

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

Head to <https://www.espressif.com/en/support/download/other-tools>

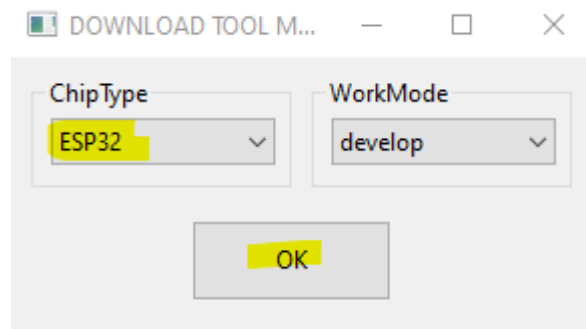
Scroll down to “Flash download tools”

The screenshot shows the Espressif Systems website's 'Support > Download > Tools' page. The header includes the Espressif logo and navigation links: Products, Solutions, Support (highlighted), Ecosystem, Company, Join Us, and Contact Us. A search bar and language options (中文, Subscribe) are also present. The main content area features a large banner with the word 'Download' and an illustration of a laptop, smartphone, and tablet. Below the banner is a navigation bar with links: All, SDKs & Demos, Apps, Tools (highlighted), and AT. A search bar with the text 'Search keywords' is located below the navigation bar. On the left side, there are filter sections for 'Product' (ESP32-S2, ESP32, ESP8266) and 'Technology' (ESP-MESH, ESP-NOW, ESP-TOUCH, Evaluation Kit). The main content area displays 'Found 10 results' and lists two sections: 'Certification and Test' and 'Flash Download Tools'. The 'Flash Download Tools' section contains a table with one entry: 'Flash Download Tools' (underlined), which is a ZIP file for Windows PC, version V3.8.8, released on 2021.06.02. The 'Download' link for this entry is also underlined.

Title	Platform	Version	Release Date	Download
Flash Download Tools	Windows PC	V3.8.8	2021.06.02	Download

Extract “flash_download_tool_vx.x.x.zip” and start flash_download_tool_x.x.x.exe

Select ESP32 and click ok



Browse to the ESP32 files selecting each one as in the image below.
Enter the hex values to the right as in the image below
Check each checkbox next to the file path.
Select your COM port your ESP32 is on at the bottom of the window
Click start

The screenshot shows the 'ESP32 DOWNLOAD TOOL V3.8.5' window. It has three tabs: 'SPIDownload' (selected), 'HSPIDownload', and 'GPIOConfig'.

SPIDownload Tab:

- A list of files with checkboxes and hex addresses:
 - ☒ C:\Users\...Git\TCodeESP32\ESP32\bin\Release\a_0x1000.bin @ 0x1000
 - ☒ C:\Users\...Git\TCodeESP32\ESP32\bin\Release\b_0x8000.bin @ 0x8000
 - ☒ C:\Users\...Git\TCodeESP32\ESP32\bin\Release\c_0x10000.bin @ 0x10000
 - ☒ C:\Users\...Git\TCodeESP32\ESP32\bin\Release\d_0xe000.bin @ 0xe000
 - ☒ C:\Users\...Git\TCodeESP32\ESP32\bin\Release\e_0x003d0000.bi @ 0x003d0000
 - ☐ ... @
 - ☐ ... @
 - ☐ ... @

SpiFlashConfig Section:

- SPI SPEED:** 40MHz (selected), 26.7MHz, 20MHz, 80MHz
- CombineBin:** Default
- SPI MODE:** QIO, QOUT, DIO (selected), DOUT, FASTRD
- FLASH SIZE:** 8Mbit, 16Mbit, 32Mbit (selected), 64Mbit, 128Mbit
- Options:** SpiAutoSet, DoNotChgBin
- LOCK SETTINGS:** (disabled)
- DETECTED INFO:**
 - flash vendor: 5Eh : N/A
 - flash devID: 4016h
 - QUAD;32Mbit
 - crystal: 40 Mhz

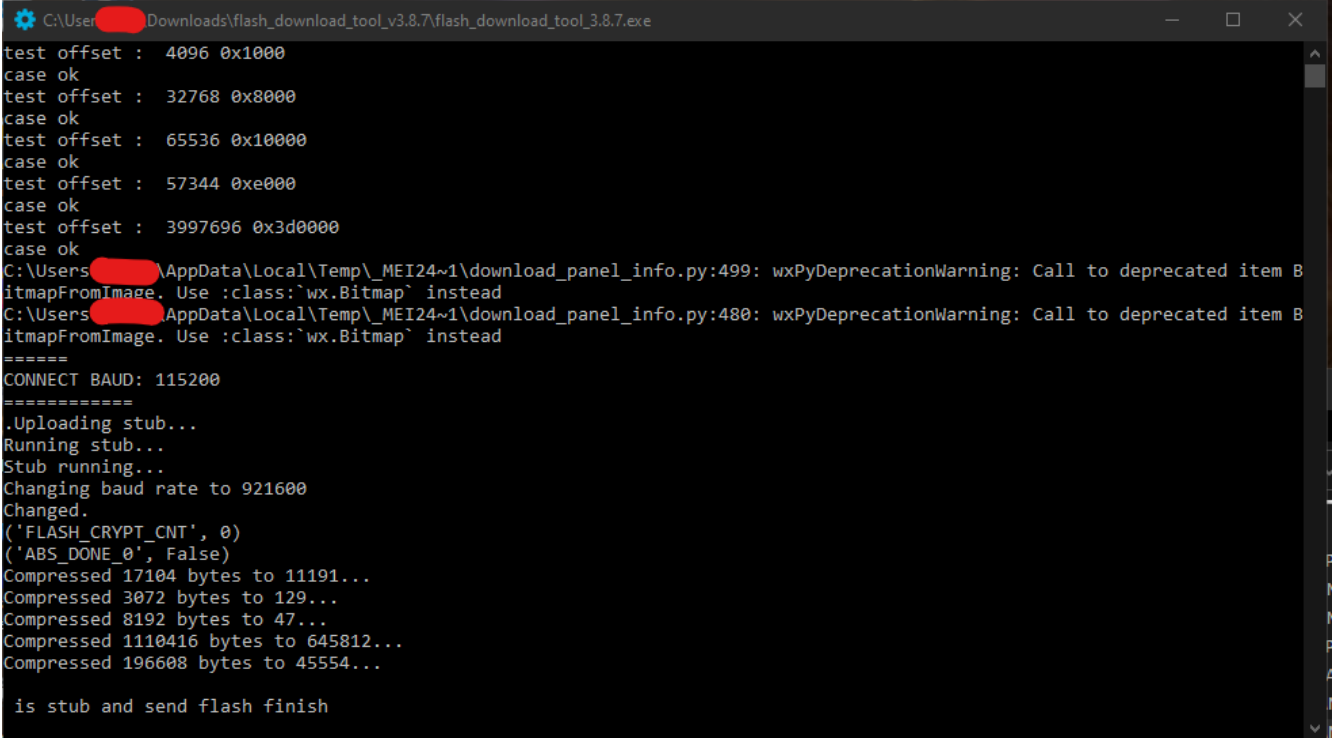
Download Panel 1:

- FINISH 完成** (green button)
- AP: 2462ABF29A81 STA: 2462ABF29A80
BT: 2462ABF29A82 ETHERNET: 2462ABF29A83

Bottom Controls:

- START, STOP, ERASE buttons
- COM: COM13 (dropdown)
- BAUD: 921600 (dropdown)
- Green progress bar at the bottom

You should see something like this in the terminal



```
C:\Users\... Downloads\flash_download_tool_v3.8.7\flash_download_tool_3.8.7.exe
test offset : 4096 0x1000
case ok
test offset : 32768 0x8000
case ok
test offset : 65536 0x10000
case ok
test offset : 57344 0xe000
case ok
test offset : 3997696 0x3d0000
case ok
C:\Users\... \AppData\Local\Temp\_MEI24~1\download_panel_info.py:499: wxPyDeprecationWarning: Call to deprecated item B
itmapFromImage. Use :class:`wx.Bitmap` instead
C:\Users\... \AppData\Local\Temp\_MEI24~1\download_panel_info.py:480: wxPyDeprecationWarning: Call to deprecated item B
itmapFromImage. Use :class:`wx.Bitmap` instead
=====
CONNECT BAUD: 115200
=====
Uploading stub...
Running stub...
Stub running...
Changing baud rate to 921600
Changed.
('FLASH_CRYPT_CNT', 0)
('ABS_DONE_0', False)
Compressed 17104 bytes to 11191...
Compressed 3072 bytes to 129...
Compressed 8192 bytes to 47...
Compressed 1110416 bytes to 645812...
Compressed 196608 bytes to 45554...

is stub and send flash finish
```

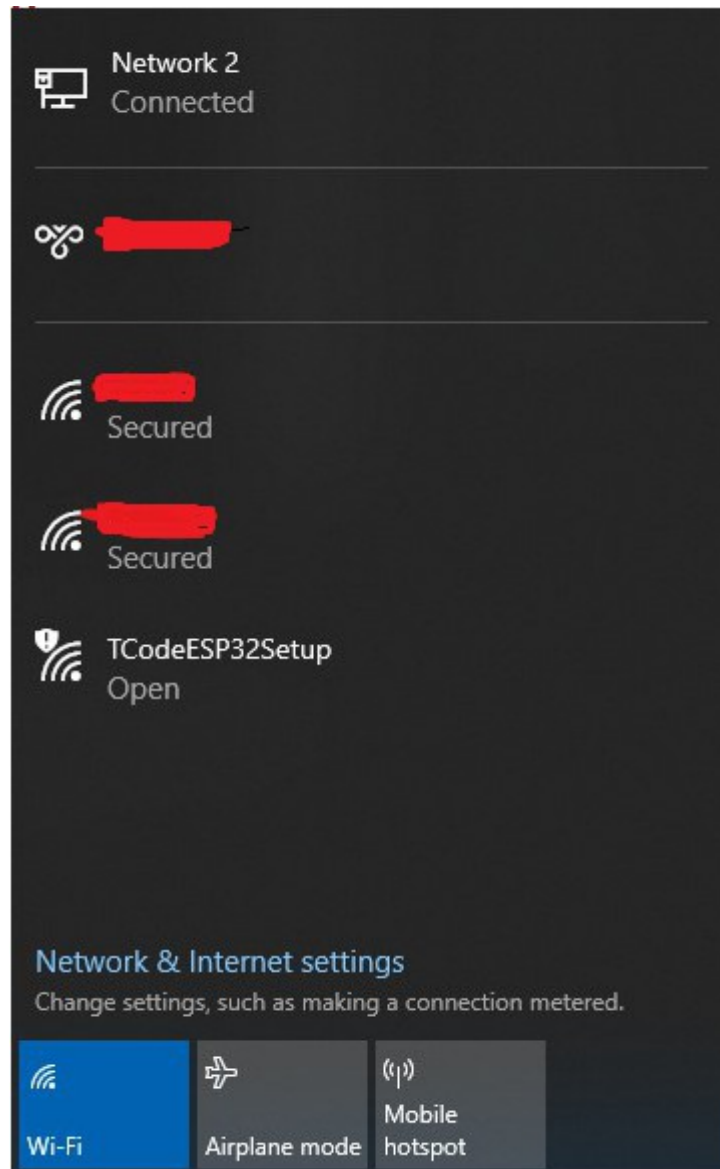
Now that your image is flashed time to configure the wifi

IMPORTANT! The ESP32 we are using currently is ONLY compatible with 2.4ghz WiFi

You can either configure with the Android app or via the AP mode instructions below.

Reboot the ESP32

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 192.168.1.1



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

Device Settings

General Settings

Servo Frequency	<input type="text" value="50"/>
Auto T-Valve	<input type="checkbox"/>
Inverse T-Valve	<input type="checkbox"/>
RightServo PIN/ZERO	<input type="text" value="13"/> <input type="text" value="1500"/>
LeftServo PIN/ZERO	<input type="text" value="15"/> <input type="text" value="1500"/>
PitchLeftServo PIN/ZERO	<input type="text" value="4"/> <input type="text" value="1500"/>
ValveServo PIN/ZERO	<input type="text" value="25"/> <input type="text" value="1500"/>
TwistServo PIN/ZERO	<input type="text" value="27"/> <input type="text" value="1500"/>
TwistFeedBack PIN	<input type="text" value="26"/>
Continuous twist	<input type="checkbox"/>
Vibe0 PIN	<input type="text" value="18"/>
Vibe1/Lube PIN	<input type="text" value="19"/>
Manual lube PIN	<input type="text" value="23"/>
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"/>

Display Settings

Display enabled	<input checked="" type="checkbox"/>
I2C address	<input type="text" value="0x3c"/>
Display rst PIN	<input type="text" value="-1"/>
Screen width	<input type="text" value="128"/>
Screen height	<input type="text" value="64"/>
Sleeve temperature enabled	<input type="checkbox"/>
Temp_PIN	<input type="text" value="5"/>
Temperature control enabled	<input type="checkbox"/>
Heater_PIN	<input type="text" value="33"/>
Target Temperature	<input type="text" value="40"/>

SR6 (Only) Settings

SR6 mode	<input checked="" type="checkbox"/>
Right Upper Servo PIN/ZERO	<input type="text" value="12"/> <input type="text" value="1500"/>
LeftUpper Servo PIN/ZERO	<input type="text" value="2"/> <input type="text" value="1500"/>
Pitch Right Servo PIN/ZERO	<input type="text" value="14"/> <input type="text" value="1500"/>

Wireless Settings

SSID	<input type="text" value="YOUR SSID HERE"/>
Password	<input type="password" value="*****"/>
	<input type="checkbox"/> Show Password
Static IP	<input checked="" type="checkbox"/>
IP	<input type="text" value="192.168.0.150"/>
Gateway	<input type="text" value="192.168.0.1"/>
Subnet	<input type="text" value="255.255.255.0"/>
DNS 1	<input type="text" value="8.8.8.8"/>
DNS 2	<input type="text" value="8.8.4.4"/>

And wait for the Settings saved text to appear..

SR6 (Only) Settings

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Wireless Settings

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DNS 1	<input type="text" value="8.8.8.8"/>
DNS 2	<input type="text" value="8.8.4.4"/>

Settings saved!
Restart required!!

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 either using serial monitor

```
Establishing connection to ..Connected: IP: 192.168.0.145
UDP Listening
Bluetooth started
TCode v0.2
Ready!
█
```

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

Manual lube speed (1-255)

Udp port

Host name

Friendly name

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

10	TCodeESP32	192.168.0.145
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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.

General Settings

Servo Frequency

Auto T-Valve ☐

Inverse T-Valve ☐

RightServo PIN/ZERO

LeftServo PIN/ZERO

PitchLeftServo PIN/ZERO

ValveServo PIN/ZERO

TwistServo PIN/ZERO

TwistFeedBack PIN

Continuous twist ☐

Vibe0 PIN

Vibe1/Lube PIN

Manual lube PIN

Manual lube speed (1-255)

Udp port

Host name

Friendly name

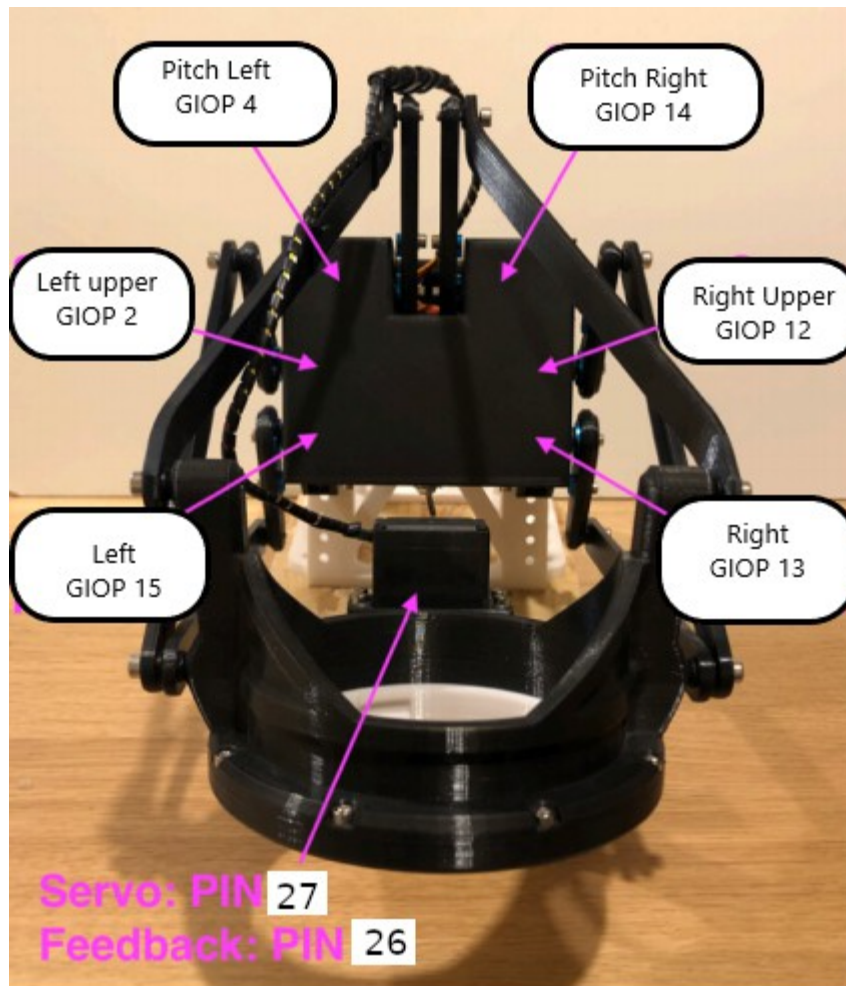
SR6 (Only) Settings

SR6 mode ☒

Right Upper Servo PIN/ZERO

LeftUpper Servo PIN/ZERO

Pitch Right Servo PIN/ZERO



You can also set the default servo zeros.

If you are using this in an **OSR MAKE SURE YOU UNCHECK “SR6 Mode”**

The ranges are only for receiving data in json format.

The only thing that does this at the time of this writing is Tcode Remote Gamepad output over the network. This was done so the OSR user has control over the range and speed for safety concerns.

The screenshot shows a web interface titled "TCode Settings" on a light gray background. At the top center is a button labeled "Restart device". Below the title, a red text message "Restart required!!" is visible on the right side. A small note "(only affects json input)" is centered below the title. There are four sliders with white circular handles. The first three sliders are dark blue and are labeled "X Range 99%", "Y Roll Range 99%", and "X Roll Range 99%" respectively. The fourth slider is white and labeled "Speed 1000ms". At the bottom center is a button labeled "Reset ALL settings".

Enjoy your wireless device!

PS.. this release is in its early stages with missing features and bugs. if you find any issues please report them on Github.