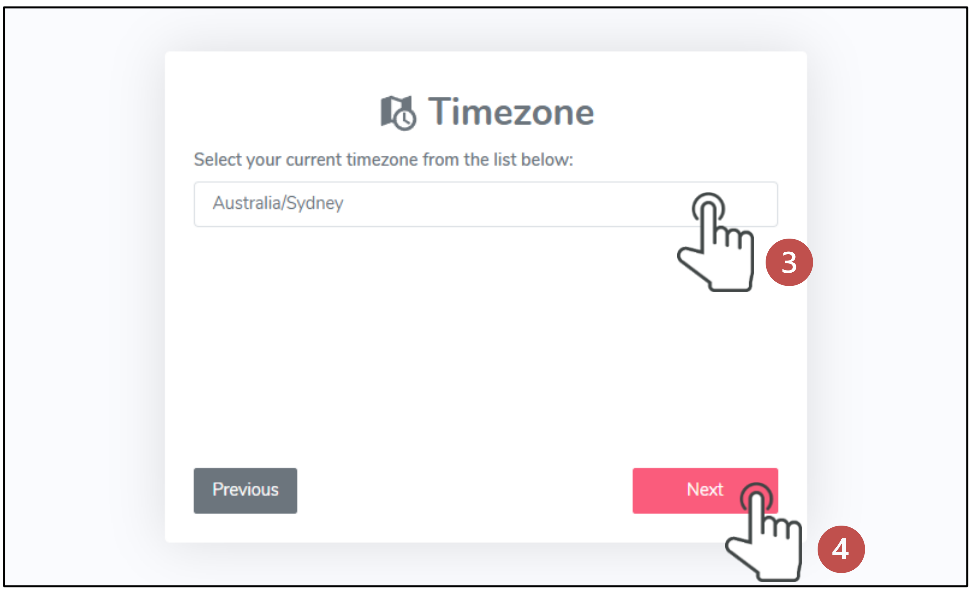


Figure 3

4. On the next step (Figure 4), set up Wi-Fi connectivity. If Wi-Fi connectivity is not desired, contact support. With internet access, the following features are enabled:
    - **10.2 Connecting via Web Browser**
    - **10.3 Remote Access via Console**
    - **10.13.2 Online** Updates

a) Internet Connectivity Setup:

Note: Only Wi-Fi security type WPA2-Personal is supported.

1. Select a Wi-Fi network from the list (Figure 4).

Figure 4

2. Then, tap on ‘Connect’ (Figure 5) and enter the Wi-Fi password when prompted (Figure 6).

Figure 5

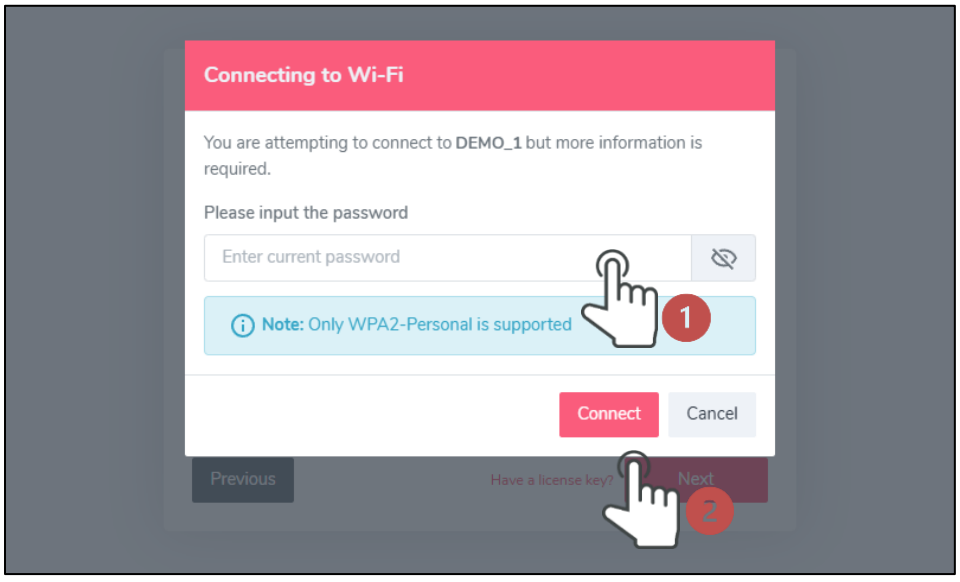


Figure 6

3. Once connected to Wi-Fi, the status will display ‘Connected’ next to the Wi-Fi name, allowing the setup to proceed to the next step (Figure 7).

Figure 7

4. In this step, it’s recommended to perform updates to get the most of the machine. Tap on “Run Updates” and wait (Figure 8). Proceed once the machine has been updated.

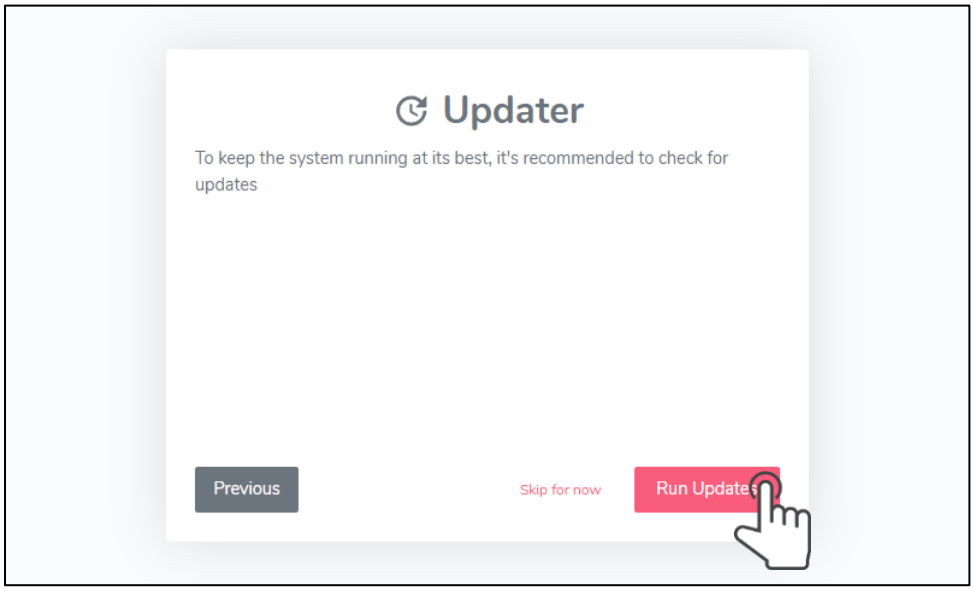


Figure 8

5. If you don't have an account, tap 'Register' and proceed to **step 6**. Otherwise, log in with an existing cloud account by entering the required credentials in the login form, then tap 'Log In' (Figure 9). Once logged in, proceed to **step 8**.

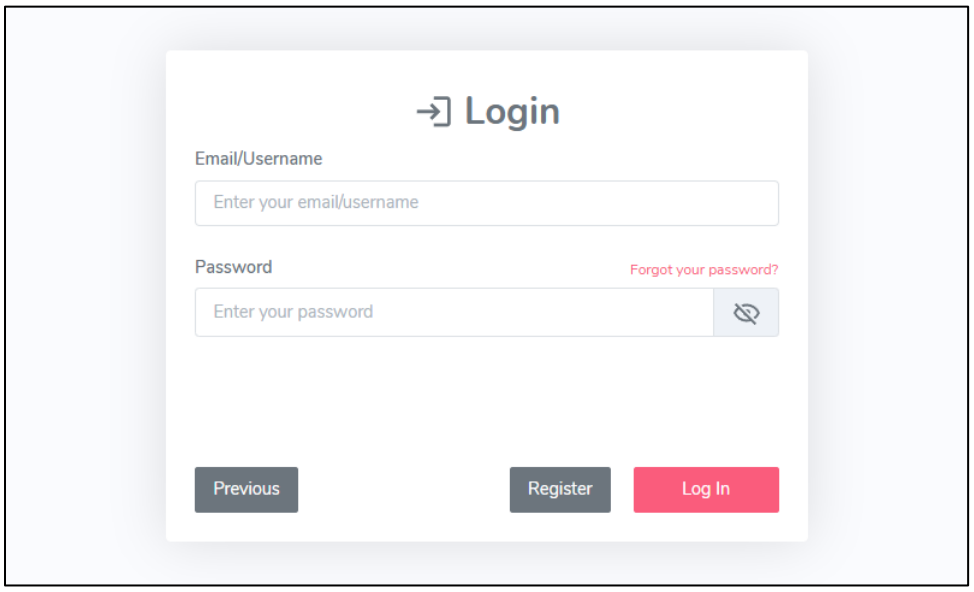


Figure 9

6. Once the form is completed, tap 'Register' to submit (Figure 10).

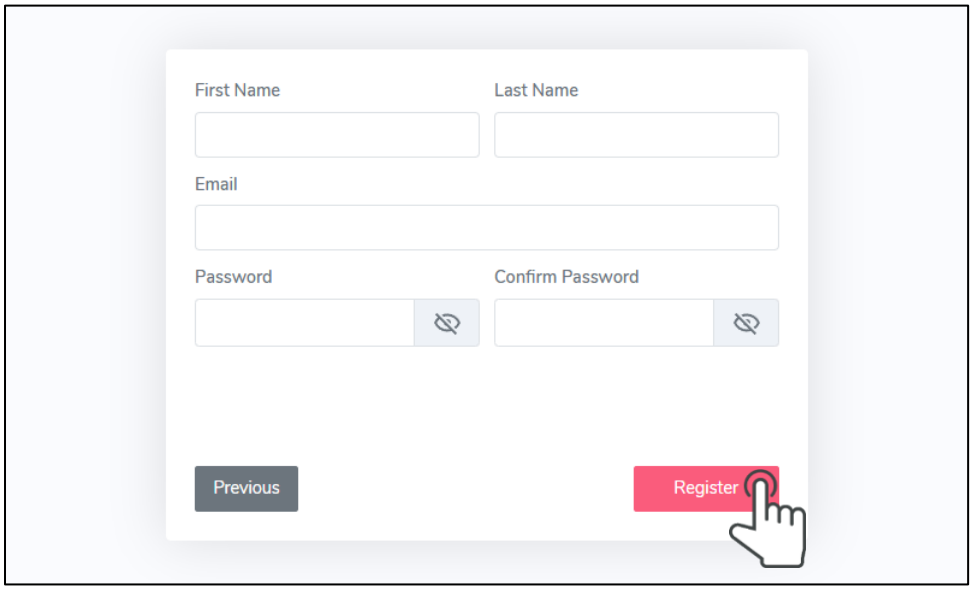


Figure 10

7. A verification email is then sent to the registered email address (Figure 11). Once it is verified, tap ‘Log In’ to return to the login page and complete **step 5**.

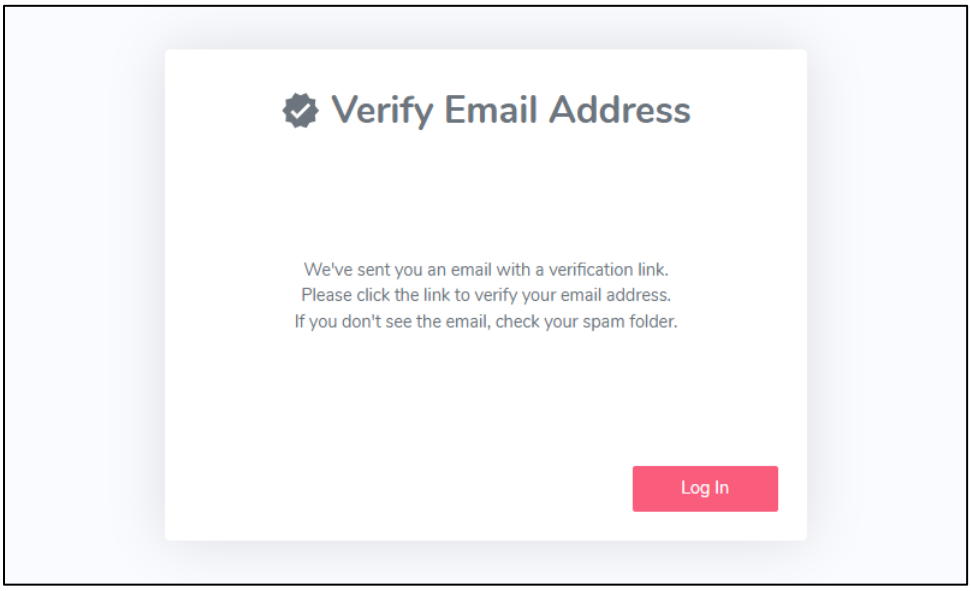


Figure 11

After logging in, you will notice that the colours will update to the respective colour branding.

8. Fill out the password form to set a new Local Admin Password (Figure 12). Alternatively, tap 'Skip for now' to change it later (Refer to section “**10.11.4 Change Password**” for changing the password later).

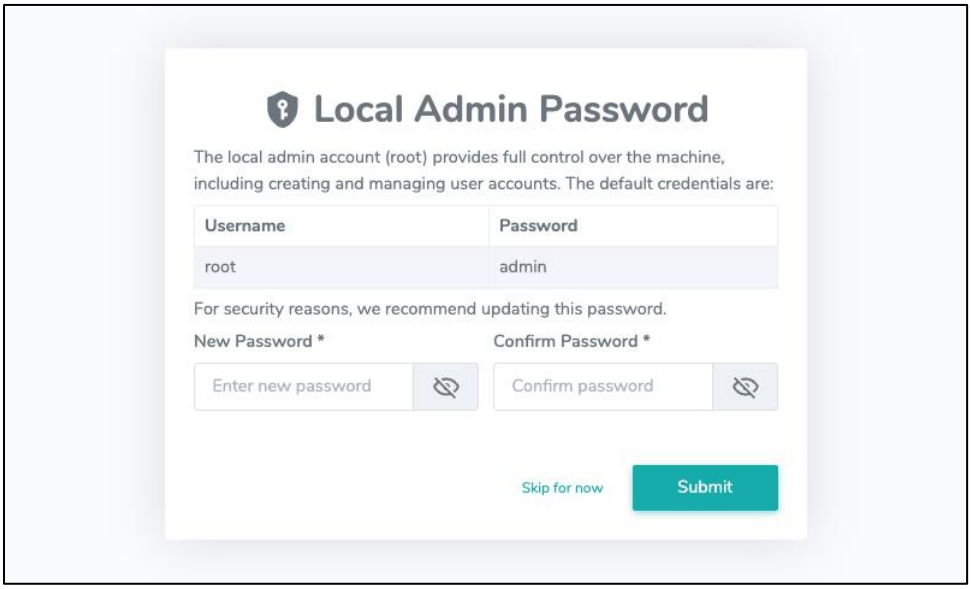


Figure 12

9. The initial setup is now complete (Figure 13). Tap 'Finish' to go to the *Dashboard* page.

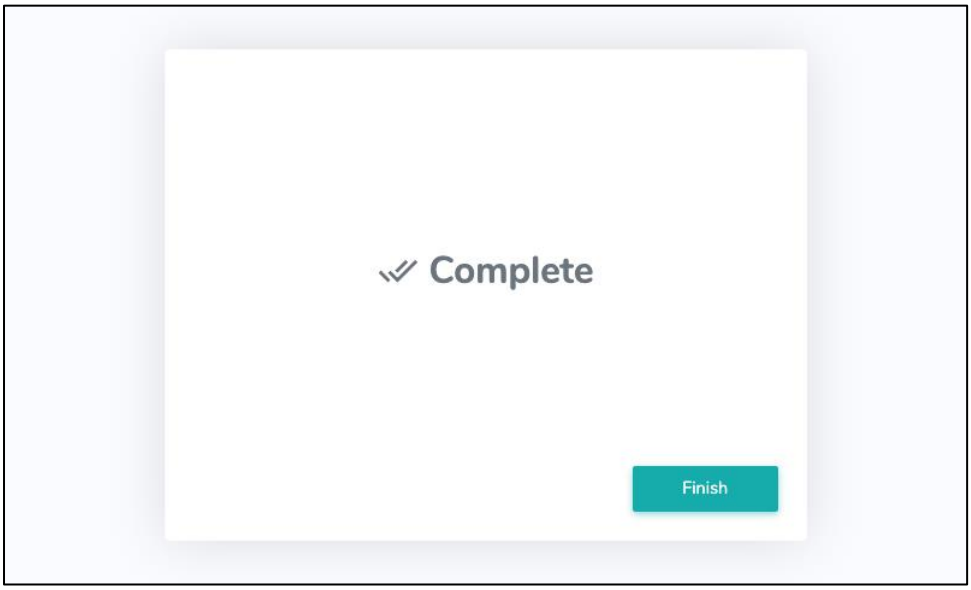


Figure 13

10.2. Connecting via Web Browser

The machine can be accessed through a web browser on a computer or mobile device if both the device and machine are on the same local network. To open the web interface, simply enter the hostname (Figure 14) or IP address (Figure 15)—displayed in the top bar—into the browser's address bar (Figure 16). Tap it to switch between displaying a hostname and IP address.

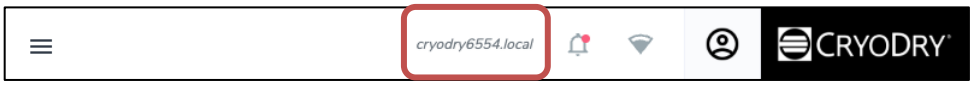


Figure 14

Figure 15

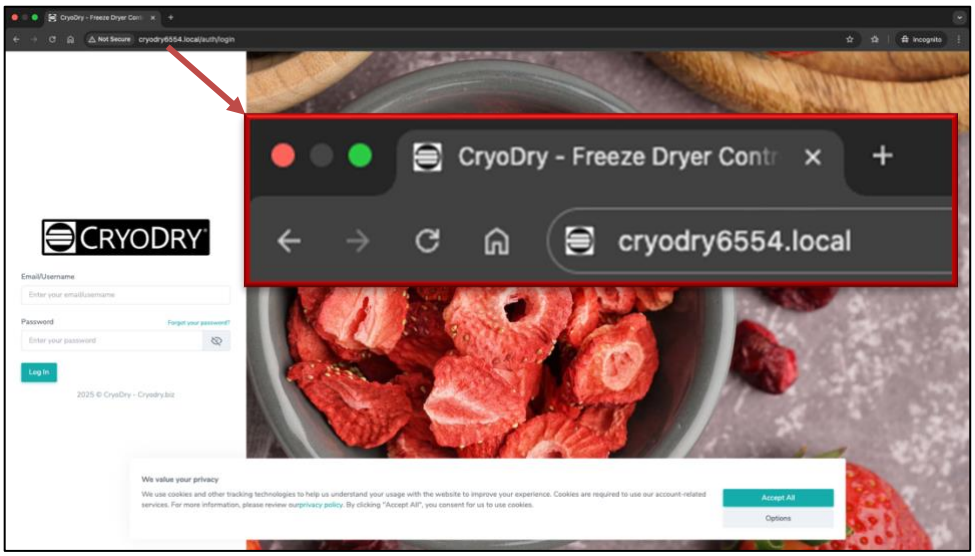


Figure 16

To login, use either a local or cloud account. It's recommended to use a cloud account, as it provides auto-login functionality when the machine updates or gets a power cycle. In addition, if the password gets forgotten, it can be recovered on the console website.

10.3. Remote Access via Console

The Console website enables remote access to the machine over the Internet and provides options for managing email and SMS notification preferences.

10.3.1. Login via a Cloud Account

To access the Console website, navigate to console.cryodry.biz using a web browser (Figure 17) and login with the same credentials used to create the cloud account during the Initial Setup.

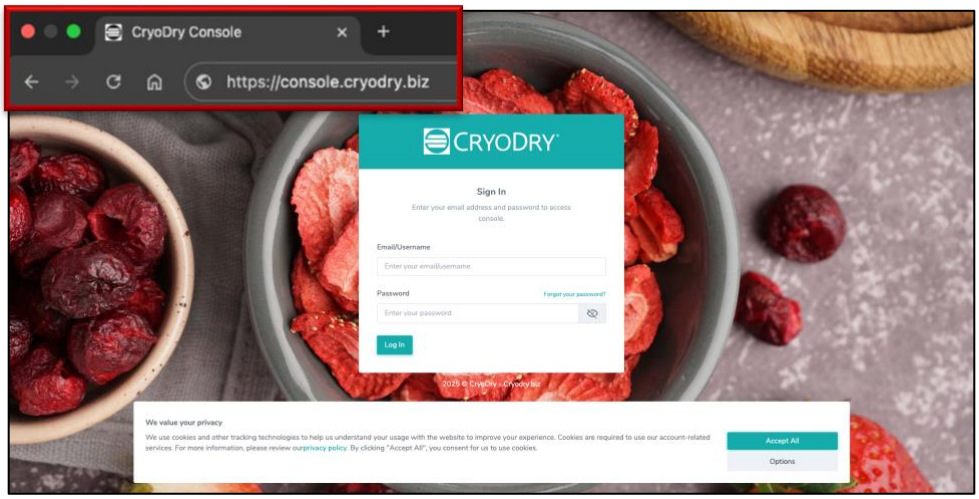


Figure 17

10.3.2. Account

Once logged in, the Account page appears by default and accessible via the left sidebar (Figure 18). This page includes the following features:

1. **Personal Details**: Displays the full name and email address associated with the cloud account. The full name can be updated by entering a new name into the input field and tapping "💾 Apply".
2. **Multifactor Authentication (MFA)**: Tap "Add" to view instructions for setting up MFA using an authenticator app. For enhanced security, it is recommended to enable MFA.
3. **Cloud Notification Preferences**: Notifications can be received via two channels: Email and SMS. Enabling the toggle switch on the first row activates all notifications for the selected channel. A mobile number is required to activate SMS notifications. Tap "💾 Apply" to save any changes. Notifications are categorized by severity.

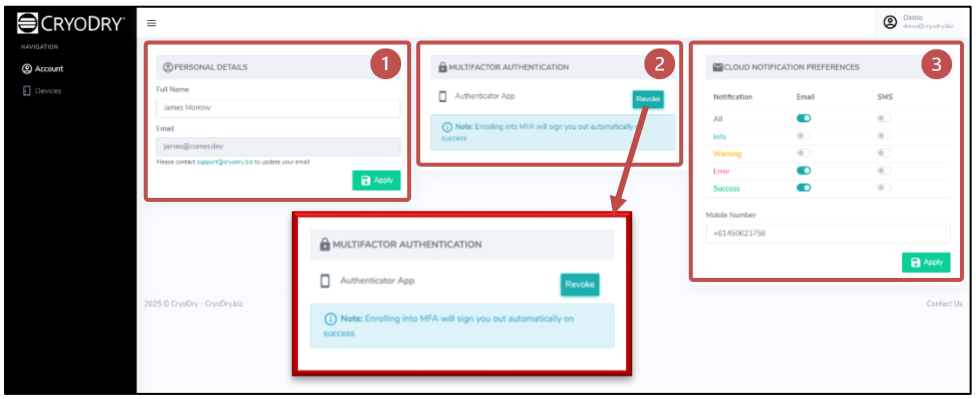


Figure 18

10.3.3. Devices

After linking a cloud account to the machine, the device will appear on the Console website under the "**Devices**" section in the left sidebar. Each available machine is represented as a card, offering quick access to key features.

Figure 19

Each device card offers the following features (Figure 20):

1. **Device Information**: Shows the machine network status (online or offline), label, and software version. To rename a device, tap on the label in the card header.
2. **Operate Page Access**: Shows the Operate interface for quick, remote operation of the machine. For detailed information, refer to Section "**10.7 Operate**".
3. **Live Readings**: Displays the lower ( ) and upper ( ) shelf temperatures, as well as chamber temperature ( ) and pressure ( ).
4. **Version Update**: The ability to perform software updates when available.
5. **Remote Access**: Provides the button for initiating remote sessions allowing for full remote control of the machine.

These features offer essential monitoring and control capabilities directly from the Console website.

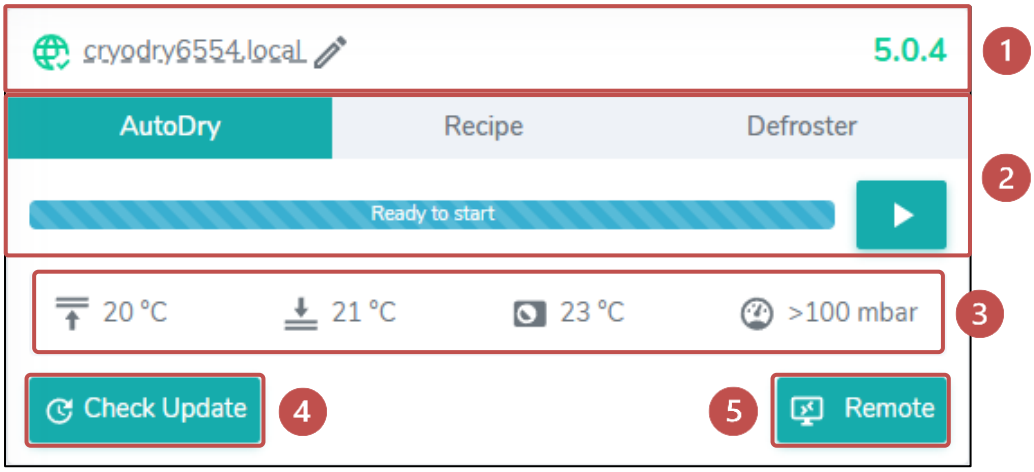


Figure 20

Note: If the machine is powered off or not connected to Wi-Fi, it will appear offline (Figure 21).

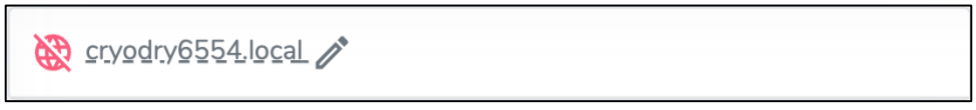


Figure 21

10.4. Topbar

The Topbar is positioned at the top of the screen (Figure 22) and includes the following components:

1. **Sidebar Toggle** (☰): Located on the left top-left, toggles the visibility of the left sidebar.
2. **Hostname**: Displays the network hostname of the machine. Tapping on the hostname switches to the Private IP Address of the machine. See section "**10.2 Connecting via Web Browser**" for connecting to the machine locally.
3. **Notifications** (🔔): Displays a dropdown of notifications that occurred over time. Including functionality to clear notifications.
4. **Wi-Fi** (📶): Displays a dropdown that provides access to Wi-Fi management
5. **Logout** (👤): Displays a dropdown that provides actions for session management, e.g. logging out

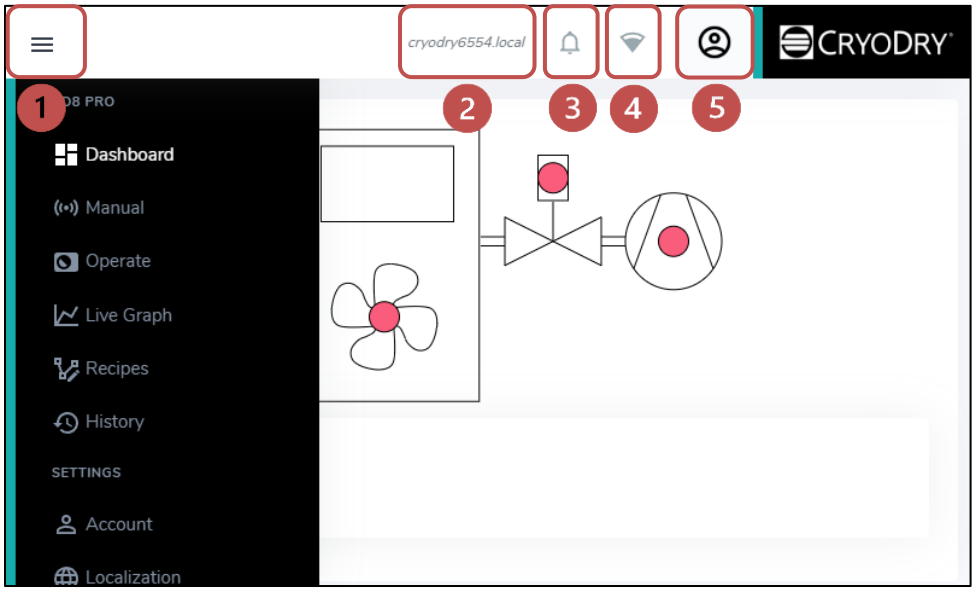


Figure 22

10.5. Dashboard

The Dashboard page (Figure 23) is the default home screen after completing the initial setup or logging into an account. It provides an overview of the freeze dryer, displaying which components are active as well as the overall operational status.

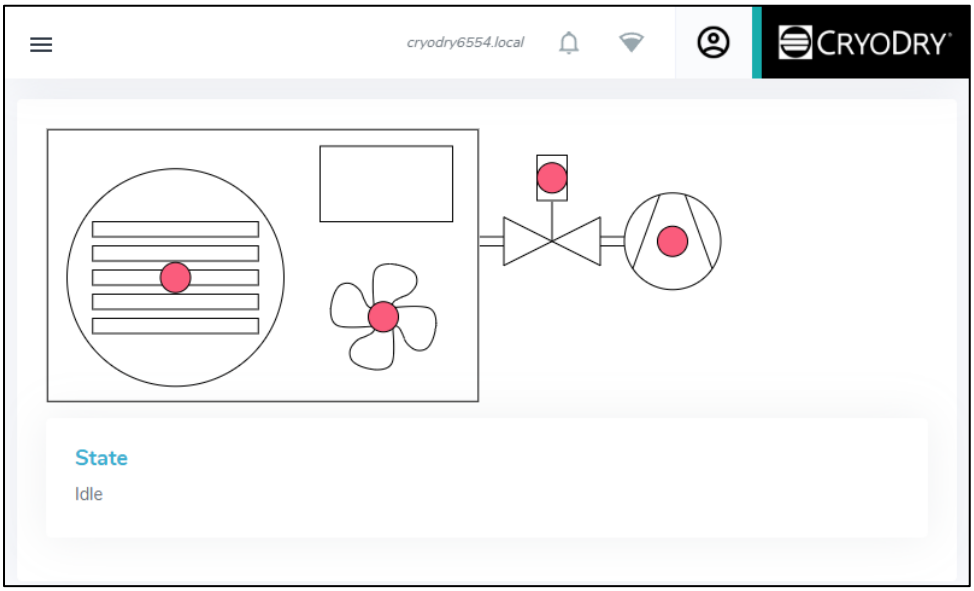


Figure 23

The Dashboard is accessible via the left sidebar (Figure 24).

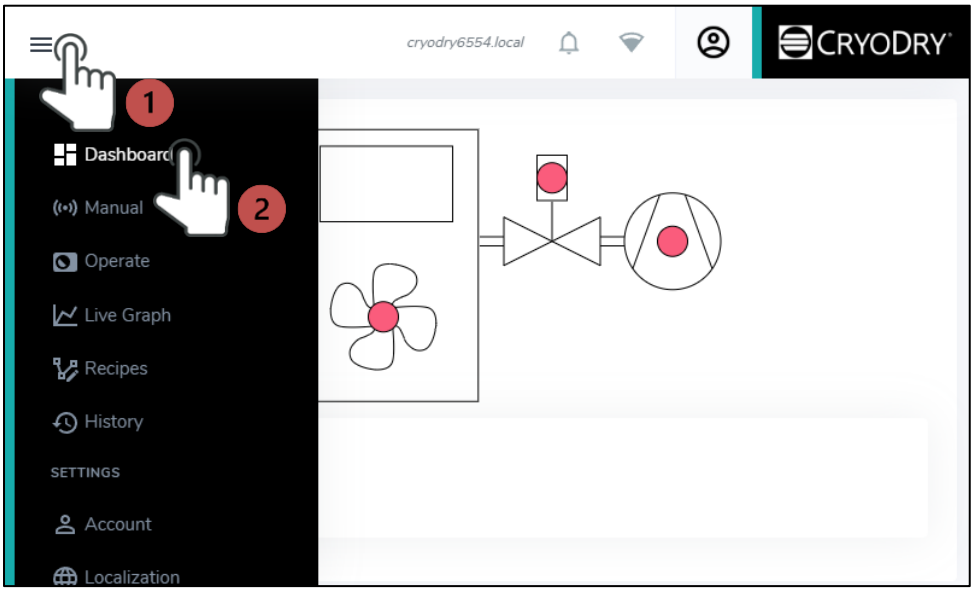


Figure 24

By tapping on individual components (such as shelves, compressor, or vacuum pump), they can be manually controlled directly from this page (Figure 25 and Figure 26).

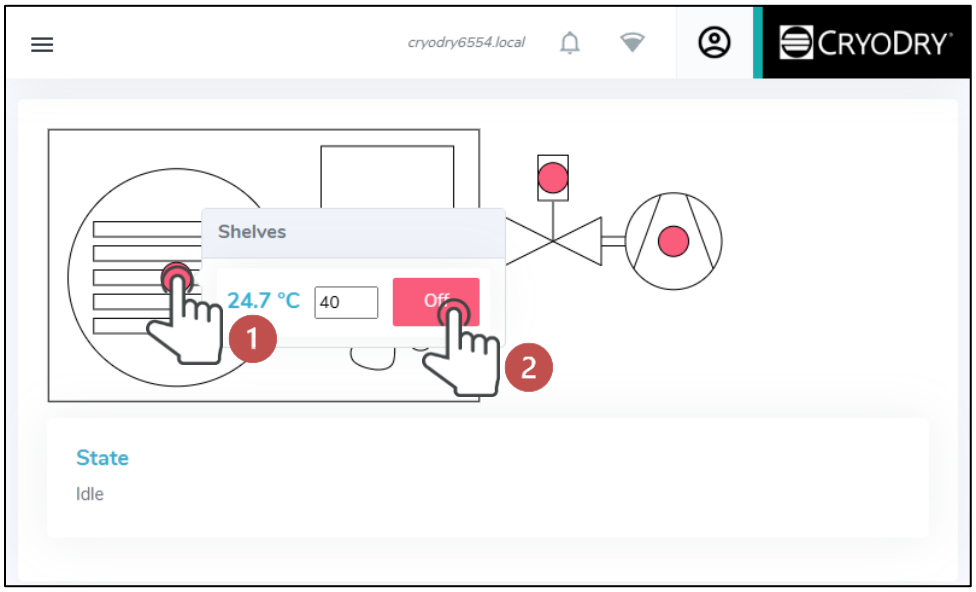


Figure 25

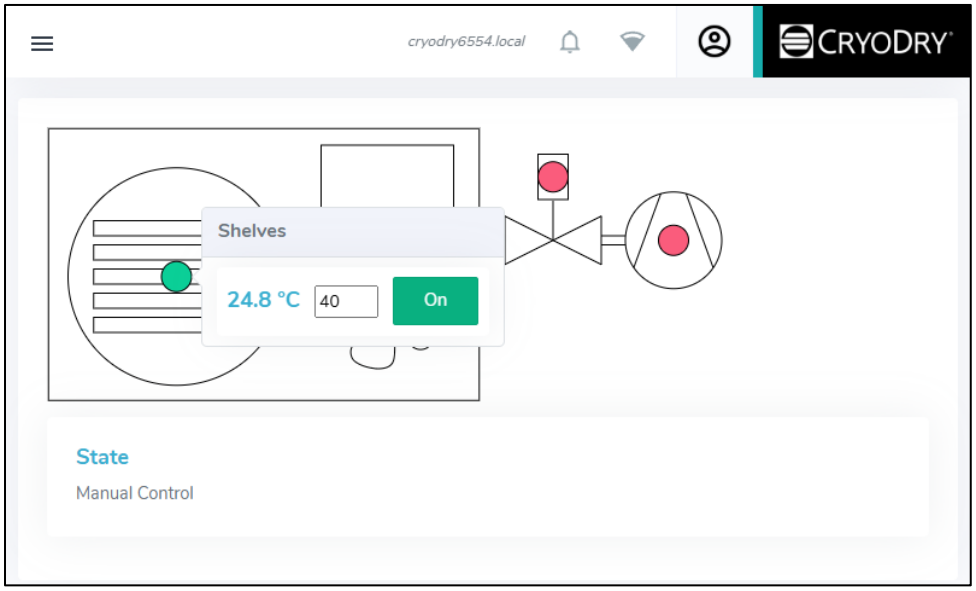


Figure 26

10.6. Manual

Similar to the Dashboard, the manual page offers an overview of individual freeze dryer components, including shelves, the compressor, and the vacuum pump. The Manual screen is accessible from the left sidebar (Figure 27).

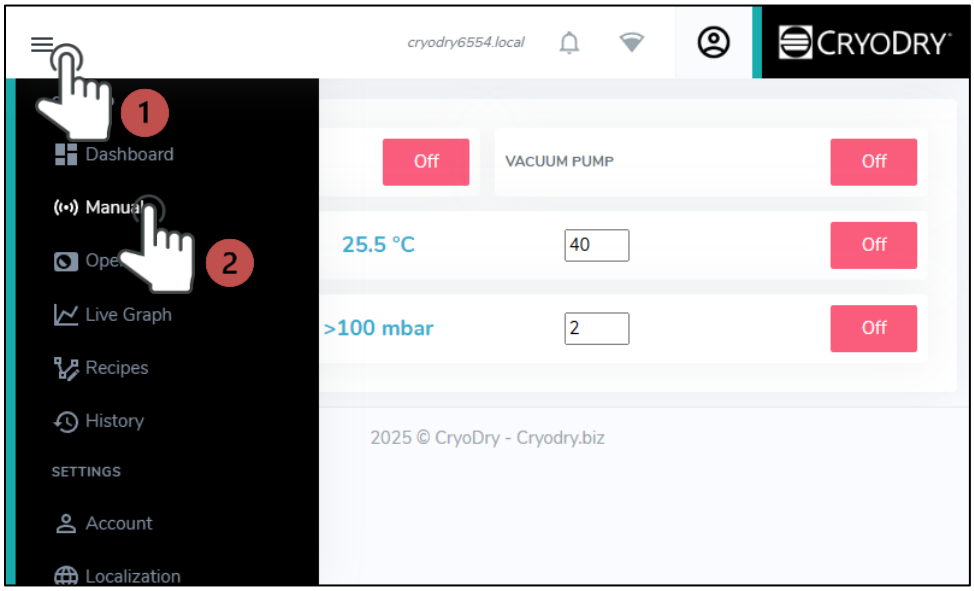


Figure 27

Temperature and pressure setpoints can be specified for the machine to maintain (if enabled) by tapping on the input boxes (Figure 28). After entering a new setpoint, to apply the input, tap outside the input box or confirm on the number pad by pressing the checkmark button.

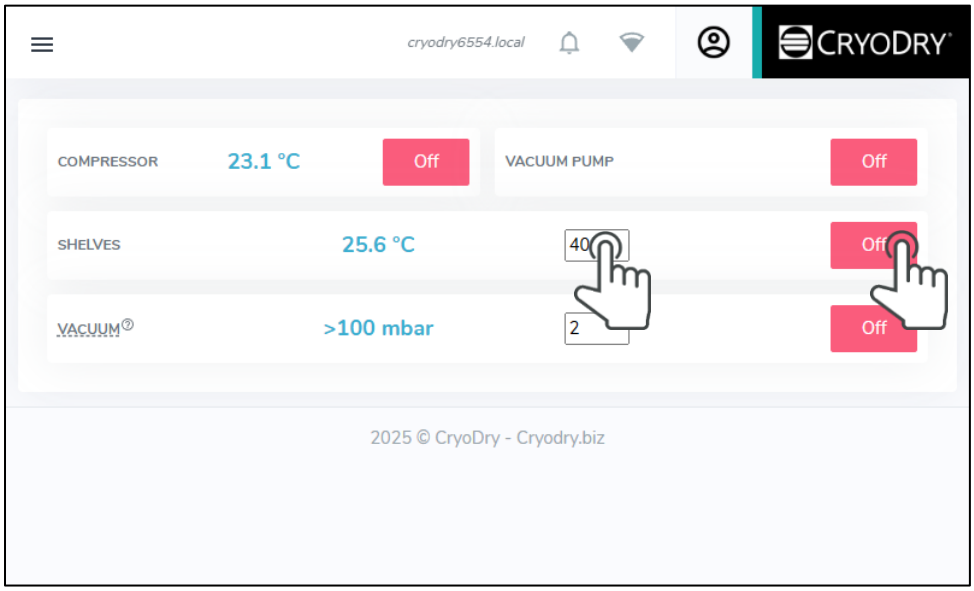


Figure 28

The on and off buttons offer direct control of the machine. They are as follows:

- Compressor
- Vacuum Control
- Vacuum Pump
- Shelves (upper & lower)

Tap on those buttons (Figure 29) to enable the relays.

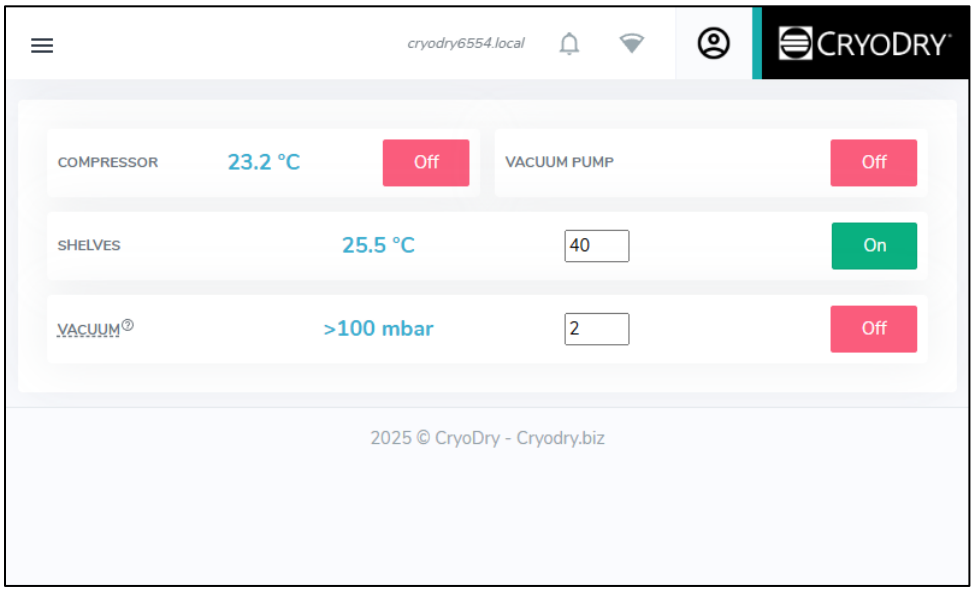


Figure 29

Note: For the machine to maintain the pressure setpoint, enable both the Vacuum Pump and Vacuum Valve. The Vacuum Valve will not open if the pump is not enabled (Figure 30). This is to prevent back flow contamination from the pump.

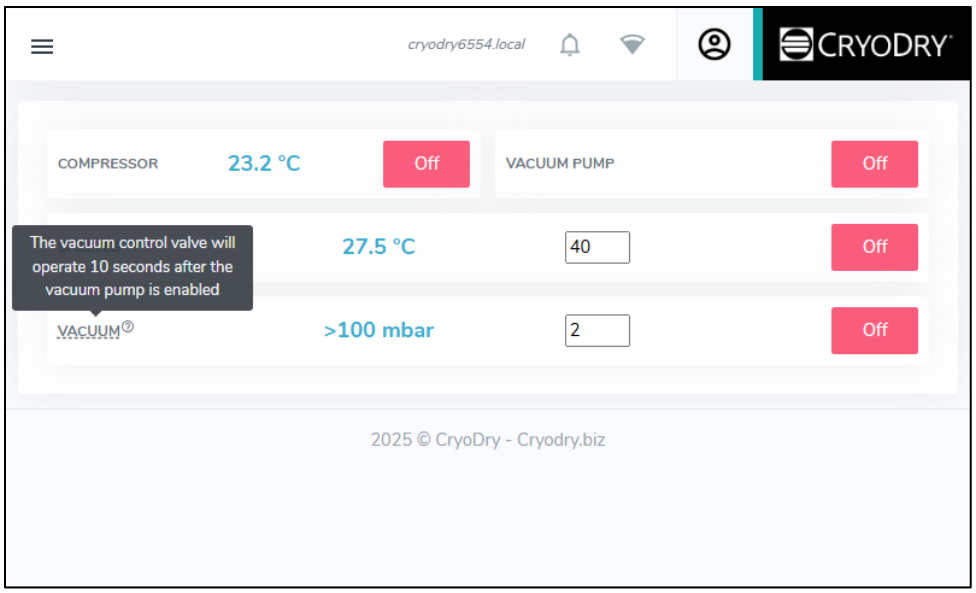


Figure 30

Before evacuating (turning on the vacuum pump and valve), ensure that there are no liquids, and your product is fully frozen. Evacuating while there is still liquid in the chamber may damage or cause premature wear to the vacuum pump.

10.7. Operate

The Operate page offers various modes for operating the machine, including AutoDry, Recipe, and Defrost. It is accessible via the left sidebar (Figure 31).

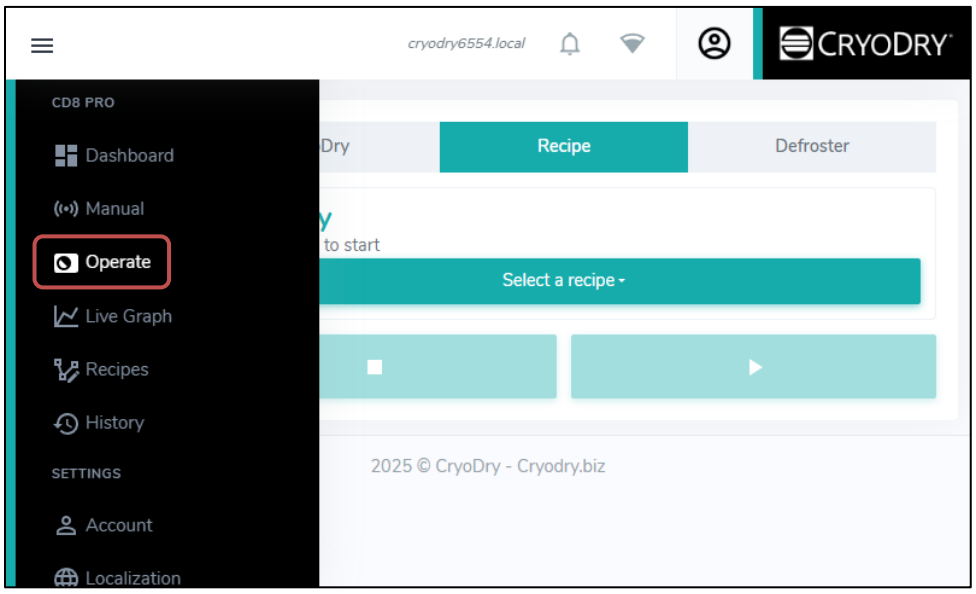


Figure 31

Figure *32* displays the default view of the Operate screen. The left side shows the machine's readings; they are as follows:

- Upper shelf temperature
- Lower shelf temperature
- Chamber temperature
- Chamber pressure

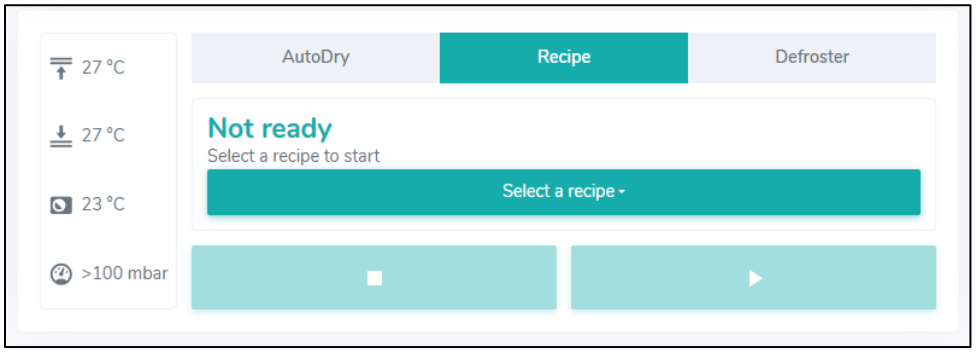


Figure 32

10.7.1. Recipe/AutoDry Stages

Recipes and AutoDry are broken down into 4 stages. Chronologically, they are as follows: Freezing, Evacuation, Drying, and Storage. See section "**10.9.2 Recipe Editor**" for more details on the parameters for each stage.

1. **Freezing**: This stage is used to cool the shelves, trays and products. This stage generally lasts for a few hours and will extend with increased load.
2. **Evacuating**: This stage evacuates the chamber. This stage generally lasts for a few minutes.
3. **Drying**: This stage involves the sublimation process and is where energy (heat) is transferred to the product at low chamber pressure.
4. **Storage**: This is the final stage of the freeze-drying process, permitting a safe pressure and temperature to hold the product until it gets removed from the machine.

During a cycle, an interruption may occur. An interruption is when a cycle is paused, skipped, or recovered from a power outage. The status will display "Interrupted" (Figure 33). The duration of the run will not be recorded for providing an estimated duration.

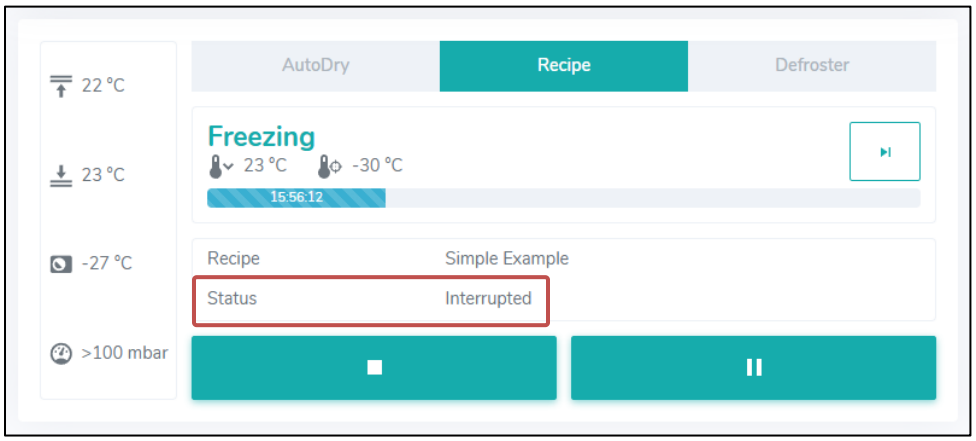


Figure 33

10.7.1.1. Freezing

The Recipe Progress screen displays the current stage and real-time values of the current operating recipe. During the Freezing stage, these values include recipe runtime, as well as current (1) and target (2) shelf temperatures (Figure 34).

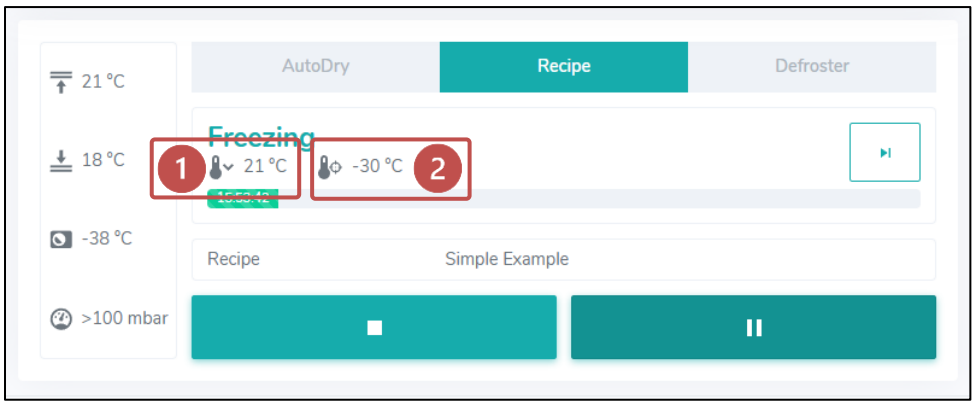


Figure 34

Note: You will often see that the bottom shelf temperature is lower than the upper shelf temperature during freezing. This is expected and normal behavior of the machine.

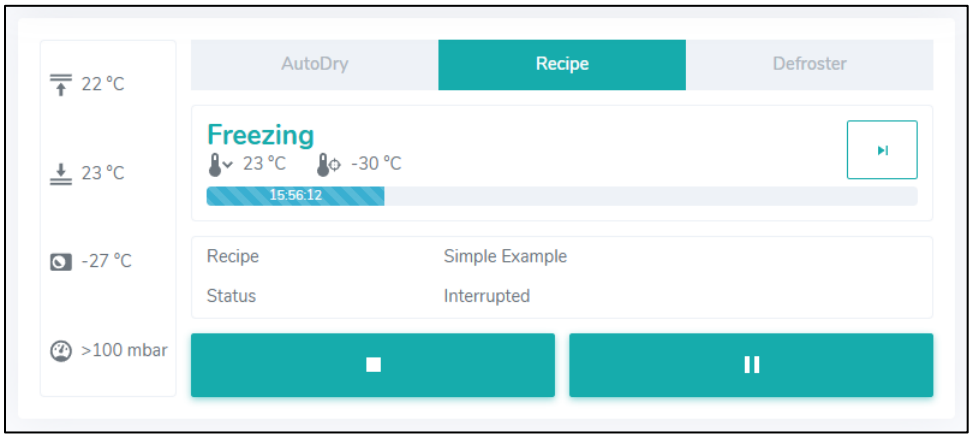


Figure 35

Figure 35 illustrates a recipe cycle during the freezing stage. In this example, the progress bar displays “Waiting” indicating it is waiting for the shelf temp to reach the target before starting the stage timer (see section “**10.9.2.2 Freezing Stage**”).

10.7.1.2. Evacuating

The Evacuation stage displays values such as the current and target pressure (Figure 36). In this stage, the progress bar displaying “Waiting” indicates that it is waiting for the current pressure to reach the target.

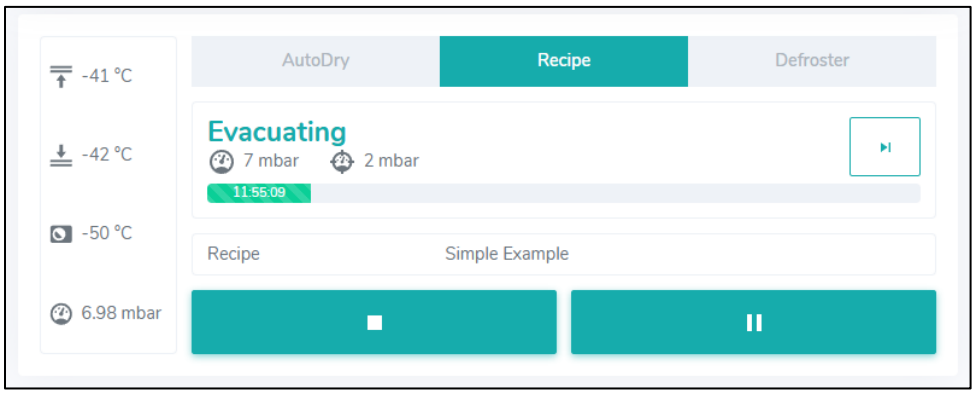


Figure 36

Note: If the pressure does not reach within a certain amount of time, the evacuation stage is aborted. This is explored in section “**10.7.6 Evacuation Failed**”.

10.7.1.3. Drying

The Drying stage displays information about the current step in the recipe, including the current and target shelf temperatures (Figure 37). The progress bar showing “Waiting” in this stage indicates that either the shelf temperature or chamber pressure needs to reach the target, or a drying step is taking longer than expected.

Skipping while in this stage will advance to the next drying step. If on the last step, then the stage will proceed to Storage.

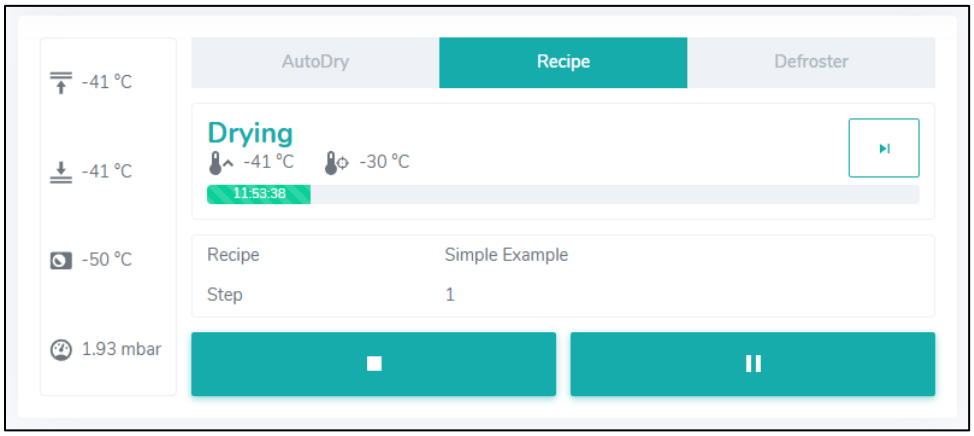


Figure 37

10.7.1.4. Storage

The machine will maintain the product at a specified temperature and pressure once the run has finished (Figure 38). To end the run, tap the stop icon (see section "**10.7.1.5 Extra Drying**").

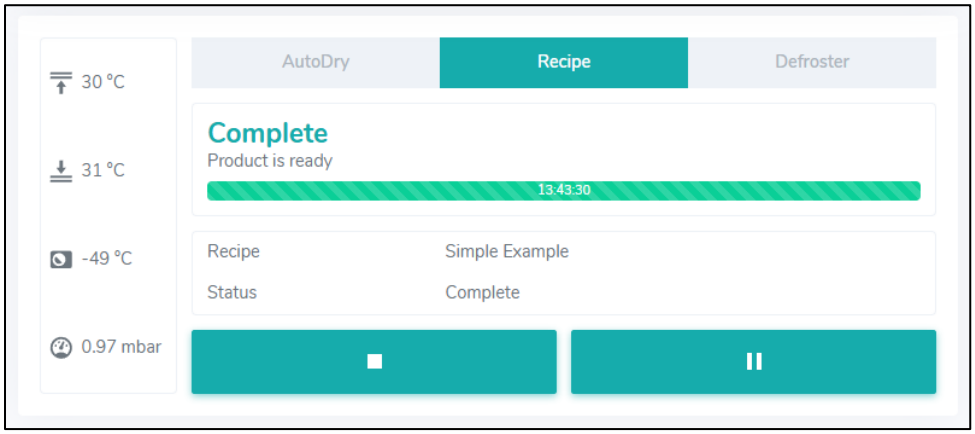


Figure 38

If the cycle has been interrupted, the progress bar will appear in blue (Figure 39).

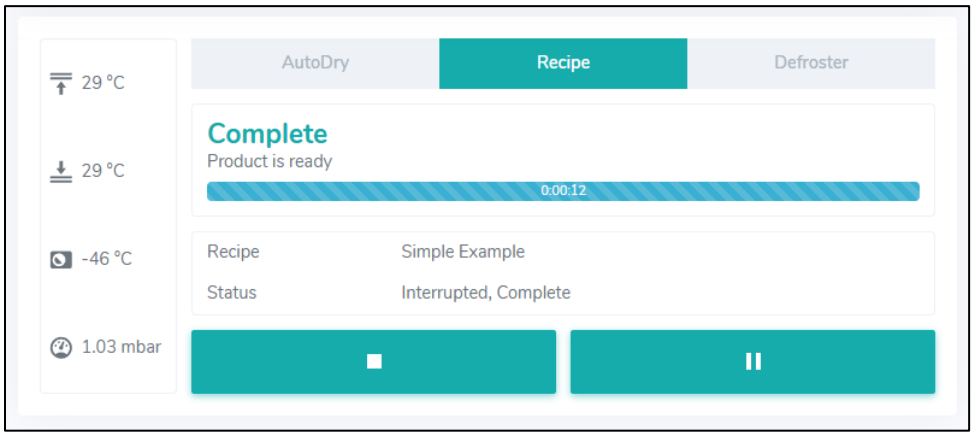


Figure 39

10.7.1.5. Extra Drying

Once a Recipe or AutoDry cycle is in storage, the operator will have the ability to verify that the product is dry before ending the cycle. After tapping the stop icon on the Recipe Progress screen, a popup will appear (Figure 40).

Figure 40

While this popup is shown, the vacuum control valve will remain closed. This allows the operator to open the drain valve, retrieve the product and test it, while the shelves and compressor remain on. Tapping on "Yes" will stop the run, while tapping on "Cancel" will close the popup and re-enable the opening of the vacuum control valve.

To start the extra drying, tap on "No", and the following popup will appear (Figure 41):

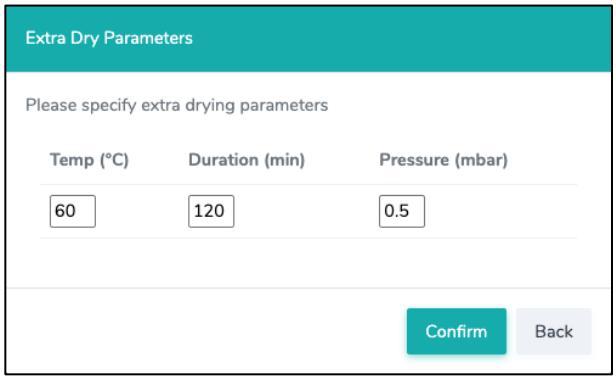


Figure 41

Extra Dry Parameters popup will allow you to specify an extra drying step for a Recipe or Autodry.

The parameters for the extra drying will default depending on whether the extra drying is being applied to AutoDry or Recipe Mode. For AutoDry, the Temp and Time parameters will be based on "Max Drying Temp" and "More Drying Time" respectively. For Recipe mode, the parameters will be based on the last step on the drying stage.

After tapping on "Confirm", the popup will disappear, and "Extra Drying" will be visible on the Drying Stage section of the Recipe Progress screen (Figure 42).

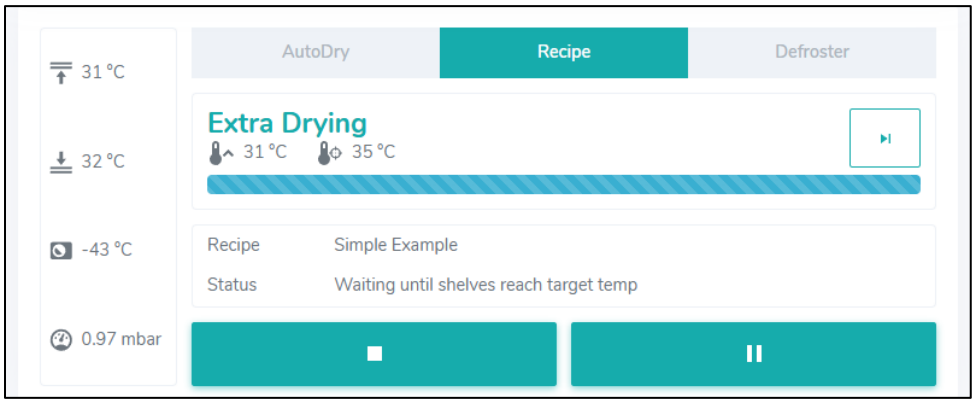


Figure 42

10.7.2. Recipe/Autodry Actions

Recipes and AutoDry can also be skipped (1), stopped (2), paused (3) or continued (4) at any point during a cycle (Figure 43):

(1) **Skip** (⏭): Skips to the next stage. If at the drying stage, a drying step is skipped as demonstrated in section "**10.7.1.3 Drying**".

(2) **Stop** (■): Stops the current operation entirely.

(3) **Pause** (⏸): Pauses the operation and can be continued by tapping on the play button again. Important, please review section "**10.7.2.1 Pausing a Recipe/AutoDry**"

(4) **Start or Continue** (▶): Starts a new cycle or continues a paused one (Figure 46).

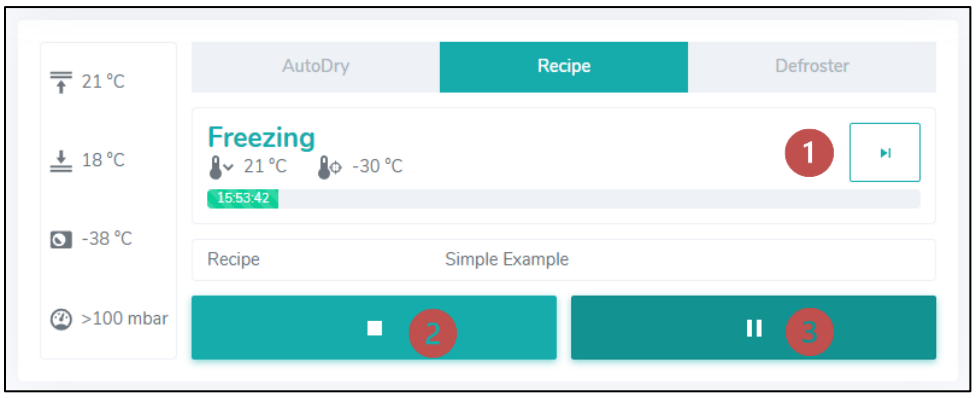


Figure 43

10.7.2.1. Pausing a Recipe/AutoDry Cycle

Pausing a freeze-drying cycle is an advanced feature that requires extensive knowledge of the freeze-drying process. When a cycle is paused, the states for all relays are maintained as they were before the pause, excluding the Vacuum Control, which turns off. Pausing allows for manual intervention, such as controlling relays in Manual page and opening the chamber to examine the product.

However, pausing a freeze-drying cycle carries potential risks, especially depending on when and how long the cycle is paused. Some of the risks include:

- If the pressure is increased by opening the drain valve, it exposes product to ambient air, which may lead to partial melting or collapse of the product structure.
- Inaccurate display of time estimates.

In general, the pause button offers flexibility but should be used sparingly and strategically. The main concern is product degradation due to temperature and pressure changes, which can undo critical parts of the freeze-drying process. Minimize pause duration and avoid using it during sensitive phases like primary drying for best results.

10.7.3. Recipe Operation

Recipe operation provides the functionality to operate handmade recipes. Refer to section "**10.9 Recipe"** for more information on creating recipes.

Before starting the recipe, ensure the following:

- Product is evenly distributed between each tray for optimal drying.
- Drain valve is closed.
- Chamber is defrosted.
- Chamber door contact surface is clear of ice, and the door is closed.

It is important to defrost before conducting a cycle. In addition, occasionally opening the ballast valve on the pump while it is on is recommended.

To run a recipe:

1. First select the Recipe tab from the top horizontal bar (Figure 44).
2. Then, tap "Select a recipe" to choose one of the existing recipes from the list (Figure 45).
3. Select the preferred recipe to run.
4. Lastly, hit the play icon (▶) to start the recipe (Figure 46).

Figure 44

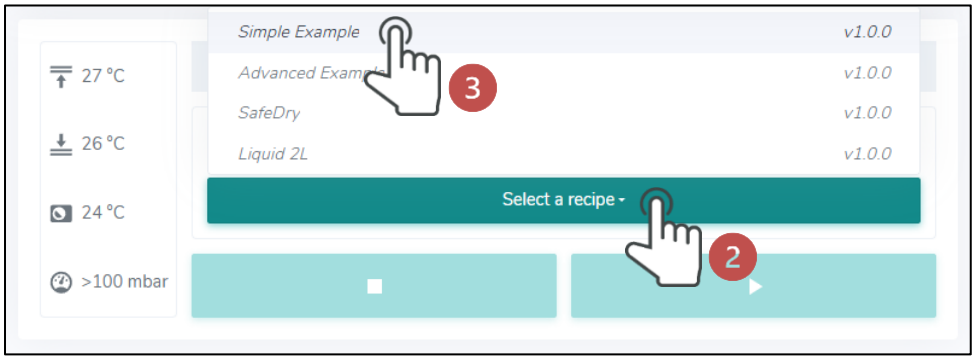


Figure 45

After selecting a recipe, the button colors and text will change.

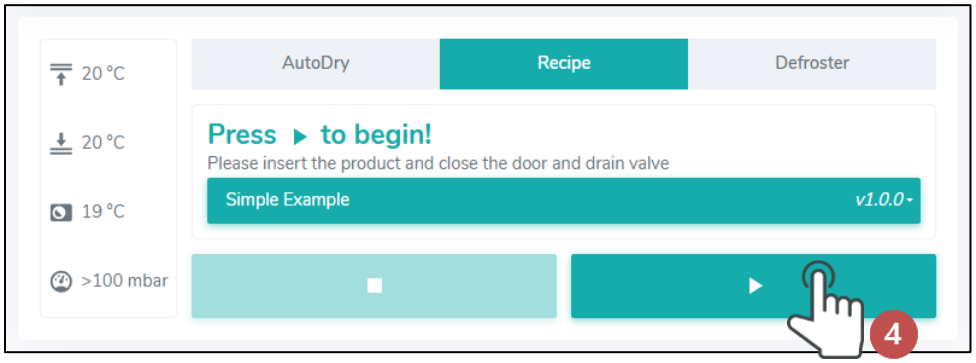


Figure 46

Verify the recipe is running by the sound of the compressor starting and the Recipe Progress screen appearing.

10.7.4. AutoDry Operation

AutoDry automatically dries product using an intelligent dryness detection algorithm. AutoDry cannot guarantee complete product dryness for each cycle. If the product is found to not be fully dried, parameters can be adjusted. See section "**10.7.4.2 Editing AutoDry Parameters**".

From the Operate page, tap on "AutoDry" tab from the horizontal bar on the top, then tap the play icon (▶) to begin the freeze-drying process. (Figure 47).

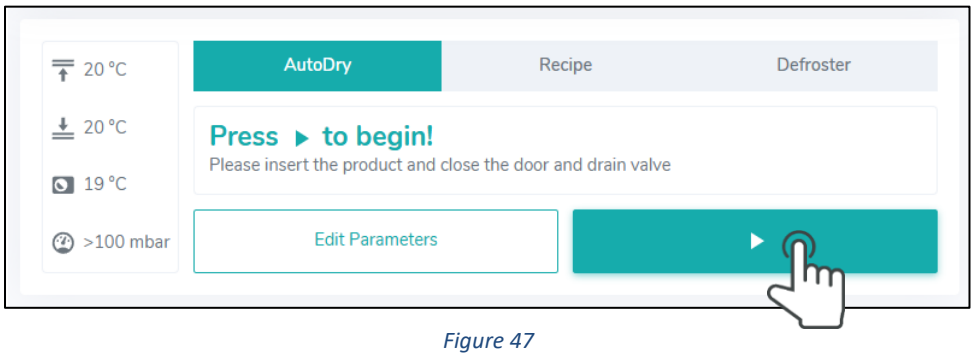


Figure 47

10.7.4.1. AutoDry Process

AutoDry is split into 4 stages. For more details for each stage, see section "**10.7.1 Recipe/AutoDry Stages**". A typical cycle will last for roughly 14-30 hours, depending on product, and the parameters specified for the AutoDry algorithm.

For the first cycle, the elapsed time is displayed on the progress bar. For it to show an estimated time remaining, it must have an almost complete non-interrupted cycle. Adjusting certain AutoDry parameters will clear the estimated time.

If there has been a power outage, pause, or a skip action during a cycle, timing information will not be recorded.

10.7.4.2. Editing AutoDry Parameters

To begin editing the parameters, tap on "Edit Parameters" from the AutoDry screen (Figure 48).

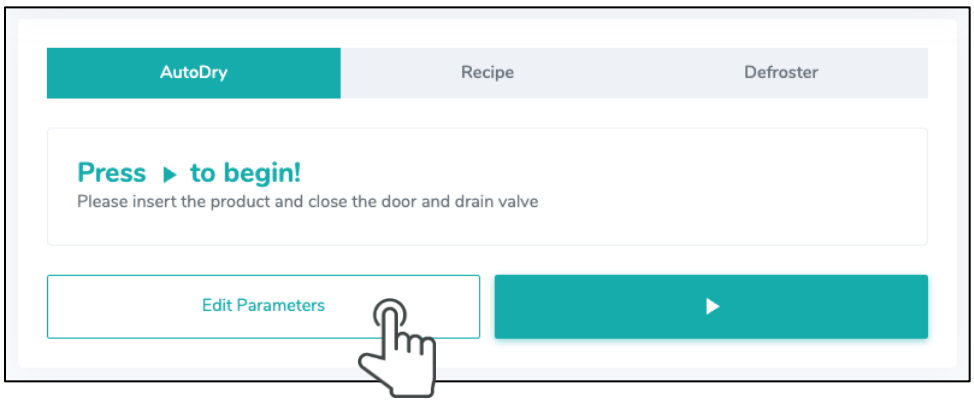


Figure 48

Figure 49 shows the Parameter Editor popup. This popup provides significant control over the behavior of the AutoDry algorithm. Only 3 of the 4 stages can be modified with AutoDry: Freezing, Drying, and Storage.

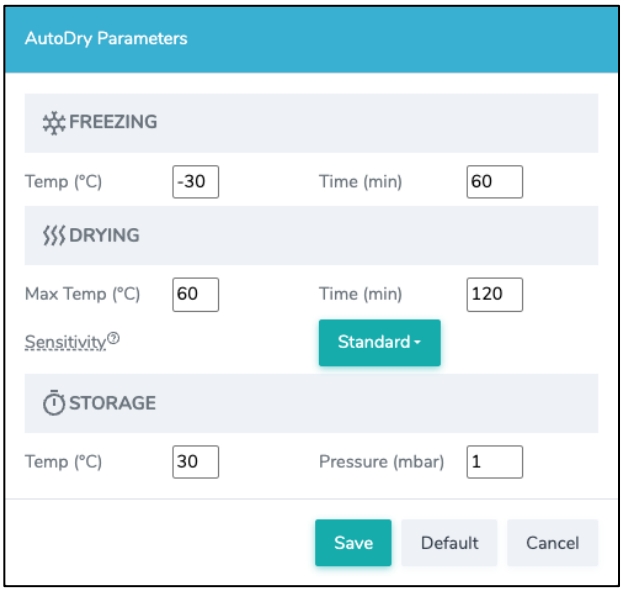


Figure 49

"Temp" under Freezing (Figure 50) specifies the temperature the shelves must reach before the timer begins. "Time" specifies how long the shelves must be below the Freezing temperature. This helps to ensure that the product is thoroughly frozen before drying starts.

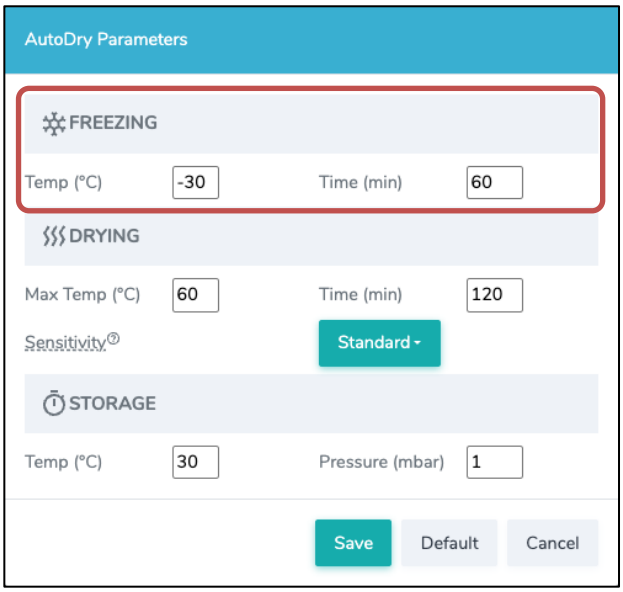


Figure 50

Figure 51 shows the Drying stage. Higher temperatures and lower sensitivity will achieve shorter drying times but may have negative impacts on product quality. Reducing drying temperatures and increasing sensitivity will likely produce better quality results, however more drying time may be required.

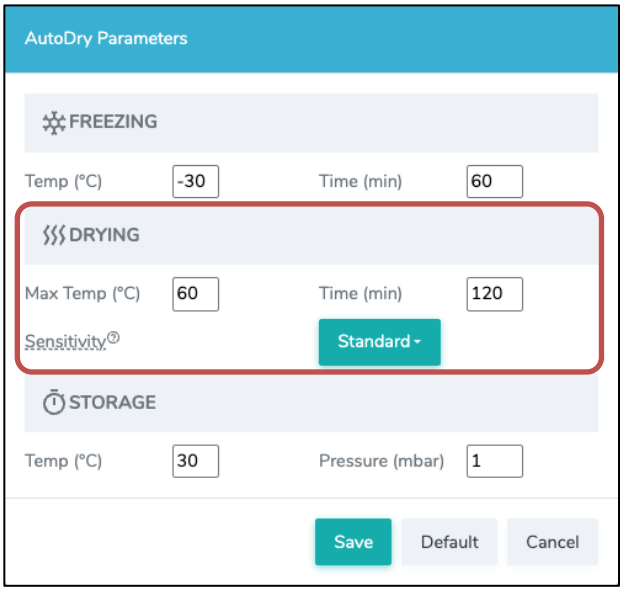


Figure 51

The Storage stage (Figure 52) is the end of a cycle. We recommend storing above ambient temperature, to prevent rehydration.

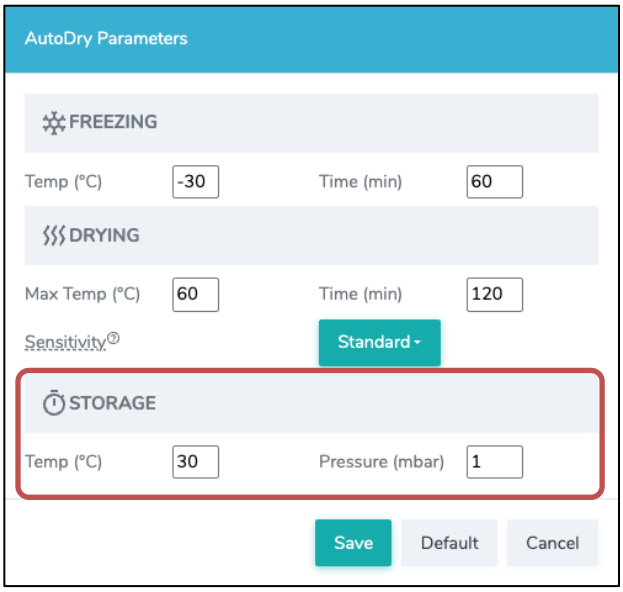


Figure 52

To restore to the default parameters for AutoDry, tap on “Default” then “Save”.

Note: Adjusting certain parameters will require AutoDry to re-learn the duration of the cycle and therefore will not be able to provide the estimated duration until it has nearly completed a cycle.

10.7.5. Defroster Operation

While the machine is in an idle state, tap on “Defroster” from the top horizontal bar on the Operate screen to enter the Defroster tab (Figure 53).

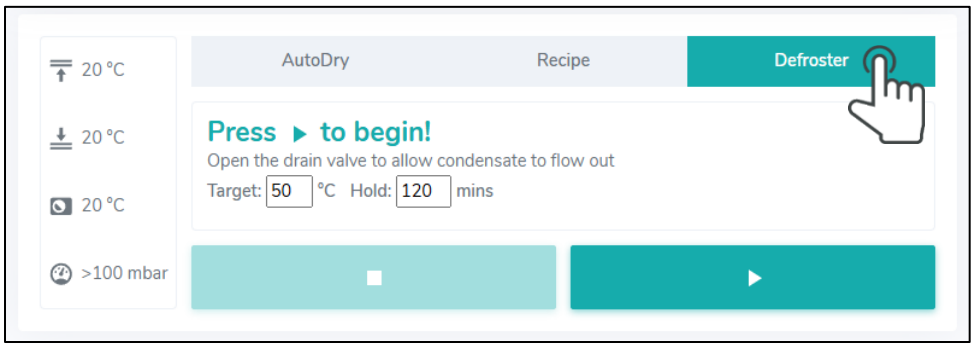


Figure 53

Before starting the Defrost process, confirm:

- Product has been taken out.
- Drain valve is open.
- Chamber door is closed.

Set the Target Temperature and Hold Time as desired (Figure 53). Tap on the play icon (▶) to start defrosting (Figure 54).

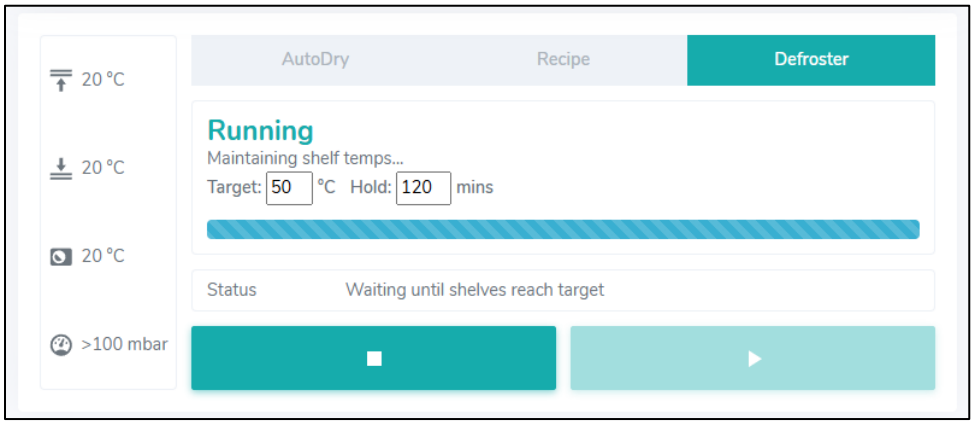


Figure 54

The Defrost screen will display the real-time average values of the lower and upper shelf temperature. Tap the stop icon (■) to stop the defrosting process.

10.7.6. Evacuation Failed Error

The Evacuation stage will only run for up to 15 minutes. If the evacuation has exceeded that time and the chamber pressure is more than 0.5 mbar from the setpoint, the machine will abort the cycle and enable the compressor in the manual page. If the recipe is in VO mode (see section **10.9.4.2 Vacuum Oven (VO) Mode**), then the compressor will not be enabled. The message below will appear, indicating that the Evacuation stage has failed (Figure 55).

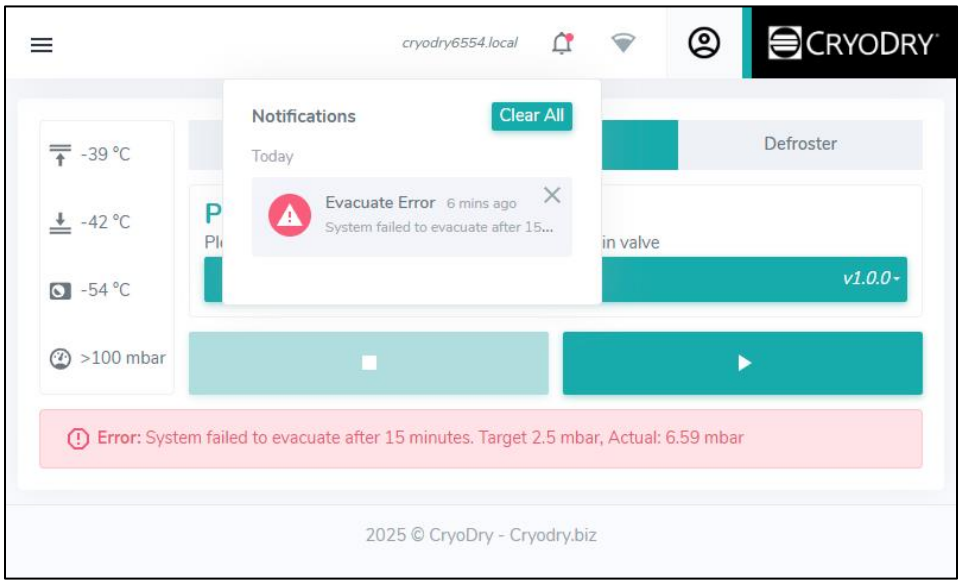


Figure 55

10.8. Live Graph

The Live Graph offers a real-time graph of all the sensors in the freeze dryer during AutoDry, Recipe cycles, and Manual operation. This graph displays:

- Historical and live status of various sensors, such as shelf temperatures and chamber pressure.
- Historical and live status of control relays, including vacuum pump and shelf heater controls.
- Historical events, such as the start of a recipe or stage.

The Live Graph is accessible via the left sidebar (Figure 56).

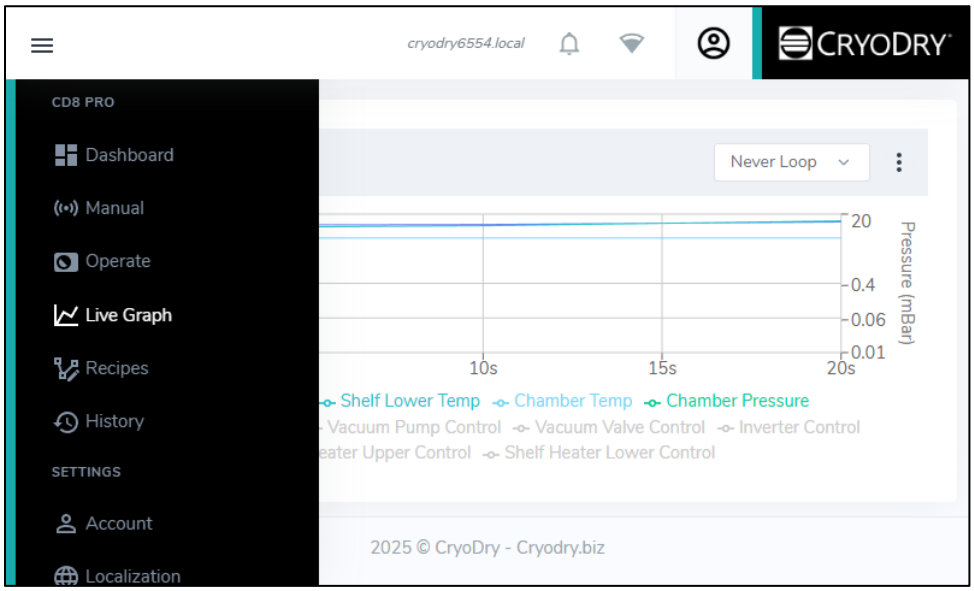


Figure 56

The Live Graph only appears when the machine is in operation (Figure 57).

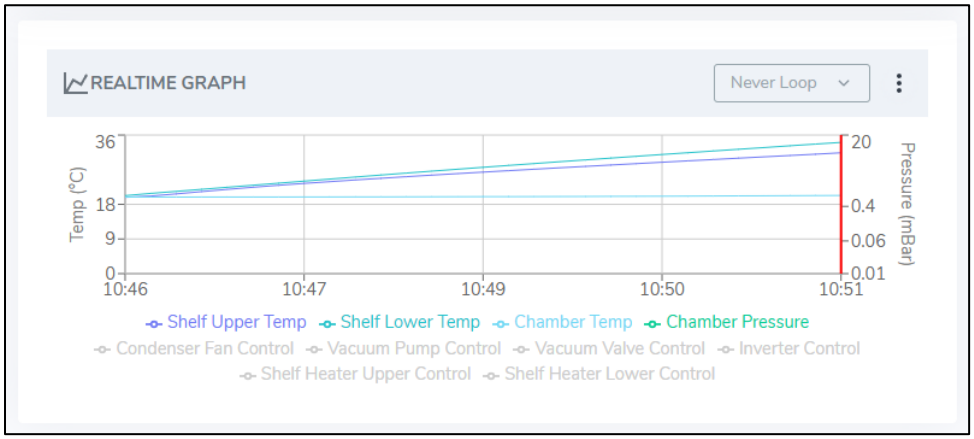


Figure 57

To hide a trend, tap on the corresponding label below the graph. For instance, in Figure 58, the “Chamber Temp” and “Chamber Pressure” trends are hidden, displaying only the “Shelf Upper Temp” and “Shelf Lower Temp” trends, unlike in Figure 57.

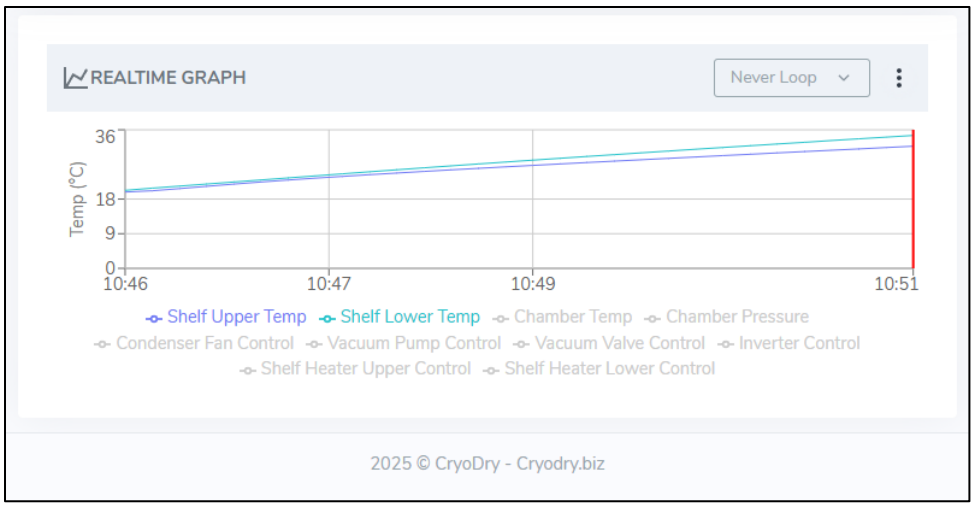


Figure 58

To export logs from the Live Graph, see section “**9.10.4 Log Export”**

Tap on any point on the graph to see sensors and control at a specific timestamp (Figure 59).

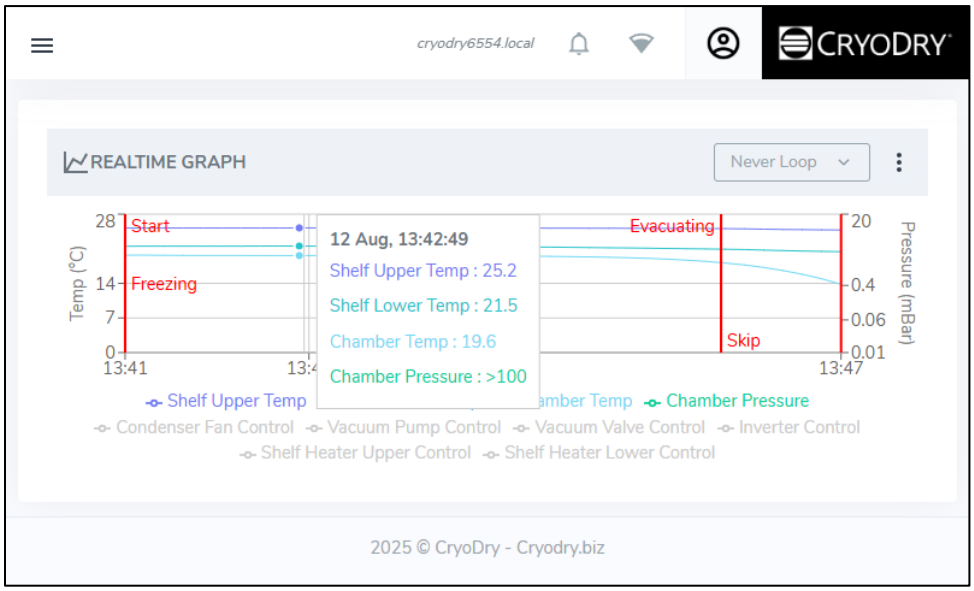


Figure 59

When a control relay displays 0, it indicates that it is turned off, while 1 signifies that it is turned on.

10.9. Recipe Management

From the left sidebar, tap on “Recipes” to enter the Recipes page, as shown in Figure 60.

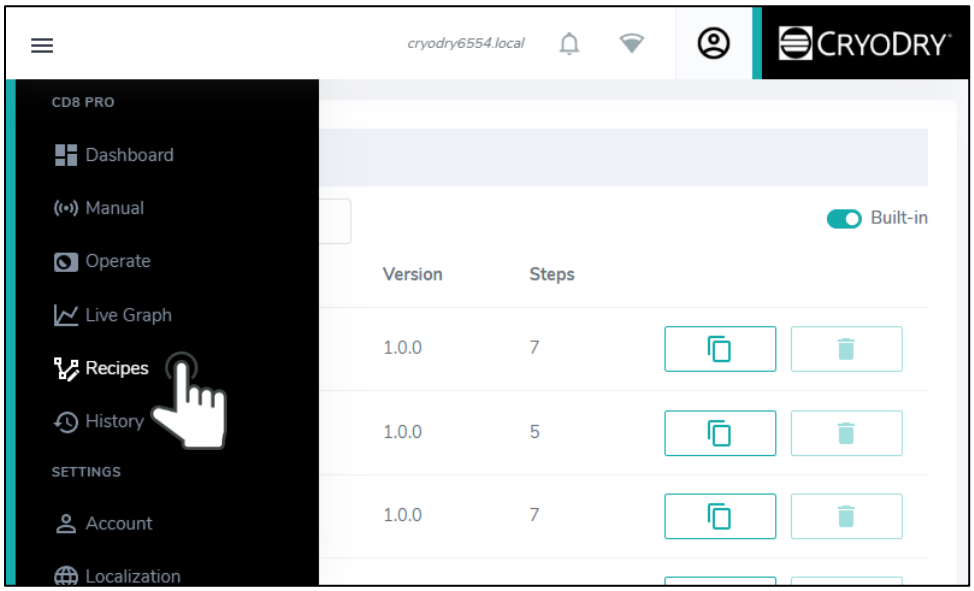


Figure 60

Figure 61 shows the initial recipe listing. The machine comes with a few built-in recipes. Which include instructions for product preparation. These recipes cannot be deleted or modified. To make changes, duplicate it first, then edit the duplicated recipe.

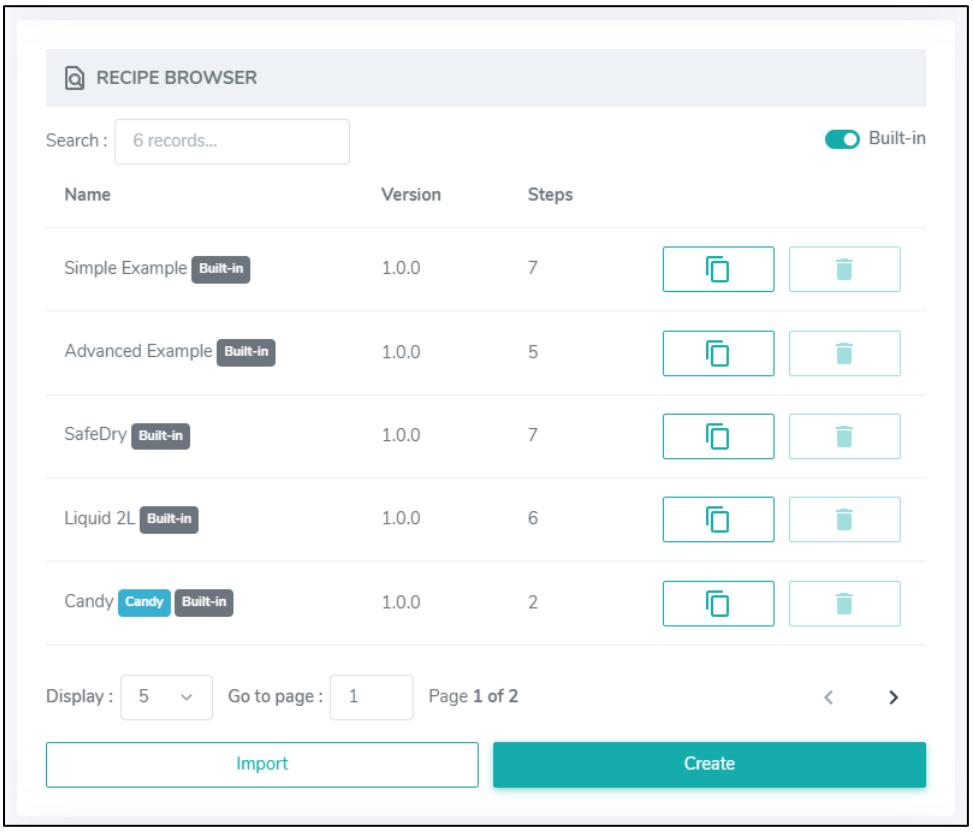


Figure 61

10.9.1. Recipe Browser

The Recipe Browser, located at the top of the Recipes page (Figure 62), provides basic information about recipes, including name, version, and number of steps. It also offers functionalities such as searching (1), copying (2), deleting (3), importing (4), creating (5), and editing (6) recipes.

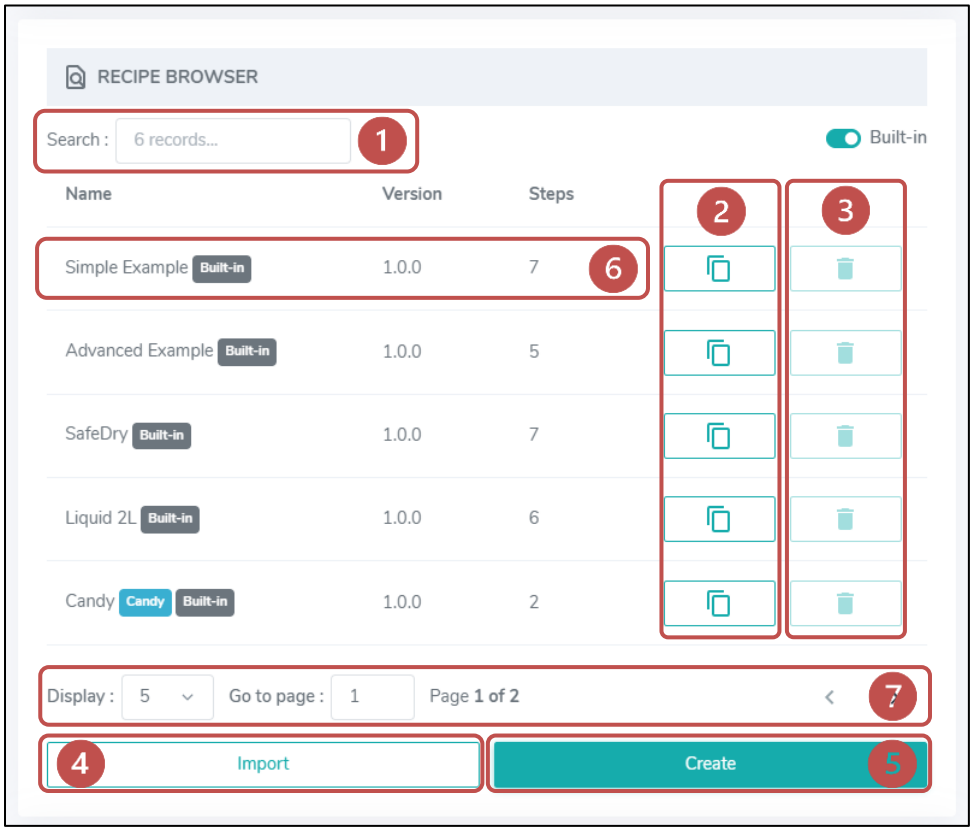


Figure 62

The following explains each section of the Recipe Browser as shown in Figure 62:

1. **Search:** Tap the search bar and type the recipe name. When empty, it shows the total number of recipes by default.
2. **Duplicate:** Tap the duplicate icon ( ) to duplicate a recipe. The new copy can be modified in the Recipe Editor (refer to section "**10.9.2 Recipe Editor"**).
3. **Delete:** Tap the trash icon ( ) to delete a recipe. Note: Built-in recipes like "Simple Example" and "Advanced Example" cannot be deleted.
4. **Import:** Exported recipes can be imported by tapping the Import button (see section "**10.9.2.7 Exporting Recipes**").
5. **Create:** Tap the Create button to make a new recipe, opens the Recipe Editor.
6. **Edit:** Tap a recipe item to view or edit it in the Recipe Editor. Note: "Simple Example" and "Advanced Example" recipes cannot be modified.
7. **Pagination:** Customize the table to show 5, 10, 25, or all recipes per page. Navigate pages using the left or right arrows or enter a page number to jump to a specific page.

10.9.2. Recipe Editor

From the Recipe Browser (Figure 62), tap a recipe or the “Create” button to open it in the Recipe Editor.

Figure 63 illustrates a new recipe in the Recipe Editor. Scroll to navigate through different sections of the Recipe Editor.

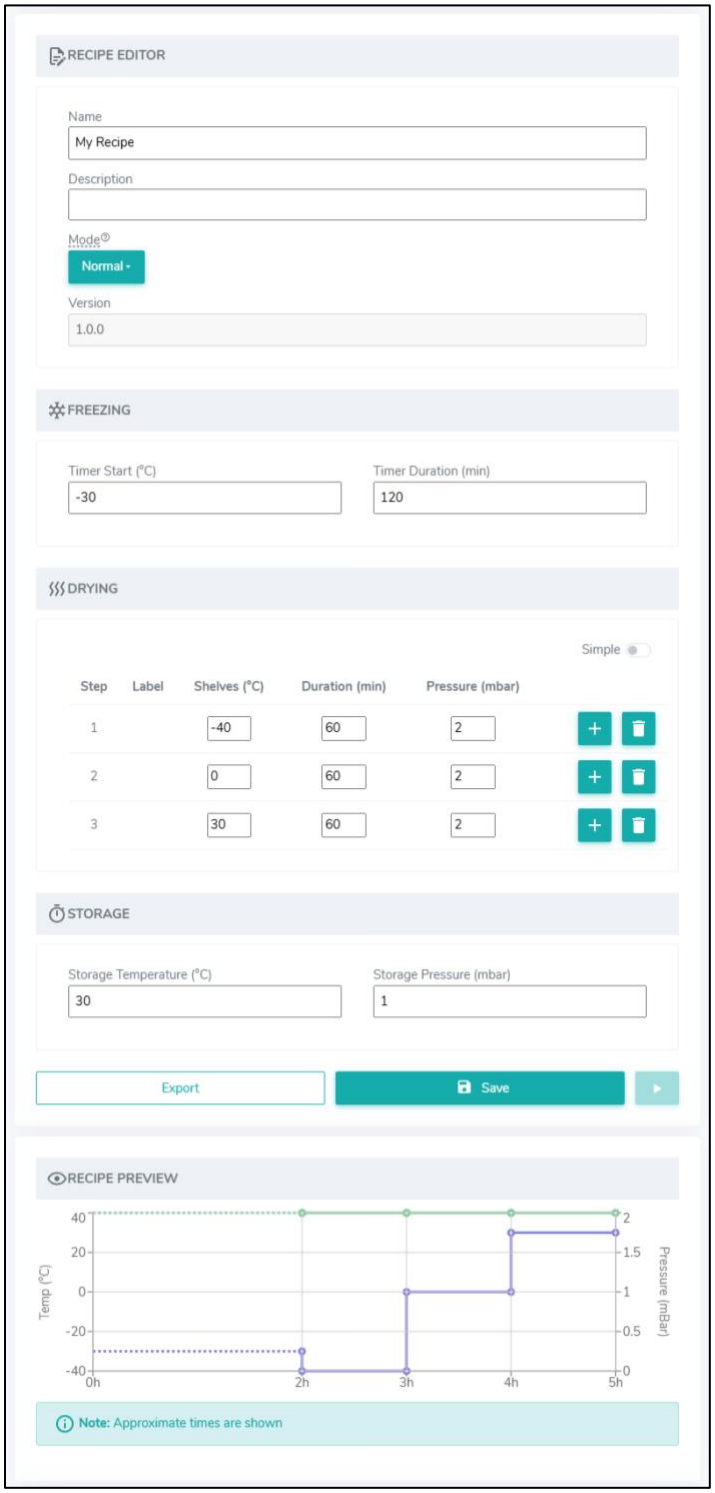


Figure 63

10.9.2.1. Name, Description, Modes, and Version

The machine allows for renaming recipes, adding descriptions, selecting different modes, and managing recipe versions (Figure 64).

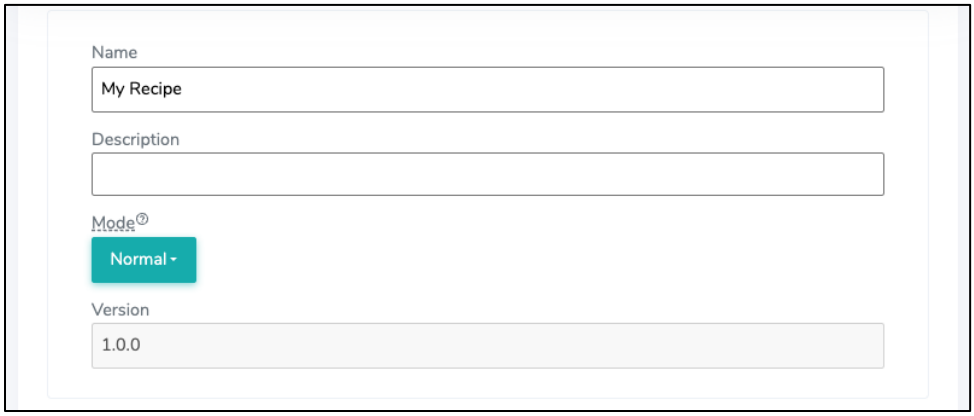


Figure 64

Tap the Name or Description text box to rename the recipe or add a description. The recipe name will be displayed on pages like Dashboard and Operate.

Note: Changes will not be applied until the recipe is saved (see section "**10.9.2.6 Save Recipes"**).

Recipe versions start at 1.0.0. Each saved change increments the version by 0.0.1. After every 10 increments, the version increases by 0.1.0, and so on.

The nachine includes 3 modes for recipes: Normal, Vacuum Oven (VO), and Candy. Each mode affects how the recipe cycle operates. Modes can be selected by tapping on the Mode (Figure 65). More details are explored in section "**10.9.4 Recipe Modes"**.

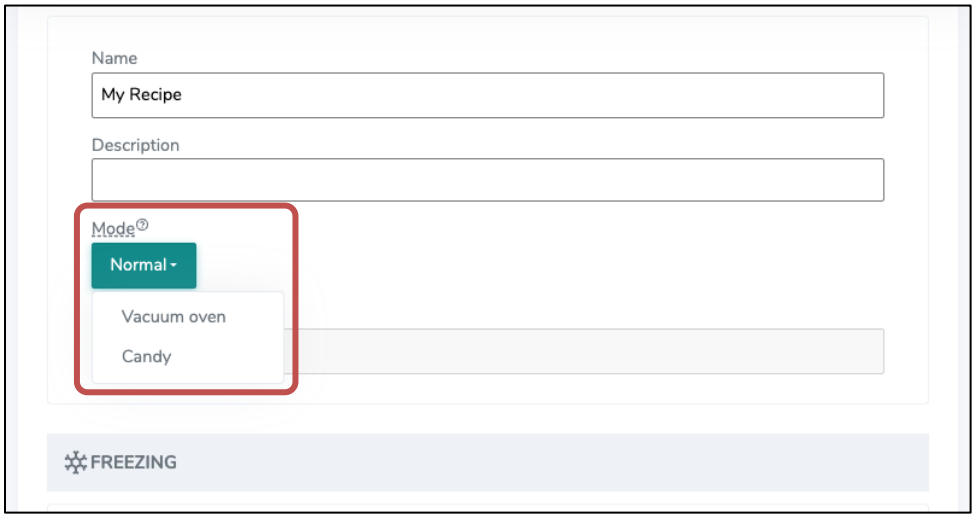


Figure 65

10.9.2.2. Freezing Stage

The Freezing stage (Figure 66) is controlled by the “Timer Start” and “Timer Duration”. “Timer Start” specifies at what shelf temperature the timer will start, and “Timer Duration” specifies how long the shelves must stay under the specified temperature before proceeding to the Evacuation stage.

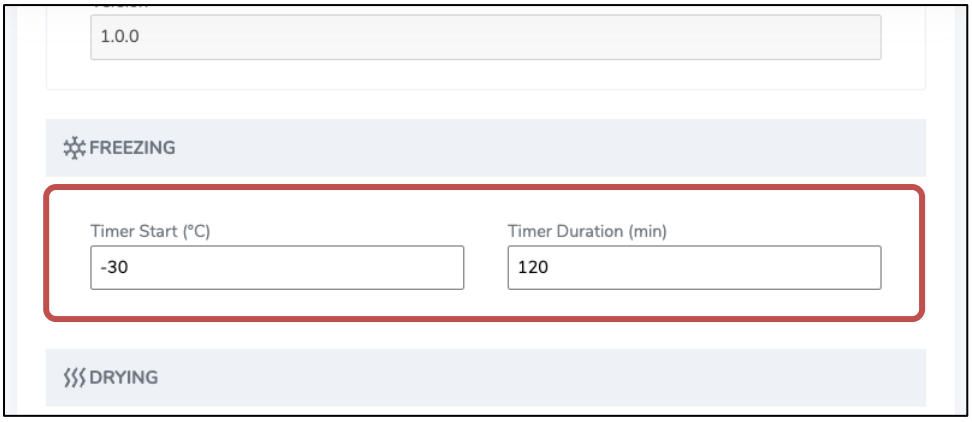


Figure 66

10.9.2.3. Evacuation Stage

The Evacuation stage (Figure 67) is controlled by Step 1’s pressure. Once the specified pressure is reached, the machine will proceed to the next stage.

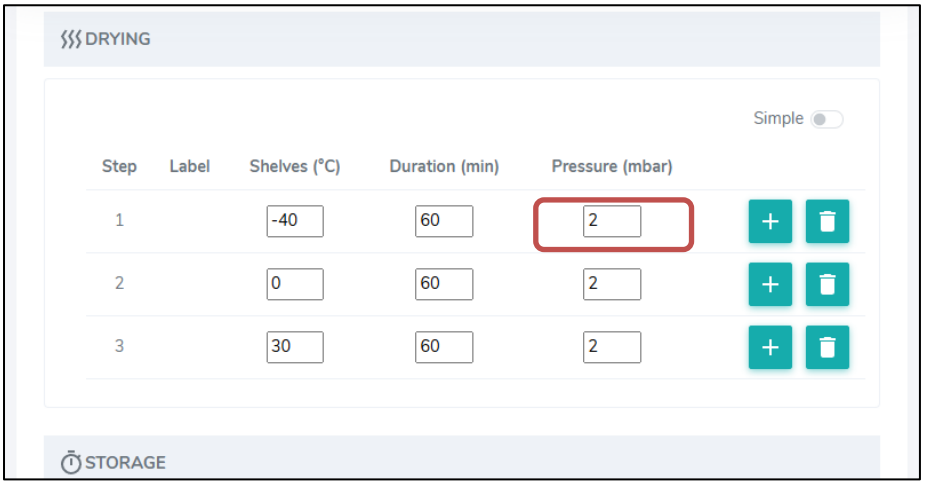


Figure 67

10.9.2.4. Drying Stage

In the Drying stage (Figure 68), drying steps can be added by tapping the plus icon (+). These steps run sequentially and consist of duration, shelf, and pressure setpoints. Labels can also be specified for each step by tapping invisible label text boxes (1). To remove a step, tap the bin icon ( ).

Figure 68

The toggle switch at the top right corner of the Drying section can be switched to “Advanced” (Figure 69). This feature allows the control method for each drying step to be adjusted, providing more flexibility in how the drying process is managed. Figure 69 shows the “Control Method” row, under the “Pressure Setpoint (mbar)”, and how it can be selected for each step.

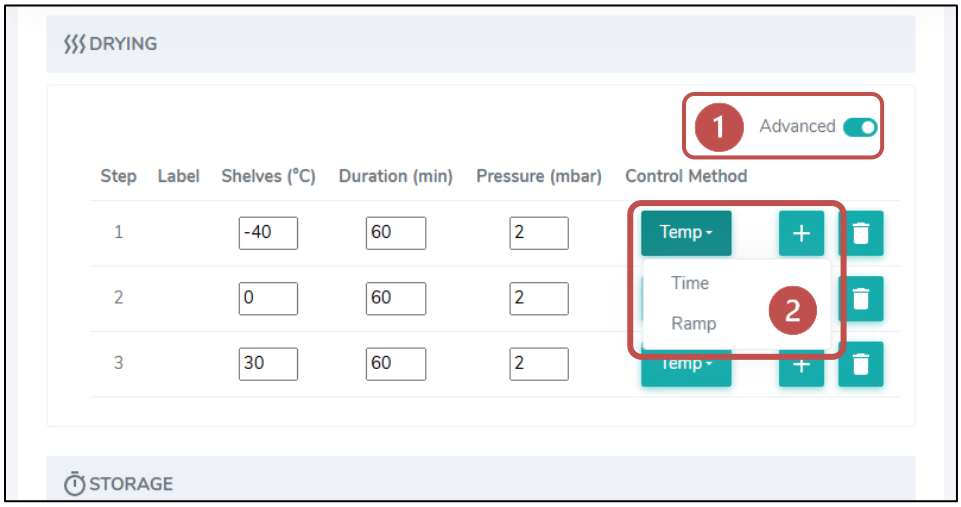


Figure 69

There are three different control methods available for each step:

1. **Time Priority** - Recipe will progress after step duration has elapsed.
2. **Temp Priority** - Recipe will progress after step Shelf Setpoint has been reached, then, Step Duration has elapsed.
3. **Ramp** - Linear interpolation between step Pressure and Shelf Setpoints.

10.9.2.5. Storage Stage

The machine will maintain a specified temperature and pressure that the product will be left at once the cycle has finished (Figure 70).

Figure 70

For additional information about drying various products, refer to our “Freeze Drying Best Practices & Techniques” document.

10.9.2.6. Save Recipes

To apply changes to a recipe, tap “🖫 Save” to save the recipe (Figure 71). The play icon (▶) will be enabled when a new recipe is saved, or an existing recipe is opened. Tap the icon to go to the Operate page with the recipe selected.

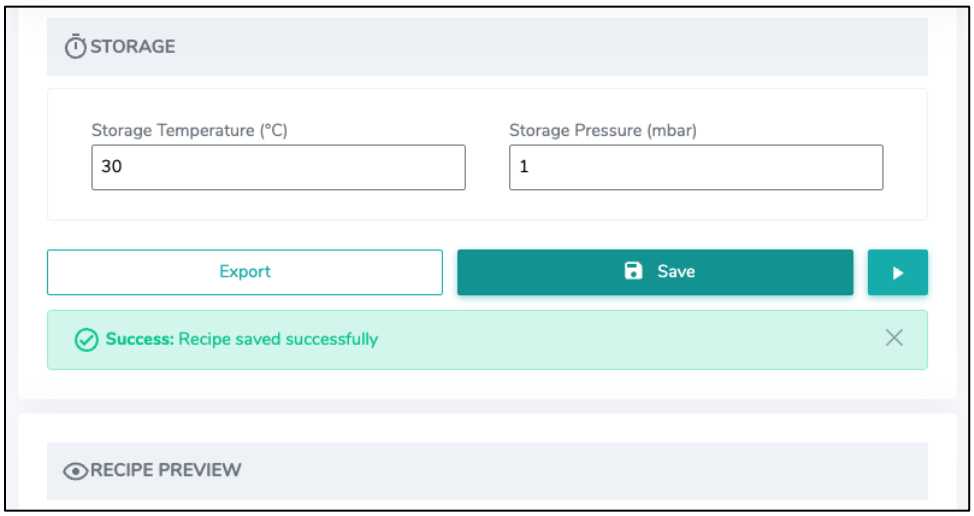


Figure 71

10.9.2.7. Exporting Recipes

When accessing the machine via a browser (see section “**10.2 Connecting via Web Browser**”), tap "Export" (Figure 71) to download a copy of the recipe for backup or transfer between different machines (see “**item 4. Import”** in section “**10.9.1 Recipe Browser**”).

Note: Recipes cannot be exported directly on the machine (Figure 72).

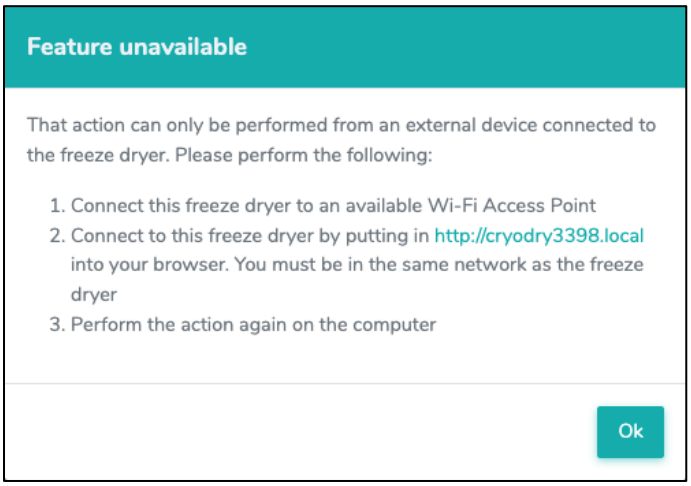


Figure 72

10.9.2.8. Recipe Preview

The Recipe Preview section provides an overview of the different stages of a recipe (Figure 73). It visually represents how the recipe will progress over time in terms of temperature and pressure on a graph. This enables viewing the expected changes and transitions throughout the freeze-drying process based on the parameters specified for each stage.

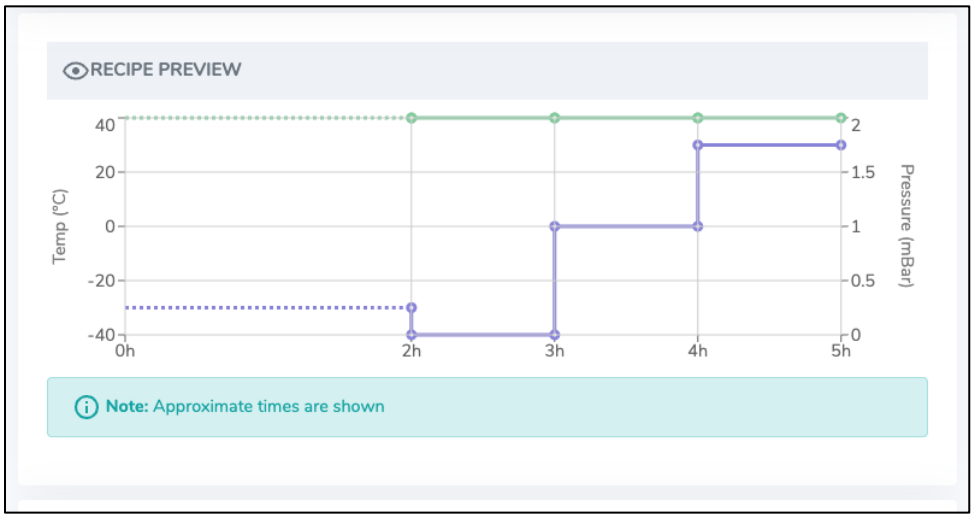


Figure 73

10.9.3. Last Session

If a recipe has had multiple cycles, the log graph for the last cycle will display under the Last Session section (Figure 74).

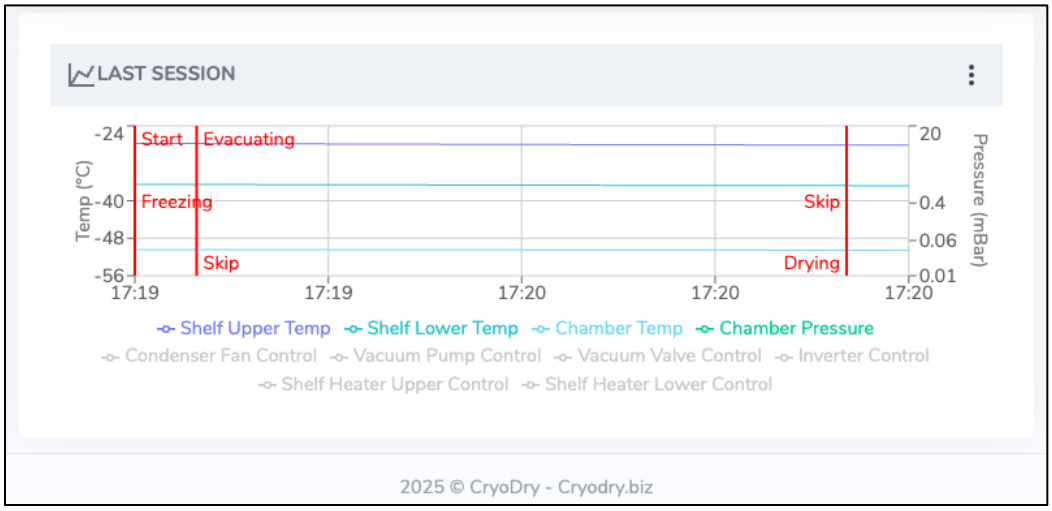


Figure 74

10.9.4. Recipe Modes

10.9.4.1. Normal Mode

Normal Mode is used for freeze-drying and is recommended for most use cases. It is the default mode for a recipe (Figure 65).

10.9.4.2. Vacuum Oven (VO) Mode

VO mode (Figure 75) provides the ability for the machine to operate as a vacuum oven. VO mode requires working knowledge of how to manage vapor load within the vacuum pump and is an advanced feature. Enabling VO skips the Freezing stage, and the compressor remains off throughout the cycle. In VO mode, the Freezing stage is no longer editable (Figure 75).

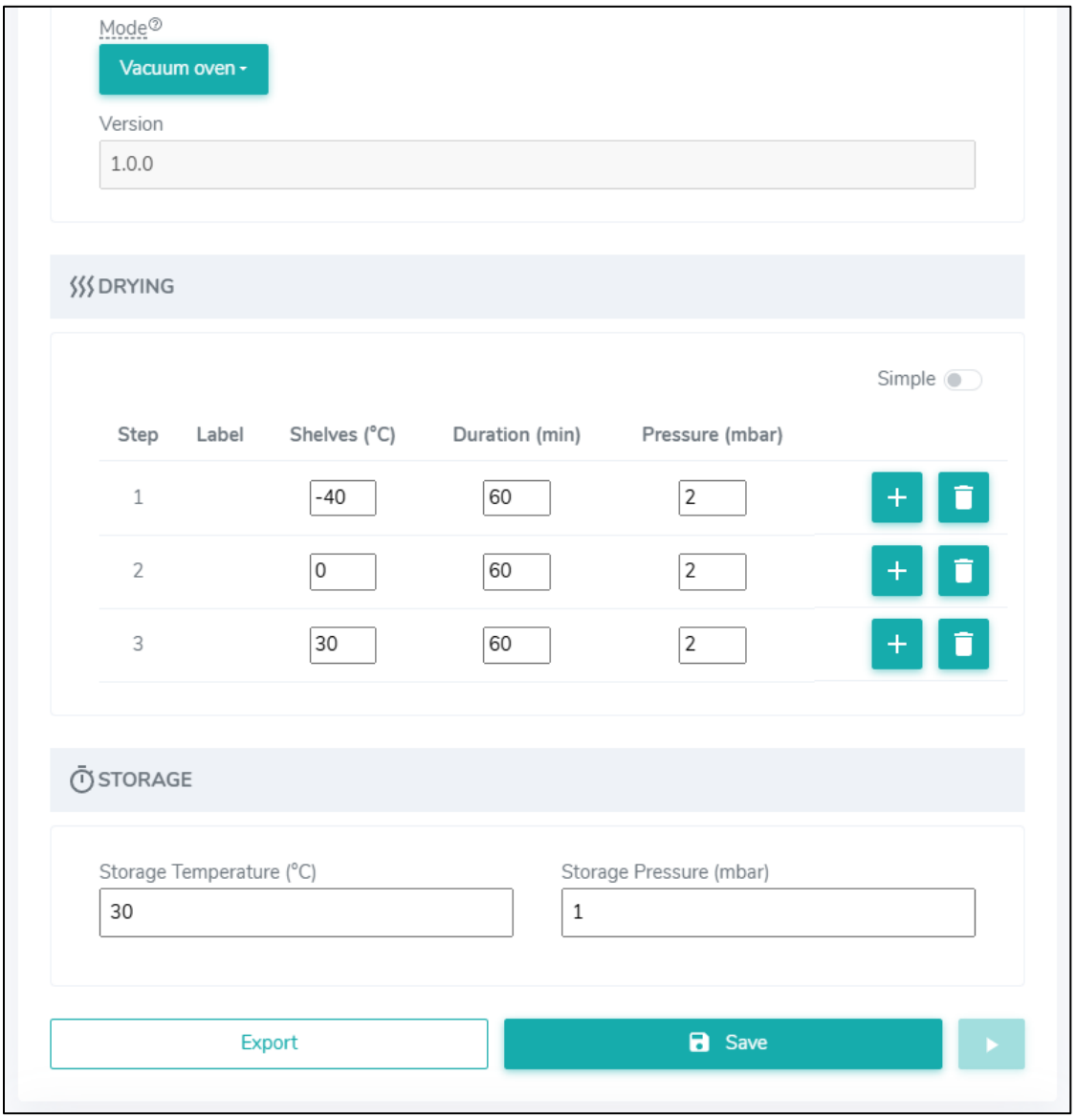


Figure 75

10.9.4.3. Candy Mode

Candy Mode (Figure 76) is a feature that allows more efficient cycles that are specifically tailored for candy. For the freezing stage, the chamber must reach -20°C for at least 10 minutes before it proceeds into evacuation. During freezing, the trays can be optionally kept warm during the freezing stage. Once the Candy cycle is complete, the product will maintain 20°C with the vacuum valve remaining closed. Fine pressure control is not supported in candy mode. The storage stage is also disabled for editing.

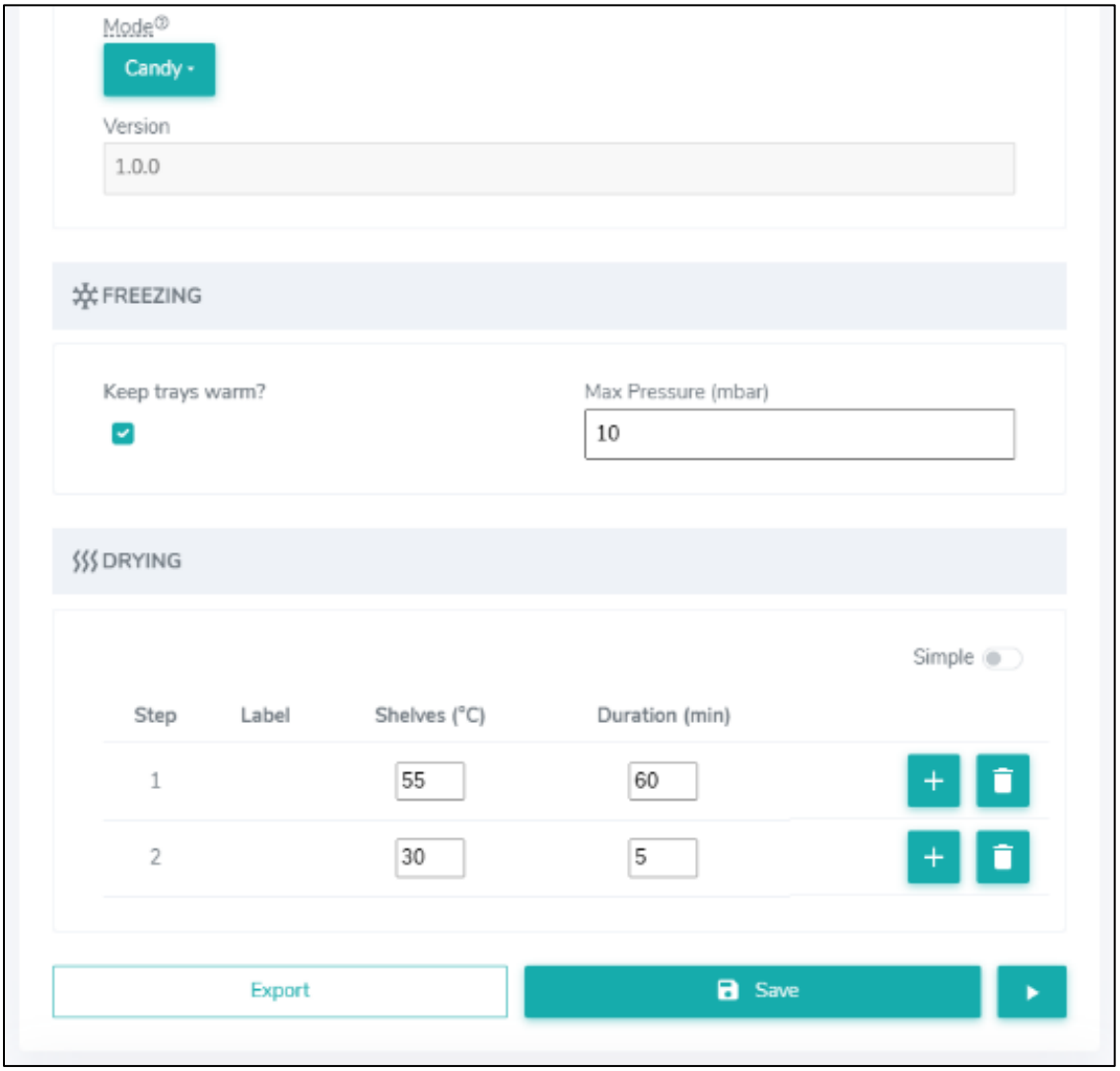


Figure 76

10.10. History

The History page provides access to log graphs of completed AutoDry or Recipe cycles. Log data can also be downloaded to a CSV file or USB drive. To access this screen:

1. Tap on the left sidebar toggle button
2. Then “History” from the left sidebar (Figure 77).

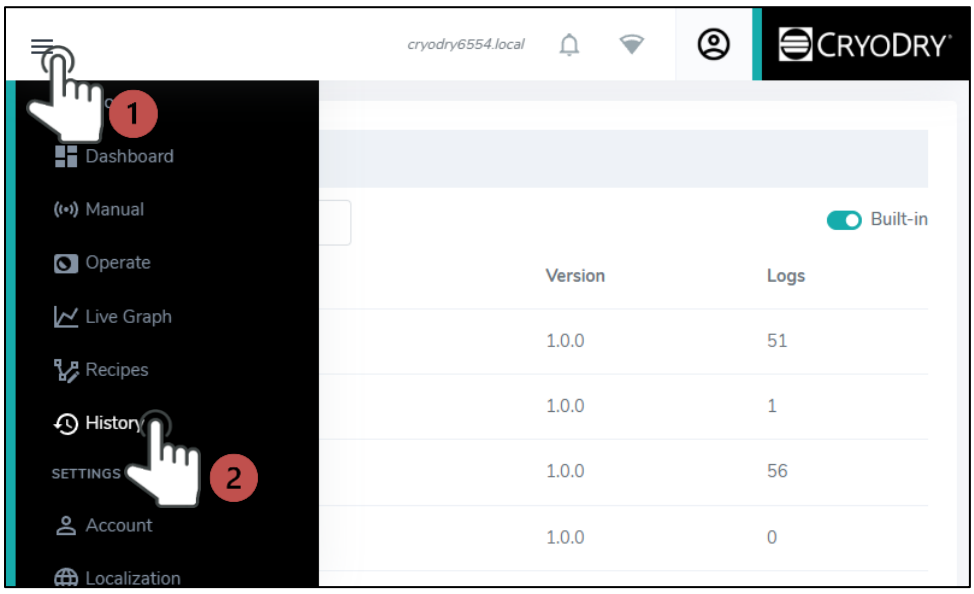


Figure 77

The History Page has three sections: Recipe Browser, Log Browser, and Log Graph (Figure 78). To view logs of a cycle, first select a recipe or AutoDry from the Recipe Browser. Then, choose a log from the Log Browser to display it in the Log Graph.

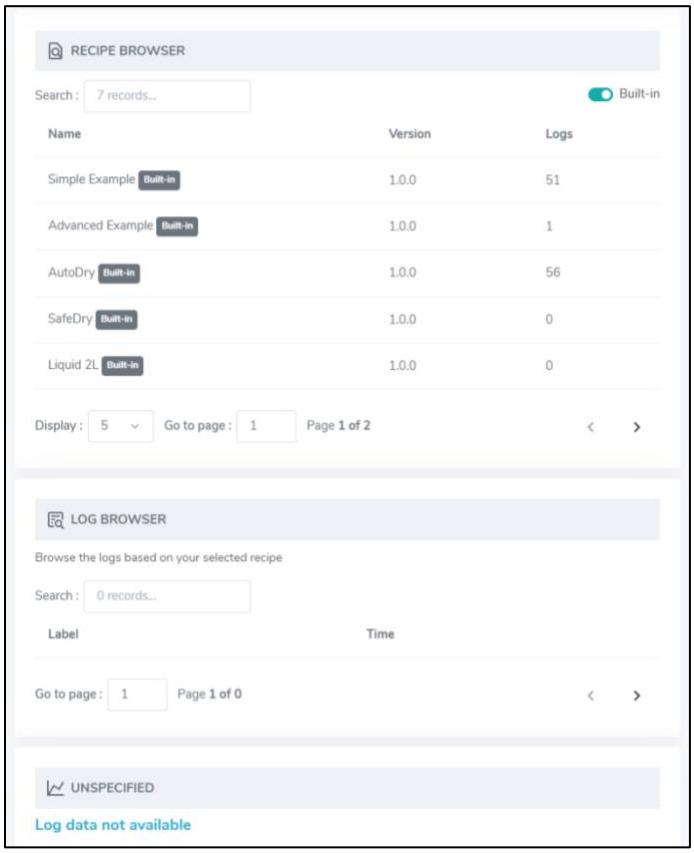


Figure 78

10.10.1. Recipe Browser

The Recipe Browser shows a list of recipe names, their versions, and the number of logs for each recipe including AutoDry (Figure 79). Tap on a recipe to view its logs as illustrated in section "**10.10.2 Log Browser**".

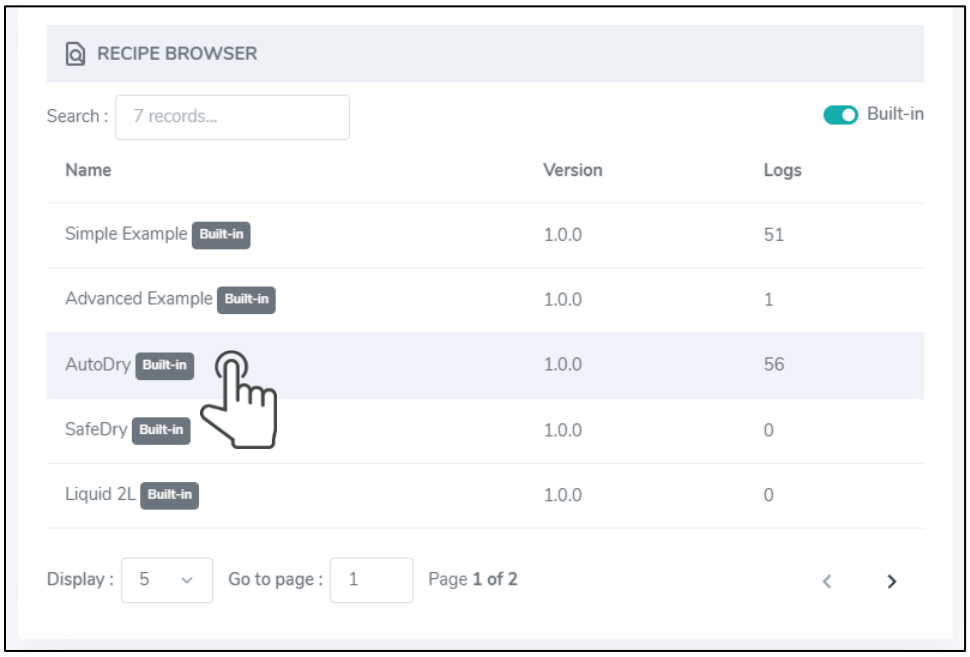


Figure 79

10.10.2. Log Browser

When a recipe or AutoDry is selected in the Recipe Browser, the Log Browser displays all logs for that item (Figure 80). Each log includes a label (empty by default), start time, and duration.

1. Tap on a label to name a log, or
2. Tap on a log to view the graph.

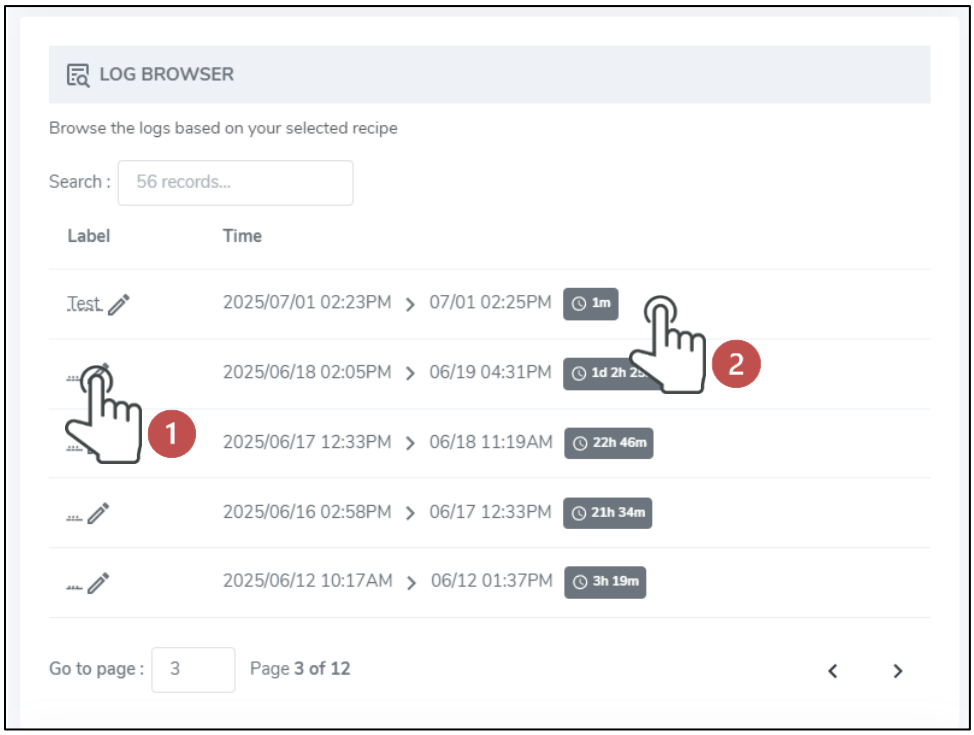


Figure 80

10.10.3. Log Graph

The Log Graph visually represents the selected log, similar to the Live Graph (see section 10.8 Live Graph). An additional feature is the timeline range slider, which allows zooming into the graph along the time series (Figure 81).

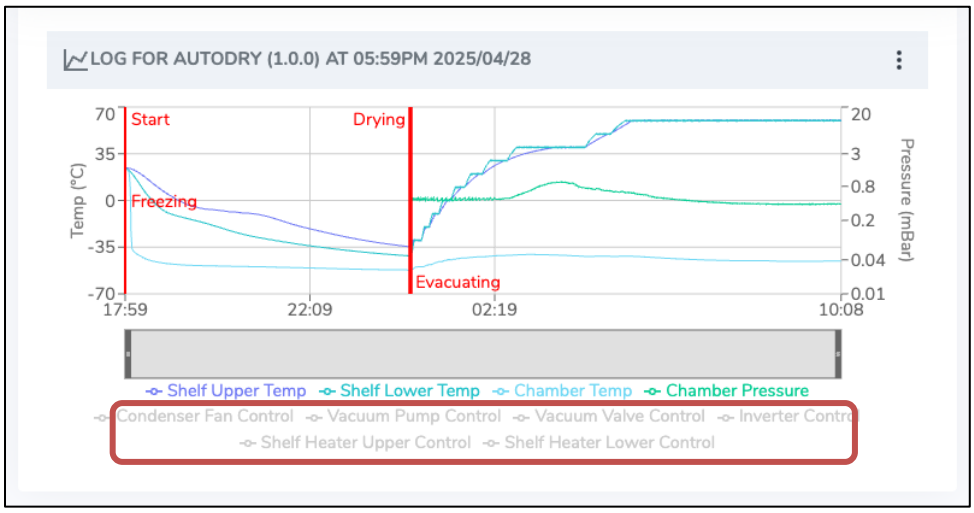


Figure 81

10.10.4. Log Export

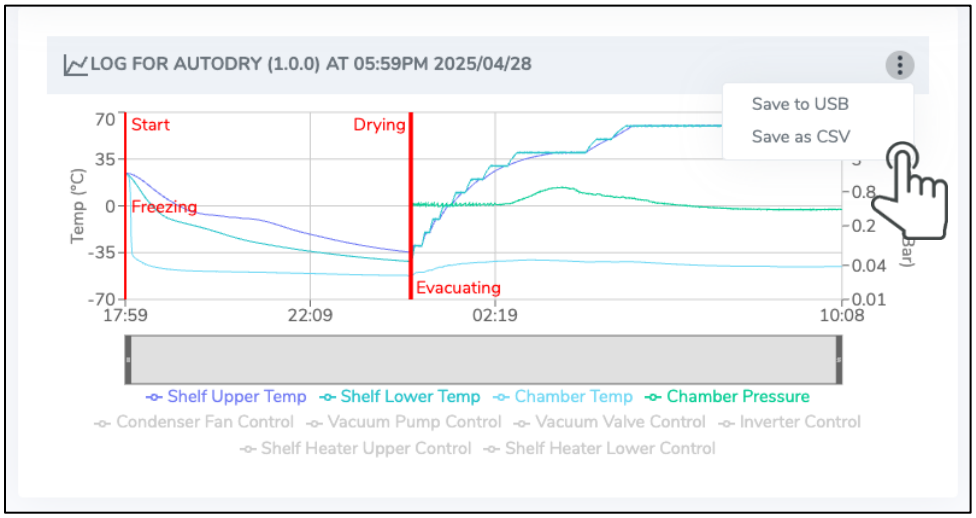


Figure 82

There are two export options for the selected log. You can export them by tapping on the ⋮ icon (Figure 82):

1. **Save to USB**: Insert a USB flash drive into the USB-A port of the machine and tap “Save to USB”. An alert box will appear shortly after to confirm the export has completed (Figure 83). If the export fails, the alert box will display an error message (Figure 84).

Figure 83

Figure 84

2. **Save as CSV**: Available locally via a browser (see section “**10.2 Connecting via Web Browser**”). Tap “Save as CSV” to download the CSV file.

The exported file will follow a format of “Log Name Version YYYY-MM-DD HH-mm-ss.csv”, located onto the root directory of the USB or downloaded directory. The filename specifies the timestamp of when the cycle started.

10.11. Account

The Account page provides functionalities to manage both local and cloud accounts. Accounts are role-based, which will be explored in a later section.

Tap “Account” in left sidebar to access this page (Figure 85).

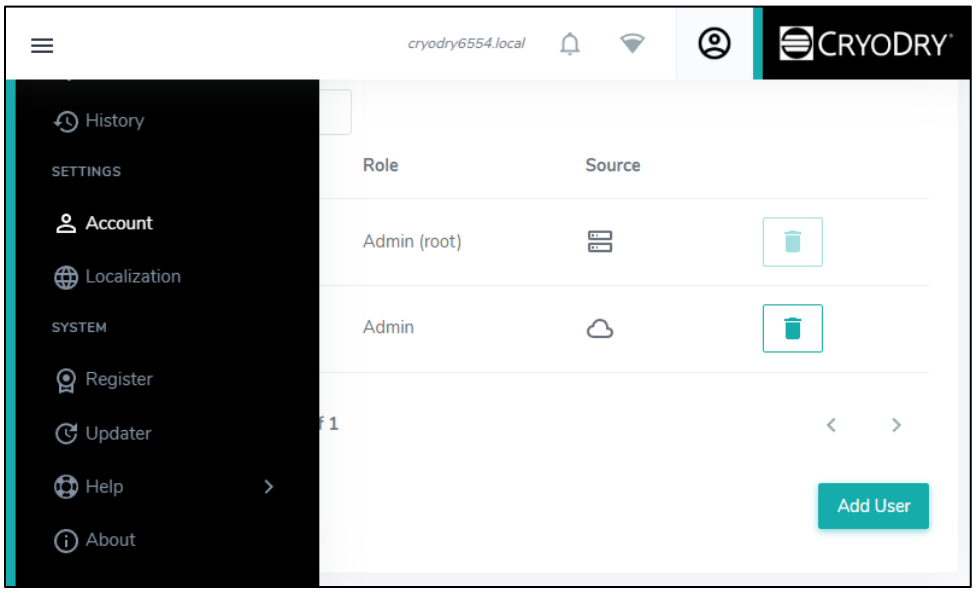


Figure 85

10.11.1. Account Types

Two types of account options are available: Local and Cloud.

- **Local Account**: These accounts are stored directly on the machine, making them ideal for adding additional accounts that do not require cloud integration (see section “**10.11.5.1 Adding a New Account**”).
- **Cloud Account**: These accounts enable remote access to the machine via the internet. An Admin role is required for remote access to work. A CryoDry account is required. (refer to section “**10.3 Remote Access via Console**”).

10.11.2. Account Permissions

Each account is assigned one of the following permissions:

- **Viewer**: Can view recipes, manuals, operational status, Wi-Fi network, and software version. No console access.
- **User**: Includes Viewer access plus recipe management, manual/operational control, and password changes. No console access.
- **Admin**: Includes User access plus Wi-Fi management, software updates, and account administration. Only the admin account can access and control the freeze dryer from the console website.

Table 1

Account	Action	Scope					
		Recipes	Manual	Operate	Wi-Fi	Updates	Account
Viewer	Read	✓	✓	✓	✓	✓	✗
	Write	✗	✗	✗	✗	✗	✗
User	Read	✓	✓	✓	✓	✓	Limited
	Write	✓	✓	✓	✗	✗	Limited
Admin	Read	✓	✓	✓	✓	✓	✓
	Write	✓	✓	✓	✓	✓	✓

10.11.3. Change Username

If the logged-in user is an admin, the first section on the Account page allows changing the username (Figure 86). To do this, enter the new username and the current password, then tap "Apply."

Note: Only users with a role Admin can perform this action

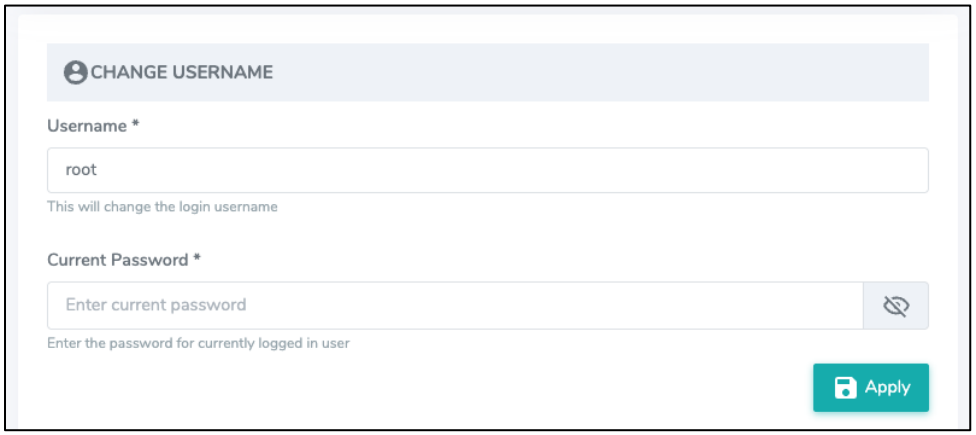


Figure 86

10.11.4. Change Password

The Account page also allows Admin and User accounts to change their password (Figure 87).

Note: Users with a Viewer role cannot perform this action

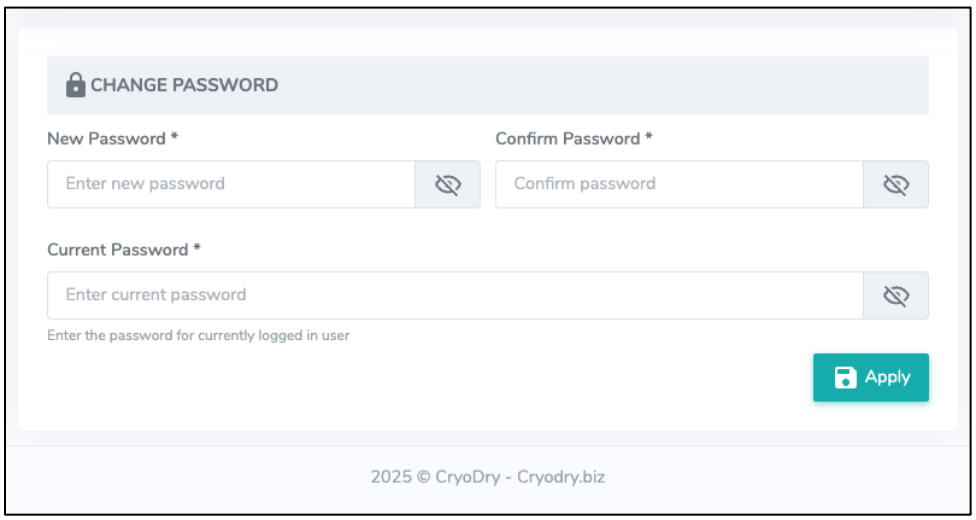


Figure 87

10.11.5. Account List

The Account List section, accessible only to Admins, displays all existing accounts on the machine. Admins can use this feature to monitor and manage accounts and their access levels. The list includes information such as username, role, and account source. Table 1 details each role and its permissions. The Source field indicates whether an account is Local (🖴) or Cloud-based (☁).

The Account List in Figure 88 indicates that only the Root account currently exists on the machine. This account is local with Admin permissions, also known as the Local Admin Account. While the username for the Local Admin Account (root) can be changed, it can also be identified by its role, "Admin (root)."

Note: The Root account cannot be deleted. For security reasons, it is recommended to change its username and password (see sections **10.11.3** and **10.11.4**).

Note: Only users with a role Admin can perform this action

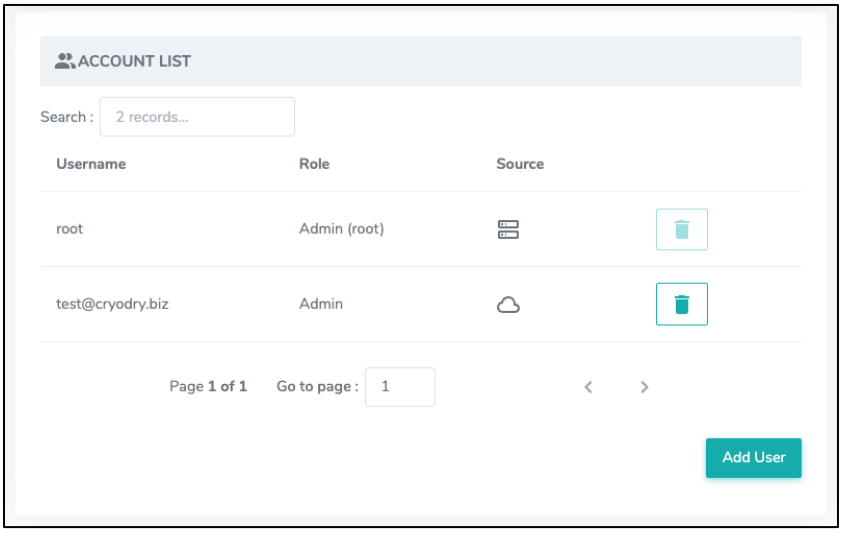


Figure 88

10.11.5.1. Adding a New Account

To add a new account, first tap the “Add User” button (Figure 88), then select the account type in the pop-up window (Figure 89).

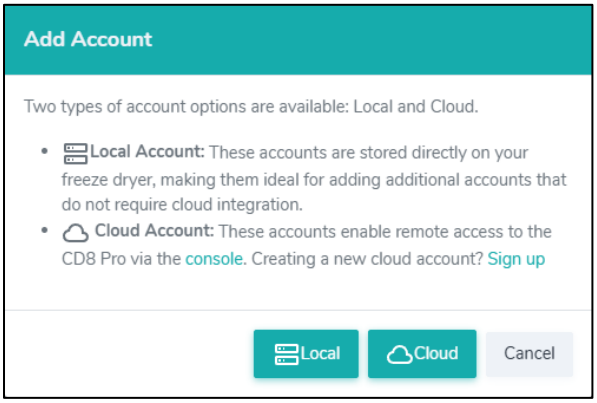


Figure 89

Once the account type is selected, the "Add Account" section will appear under the Account List (Figure 90). Follow the instructions below to create the account:

1. Enter a unique username with at least 3 characters. The username should only contain English characters with no spaces, numbers, and symbols.
2. Enter a password for the new user with a minimum of 8 characters.
3. Select a suitable permission (Viewer, User, or Admin).
4. Enter the password for the currently logged-in admin account
5. Tap "Save".

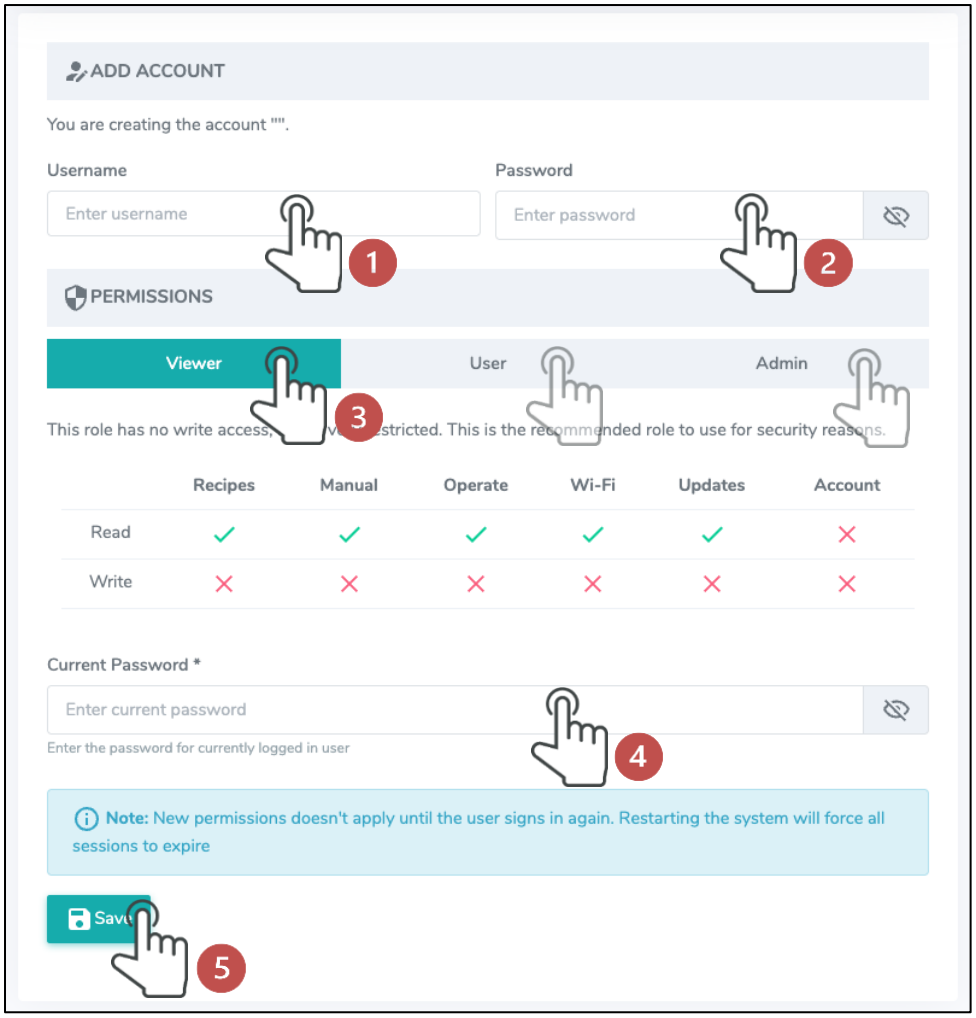


Figure 90

10.11.5.2. Modifying Existing Accounts

In the Account List, tap any account to modify (Figure 91).

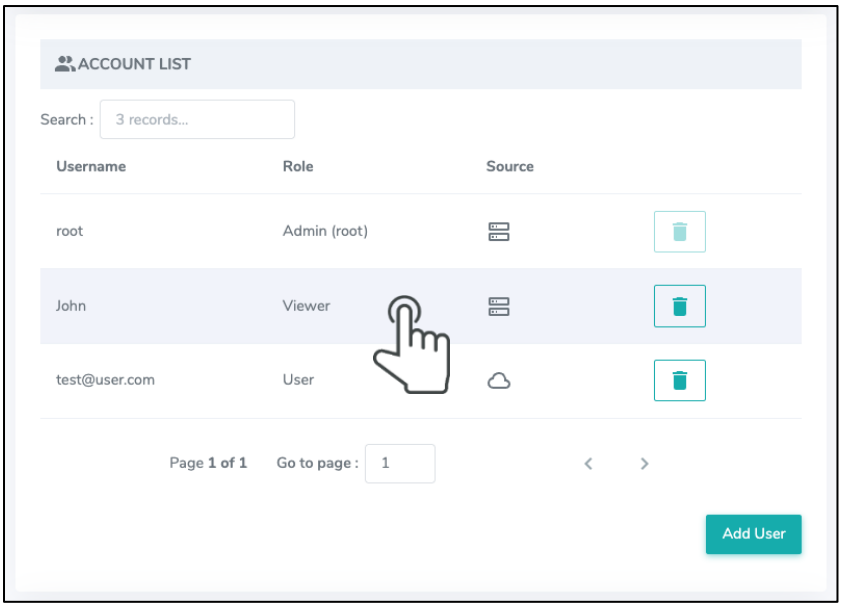


Figure 91

This will navigate to the Edit Account section, where the username, password, and permissions can be updated for local accounts similarly to *Adding a New Account* (Figure 92).

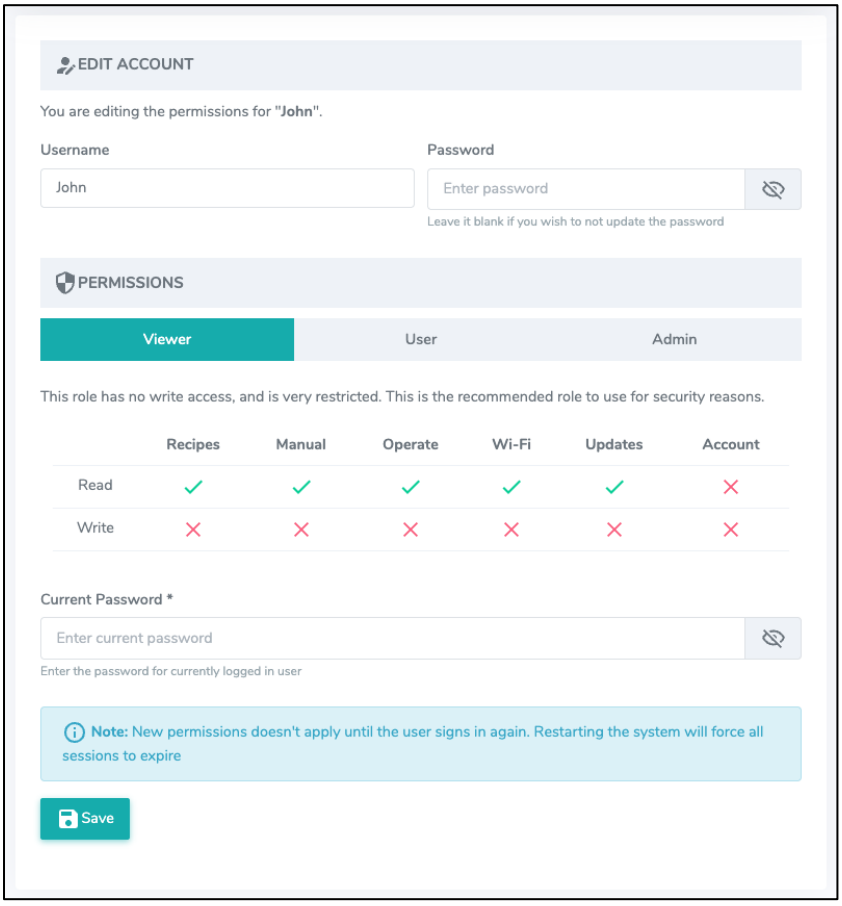


Figure 92

10.11.5.3. Deleting Accounts

Under the Account List, tap the bin icon ( ) to delete an account (Figure 93).

Note: The built-in root account cannot be deleted.

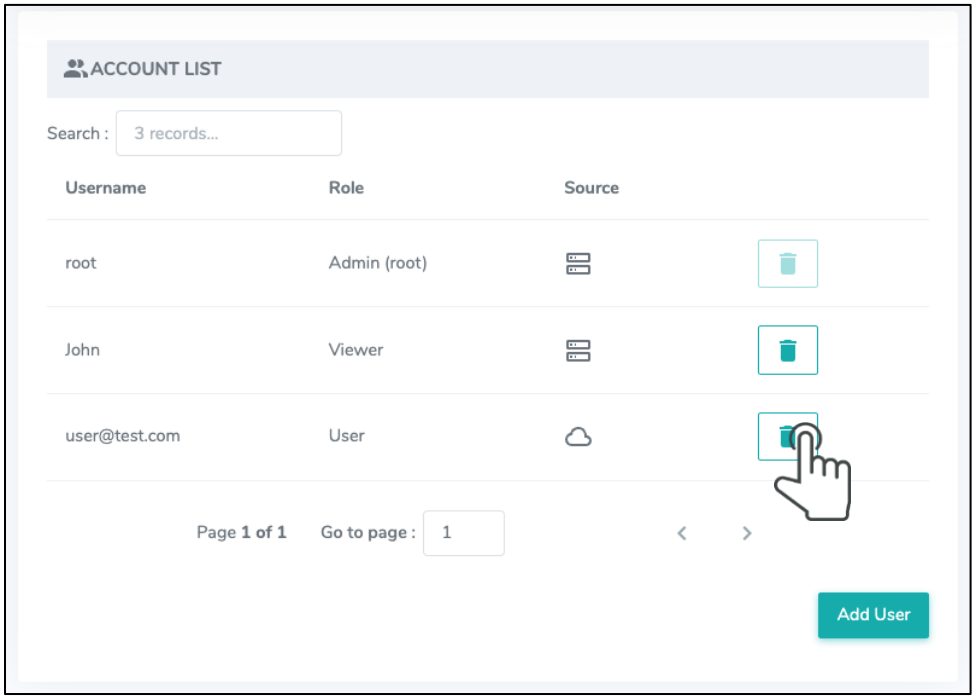


Figure 93

The Account Deletion window will appear to confirm this action (Figure 94). Enter the password for the currently logged-in admin account and tap “Confirm”.

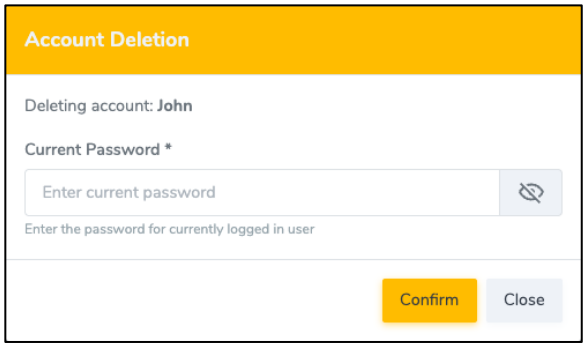


Figure 94

10.12. Localization

Select “Localization” from the left sidebar (☰) as shown in Figure 95.

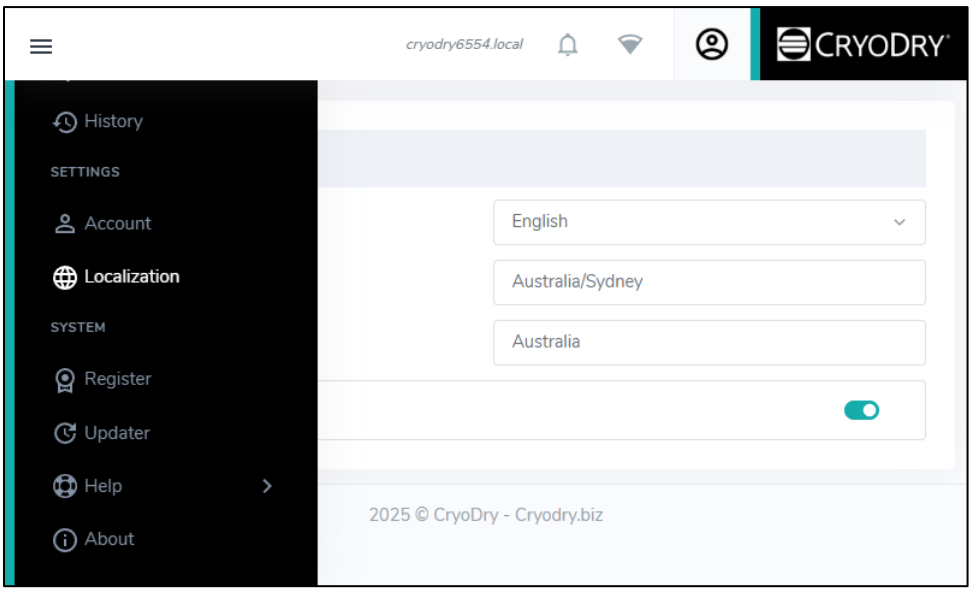


Figure 95

Localization settings, including Language, Timezone, and Wi-Fi Country Code, can be accessed on this page via the respective drop-down lists (Figure 96).

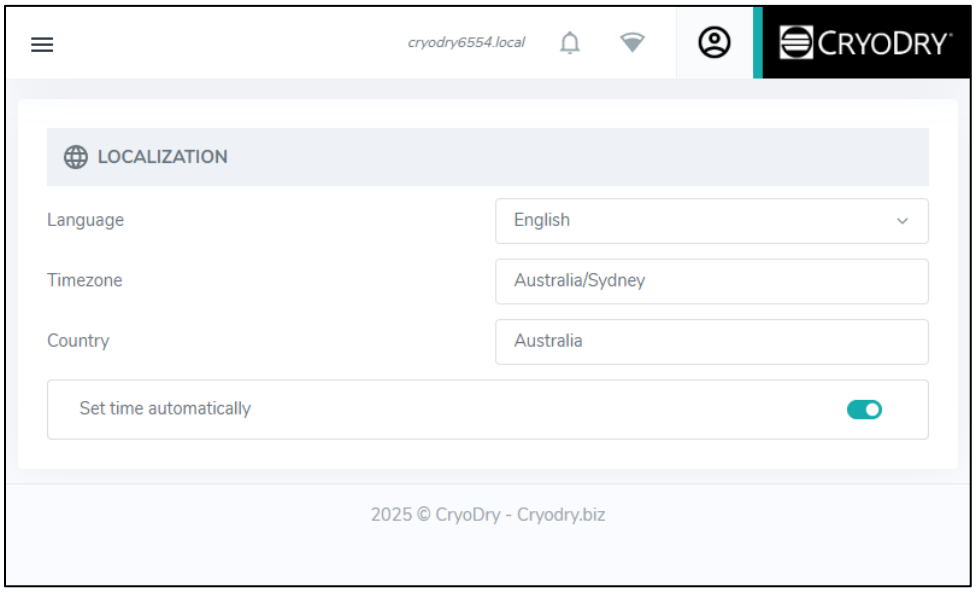


Figure 96

To set the time manually on the machine, it must be disconnected from the internet.

10.13. System

System related pages are available from the left sidebar, towards the bottom. The following options are Register, Updater, Help, and About (Figure 97).

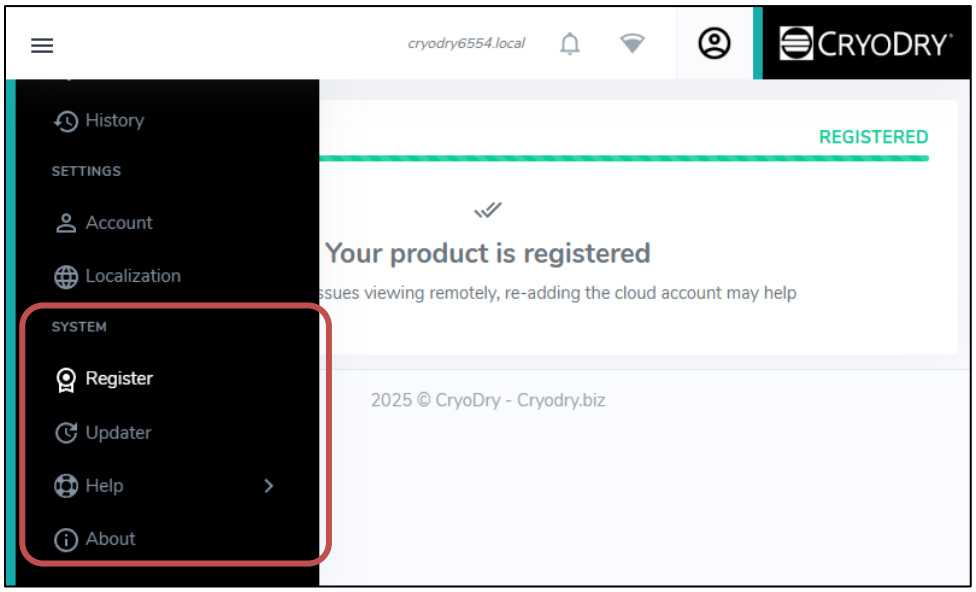


Figure 97

10.13.1. Register

The Register page activates the full functionalities of the machine once registration has completed. These functionalities encompass features discussed in previous sections, including AutoDry, recipe operation, live graph, account management, and more.

Figure 98 shows the machine is registered with a Cloud account.

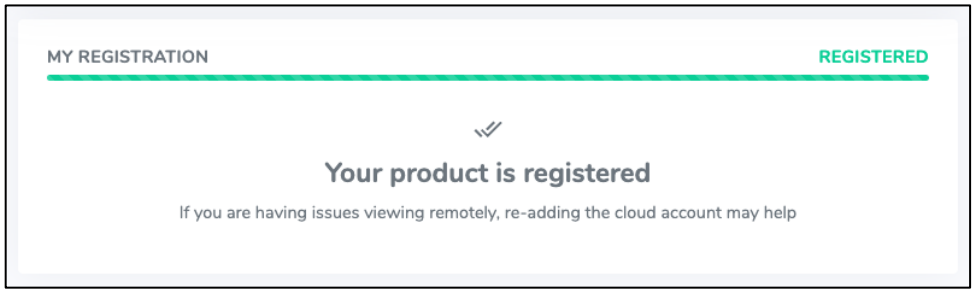


Figure 98

Figure 99 shows the machine is registered with a License file. Tapping the “Delete Imported License” button will unregister the machine.

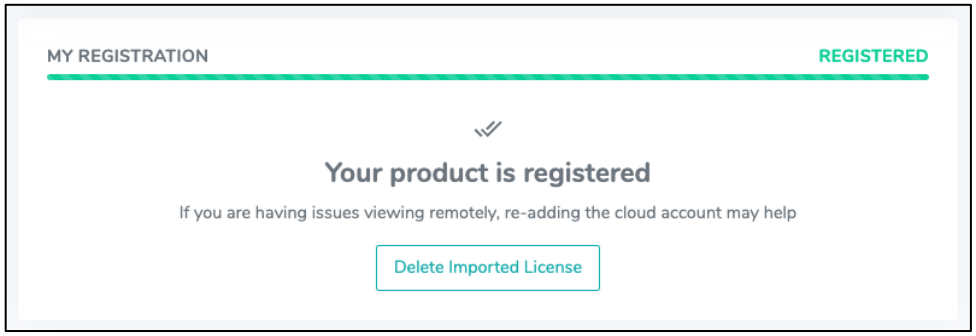


Figure 99

If only limited features are visible on the left sidebar (Figure 100), it is likely that the machine is not registered. This may occur if registration was not completed during the initial setup, or the cloud account has been removed (refer to section "**10.11.5.3 Deleting Accounts**"), or the license file has been deleted (Figure 99).

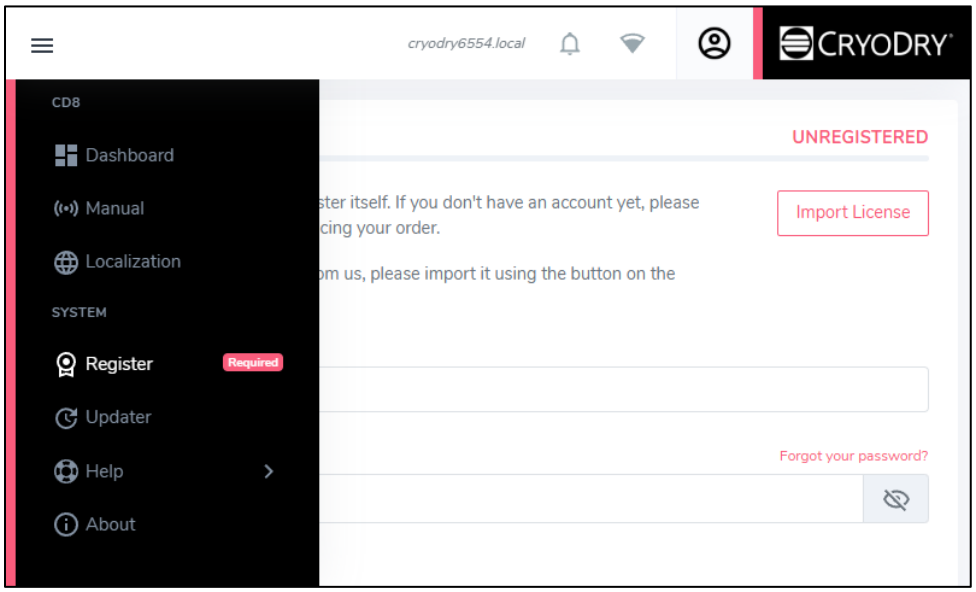


Figure 100

Figure 101 shows the unregistered status of the machine.

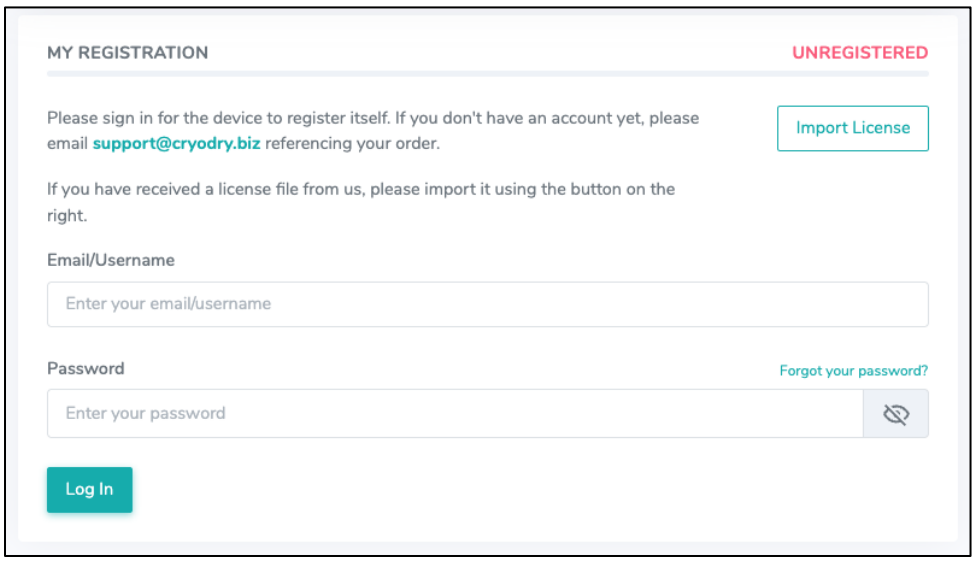


Figure 101

There are two methods to register the machine on the Register page as shown in Figure 101:

1. **Register with a Cloud Account**: Enter cloud account credentials to log in. Once logged in, the machine will automatically register and activate all functionalities (Figure 98). This action will add a Cloud Admin Account to the *Account List*.
2. **Register with a License File**: If a license file has been provided, copy it to a USB flash drive and insert the USB into the USB-A port of the machine on the right side of the screen. Then, tap on the "Import License" button. Tap "Scan" on the License Import window (Figure 102) and wait till the license is validated (Figure 103).

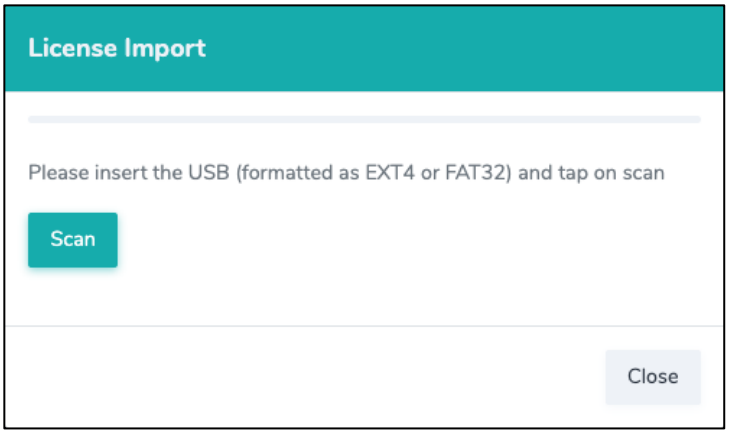


Figure 102

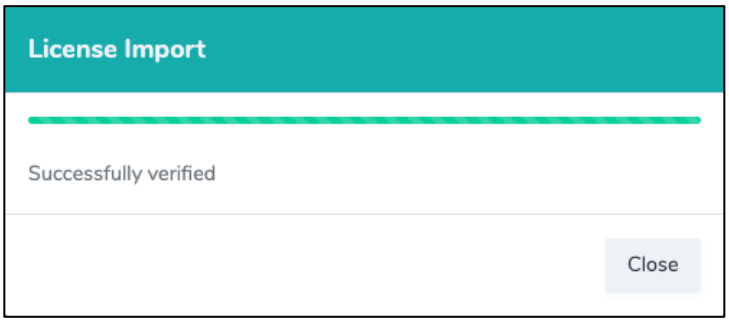


Figure 103

10.13.2. Online Updates

The machine automatically checks for new updates approximately once a day. To manually check for updates, tap the "Check for updates" button (Figure 104).

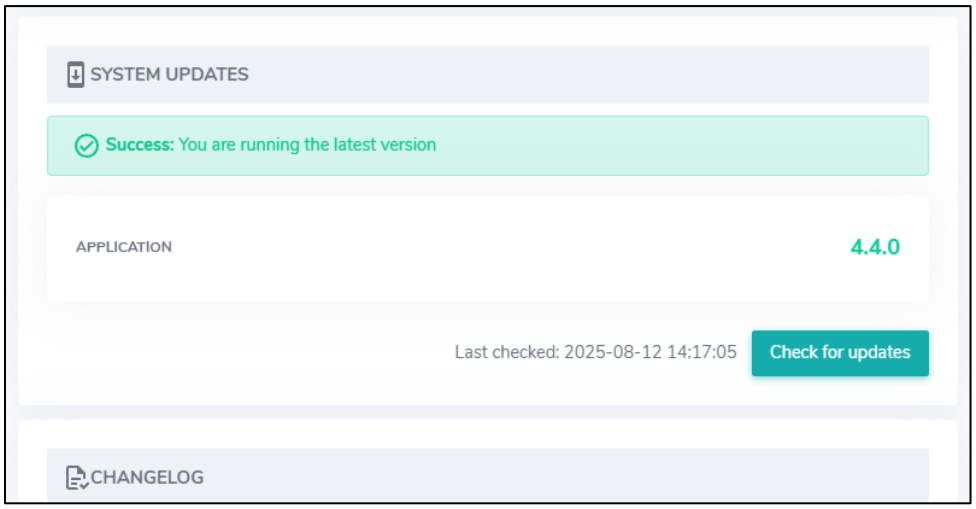


Figure 104

The Updater will detect new update releases and display a notification to apply updates (Figure 105).

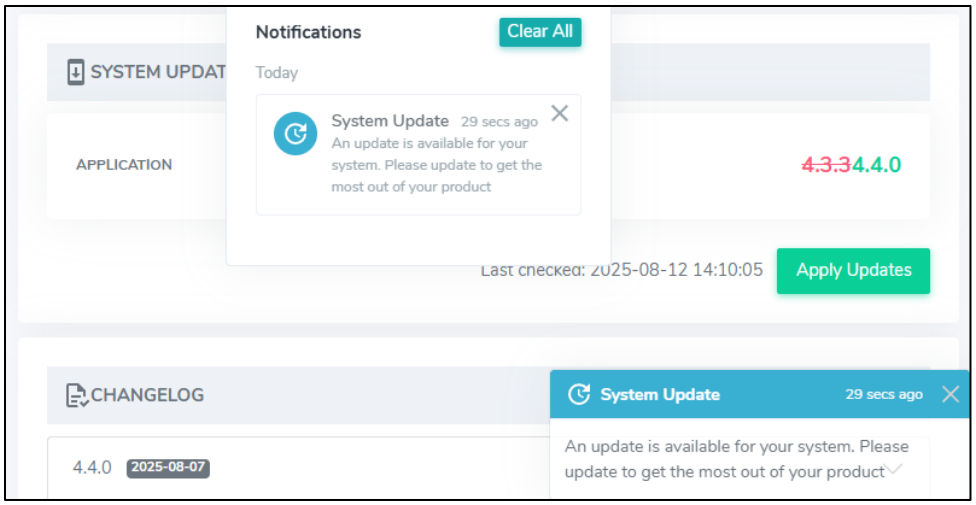


Figure 105

From the Updater page, tap "Apply Updates" (Figure 105). The system will automatically download and install the update (Figure 106).

Figure 106

Once the update is complete, all current sessions will time out and require re-login.

10.13.3. Remote Support

Remote support can be accessed from the sidebar (Figure 107).

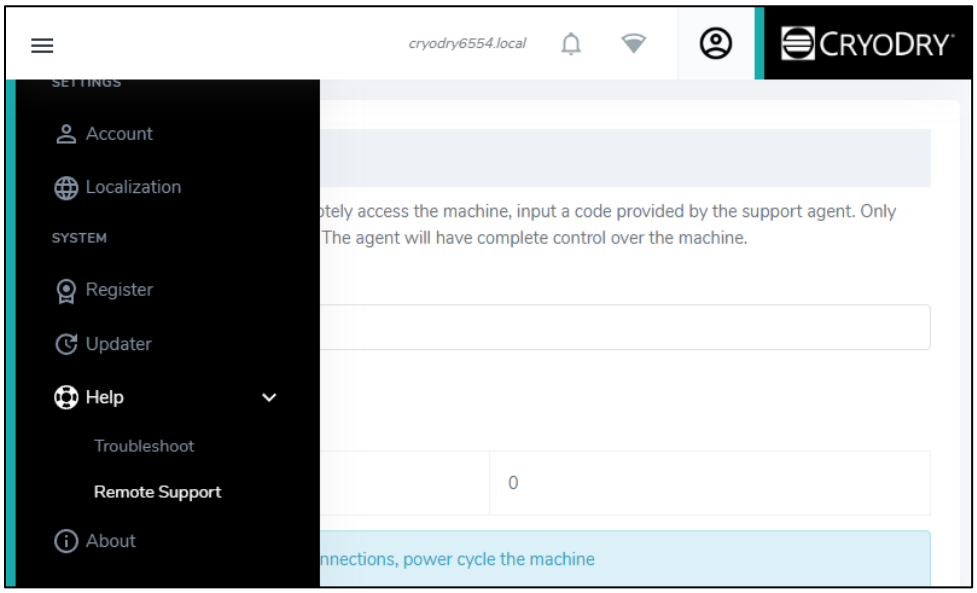


Figure 107

For a support agent to access the freeze dryer, the agent will provide a code that needs to be input into the support form (Figure 108).

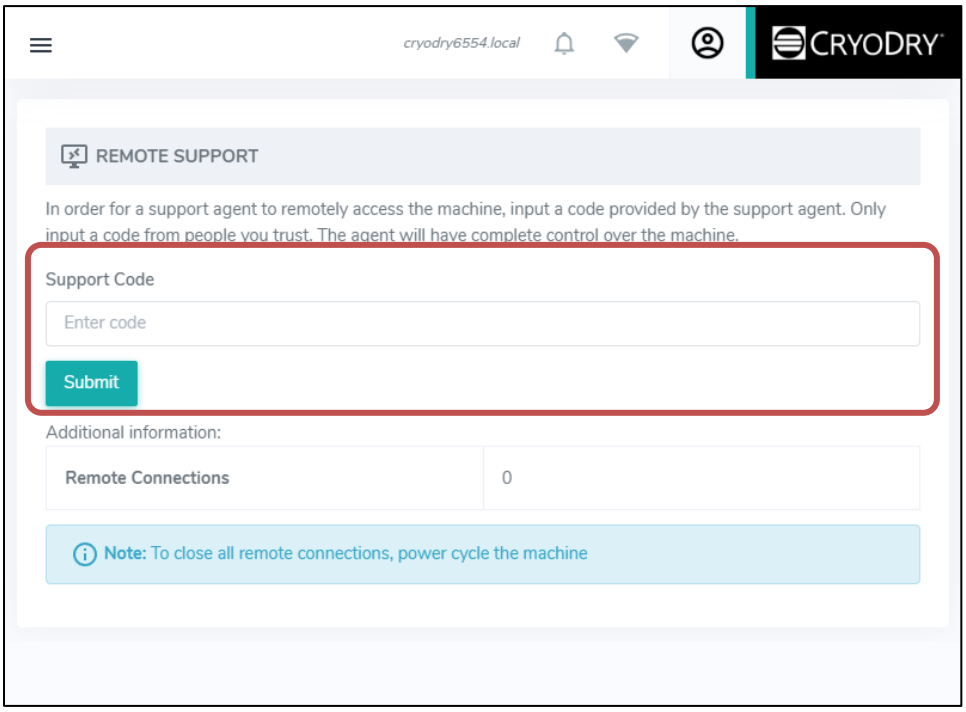


Figure 108

10.13.4. Troubleshooter

The built-in troubleshooter (Figure 109) can help identify common problems with the machine. The existing run is straight from the factory. Tap on ▶ and follow the instructions on the popup before starting the troubleshooter. Once the troubleshooter completes, it will provide resolution steps based on the problems found.

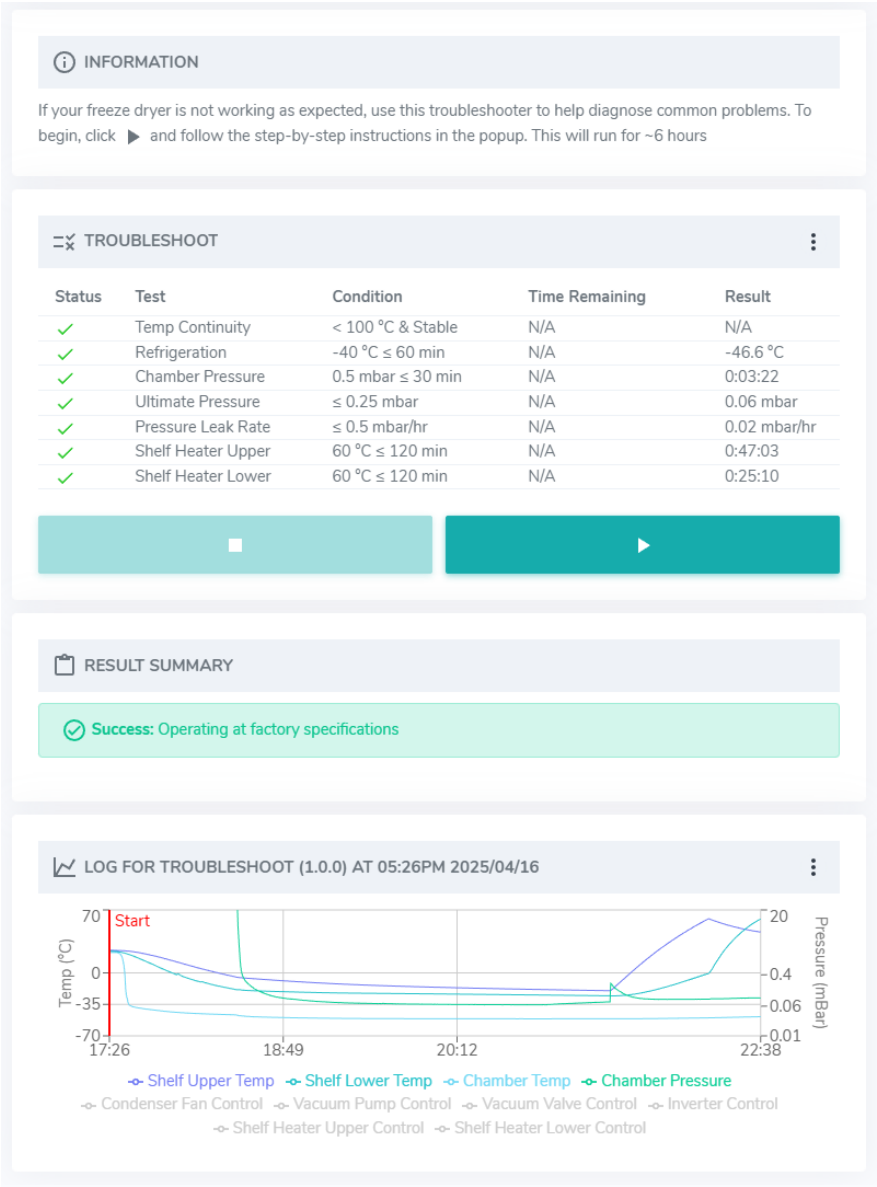


Figure 109

10.13.5. About

The About page provides information about various versions of the system (Figure 110). This information is useful for support.

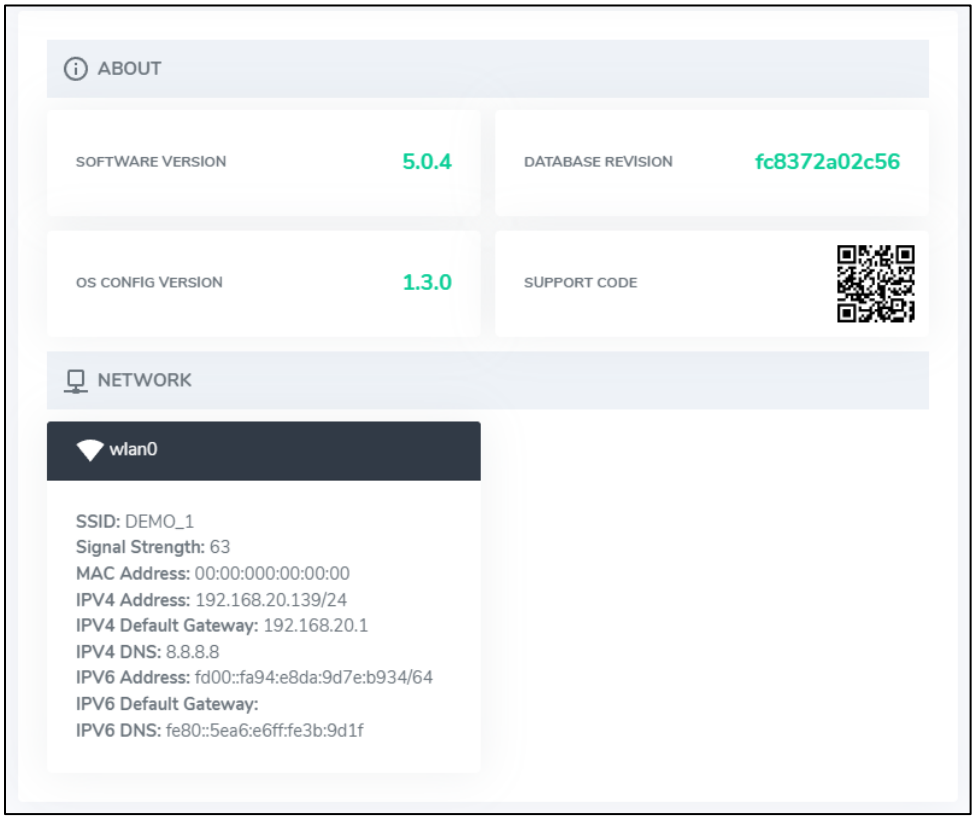


Figure 110

10.14. Power Recovery

If a transient power outage occurs during a Recipe or AutoDry cycle, the machine will automatically recover back to the last state before the machine lost power. A popup will appear on screen (Figure 111) or under Notifications (Figure 112) as soon as power is restored to the machine.

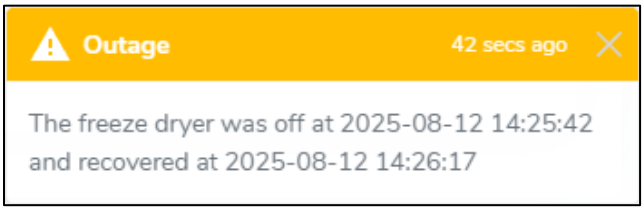


Figure 111

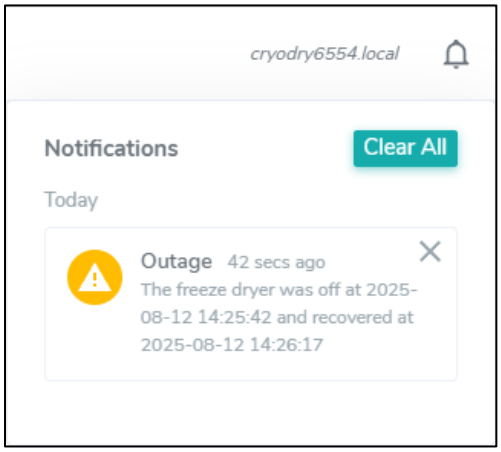


Figure 112

This is designed to be completely autonomous. The machine will continue the drying process irrespective of the duration or frequency of the power outages. It is up to the operator to determine the health of the product.

10.15. Login

Enter credentials for cloud or local account to login (Figure 113).

Figure 113

10.16. Forgot Password

Visit the following link using a computer or mobile phone to reset the password for cloud accounts:

- https://console.cryodry.biz/auth/forget-password

Alternatively, try to login with the Local Admin Account, the default credentials are:

- Username: root
- Password: admin

If these credentials have been changed and no other account is available to log in, a factory reset may be necessary (refer to *section "***10.17 Factory Reset**").

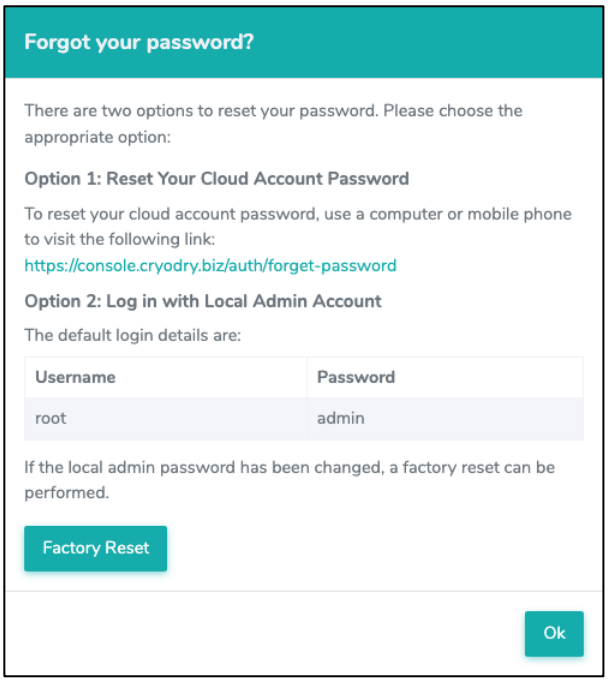


Figure 114

10.17. Factory Reset

Note: A factory reset can only be performed directly from the machine and will remove all accounts, recipes, and history logs saved on the machine.

From the Login page, tap "Forgot your password?" (Figure 113) and then tap the "Factory Reset" button in the pop-up window (Figure 114).

Carefully read and follow the prompts as shown in Figure 115 and Figure 116 to initiate factory reset.

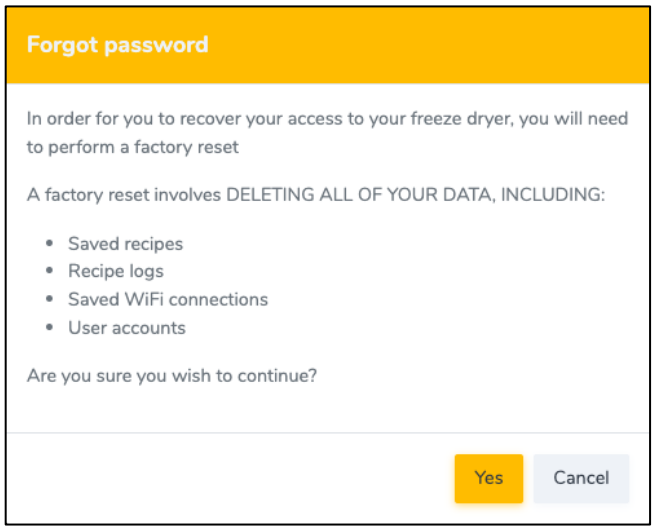


Figure 115

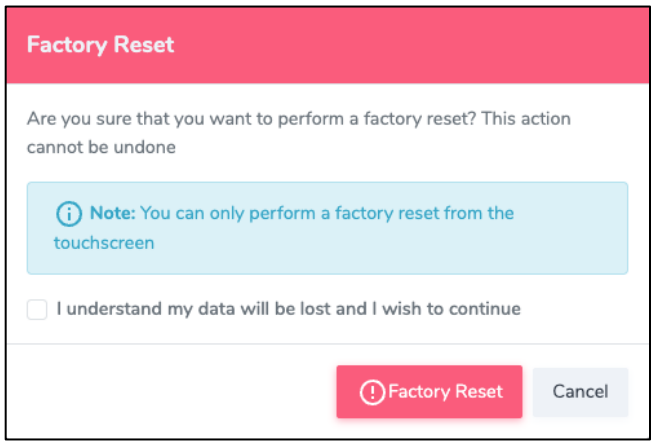


Figure 116

After the factory reset is completed, the system will reboot and display the Initial Setup page (Figure 1).

11. Fault Diagnosis

Before conducting a diagnosis, verify that the chamber is clean, dry, and empty of product.

Error	Solutions
Ultimate Vacuum of 0.15 mbar not reached.	Check that the vacuum pump is correctly connected to the main unit with the clamp (tightly).
	Check that the drain valve has the rubber gasket installed and is installed hand tight. Close the gasket valve
	Check that the vacuum hose and rings are installed correctly. Verify that there is no damage on the rubber rings, and that it is clear from particles.
	Check that the vacuum pump functions correctly and that the vacuum pump oil is clear (if oil sealed vacuum pumps are used).
	Verify that the ballast valve is in a closed position on the pump (if fitted).
	Verify that the machine has defrosted and that the inner door ring contacts a clean surface.
	Check that the compressor is enabled and has been running for at least 1 hour.
	If the error remains, contact support.
The chamber temperature is not cooling to specification.	Let the compressor run for at least 1 hour.
	Verify that no significant sounds are coming from the compressor. The machine should operate quietly. Contact support if the machine makes significant or unfamiliar noises.
	Check that shelves are not enabled in the Manual screen.
	Make sure the compressor is running by listening for sound.
	If compressor is “ON” but the temperature inside the chamber is still high, check the housing vents for blockage and dust. Remove blocking items and clean as required. If substantial dust is visible on the condenser inside the housing, contact support.
	Ensure that there is enough clearance around the vents and that the ambient temperature of the room is below 25°C.
The unit is making a strange sound.	Turn off the machine and contact support immediately.

12. Cleaning and Maintenance

12.1. Cleaning

- Water from the product will collect inside of the chamber during drying. Be sure to defrost after each run and clean the inside of the chamber periodically by wiping down the chamber walls with washing detergent.
- Clean the trays after every freeze-drying process with mild, non-corrosive detergent. Wipe dry afterwards.
- Periodically check the chamber door seal ring and contact surface is clean from contaminants, to ensure performant evacuation.

12.2. Maintenance

- Check the chamber door seal ring regularly to make sure it is not damaged or worn.
- If an oil vacuum pump is used, check the vacuum oil after every 100 hours of operation, and replace the vacuum pump oil if the level is low or if the oil is dirty.
- If a dry pump is used, refer to its User's Manual.
- Clean instrument vents regularly to prevent dust build up.

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