

Pally for Polyscope X

Pally Knowledge Base

21 October, 2026

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Valid for Pally version 1.5

- PolyScope X 10.13 or above is recommended for Pally PSX v1.5.

For additional information, please use our knowledge base, filled with articles on all items relevant to palletizing with Pally.

Pally Knowledge Base - [Pally Knowledge Base](#)¹

1. <https://rocketfarm.atlassian.net/wiki/spaces/PB>

1 Pally for Polyscope X - Installation and Calibration

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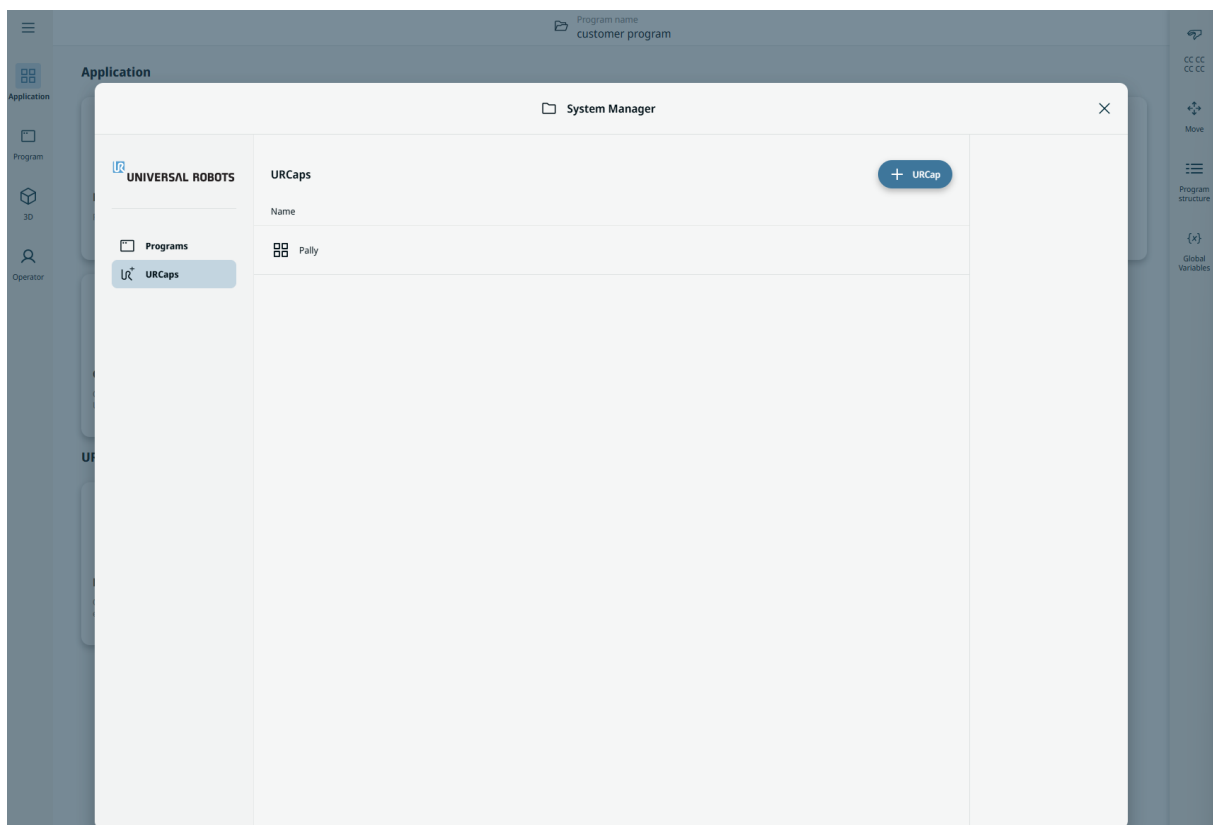
1.1 Installation of Pally

Download the latest version of Pally from the homepage of Rocketfarm.

<https://www.rocketfarm.no/software-products/palletizing/pally-official-software-download/>

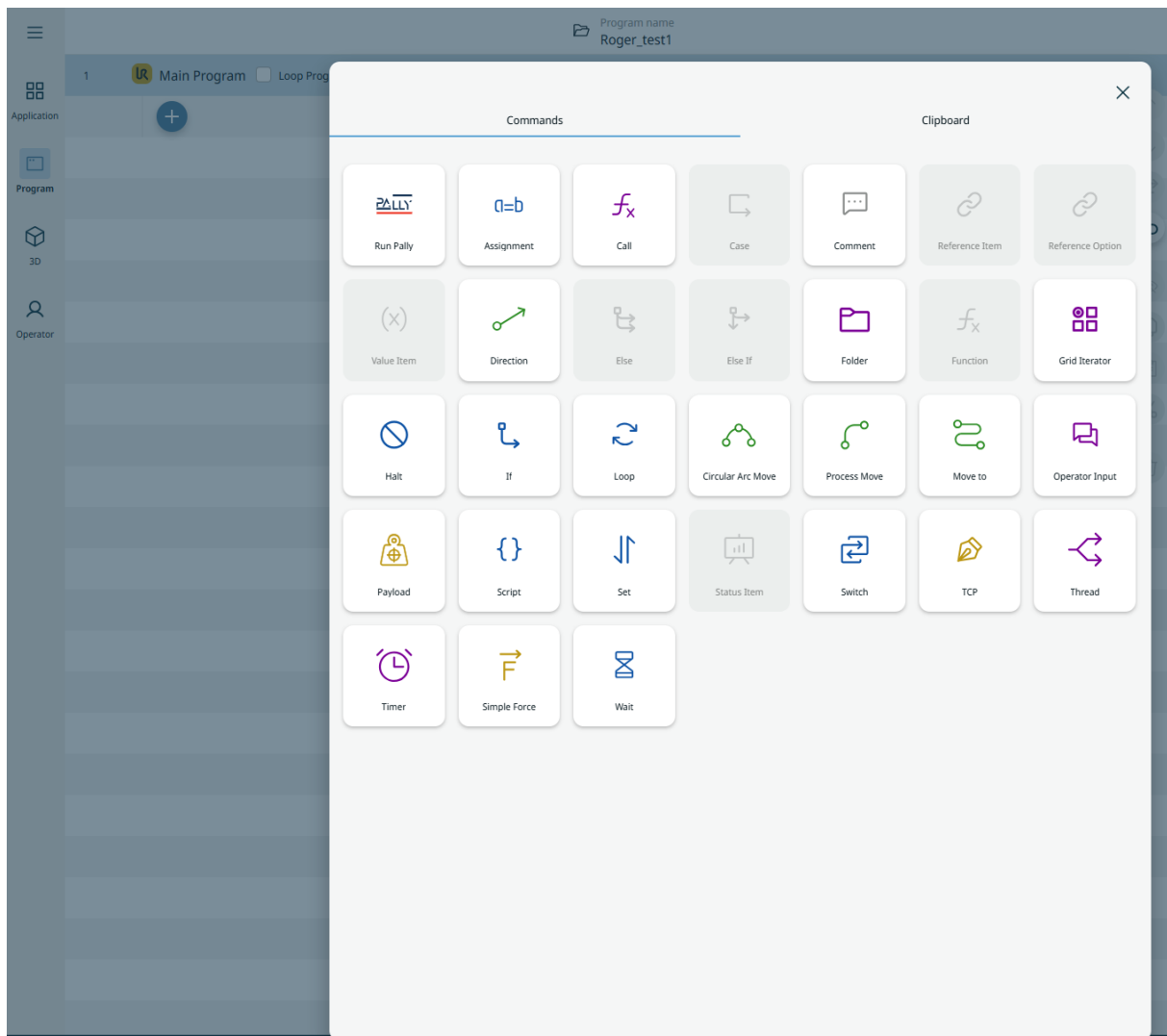
Use a USB stick connected to the Teach Pendant to install the Pally software. Follow the steps below.

Step 1.



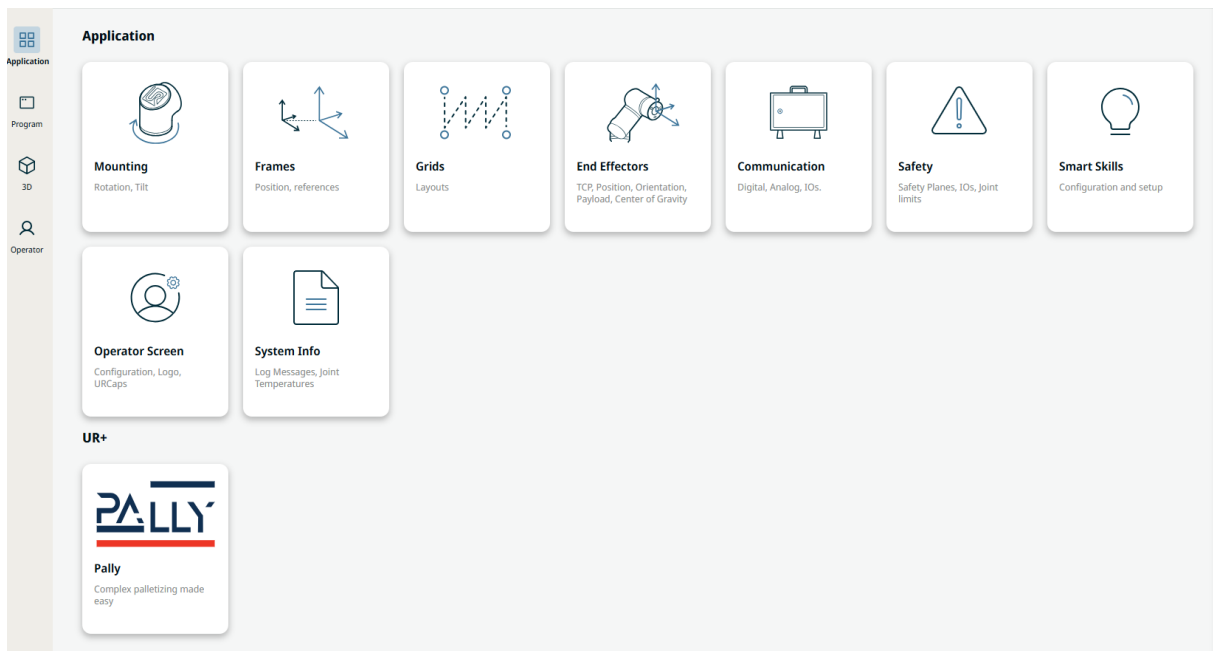
1 Go to System Manager and enter the password "easybot" to get access to the URCaps menu, where you upload the Pally software.

Step 2.



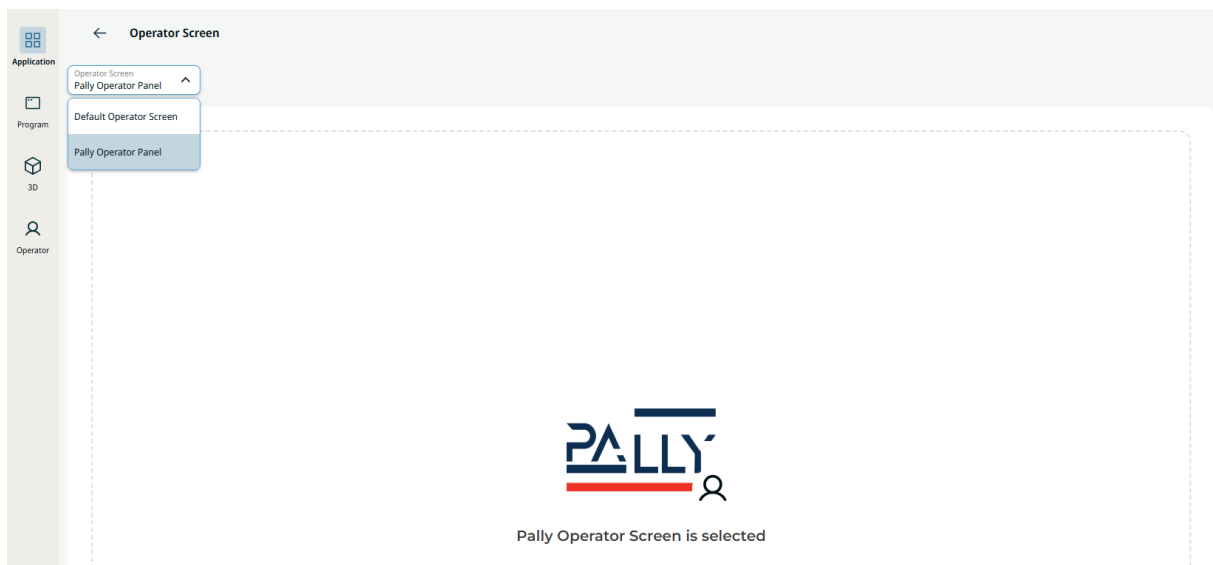
2 Create the Pally program in the program menu by pressing + and choosing Run Pally.

Step 3.



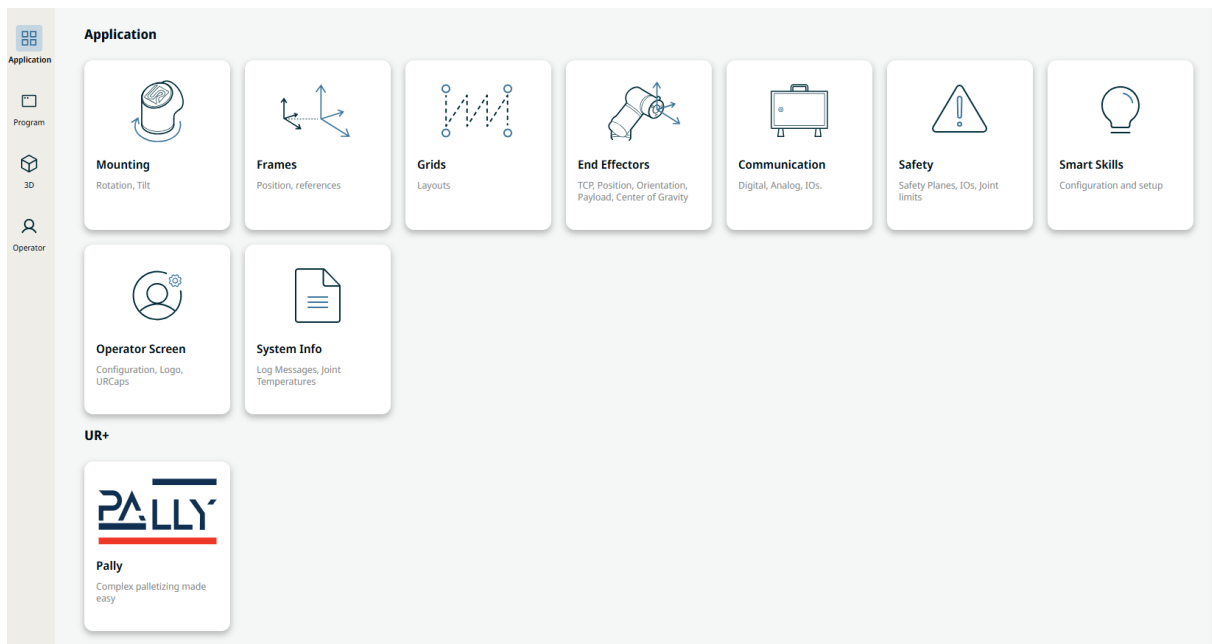
3 Go to Operator screen in the Application menu

Step 4.



4 Choose Pally Operator Panel

Step 5.



5 Open the Pally software from the Application menu.

1.2 Setting up the hardware

1.2.1 Gripper

1.2.1.1 Mounting

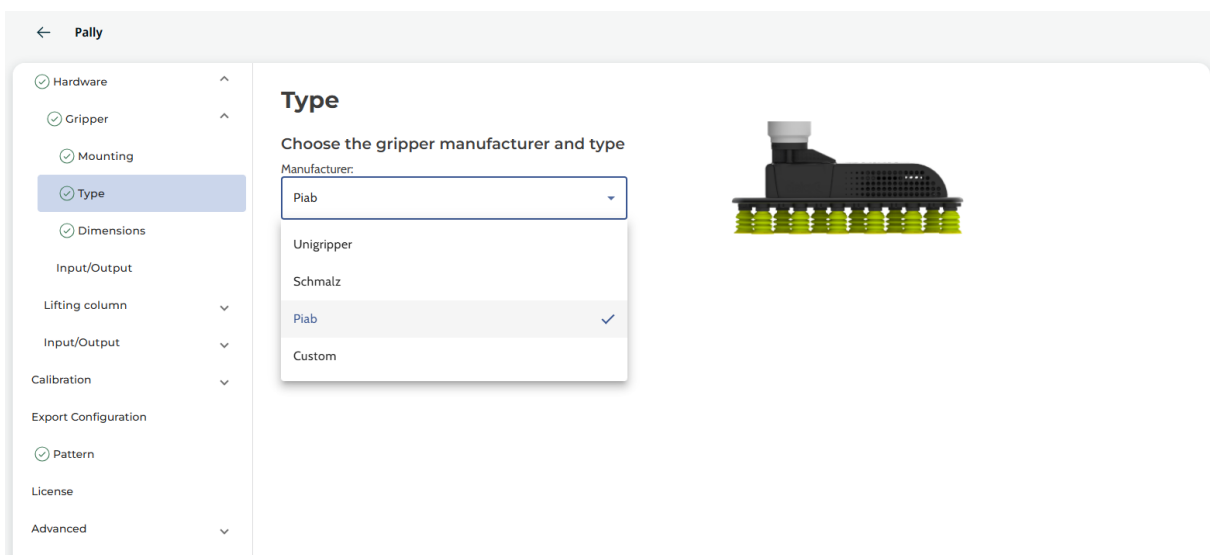
It is recommended to mount the gripper onto the robot so that the tool connector faces in the direction of the conveyor. This makes calibration easier, and the length and width of the gripper align with those of the product.



1.2.1.2 Type, dimensions, and Input/Output

1.2.1.2.1 Natively integrated grippers

Pally features a range of integrated grippers from producers Piab, Schmalz, and Unigripper. If your installation uses one of the grippers in the list, you can choose it here. All dimensions, TCP and COG are automatically filled in, so you do not have to do this yourself.



If you are using a mounting bracket to add offset, you choose this from the “Dimensions” menu and set the correct TCP manually.

← Pally

Hardware

Gripper

Mounting

Type

Dimensions

Input/Output

Lifting column

Input/Output

Calibration

Export Configuration

Pattern

License

Advanced

Dimensions

Choose the correct dimensions

Length (A)

400 mm

Height (B)

165 mm

Width (C)

140 mm

Weight

2.25 kg

Offset (gripper mounting)

Something else (set your TCP)

⚠ To use the same TCP in manual programming, set Pally TCP as default in End effector

Set custom TCP

Set the TPC and COG position and set the TCP as default and active in the End Effectors menu in Polyscope.

← End Effectors

End Effectors

Robot

Tool_flange

End_effector_1

TCP_1

+ Add TCP

+ Add End Effector

Tool Center Point

Define the offset from the Tool Flange to the working point of the tool.

Position

X

0.0 mm

Y

0.0 mm

Z

0.0 mm

Orientation

RX

0.00 °

RY

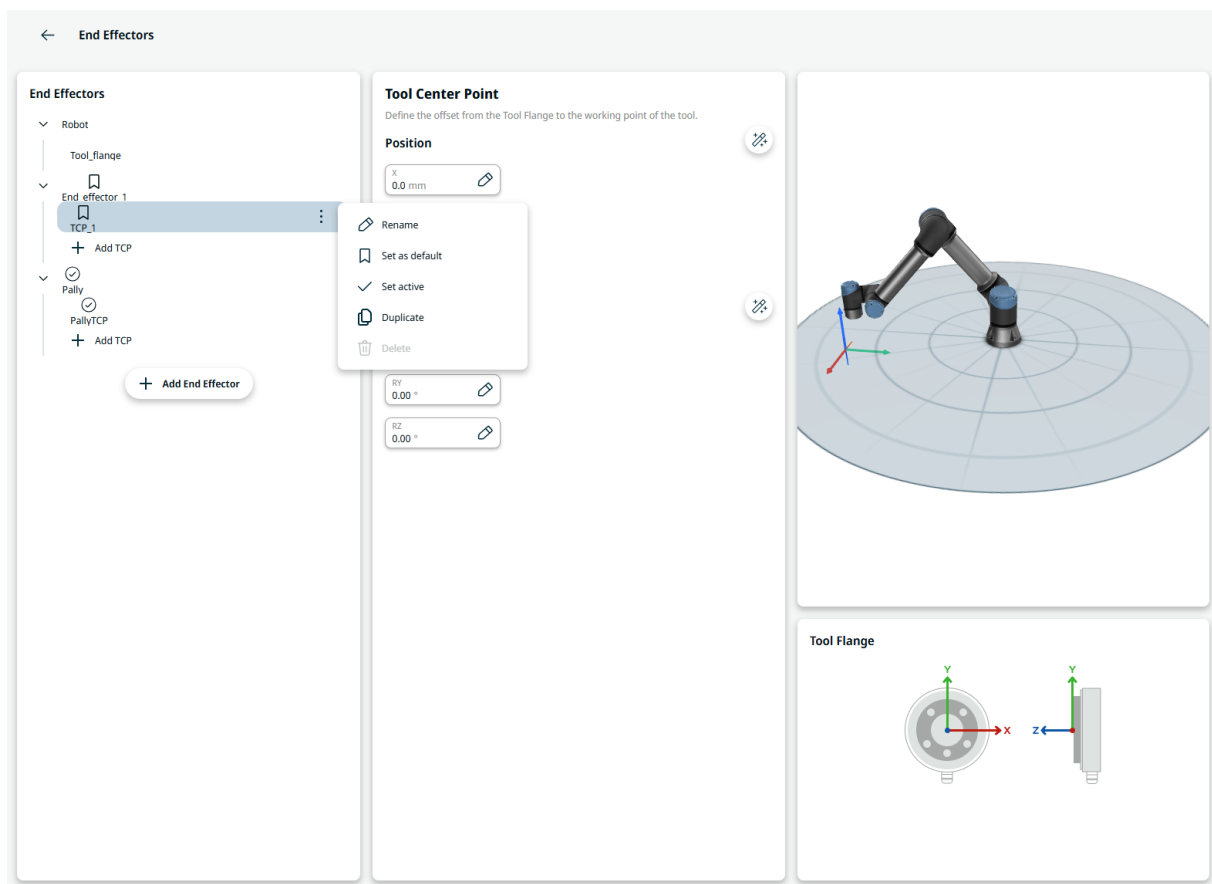
0.00 °

RZ

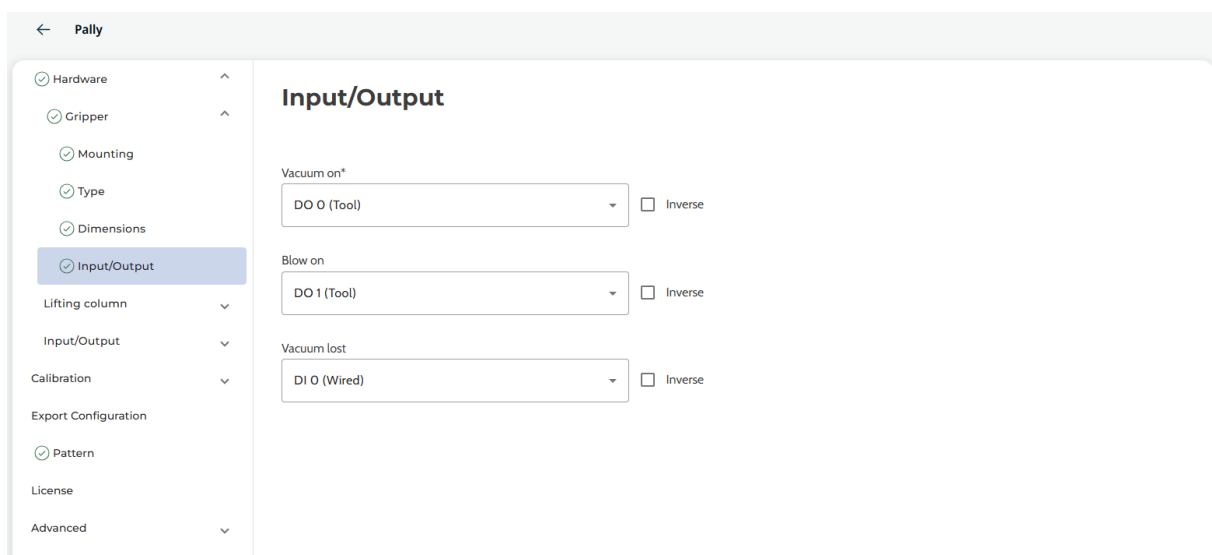
0.00 °

Tool Flange

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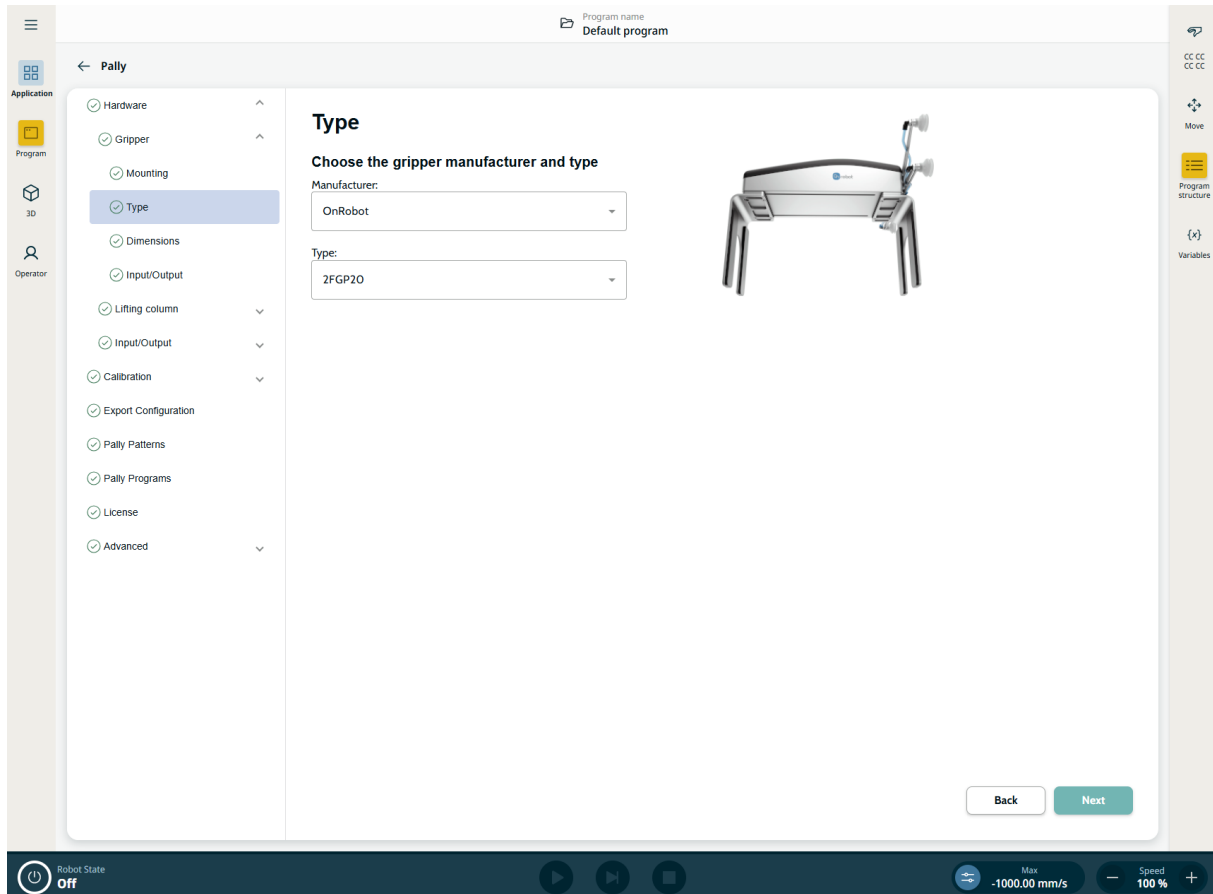


Finally, you add the I/O's for the gripper.



1.2.1.2.2 OnRobot 2FGP20

You can now choose the mechanical gripper 2FGP20 from OnRobot.



By Choosing this gripper all dimensions, TCP, COG and I/O's are set in Pally. We recommend using MyRobot.cloud to create pattern by using the mechanical gripper feature in the generator. You need to choose: Pickup side: Right, Gripper clearance: 100mm and Fixed paddle thickness: 11mm.

CREATE PATTERN
Step 2: Set pattern details

Name* Description

Stacking method* Interlocking layers Pallet* EU 1 - 1200 x 800 x 144 ...

Number of layers* 5 Label orientation* Optimized Speed* 0

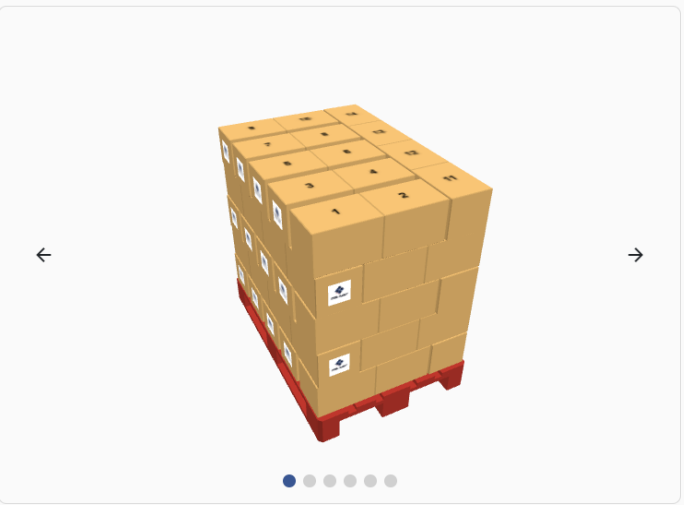
Cases per minute

Overhang sides 0 mm Overhang ends 0 mm Product padding 0 mm

Gripper type Mechanical-Clamp Pickup side Right

Gripper clearance: 100 mm Fixed paddle thickness: 11 mm

70 1.094 m 70 kg 5 84.58 0.62 m



1.2.1.2.3 Custom gripper

Pally can work with any gripper. Choose “Custom” as the type and enter the dimensions by pressing “Edit custom gripper”. On the type menu, Pally will show the layout of the gripper according to how the Robot perceives it.

← Pally

- Hardware
- Gripper
- Mounting
- Type
- Dimensions
- Input/Output
- Lifting column
- Input/Output
- Calibration
- Export Configuration
- Pattern
- License
- Advanced

Type

Choose the gripper manufacturer and type

Manufacturer: Custom

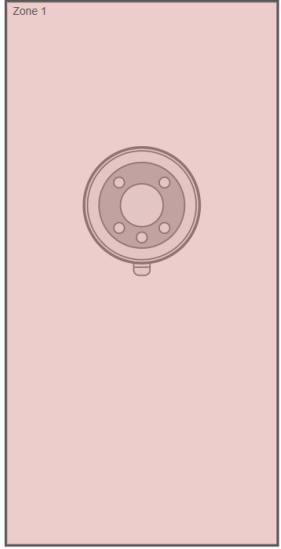
A valid gripper is configured

Show layout in fullscreen

Edit custom gripper

Upload another file

Zone 1

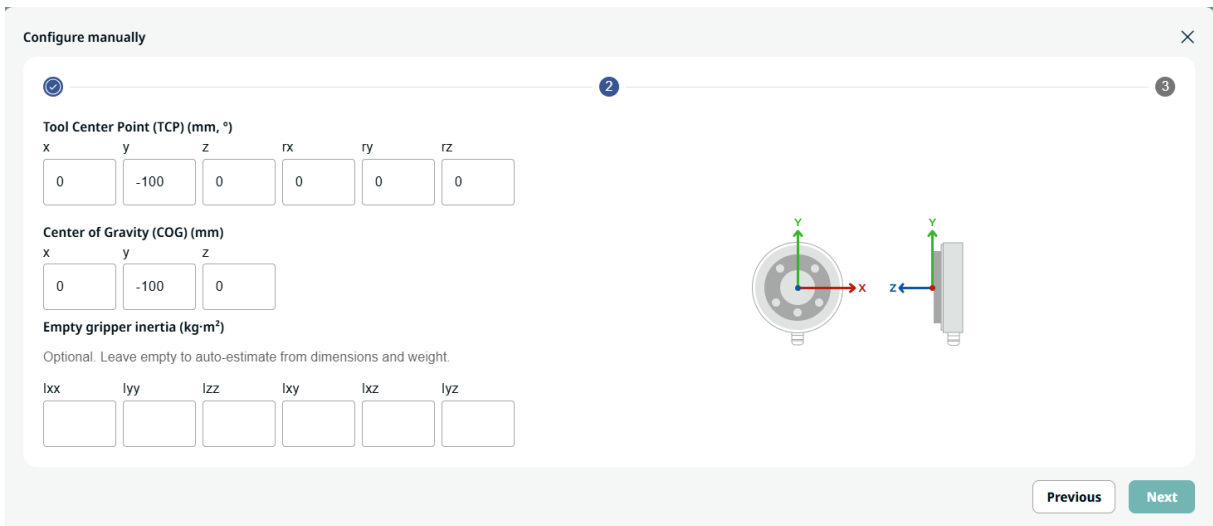


You enter the name of the gripper and add all dimensions: Length, width, height, and weight.

Afterwards, you enter TCP in all 3 dimensions and any rotation as well. Positive directions are the directions the arrows are pointing in the illustration.

Add COG to avoid unnecessary protective stops during palletizing. This is especially important if the gripper is heavy.

You can add inertia inputs for the empty gripper, but Pally will automatically calculate the inertia if you leave the fields empty. The calculation is based on equal distribution of weight for the gripper. If the weight is highly unevenly distributed in the gripper, we recommend filling in the values based on the gripper.



The 'Configure manually' dialog box is shown with a progress bar at the top indicating step 2 of 3. The dialog contains the following sections:

- Tool Center Point (TCP) (mm, °)**: A grid of input fields for x, y, z, rx, ry, and rz. The values entered are x: 0, y: -100, z: 0, rx: 0, ry: 0, rz: 0.
- Center of Gravity (COG) (mm)**: A grid of input fields for x, y, and z. The values entered are x: 0, y: -100, z: 0.
- Empty gripper inertia (kg·m²)**: A section with a note 'Optional. Leave empty to auto-estimate from dimensions and weight.' and a grid of input fields for Ixx, Iyy, Izz, Ixy, Ixz, and Iyz, all of which are currently empty.

On the right side of the dialog, there is a 3D diagram of a gripper with coordinate axes (x, y, z) and a center point. At the bottom right, there are 'Previous' and 'Next' buttons.

Finally, you enter the output signal for Grip and Blow.

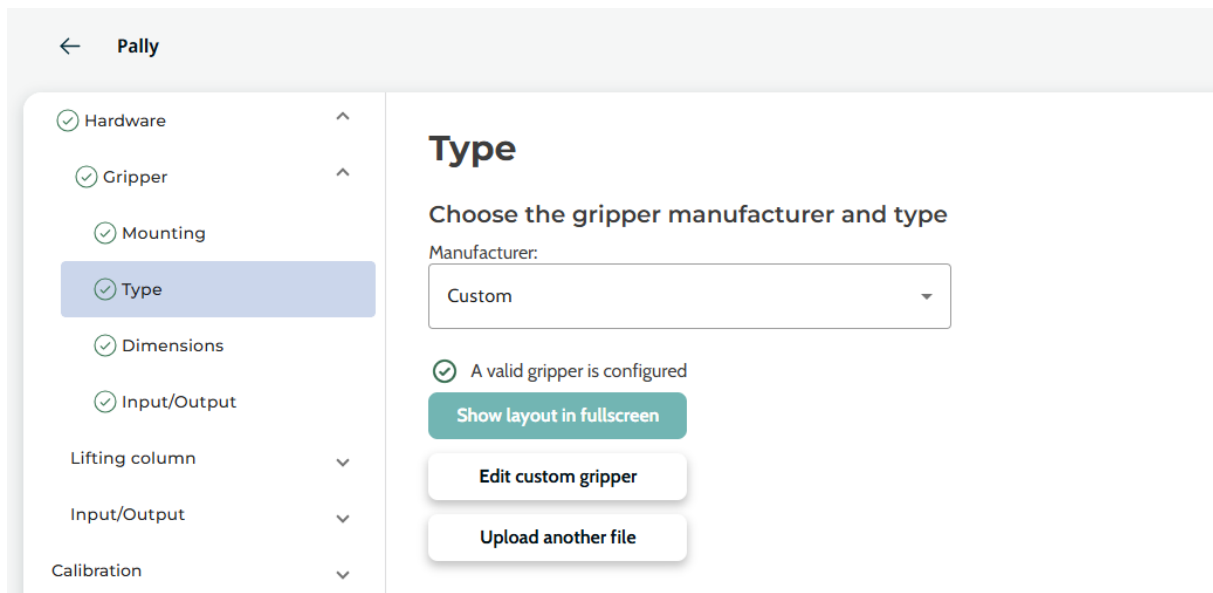


The 'Configure custom gripper' dialog box is shown with a progress bar at the top indicating step 3 of 3. The dialog contains the following sections:

- Grip signal**: A dropdown menu with 'DO 0 (Tool)' selected. Below it is an 'Inverted' checkbox which is unchecked.
- Blow signal**: A dropdown menu with 'DO 1 (Tool)' selected. Below it is an 'Inverted' checkbox which is unchecked.

1.2.1.2.4 Custom gripper with zones

You can also use a gripper with individual pneumatic zones. This is done by creating a gripper.JSON file and uploading it. You can write this JSON file yourself, or you can use the configurator on MyRobot.cloud to generate the file. This file contains all relevant information on dimensions, TCP, COG, zones, and I/O's. Choose "Upload another file" in the Gripper Type menu to add this file to Pally.



1.2.2 Lifting column

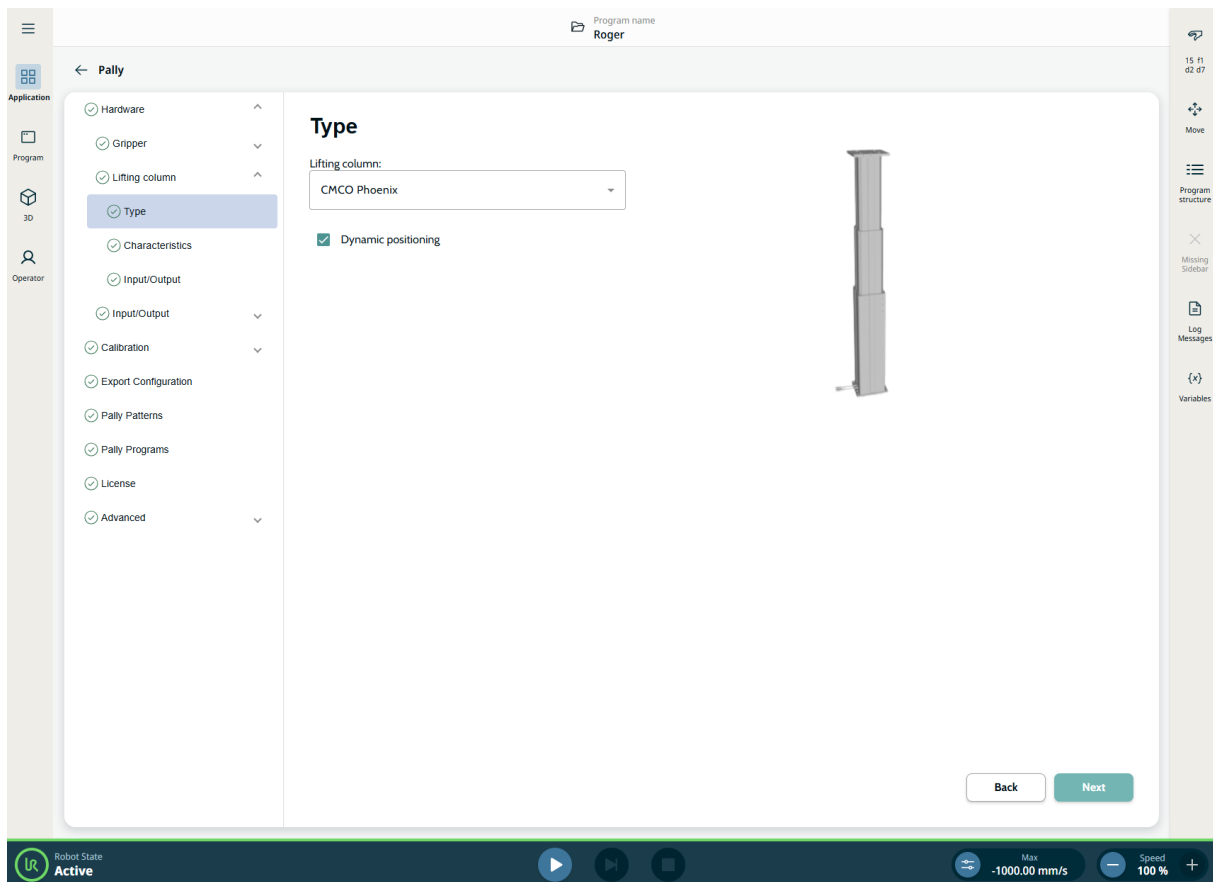
1.2.2.1 Type, Characteristics, and Input/Output

1.2.2.1.1 None

Use this option if your robot is mounted on a fixed mounting position.

1.2.2.1.2 CMCO Phoenix

If you use a CMCO Phoenix lifting column together with Pally, you just choose it here. Set dynamic positioning and stroke, and Pally will control all lifting column movements without any additional programming.



1.2.2.1.3 Generic

Use this option if you use a lifting column. Enable Dynamic positioning to enable Pally to calculate the optimal placement of the lifting column based on the palletizing operation.

Add the maximum lifting height of the lifting column in Characteristics, and add the Inputs and Outputs necessary to control the lifting column.

The timeout is how long Pally waits for a signal from “End position up”, “End position down”, or “Is moving” before a pop-up appears, telling the operator to check the lifting column.

Input/Output
Set inputs and outputs for the lifting column.

Move up
 ☐ Inverse
 End position up*
 ☐ Inverse

Move down
 ☐ Inverse
 End position down*
 ☐ Inverse

Is moving*
 ☐ Inverse

Timeout
 10 s

1.2.3 Input/Output

Here is where you set the different inputs and outputs for pallets and conveyors, as well as any LED-tower.

1.2.3.1 Left Pallet

If you are using a sensor to detect pallet presence or a push button, you enable the left pallet I/O and set the input signal. You can also use the Operator panel or a software-controlled signal for this input to the Pally program.

The “No Pallet” output can be used to indicate that there is no pallet present for palletizing, either as a light signal or something else.

Left Pallet

☒ Enable left pallet I/O

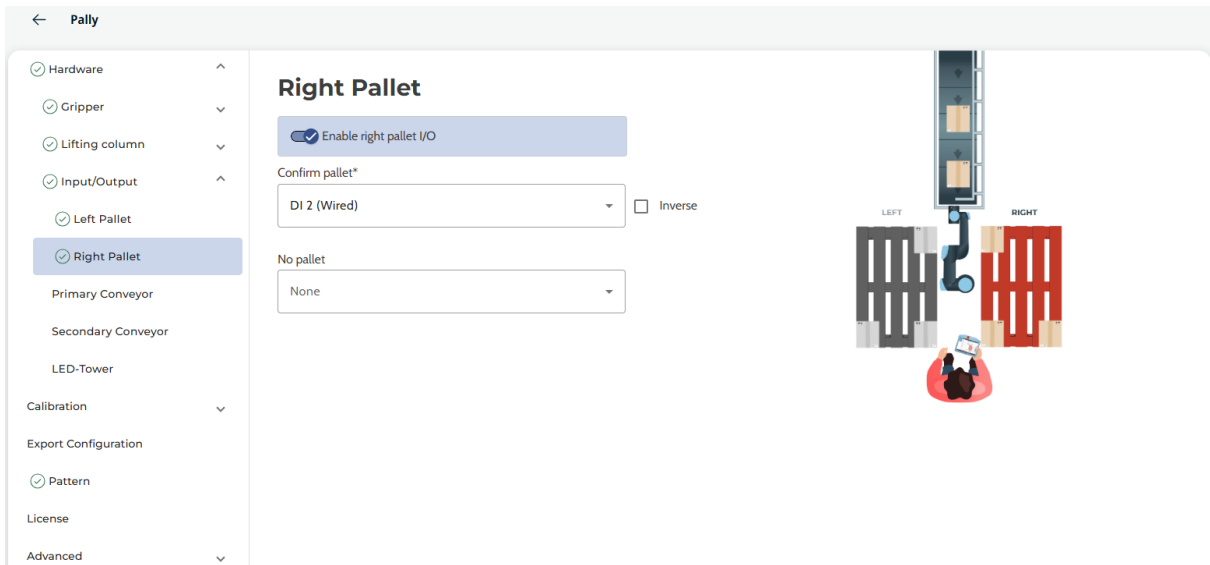
Confirm pallet*
 ☐ Inverse

No pallet

Diagram illustrating the Left Pallet configuration, showing a vertical lifting column with a gripper, and two pallets (LEFT and RIGHT) being moved. A person is shown operating the system.

1.2.3.2 Right Pallet

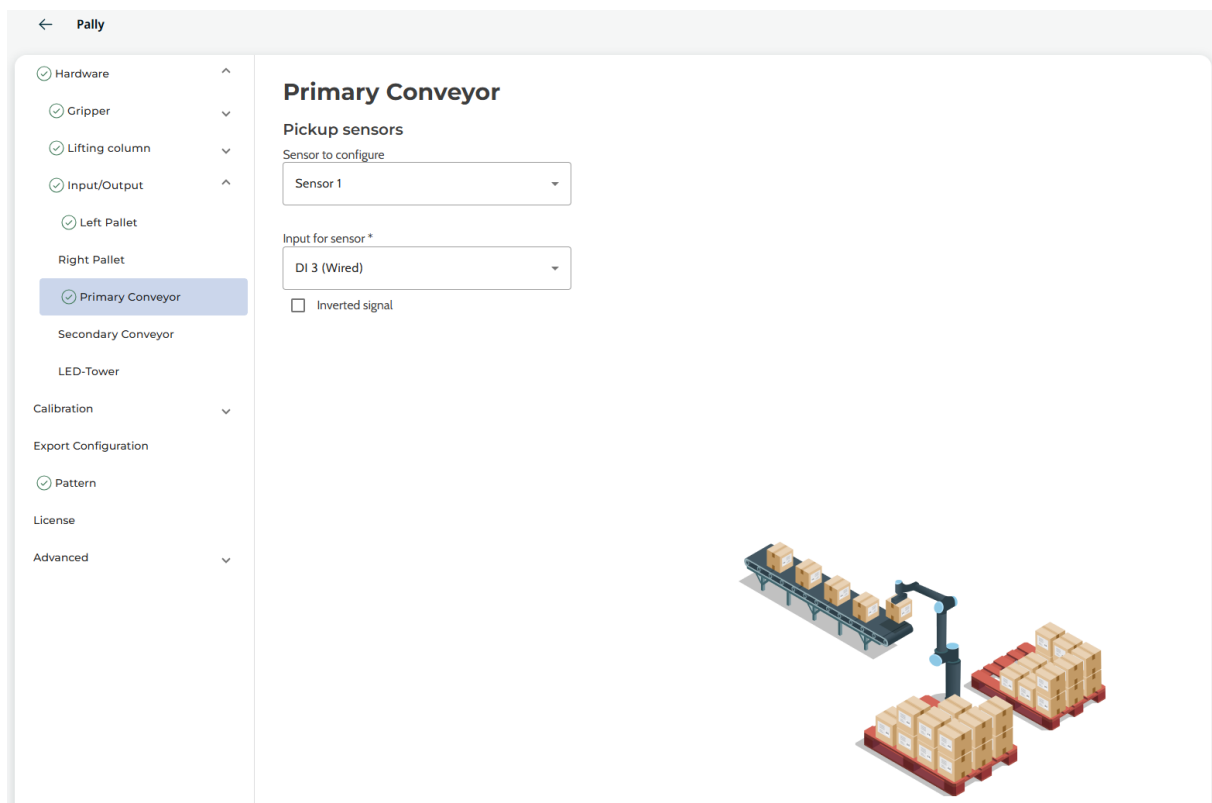
If you are using a sensor to detect pallet presence, you enable the right pallet I/O and set the input signal. The “No Pallet” output can be used to indicate that there is no pallet present for palletizing, either as a light signal or something else. You can also use the Operator panel or a software-controlled signal for this input to the Pally program.



1.2.3.3 Primary conveyor

Pally needs a signal telling the program that the product is present and can be picked. If the installation should be able to double pick, you need two sensors, where each sensor detects the presence of a product. Sensor 1 is for the first product. Sensor 2 is for product number two in a double pick scenario. Sensor 3 is for product number 3 in a triple pick scenario. The maximum number of products that can be picked simultaneously is 8.

If the installation has only one conveyor, you set the product sensors here in the Primary conveyor menu.

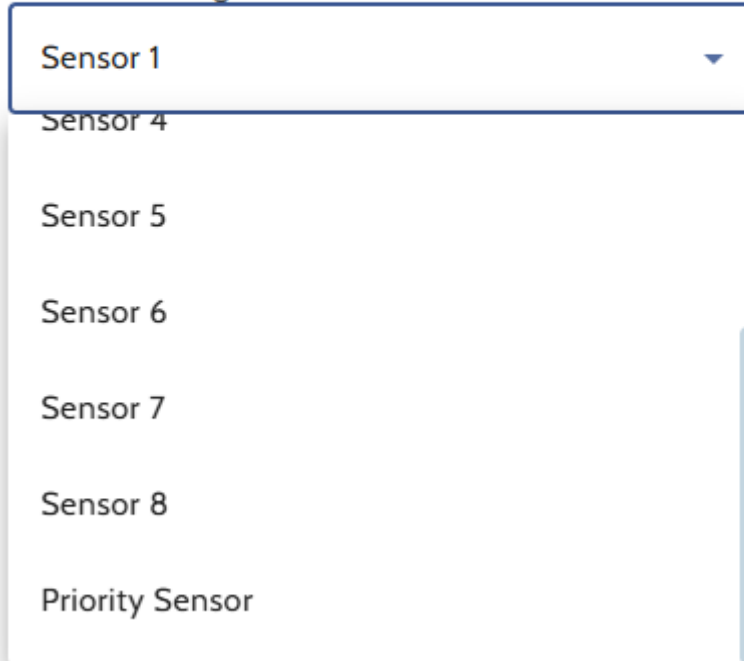


The priority sensor is a sensor that can be added to your conveyor. The priority sensor will override the default palletizing flow of one pick-cycle on each conveyor, back and forth. As long as the priority is triggered, Pally will pick from this conveyor.

Primary Conveyor

Pickup sensors

Sensor to configure



Sensor 1

Sensor 4

Sensor 5

Sensor 6

Sensor 7

Sensor 8

Priority Sensor

1.2.3.4 Secondary Conveyor

Enable the secondary conveyor if your installation needs two pick positions, in a dual product mode or dual infeed mode.

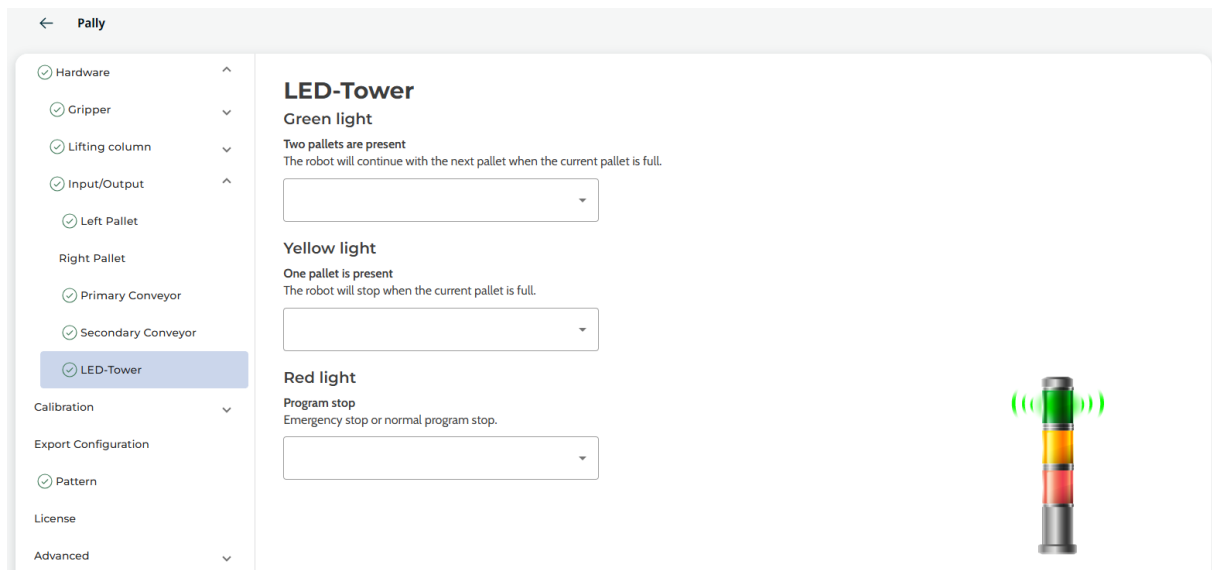
Dual infeed means that you pick the same product from two conveyors, and palletize the same pattern on both pallets.

Dual product mode means that you pick two different products from two conveyors or pick positions and palletize them on two different pallets with individual patterns. You can use two pick positions on the same physical conveyor, but you set the corresponding sensors for product number two on the Secondary Conveyor menu.

The priority sensor is a sensor that can be added to your conveyor. The priority sensor will override the default palletizing flow of one pick-cycle on each conveyor, back and forth. As long as the priority is triggered, Pally will pick from this conveyor.

1.2.3.5 LED-Tower

Set output signals to control an LED tower if you use one in the installation.



1.3 Calibration

After setting all necessary information regarding hardware, the next step is to do the calibration of the installation. We recommend being accurate while calibrating the system, since this is the foundation for palletizing all different products and pallets later. You do the calibration only once. The pattern file will contain all the information Pally needs to palletize different products and pallets afterwards.

1.3.1 Box Dimensions

Enter the dimensions of the box you are using while calibrating the installation. Use the same box for both pickup positions and pallet positions. This box does not have to be the same box as you will palletize in the installation later. The important thing to consider is that the box is stable and does not become disfigured while doing the calibration.

We also recommend that the box be bigger than your gripper. This makes it easier to measure that the gripper is placed in the center of the box.

← Pally

✓ Hardware

✓ Calibration

✓ **Box Dimensions**

Waiting Position

Primary Pickup Position

Secondary Pickup Position

Viewpoint

Left Pallet

Right Pallet

Pallet Height

Movement

Export Configuration

✓ Pattern

License

Advanced

Box Dimensions

Input the dimensions of the calibration box.

Length

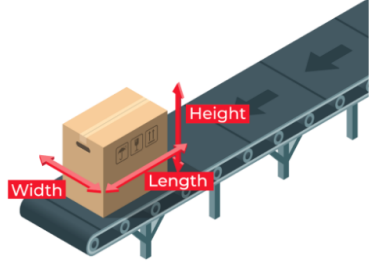
294 mm

Width

195 mm

Height

203 mm



1.3.2 Waiting Position

Set the position of the robot where you want the gripper to be placed while waiting for new products or while changing pallets. We recommend placing this position close to the above pick position to avoid unnecessary movements during palletizing.

← Pally

✓ Hardware

✓ Calibration

✓ Box Dimensions

✓ **Waiting Position**

Primary Pickup Position

Secondary Pickup Position

Viewpoint

Left Pallet

Right Pallet

Pallet Height

Movement

Export Configuration

✓ Pattern

License

Advanced

Waiting Position

The robot will wait in a default position while there is no pallet present or no product(s) can be picked.

Note: This position also corresponds to the waypoint in the first MoveJ-node in the Pally-tree.

Move here

Change position



1.3.3 Primary Pickup Position

Give your conveyor a name if you like.

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← Pally

Hardware

✓ Calibration

✓ Box Dimensions

Waiting Position

✓ Primary Pickup Position

Secondary Pickup Position

Viewpoint

Left Pallet

Right Pallet

Pallet Height

Movement

Export Configuration

✓ Pattern

License

Advanced

Primary Pickup Position

Conveyor Name ⓘ

Robot position ⓘ

Conveyor total width ⓘ
 mm

Fixed guide position ⓘ

☒ Left
☐ Right

Fixed guide width ⓘ
 mm

Conveyor Name

The name of the conveyor.



Calibrate the pickup position by placing the center of the gripper in the center of the calibration box. Make sure that you have equal distance both left and right, as well as equal distance front and back.

Robot Position

The position of the robot in the pickup position.



Compress the suction cups or the foam approximately 50% to make sure you have good contact with the product.



Now you set the position.

1.3.3.1 TCP check

Correct TCP is crucial for Pally to accurately pick and place products without crashing into existing boxes on the pallet or colliding with other hardware, such as the conveyor or frame.

Setting the TCP correctly can be a challenge if you do not get this information from the producer of the gripper. We recommend doing a quick check to see if the TCP is in the correct place.

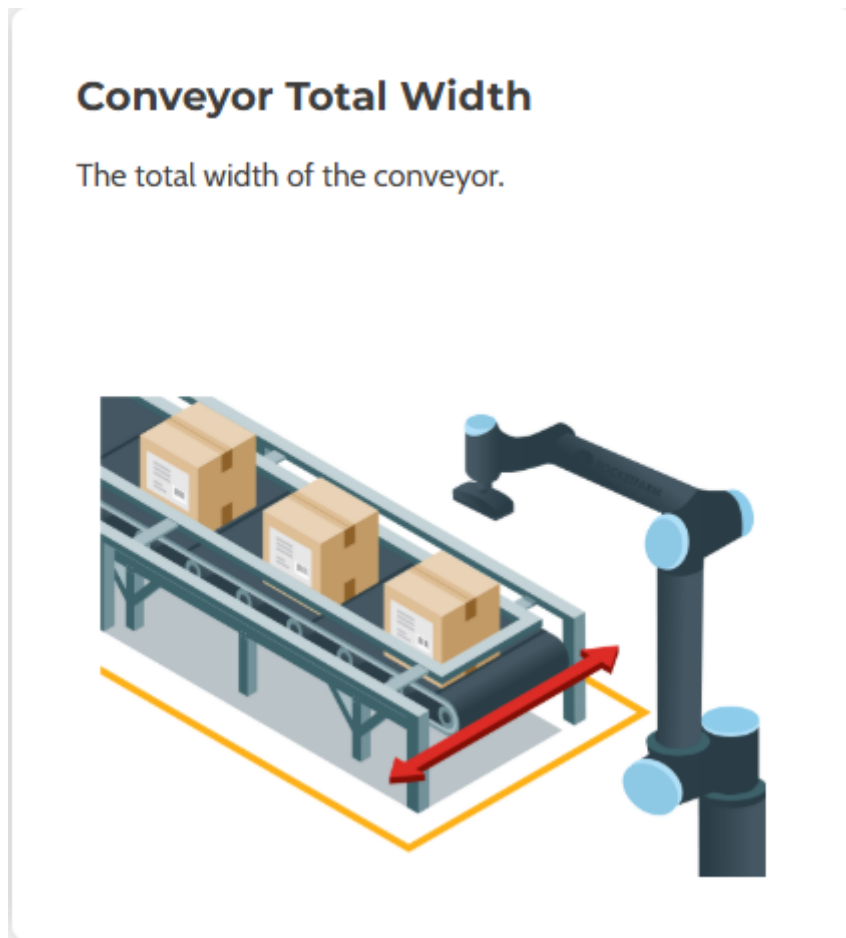
To verify that the TCP settings are correct, you can perform the following steps:

1. Move the robot to the calibrated pickup position.
2. Go to the Move menu, and select Tool or TCP.
3. Press the **Y-** arrow button, and the gripper should move parallel to the conveyor and in the direction where boxes arrive from.
4. Press the **Y+** button, and the gripper should move back to the end of the conveyor.

5. When the gripper is above the box on the pickup position, press the **RZ+** and **RZ-** buttons: the gripper should rotate around its own center point and not around the robot tool flange. Rotating by 180 degrees, the gripper should remain perfectly above the center of the box at the pickup position.

If you notice that it behaves differently, go back and adjust TCP before calibrating the pick position one more time.

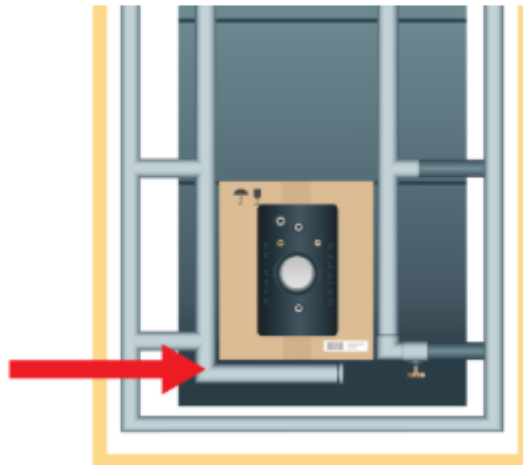
Conveyor total width equals the total width of the conveyor, including guides, sensors, motors, or anything else that is mounted on the conveyor close to the pick position. Pally uses this information to calculate how to move the box without crashing into anything on the conveyor.



Set the **fixed guide position** to left or right according to which side the fixed guide is placed on the conveyor. The picture below shows how it looks when the fixed guide position is on the left side.

Fixed Guide Position

The position of the fixed guide.

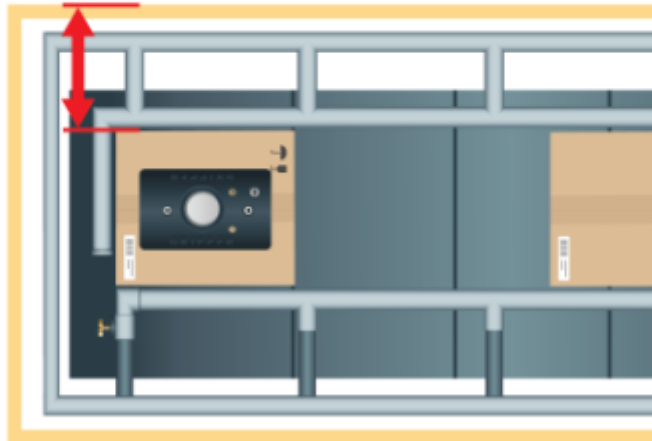


6 Fixed guide position Left

Fixed guide width is the distance from the fixed guide outwards on the same side, including anything mounted on the conveyor that Pally can crash into.

Fixed Guide Width

The width of the fixed guide.



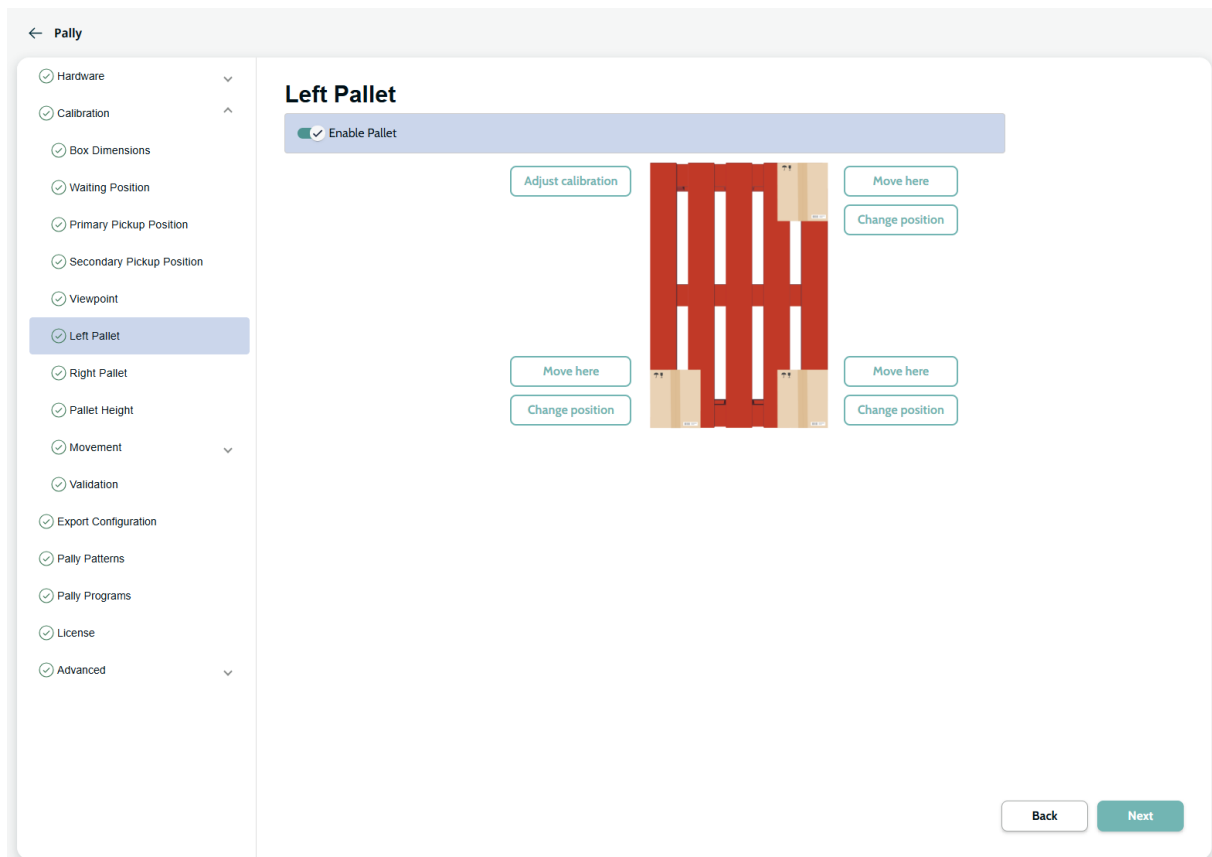
1.3.4 Secondary Pickup Position

Enable the secondary pickup position if you are using a dual infeed mode or a dual product mode. Calibrate the position and set Conveyor total width, Fixed guide position, and Fixed guide width by the same principle as you would on Primary pickup position.

1.3.5 Left Pallet

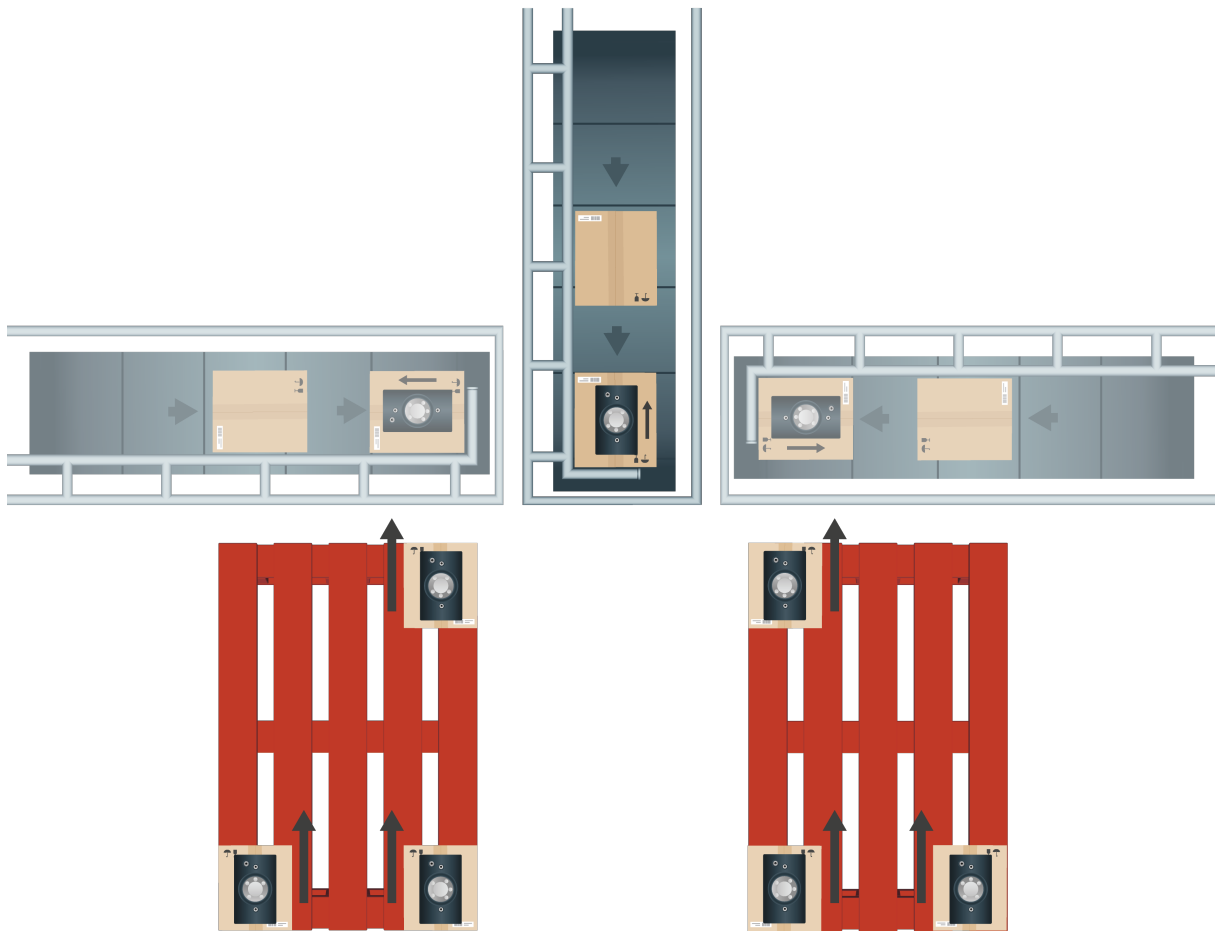
Enable the left pallet if you will be using it in your palletizing installation. Use the Change position to set the position, and use Move here if you want to check the position after setting it.

Adjust calibration is an option you can use if you want to move or rotate the calibrated pallet slightly after completed calibration.



Before moving to the first point on the pallet, we recommend that you move to the calibrated pickup position and turn on the vacuum. This will ensure that the box is in the correct position while calibrating the pallet positions.

The tool connector of the robot should point towards the front of your robot when calibrating. This is valid for all directions (front, left, right, or angled) of the incoming conveyor. See the picture below where the arrow points in the direction the tool connector should point.



Keep the gripper in the same orientation for all positions. If you can not reach the far corner (position 3), don't rotate the gripper to be able to reach it. Just use a position closer to the base as the third calibration position. Keep in mind that the larger the area, the better the calibration.

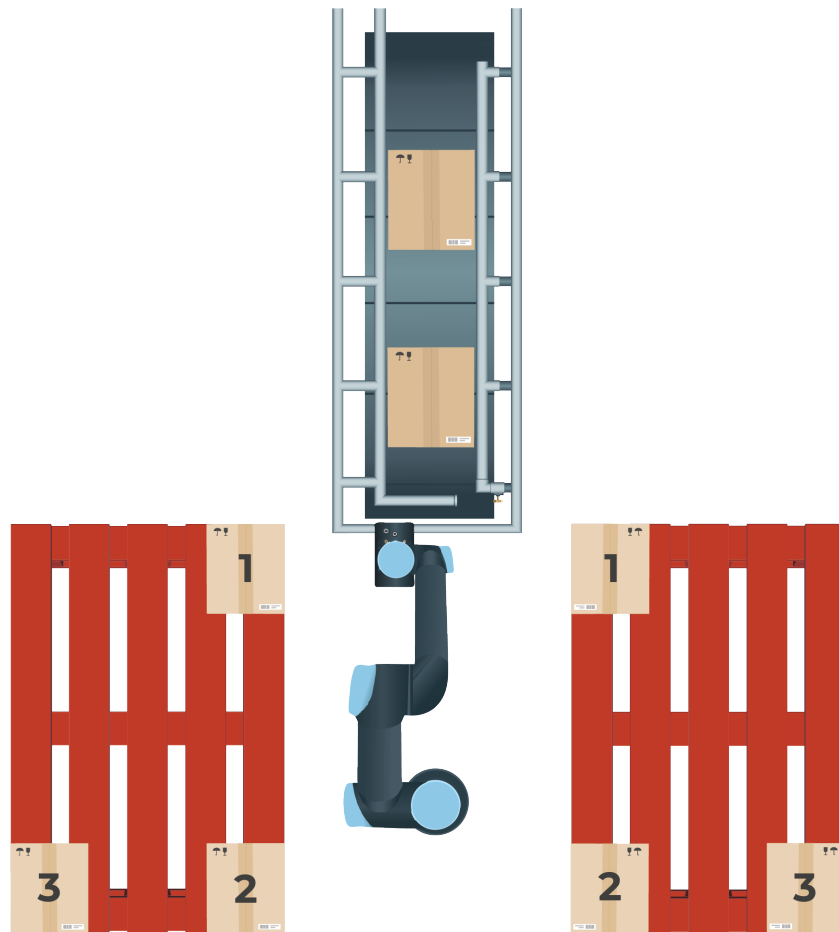
Move to the first position with the box attached to the gripper. Place the box in the corner of the pallet, aligning the box with the pallet sides.

Make space between the calibration box and the pallet so that the foam or suction cup has room for expansion without causing a protective stop caused by a detected collision.



After setting the first position, move to the next position with the tool view. Move in a straight Y direction. If you see that the box starts drifting outwards or inwards on the pallet, this is an indication that you have placed the gripper on the box with a slight rotation in the pickup position calibration. Recalibrating the pickup position is recommended before returning to calibrate the pallet positions.

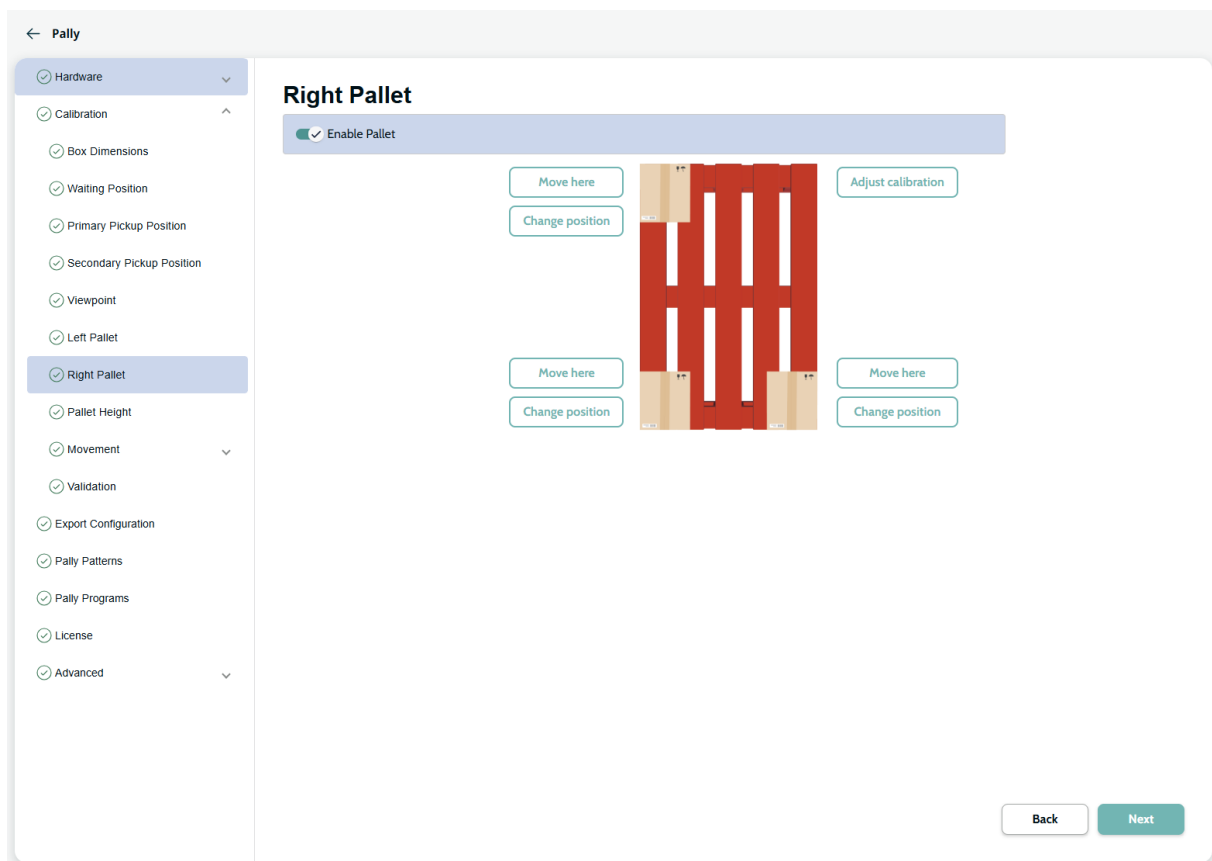
Remember to measure and, if necessary, adjust the height so that the distance between the box and the pallet is the same in this position as in position 1.



After setting the second position, move to the next position with the tool view. Move in a straight X direction. Make sure the box follows the edge of the pallet. Measure and maybe adjust the height so the distance between the box and the pallet is the same in this position as in position 1.

1.3.6 Right Pallet

Enable the right pallet if you plan to use it in your palletizing installation. Calibrate the 3 positions with the same method as you calibrated the left pallet.



1.3.7 Pallet Height

Set the Calibration Pallet height to be able to use pallets with different heights in the installation, and enter the height of the pallet used while doing the calibration.

← Pally

- Hardware
 - Calibration
 - Box Dimensions
 - Waiting Position
 - Primary Pickup Position
 - Secondary Pickup Position
 - Viewpoint
 - Left Pallet
 - Right Pallet
 - Pallet Height**
 - Movement
 - Validation
 - Export Configuration
 - Pally Patterns
 - Pally Programs
 - License
 - Advanced

Pallet Height

Calibration pallet height:

150 mm

Note
Measure the height of the pallet used during calibration and enter it here. This value is required for Pally to calculate pallet positions correctly.

Back Next

1.3.8 Movement

1.3.8.1 Speed

Max Speed sets the target travel speed as a percentage of the robot's maximum speed capability. Safety setting will override the maximum allowed speed.

Max Acceleration sets the target torque limits during acceleration and deceleration as a percentage of the robot's maximum power. Safety settings will override the maximum allowed acceleration.



If you set the max acceleration higher than 50% you increase the chance of encountering stop/start movements while palletizing.

Approach Speed sets the target travel speed as a percentage of the robot's maximum speed capability while moving in the approach area.

Approach Acceleration sets the target torque limits during acceleration and deceleration as a percentage of the robot's maximum power while moving in the approach area.

You can choose if you want to use the approach speed and acceleration when approaching the pick position and when approaching the target position. We recommend always using it while approaching the target position. Using it when approaching pick position will increase safety.

← Pally

Hardware

Calibration

Box Dimensions

Waiting Position

Primary Pickup Position

Secondary Pickup Position

Viewpoint

Left Pallet

Right Pallet

Pallet Height

Movement

Speed

Path Planning

Waypoints

Validation

Export Configuration

Pally Patterns

Pally Programs

License

Advanced

Movement

Speed

Max Speed

80 %

Max Acceleration

40 %

Approach Speed

30 %

Approach Acceleration

30 %

☒ Use approach speed and acceleration when approaching the pick position
 ☒ Use approach speed and acceleration when approaching the drop target position

Back

Next

1.3.8.2 Path Planning

Set parameters to control the path planning of Pally.

← Pally

Hardware

Calibration

Box Dimensions

Waiting Position

Primary Pickup Position

Secondary Pickup Position

Viewpoint

Left Pallet

Right Pallet

Pallet Height

Movement

Speed

Path Planning

Waypoints

Path Planning

Gripper optimization

4-Way

Above pickup position

100 mm

☐ Easy path planning

High approach boost

50%

Left pallet smart exit range X

From 50 mm

To 250 mm

Right pallet smart exit range X

From 50 mm

To 250 mm

Left pallet smart exit range Y

From 50 mm

To 250 mm

Right pallet smart exit range Y

From 50 mm

To 250 mm

Gripper optimization controls how many directions you allow the gripper to have while picking up a product. We recommend using 4-way for pneumatic grippers, while limiting it when necessary. For mechanical grippers, we recommend limiting it to “None” to enforce that the gripper always picks the product from the front.

Above pickup position is the height from where the robot moves vertically down to pick up the following product(s).

Easy path planning can be ticked to allow Pally to use the default High approach boost and smart exits according to the calibrated points. This will save you time in the installation. If you remove the tick, you open up the options to set your own High approach boost and smart exits.

High approach boost can be set between 0% and 100% and controls how high the path should be between the box free height and down to the target position. This has an effect only when the target position is below the box's free height.

Smart exit is an area where Pally moves through after the box-free position and before moving towards the target position on the pallet. This is used to avoid crashing into any hardware in the proximity of the palletizing installation, such as pillars, walls, or shim paper trays, etc. This area can be set with individual values for the left and right pallet.

1.3.8.3 Waypoints

Set additional parameters to control the path planning of Pally. You can press the question mark to get additional information regarding the different waypoints.

← Pally

Hardware

Calibration

Box Dimensions

Waiting Position

Primary Pickup Position

Secondary Pickup Position

Viewpoint

Left Pallet

Right Pallet

Pallet Height

Movement

Speed

Path Planning

Waypoints

Validation

Export Configuration

Pally Patterns

Pally Programs

License

Advanced

Waypoints

Box Free Height ?

200 mm

☐ Fixed

Approach Distance ?

30 mm

☐ Fixed

Retract Distance ?

30 mm

Pallet Lip ?

0 mm

Box Free Height

The height needed to lift a box from the conveyor to be clear of any guides or other possible obstructions. If not fixed, Pally may calculate another value at runtime, if fixed Pally is forced to use the given box free height.

Back

Next

Box Free Height is the height Pally should lift the box to avoid crashing into any hardware on the conveyor, like sensors or guides. We recommend setting this to fixed. If you do not set it to fixed, Pally may calculate another value at runtime.

Approach Distance is the distance in X, Y, and Z directions where Pally slows down and moves slowly towards the target position. We recommend setting this to fixed. If you do not set it to fixed, Pally may calculate another value at runtime.

Retract Distance is the distance the robot moves straight up after placing a product, before moving away towards pick position again.

Pallet Lip is the height Pally moves vertically down to place products on the first layer to avoid a pallet lip.

1.4 Validation

Here, you can run a validation of the calibrated installation. The validation is a series of tests to verify the calibration. If you are confident of your calibration, you can skip it.

← Pally

- ✓ Hardware
- ✓ Calibration
- ✓ Waiting Position
- ✓ Box Dimensions
- ✓ Primary Pickup Position
- ✓ Secondary Pickup Position
- ✓ Viewpoint
- ✓ Left Pallet
- ✓ Right Pallet
- ✓ Pallet Height
- ✓ Movement
- ✓ Validation**
- Export Configuration
- ✓ Pally Pattern
- Pally Programs
- License
- Advanced

Validate Calibration

It is **strongly recommended** to validate the calibration to ensure that it is both correct and quality assured. During the validation the robot will perform movements that let you visually confirm that it is calibrated correctly, and ask you to confirm that it moved as expected after performing each step.

☒ Confirm robot is on and ready

[Skip validation](#) [Validate](#)

1.5 Export Configuration

Export the configuration file to MyRobot.cloud.

This is the foundation to create a digital twin of the Pally installation. By doing this, you will be able to create complete Pally programs in MyRobot.cloud, where the path planning is done in MyRobot.cloud with collision avoidance.

← Pally

✓ Hardware

✓ Calibration

✓ Export Configuration

✓ Pally Pattern

Pally Programs

License

Advanced

Export Configuration

You can now export the installation file to MyRobot.cloud. After exporting, you need to upload the file under Installed Robots. Once uploaded, the file can be used to create a digital twin of the robot and to restore the installation in the future, if needed.

Export

1.6 Pattern

Add and delete patterns.

← Pally

✓ Hardware

✓ Calibration

✓ Export Configuration

✓ Pally Pattern

Pally Programs

License

Advanced

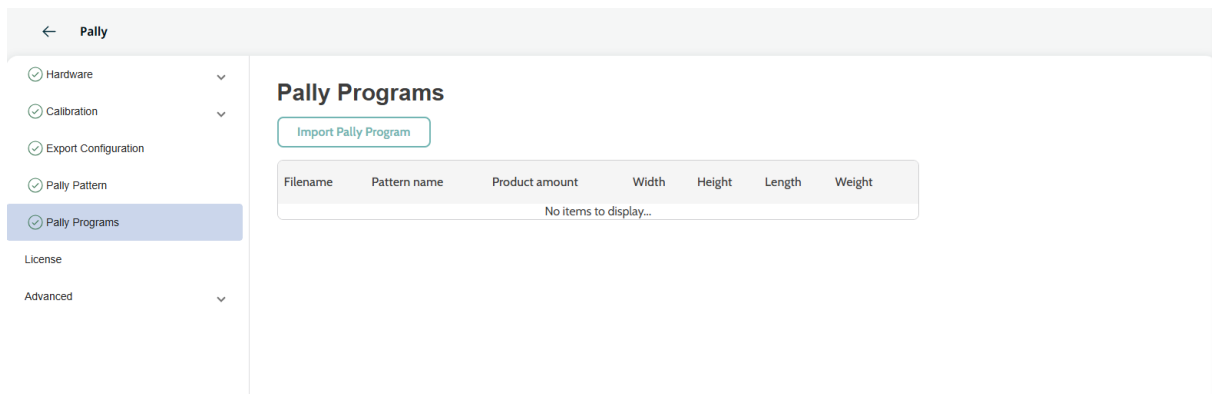
Pally Pattern

Import Pattern File

Filename	Pattern name	Product amount	Width	Height	Length	Weight	
pattern2.json	pattern2	70	190	200	290	2500	🗑️
KalibreKutu.json	KalibreKutu	8	290	175	400	100	🗑️
pattern4.json	pattern4	112	230	159	250	2500	🗑️
pattern6.json	pattern6	80	190	200	290	2500	🗑️
patt7.json	patt7	120	190	200	290	2500	🗑️

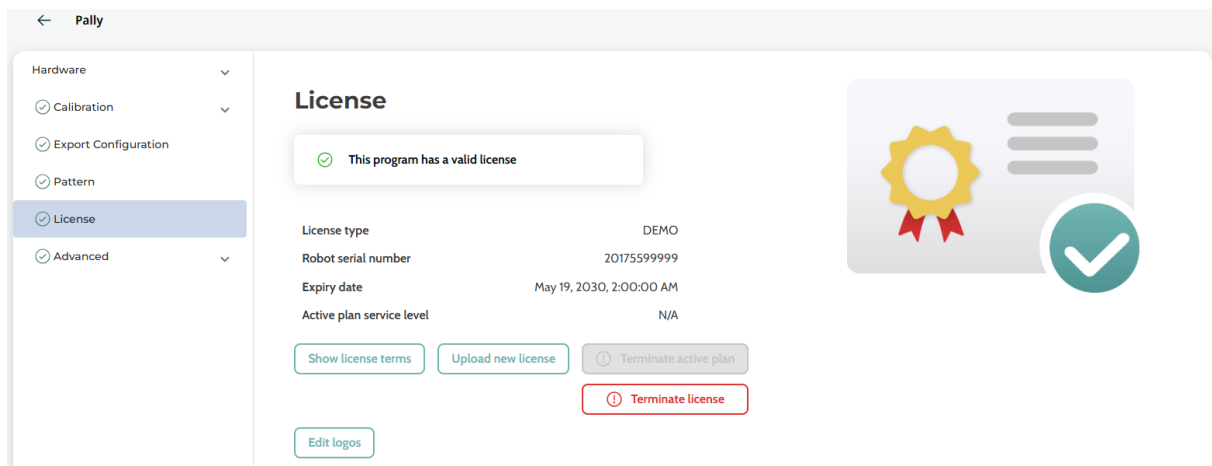
1.7 Pally Programs

Add and delete Pally Programs.



1.8 License

Get information on the status of your Pally license.



Every license is connected to the serial number of the robot and cannot be transferred from one robot to another.

To get the Pally license, send an email to license@rocketfarm.no² with the serial number of the robot and what kind of license you require.

Trial license is valid for 30 days, and is normally used to test the Pally software.

A demo license can have a longer validity and is typically used for in-house robots used for training, sales demonstrations, and trade shows. The demo license is also used during the test and commissioning period before the robot is handed over to the end user.

End-user licenses are used for the robot in a palletizing installation. Can have an active plan of varied periods, tailored to the end user's specific needs.

Once for each robot, you can generate a free 72-hour license. Helpful to get you going.

2. <mailto:license@rocketfarm.no>

You can upload your own Logo if you have a Demo or OEM license. This Logo will be presented on the Pally Operator Panel. Contact Rocketfarm for an OEM license.

1.9 Advanced

1.9.1 Backup

Create and download a backup of the Pally installation, including Gripper json, Polyscope log file, patterns and URPX file

Robot status backup enables you to download a runtime state file.

1.9.2 System

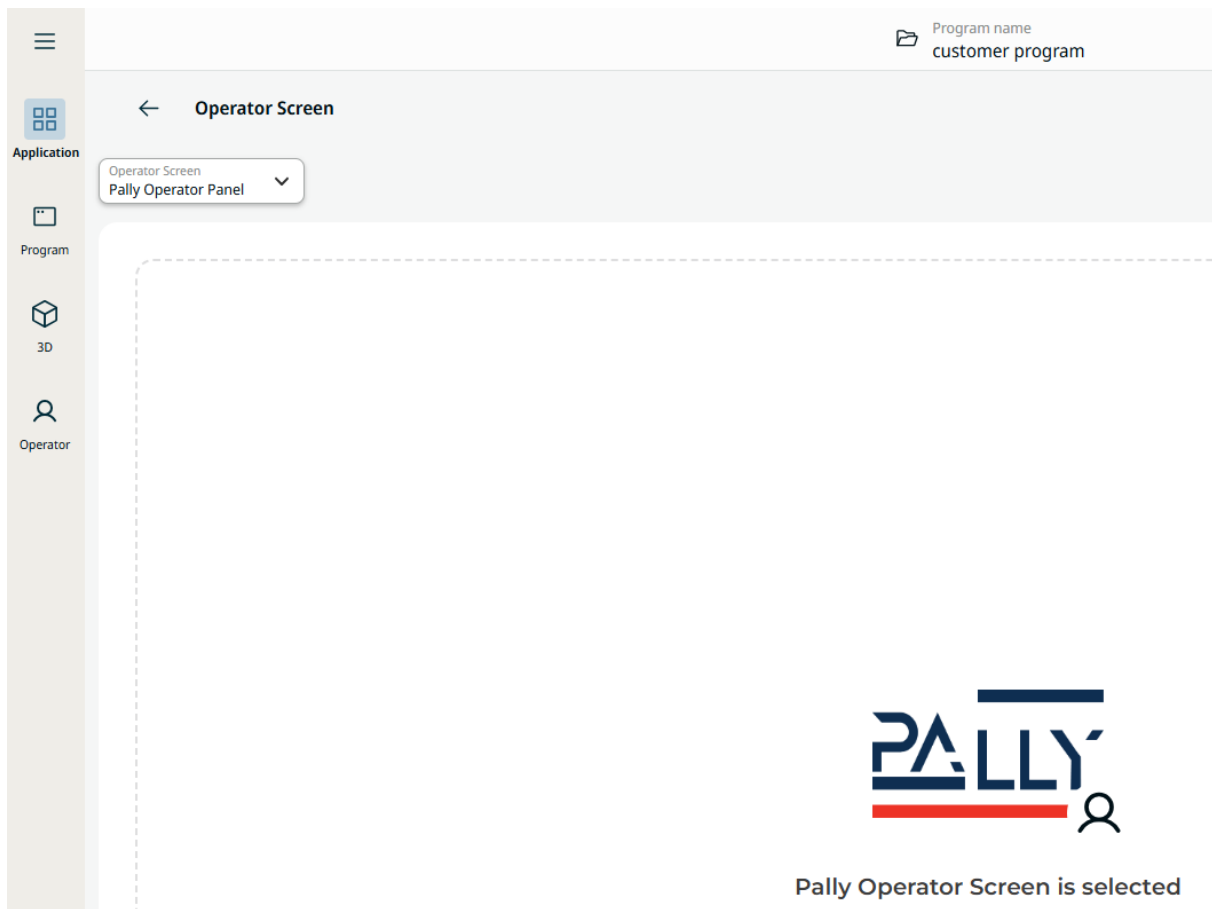
Change Log level: Error, Warning, Message, Info, Debug.

Default set to Warning.

Use Info and Debug only while trying to figure out what's happening. These levels consume a significant amount of CPU power, so be sure to reset it to warning after use.

1.9.3 Operator

Choose the operator interface of the running program. You also need to choose the Pally Operator Panel in the Operator screen menu in Polyscope.

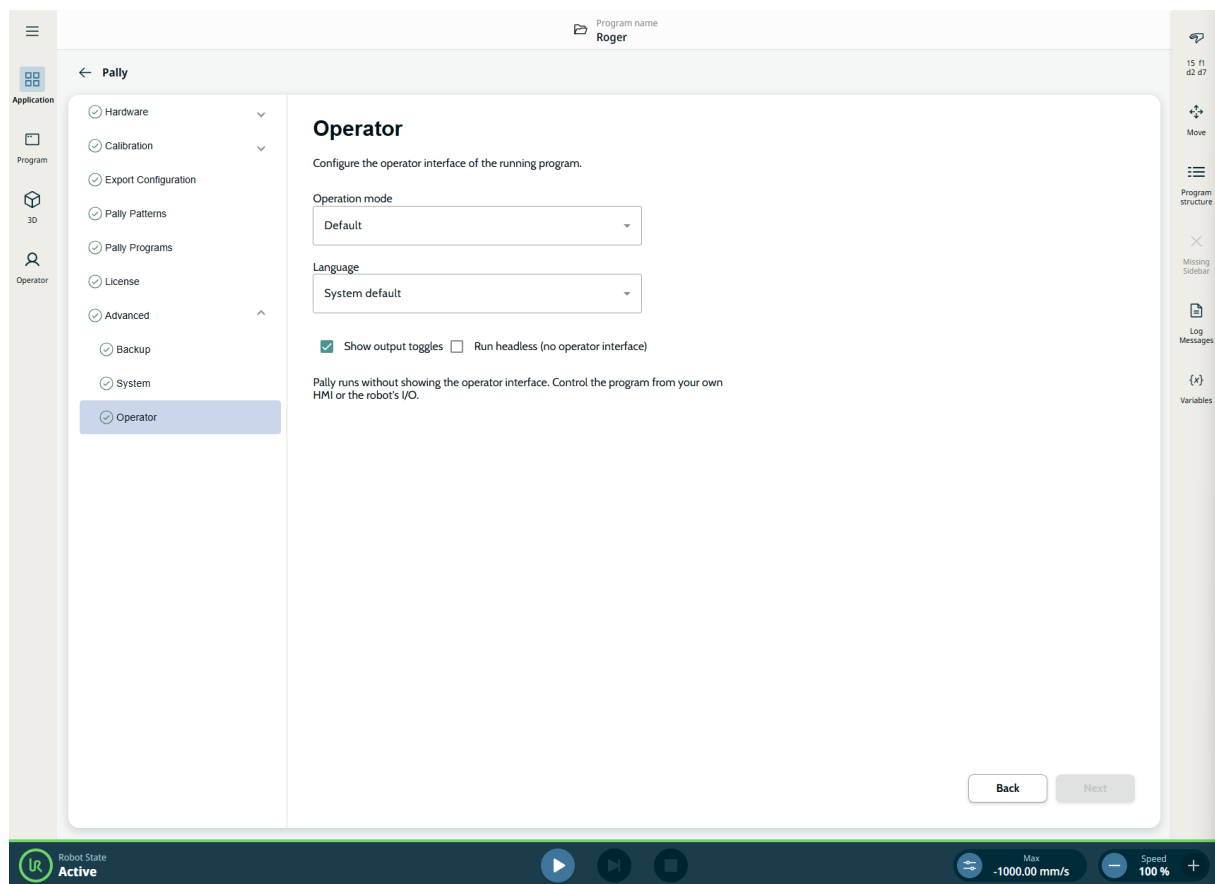


Default is a standard palletizing operation, where one product is palletized. **Dual product mode** is used when a palletizing installation has two pickup positions and palletizes two different products on two pallets. **Show mode** is used for tradeshow and requires a Demo license.

Choose the language of the Pally program. If you set it to system default, it follows the language of the Polyscope program.

Show output toggles enables the option to turn on and off I/O's in the Pally Operator Panel startup view.

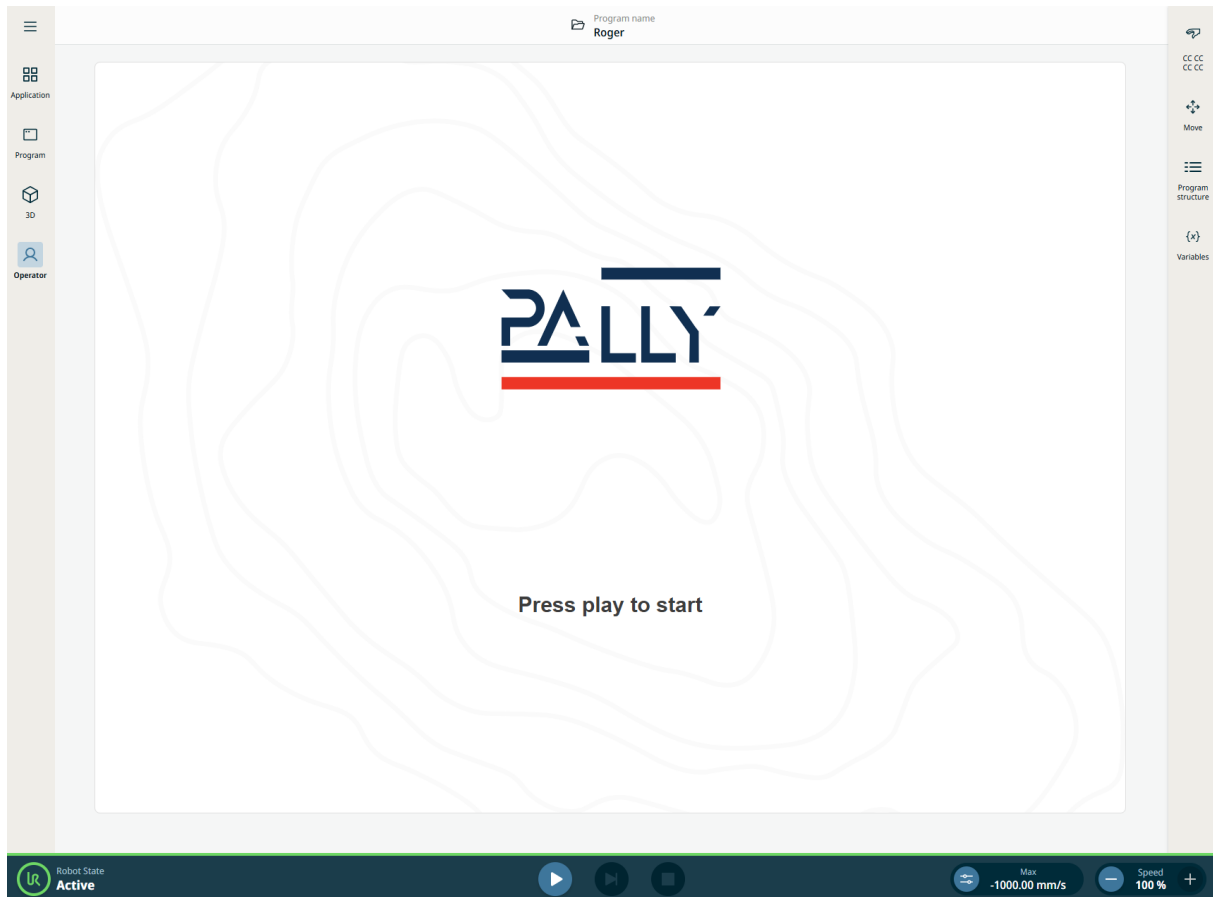
Run headless enables you to run Pally without showing the Pally Operator Panel. You control the palletizing from your own HMI or by robot's I/O's.



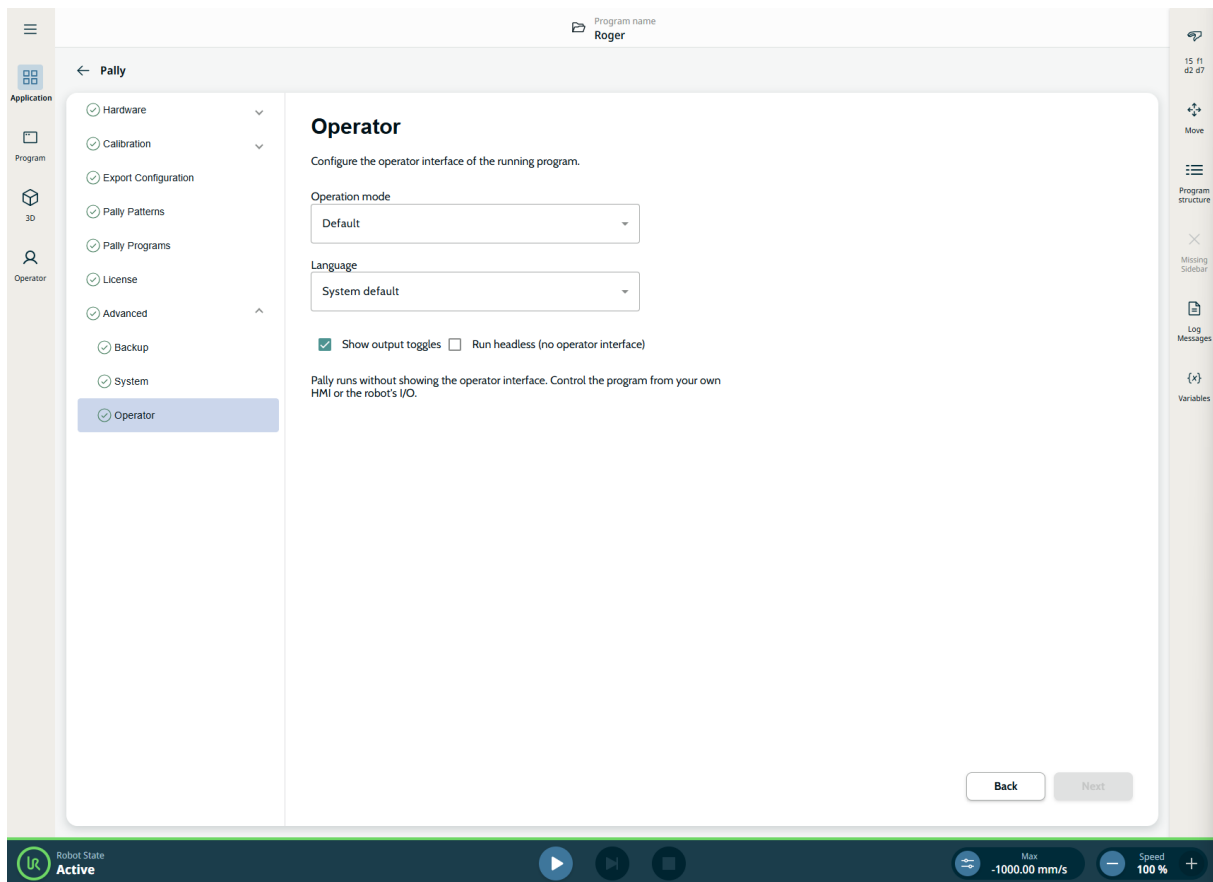
2 Pally for Polyscope X - Using Pally Operator Panel

2.1 Starting Pally

Make sure your robot is in an active robot state. Press play.



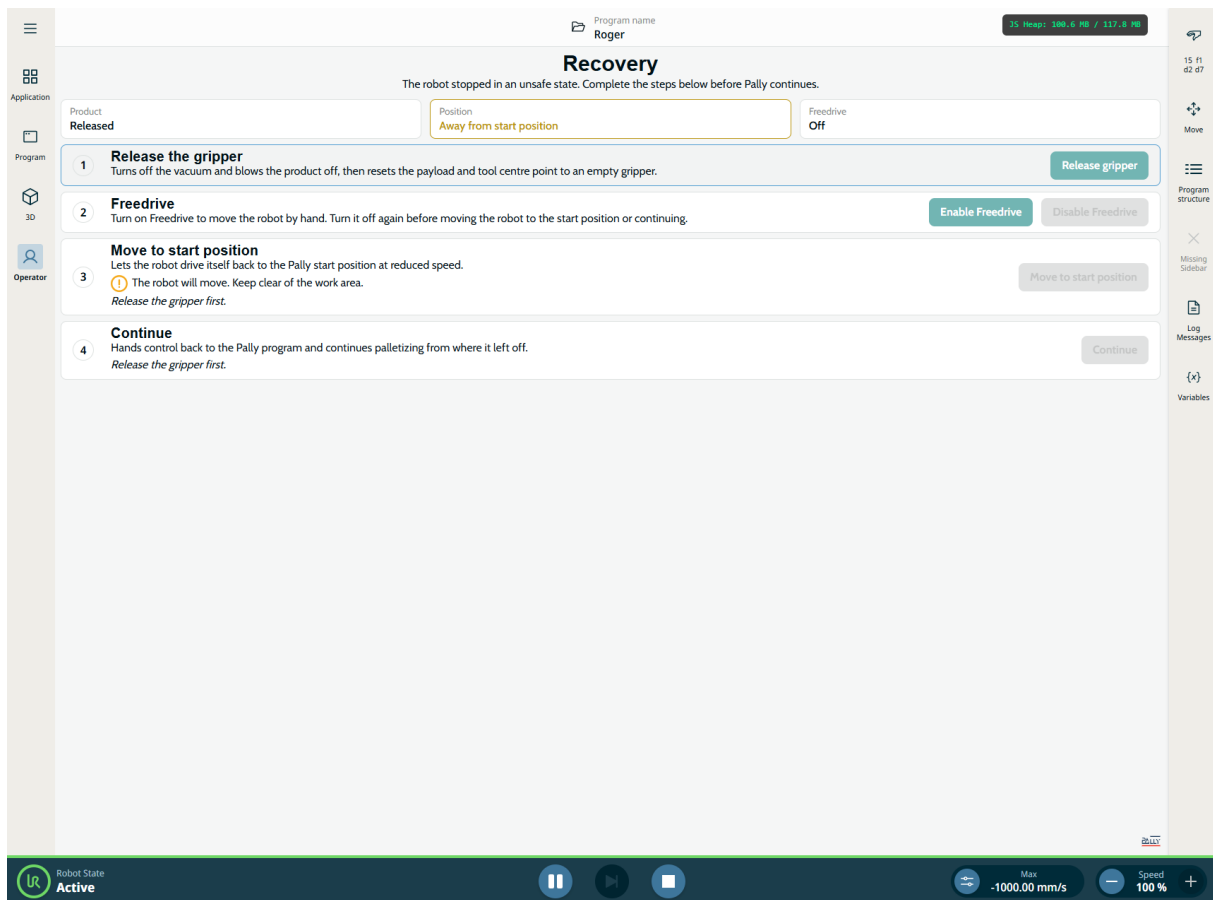
You can also get access to I/O's from this start up menu. You do this by activating the “Show output toggles” option in the Operator menu in Pally.



2.2 Recovery

If the robot is arranged with the EOAT a long way from start position the Recovery menu will easily guide you to the start position. This menu will also appear if you experience a stop during operation, where you need to guide the robot to the start position before continuing palletizing.

You can see in the status line on the top, what the status are for product, position and freedrive.



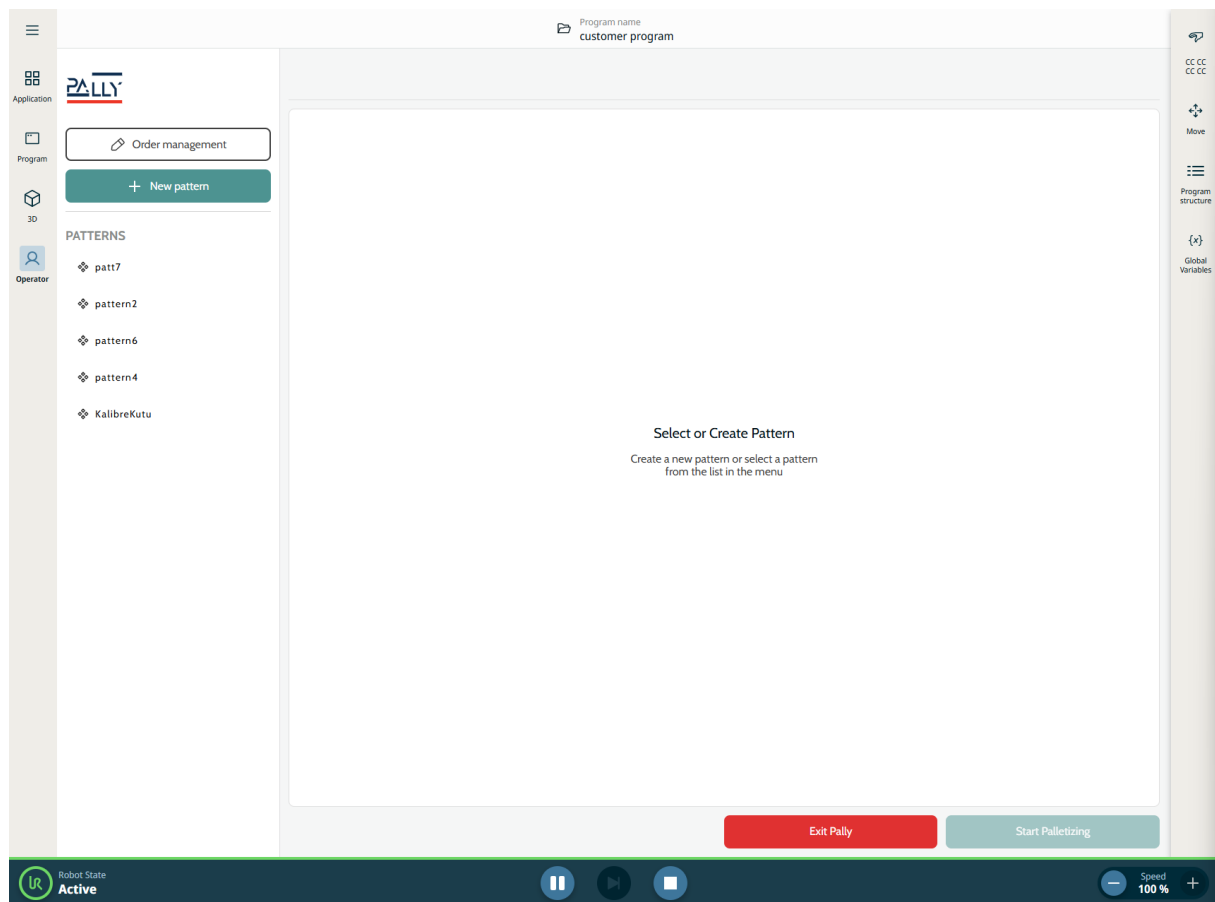
First step is to release the product by turning of the vacuum or opening a mechanical gripper. This step is necessary to be able to complete the movement to start position, independent of whether a product is actually held by the EOAT or not. This is for safety reasons.

Next step is optional, where you can activate freedrive to move the robot to a safe position away from obstacles or level the EOAT if the tool was at a strange angle when the robot stopped.

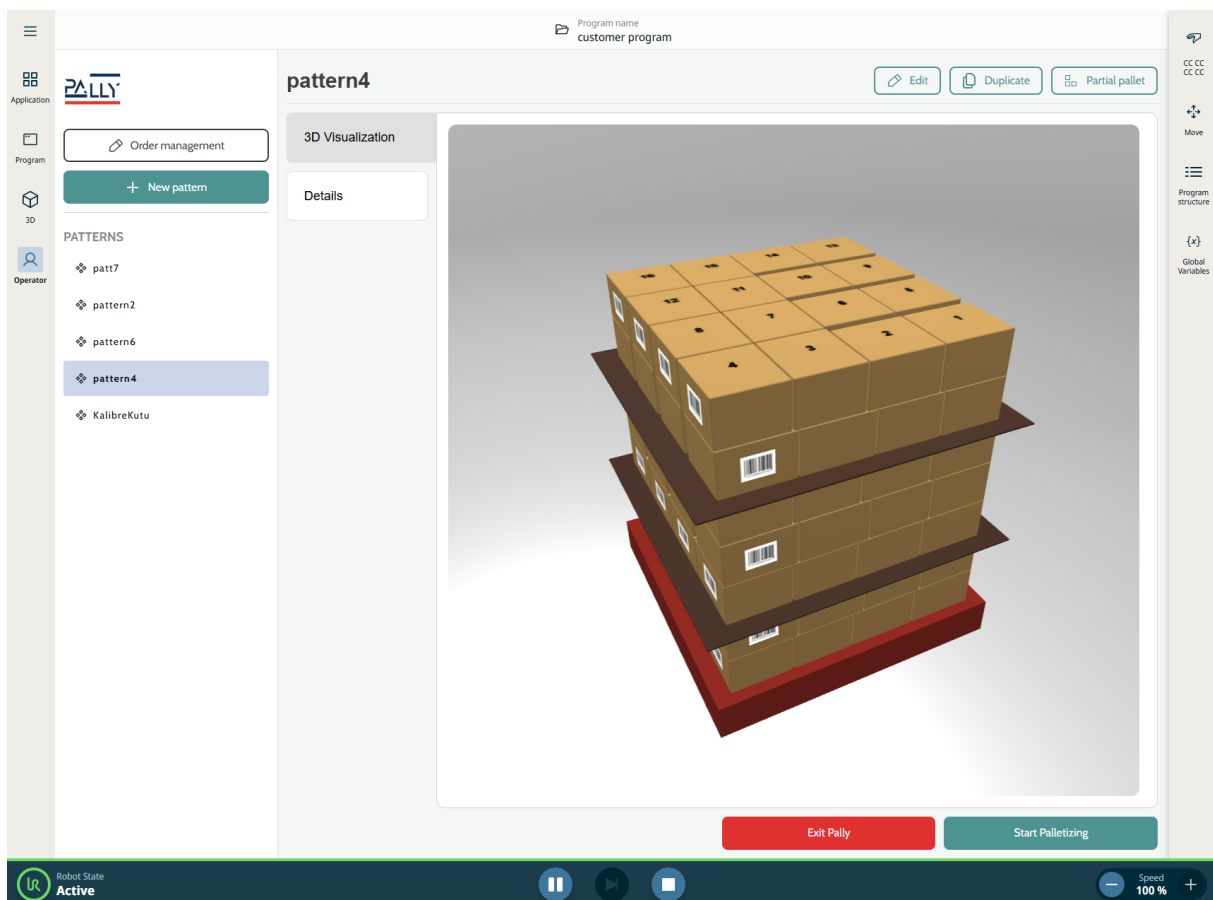
Third step activates an automatic movement where the robot moves the EOAT up to the start position height and then moves it to the start position.

Final step is to continue palletizing where it left off. This means that if the box was not placed, Pally will pick the same box position again. Remark: If the protective stop happens in a shim paper routine after the robot has placed the shim paper, Pally will redo the picking and placing of the shim paper, so we recommend removing the already placed shim paper to avoid the wrong height.

2.3 Pattern selection menu



Choose the pattern you want to palletize in the pattern selection section on the left side of the menu.

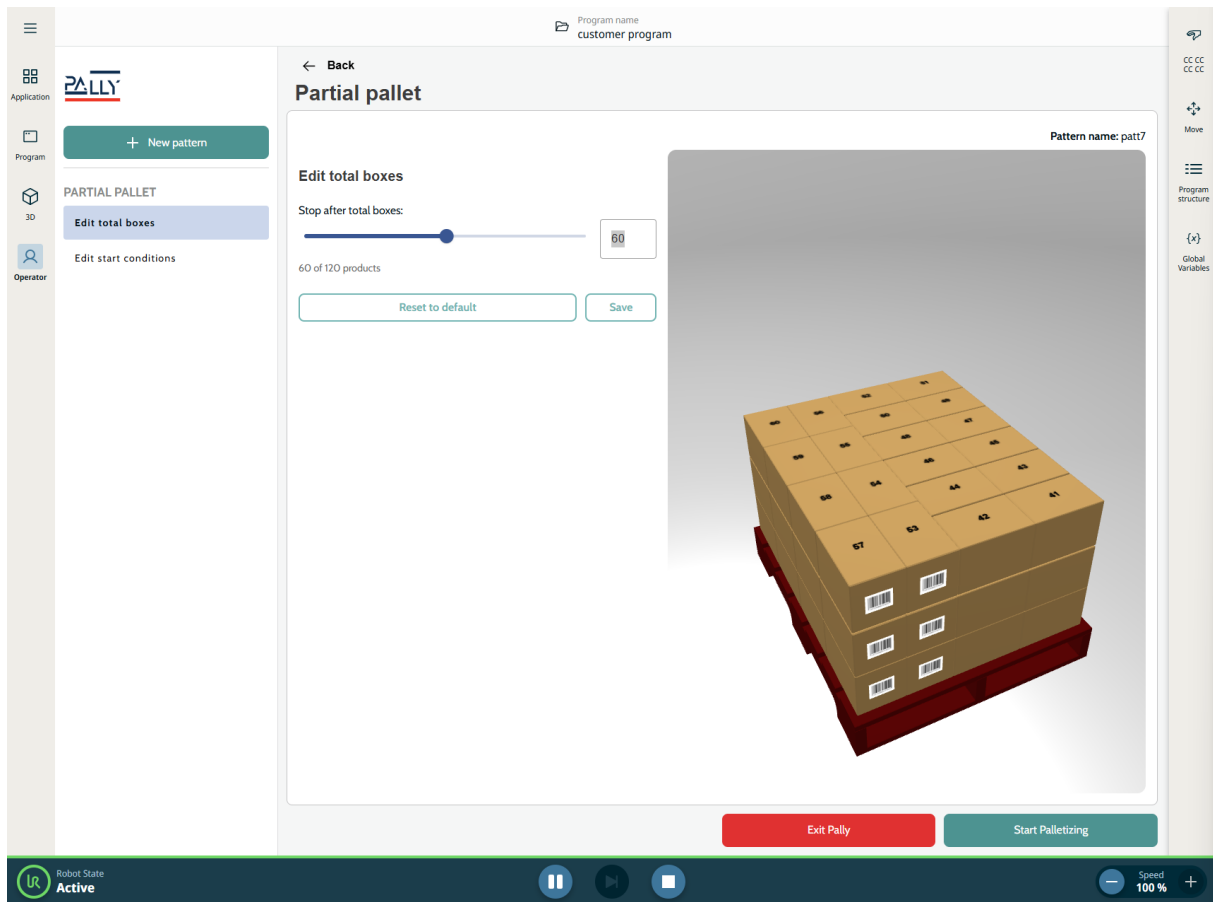


You can create a new pattern here by choosing “+ New pattern”. You will then be forwarded to an offline pallet builder.

You can edit the chosen pattern by choosing the “Edit” button on the top right of the menu after you have selected a pattern.

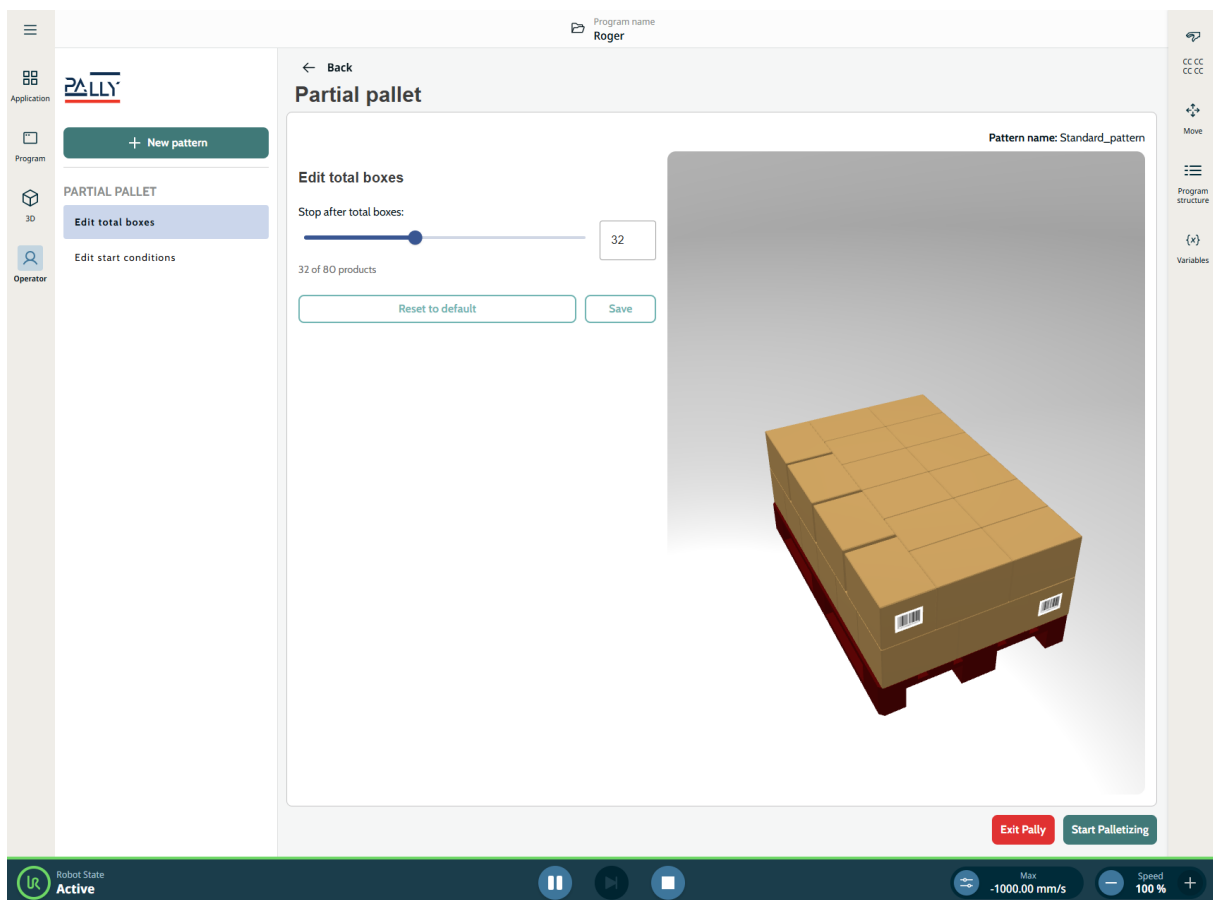
Choose the Partial pallet button to palletize a partial pallet, or choose Order management to create a list of orders to be palletized.

2.4 Partial pallet menu



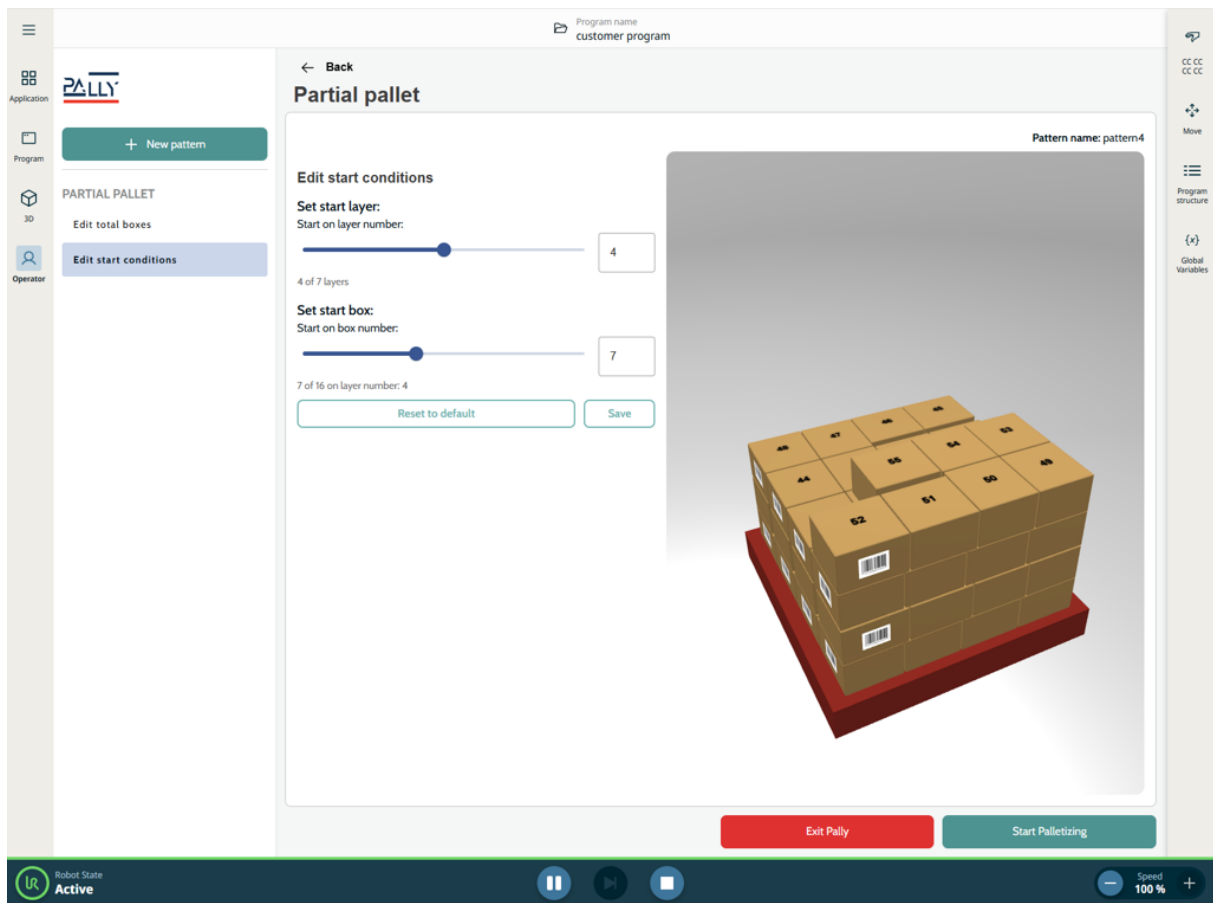
2.4.1 Edit total boxes

Enables the choice to palletize a limited number of boxes of the chosen pattern. After palletizing this number of boxes once, Pally returns to palletize the complete pattern on the next pallet. Remember to press save after setting your total boxes, before starting to palletize.

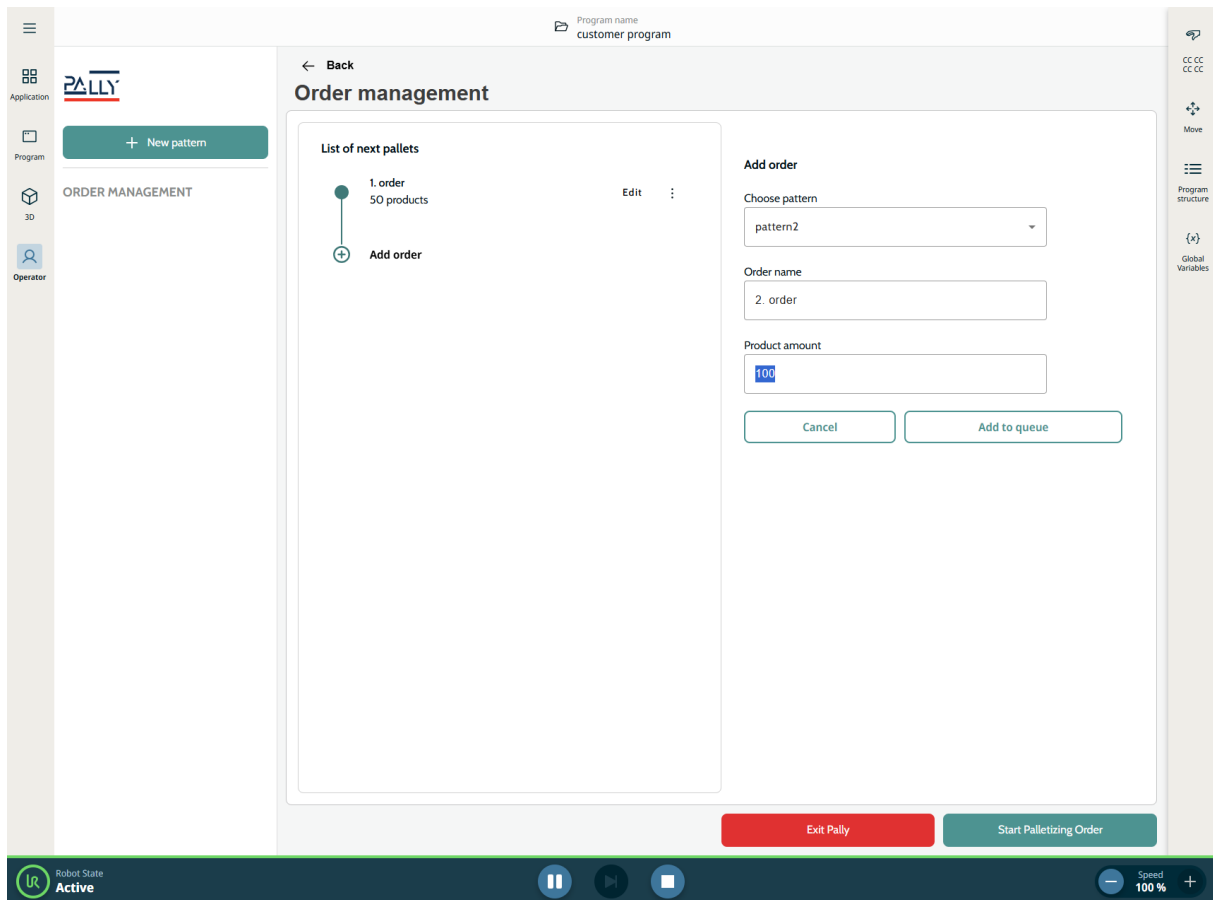


2.4.2 Edit start condition

Enables the choice to decide where Pally will start palletizing the pattern. Choose both the layer and box number. The visual presentation will show you what box Pally will start with. Remember to press save after setting your start condition, before starting to palletize.

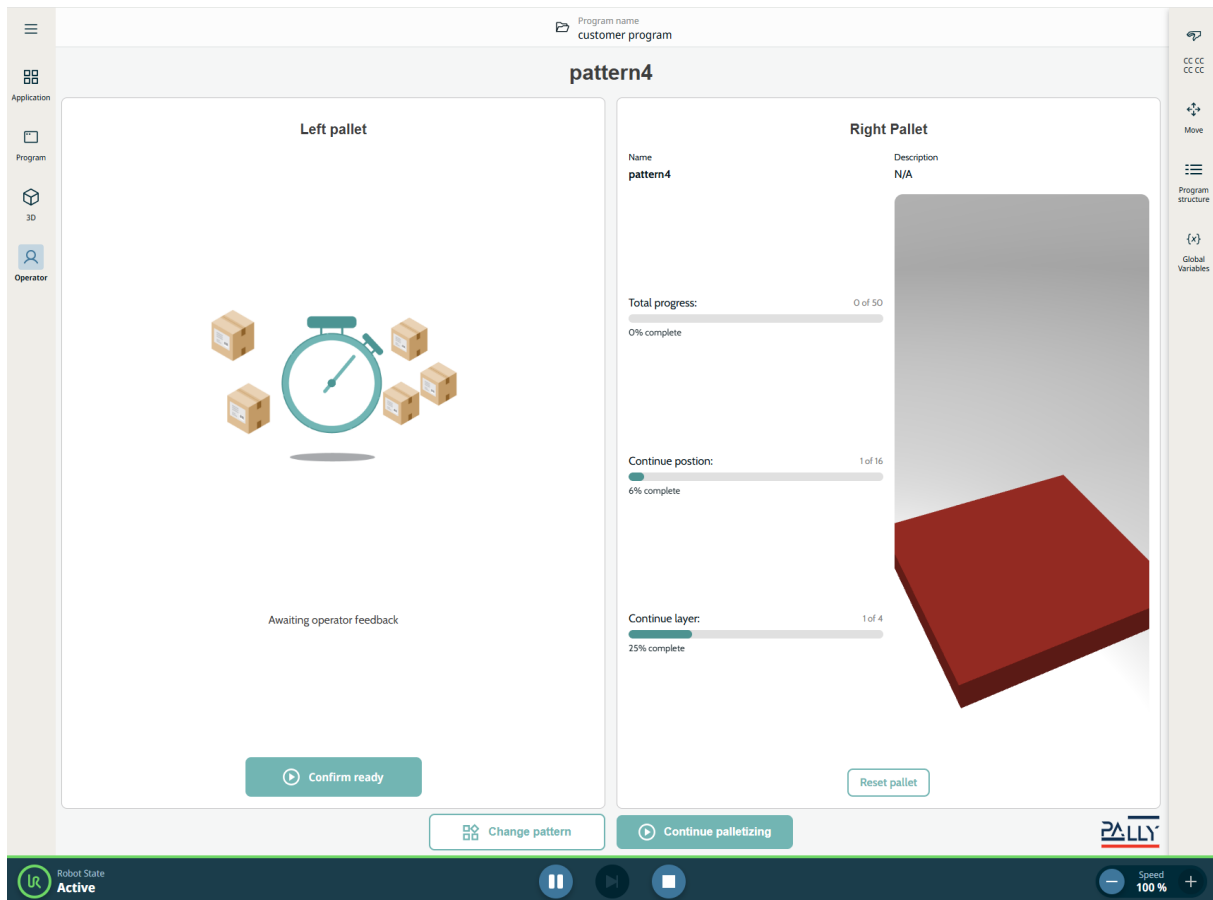


2.5 Order management



Set up a list of orders that you want to be palletized, where you choose the pattern and the number of boxes to be palletized.

2.6 Palletizing menu



Confirm ready is used to confirm that pallets are in place and ready to be palletized. If both pallets are confirmed, Pally will always begin palletizing on the right pallet.

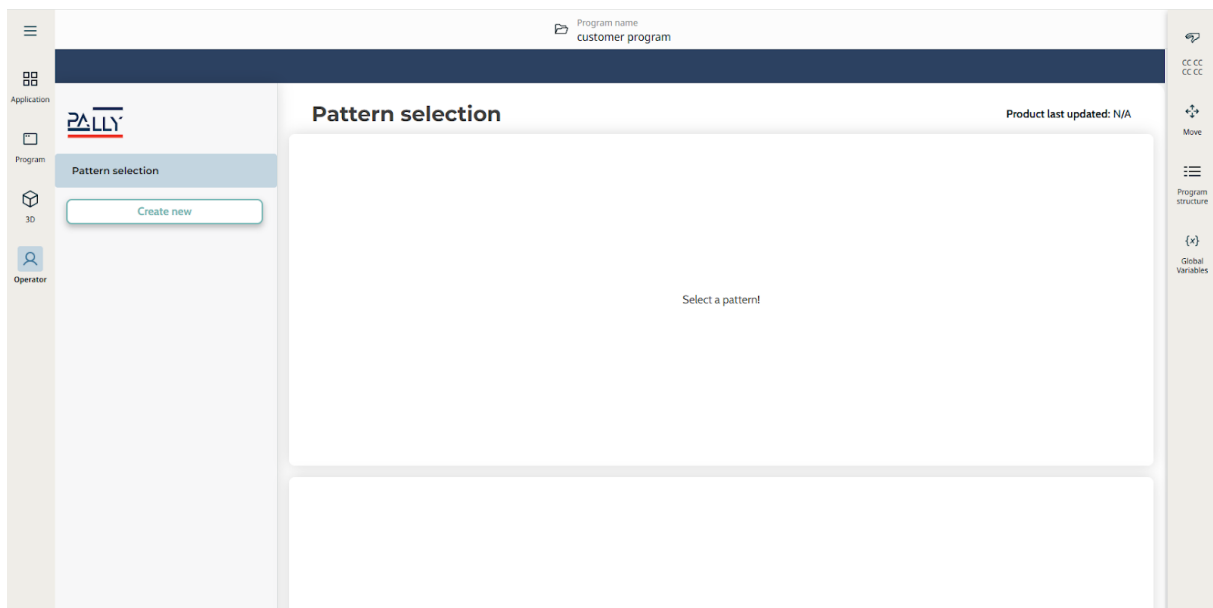
During palletizing, you can view production information.

3 Pally for Polyscope X - Offline Pallet Builder on the Teach Pendant

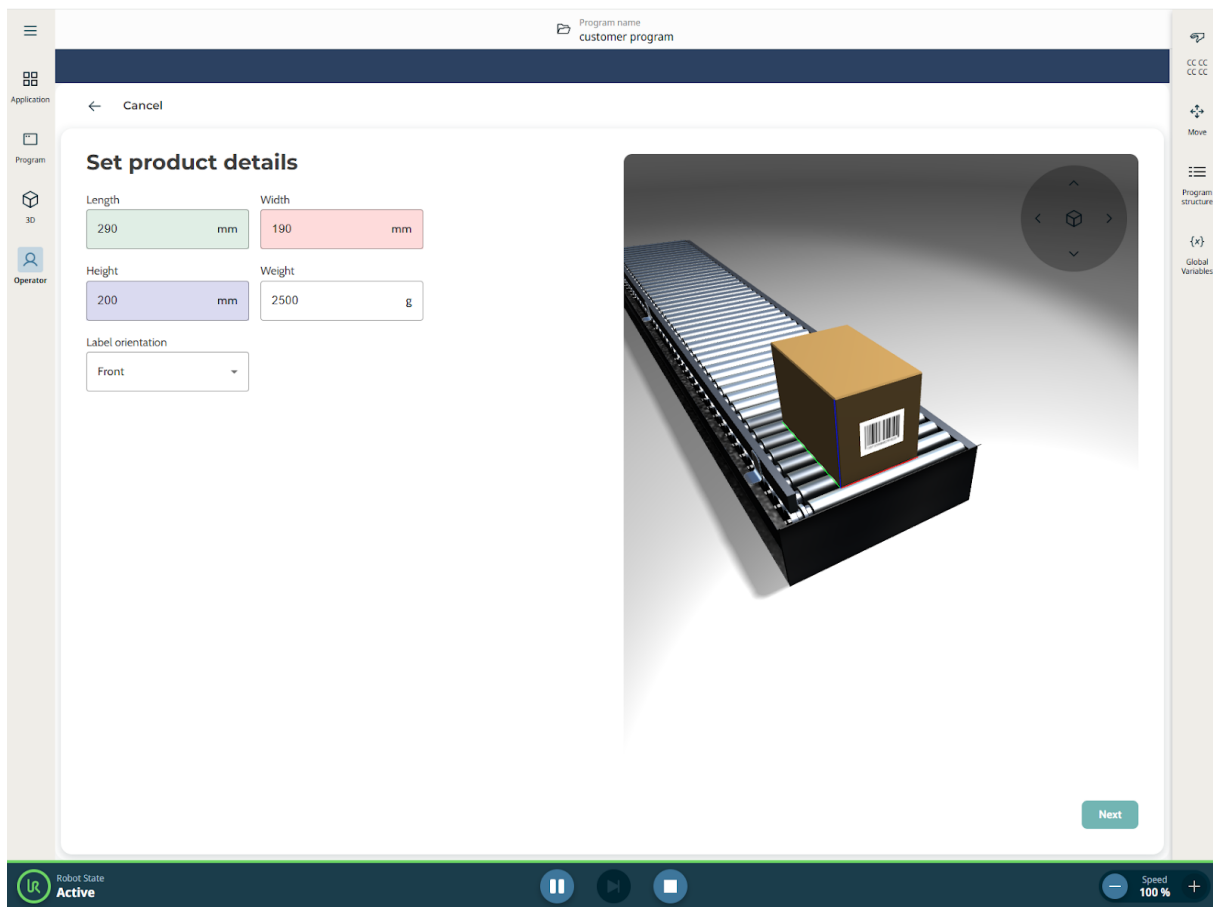
You can create patterns offline on the tech pendant. The offline pallet builder has limited options for customization compared to the online pallet builder in MyRobot.cloud.

3.1 Offline Pallet builder

You can create patterns in the Operator Panel.

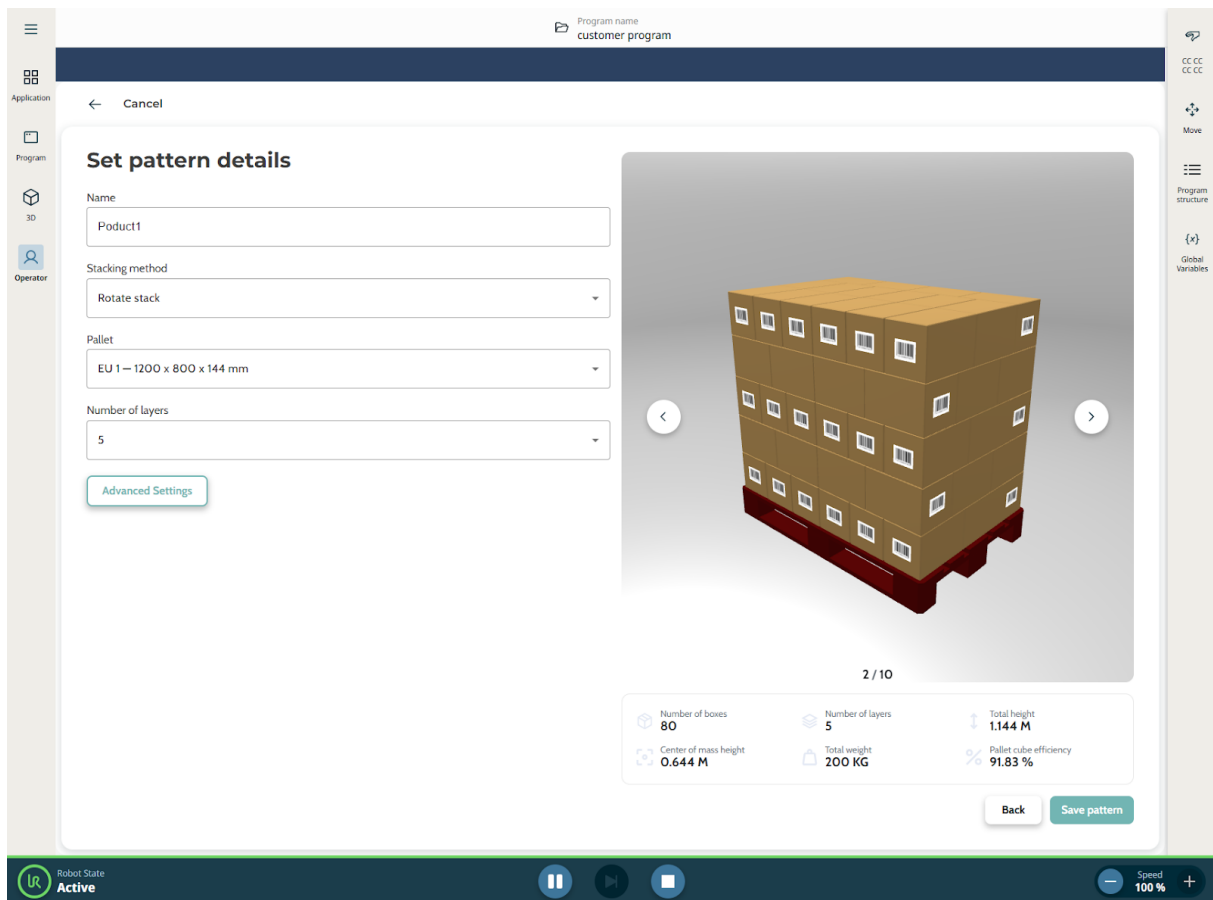


In the first screen, you enter the dimensions, weight, and label orientation of the product.



After pressing “Next,” you find the second screen, where you set the name of the product. You also set the stacking method, choose the pallet type, and the number of layers.

Then you can find different patterns by pressing the arrows in the pallet 3D window. When you have found the one you prefer, you can either save the pattern if you don't need to make any additional adjustments.



- Stacking Method, Column stack - the boxes will be placed on top of each other.
- Stacking method, Rotate stack - boxes will be rotated for each layer, generating an interlocking pallet for more stability.
- Stacking method - Mirror Vertically - every second layer has the boxes mirrored relative to the sides of the pallet.
- Stacking method - Mirror Horizontally - every second layer has the boxes mirrored relative to the ends of the pallet.
- Pallet - choose between different standard sizes, or create your own custom pallet.
- Number of layers - choose the number of layers in the pattern.

After pressing “Advanced Settings” on the second screen, you open a third screen where you can set product padding, Overhang sides, Overhang ends, Max grip, Label direction, Shim paper positions, and Shim paper height.

You can also add a description to the pattern.

Program name: customer program

← Cancel

Set pattern details

Description	Product padding
	0 mm
Overhang sides	Overhang ends
0 mm	0 mm
Max grip	Label direction
2	Outwards
Shim paper positions	Shim paper height
2	3 mm

Basic Settings

2 / 10

Number of boxes 80	Number of layers 5	Total height 1.147 M
Center of mass height 0.644 M	Total weight 200 KG	Pallet cube efficiency 91.83 %

Back Save pattern

- Description - Add description to the pattern.
- Product padding - minimum distance between all boxes in the layer. Note that if you add product padding, Pally will be unable to multi-pick the boxes.
- Overhang sides - how far outside the pallet you allow the boxes to be placed on the sides when generating the pattern.
- Overhang ends - how far outside the pallet you allow the boxes to be placed on the ends when generating the pattern.
- Max grip - set the maximum allowed number of boxes to be picked in one cycle.
- Label direction, optimized - Pally will place the boxes independently of the label orientation and palletize as efficiently as possible.
- Label direction, Outwards - Pally will place the boxes with the label facing outwards on the pallet.
- Label direction, Locked - Pally will place the boxes with the label facing the same direction as shown in the pattern window.
- Shim paper positions - Choose where to place the shim paper in the pattern.
- Shim paper height - choose the height of each shim paper

When you press Save pattern, it enters your list of available patterns, and you can start palletizing the pattern.

4 Pally for Polyscope X - Show Mode

The show mode program will depalletize a pattern onto the conveyor and then palletize the same pattern on the opposite conveyor. Once this is complete, the cycle will repeat the other way. This repeats until stopped.

In order to run show mode, we recommend using:

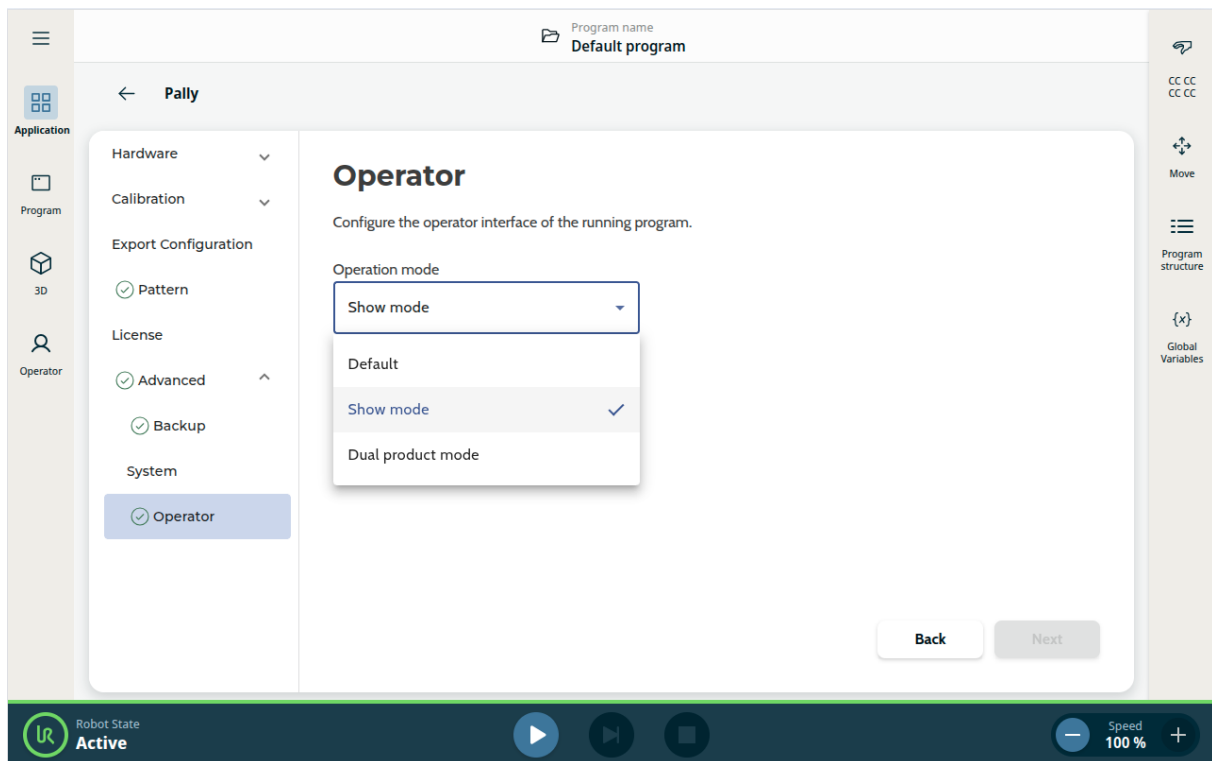
- Two pallets
- Conveyor or gravity slider
- Two separate sensors. One for pick position and one for drop position



Show mode is only intended for showcasing the capabilities of Pally and the cobot, and is not suitable for any production workflow.
The show mode is enabled with a special license.
Please contact Rocketfarm to receive this license.

4.1 Enabling show mode

Show mode must be enabled under Advanced > Operator > Operation mode as shown below:

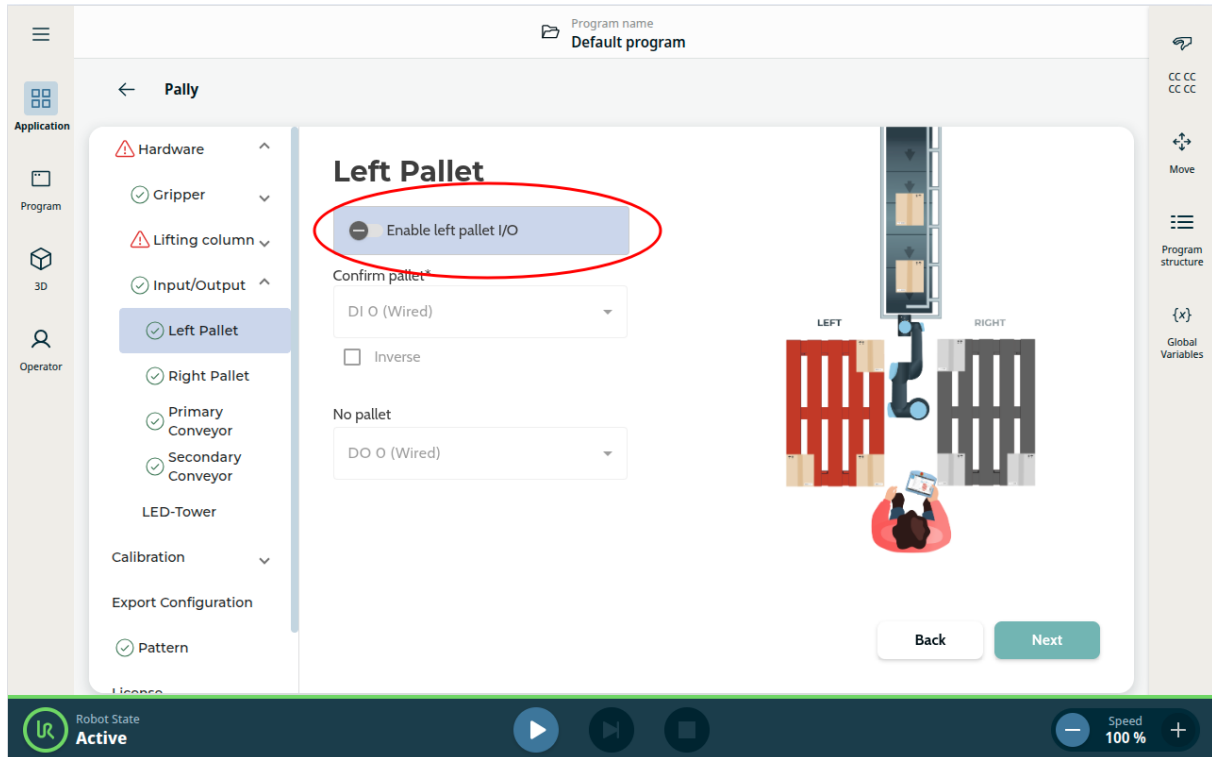


7 Enabling show mode in Pally for Polyscope X

4.2 Setting up the hardware

The gripper and lifting column, if you are using one, are configured in the same way as for regular operations.

Under Input/Output, set both Left Pallet I/O and Right Pallet I/O to disabled.



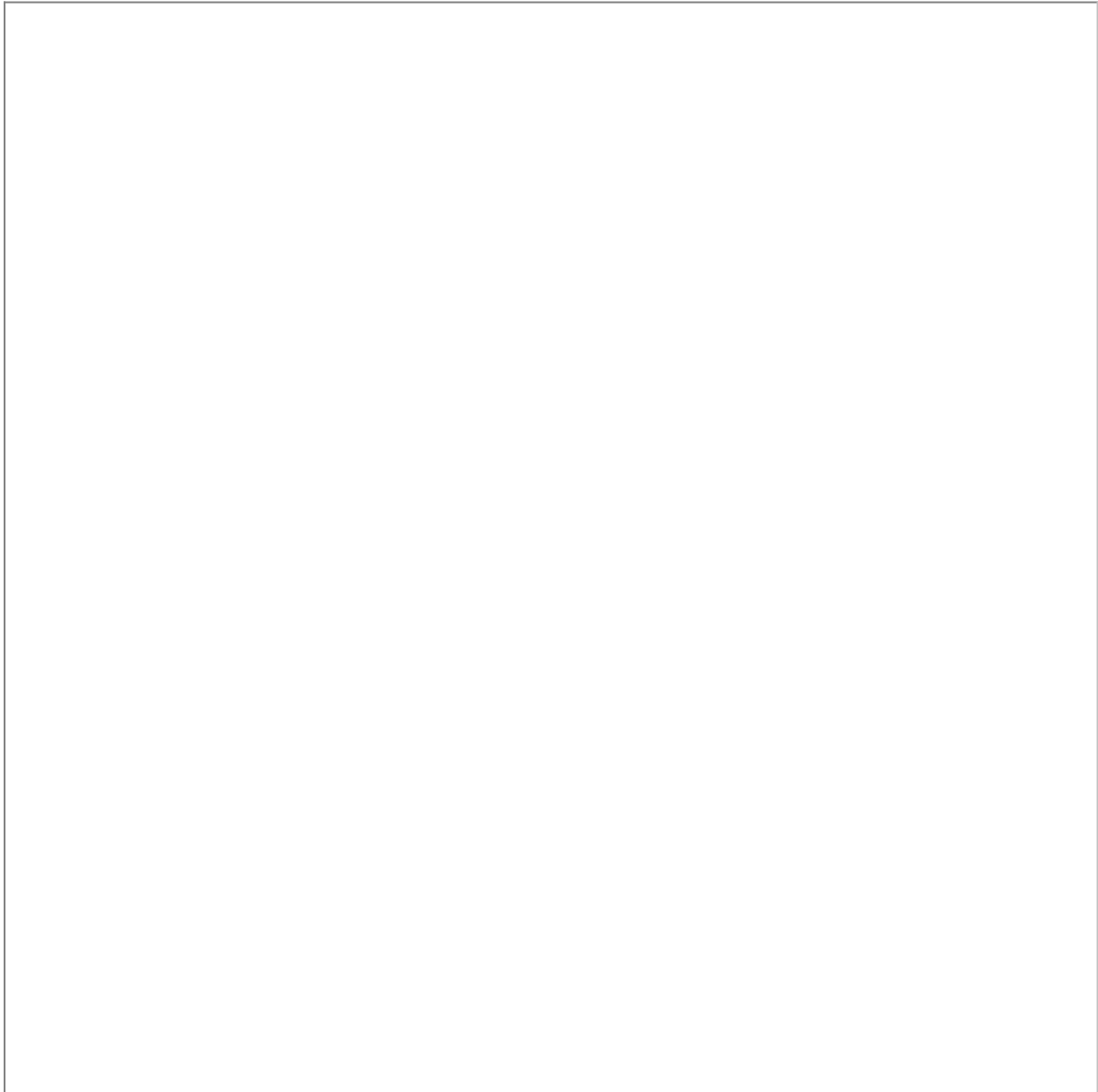
8 The Left Pallet I/O is disabled, as it should be. Right Pallet I/O should also be disabled.

In show mode, the primary conveyor and the secondary conveyor both refer to the same physical conveyor. Both conveyors should be configured with a single sensor each. The Primary Conveyor sensor is used as the *pick sensor*, whilst the secondary conveyor sensor is used as the *drop sensor*.

When the *pick sensor* is triggered, it sends a signal to the program indicating that a box is ready to be picked from the conveyor and palletized.

The *drop sensor* is used by the program to determine if there is room to depalletize another box, or if it should instead palletize the box(es) already on the conveyor. The drop sensor must be inverted compared to its regular operation mode, because we want the “no-product” state to trigger depalletizing.

We suggest the following placement: The pick sensor is at the front of the box, and the drop sensor is at the other end of the box. The drop sensor needs to detect the box for the show mode to palletize the box. If the drop box doesn't detect the box, it will continue to depalletize more boxes before starting to palletize.



If you want to be able to double-pick boxes, the drop sensor needs to be placed accordingly (further down the conveyor).

You can also use only one sensor. Note that this will only work if you plan to single-pick the complete pattern. One sensor alternating between signals: “High” for box presence on the conveyor (palletizing) and “Low” for conveyor empty (depalletizing).

4.3 Calibration

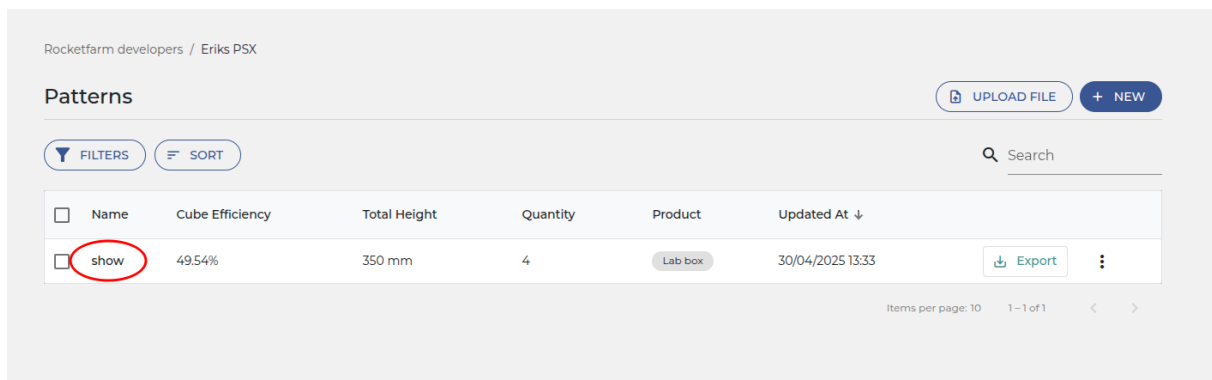
The Box Dimensions, Waiting Position, Primary Pickup Position, Left Pallet, Right Pallet, Pallet Height, and Movement calibration screens should all be set up as for a regular Pally program.

The Secondary Pickup Position will function as the *drop position* for the trade show program and must be set up accordingly. We recommend that this position be down the conveyor so that the box is moved into the pick position by the conveyor or gravity slide. In particular, the Conveyor total width, Fixed guide position, and Fixed guide width must all be the same as for the Primary Pickup Position. The Robot's position must be set up so that it drops boxes above the conveyor and away from guides, so there are no unnecessary crashes while dropping the box.

We recommend setting the following positions at the same physical gripper position: Box free height, above pickup, and waiting position. This will reduce unnecessary movements while running the show mode.

4.4 Pattern

When creating a pattern in MyRobot.cloud, take note of the pattern name. For instance, this pattern is named *show*:

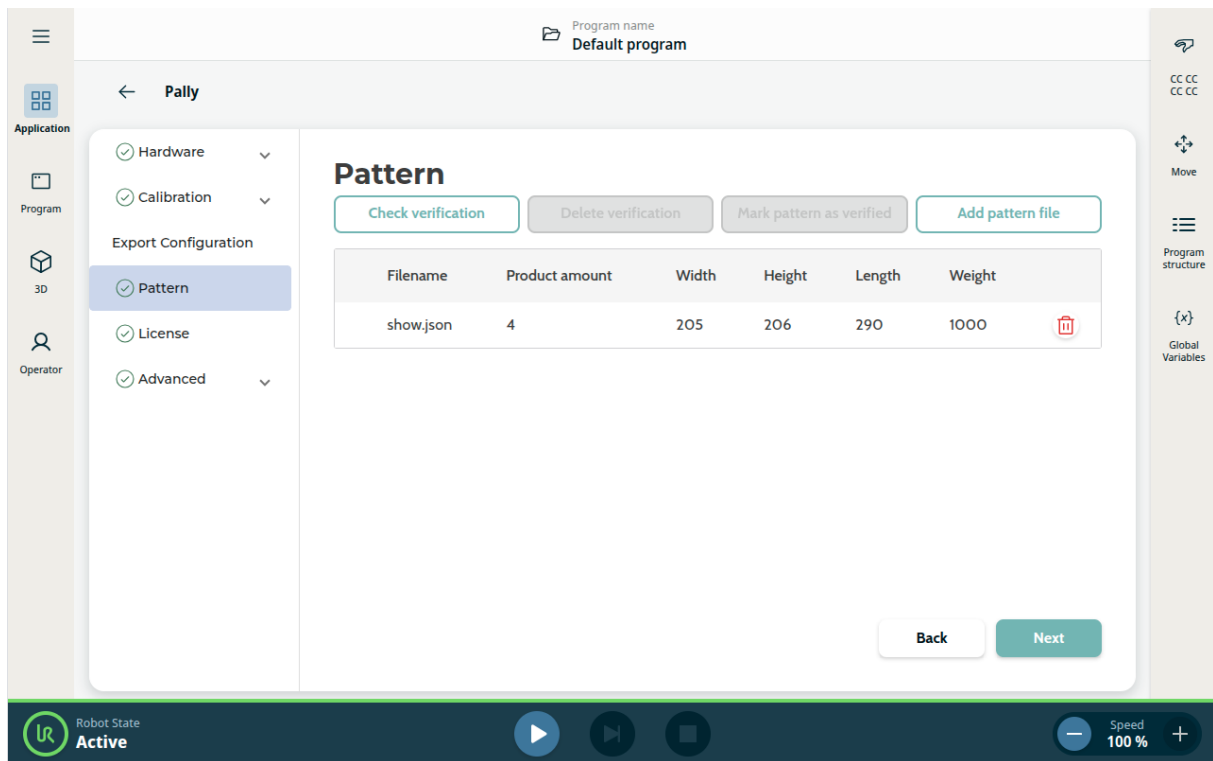


The screenshot shows the 'Patterns' section of the MyRobot.cloud interface. At the top, it says 'Rocketfarm developers / Eriks PSX'. There are buttons for 'UPLOAD FILE' and '+ NEW'. Below these are 'FILTERS' and 'SORT' buttons, and a search bar. A table lists the patterns. The table has columns: Name, Cube Efficiency, Total Height, Quantity, Product, and Updated At. There is one row with the name 'show' circled in red. To the right of the table is an 'Export' button. At the bottom right, it says 'Items per page: 10' and '1 - 1 of 1'.

☐	Name	Cube Efficiency	Total Height	Quantity	Product	Updated At ↓	
☐	show	49.54%	350 mm	4	Lab box	30/04/2025 13:33	Export

9 The list of patterns as it appears in MyRobot.cloud. The list contains a single pattern named *show*.

Press the Export button to download the pattern file, and upload the pattern to Pally by placing it on a USB drive, plug it into the control unit, and use the Add pattern file button to open a dialog that lets you select the file.



10 The list of patterns in Pally

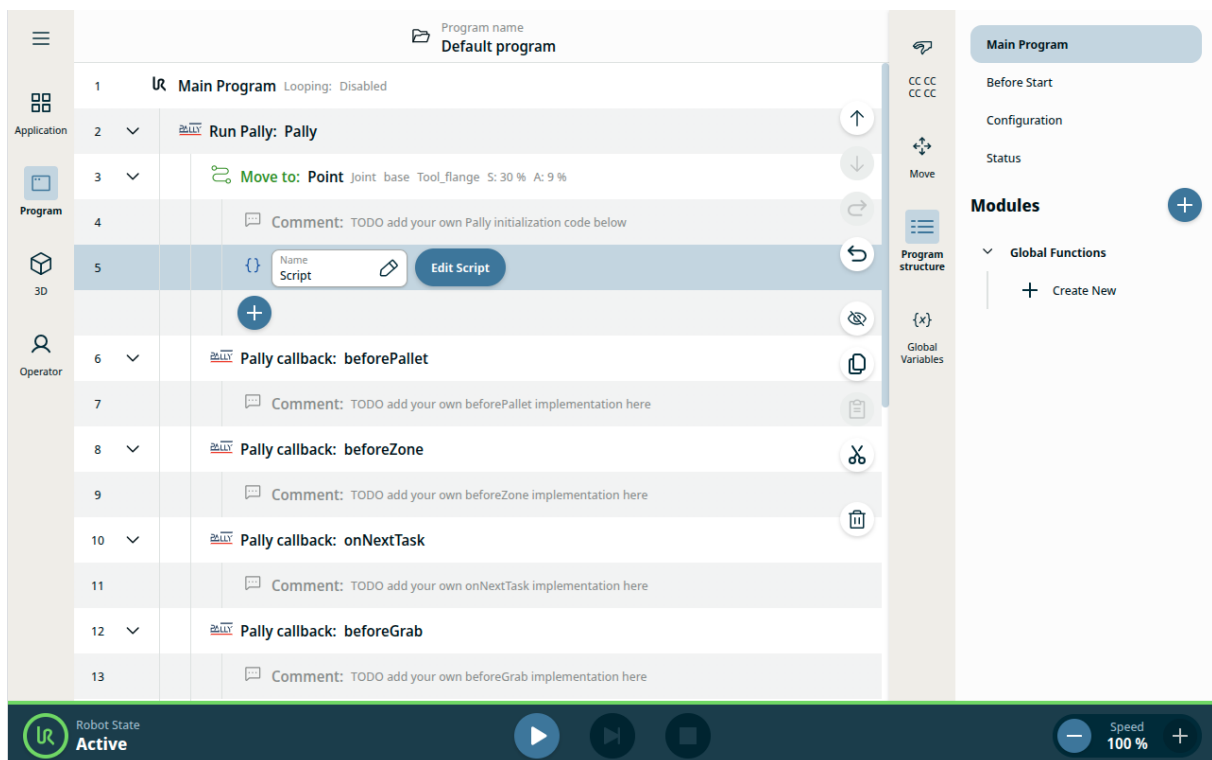
To use your pattern with show mode, enter the Program section with the labeled button on the left of the screen, and add the Run Pally command if you haven't already done so.

Next, click the comment that says *add your own Pally initialization code below*, add a script command, and insert the following script after clicking Set Script:

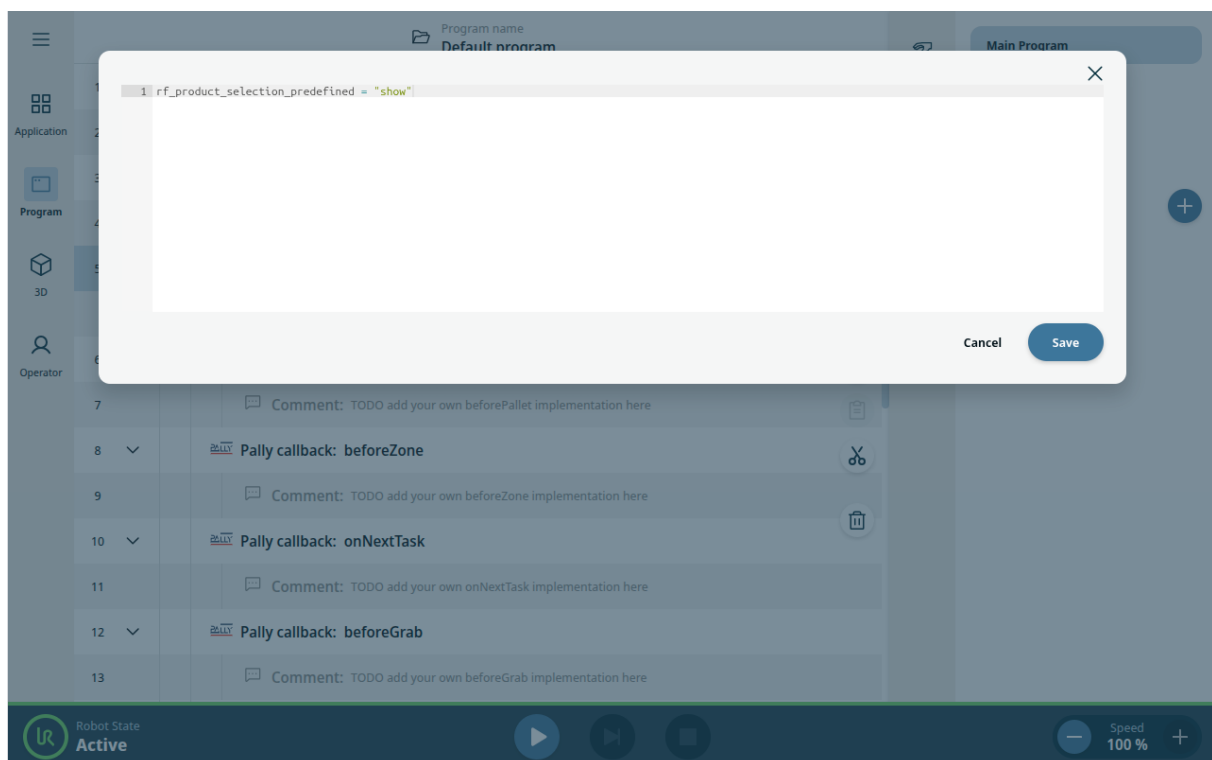
```
rf_product_selection_predefined = "<YOUR-PATTERN-NAME>"
```

In our case, the pattern is called *show*, so the script becomes

```
rf_product_selection_predefined = "show"
```



11 The completed Program

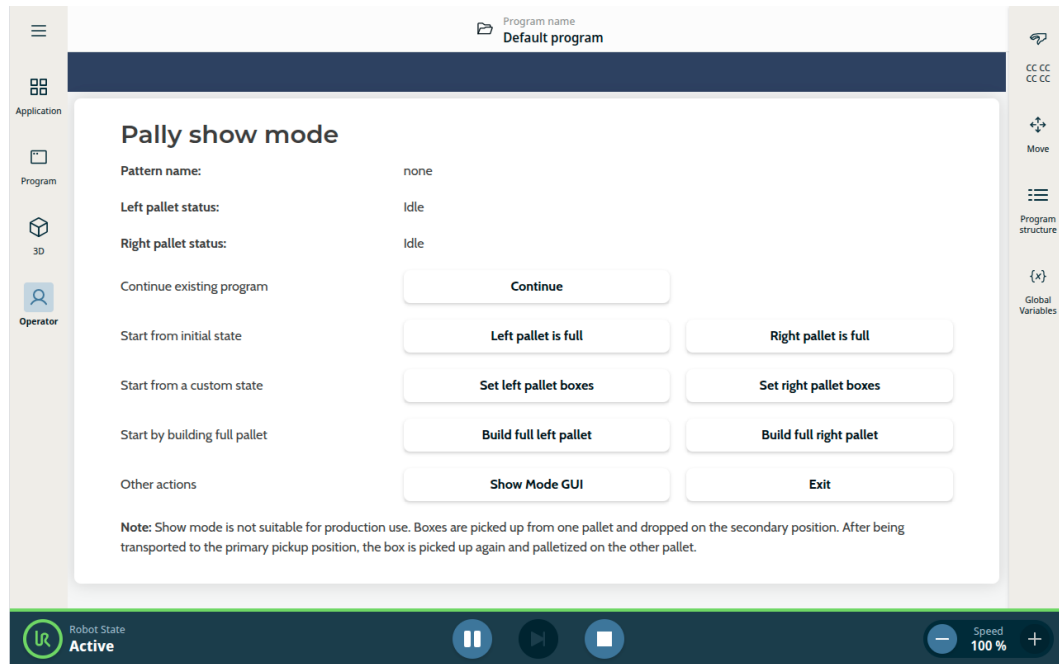


12 The contents of the initialization script

We also recommend disabling the pattern verification waypoints database via the following command in the same place as the pattern script; *Pally initialization code*
`rf_path_storage=False`

4.5 Run Pally show mode

Go to the **Operator** screen and start the program. You will see the following screen:



Continue existing program: Continue the previously running trade show program, if any. Useful if the program was halted during a run, e.g., for demonstration purposes. This option can not be used if the robot has been turned off, and you want to start again after restarting the robot.

Start from the initial state: If either the left pallet or the right pallet has been completely palletized with the selected pattern, use one of these options.

Start from a custom state: If the program was aborted in the middle of a palletizing/depalletizing cycle, use this option to indicate how many boxes are currently on one of the pallets. It is often easier to indicate which pallet has the fewest boxes.

Start by building a full pallet: If both pallets are empty, select one of these options. The program will start by palletizing a full pallet with boxes coming down the conveyor.

Show Mode GUI: Load up the GUI that appears when starting a Pally program in the normal operating mode. Useful for demonstration purposes.

Exit: Stops the program.

If the robot has stopped because of a protective stop, just press continue after removing the obstacle and clearing the error message.

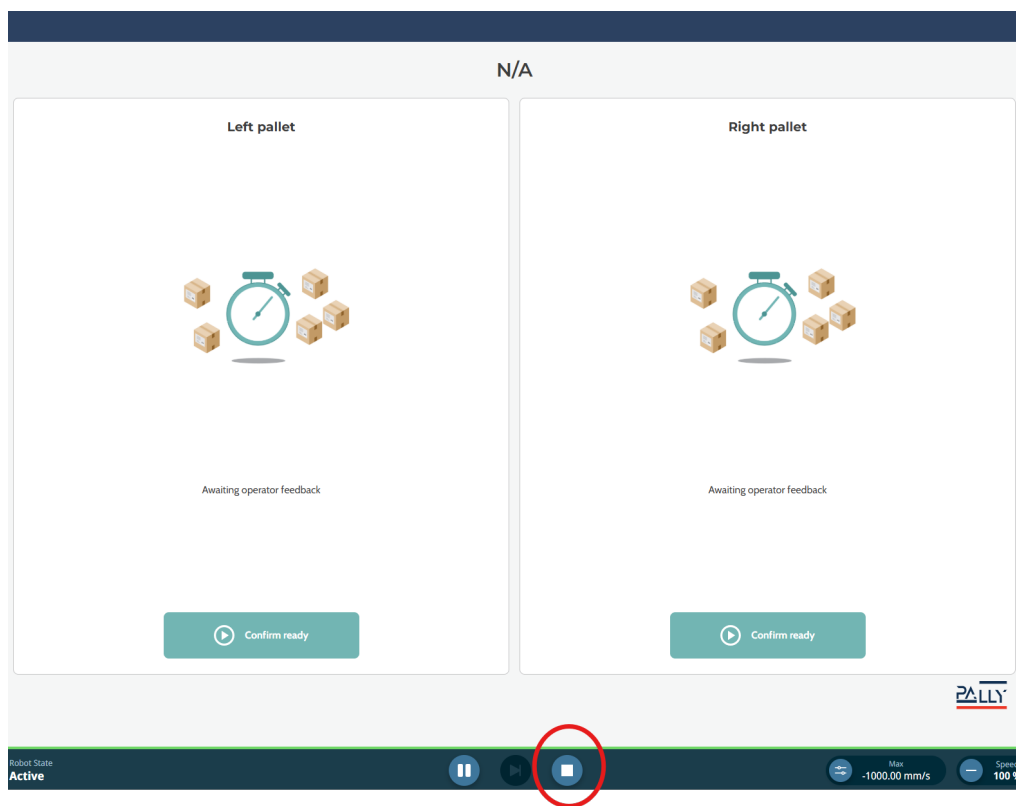
When you restart the robot after shutting it down, the pattern name will not be visible, but it is still present. You can start the show mode with any of the choices: Start from the initial state, Start from a custom state, or Start by building a complete pallet.



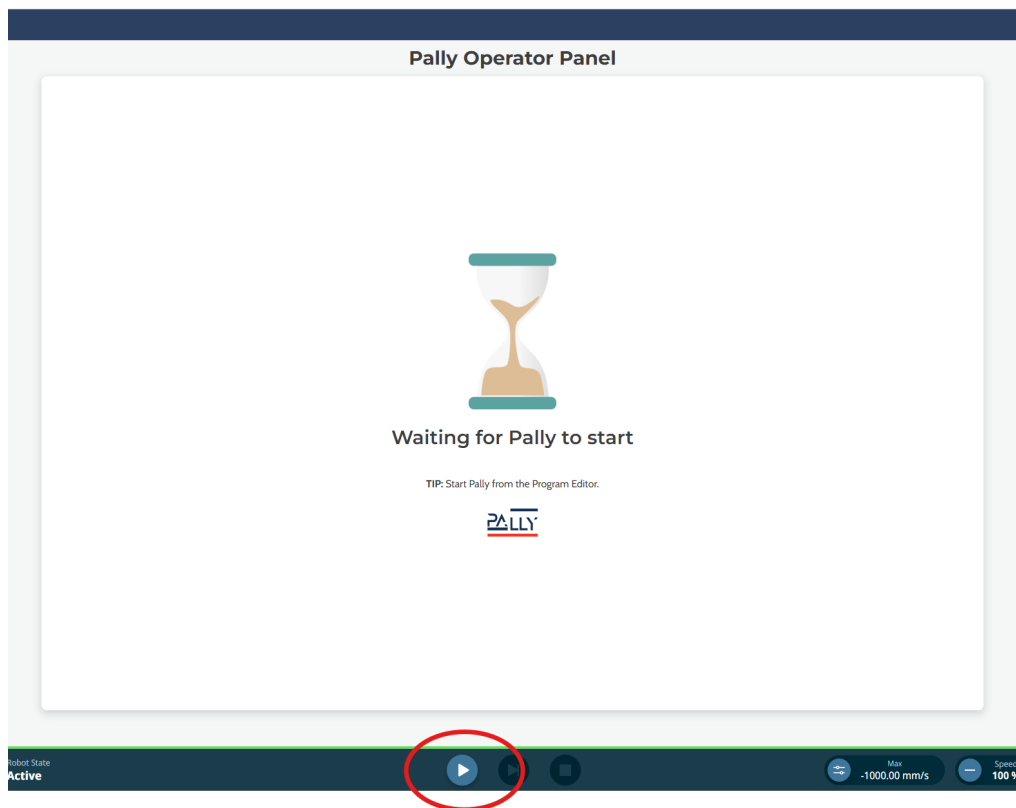
You cannot just press 'Continue', since the robot does not remember where it was because it has been shut off.

4.5.1 How to demonstrate the offline pallet builder

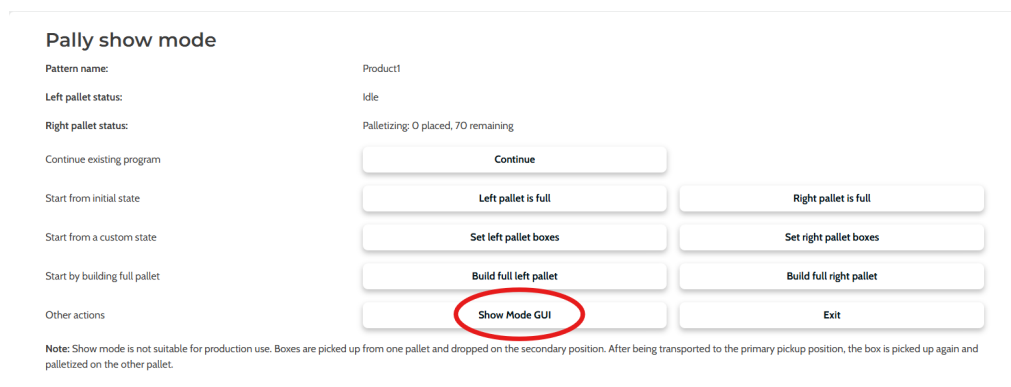
Step 1: Turn off the show mode by pressing the stop button at the bottom.



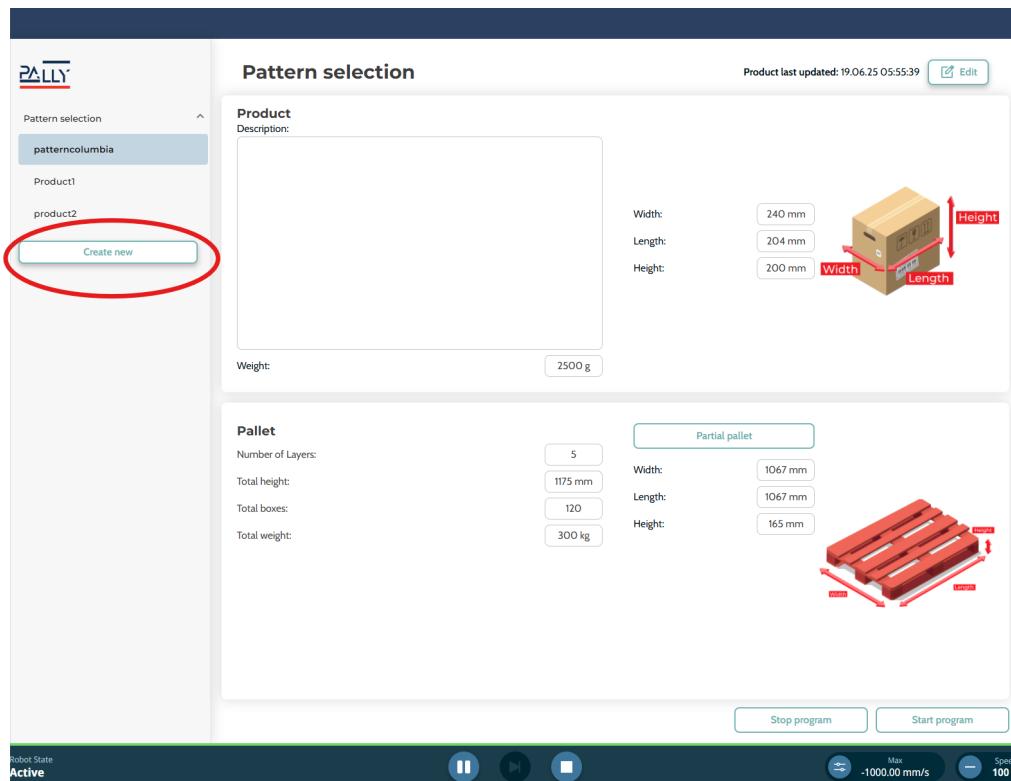
Step 2: Start the program again by pressing play at the bottom of the screen.



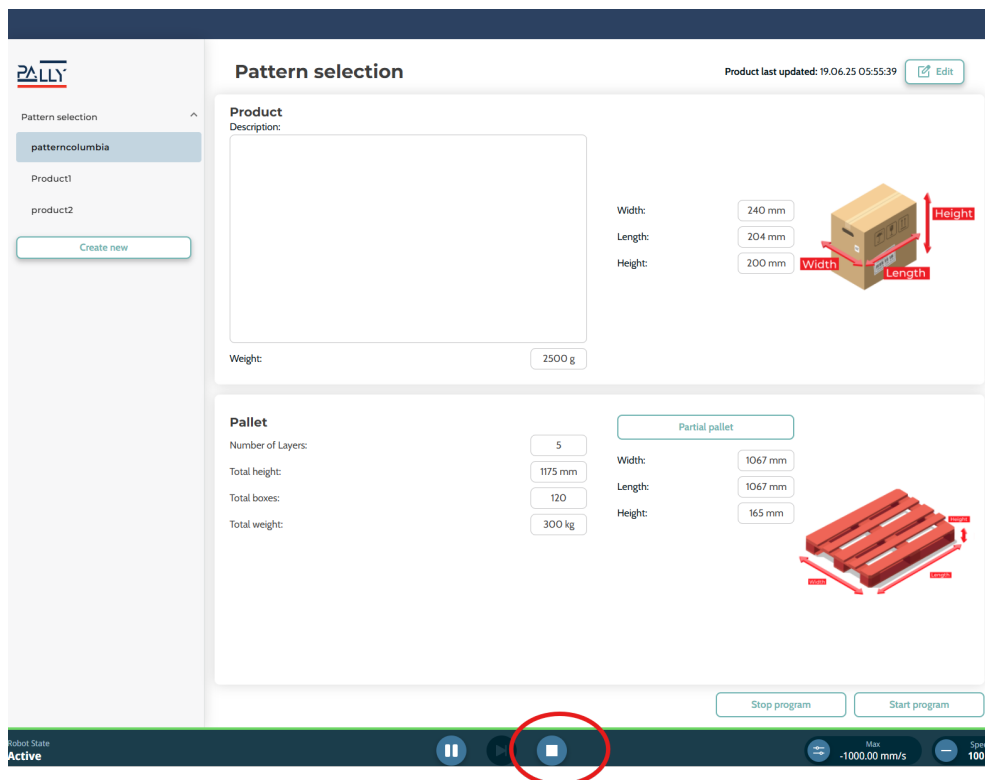
Step 3: Press “Show mode GUI”.



Step 4: Now you can show how to create a new pattern by pressing “Create new”.

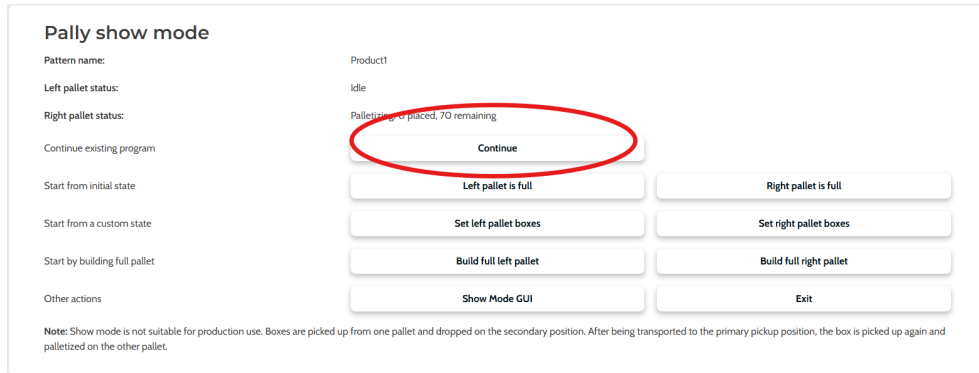


Step 5: After you are done with the demonstration, just stop the program again by pressing stop at the bottom of the screen.



Step 6: Start the program again by pressing play at the bottom of the screen as you did in Step 2.

Step 7: Now you continue the show mode where you left it by pressing continue.



5 Pally for Polyscope X - Connectivity

You can now get access to production data in MyRobot.cloud directly from your Pally installation.

Just connect your robot to the internet as described in the Universal Robot manual, and Pally will automatically start transferring production data to MyRobot.cloud.

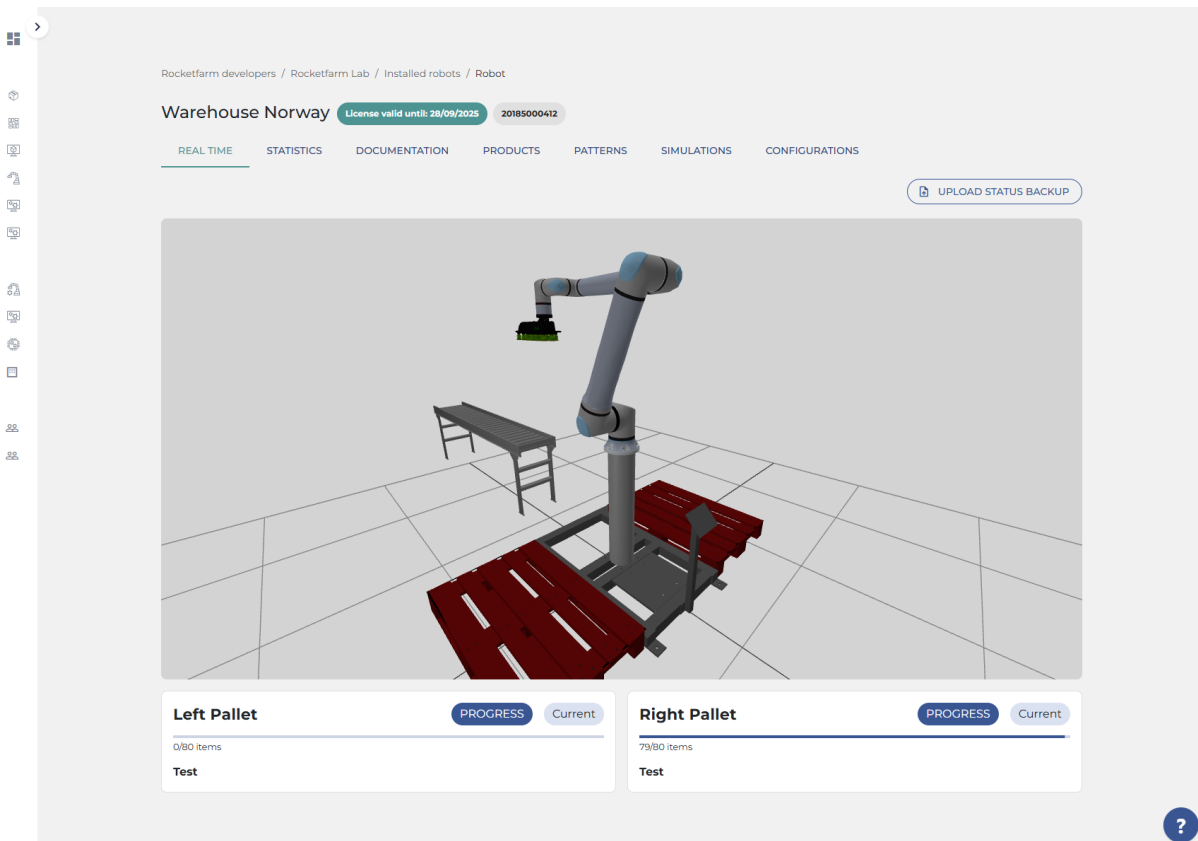
The only thing you need to do is upload the active installation to MyRobot.cloud and ensure it has a valid license with an active plan connected to your customer in MyRobot.cloud.

Data Security is ensured as the connection is according to the following regulations:

- NIS2 Directive
- EU Cyber Resiliency Act (CRA)
- IEC 62443-4-2 Security Level 1 (SL-1)
- IEC 62443-4-2 Security Level 2 (SL-2) (partly compatible)

You get real-time data:

The video will have a 10-second delay compared to the actual production.



You get historical production data where you can choose the period you want to watch: Past hour, Past 24 hours, Past 7 days, Past 30 days, and even more.

You get the information regarding:

- Average products per minute
- Total products palletized
- Products palletized over time
- Type of products palletized
- and lots more

