

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

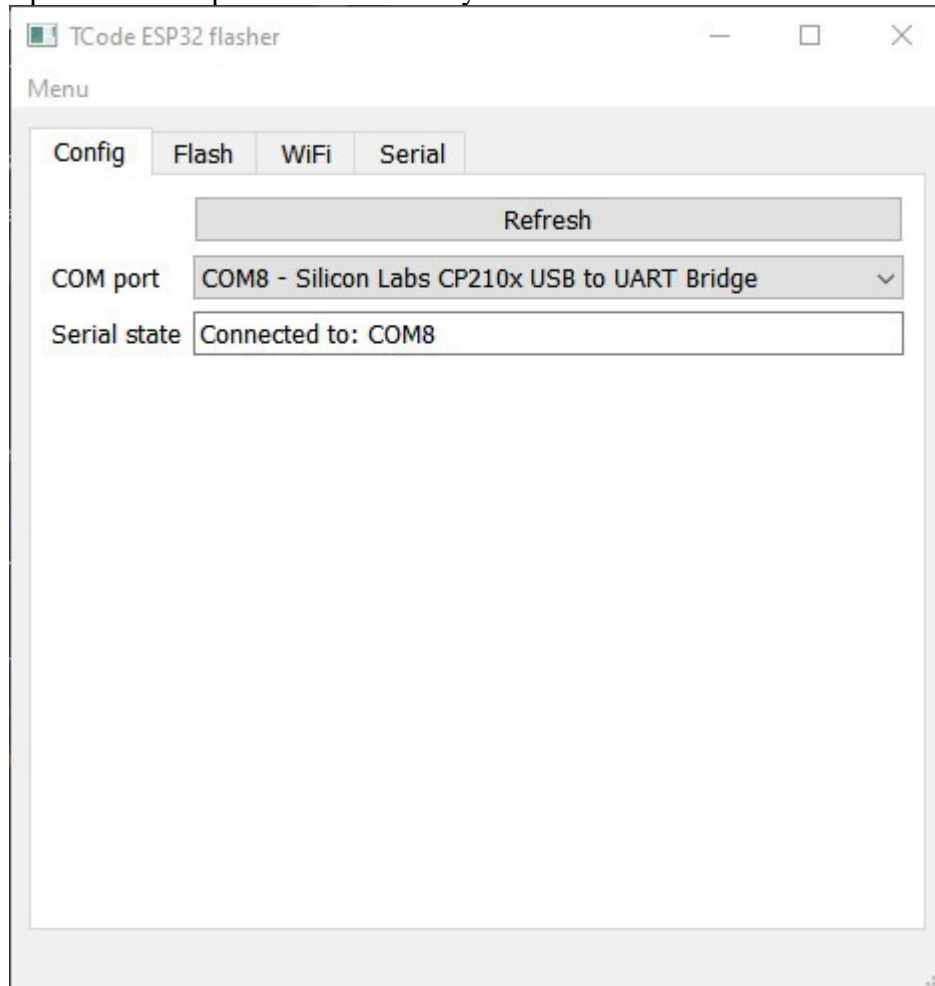
Extract the zip archive.

(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.



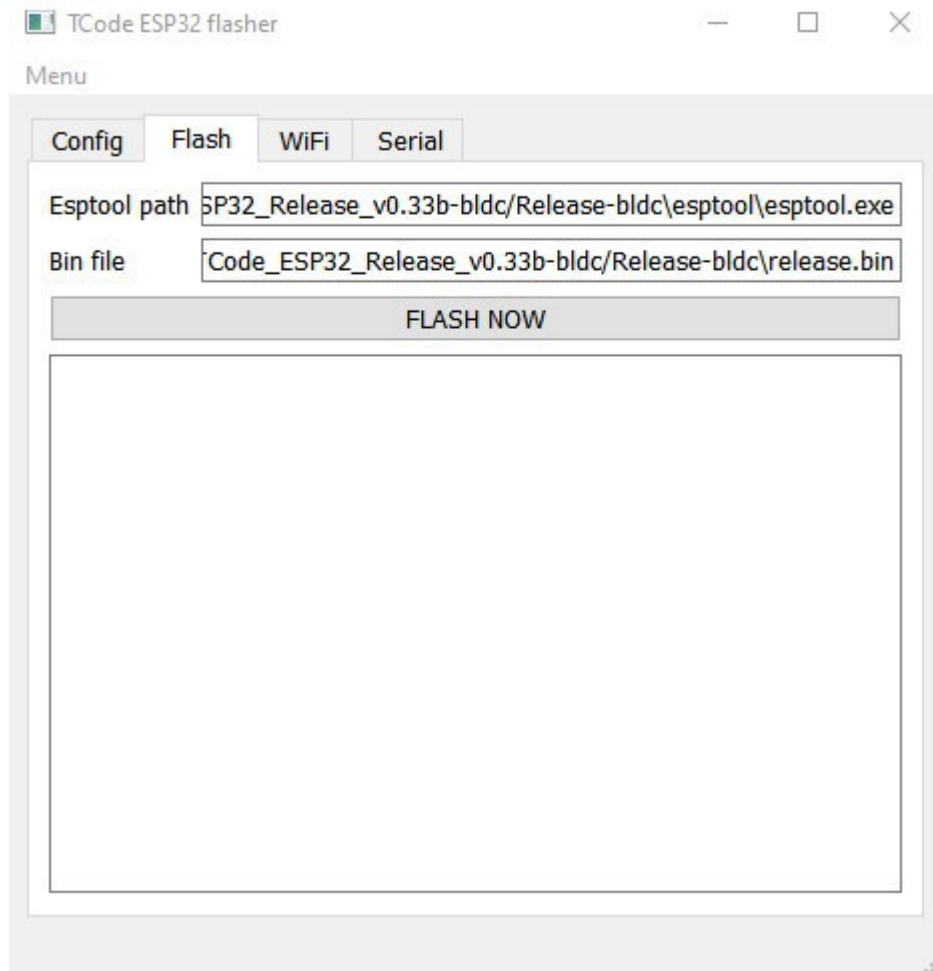
If your ESP32 isn't recognized as a COM port you may need to install the drivers for your USB chip.

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

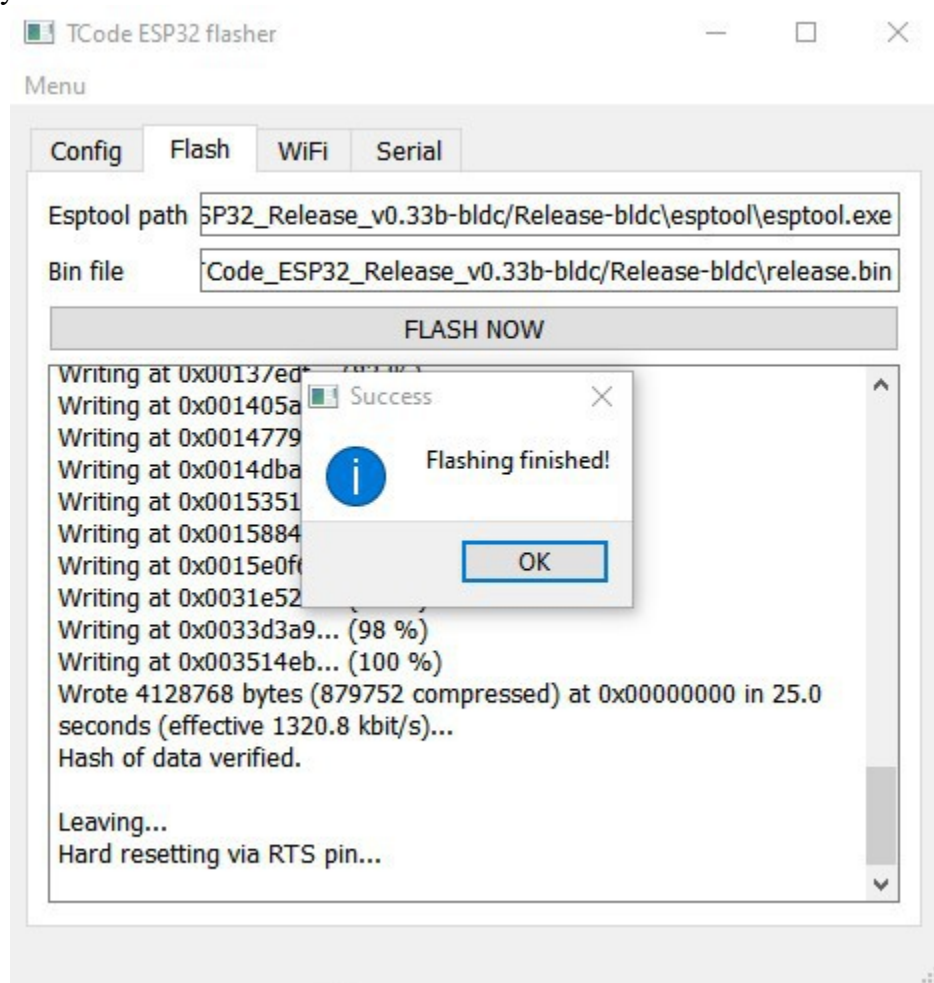
For USB-C Devkit (CH340) <https://learn.sparkfun.com/tutorials/how-to-install-ch340-drivers/all>

Select the Flash tab (most should leave everything at default on this tab) then 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 we are using currently is ONLY compatible with 2.4ghz WiFi

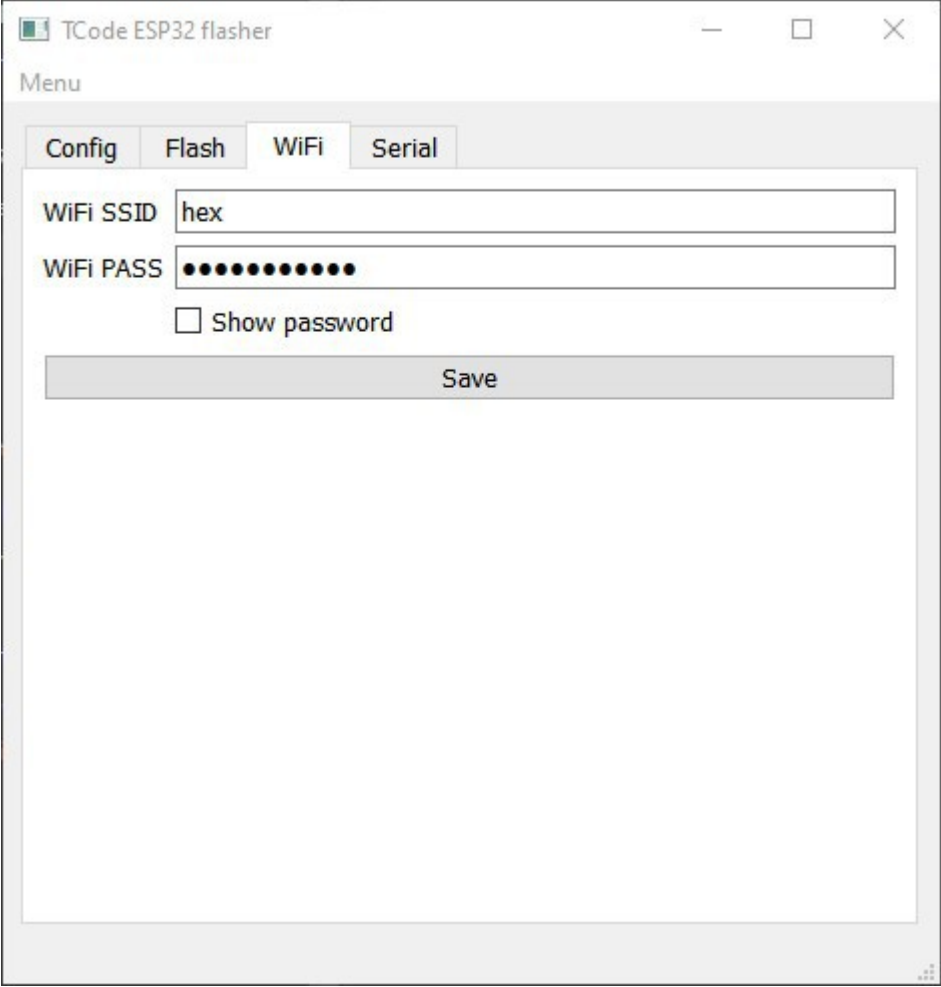
You can either configure Wifi with the flasher, AP mode or Serial monitor.

Skip to the chosen section below.

Flasher configuration:

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

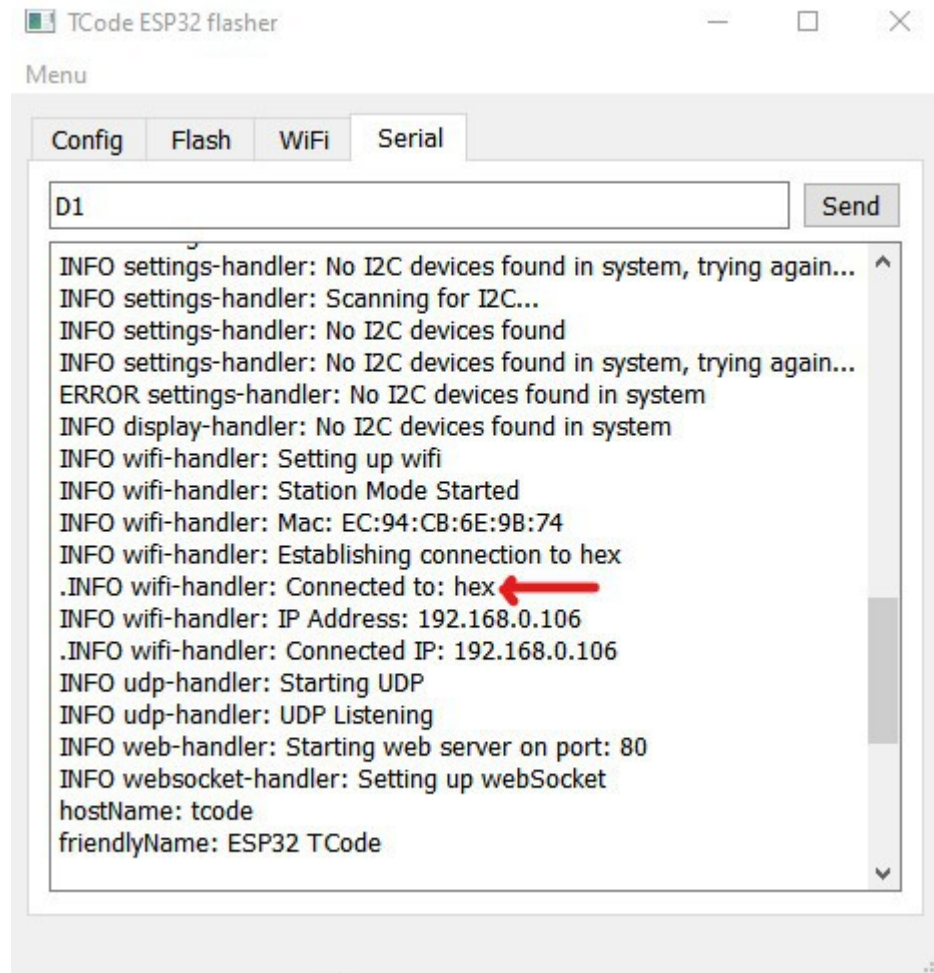
Click Save



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" tab, there are two input fields: "WiFi SSID" containing the text "hex" and "WiFi PASS" containing ten black dots. Below these fields is a checkbox labeled "Show password" which is currently unchecked. At the bottom of the configuration area is a large grey button labeled "Save".

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

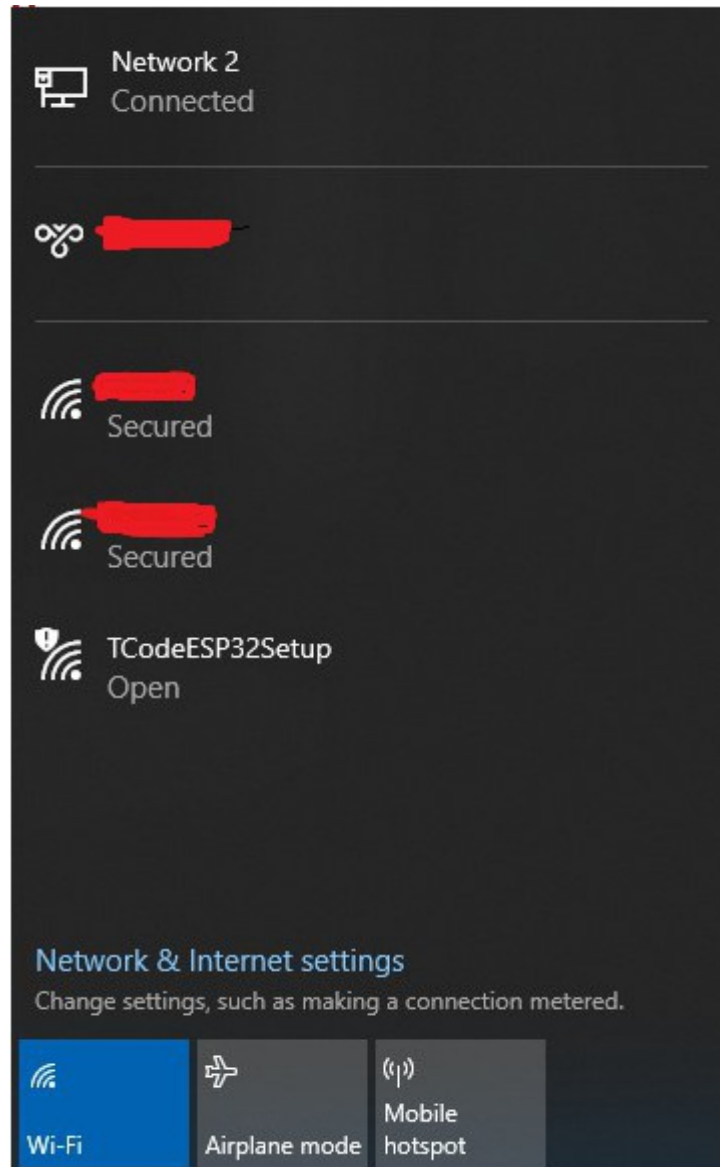
Here you can validate the ESP32 connects to your network.



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**)

No password

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

Device Settings

Menu

Wireless

SSID (2.4ghz only) YOUR SSID HERE
Password
Show Password
Static IP

General

TCode version v0.3
SR6 mode
Servo Frequency (hz) 50
Pitch Frequency is different
Valve Frequency (hz) 50
Twist Frequency (hz) 50
Squeeze Frequency (hz) 50
Set (μ) for 270 degree servos
Micro seconds per radian (μ) 637

Servo	PIN	ZERO (μ)
Right	13	1500
Left	15	1500
Pitch	4	1500
Valve	25	1500
Squeeze	17	1500
Twist	27	1500

Disable PIN validation

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

SR6

Servo	PIN	ZERO (μ)
Right upper	12	1500
Left upper	2	1500
Pitch right	14	1500

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

Other

Inverse T-Valve
T-Valve 90 degree servo
Inverse Stroke
Feedback twist
Vibe 1 18
Lube/Vibe 2 19
Vibe 3 23
Vibe 4 32
Lube enabled on V2
Lube button PIN 35
Manual lube speed (1-255) 255
Udp port 8000
Web port 80
Host name tcode
Friendly name ESP32 TCode

Battery

Enabled

Motion generator

Start

And wait for the Settings saved text to appear and the Menu/Restart device buttons will flash..

Settings saved!

Device Settings

Menu

Wireless

SSID (2.4ghz only) wwiwiSSID
Password
View Saved Logins
Show Password
Static IP

General

TCode version v0.3
SR6 mode
Servo Frequency (hz) 50
Pitch Frequency is different
Valve Frequency (hz) 50

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.

You can verify this by using serial monitor

```
PROBLEMS  OUTPUT  TERMINAL  GITLENS  DEBUG CONSOLE

SPI_FAST_FLAT
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 by logging into your router and looking for A Device named “TcodeESP32”

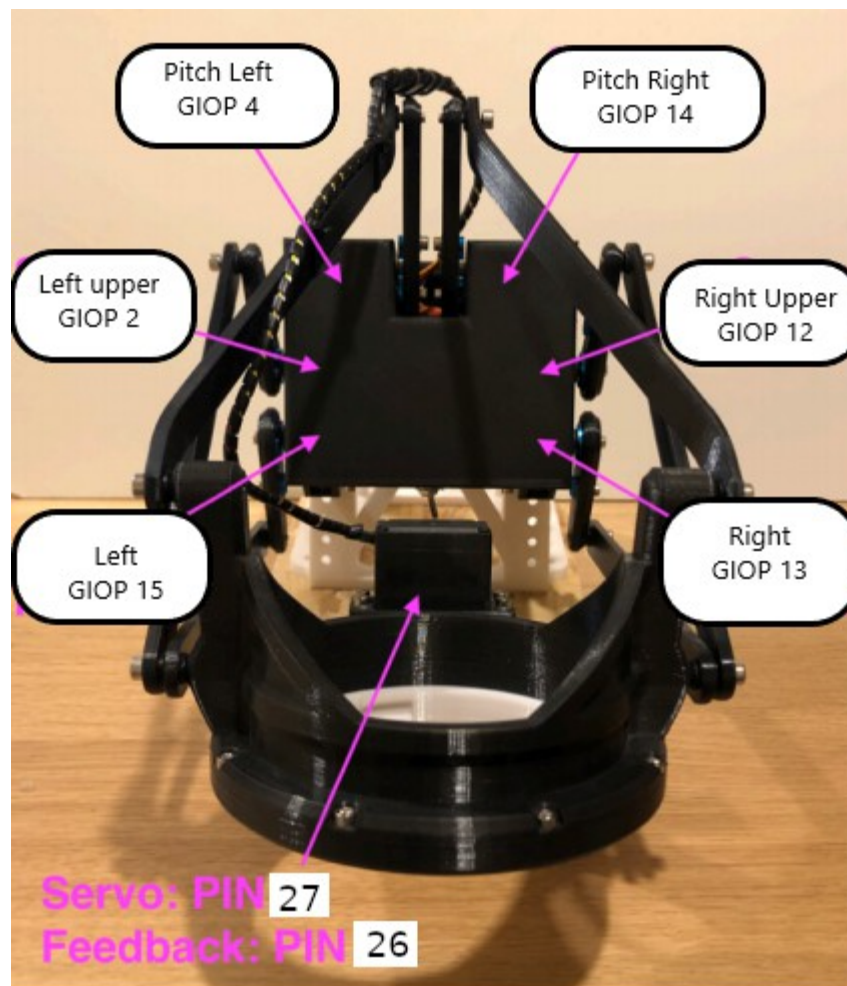
10	TCodeESP32		192.168.0.145

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

Manual lube speed (1-255)	<input type="text" value="255"/>
Udp port	<input type="text" value="8000"/>
Host name	<input type="text" value="tcode"/>
Friendly name	<input type="text" value="ESP32 TCode"/>

name field on the configuration.

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.

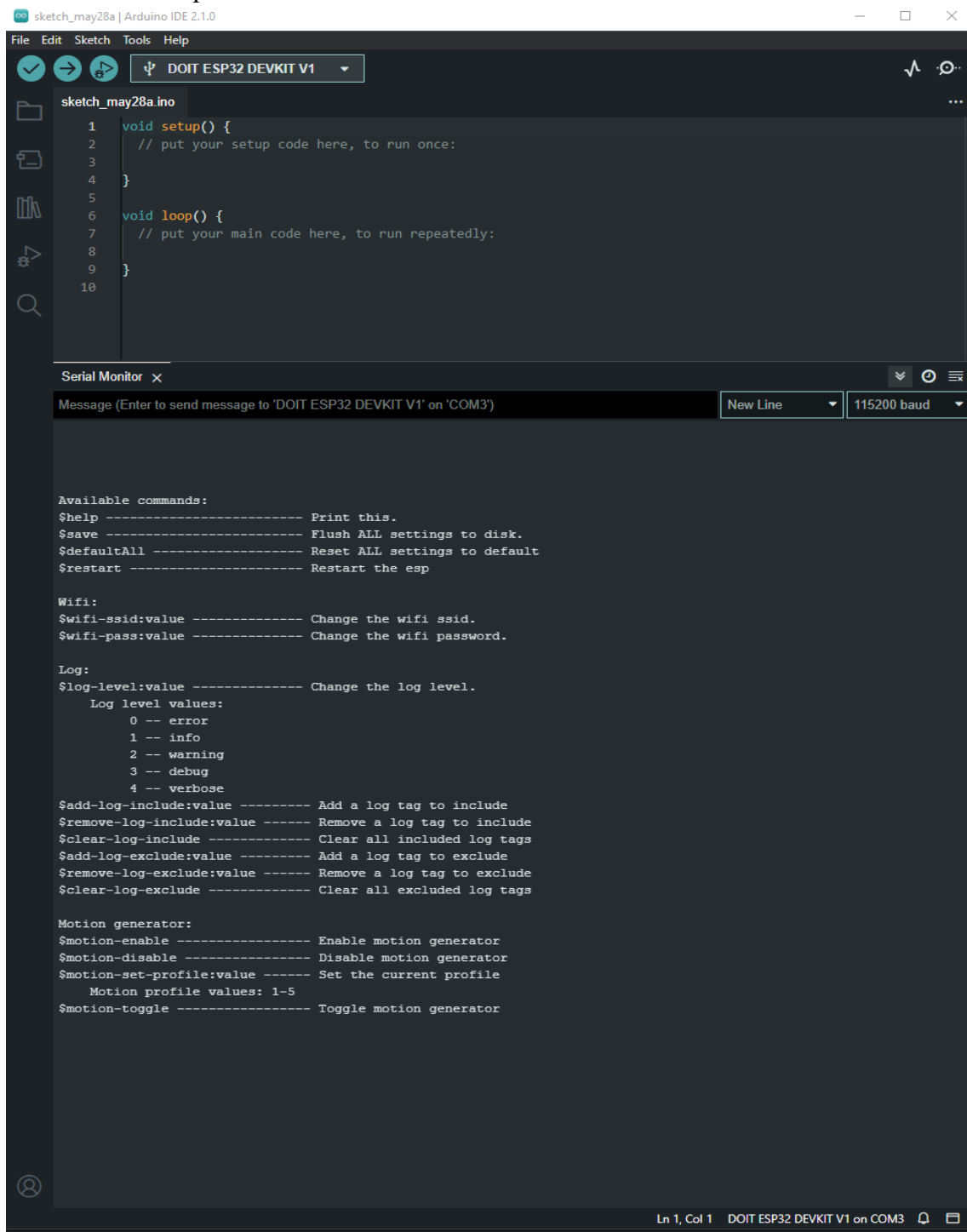


You can also set the default servo zeros.
If you are using this in an **OSR MAKE SURE YOU UNCHECK "SR6 Mode"**

Serial monitor configuration

If you can't connect to the APM mode method above for some reason you can configure some 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.



The screenshot shows the Arduino IDE interface with the Serial Monitor window open. The top toolbar shows the 'Serial Monitor' button is active. The Serial Monitor window has a message input field at the top with the placeholder text 'Message (Enter to send message to 'DOIT ESP32 DEVKIT V1' on 'COM3')'. Below the input field, the output of the `#help` command is displayed. The output lists various commands and their functions, categorized into 'Available commands:', 'Wifi:', 'Log:', and 'Motion generator:'. The status bar at the bottom indicates 'Ln 1, Col 1 DOIT ESP32 DEVKIT V1 on COM3'.

```
sketch_may28a | Arduino IDE 2.1.0
File Edit Sketch Tools Help
DOIT ESP32 DEVKIT V1
sketch_may28a.ino
1 void setup() {
2   // put your setup code here, to run once:
3
4 }
5
6 void loop() {
7   // put your main code here, to run repeatedly:
8
9 }
10

Serial Monitor x
Message (Enter to send message to 'DOIT ESP32 DEVKIT V1' on 'COM3') New Line 115200 baud

Available commands:
$help ----- Print this.
$save ----- Flush ALL settings to disk.
$defaultAll ----- Reset ALL settings to default
$restart ----- Restart the esp

Wifi:
$wifi-ssid:value ----- Change the wifi ssid.
$wifi-pass:value ----- Change the wifi password.

Log:
$log-level:value ----- Change the log level.
  Log level values:
    0 -- error
    1 -- info
    2 -- warning
    3 -- debug
    4 -- verbose
$log-add-include:value ----- Add a log tag to include
$log-remove-include:value ----- Remove a log tag to include
$log-clear-include ----- Clear all included log tags
$log-add-exclude:value ----- Add a log tag to exclude
$log-remove-exclude:value ----- Remove a log tag to exclude
$log-clear-exclude ----- Clear all excluded log tags

Motion generator:
$motion-enable ----- Enable motion generator
$motion-disable ----- Disable motion generator
$motion-set-profile:value ----- Set the current profile
  Motion profile values: 1-5
$motion-toggle ----- Toggle motion generator

Ln 1, Col 1 DOIT ESP32 DEVKIT V1 on COM3
```

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 your wireless device!