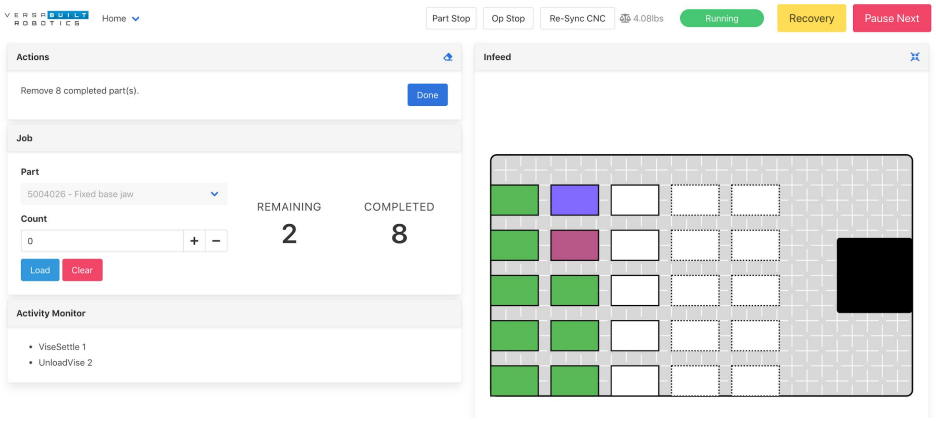
VERSABUILT ROBOTICS



VSC User Interface Connection

Software Version 1.2.5 Copyright VersaBuilt 2025
Updated 2025-12-10

Table of Contents

Safety Warnings

DANGER: VersaBuilt makes industrial machine tool automation components designed to be operated by trained personnel only. Machine tool automation components may move suddenly and without warning. Serious or fatal crushing injuries can occur from contact with the robot, gripper or vises.

Before deploying VersaBuilt industrial machine tool automation components, a safety risk assessment must be completed in accordance with local, state and/or federal requirements.

VersaBuilt industrial machine tool automation components should only be used by trained operators.

Read and understand the VersaBuilt Automation System Safety Manual before proceeding

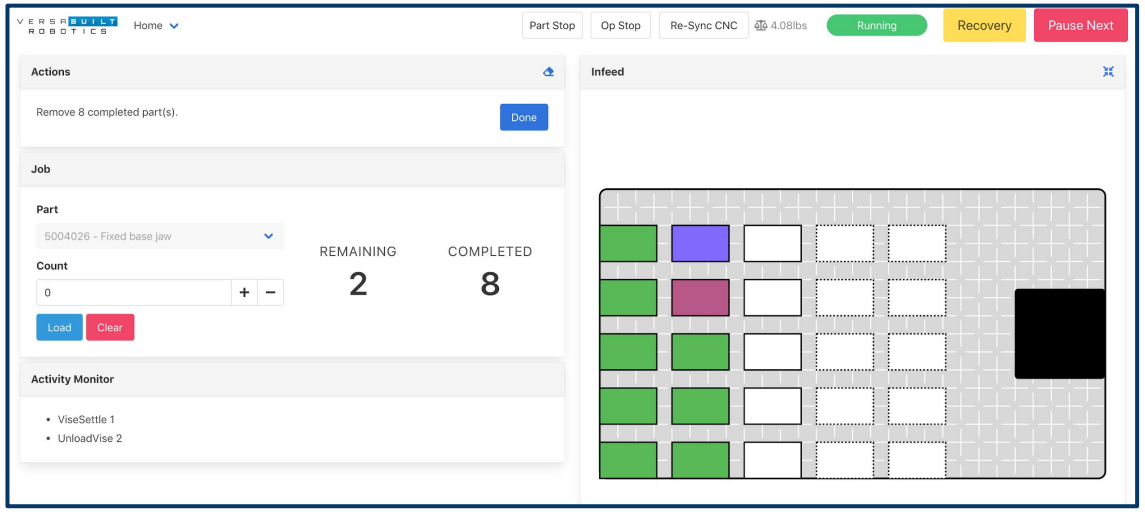
Connecting to the User Interface

Section 2

VSC User Interface

The VSC U/I is a web-based application, with connectivity via:

- **Wi-Fi**
- **Ethernet**
- **Direct HDMI and USB for Monitor and Keyboard**



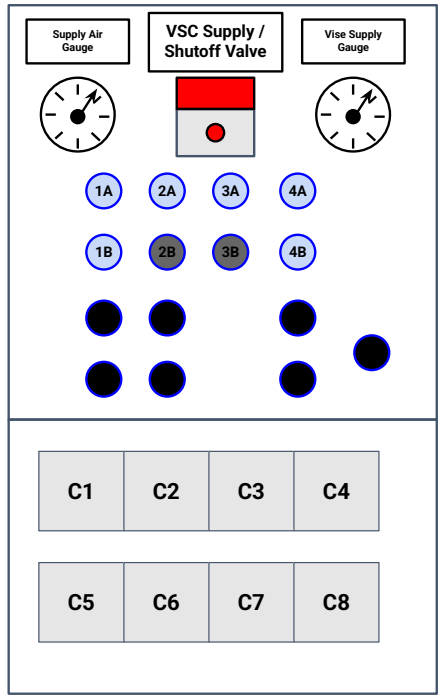
Refer Section 3 of this manual for connectivity and the Networking Manuals for details:

- **VSC 1.0 Automation System Networking**
- **VSC 2.0 Automation System Electrical, Network, I/O, and Pneumatics Manual**

VSC 1.0

Electrical Enclosure

VSC 2.0



Incorporated into the VersaCart

User Connections to VSC

There are 3 available methods of connecting to the VSC:

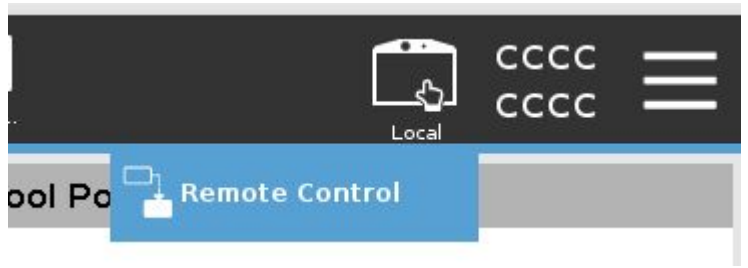
1. **WiFi enabled device** (Laptop, Tablet, Phone)
   a. WiFi Signal from Mini Router*
   b. Connect Mini Router local business WiFi or Ethernet Drop

      Mini Router improves connectivity, easier setup for remote support and allows for browser connection to the internet and to VSC user interface

      ** included with new systems and available to add to legacy systems*

2. **Ethernet connection to VSC** (Laptop, Computer)
3. **VSC ports for monitor, keyboard and mouse**
   a. Directly connect Monitor with HDMI cable and Keyboard/Mouse to USB(s)

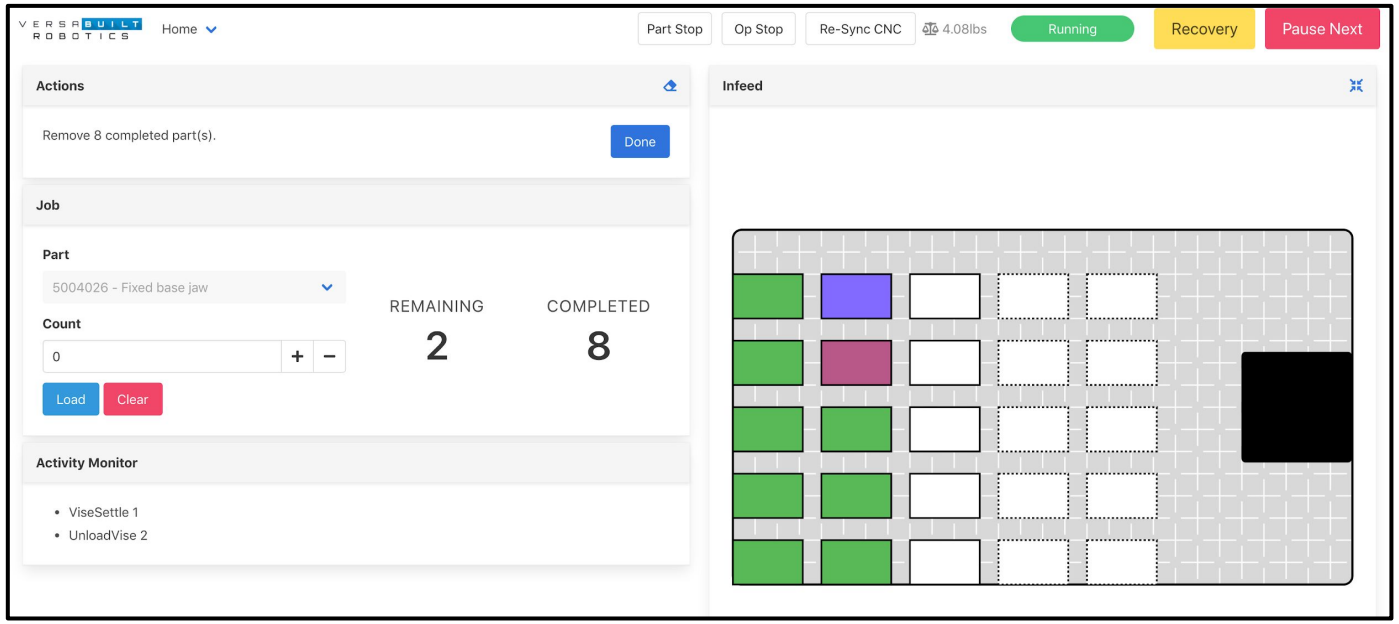
Note: for UR robots, verify the teach pendant is set to "Remote Control Mode"



VSC Connection via WiFi

Connect to VSC WiFi Router (vscxxxxx)

- The VersaBuilt System Controller (VSC) is connected to a router with an available WiFi signal, by which users can connect to the system with a web browser.
- Connect to WiFi connection with name = vsc + serial number (e.g. vsc00215).
- Enter the default password = versabuilt (all lower case).
- Once the WiFi connection is established, open a web browser and enter the following address: **192.168.2.4:9000**
- The home page looks something like this:



Connect VSC Router to the Corporate Network

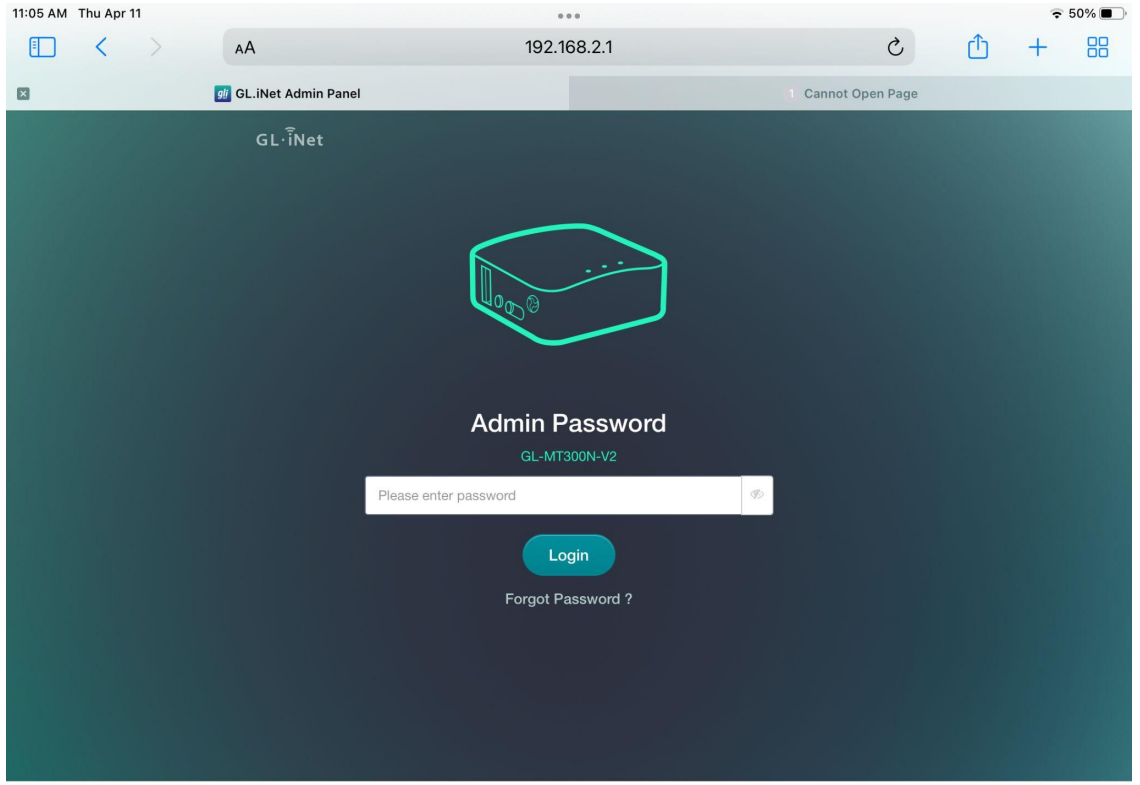
Why Connect the VSC Router to the Local Corporate Network?

Connecting the VSC Router to the local corporate network provides two key benefits:

- The VersaBuilt support team can connect to the VSC ***if*** remote access is enabled on the VSC
- The VSC can be accessed from any computer on the corporate network

Connect VSC Router to Local Corporate Network using Ethernet

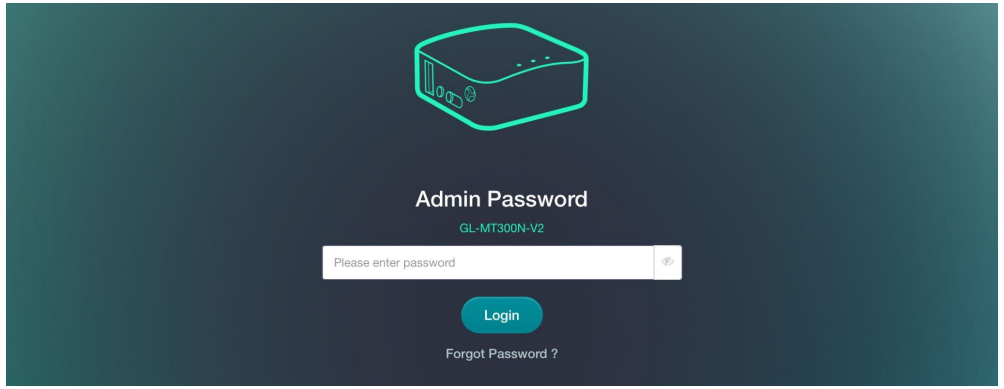
- Plug an Ethernet cable into the WAN port of the Router
- The router will automatically configure itself using DHCP
- If manual configuration of the Ethernet connection is necessary, plug in the Ethernet cable, then see the next page for steps on connecting to the VSC Router for configuration



Configure VSC Router to Corporate Network - Wi-Fi

Connect to the VSC Router WiFi

- Look for the WiFi connection that starts with vsc + serial number (e.g. vsc00175).
- Enter the default password = versabuilt (all lower case).

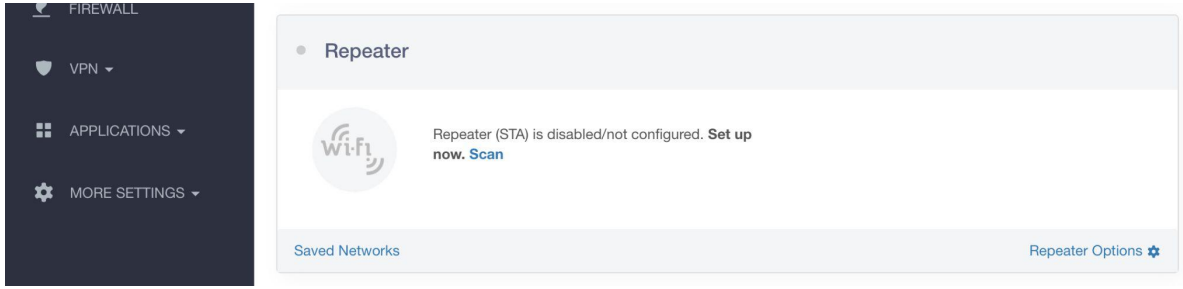


Connect to Router interface, to connect to local WiFi Network

- Once the WiFi connection is established, open a web browser and enter the following address: **192.168.2.1**
- Enter the default password = versabuilt (all lower case).

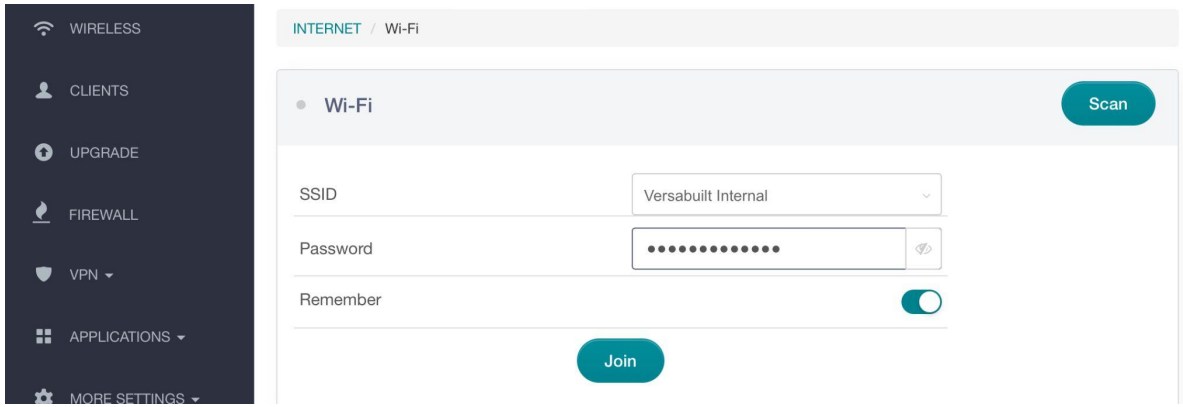
Scan for WiFi Networks under Repeater

- Scroll down to the Repeater section, press on the **Scan** button



Select WiFi Network and Enter Password

- Select the desired Wifi network from the list
- Enter a password
- Press the Join button



Ethernet Connection to VSC

Connecting to the VSC via “Local” Ethernet

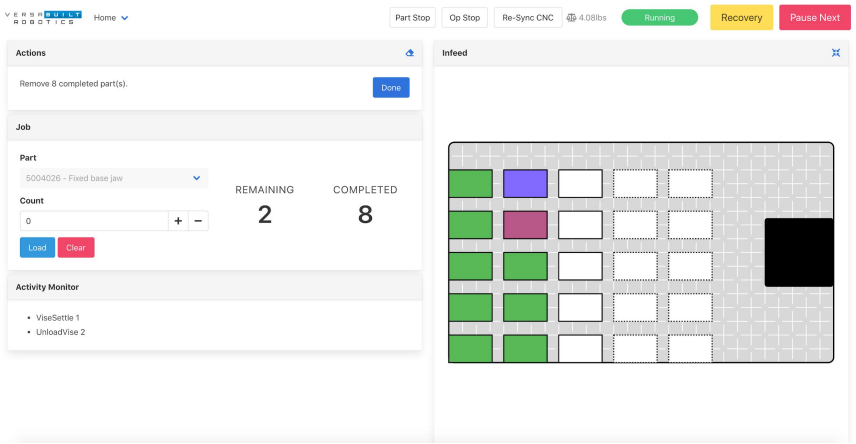
For an Ethernet device such as a computer or laptop, plug the device into an available port on the Ethernet switch the VSC is plugged into. For most computers, the ethernet port will be automatically configured to access the VSC.

Open up a web browser and enter the following into the address bar:

192.168.2.4:9000

The VSC home page should appear. If the VSC home page does not appear, go to the computer’s Ethernet settings and configure the Ethernet port for:

DHCP: Obtain an IP Address Automatically



Connecting to the VSC via “Corporate” Ethernet

Contact your network system administrator or connect to the VSC Router as described on the previous page to get the IP address of the VSC Router. Use that address with a port of 9000 to connect to the VSC. For example, if the VSC Router IP address is 10.1.1.125, enter the following into the address bar of the web browser:

10.1.1.125:9000

Direct Connection to VSC

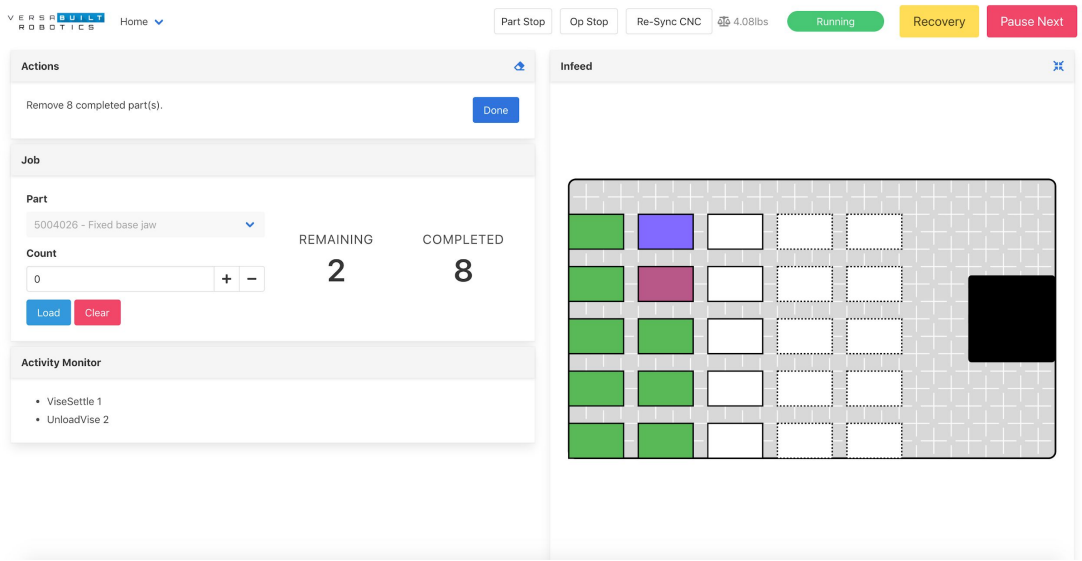
Connecting to the VSC with Monitor, Keyboard & Mouse via HDMI & USB

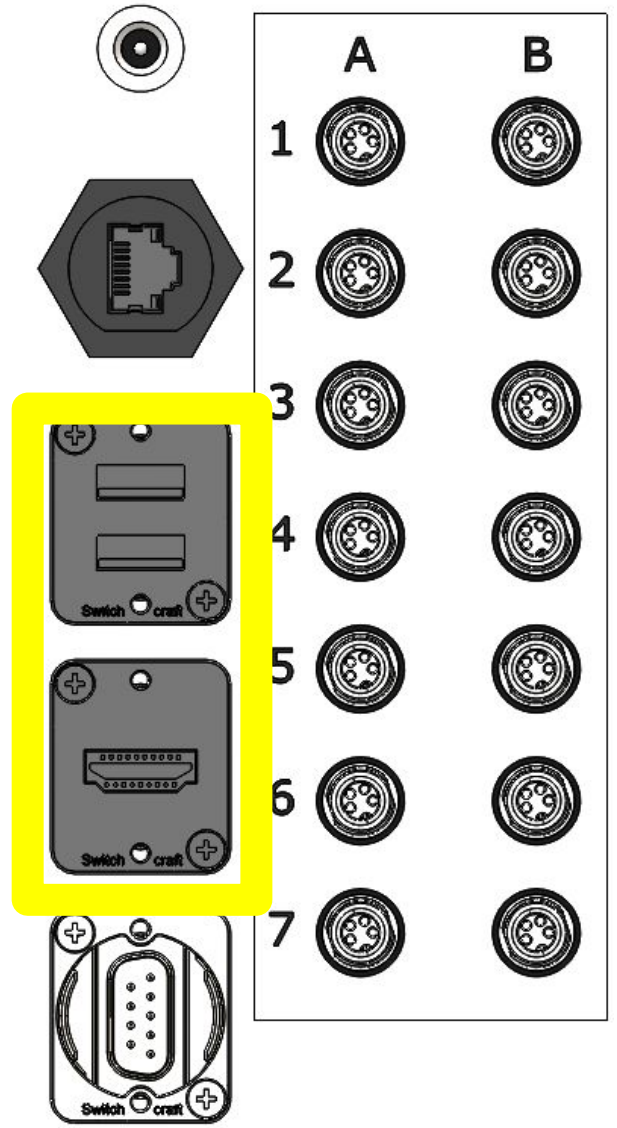
A direct connection to the VSC interface is available, by connecting a Monitor via the HDMI port and Keyboard/Mouse via the USB ports.

To connect:

- Remove power from the VSC
- Connect HDMI and USB cables
- Connect Monitor power
- Reconnect power to VSC
- User interface will display on the monitor

Located as shown with VSC 1.0
Located on the side of the VersaCart with VSC 2.0





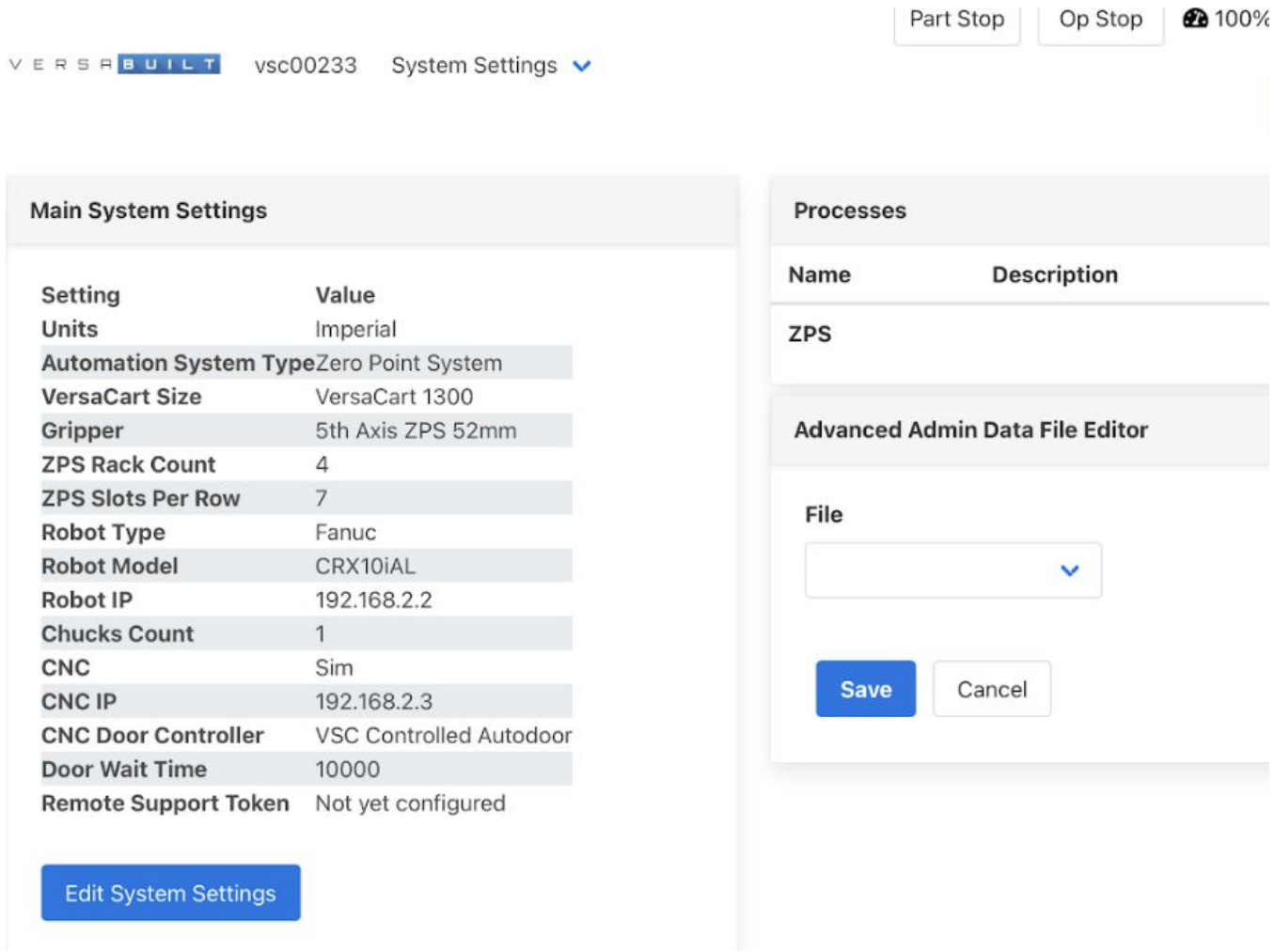
Confirm VSC System Settings

Navigate to the Settings Page

Your system is pre-configured by VersaBuilt prior to shipment.

Connect to the VSC and click on the Navigation down arrow in the upper-left corner of the screen and select Settings.

Press the Edit System Settings button at the bottom of the page. Edit the System Settings to confirm the configuration of your system.



VSC System Settings

Name: Enter a name for the the system, this name is displayed at the top of of the VSC home page to easily identify which automation system is being controlled

Units: Choose imperial or metric units to be used in the VSC

Infeed Template: Select based on the infeed type installed in the system

CNC Dispatcher Program: CNC Dispatcher program number, 9000 by default (Haas and Fanuc CNCs only)

Default CNC Wash Program: The default CNC wash program number, 8001 by default

Vises/Chucks: number of CNC vises or chucks installed

Robot: Select the type of robot installed in the system

Robot IP: IP address of the robot, 192.168.2.2 by default

CNC: Select the type of CNC control the VSC is connected to

CNC IP: IP Address of the CNC (not applicable for Haas Legacy or Generic), 192.168.2.3 by default

IO: IO driver for the VSC; typically I2C, Sim can be used for testing purposes

CNC Door Controller: Select one of VSC Controlled Autodoor or CNC Controlled Autodoor **VSC controlled autodoors receives an air or I/O signal from the VSC to open and close. ***CNC Controlled Autodoors must be configured to automatically close on CNC Cycle Start and Open on CNC Cycle End*

CNC Door Wait Time: If Ignore Door Sensors is selected, the amount of time the VSC waits after commanding door movement before it assumes the door motion has completed

Ignore Vise Sensors: If selected, system will not check vise sensors for part load verification

Ignore Door Sensors: If selected, system will not check door sensors

Find Part Force: Change in force, in newtons, measured at the gripper to trigger part found when using find part

Find Part Retract Distance: After part is found, the distance the robot moves in positive Z before shifting in X to clamp the part

Over Top of Table Move Home Motion: When selected, robot moves vertically between CNC and Table Home locations; useful for when the cart is placed close to the CNC

Remote Support Token: Key token used by the VersaBuilt VPN, only edit this if directed by VersaBuilt support

Note:

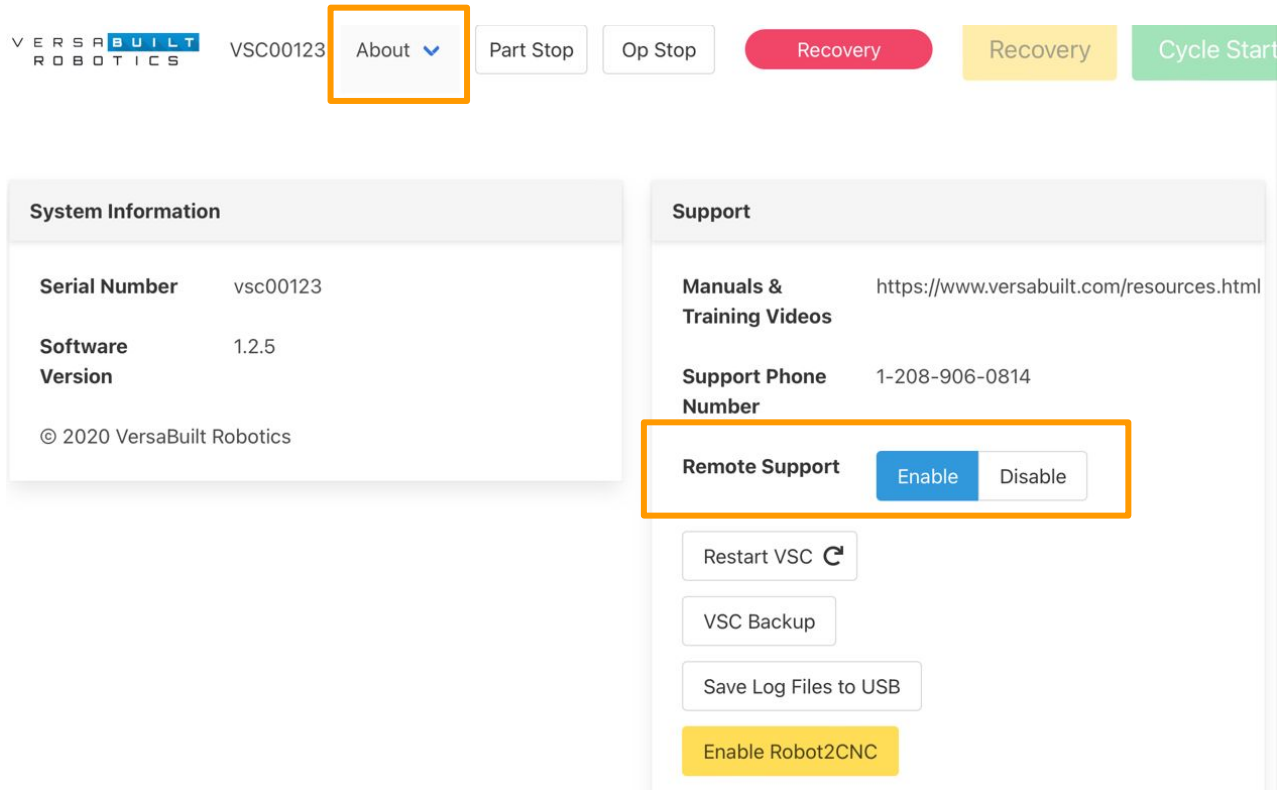
Sim = Simulation when a device is not available or for testing without signals to/from the device

Enable Remote Support

Navigate to the About Page and Enable Remote Support

For Remote Support, the system needs to be connected to WiFi or Network with an internet connection and in the About Page and “Enable Remote Support” selected.

Remote Support is critical for installation success and ongoing support. If there questions or concerns about the connection, please contact support@versabuilt.com for assistance and connection with the VersaBuilt software and IT team.



Testing / Troubleshooting

With the CNC settings setup, as shown in the following sections, the system can be fully tested in the Home Recovery Panel and the I/O page on the VSC interface.

Refer to the I/O Manual for details:

- **VSC 1.0 Automation System Electrical and I/O Manual**
- **VSC 2.0 Automation System Electrical, Network, I/O, and Pneumatics Manual**

User Interface Overview

Section 3

VSC User Interface

The VSC User Interface is a web based application, with the user connection via:

- **WiFi Device** (Tablet, Phone, Laptop connected to WiFi signal from VSC)
- **Network** (Ethernet connection with computer)
- **Direct with Monitor** (HDMI) and Keyboard/Mouse (USB) connections to the VSC computer

Example tablet products:

- Apple iPad (9th Generation, 10.2-inch Retina Display, 64GB, Wi-Fi, 12MP front/8MP Back Camera, Touch ID)
- iPad Protective Case
- Tablet Magnetic holder

VSC User Interface

The VSC user interface has multiple pages:

- **Home** (Run Jobs and Recover from errors)
- **Configuration** (Configuration / Parametric Programming of Parts)
- **System Settings** (Customer specific setup of system)
- **Network Settings** (options for advanced networking)
- **I/O Panel** (testing and troubleshooting of devices with Input and Output signalling)
- **Calibration** (Tools for Calibrating VersaCart Infeed, Vise/Chuck, Bin Drop, and testing)
- **About Page** (Restarting VSC, Enabling Remote Support, information about software and version)

VSC User Interface

Configuration / Parametric Programming

- The configuration page saves part specific programs, with “Parametric Programming”. For VSC controlled systems, Robot Programming is not required, as the robot programming is pre-configured and customized by the end-user by entering “Parameters” (values, checkboxes, etc.)
- With the development of MultiGrip and subsequently DuoGrip, and ZPS, VersaBuilt has developed and refined the user interface to include all necessary options and parameters for Mill and Lathe Machine Tending. This includes experience with over 300 customer implementations since 2014.
- If the application requires parameters or settings that are outside the typical options, custom settings and parameters can be added upon request or quote.

VSC User Interface

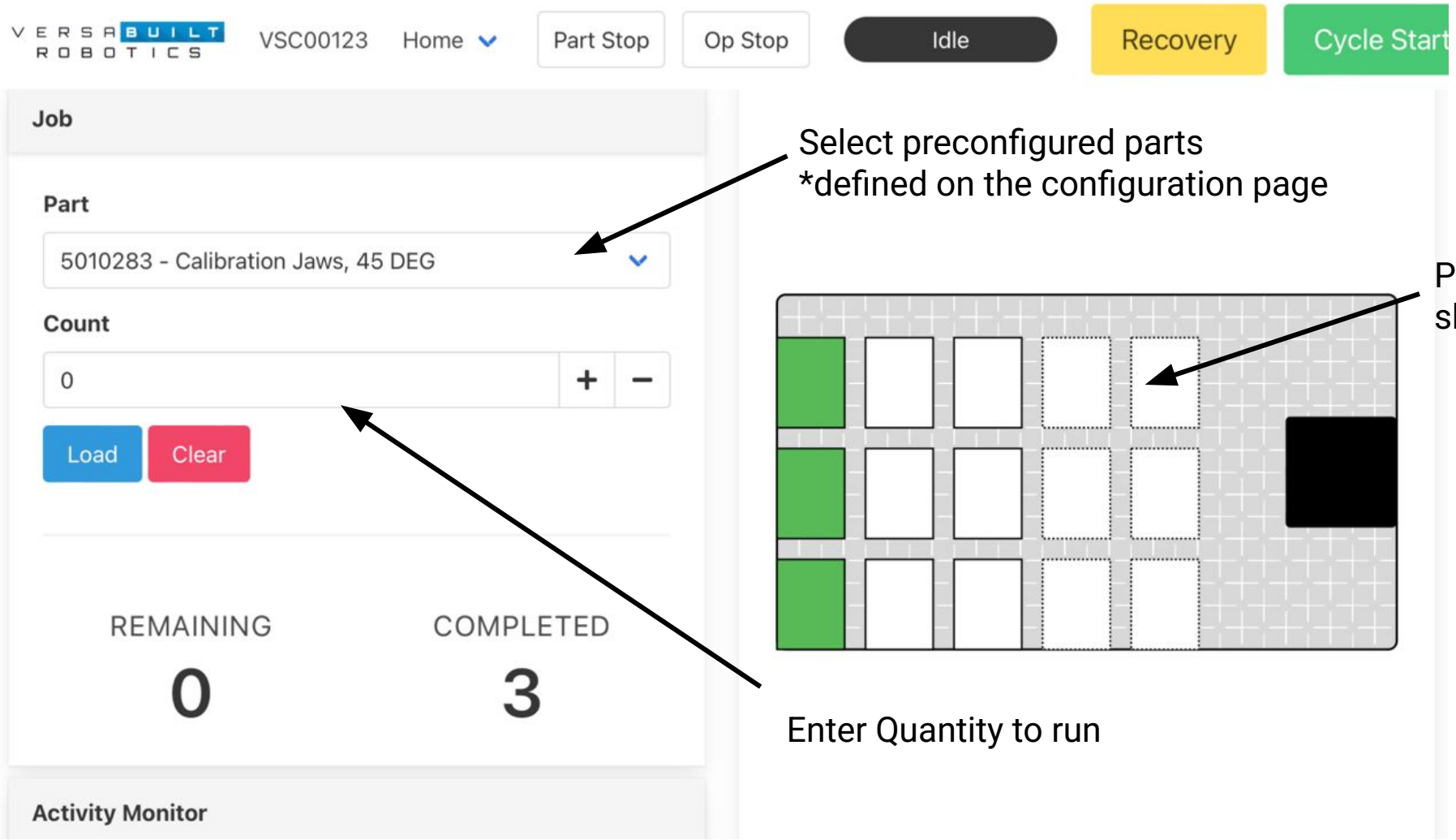
MultiGrip vs. DuoGrip

- The part configuration process between MultiGrip and DuoGrip systems is nearly the same, with the following exceptions:
  - Jaw Configuration is not part of the DuoGrip Process
  - DuoGrip Chuck or Vise load/unloading is calibrated on a per part basis, within the Part Configuration
  - MultiGrip Vise load/unloading is calibrated for all parts in the Calibration Page
  - MultiGrip includes a Op to Op transfer with the 2+ Operation process scripts
  - DuoGrip requires a Regrip process script to enable 2 Operation processing with a single Chuck/Vise
  - DuoGrip does not include a VersaWash option, as it includes a VersaBlast wrist air blow-off option.

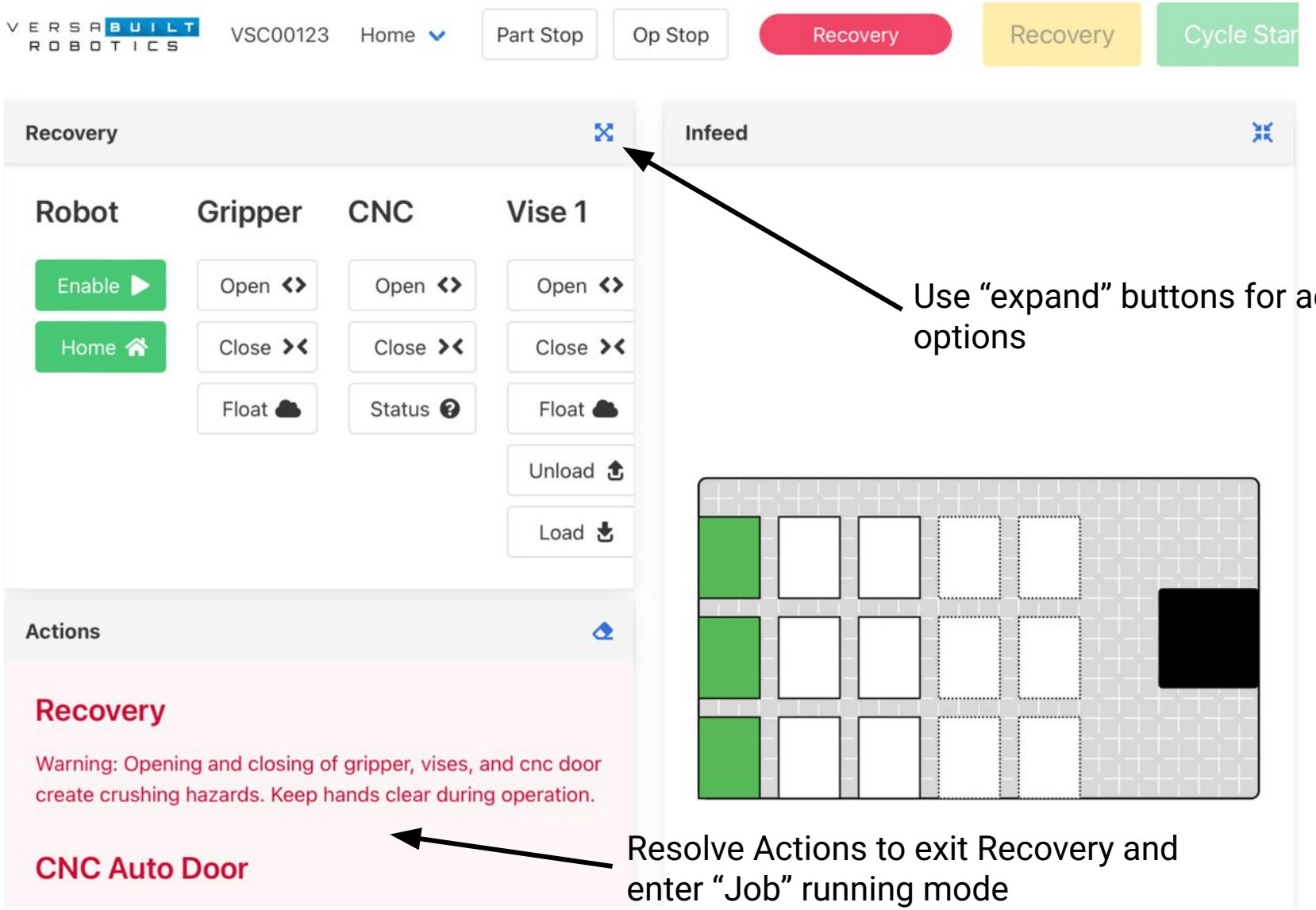
ZPS w/ Fanuc

- ZPS with Fanuc does not require part configuration weights
- ZPS is limited to one operation, therefore part transfer and second operations are not included
- ZPS does not include a VersaWash option

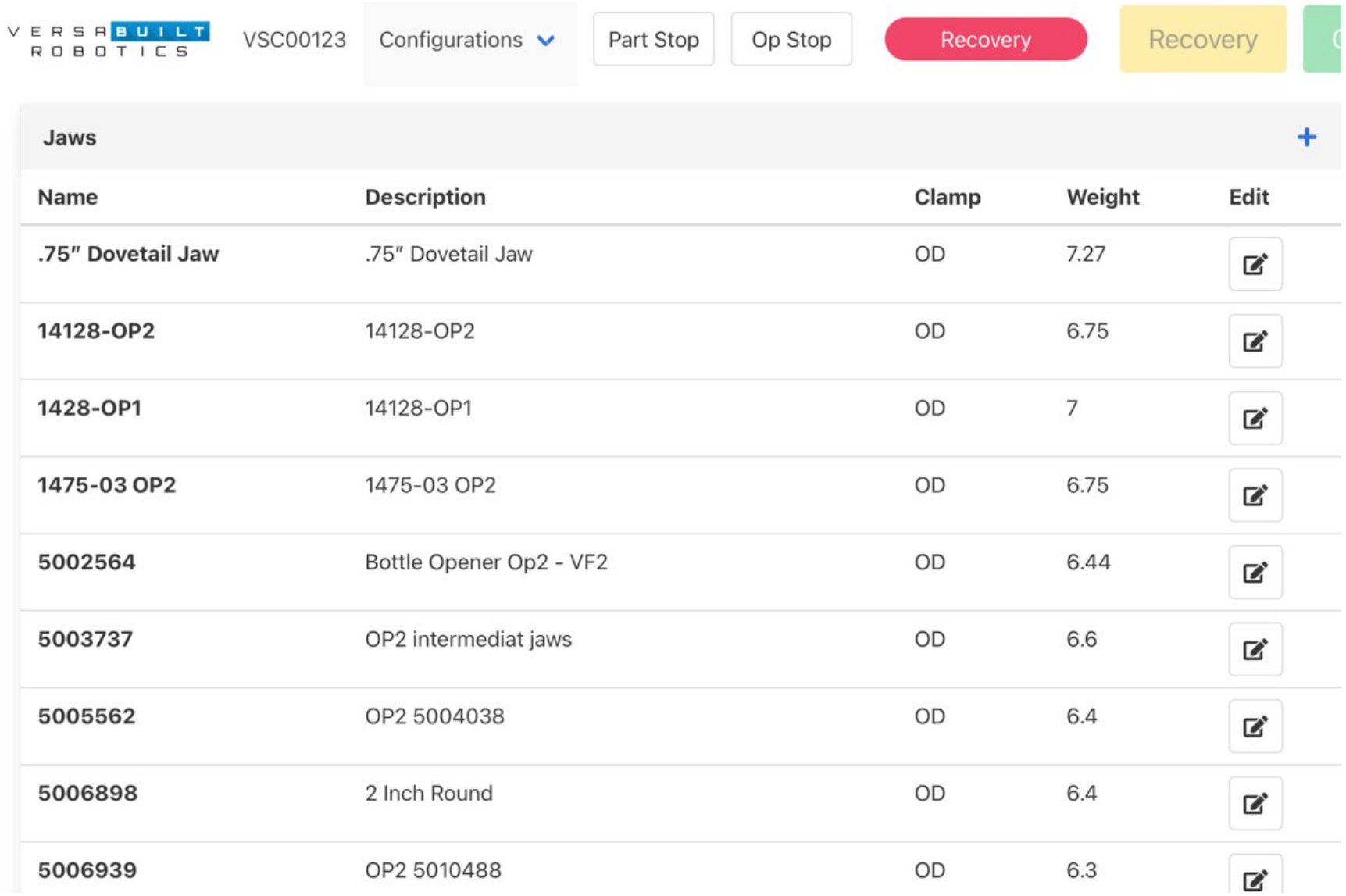
Home Page (Job Running Mode)



Home Page (Recovery Mode)



Configuration Page (Jaw Configuration *MultiGrip only)

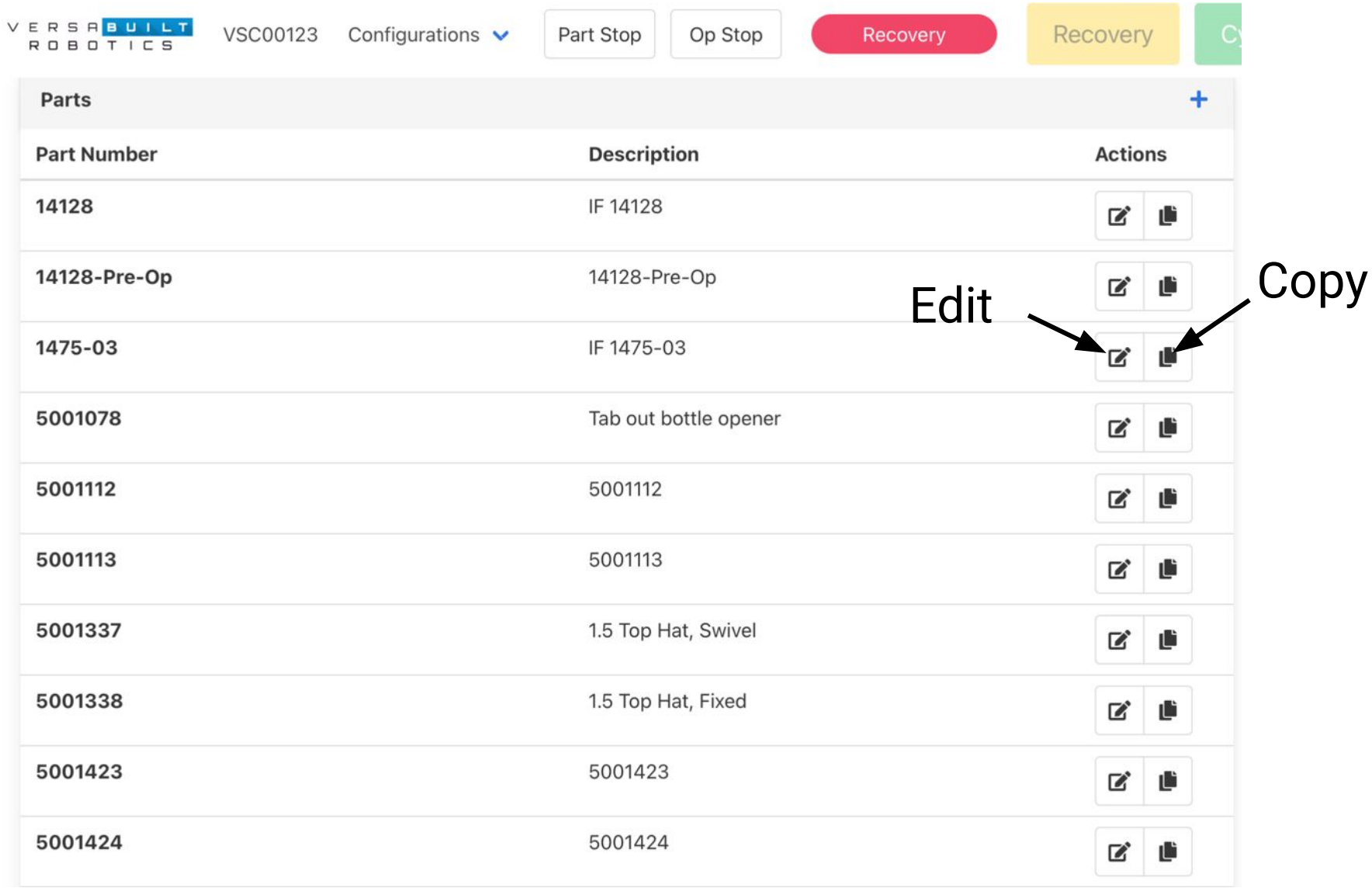


Configuration Page (Part Configuration)

An unlimited number of parts can be saved in the Part Configuration page, with the first part configured from scratch and subsequent either from scratch or via the copy button.

Revise Parts with the Edit button.

Copy Parts with the Copy button.



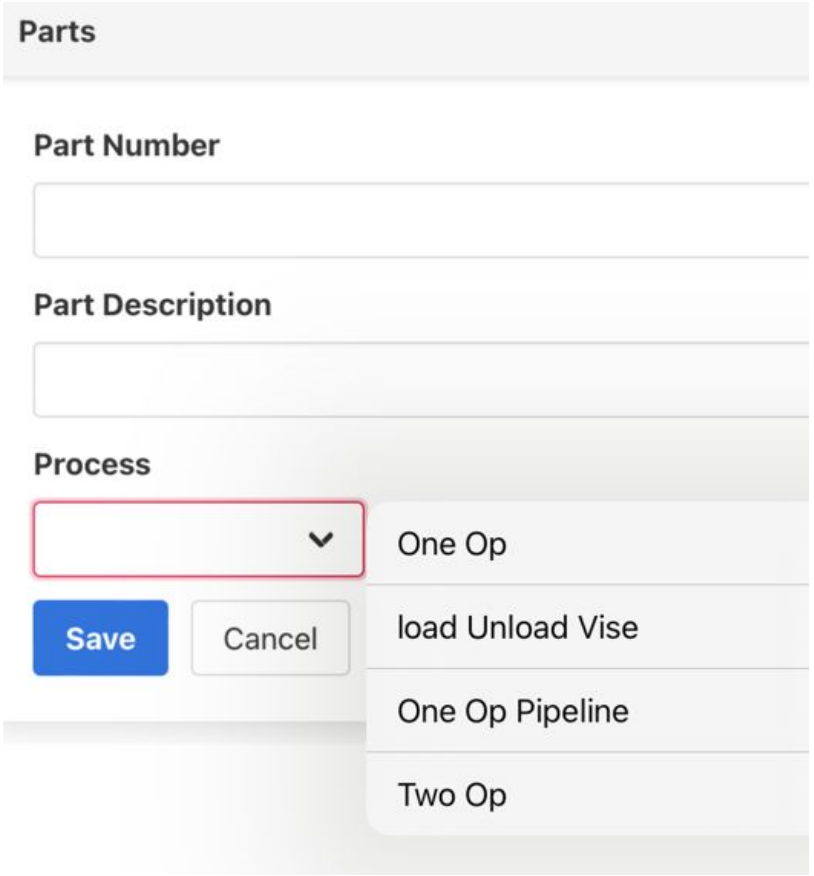
Configuration Page (Part Configuration)

When creating a Part Configuration from scratch, enter Part Number & Description, then select the Process.

The “Process” pulldown selects the type of process that will be used for the part

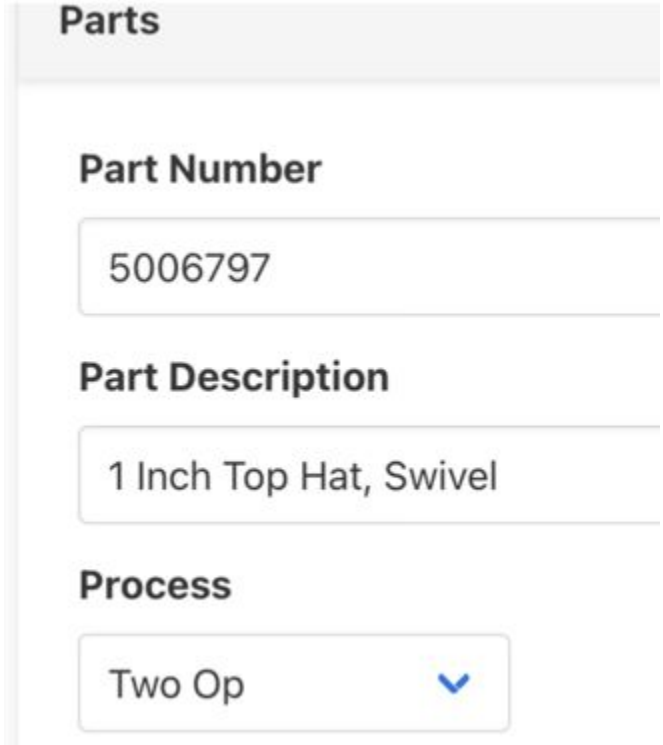
Examples shown to the right.

VersaBuilt refers to each of the processes as “Scripts”.

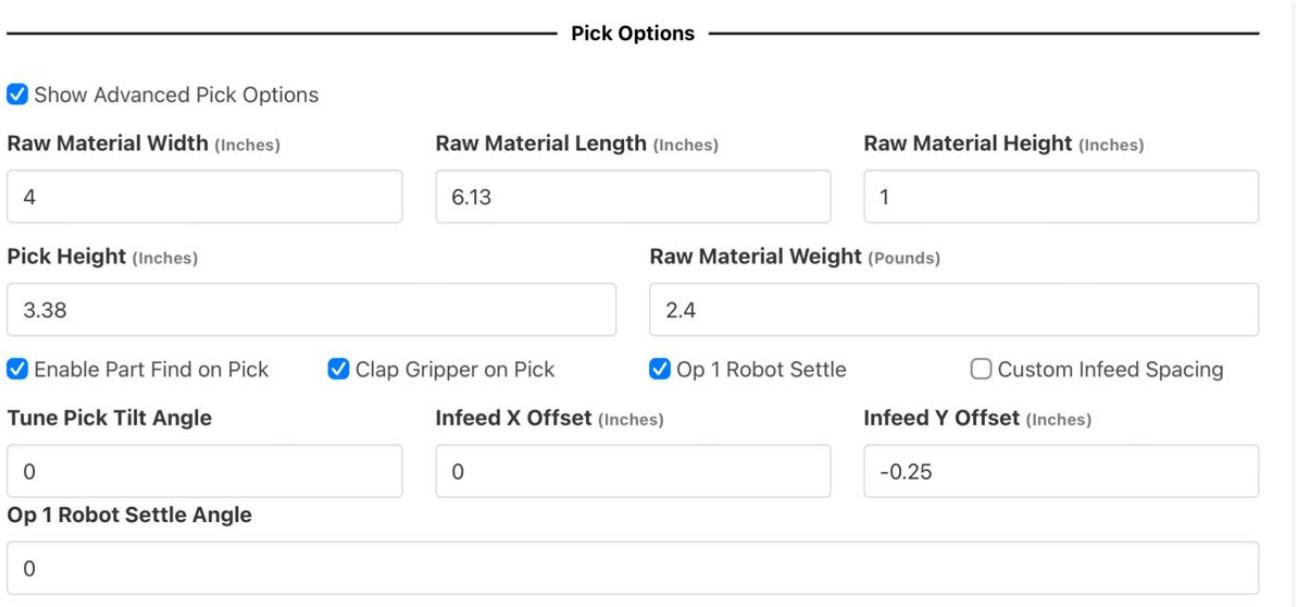


Example Part Configuration

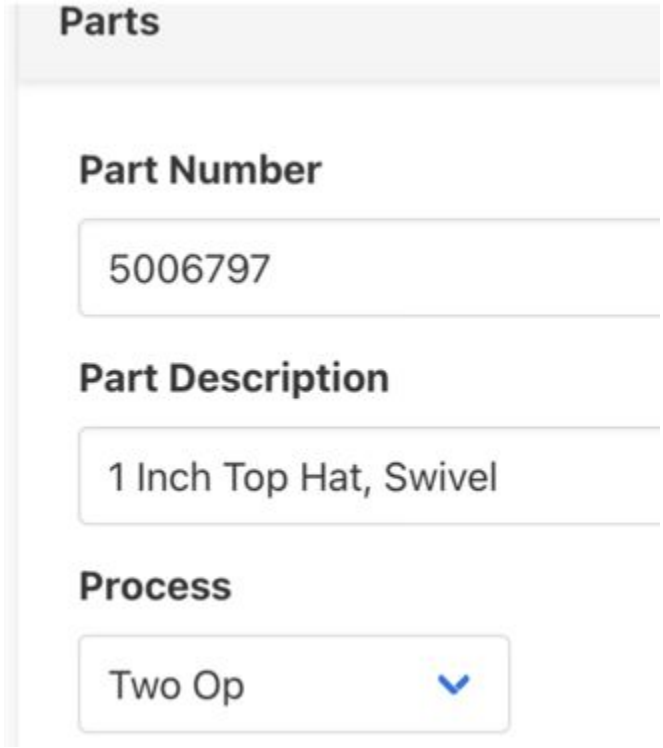
Below and the following pages include an example 2 Operation MultiGrip Part Configuration



Pick from Infeed Selections



Example Part Configuration



Op1 to Op2 Transfer Selections

Part Transfer Options

☑ Show Advanced Transfer Options

Op 1 to 2 Transfer Height (Inches)	After Op 1 Part Height (Inches)	Op 1 to 2 Clearance Height (Inches)	Post Op 1 Part Weight (Pounds)
5.114	1	3	2

☐ Enable Part Find on Transfer

Part Find Starting Height (Inches)

0.25

☐ Calibrate Transfer Position

☐ CNC Vise Wash after Op Transfer

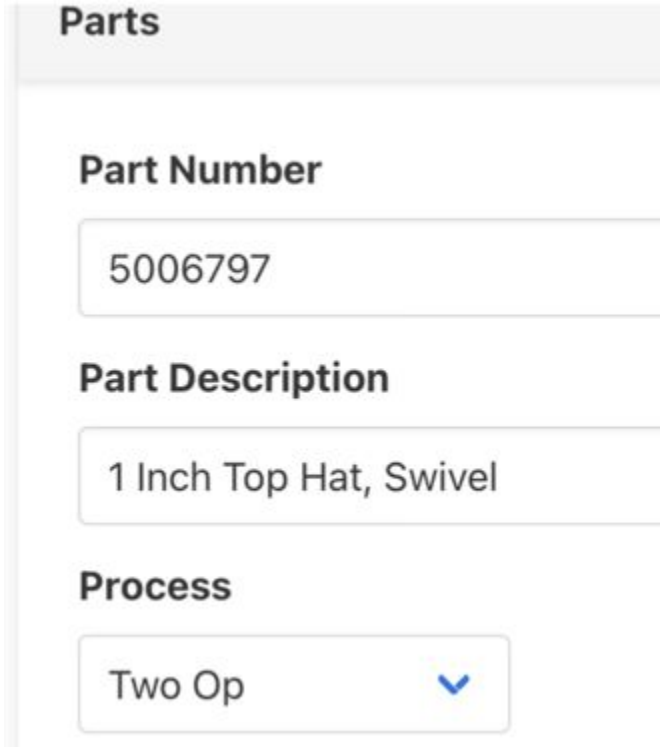
CNC Vise Wash Program after Op Transfer

8001

☐ Run Table Load after Op Transfer

CNC Table Load Program After Op Transfer	X Vise Transfer Offset (Inches)	Y Vise Transfer Offset (Inches)
8000	0	0

Example Part Configuration



Op2 and Place/Outfeed Selections

Op 2 Options

☑ Show Advanced Op 2 Options

Op 2 Jaws: 5009877 - OP2 Base Jaws & Top Hats

Op 2 CNC Program: 5062

Post Op 2 Part Weight (Pounds): 2

☐ OP 2 Robot Settle

☑ Op 2 Vise Settle

Place Options

☑ Show Advanced Place Options

Place Height (Inches): 3

Finished Part Height (Inches): 1

☐ Bin Drop

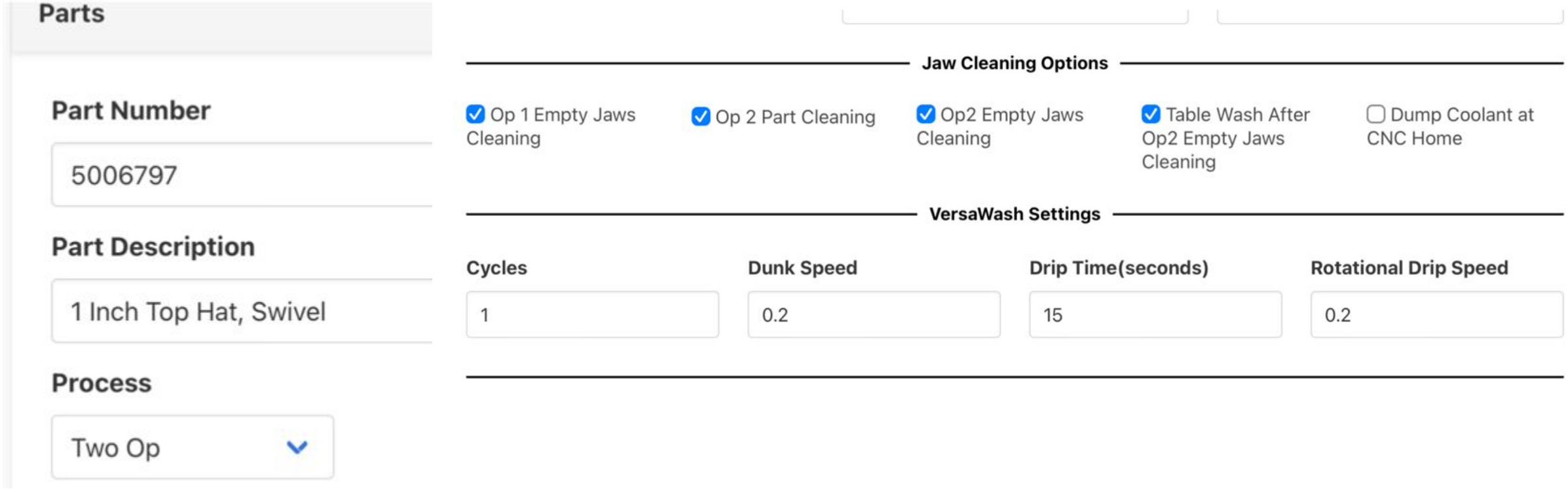
☐ Clap Gripper on Place

☐ Enable Part Find on Place

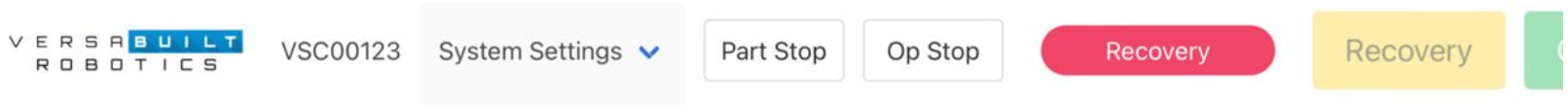
Outfeed X Offset (Inches): 0

Outfeed Y Offset (Inches): 0

Example Part Configuration



System Settings Page



Main System Settings

Setting	Value
Units	Imperial
Infeed Template	UR10
CNC Dispatcher Program	9000
CNC Warmup Program	8002
Vises	2
Robot	UR - UR20
Robot IP	192.168.2.2
CNC	Haas
CNC IP	192.168.2.3
CNC Door Controller	VSC Controlled Double Door
Ignore Vise Sensors	true
Ignore Door Sensors	false

Processes

To show available processes, uses the ⤢ in the upper right hand

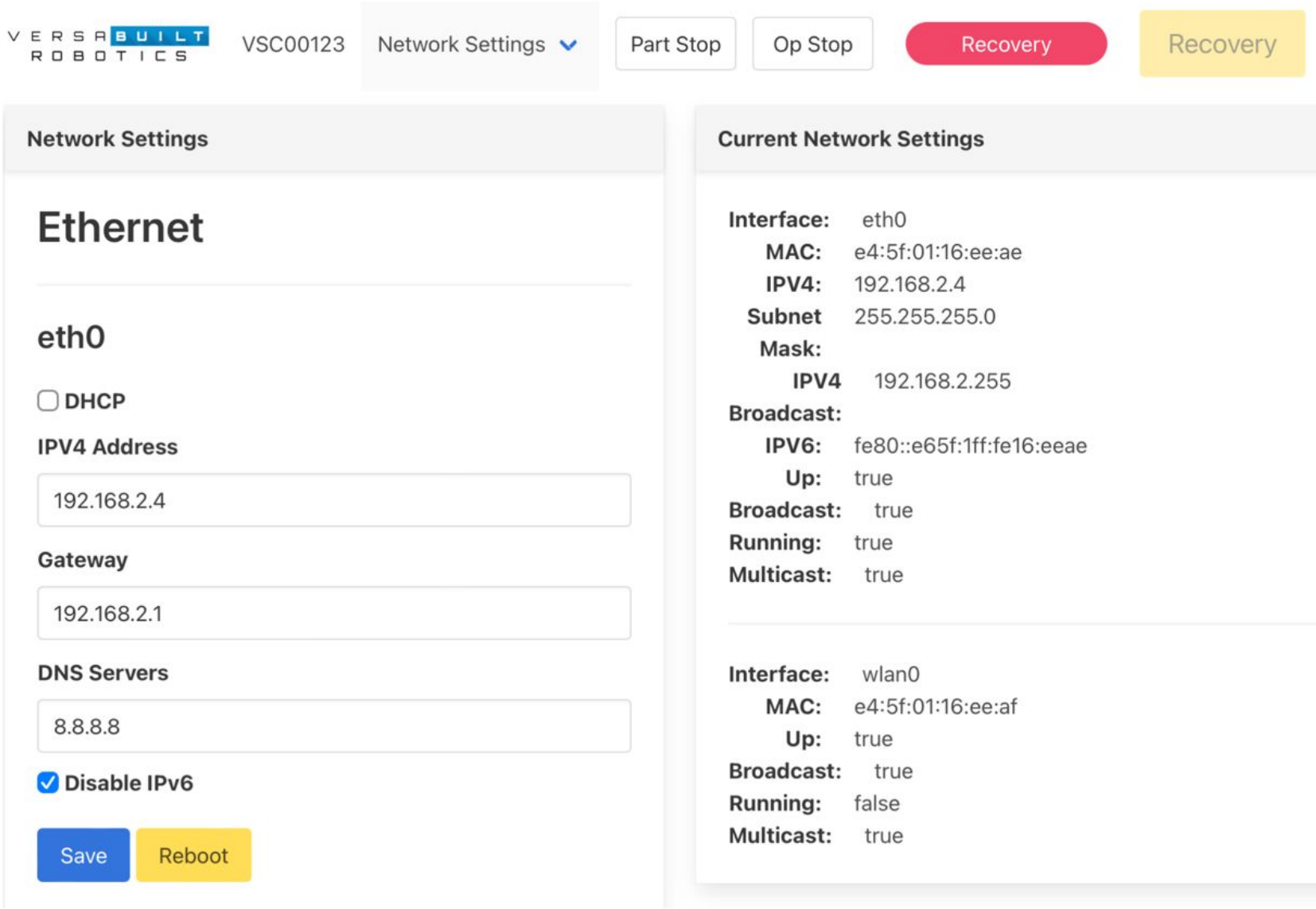
Advanced Admin Data File Editor

For trained users only. Hit the expand button to show editor.

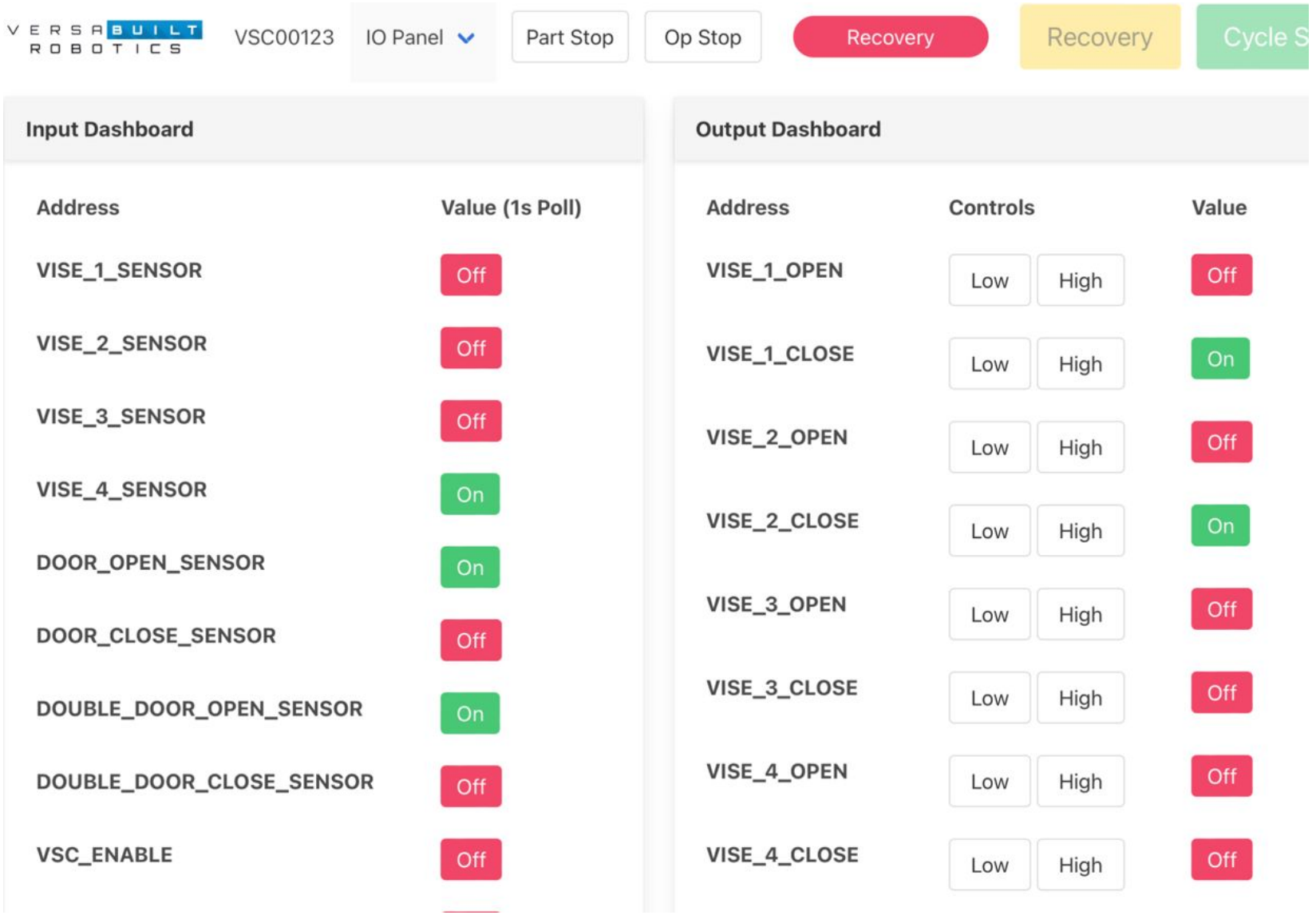
CNC Warmup Program	8002
Vises	2
Robot	UR - UR20
Robot IP	192.168.2.2
CNC	Haas
CNC IP	192.168.2.3
CNC Door Controller	VSC Controlled Double Door
Ignore Vise Sensors	true
Ignore Door Sensors	false
Find Part Force	30
Door Wait Time	10000
Over Top Of Table Move Home Motion	false
Remote Support Token	Configured

Edit System Settings

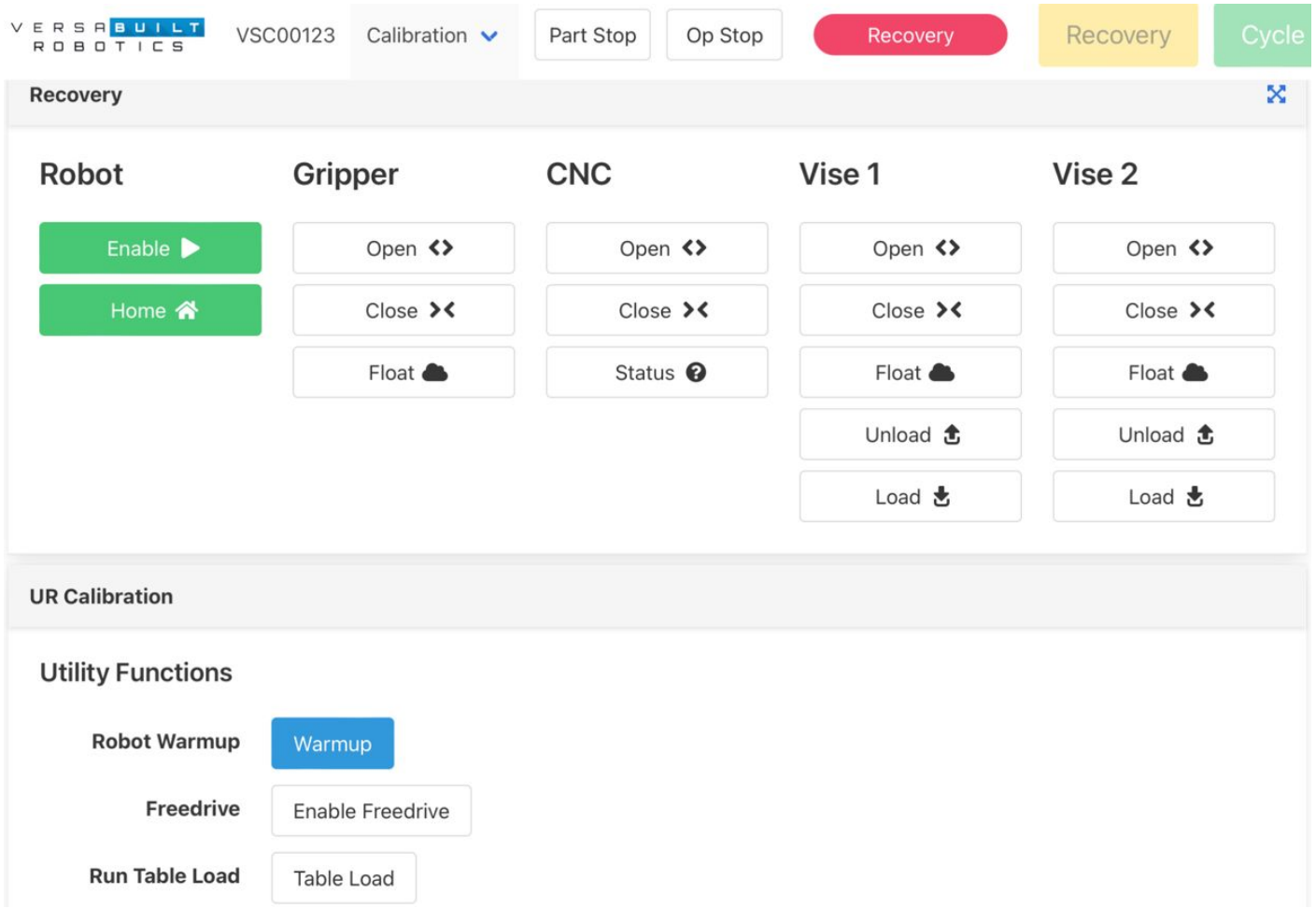
Network Settings Page

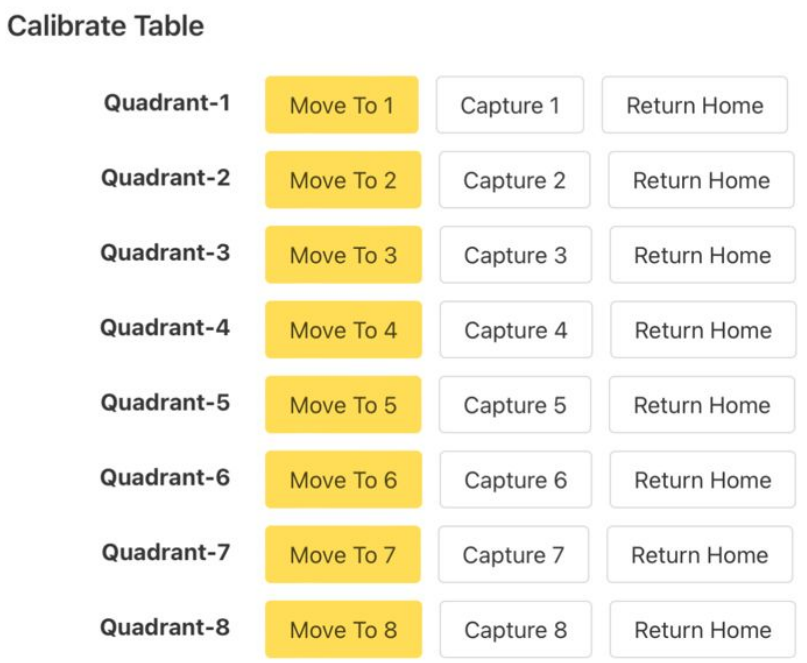


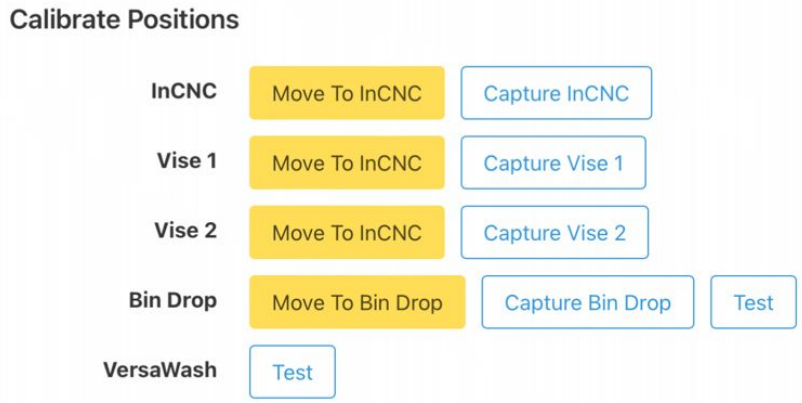
I/O Panel Page



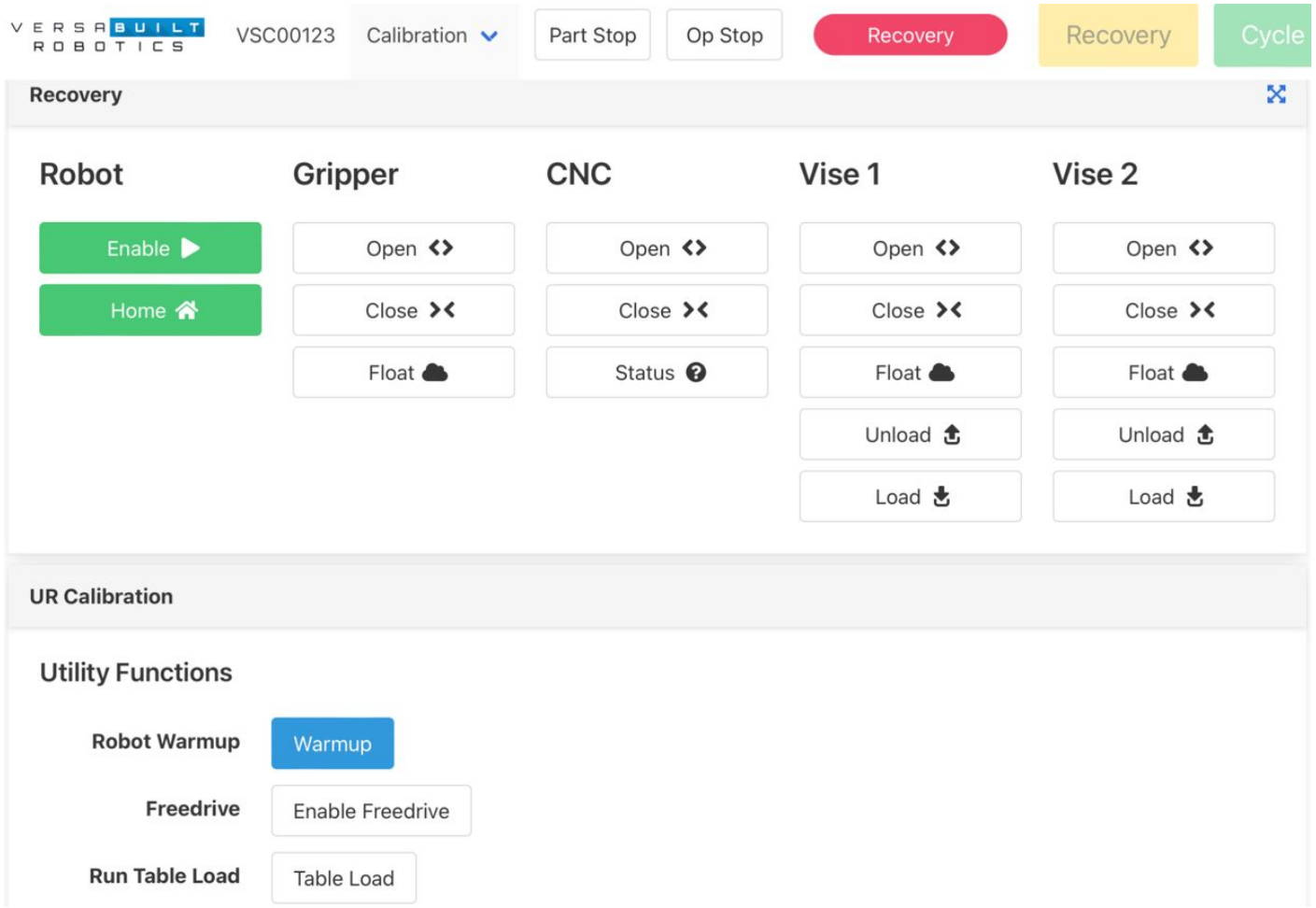
Calibration Page (MultiGrip Systems)

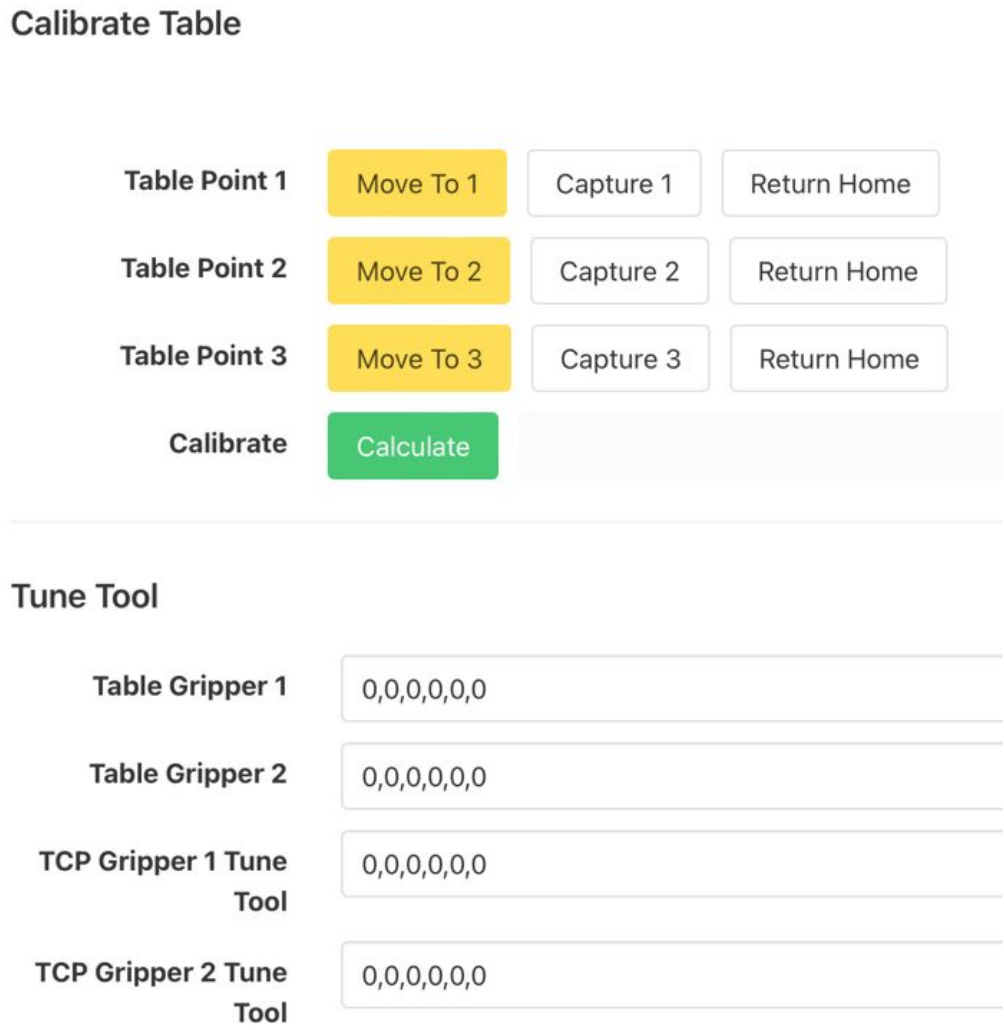




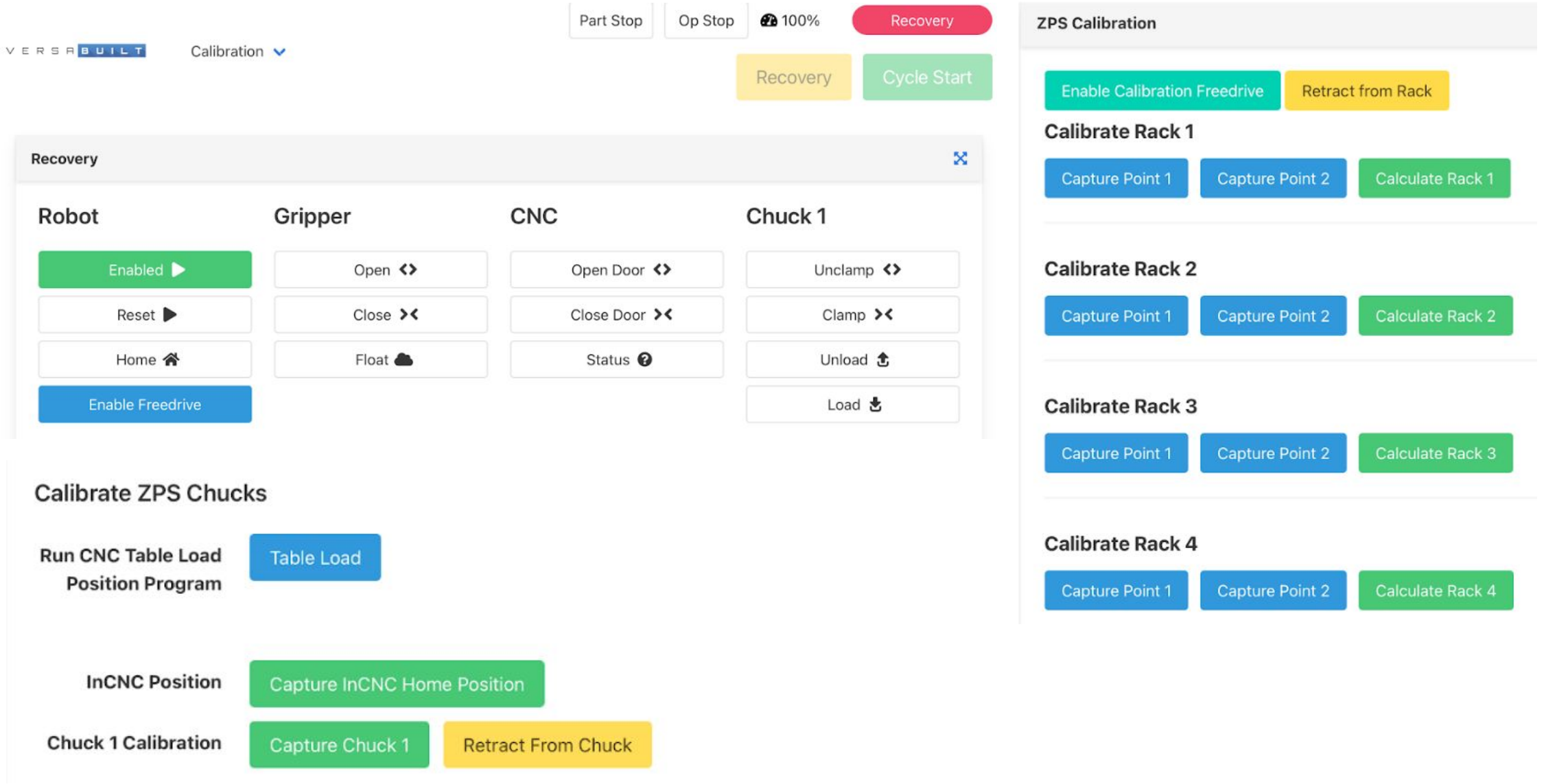


Calibration Page (DuoGrip Systems)

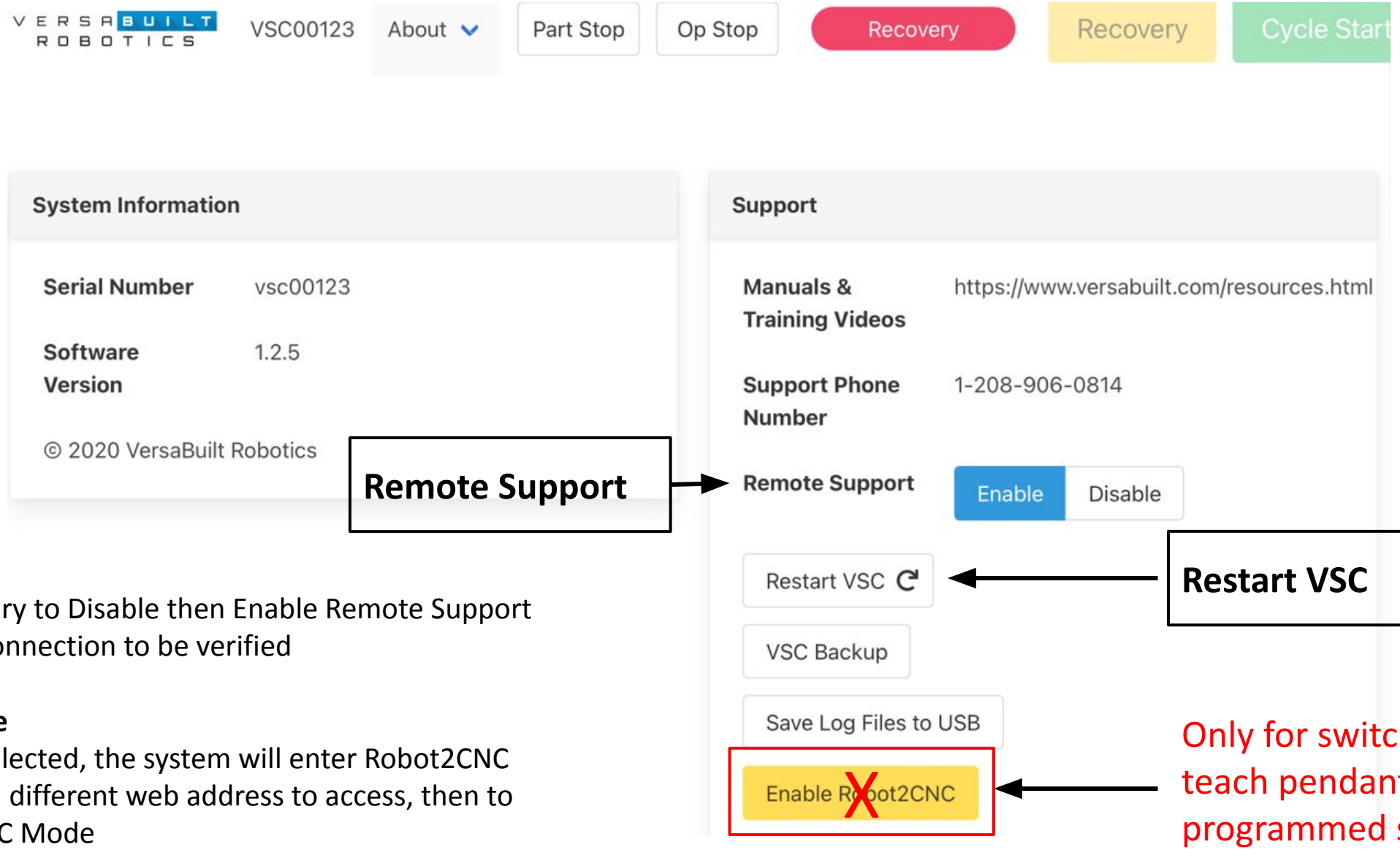




Calibration Page (ZPS Systems)



About Page



Remote Support
It may be necessary to Disable then Enable Remote Support for the Remote connection to be verified

Robot2CNC Mode
If this button is selected, the system will enter Robot2CNC mode, requiring a different web address to access, then to switch back to VSC Mode

Only for switching to teach pendant programmed systems

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