PICOBREW ZYMATIC
Offline Server Installation

June 2020
INSTRUCTION MANUAL

These instructions will allow you to setup a local server for your PicoBrew Zymatic device, thereby avoiding the need for a connection to the PicoBrew website.

Tom Schleis, President
Schleis Professional Services

BACKGROUND

The PicoBrew Zymatic (PZ) has its own software (firmware) that handles machine operations. The primary limitation of the PZ is that you cannot start a brewing session unless the PZ can access the PicoBrew website to download your selected recipes that are stored on the PicoBrew website. The PZ is also in communication with the PicoBrew website throughout the brewing process. There is currently no manual method for adding a recipe from scratch or importing recipes that are not on the PicoBrew server. Given the fact PicoBrew is essentially in bankruptcy and has not guaranteed servers will remain in operation, this essentially makes our machines useless should the PicoBrew website and servers be shut down. The Pico C does have a manual mode, but there is none for the original Zymatic or Z Series.

The simplest solution would seem to be updating the firmware, so that a connection to PicoBrew servers is not mandatory and add the capability for a manual recipe and/or downloading from your local computer. However, the firmware is like a computer program; without the original code, you would not be able to modify it and create a new firmware file. It would be like asking someone to customize a version of Microsoft Word – not happening. The three original owners of PicoBrew said years ago if they went bankrupt, they would release the code, but given they were all fired by the investors that took over, I would say the chance of that happening is nil. There is a new firmware that is sitting on the PicoBrew server that will allow for 'manual' brewing with the PZ and Z Series, but it has not been pushed out, nor is it available for download (although one person has tricked his machine into installing it).

The obvious workaround is to trick the machine into going to YOUR server, instead of PicoBrew's, where your recipes can be made available for downloading to the machine. Fortunately, programmers have

2

developed a way to do that for most of the PicoBrew devices and are continuing to enhance the programming. One programmer is even working on a circuit board replacement for the PZ using a Raspberry Pi device, eliminating the need for an internet connection.

For the local server solution, you will need the following:

1. PicoBrew Zymatic
2. Windows 10 laptop with an ethernet port
   a. Administrator privileges
   b. Python software
3. Wireless router (TP-Link N300 is a cheap option)
4. Ethernet cabling

The software to setup a server on your computer is call Python, which is open source and available as a free download at www.python.org. It is a programming language, and once installed, you will use it to execute the program the developer designed to create your own server on your local computer. Then you will need to share your Ethernet or WiFi connection on your computer and connect your PZ to that shared network. It sounds complicated, and it is. Therefore, I will guide you through the process in a way that makes it easier for the average computer user, versus the programmers that do this for a living. I have an above average computer knowledge, but most of this I am learning as I work through this. I am doing this with the assistance of the programmers, who are the real heroes here. In advance, I apologize for the crappy graphics, but wanted to get this out. Can make prettier later.
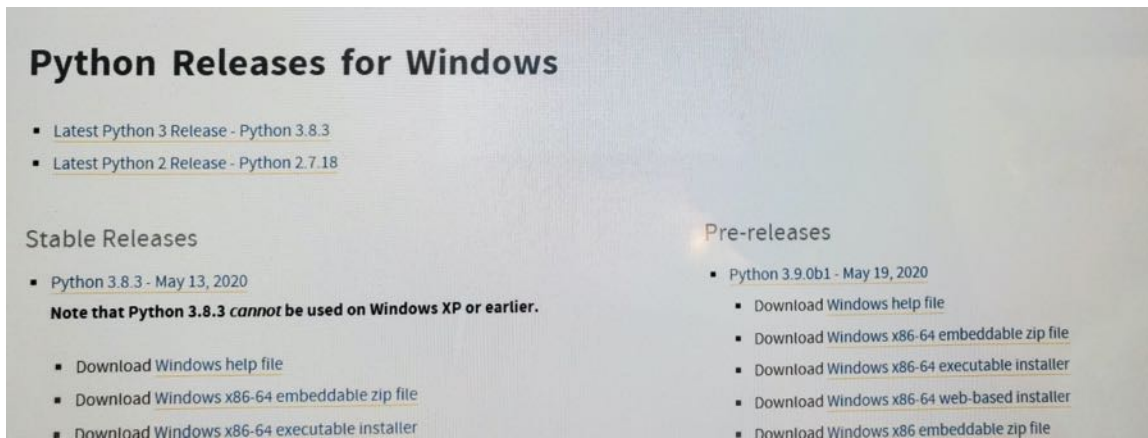
So let's begin.

INSTALLATION INSTRUCTIONS

1. Install Python Software:
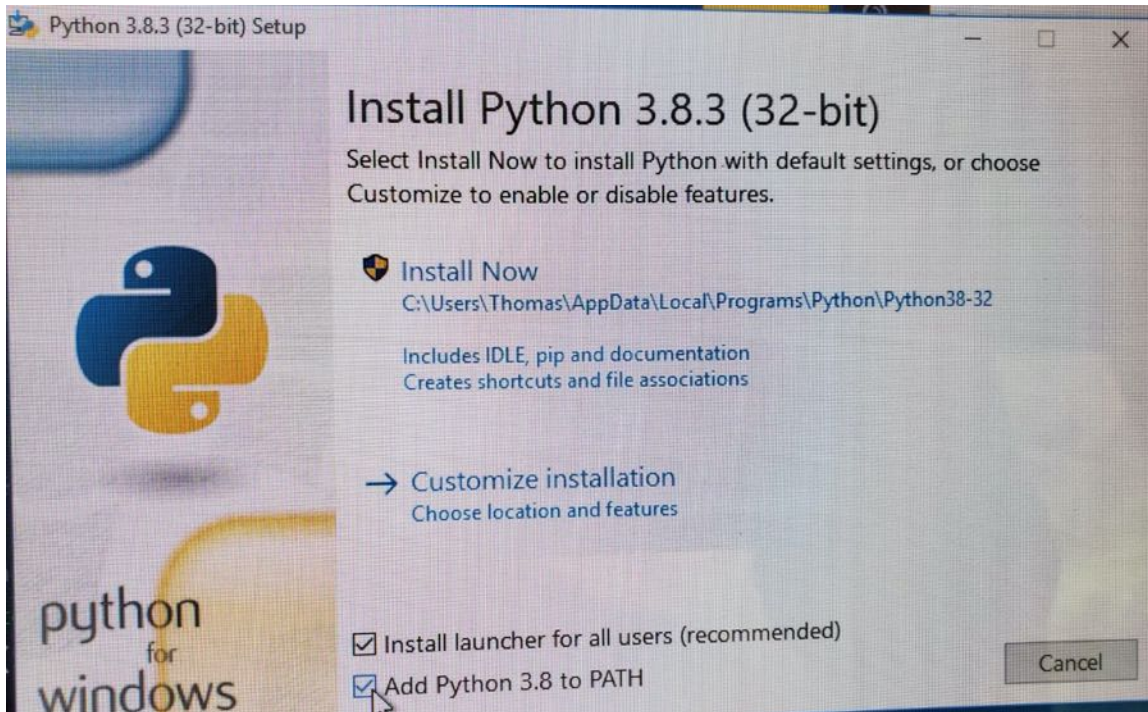
    a. From your laptop, go to www.python.org and download the software. The pictures will guide you in doing this.
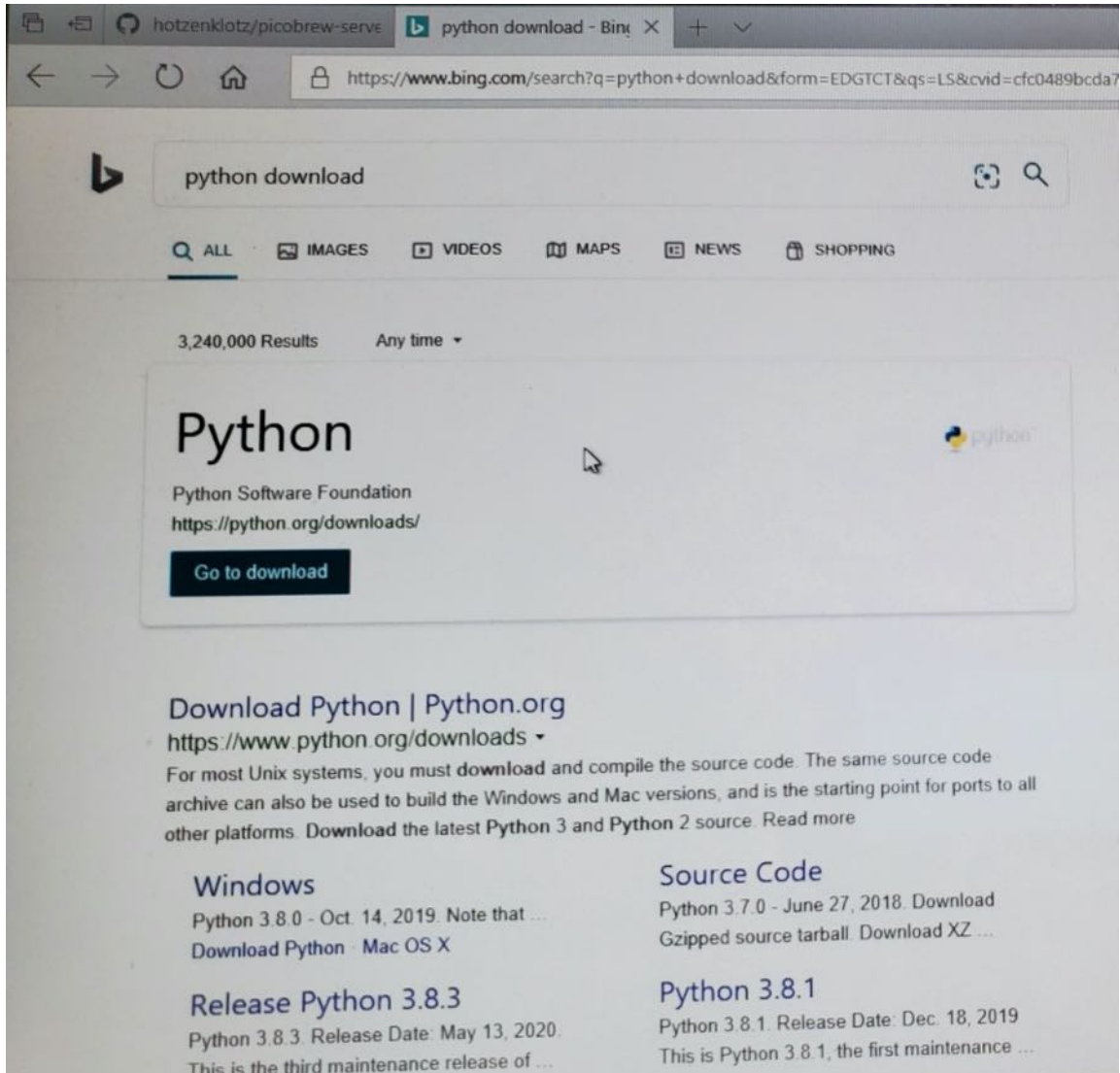

   b. For Windows 10, click on first selection; Latest Python 3 release – Python 3.8.3

Python Releases for Windows

- Latest Python 3 Release - Python 3.8.3
- Latest Python 2 Release - Python 2.7.18

Stable Releases

- Python 3.8.3 - May 13, 2020
  Note that Python 3.8.3 *cannot* be used on Windows XP or earlier.

- Download Windows help file
- Download Windows x86-64 embeddable zip file
- Download Windows x86-64 executable installer

Pre-releases

- Python 3.9.0b1 - May 19, 2020
  - Download Windows help file
  - Download Windows x86-64 embeddable zip file
  - Download Windows x86-64 executable installer
  - Download Windows x86-64 web-based installer
  - Download Windows x86 embeddable zip file

c. The next screen is very important!

   i. Be sure to check the bottom box: Add Python 3.8 to PATH. This will save you a lot of headaches.

   ii. Make a note of the path to the software – C:\users\..... etc. or you may want to do a custom installation and place the software in a directory such as C:\Python.

Python 3.8.3 (32-bit) Setup

Install Python 3.8.3 (32-bit)

Select Install Now to install Python with default settings, or choose Customize to enable or disable features.

Install Now
C:\Users\Thomas\AppData\Local\Programs\Python\Python38-32

Includes IDLE, pip and documentation
Creates shortcuts and file associations

→ Customize installation
Choose location and features

python
for
windows

☑ Install launcher for all users (recommended)
☑ Add Python 3.8 to PATH

Cancel

5

d. **If at any time you get a firewall screen similar to the below (most likely the first time you run the software), CHECK ALL BOXES, to allow Python to communicate through your firewall. The screen may be different depending on your firewall software.**
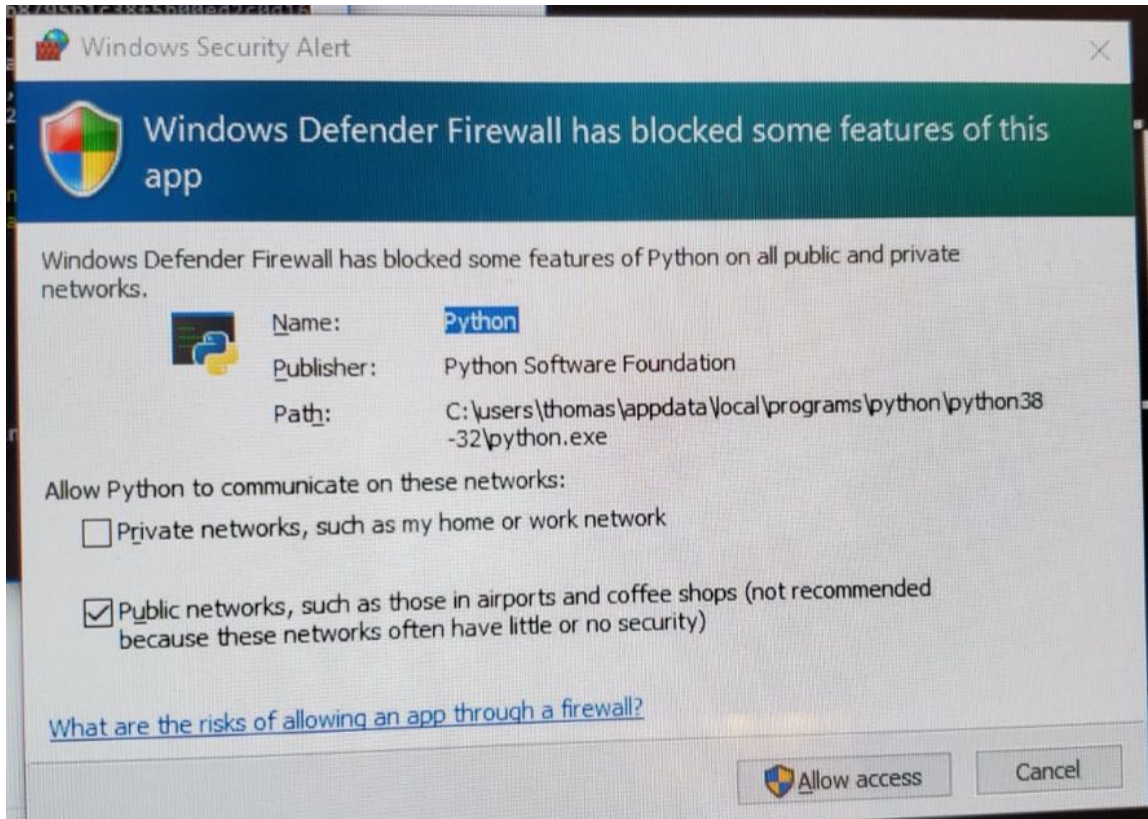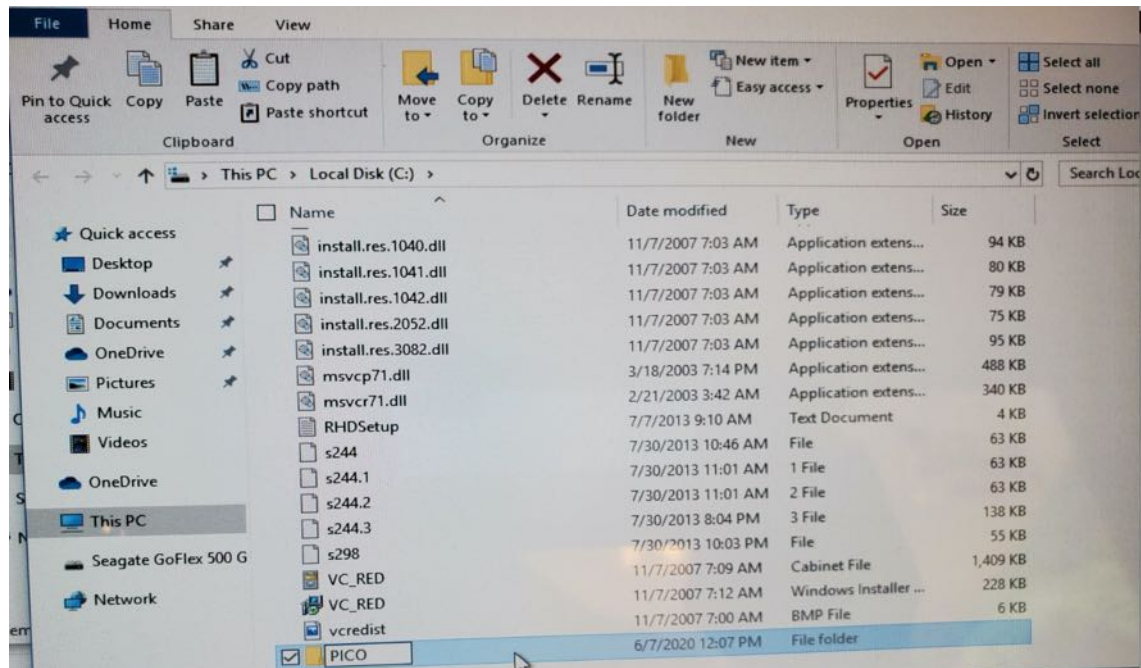

e. You should now reach the setup confirmation screen. Go ahead and select the Disable path length limit.
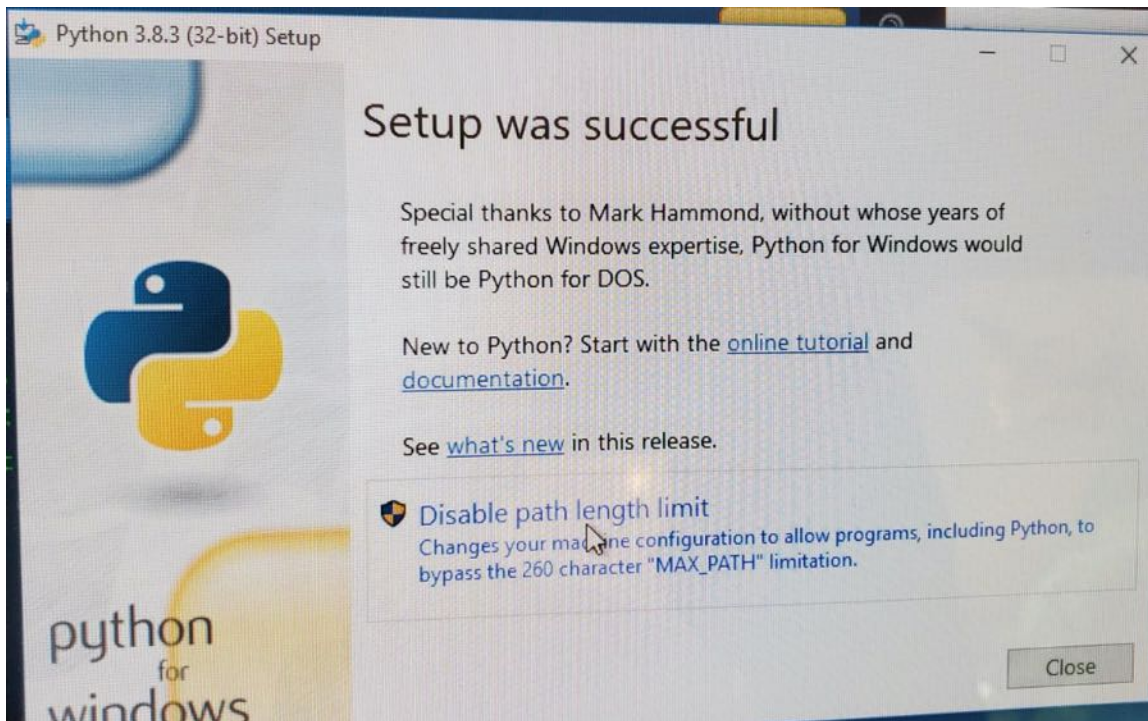
2. Make a directory for Python Software

a. For simplicity, you are going to create a directory that is easy to get to. Go to Windows File Explorer, right-click on the C: drive and select 'New' for new folder. Name the folder PICO.

3. Get the Python Software Code from GitHub

    a. Now you are going to get the Python Software Code from GitHub in order to run the local PicoBrew Server.

    b. Go to www.github.com from your web browser.

        i. You will need to setup an account to access the site and download software.
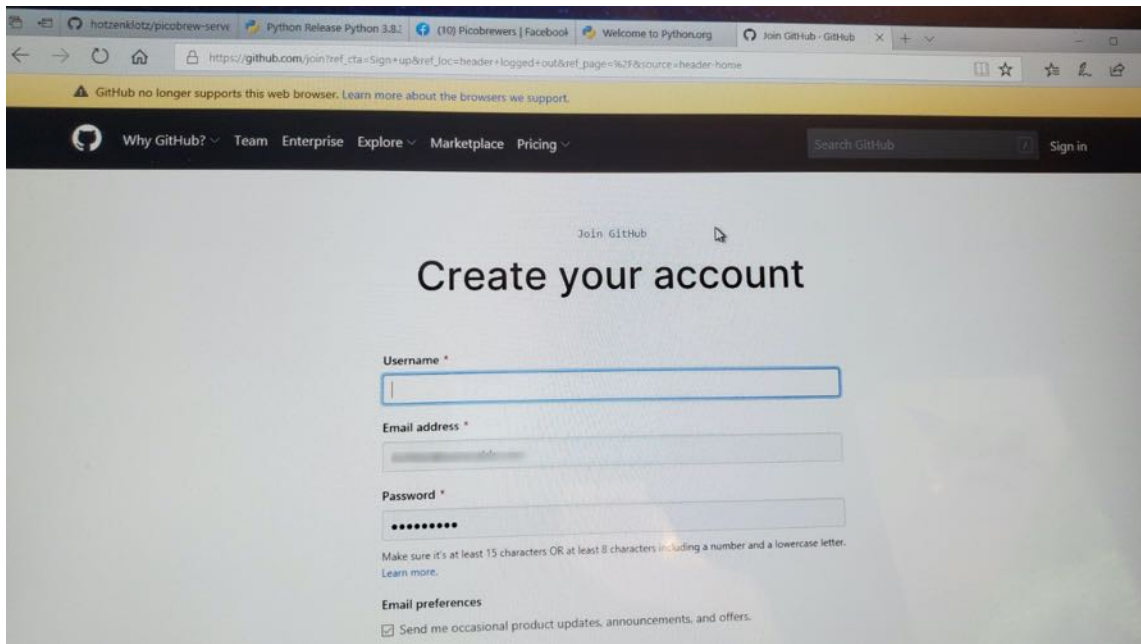
    c. Once logged in, search on hotzenklotz/picobrew_server or chiefwigms/picobrew_pico, depending on which server you want to use. For the Zymatic, I would recommend the hotzenklotz server as it only supports that, and allows you to import XML files – the format they will come in when you export your recipes from the PicoBrew website. For all other machines, use the chiefwigms server.
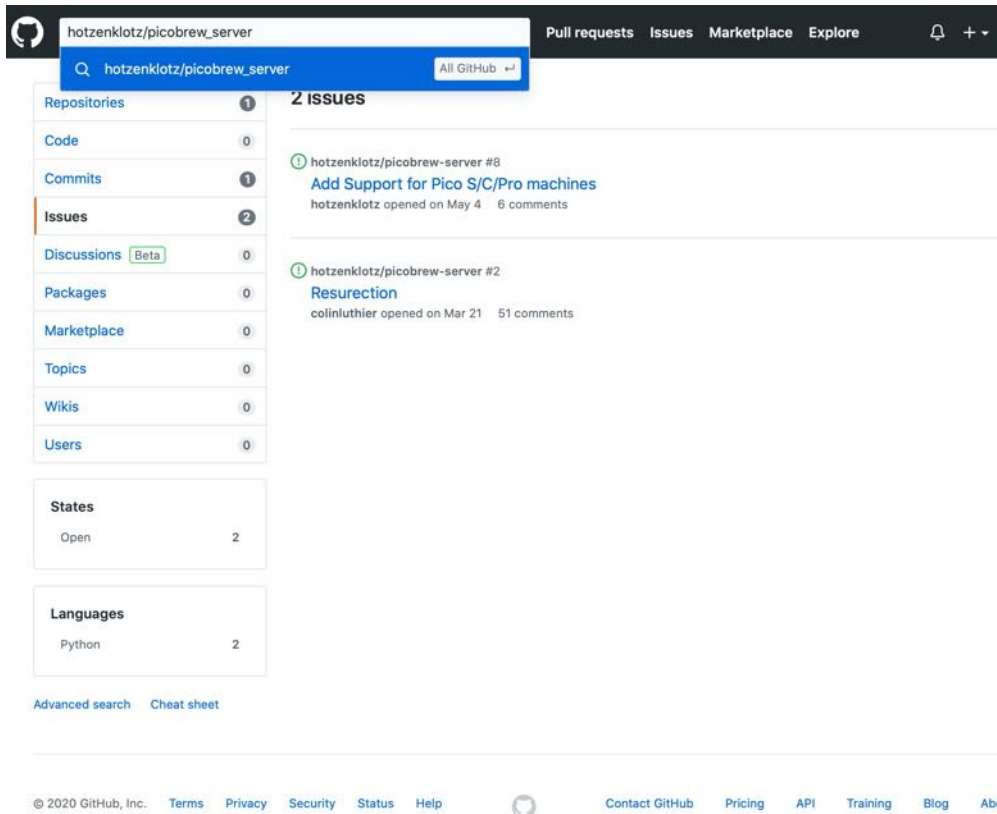
d. Once you choose the server, you will be taken to the code. Click on the green Clone or download button, click on Download ZIP. It will download the ZIP file to your DOWNLOADS folder on your computer.
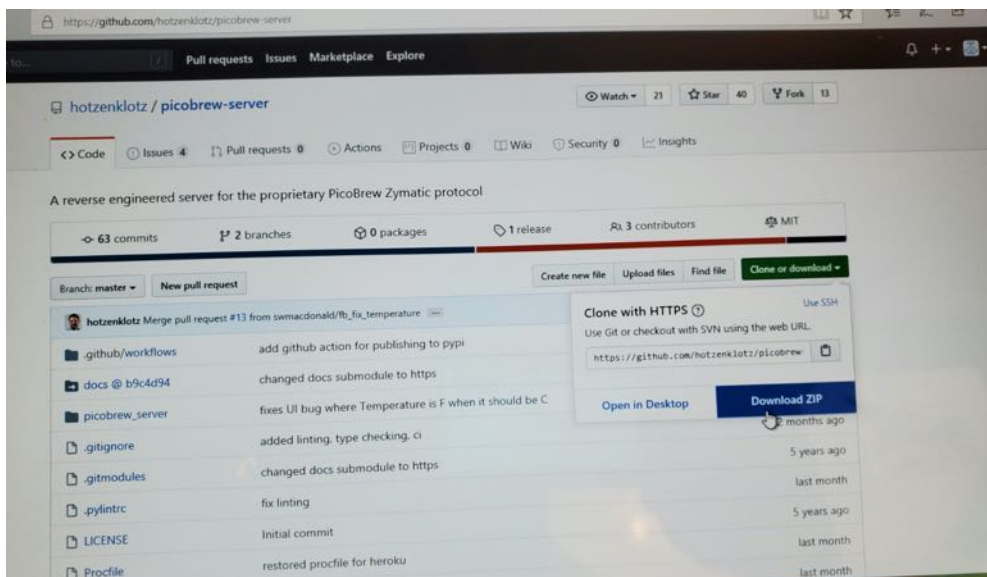
e. Open File Explorer again and go to DOWNLOADS, right-click on the ZIP file and select COPY. Then, again using File Explorer, go to C:\PICO, right-click anywhere in the dialog box and select PASTE. **Now, very important, right click on the zip file and select EXTRACT ALL, and when the dialog box pops up, change the folder to simply:**

   C:\PICO

4. **Hardware and Network Setup**

   a. Now it's time to setup your hardware. While any wireless router should work, I purchased the TP-Link N300 router and two ethernet cables (3-6 feet should work). This router was chosen because it is cheap and works. There are two types of ethernet ports on this router; LAN (orange) and WAN (blue). Connect one cable from the WAN port to the laptop you are using and one cable from any LAN port to the back of the PZ.

   b. TURN EVERYTHING ON!

   c. **Now you need to setup a network for all this.** Go to the Windows Start Button, and go to Windows System, and select Control Panel.

   d. Click on Network and Sharing Center. On this screen you should see your WiFi network your computer connects to access the internet and a second Ethernet network, which is the PICO. We need to make changes to both of these.
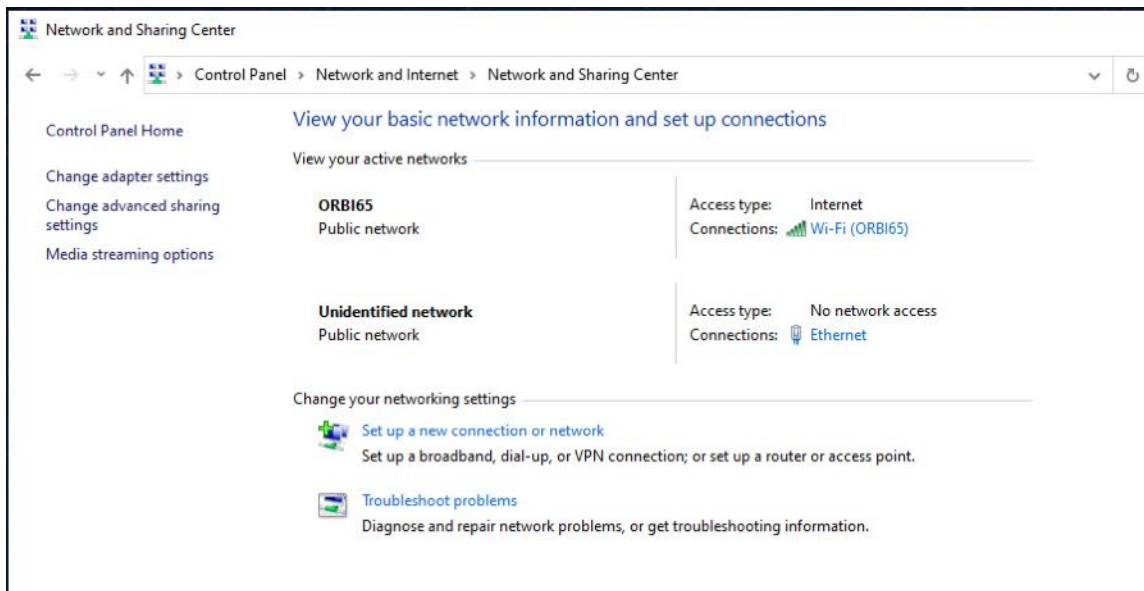
i. Click on your WiFi network, select PROPERTIES, click on SHARING, and check the first box. This connects your ethernet (PICO) network to the internet, which is what it is looking for.
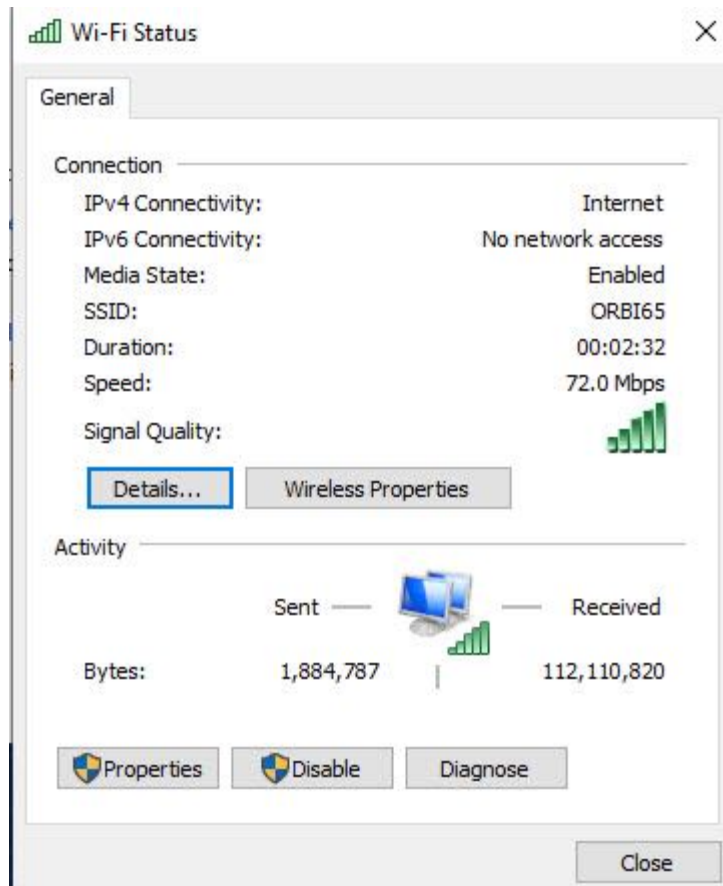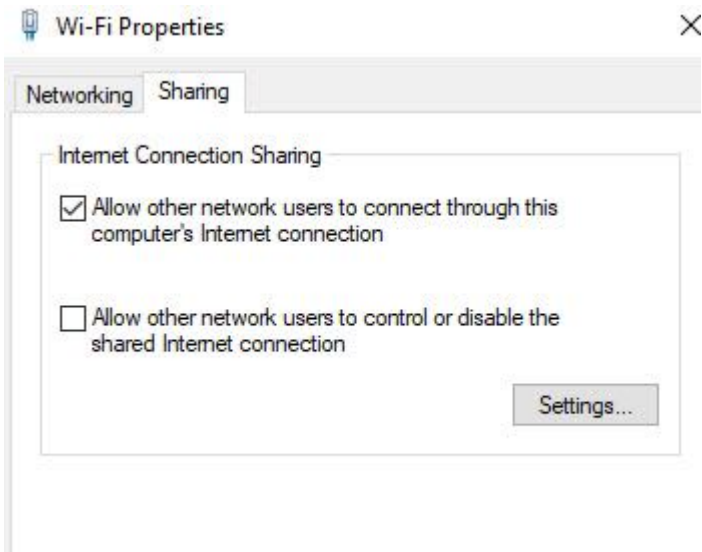
ii. Click on the Ethernet network, go to PROPERTIES, go down to 'Internet Protocol Version 6 (TCP/PIv6) and uncheck it'. Click on OK to save the changes. Then, **and very important**, click on DIAGNOSE. This will test this connection and fix common problems. If the troubleshooter (DIAGNOSE) finds a problem, let it correct it for you.
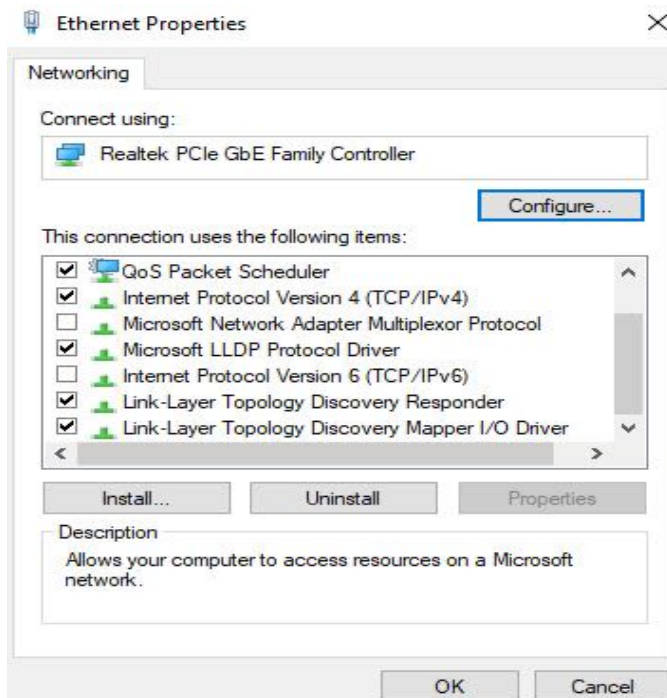
e. Now is a good time to download your recipes from the PicoBrew website. Go to the website, login, and navigate to BREW/MY RECIPES. Click on the View button of a recipe and near the top of the page click on EXPORT. This will save it to your DOWNLOADS folder. Do that for all the recipes you want to download.


f. Now you need to change your HOSTS file. This will force the PZ to go to your local website and not PicoBrew's. To do that, you need Administrator privileges. Open File Explorer and navigate to: C:/Windows/System 32/Drivers/ETC. You need to Copy and Paste the HOSTS file (not the iCalendar one) somewhere to modify it. I would use the Desktop or the C:/PICO folder. Once you copy it, open it up in

NOTEPAD and at the bottom of the text, add a new line as follows:

    i. 192.168.137.1 picobrew.com

```
 hosts - Notepad
File  Edit  Format  View  Help
# Copyright (c) 1993-2009 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows.
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#      102.54.94.97     rhino.acme.com          # source server
#       38.25.63.10     x.acme.com              # x client host

# localhost name resolution is handled within DNS itself.
#       127.0.0.1       localhost
#       ::1             localhost
   192.168.137.1  picobrew.com
```

    ii. Then click on FILE/SAVE AS and save it as: "hosts", **including the parentheses!** Overwrite the file if asked. If you don't include the parentheses, it will not work. Then copy and paste this new HOSTS file the C:/Windows/System 32/Drivers/ETC folder. You may get a 'need administrative rights', just click and overwrite.
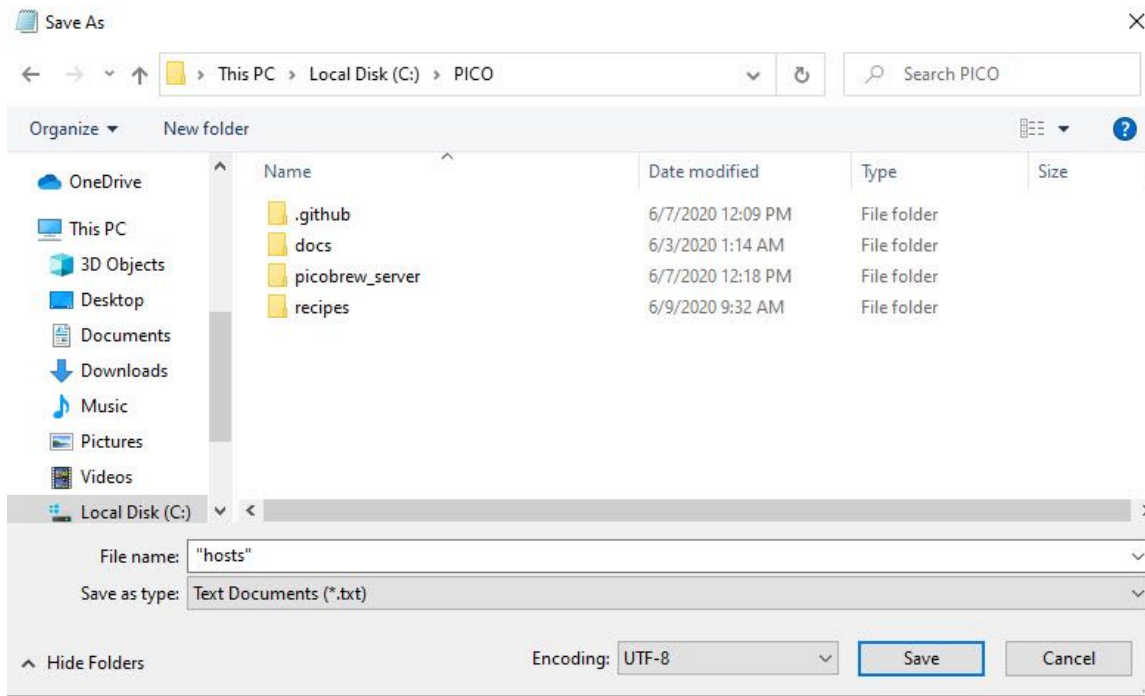
iii. Copying and replacing this file can be a challenge, even with Administrator privileges. I have found it easiest to create the new file on the desktop, copy the original host file in a folder on the desktop, deleting the original host file in the ETC directory, then copying the new host file to work. You may have to play around a bit with this. Someone can simplify this for me if you can.

g. This should finalize the Hardware and Network Setup.

5. PicoBrew_Server

a. Now you need to run the PicoBrew Server. I have included an **autoexec.bat file** to streamline this process for you.

b. Click on the START button and navigate to: WINDOWS SYSTEM/COMMAND PROMPT. **Do not use the Windows PowerShell!** This will open the Windows Terminal. Type the following Commands, hitting ENTER after each one.

   i. CD..

15

        ii. CD..

       iii. CD PICO

       iv. runserver

c. You should see something similar to the following:

d. If any of the commands failed, you will need to re-run runserver.

e. If the Picobrew Device is running, power it down, wait 10 seconds and turn it back on, but do NOT click the control button on the front of the machine.

f. You now need to load at least one recipe to the server before you can brew with the PZ. Open a web browser and type in 192.168.137.1 and press enter. This will open up the recipe module for the server you are running. With the hotzenklotz server (shown below), click on FILE, navigate to DOWNLOADS, and click on any of the XML files. Then click UPLOAD FILE and it should copy it to the PZ. For the chiefwigms server, you will need to create a recipe using the NEW option.
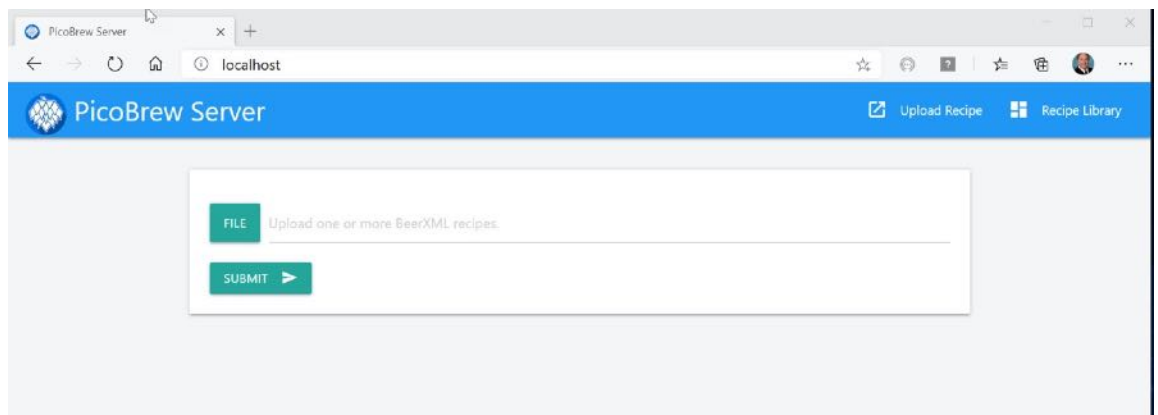
g. Once you load a recipe, you should be able to go to the PZ device Menu and Select 'Brew a Recipe'. The recipe you just loaded should be available on your PZ. You should see some activity in the Windows Terminal if the PZ is talking to the local server. If you get an error message, your PZ is likely not communicating to the local PicoBrew_Server. This can be due to a number of reasons and will require some troubleshooting. We will try to address those on the PicoBrew Revival Facebook Page and/or github.com. You can email me at: tschleis@yahoo.com

6. **FINAL STEP**
    a. MAKE SOME BEER!!!