

Node Red Coffee Roaster

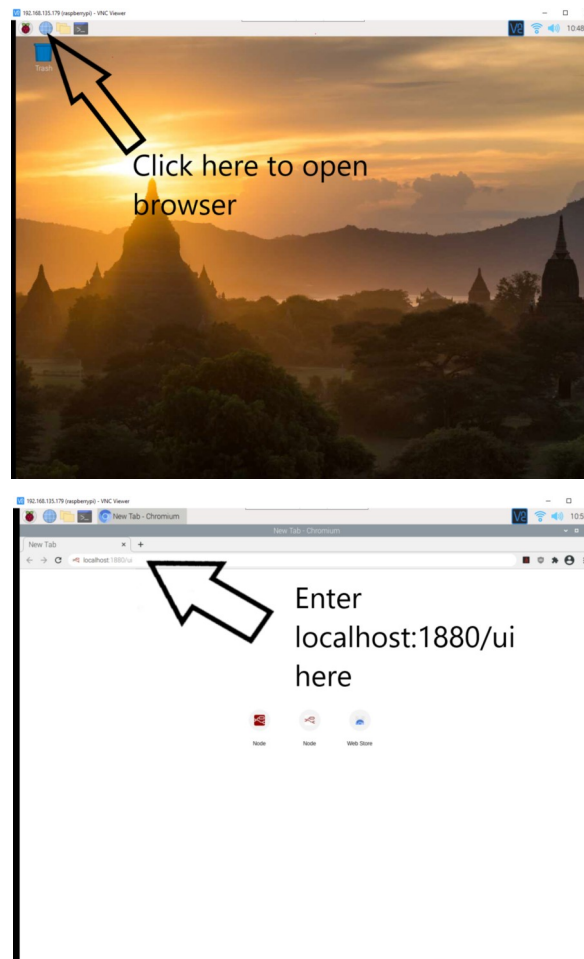
Setup

1. Plug the USB cable from the coffee roaster into one of the USB ports on the Raspberry Pi.
2. Plug the keyboard and mouse into USB ports on the Raspberry Pi.
3. Make sure the USB WiFi adapter is plugged into a USB port on the Raspberry Pi.
4. Connect the video cable from the monitor to the HDMI port on the side of the Raspberry Pi.
5. Turn on the monitor by pressing the power button on the front of the monitor.
6. Make sure the Raspberry Pi power supply is connected to the micro-USB port on the side of the Raspberry Pi and plug it in. The Raspberry Pi should start booting and eventually the display on the coffee roaster should turn on and then the desktop display should appear on the monitor.
7. Plug in the coffee roaster.

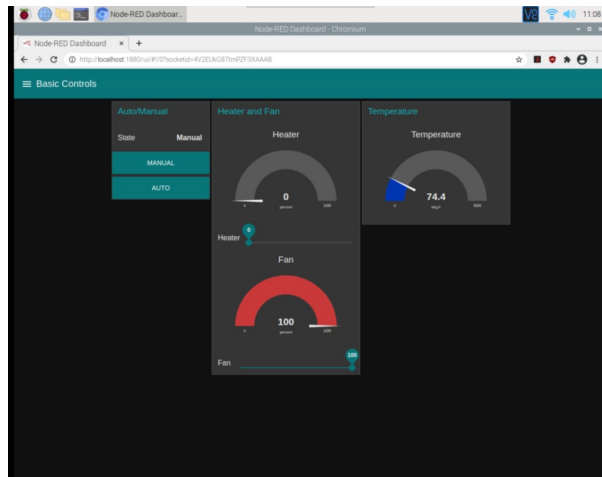
Usage


On the Raspberry Pi monitor


Open the Chromium browser and browse to localhost:1880/ui to see the user interface.

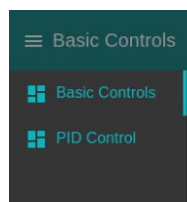


You should now see this screen:

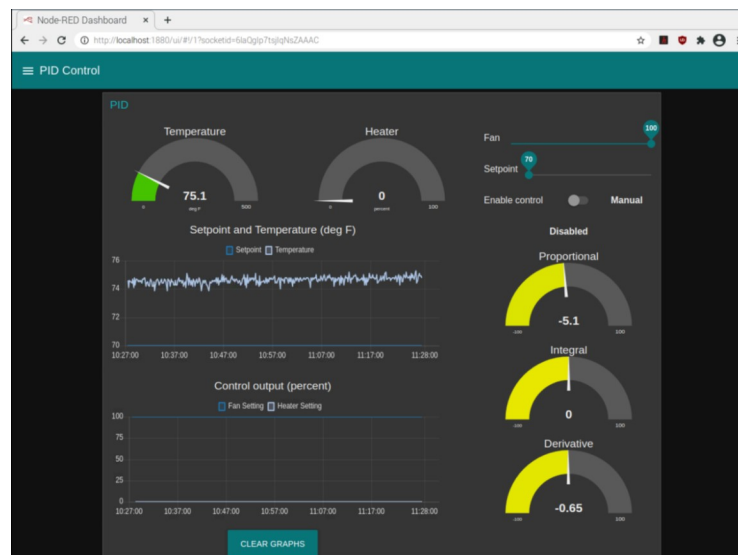


Note: Lately Node Red has had trouble starting sometimes on the first boot of the Raspberry Pi. Unfortunately I haven't been able to diagnose why. If you get an error from the browser at this point, try rebooting the Raspberry Pi. To reboot, click on the little raspberry icon  in the top left corner of the screen, choose Logout, then click on Reboot.

If you click on the three bar icon  on the upper left of the screen (where it says Basic Controls) you'll get a menu of available screens. Right now there are two to choose from.





If you choose PID Control you'll get this screen:

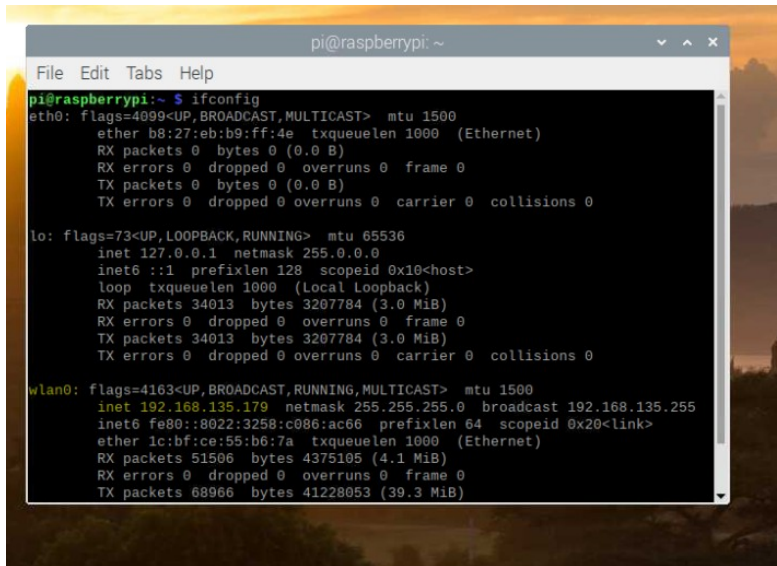


Accessing from another device on the network

You can access these same screens from another device (phone, tablet, PC) which is on the same local network. To do this you'll need to make sure the Raspberry Pi is on the local network. You can connect it directly with an ethernet cable, or you can use the USB WiFi adapter.

To connect via WiFi, just click on the WiFi icon  in the upper right corner of the screen. Then you should be able to choose your local WiFi. Note: The icon may be different if the Pi is not currently connected to WiFi.

Now you'll need to know the IP address that was assigned to the Pi by your local router. Click on the terminal icon  in the upper left of the screen. This will open a terminal window. Type the command *ifconfig*.



```
pi@raspberrypi: ~
File Edit Tabs Help
pi@raspberrypi:~$ ifconfig
eth0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether b8:27:eb:b9:ff:4e txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 34013 bytes 3207784 (3.0 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 34013 bytes 3207784 (3.0 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.135.179 netmask 255.255.255.0 broadcast 192.168.135.255
    inet6 fe80::8022:3258:c086:ac66 prefixlen 64 scopeid 0x20<link>
    ether 1c:bf:ce:55:b6:7a txqueuelen 1000 (Ethernet)
    RX packets 51506 bytes 4375105 (4.1 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 68966 bytes 41228053 (39.3 MiB)
```

You should see something like the picture above. What you are looking for is in the *wlan0* section and is labelled *inet*. It's highlighted yellow in the picture above but it won't be highlighted on your screen. In this case the IP address of the Pi is 192.168.135.179 . It will be different on your network.

To access the coffee roaster screens from your device, open your browser and instead of entering *localhost:1880/ui* as you did on the Pi screen, use the IP address you found using the *ifconfig* command. In the example here it would be:

192.168.135.179:1880/ui

Once again the IP address will be different on your network.

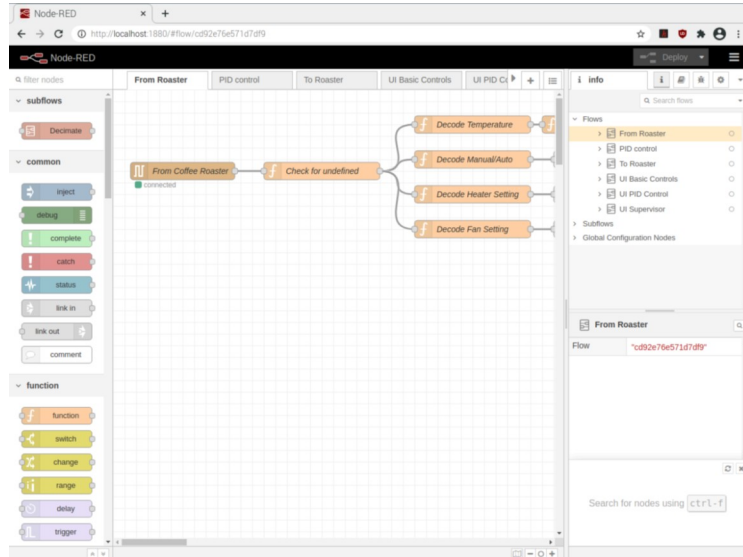
Note that it is possible to control the roaster from multiple devices on the network at the same time. This is not recommended as it is likely to lead to confusion. But it is possible.

Accessing the programming interface

You can access the Node Red programming interface and make changes to the program as you wish. Simply leave off the `/ui` from the browser address. So on the Pi screen the address would be:

localhost:1880

This will give you a screen that looks like this:



There are lots of tutorials online on how to program using Node Red. It's way too much to cover here.

Pi maintenance

The Pi is set up with the following user:

Username: pi

Password: coffee

This user will be automatically logged in when booting, but you may need this information when updating or maintaining the Raspberry Pi.