Software Release 2025.01

Version Info

Branch: Master

Date: 18.03.25

Version: 2025.01

General

Changed Communication Protocol: HTTP to HTTPS

Both the WebApp and the robot's API now use HTTPS for all communications, enhancing security. Customers must now access the robot using `https://10.0.0.1` instead of `http://10.0.0.1`.

When accessing this page for the first time, your browser may display a warning indicating that the connection is not secure. This happens because the browser requires a certificate, which has not yet been installed. Despite the warning, the connection is now significantly more secure than before.

To resolve the warning and avoid it in the future:

1. Download the certificate from the WebApp. There is a new button on the top right corner of the WebApp which allows you to download the certificate.

2. Install the certificate in your browser. Check the “HTTPS Certificate Guide” for a set-by-step explanation on how to do that.

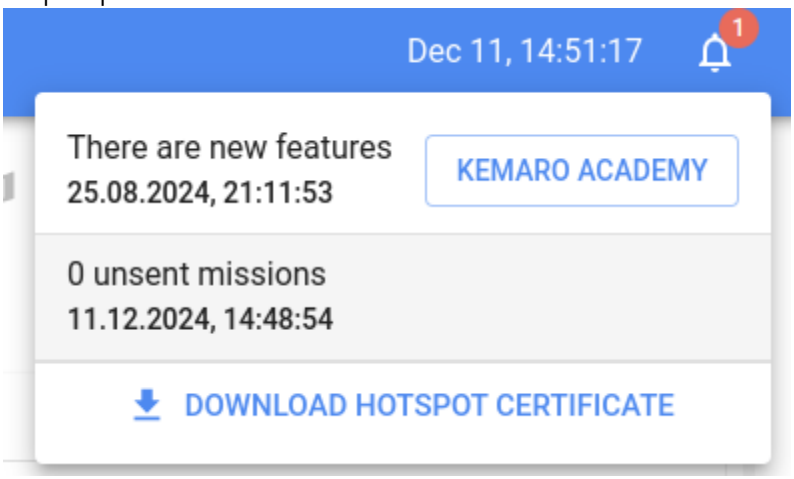

Figure 1: The button to download the certificate is in the top right corner of the screen.

If you do not have the certificate and still wish to proceed, you can:

1. Click on "Advanced".
2. Select the option "Proceed to 10.0.0.1 (unsafe)".

This change ensures better data protection and aligns with modern security standards.

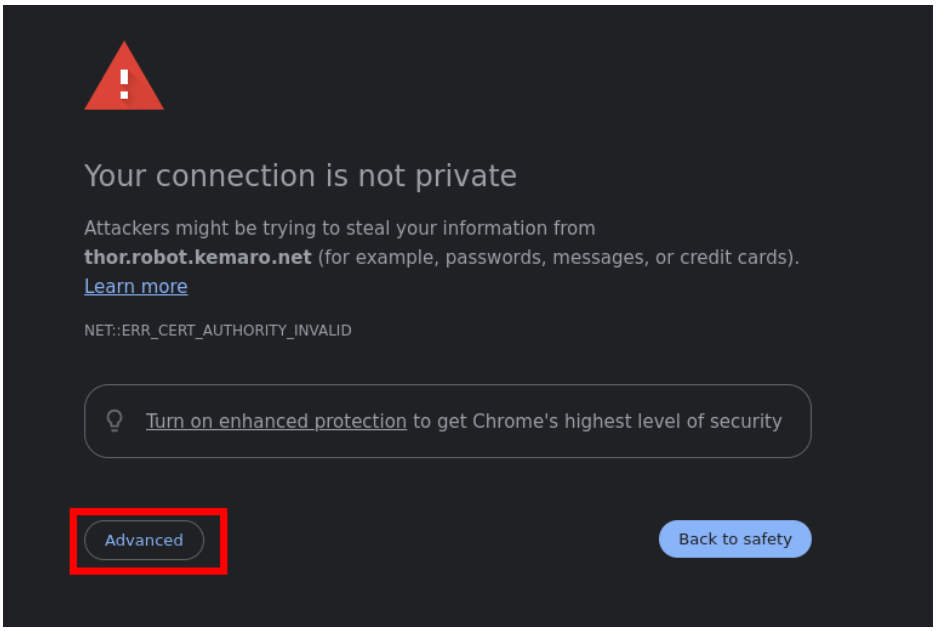

Figure 2: Warning message that appears in your browser if https site is accessed without the proper certificate.

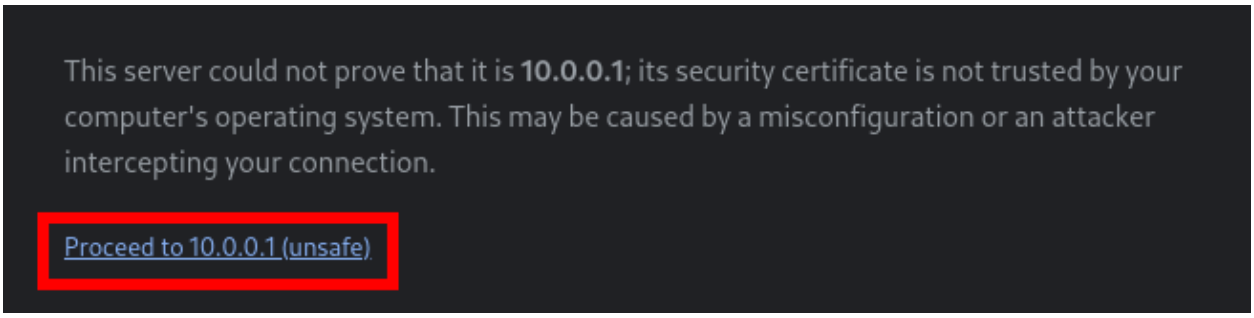

Figure 3: Text that pops up after clicking "Advanced".

Updating is stuck, what should I do?

Due to upgrading to HTTPS connection, updating from the configuration page may appear stuck. Once the update is completed, which is typically signaled by the LED buttons on the robot no longer flashing in a rotation pattern, simply refreshing the page will switch your connection to HTTPS.

Teach & Fill-In cleans at borders

The teach & fill-in cleaning (formerly demo mode cleaning) mode now cleans a more intuitive area, meaning that it also cleans the path where the robot was driven during the teaching segment and not just inside this area.

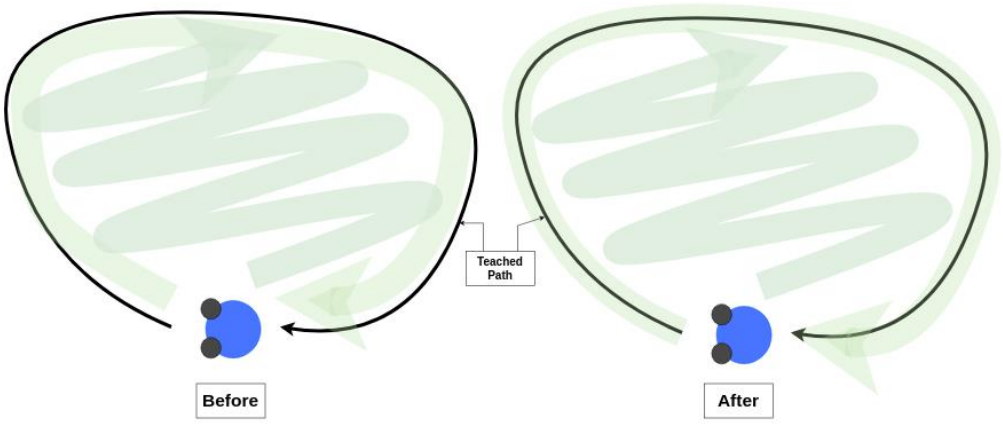

Figure 4: Behavior of Teach and Fill-In before and after update.

More Efficient Mission Planning

Mission Exploration

Remapping/exploration now only happens once per zone per mission. In other words, if a mission is performed and cleaned multiple times the robot only remaps the area the first time.

Mission Planning

The robot now keeps track of which zones, and sub-zones have already been cleaned during a scheduled run, even if it needs to recharge mid-session. As a result, no sub-zone will be cleaned twice within the same run.

Teach & Repeat with adaptive distance from objects

While teaching a path, the robot will keep track of obstacles, objects, and walls close to it. When repeating the path, the robot will not keep a large distance from recorded obstacles/objects/walls. On the other hand, the robot will keep a safe distance from new obstacles/objects/walls that were not present during the teaching process when repeating the path.

Precise Navigation

The robot now moves with more precise cornering and improved navigation in wall-follow mode. This enhancement allows it to stay closer to walls while keeping smooth and accurate movement.

Room Initialization

With this release, the map and its corresponding room configuration (e.g., no-go zones) are loaded during the robot's boot-up rather than upon the first cleaning command. As part of the boot-up process, when positioned in front of a charging station, the robot automatically moves back 50 cm to detect the station ID and initialize the correct map. If no cleaning schedule is active, the robot then re-docks. During the entire boot-up sequence, all HMI LEDs flash. The robot should not be manually moved (via remote control or trolley handle) during this process.

Obstacle Avoidance

Avoidance of small objects that could previously not be distinguished from dirt is now improved. The robot navigates around it quicker and more efficiently. Robots equipped with the new frontal 3D sensor can detect these low obstacles with even greater precision.

KEMARO WebApp

New “Interaction Required” Robot State

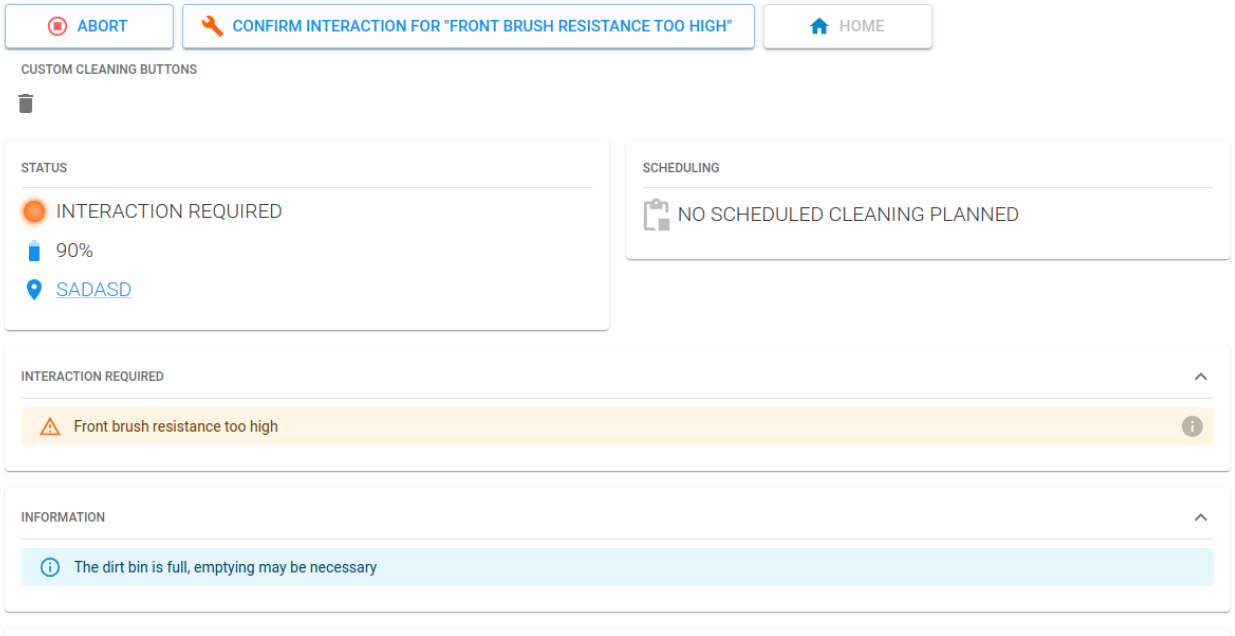

Figure 5: New “Interaction Required” state visible on dashboard.

A new robot state, "Interaction Required", has been introduced. When triggered, it is shown by a flashing orange wrench LED on the robot's HMI and is also displayed in the WebApp. Normally the robot is stopped until the cause of the issue is resolved by the user.

How It Works:

1. When the robot enters the “Interaction Required” state, the user must check the WebApp to view the specific issue code and take the necessary action.
2. Once the issue is resolved, the “Interaction Required” state can be confirmed in the WebApp, allowing the robot to resume cleaning.

Typical interactions are:

- Untangling an object from the brushes

- Bringing the robot back to the station
- Emptying the dirt bin

Once-Only Mode

A new setting, "Once-Only Mode," has been introduced. When enabled, the robot will return to the charging station after completing all scheduled zones once. When disabled, it will continuously cycle through the scheduled zones, restarting from the first zone after completion—maintaining its earlier behavior. The “Random” navigator is not affected by this mode.

This setting is located under "CLEANING SETTING" within the "Configuration" tab and is available only in Advanced Mode. If Once-Only Mode is deactivated, the robot will continuously clean the zone until the schedule expires.

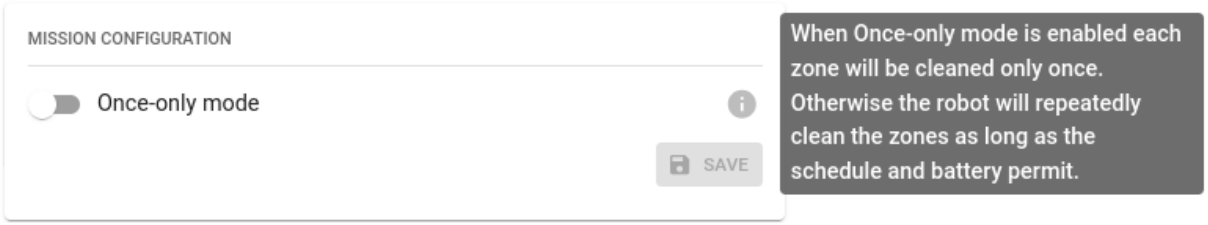

Figure 6: Once-only mode setting.

Full Dirt Bin, Interaction Required

When the dirt bin is determined to be full an interaction is required. After manually emptying the dirt bin, the robot will only start cleaning again after the user clicks the **CONFIRM INTERACTION** button or by pressing the stop button on the robot for at least 3 seconds. Hint: this is only valid, if a “Maximum Cleaning Time” is set.

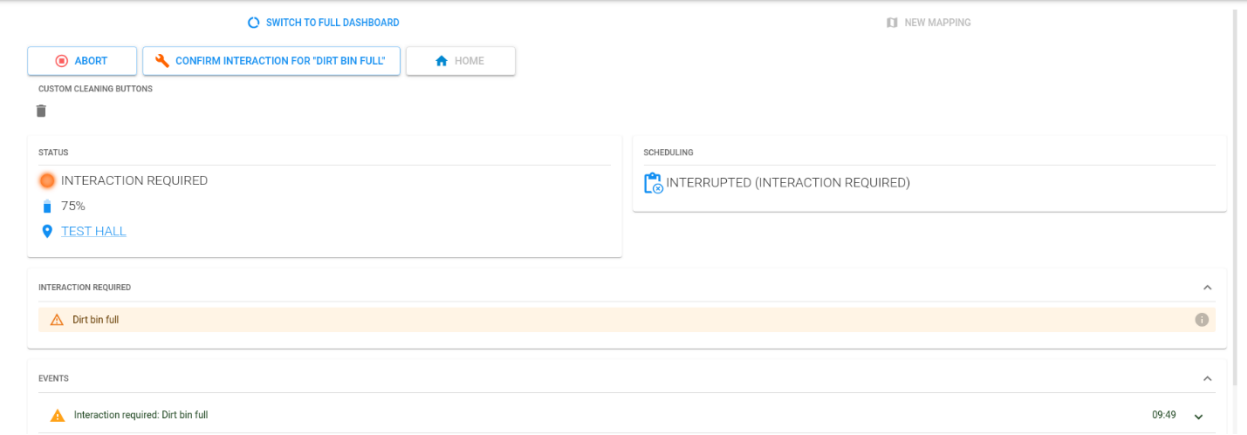

Figure 7: New Warning: Interaction Required in Dashboard of WebApp.

Auto Fill-In cleaning

The robot will clean a segment/subzone with higher efficiency, by always cleaning along the direction of an aisle/corridor.

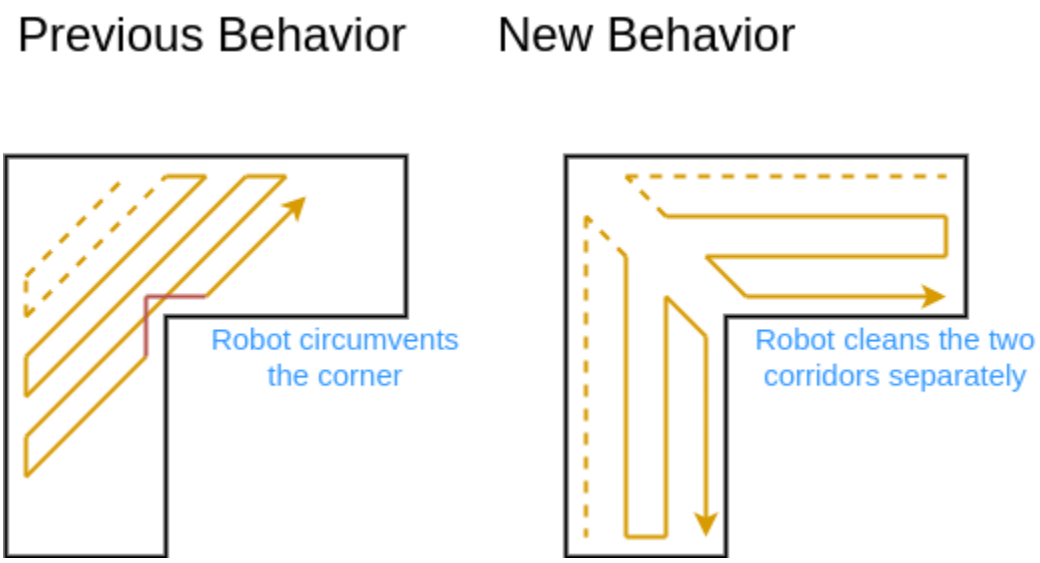

Figure 8: Robot's behavior in auto fill-in mode Before vs. After.

Teach & Repeat without Room

Teach & Repeat can now be activated without requiring a predefined room or station. Similar to Teach & Fill-In, if the robot is docked, it will undock and wait for the remote control (RC) to be activated. A path can then be recorded using the RC, after which the robot will follow the path once and return to the starting position. The recorded path is not saved.

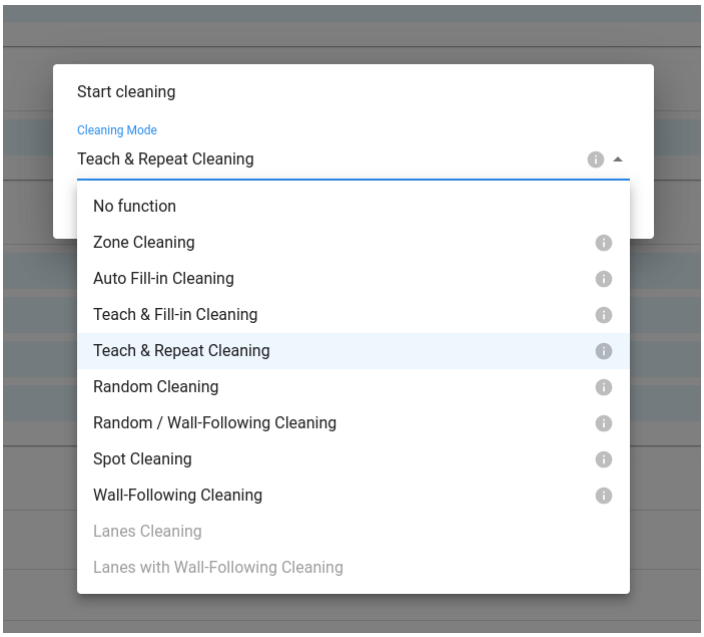

Figure 9: Teach & Repeat Cleaning is now a possibility under the Start Cleaning button in the WebApp Dashboard.

Factory Reset

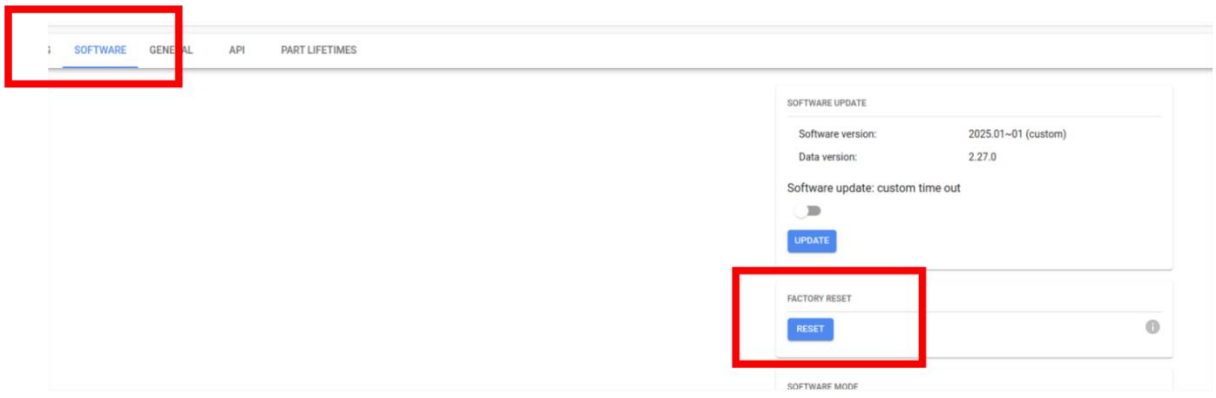

Figure 10: Factory Reset Button on the Service App.

Robots can now be factory reset directly from the Service App. To do this, navigate to **System** → **Software** and select **RESET**. All configurations except hardware configuration will be deleted from the robot.

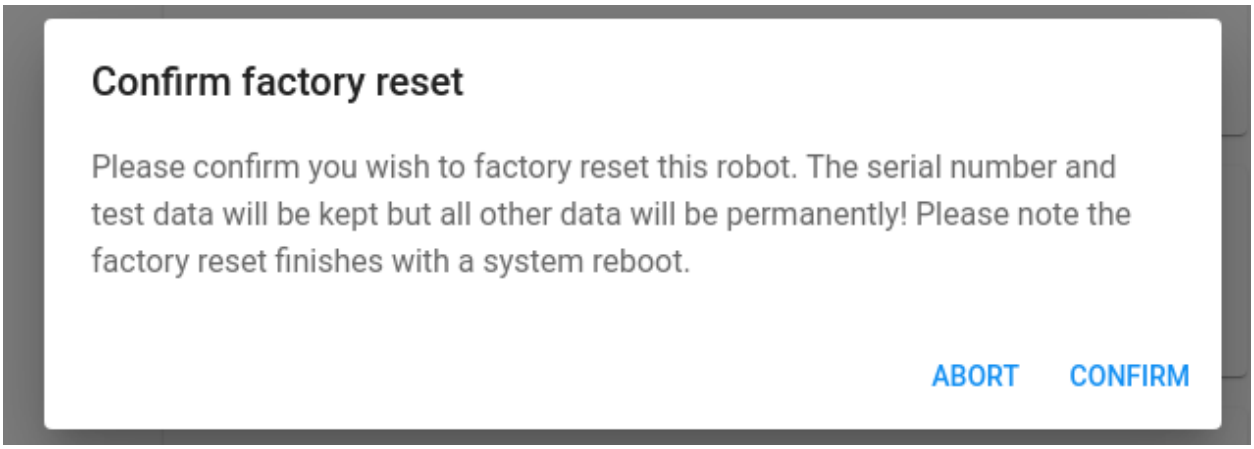

Figure 11: First Pop Up after clicking Factory Reset. Toggle to choose if full reset is desired.

After confirming, the user will need to **reconfirm** the reset, to ensure it is intentional and not a miss click.

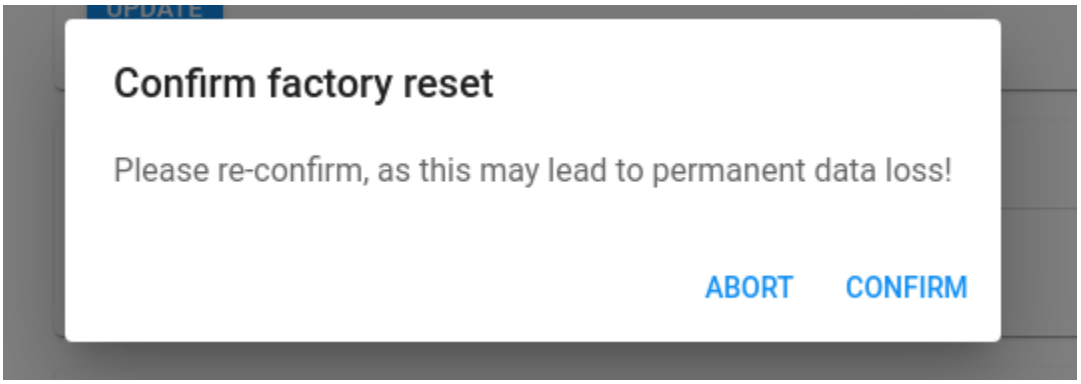

Figure 12: Second Pop Up to double check that factory reset is done intentionally.

Room-Specific Button Configuration

Cleaning buttons on the robot can now be individually configured for each room. While default settings remain unchanged at the robot level, you can now customize button functions per room—for example, assigning a different action to Button 1 in Room A than in Room B.

To configure:

1. Navigate to the Room Configuration page.
2. Select the CONFIGURATION tab.
3. Choose which buttons to customize for the current room.
4. Assign a specific cleaning mode to each selected button.

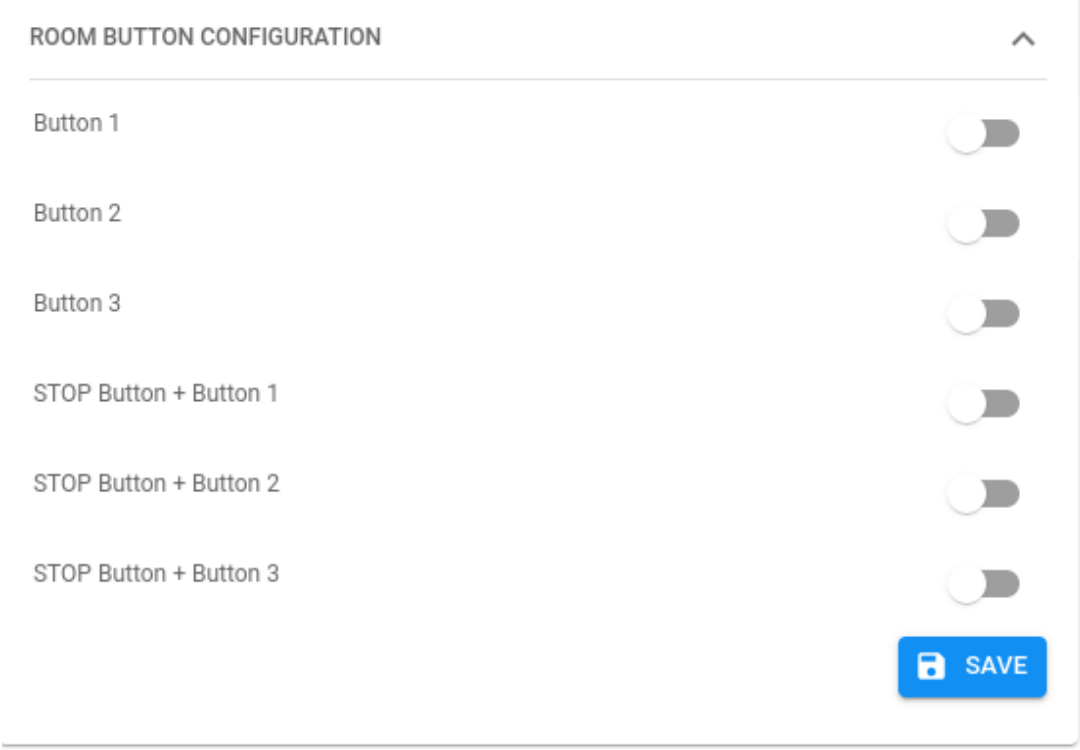

Figure 13: Room level button configuration. If a button is not activated, default setting is used.

Part Lifetimes

The Service App now includes a "PART LIFETIMES" tab, which provides a detailed overview of the robot's replaceable components and their wear levels.

Key Features:

- A **wear indicator bar** visually tracks each part's lifespan:
  - **Green** → Normal condition
  - **Orange** → Nearing end-of-life
  - **Red** → Requires immediate replacement
- An alert will appear on the dashboard when the part is nearing end-of-life.
- When a part reaches the end of its lifecycle, it should be replaced to maintain optimal cleaning performance. Nevertheless, the robot still continue to run.
- In case the part is still considered to be in good condition, the lifetime can be extended by clicking the arrow button on the right side of the wear indicator bar

Replacement Process:

1. Click **"**REPLACE" next to the part that needs to be changed.

2. A pop-up window will appear, prompting you to enter replacement details.
3. After physically replacing the part, click "REPLACE AND RESET COMPONENT LIFETIME" to complete the update.

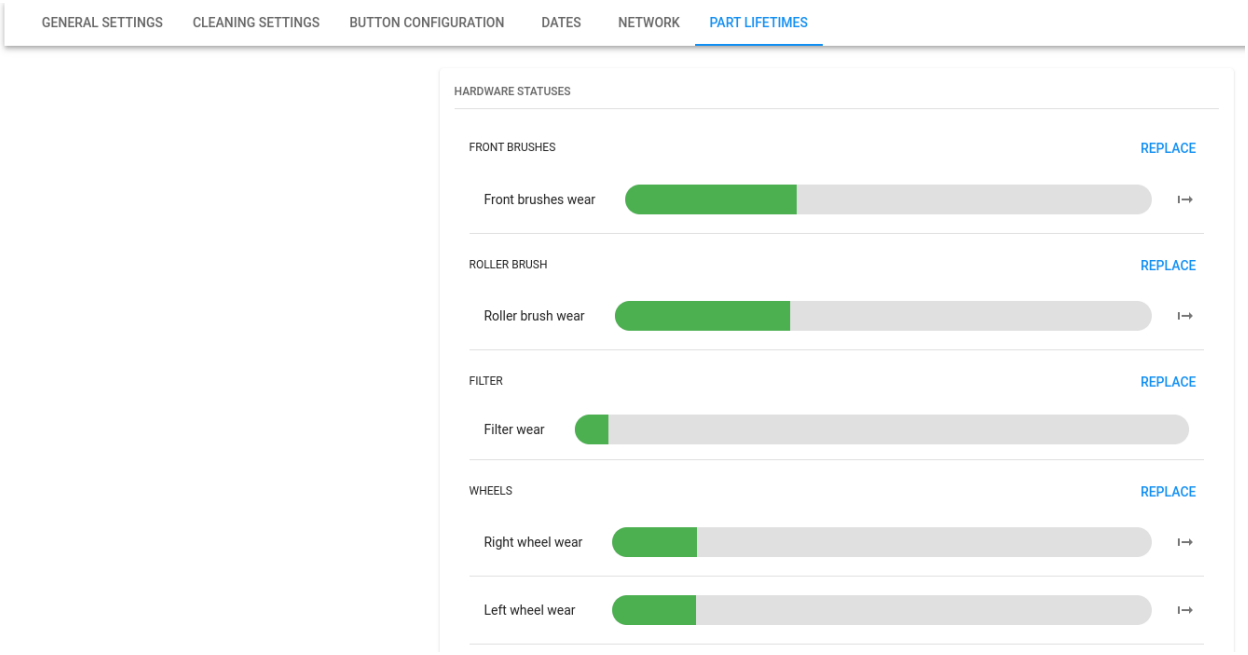

Figure 14: Part lifetimes showing wear of robot parts and the "REPLACE" button.

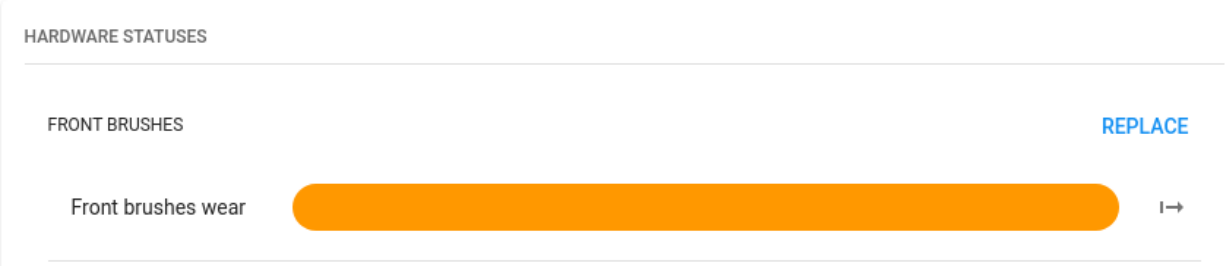

Figure 15: When the wear of a part starts to get to end-of-life the status bar is orange.

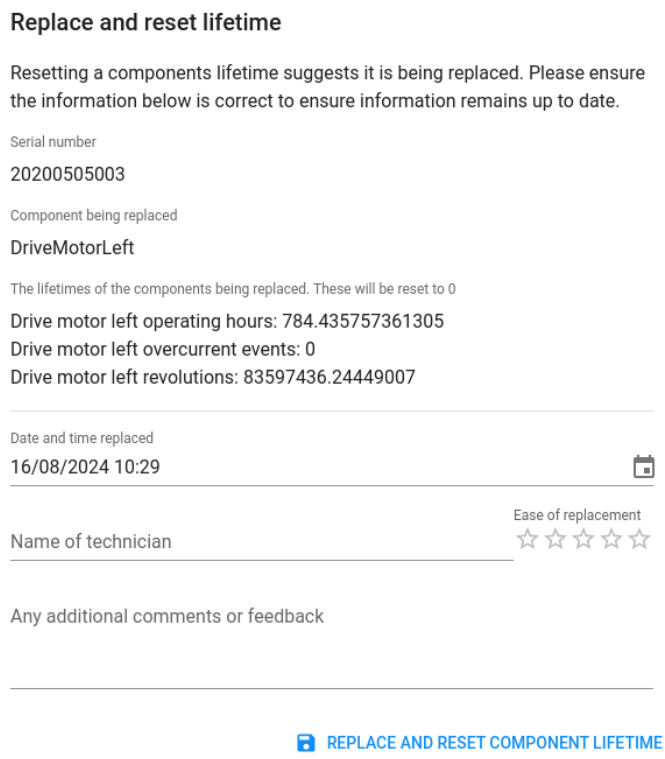

Figure 16: Page that pops up after clicking the "REPLACE" button.

Red Zones live update

Restricted zones can now be created or modified in real time, even while the robot is actively cleaning. The robot immediately recognizes any changes made to restricted zones.

Note: Avoid placing a restricted zone directly over the robot, as this would prevent it from moving.

Continue mapping after Moving Station

Continue mapping is now supported even after relocating the station within the Zone Planner.

K900 ECO and Cleaning Area Limit

KEMARO robots are available in two main configurations: Smart/Top and ECO. Among other differences, the ECO version is limited to a cleaning area size of 2500m² per room. The robot version can be seen in the service app, although it may not be changed after delivery.

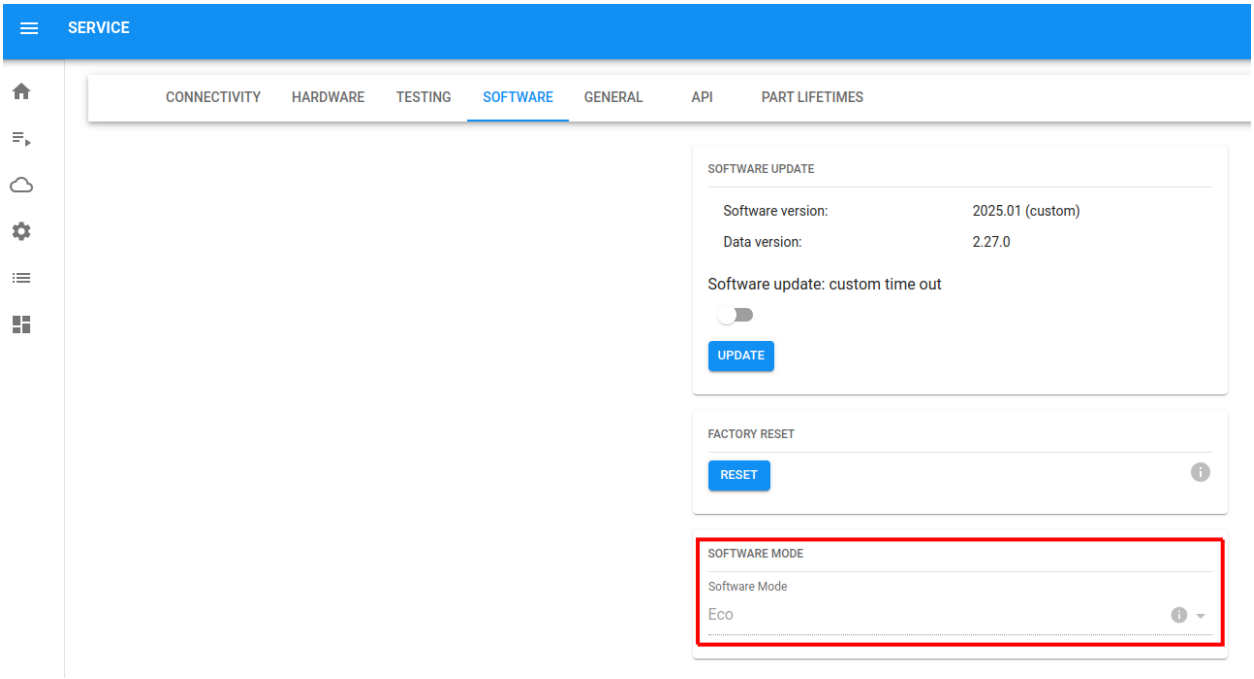

Figure 17: Software mode information of the corresponding K900 model.

Users can manually adjust the cleaning area limit during the mapping process, when uploading a room (see "Room Download and Upload"), or within the Zone Planner of an existing room.

Room Limit Visualization & Editing:

- The cleaning area limit is displayed similar to cleaning zones and can be modified.
- In the Room Zone Planner, the light area stands for the accessible space within the room limit, while the dark area indicates non-reachable space outside the limit.
- The total surface area of the room limit is displayed in the top-right corner as "Cleaning Area Limit".
- If the 2500m² limit is exceeded, the area indicator turns red, and the room cannot be saved—trying to do so will result in a validation error.

How to Edit the Room Limit:

1. Enable **Advanced Mode** from the **left sidebar**.

2. Click **"Edit Cleaning Area Limitation"** to modify the room limit zone.
3. Adjust the boundaries as needed, just like other zones.
4. Save the changes to apply the new room limit.

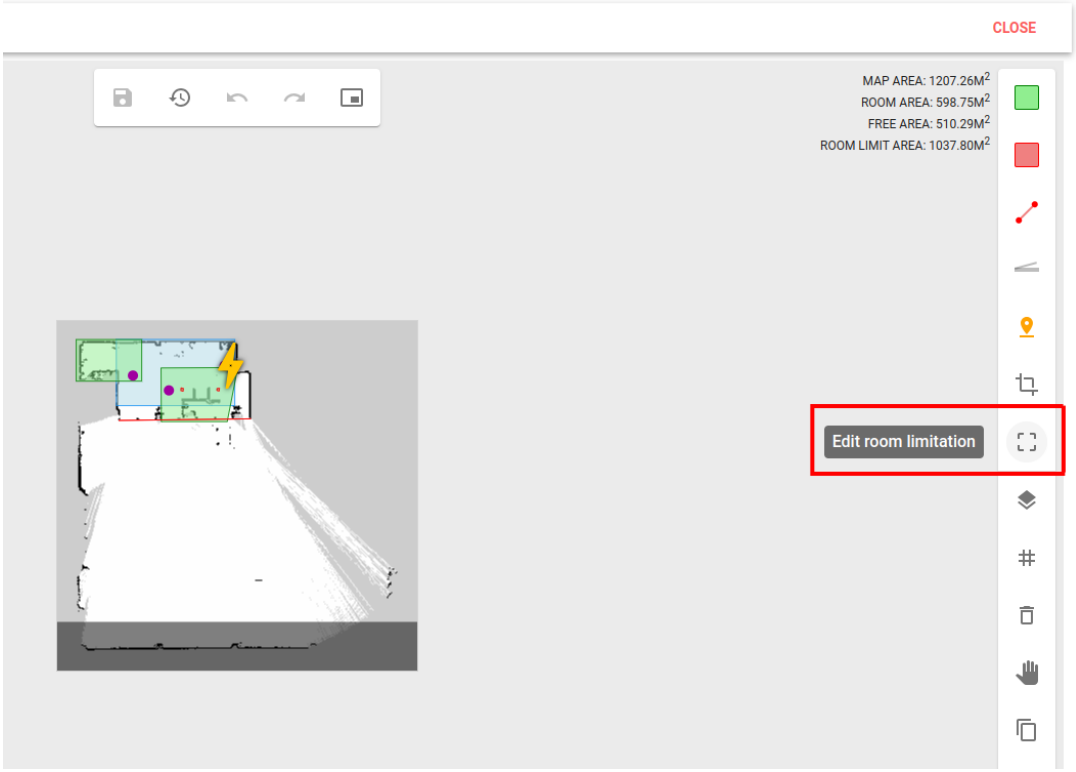

Figure 18: Edit cleaning area limitation feature in zone planner toolbar (for K900 ECO).

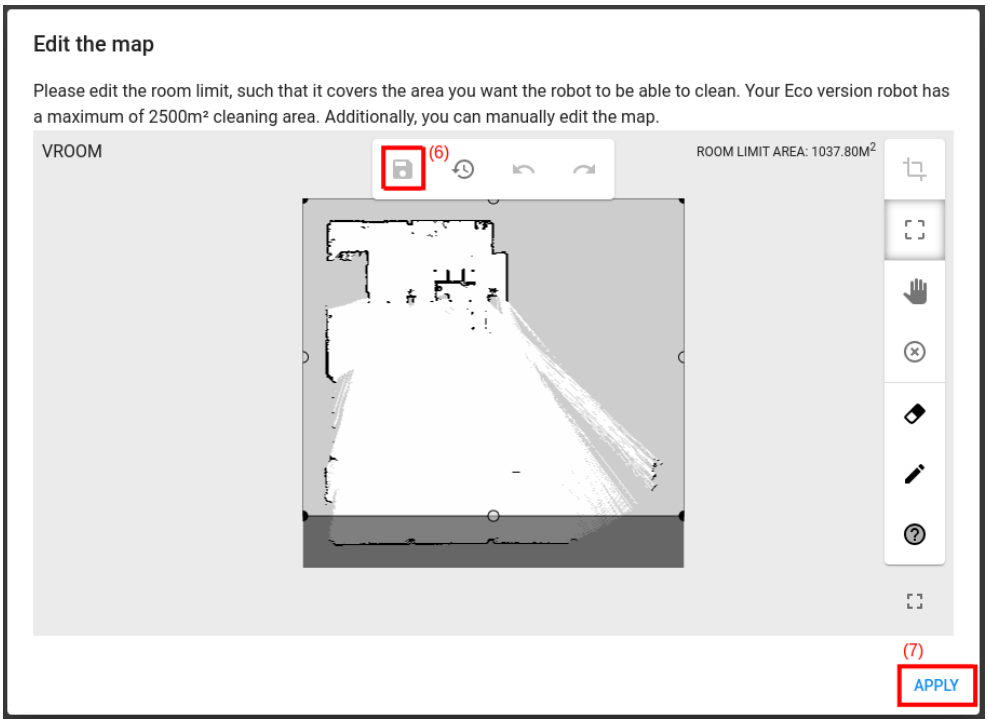

Figure 19: Click the save button and the apply button to confirm the new cleaning area limit edit (for K900 ECO).

Before changing back to default edit mode, the cleaning area limit zone changes must be saved with the "Save" button, otherwise all changes will be lost.

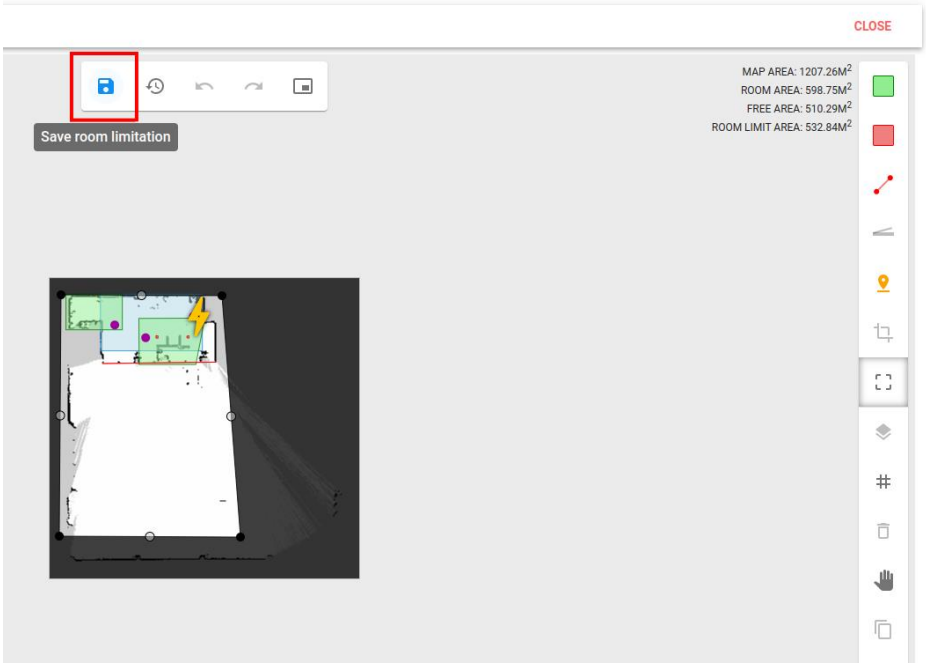

Figure 20: Click the save button to save changes made to the cleaning area limitations.

For ECO robots, an added mandatory step is needed in the mapping process once the first mapping is complete. During this step, the cleaning area limit can be reviewed and adjusted before completing the process.

The same applies when uploading a room before the upload is completed, the cleaning area limit must be configured to ensure it follows the 2500m² restriction.

Figure 21: Visualization of the room limitation in the dashboard.

Room Download and Upload

Rooms can now be exported and transferred between robots via the WebApp. A room can be downloaded as a **ZIP archive** and then uploaded to another robot, making it available for configuration and cleaning.

How to Download and Upload a Room:

1. Ensure **Advanced Mode** is enabled.
2. In the Rooms Overview, click "Download Room Files" to export the room as a ZIP file. The file will be saved in the user's default Downloads directory.
3. To transfer the room to another robot, click "Upload Room", select the ZIP file in the dialog window, and confirm by clicking "Upload".

Eco Robot Room Size Limit:

- K900 ECO Robots have a **room size limit of 2500m²** (see **"K900 ECO and Room Limit"** section for details).
- After a successful room upload, a configuration dialog will appear to adjust the room limit.

- Modify the room limit zone if needed, then click **"Save"** to apply changes before closing the dialog.

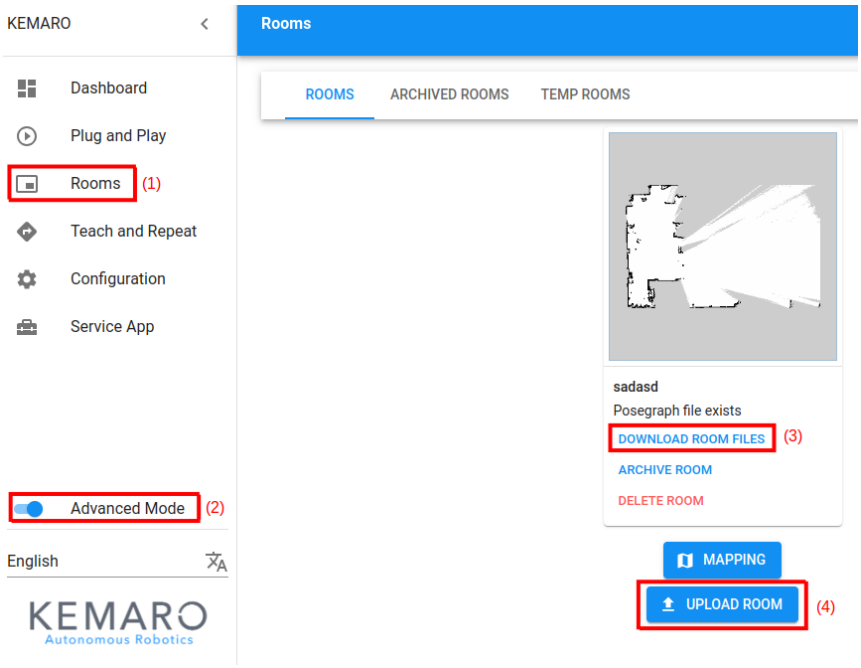

Figure 22: Where Upload Button is located on WebApp.

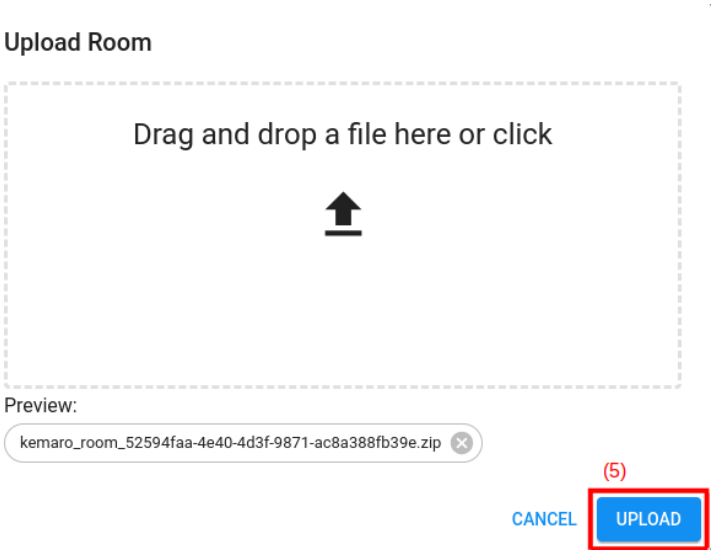

Figure 23: Pop-Up window when Upload Room button is clicked.

Room File Compatibility and Upload Restrictions

The "Download Room Files" button was available in earlier versions before 2025.01, but those ZIP files do not contain all necessary data to fully restore a room on a different robot. As a result, ZIP files downloaded from versions prior to 2025.01 cannot be uploaded to another robot.

Starting from version 2025.01, the feature is backward compatible, meaning a room downloaded on 2025.01 can be successfully uploaded to a robot running 2025.02 or later.

Room Upload Restrictions: Each robot cannot have multiple rooms with charging stations using the same ID (e.g., Room "A" with Station 1 and Room "B" with Station 1). Before uploading a room, ensure that it does not create a duplicate charging station ID conflict.

- This restriction is particularly relevant for distributors, while end customers typically have unique charging station IDs for different rooms, making this less of an issue.

Activate Current Schedule

It is now possible to activate the current schedule after an interruption by pressing a button in the Dashboard page of the Web App (see picture below).

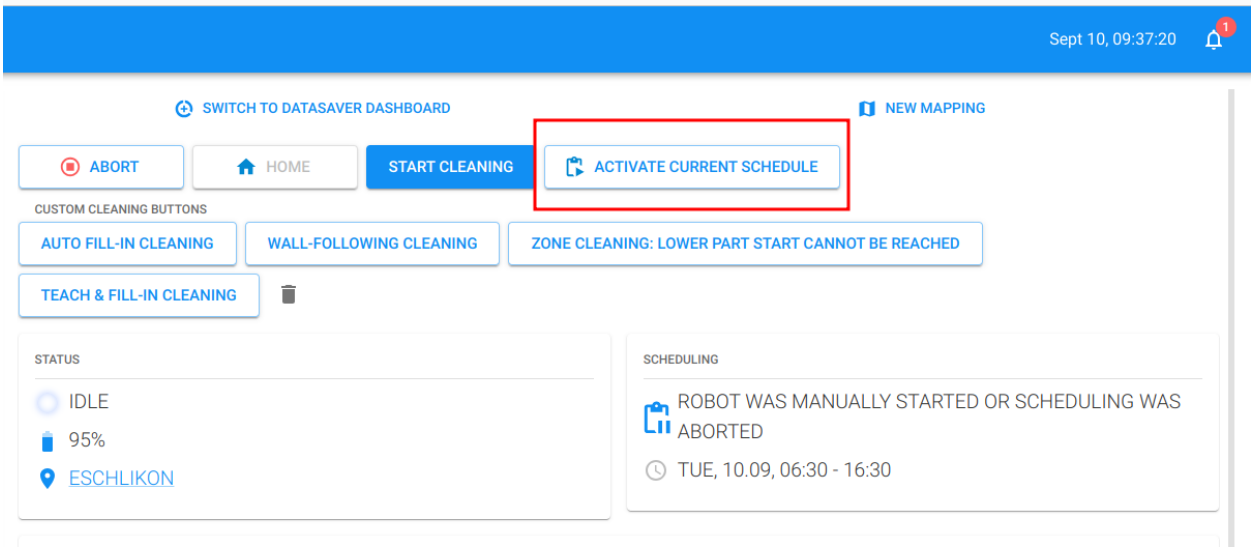

Figure 24: Button to activate current schedule after schedule has been manually cancelled.

The button is available only when applicable, specifically when an active schedule exists for the current room and has been interrupted either manually (e.g., by pressing the "Abort" button) or due to an "Interaction Required" state that has been confirmed.

Download Hotspot Certificate

A new button has been added to the top-right corner of the WebApp, allowing users to download the required certificate for connecting to the robot over a hotspot without going through the Advanced Connect setup for insecure connections.

The certificate must be added to the browser on the user's device to enable secure communication with the robot.

The download process runs through the robot's Wi-Fi, meaning it works even when the user is connected to the robot via hotspot without an active internet connection

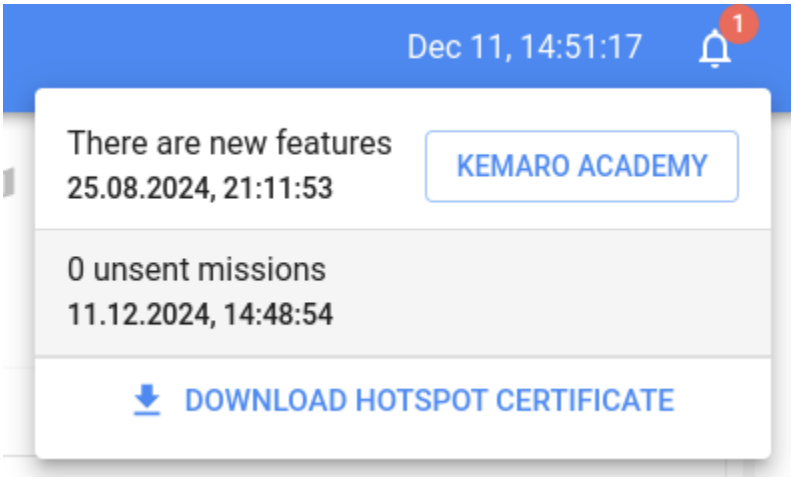

Figure 25: The button to download the certificate is in the top right corner of the screen.

Reboot System

A "Reboot System" button has been added to the Robot Configurations page, allowing users to restart the entire system.

How It Works:

- Pressing the button triggers a confirmation popup with "Confirm" and "Cancel" options.
- Selecting "Confirm" starts the reboot, while "Cancel" aborts the process.
- Once the reboot begins, it cannot be stopped, and the connection to the robot will likely be lost temporarily.

WebApp Behavior During Reboot: While the reboot loads, do not refresh the WebApp.

- Once the robot is back online and reconnects, the loader will disappear, and the robot will be ready for use.

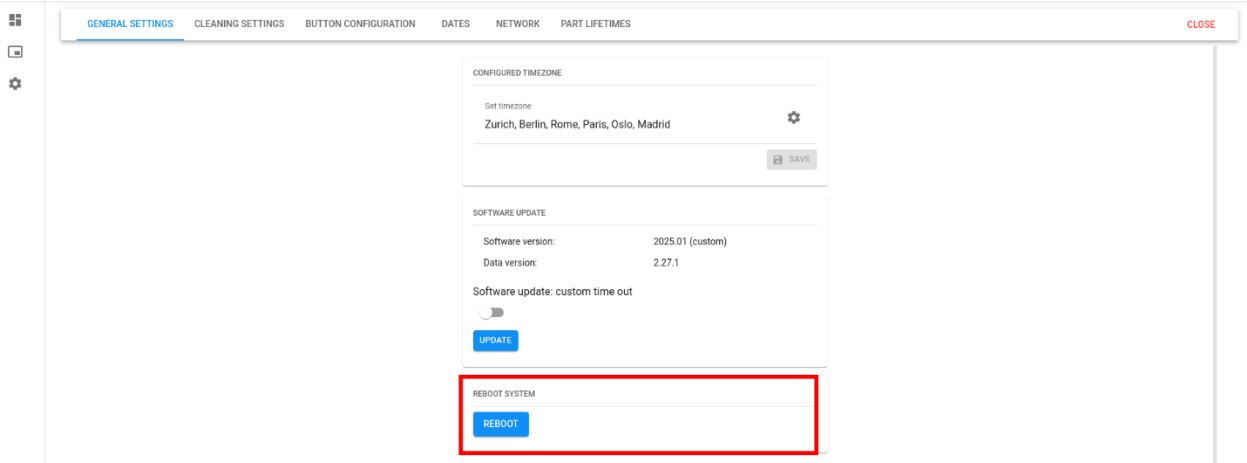

Figure 26: Button to reboot robot.

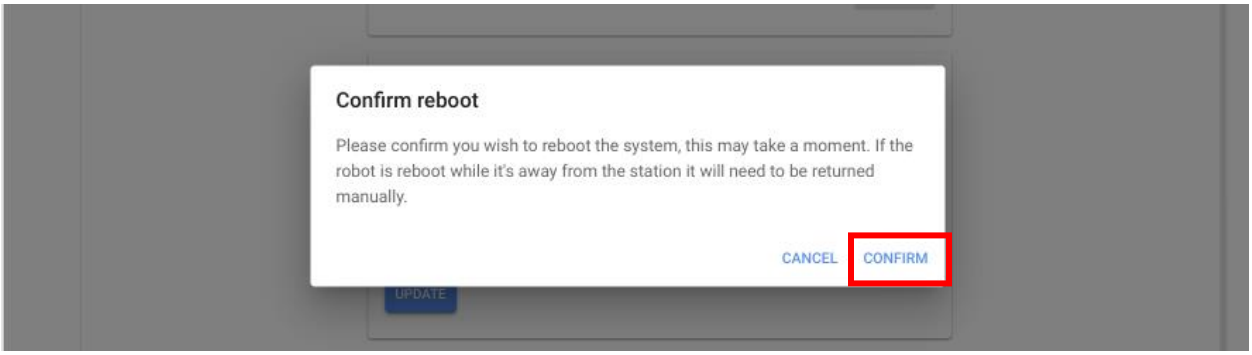

Figure 27: Pop-up window asking to confirm the reboot after it was pressed.

KEMARO Cloud

RC Usage Reported on Cloud

When the robot is operated using the remote control (RC), it now reports this activity to the cloud. A report is created each time after the RC is deactivated.