VERSA BUILT ROBOTICS

VersaBuilt Robotics

Okuma Robot2CNC Kit

Product No. 5006649

Why Robot2CNC?

VersaBuilt Robotics Robot2CNC provides a simple and easy way to communicate with CNCs.

This communication kit provides the ability to run any program on a CNC, cycle start the CNC, and check to see if the program completed successfully.

The Robot2CNC allows testing robot and CNC independently to enable easy proving out of automated processes.

The value this kit provides to a programmer:

- Enables creation of robot programs based on a part number (or dynamically) to easily change between different types of parts
- Enables running multiple operations on a single part
- Enables other programs to run as commanded by the robot (wash program or table load program)

The value this kit provides to an installer:

- Simple installation
- Isolated testing
- Defined API
- Compatible across multiple brands of CNCs

Overview

The purpose of this document is to detail the installation steps and usage of the Okuma Robot2CNC Kit

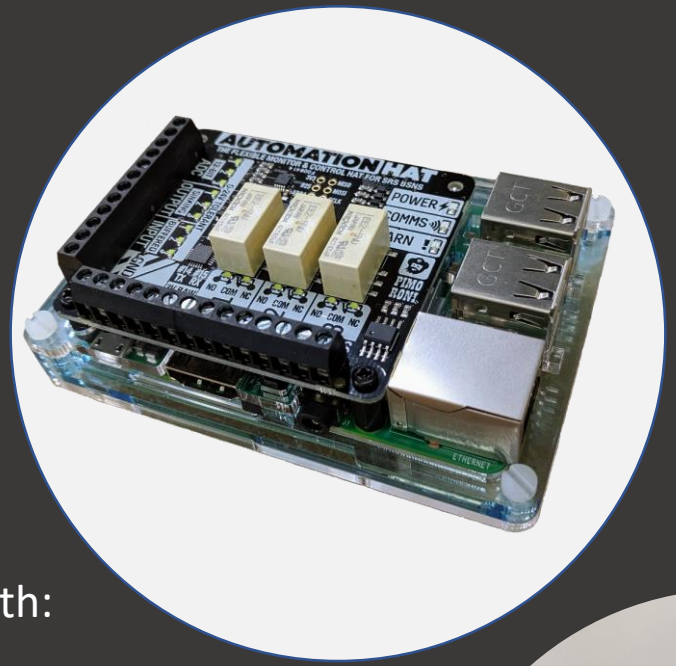
The Okuma Robot2CNC Kit allows the Robot2CNC to:

- Select CNC programs on Okuma CNC Controllers
- Cycle Start the Okuma CNC
- Receive results back from the CNC to indicate successful CNC program completion
- Read and Write Macro Variables on the Okuma CNC

Functionality of the Okuma Robot2CNC Kit is completed by:

- Sending TCP/IP packets between the Robot2CNC appliance and Okuma CNC controller through an Ethernet cable (or over Wi-Fi)
- The CNC is started through a signal from the Robot2CNC appliance to energize the CNC cycle start button, by way of a relay
- Signaling the completion of CNC programs from the CNC to the Robot2CNC is completed with software running on the CNC

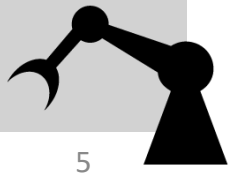
In The Box



- Robot2CNC Appliance
- USB Flash Drive (5003885) with:
  - Software for CNC
  - Manuals
  - Software for Robots
- Ethernet Cables (5003974) qty 2
- Ethernet to USB dongle (5006782)
- Wiring for cycle start connection (5003967)

Requirements

Okuma Requirements



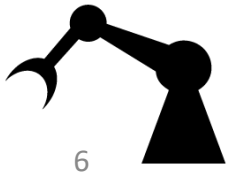
Okuma Requirements

Version 1.0 of Robot2CNC only supports Okuma Mills (MC)

Note: Please contact VersaBuilt Robotics if installing on a Lathe

Okuma Controller OS Requirements

- OSP-P300
- Windows XP or Windows 7
- ThincAPI version 1.17.2 or newer



Steps

Connect

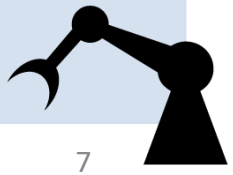
- Ethernet Cable from Robot2CNC to Okuma CNC Controller
- Cycle Start wires from Robot2CNC to Okuma CNC Controller

Install

- Thinc API version 1.7.2 or newer
- Software on Okuma CNC Controller and configure settings
- Set Robot2CNC for Okuma CNC

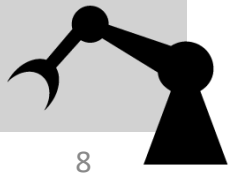
Operate

- Send programs from the Robot or the Robot2CNC to the CNC
- Receive job complete signals from the CNC to the Robot2CNC



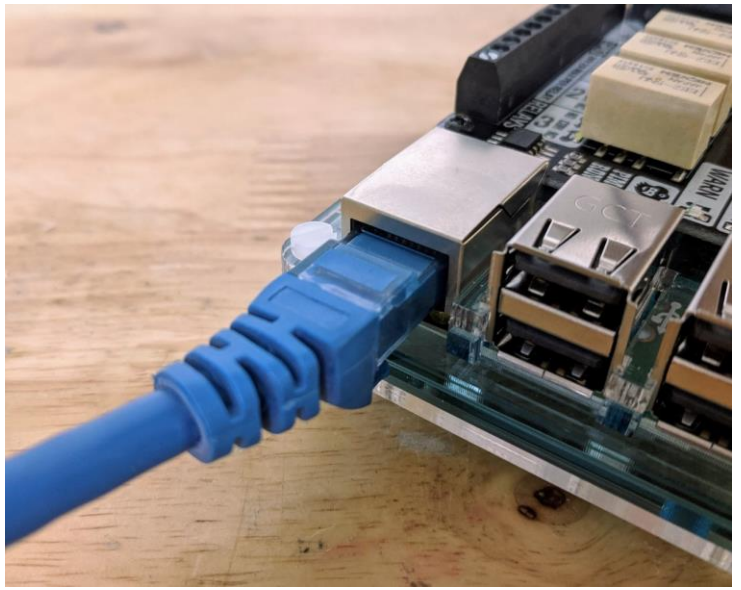
Connect

Ethernet Cable and Cycle Start Relay



Installation of Network Cable

- Connect an Ethernet cable directly to the Robot2CNC Ethernet port
- This port is the Eth0 interface and the IP Address will default to 192.168.50.1

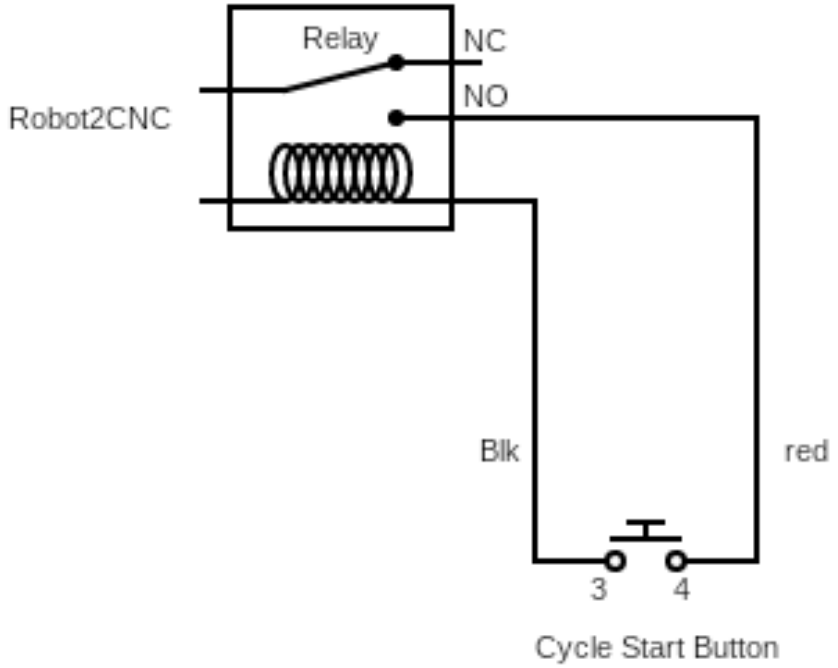


Installation of Network Cable

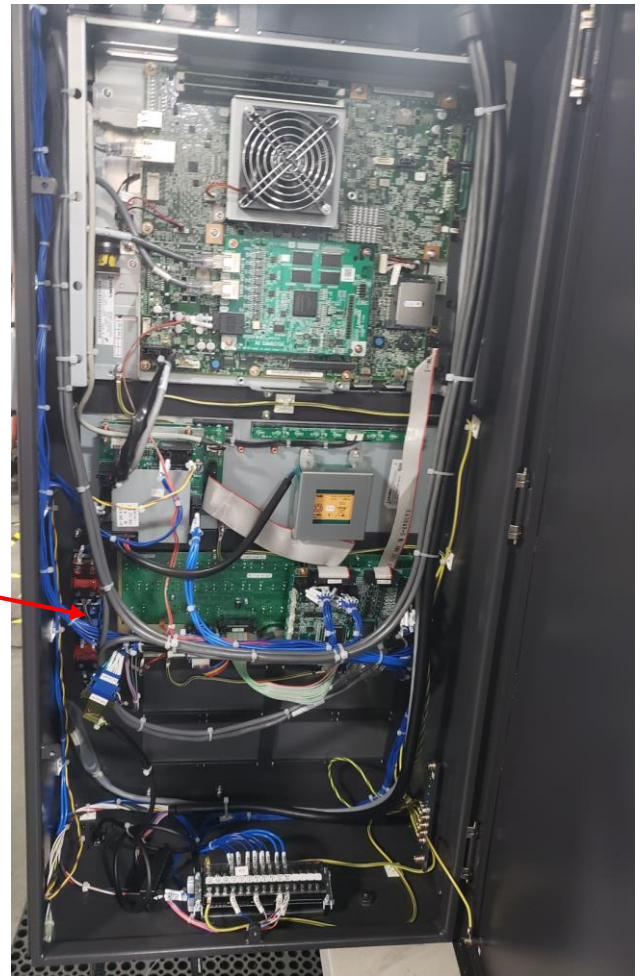
- Connect an Ethernet cable from the Robot2CNC Appliance to the Okuma CNC – Contact Okuma Dealer for help locating in cabinet network connections.

Cycle Start Wiring

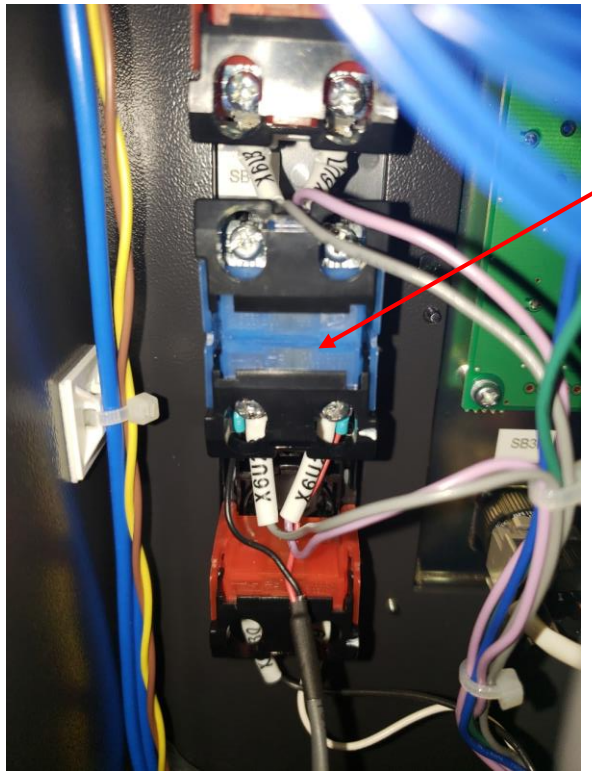
Connecting to Okuma CNC Controller



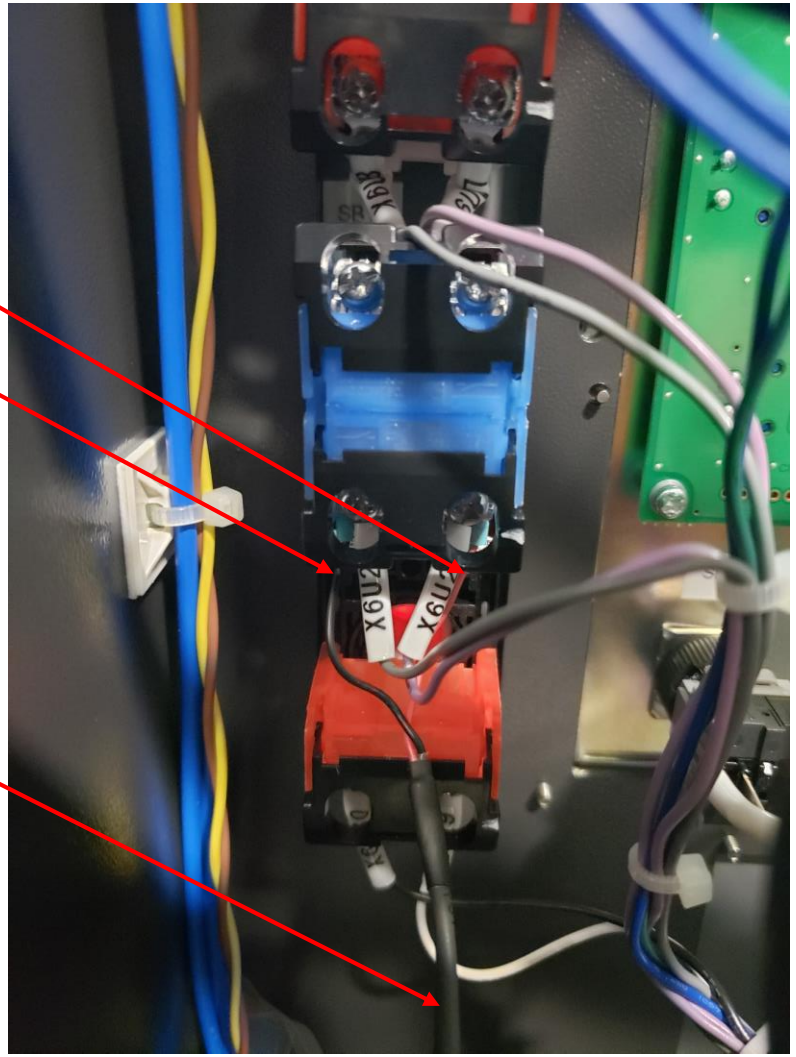
1. Make sure CNC is powered off
2. Rotate Okuma Control Panel to show back of panel
3. Remove the back cover panel on the Control Panel by unscrewing the 4 fasteners



Connect Cycle Start Relay to Okuma CNC Controller



Connect the VersaBuilt Robotics Cycle Start wires with black cable and red cable (note: polarity does not matter)

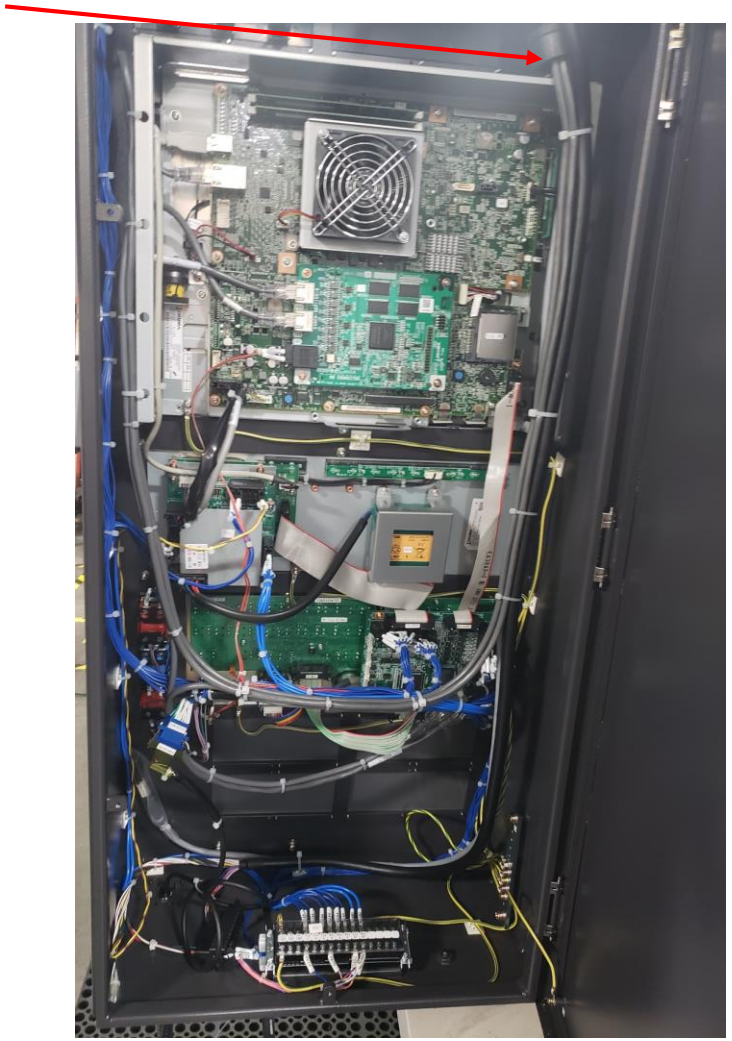


5. Locate the Cycle Start Button
6. Remove backing with flathead screwdriver
7. Connect the two wires from the yellow cable to the terminals on the Button. Polarity does not matter. Either wire can go to either terminal.

Connect Cycle Start Relay to Okuma CNC Controller

8. Route the cable through cable routing pipe
9. Connect wires to Robot2CNC appliance as shown on the next page
10. Put back sheet metal cover panel and fasten the 4 screws

**note: some hardware may vary depending on CNC model and year*



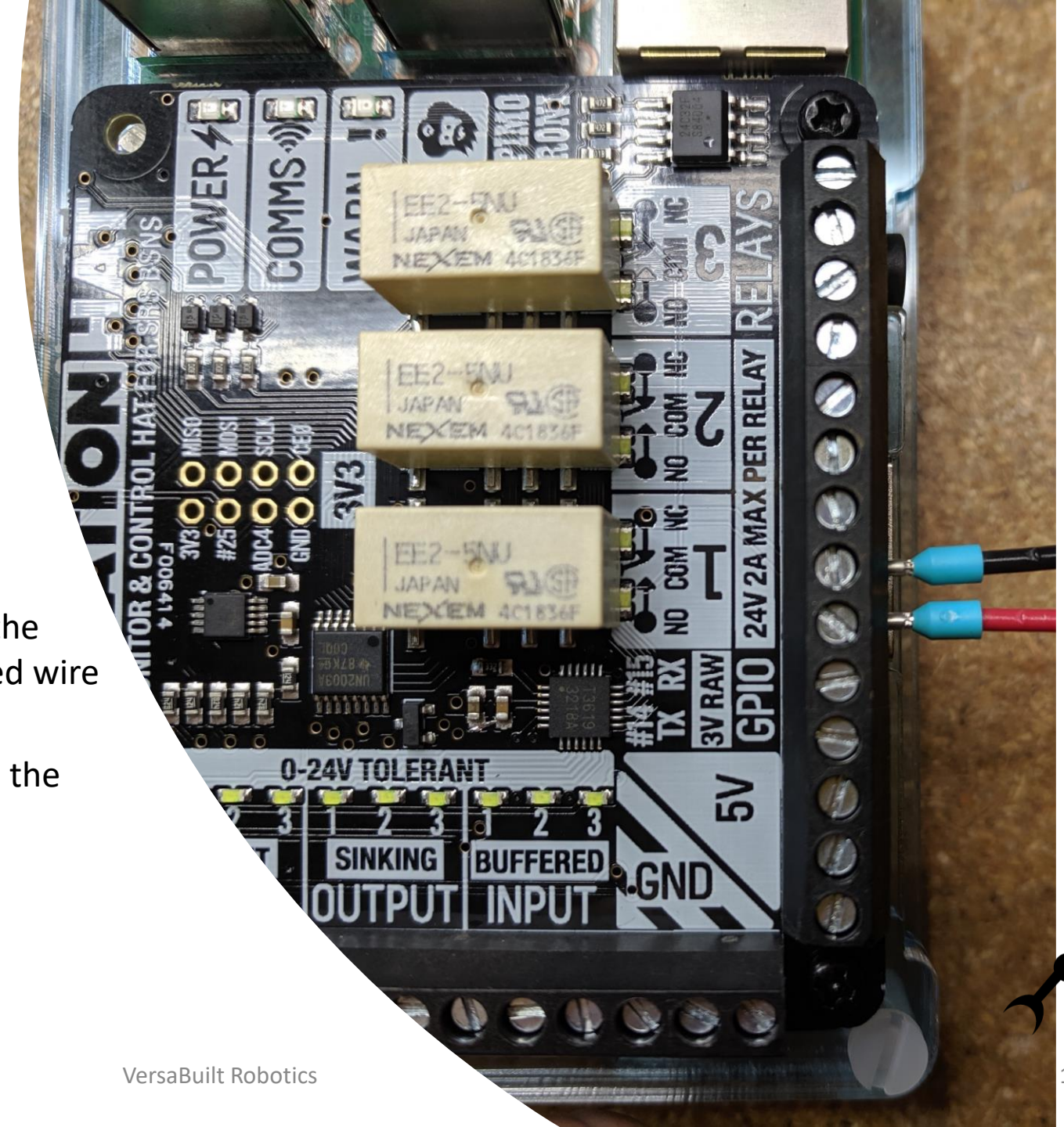
Connect Cycle Start Relay to Okuma CNC Controller

Connecting to Robot2CNC

Tools Needed:

- Small flathead screwdriver

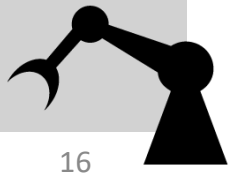
1. Locate relay 1 on the Robot2CNC
2. Using the flathead screwdriver, loosen the terminal marked NO and connect the red wire and tighten it down
3. Repeat the process for the black wire in the terminal marked COM



Install

Software on Okuma Controller

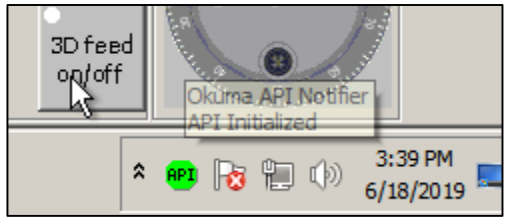
Setup Okuma Settings on Robot2CNC

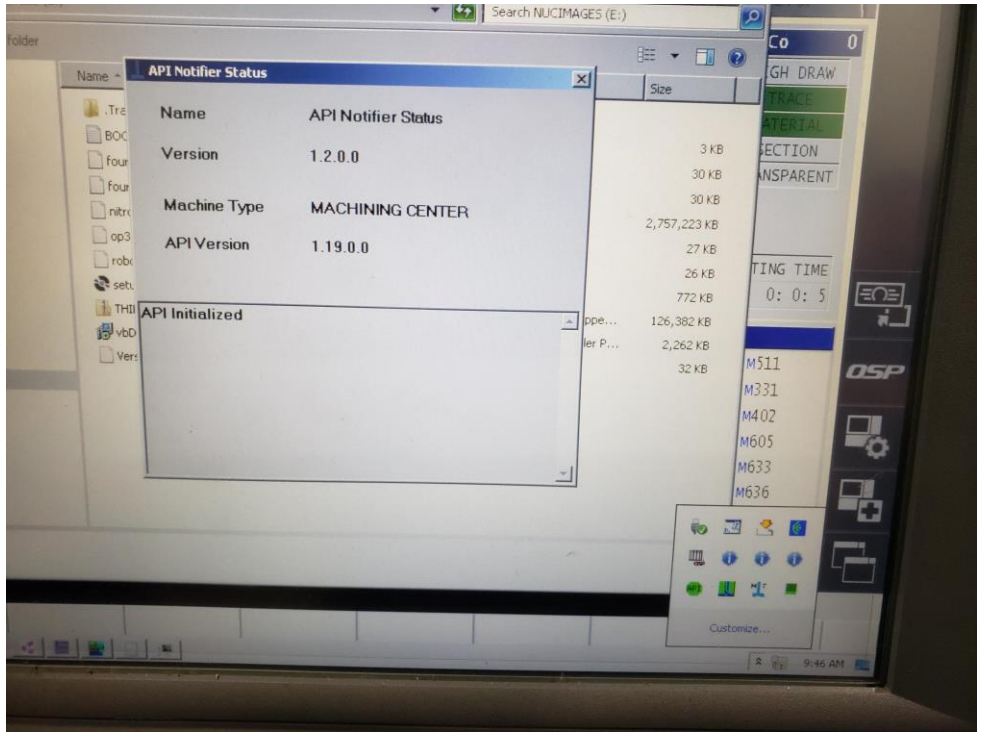


Update or Install ThincAPI on the Okuma CNC Controller

- ThincAPI is provided by Okuma:
  - Version 1.17.2 or newer is required

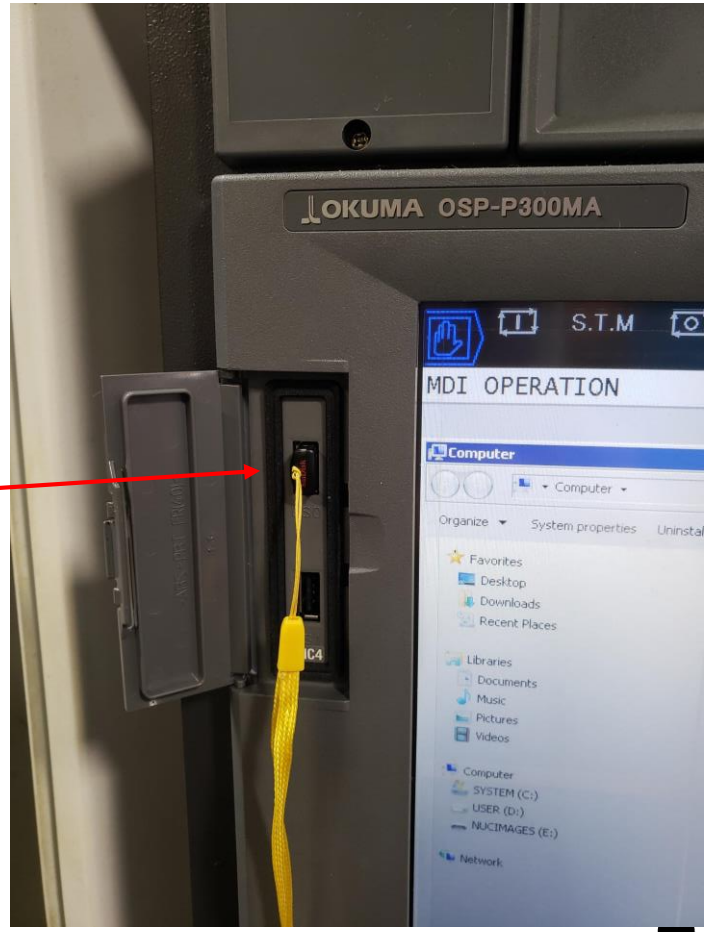
Successfully ThincAPI should show green API in the system tray when showing the windows screen.





Install CNC Programs to the Okuma CNC Controller

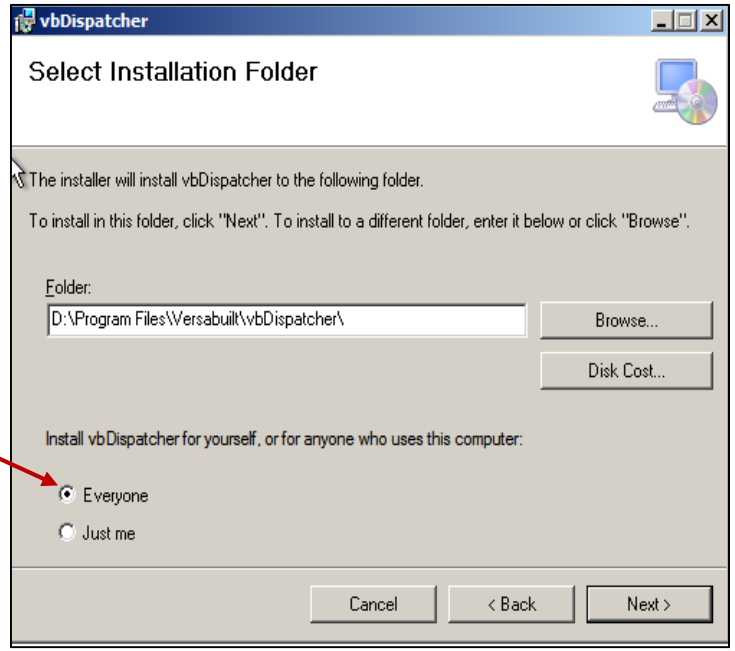
1. Plug VersaBuilt Robotics USB Thumb Drive into the CNC Controller
2. On the CNC enter the Windows portion of the CNC OS and open the folder for the USB Thumb Drive
3. Install the vbDispatcher program:
   - Two files for the Okuma vbxDispatcher Program:
     - setup.exe
     - vbDispatcherSetup.msi



This VersaBuilt Robotics CNC program enables the Robot2CNC to communicate with the CNC.

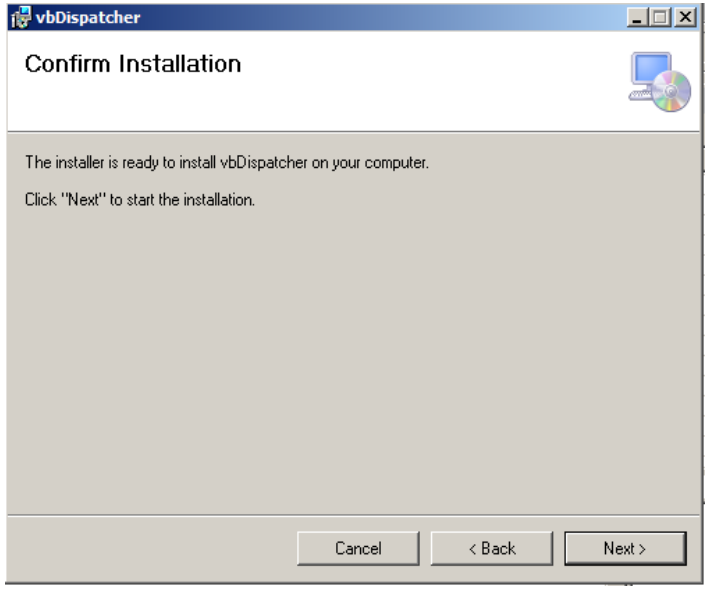
Install CNC Programs to the Okuma CNC Controller

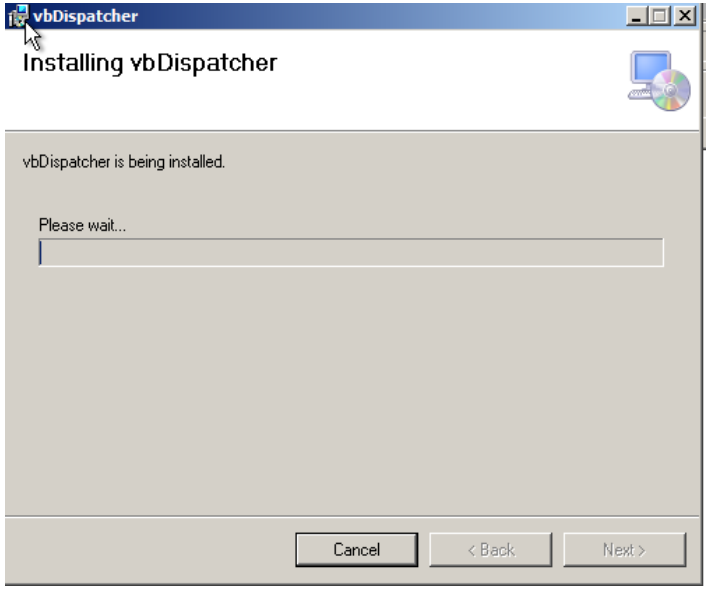
- Run the vbDispatcherSetup.msi installer:
  - Click next to progress through installation
  - Defaults should work most of the time



Install CNC Programs to the Okuma CNC Controller

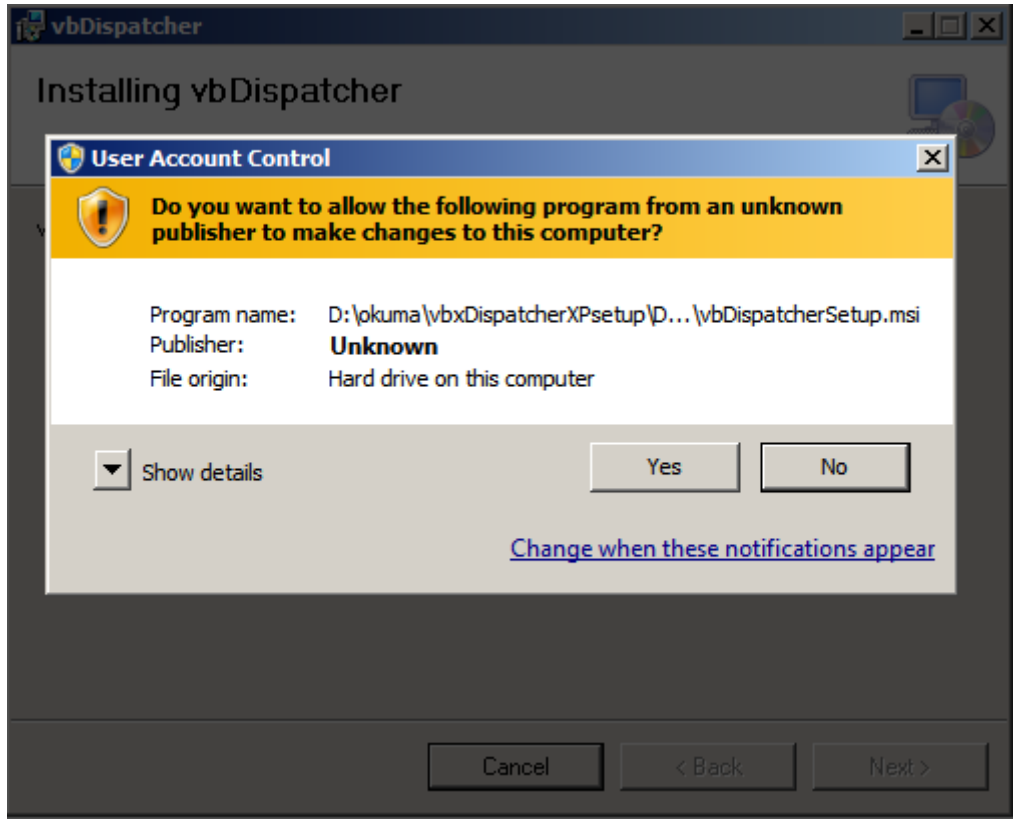
- Click next to progress through installation





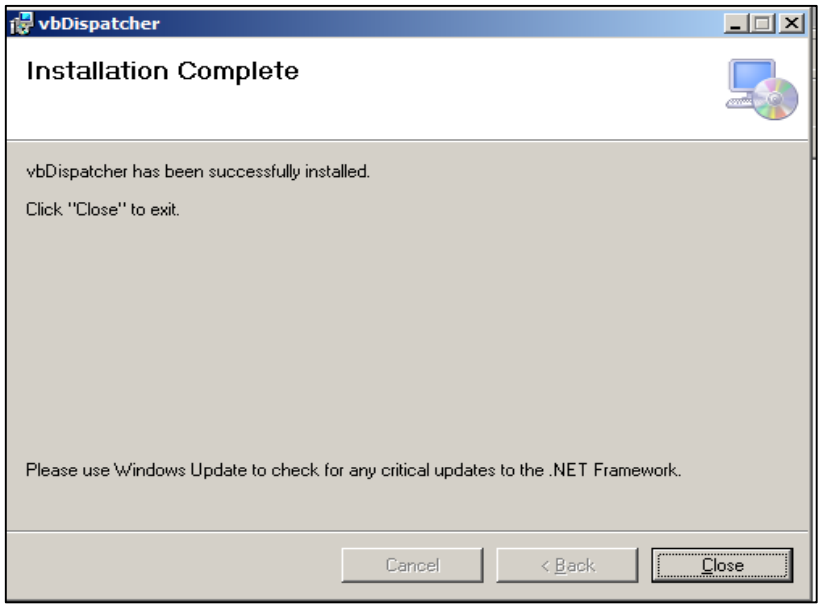
Install CNC Programs to the Okuma CNC Controller

- Click Yes to override User Account Control if prompted



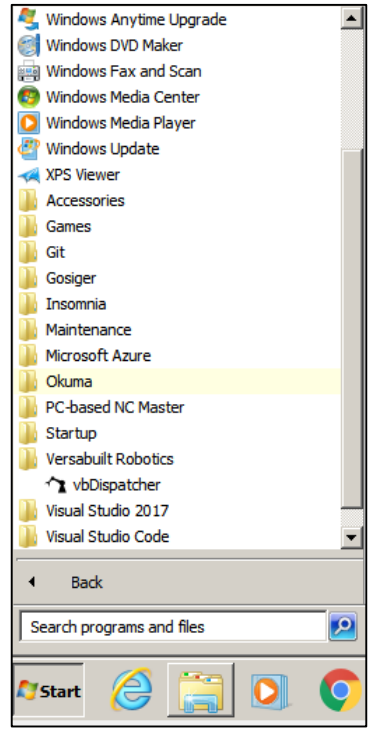
Install CNC Programs to the Okuma CNC Controller

- After installation is completed click Close



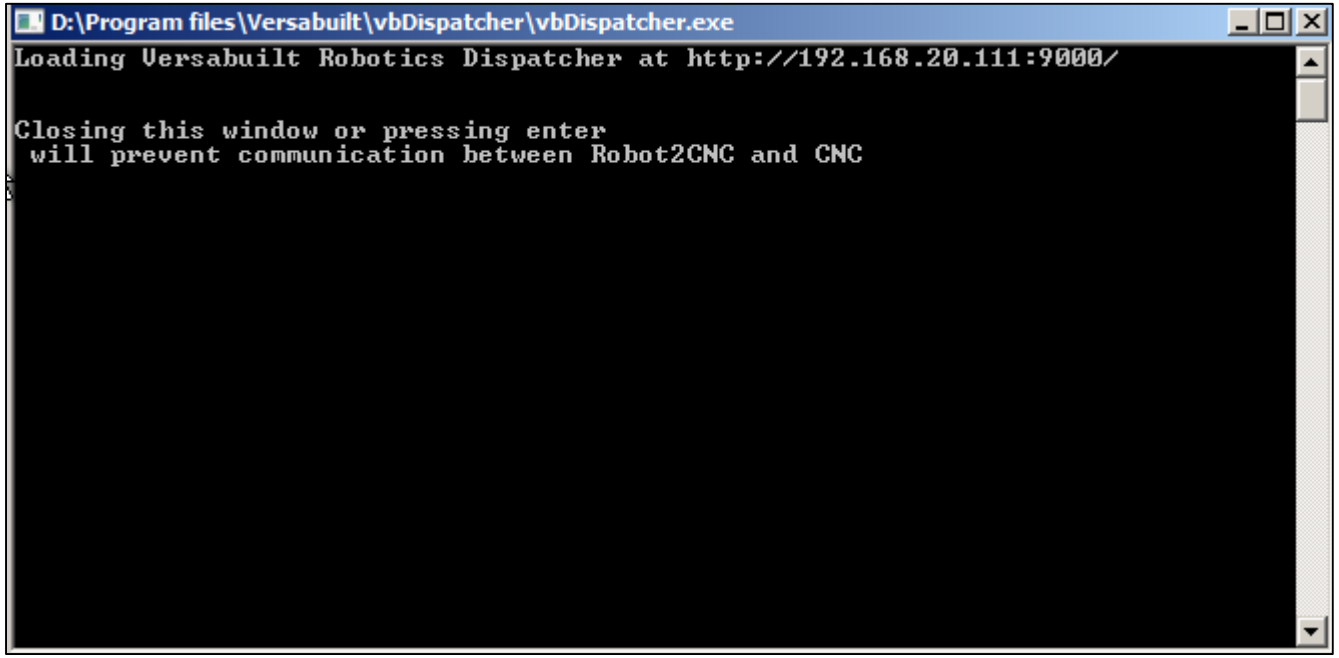
Install CNC Programs to the Okuma CNC Controller

- From the Start Menu, a new Versabuilt Robotics folder will show the vbDispatcher
- Click on vbDispatcher to run the required program for communication between Okuma CNC Controller and Robot2CNC



Install CNC Programs to the Okuma CNC Controller

- Running the vbDispatcher will present the following window. This window must remain open for communication to continue

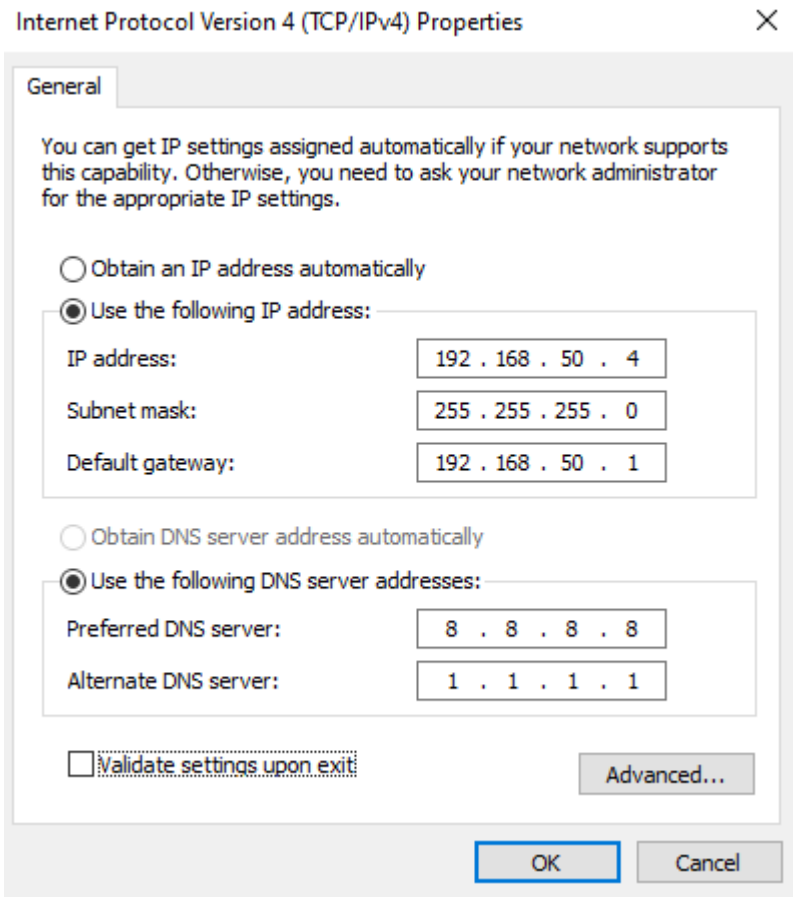


Setup Network via Windows on Okuma CNC

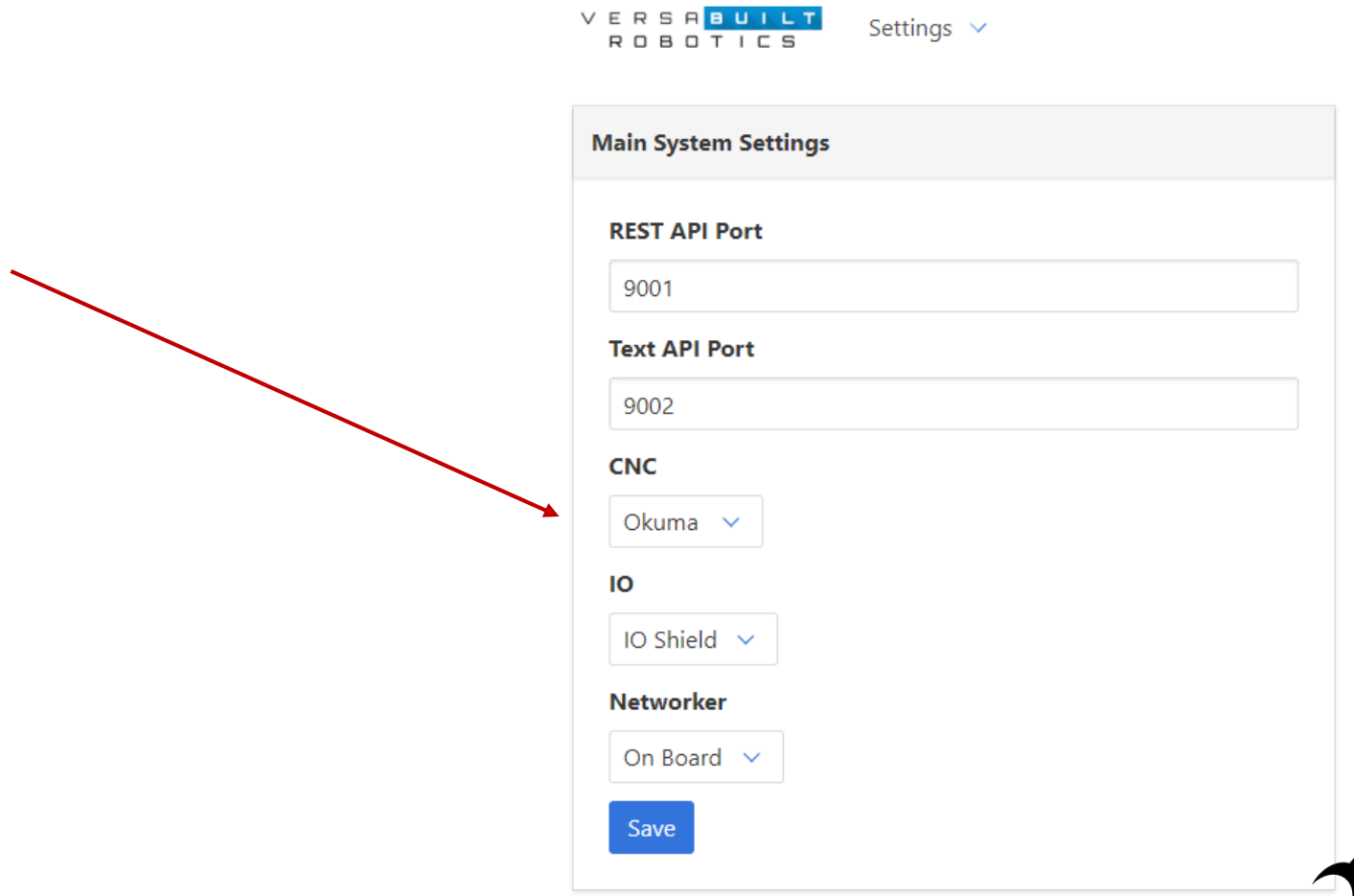
Setup a static network connection on the Okuma CNC using built in Microsoft Windows network setup

VersaBuilt recommended settings:

- IP Address: 192.168.50.4
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.50.1



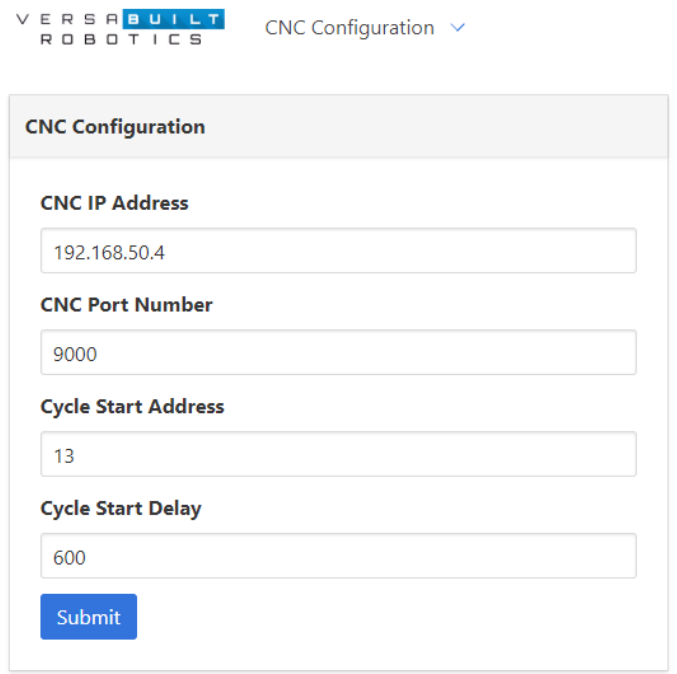
Select Okuma CNC in Main System Settings



CNC Settings

Using the main menu, choose CNC Configuration and validate that the settings match

VersaBuilt Robotics suggests the following settings



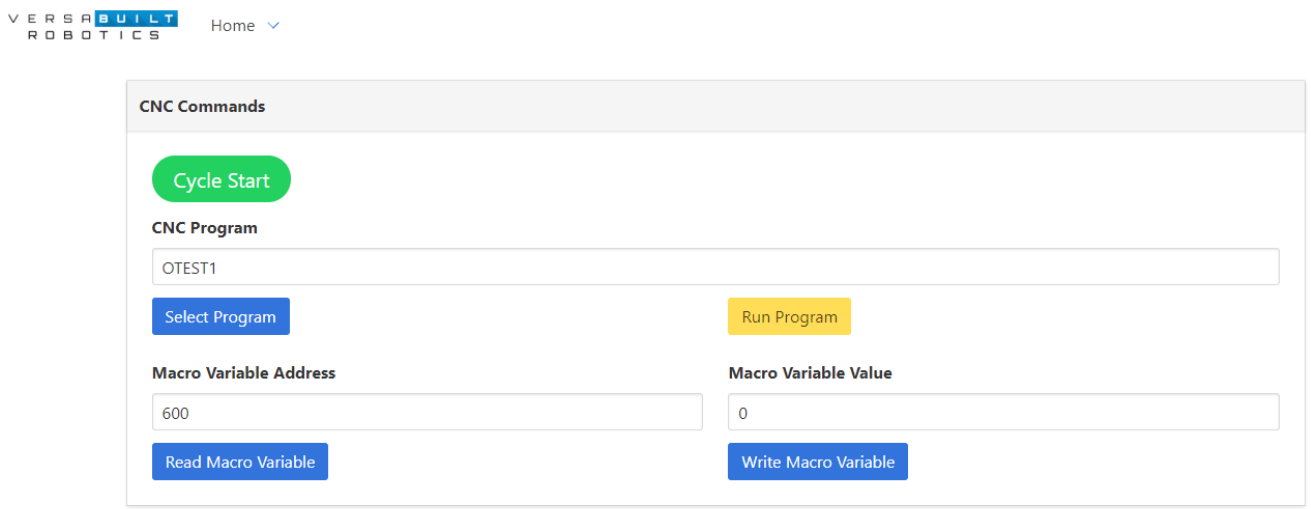
Testing with Robot2CNC

Using the Robot2CNC to run CNC programs

Testing with Robot2CNC

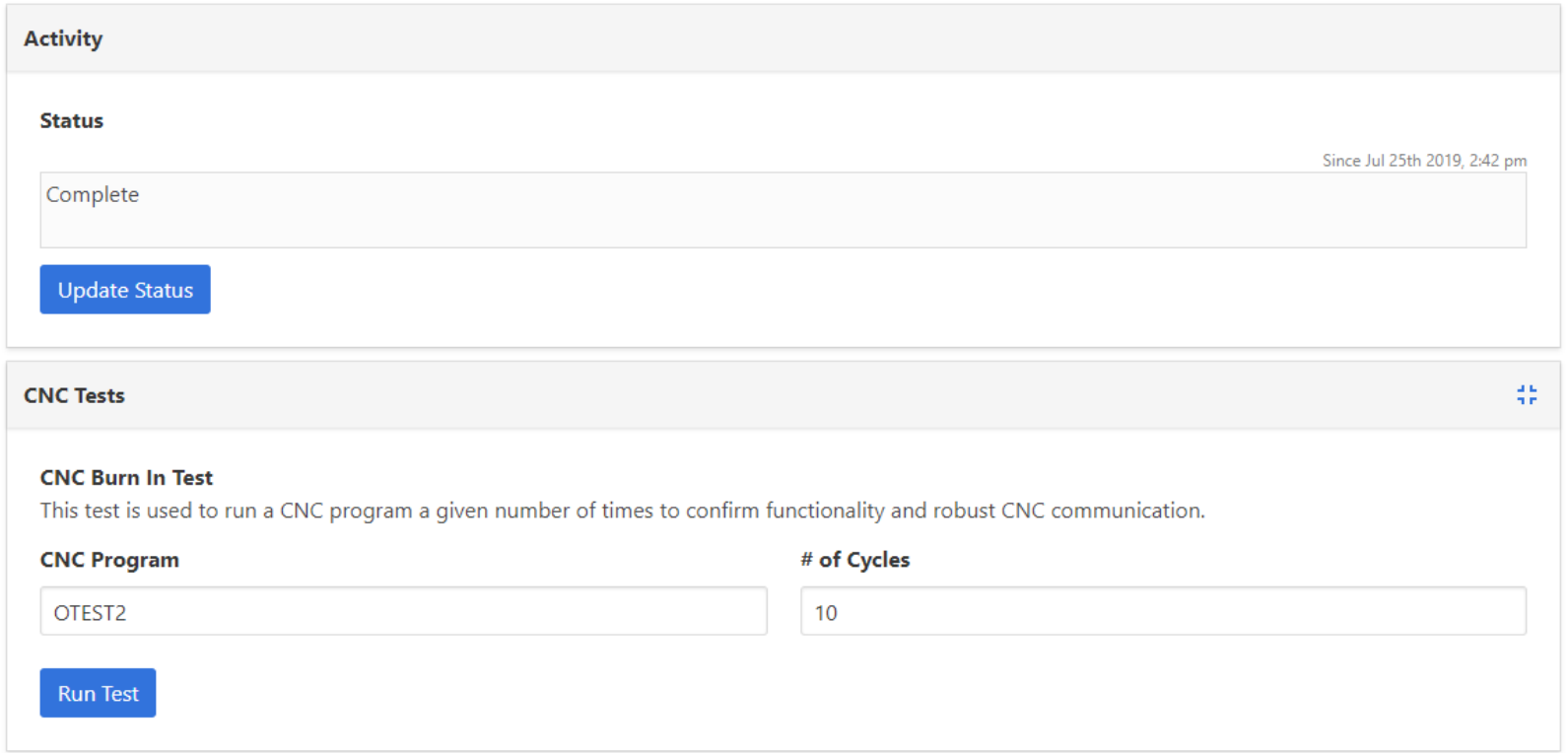
Following the Robot2CNC Manual to access and setup the Robot2CNC

- Open the Home Page
- Basic Testing Can be accomplished on left side in the CNC Commands card
- Cycle Start should trigger the Cycle Start on the CNC
- Select Program will request the Okuma to select the program listed in the Text Box

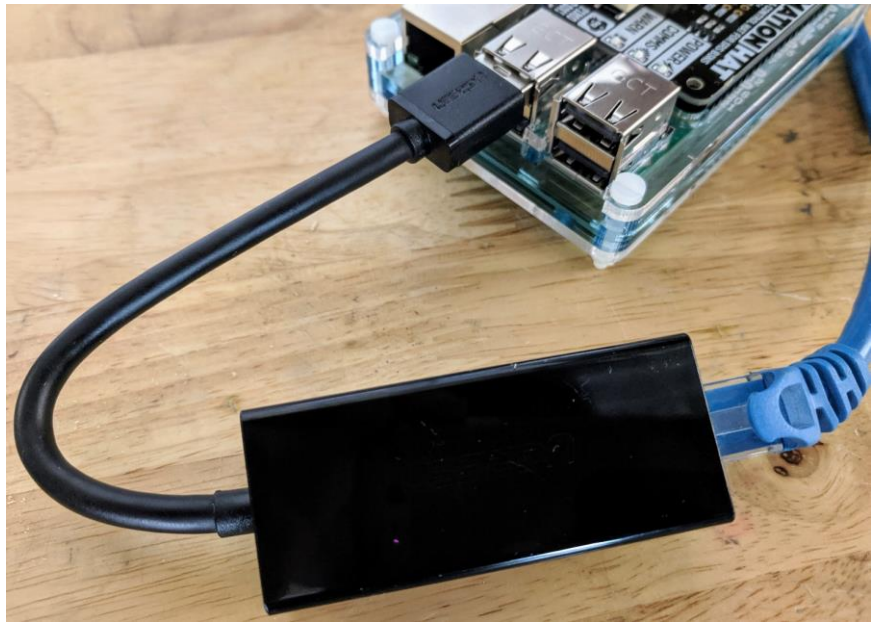


Burn in Test

On the Right hand side of the Home Page the Activity and CNC Tests Card



Appendix A

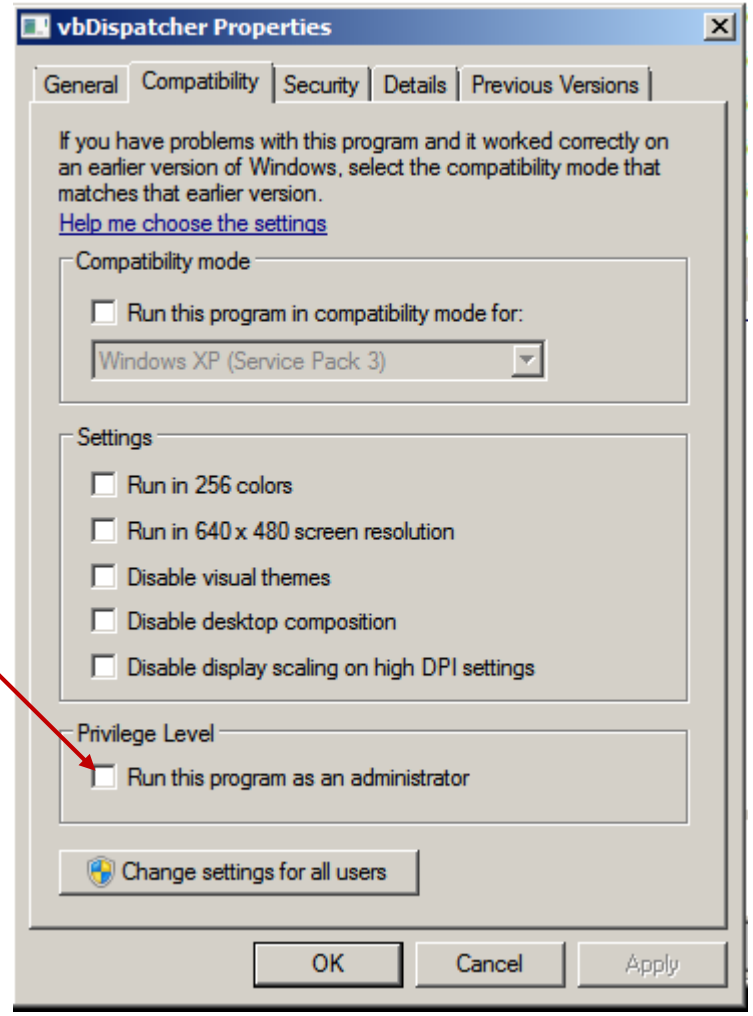


If your CNC is connected to your company network, please speak with your IT Administrator for correct setup and communication between VersaBuilt Robotics Robot2CNC, your CNC and your robot.

- The CNC will need a static IP address, the IT Administrator will provide:
  - CNC IP Address: This value will be entered into the CNC & the Robot2CNC
  - CNC Subnet Mask
- The Robot2CNC can use a dynamic or a static IP address
  - If Static, a System Administrator should provide Static IP address and valid Subnet Mask that should be setup on the Robot2CNC

Appendix B

- Administration Mode may be required to run successfully
  - From the install folder on the D drive, right click on the vbDispatcher.exe
  - Select the Compatibility tab
  - Check the box for “Run this program as administrator”



Appendix C

- Troubleshooting Connectivity:
  - The VersaBuilt Robotics Robot2CNC uses built-in procedures to communicate to the CNC
  - Verify the network cable is connected at each end to the appropriate controller
  - Verify IP Addresses
  - For further help troubleshooting connectivity, please contact helpdesk@versabuilt.com or 208-629-5914