

How to flash the binaries of the ESP32 edition of TCode controller

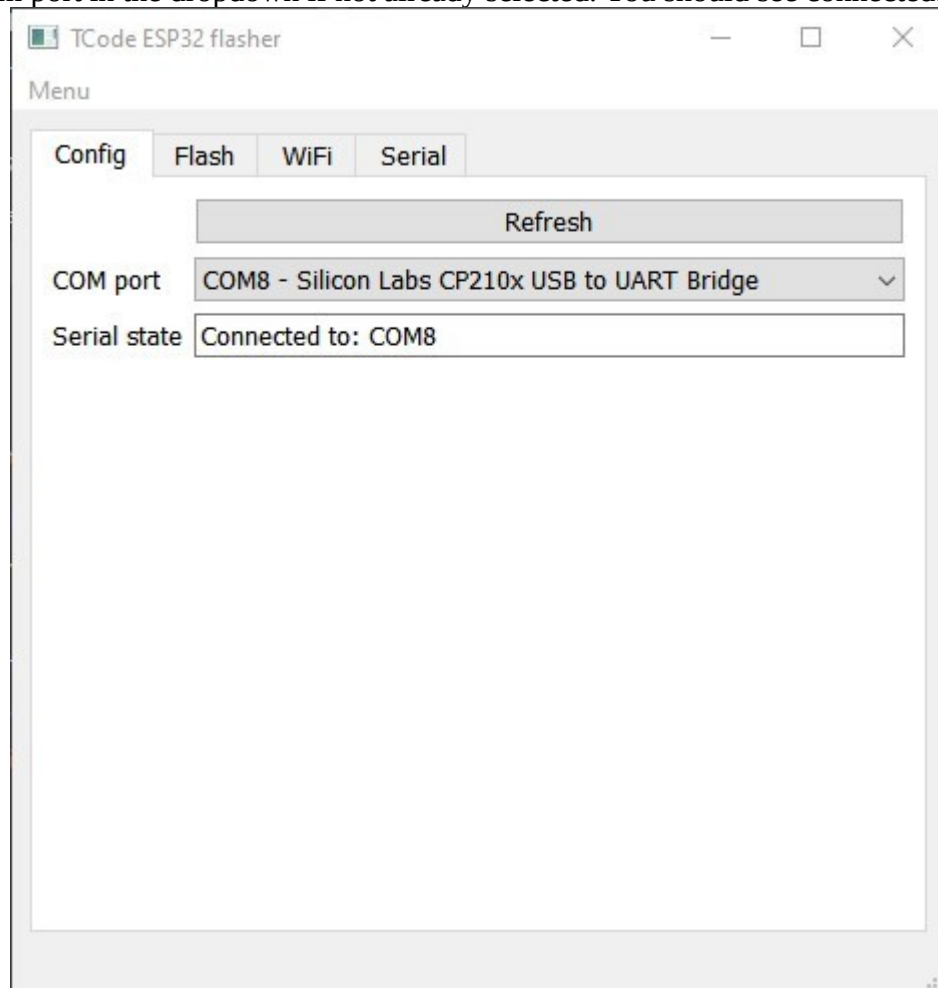
Extract the zip archive.

(Linux/Mac users [click here](#) See command `example.txt` for the command to run)

(Windows users: this may work in other OS' with an API layer (Wine/Parallels) I've not tested.

Run “flash.exe”

Select your com port in the dropdown if not already selected. You should see connected.



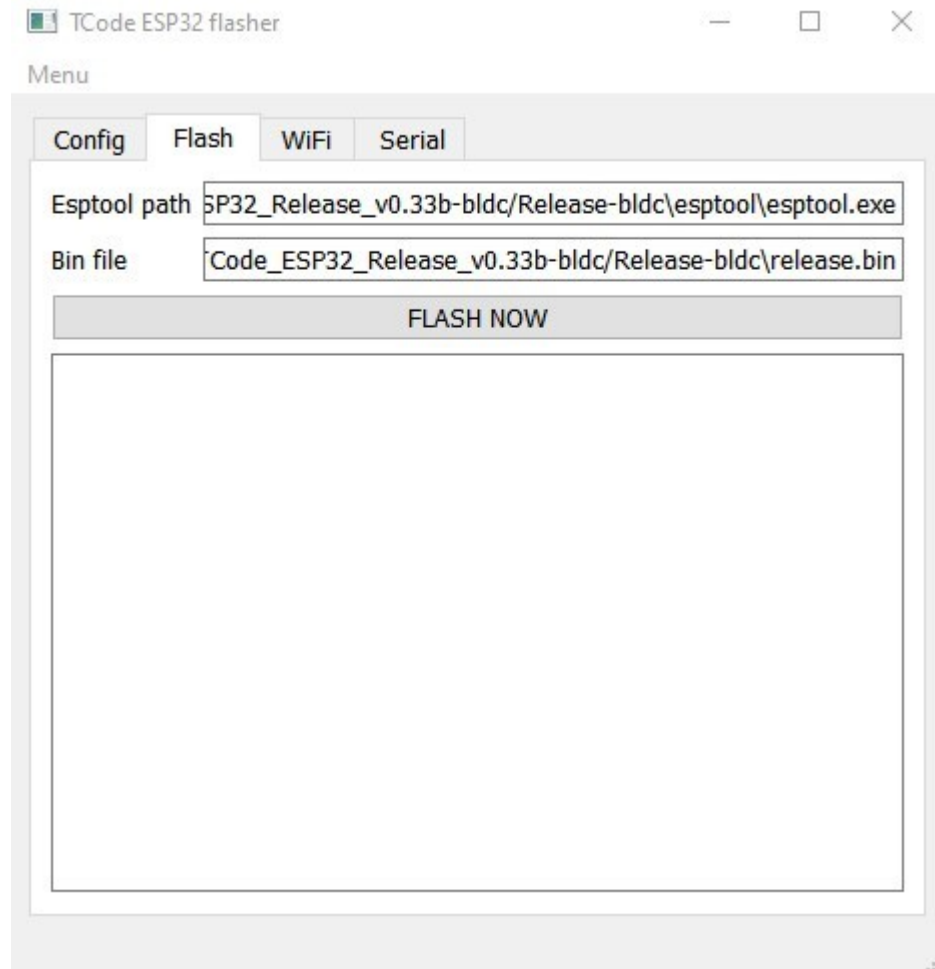
If your ESP32 isn't recognized as a COM port you may need to install the drivers for your USB chip.

For micro USB Devkit <https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers>

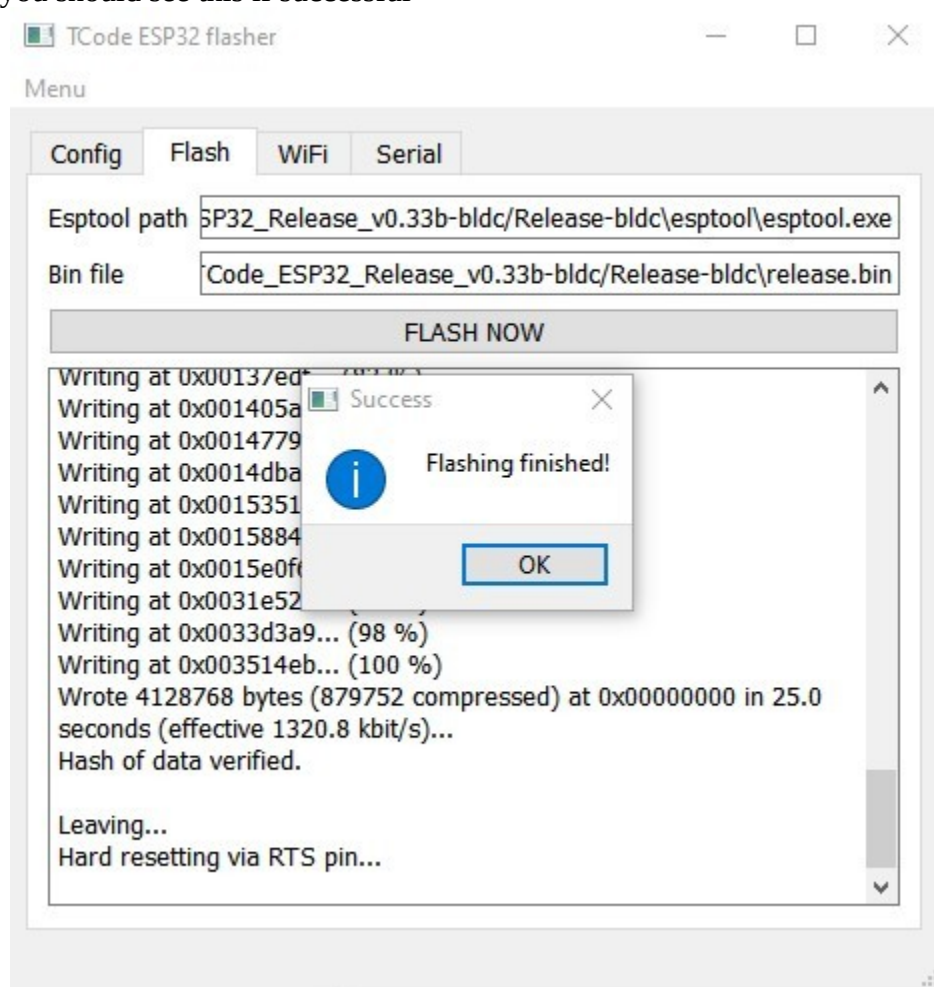
For USB-C Devkit (CH340) <https://learn.sparkfun.com/tutorials/how-to-install-ch340-drivers/all>

Select the Flash tab (most should leave everything at default on this tab) If using the S3 Zero of another supported board, Select it in the module drop down (Not pictured) and click “FLASH NOW”

*Note: If you get a error that mentions the boot mode, hold the boot button in the Devkit until the dots stop.*



After flashing you should see this if successful



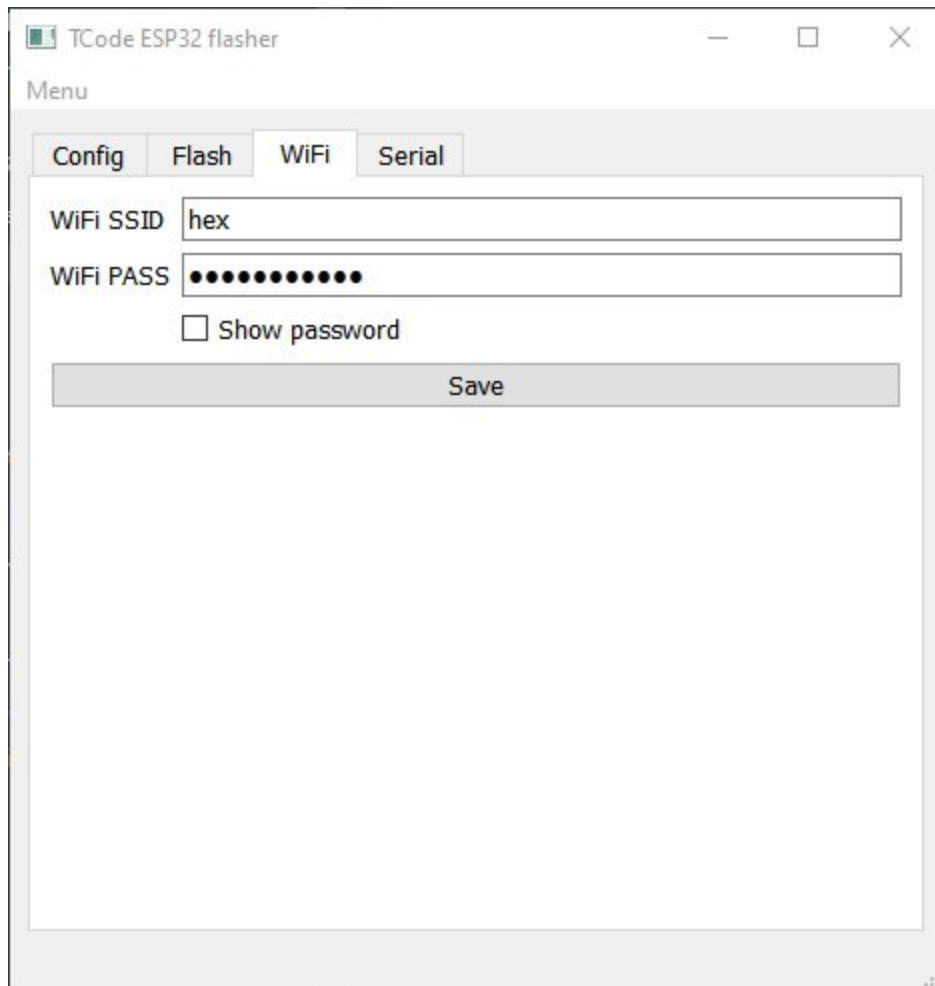
Now that your image is flashed time to configure the wifi if you wish to do so  
**IMPORTANT! The ESP32 S series (Devkit v1) is ONLY compatible with 2.4ghz WiFi**

You can either configure Wifi with the flasher, AP mode or Serial monitor.  
Skip to the chosen section below.

## **Flasher configuration:**

Select the WiFi tab and enter your 2.4ghz SSID and password

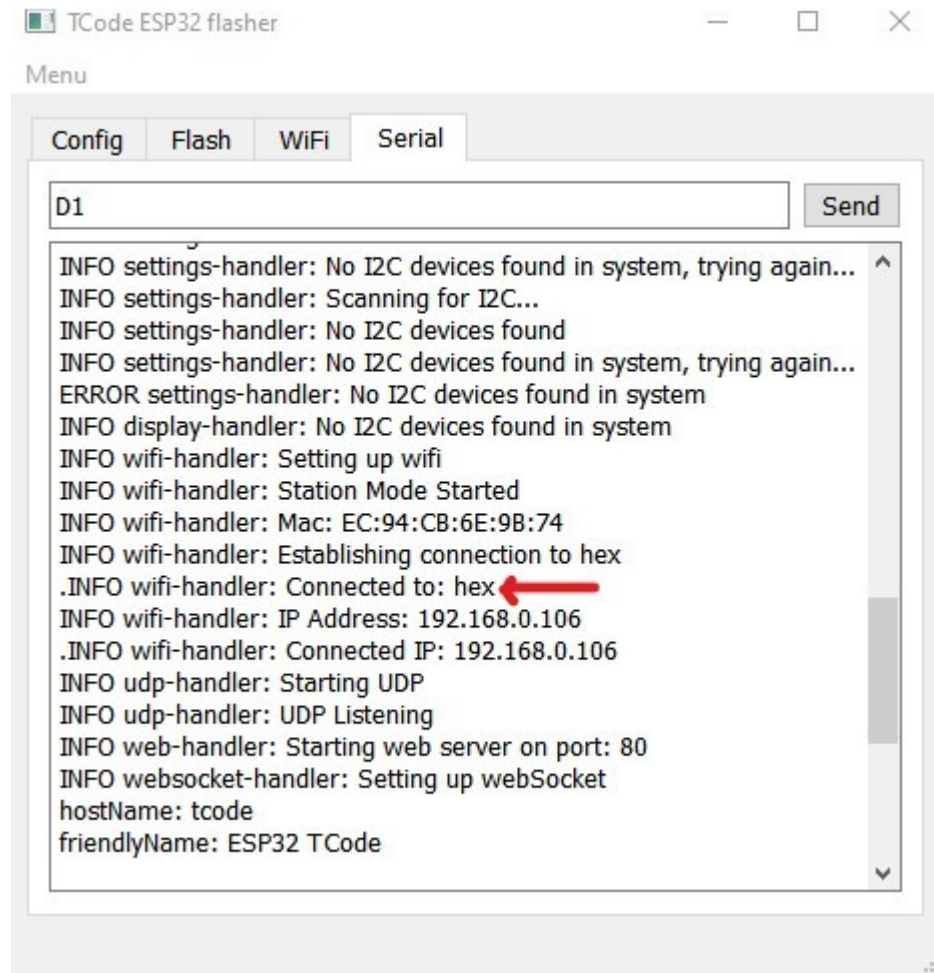
Click Save



The image shows a software window titled "TCode ESP32 flasher" with standard Windows window controls (minimize, maximize, close). Below the title bar is a "Menu" section containing four tabs: "Config", "Flash", "WiFi", and "Serial". The "WiFi" tab is currently selected. Inside the WiFi configuration area, there are two text input fields. The first is labeled "WiFi SSID" and contains the text "hex". The second is labeled "WiFi PASS" and contains ten black dots, indicating a password. Below these fields is a checkbox labeled "Show password", which is currently unchecked. At the bottom of the configuration area is a large, light gray button labeled "Save".

On success, the app will switch to the Serial tab to view the output.

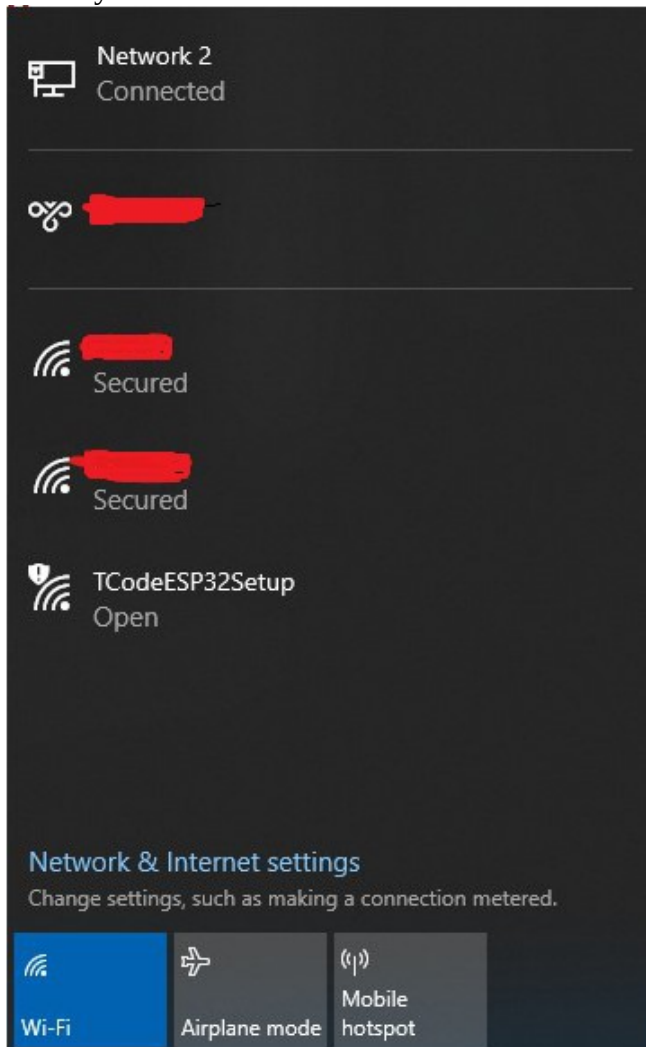
Here you can validate the ESP32 connects to your network.



You can also enter other Tcode commands here to test your device is working correct.

## AP configuration:

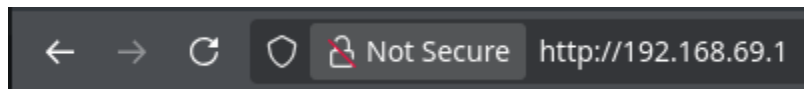
Check your available wifi networks



Connect to TcodeESP32Setup (leave connect automatically **unchecked**)

Password is: **tcode\_6969**

Once connected (It can be slow be patient. About 30 secs or so)



Open your internet browser and navigate to 192.168.69.1

Enter your wifi ssid and password and change the network info if required.

*Note: If you're NOT connecting to an AP/Router SSID, you may want to set a different AP Mode SSID/Password for privacy/security. Connecting the device to a router will disable AP Mode unless the network can't be reached for some reason.*

You can also change other settings such as board type and device type.

**Board type** will change the pinout for the board

**Device type** will change the setup page and the way the code handles the signals.

You can change other settings or you can wait until reboot happens.

**Device Settings**
Menu

### Wireless

SSID (2.4ghz only)   
 Password   
☐ Show Password

☐ Static IP
 

AP mode SSID   
 Ap mode password   
☐ Show Password  
 AP Mode IP   
 AP Mode subnet   
 AP Mode gateway   
 AP Mode hidden ☐  
 AP Mode channel   
 BLE enabled ☐

### General

 TCode version   

Board type   
 Device type

Servo	PIN	ZERO (μ)	Timer Channel
Right	13	1500	High 0 CH0
Left	15	1500	High 0 CH1
Pitch	4	1500	High 1 CH2
Valve	25	1500	High 2 CH4
Twist	27	1500	High 1 CH3
Aux	1	1500	None

☐ Disable PIN validation  
  
PWM available on: 2,4,5,12-19,21-23,25-27,32,33

### Other

☐ Inverse T-Valve

☐ T-Valve 90 degree servo

☐ Inverse main servos

☐ Inverse Pitch

☐ Inverse twist

☐ Feedback twist

Vibe 1 PIN

Vibe 1 timer channel

Lube/Vibe 2 PIN

Vibe 2 timer channel

Vibe 3 PIN

### Sleeve temperature

☐ Enabled  
 Sleeve temp sensor pin   
 Heater pin   
 Heater timer channel   
 Target Temperature (°C)   
 Heat PWM   
 Hold PWM   
 Heater hold threshold (°C)   
 Heater resolution (bit)   
 Sleeve temp (°C)   
 Status

The settings will auto save. Wait for the Settings saved text to appear and the Menu/Restart device buttons will flash..

**Device Settings**
Menu

### Wireless

 SSID (2.4ghz only)   
 Password   
☐ Show Password  
☐ Static IP

### General

 TCode version   
 Board type   
 Device type

Settings saved!

Menu

Restart device

Export settings

Import settings

Reset ALL settings

Click restart device OR unplug and re-plug the usb powering the ESP32.

Your device should reboot and connect to the network if you entered a valid SSID/Password.

You can verify this by using serial monitor:

```
PROBLEMS  OUTPUT  TERMINAL  GITLENS  DEBUG CONSOLE

SPI_FAST_FLA
INFO: ESP32 Chip model = ESP32-D0WDQ6 Rev 1
INFO: This chip has 2 cores
INFO: Chip ID: 15859308
INFO: Read Settings: /userSettings.json
INFO: Last reset reason: Reset due to power-on event
INFO: Version: ESP32 v0.251b
INFO: Setting up wifi
INFO: Station Mode Started
INFO: Mac: 24:62:AB:F1:FE:6C
INFO: Establishing connection to hex
WARNING: Disconnected from station, attempting reconnection
INFO: Reason: 0
INFO: Unknown reason 0
INFO: Connected to [REDACTED]
INFO: IP Address: 192.168.0.95
.INFO: Connected IP: 192.168.0.95
INFO: Starting UDP
INFO: UDP Listening
INFO: Starting web server on port: 80
INFO: Setting up webSocket
hostName: tcode
friendlyName: ESP32 TCode
ESP32 v0.251b
TCode v0.3
Ready!
█
```

or checking your router dhcp for the ESP32.

10	TCodeESP32		192.168.0.145
----	------------	---	---------------

You should now be able to access the configuration page from or what ever you type into the Host name field on the configuration.

Udp port	8000
Web port	80
Host name	tcode
Friendly name	ESP32 TCode
I2C SDA PIN	21

Once you have this IP address you can get into your machine settings via the web browser.

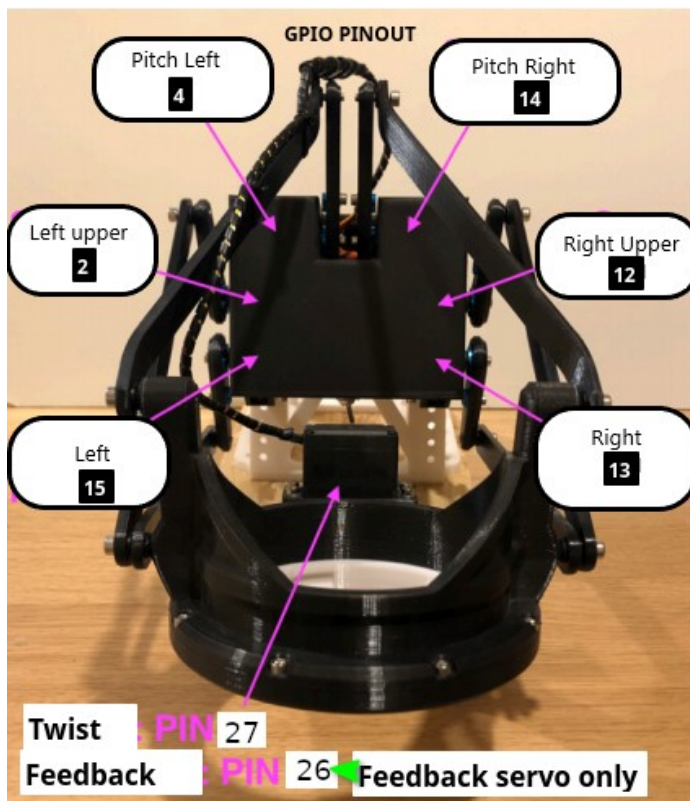


From here you can view the [default pin out](#) and change them if you know what you are doing. -1 means disabled. You cant disable the main servos for the selected Device type  
 You may want to set up things like servo frequency in the [timer setup](#)  
 Or calibrate your servo [zero positions](#).

Main servos max range (°C) 180 Edit timers

Servo	PIN	ZERO (μ)	Timer Channel
Right	13	1500	High 0 CH0
Left	15	1500	High 0 CH1
Right upper	12	1500	High 1 CH2
Left upper	2	1500	High 1 CH3
Pitch	4	1500	High 2 CH4
Pitch right	14	1500	High 2 CH5
Valve	25	1500	High 3 CH7
Twist	27	1500	High 3 CH6
Aux	-1	1500	None

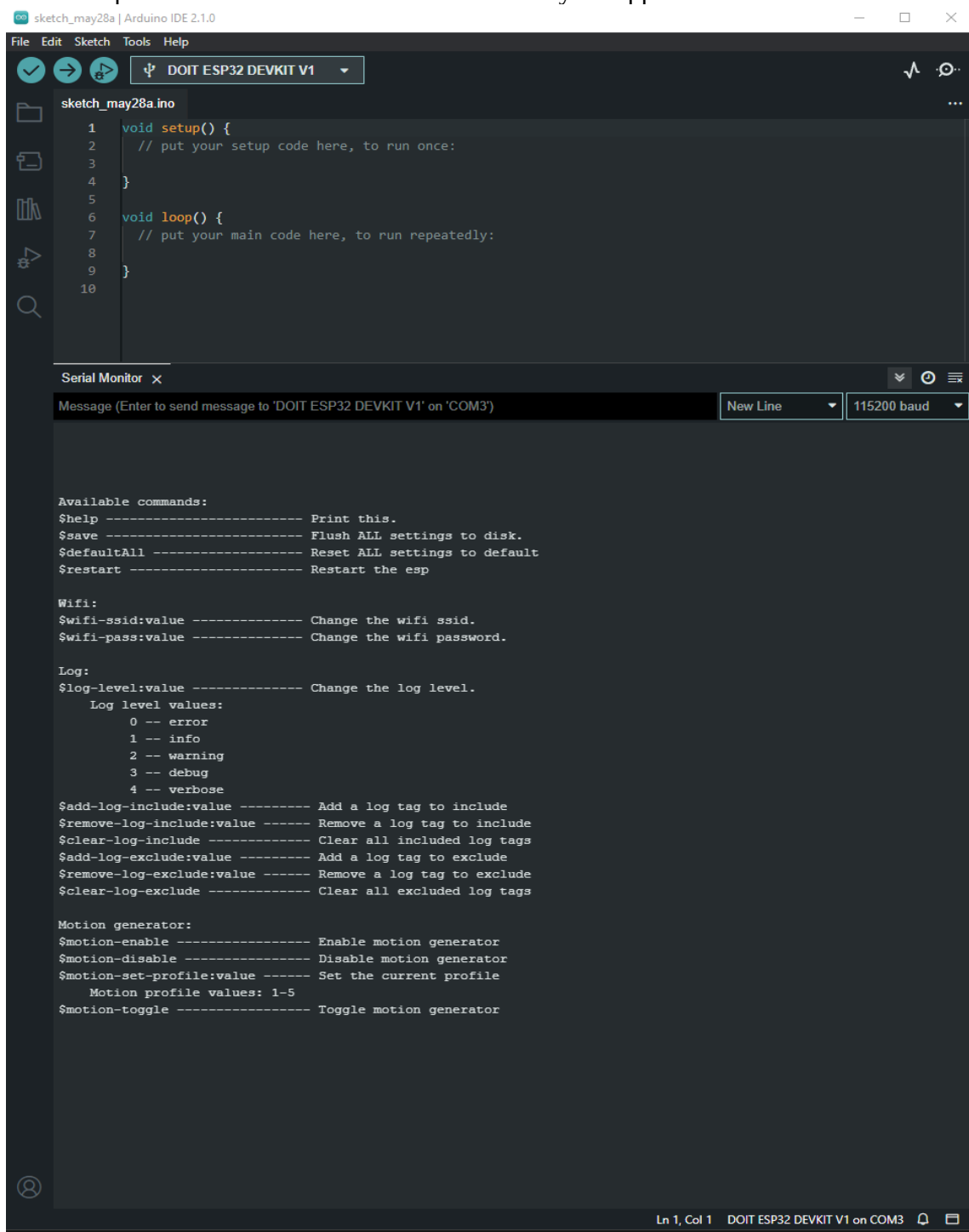
Here is the default SR6 pinout for reference:



# Serial monitor configuration

If you can't connect to the APM mode method above for some reason you can configure most device settings over serial communications including the wifi router login settings.

Connect to the esp32 via Serial monitor in Arduino ide or your app of choice



Enter the command #help to see a list of available commands.

## **Conclusion**

Now wifi is connected you can get to the web page via either <http://tcode.local> or http://<ipaddress> and configure the rest this firmware.

Enjoy!