

ESP8266Station Transparent Wi-Fi bridge:

This document describes the flashing of the ESP8266 sketch to an Arduino UNO R3 with build in ESP8266 module as supplied by <https://robotdyn.com/> and also available on eBay. The sketch can also be flashed to a “standard” ESP8266 module

Preparation of the board:

Set the all dipswitches to off.

Connect it to the PC using an USB cable.

Install the CH340G driver if necessarily available from robotdyn.com, see the document section on the boards page.

Testing the Arduino part of the board:

Set the all dipswitches to off and set dipswitch 3 and 4 to on and press the reset button.

The Arduino is now connected to the USB. Follow the getting started on the Arduino website and flash the Arduino with the blink sketch.

<https://www.arduino.cc/en/Guide/HomePage>

When the Arduino and Arduino IDE are working (Blink sketch is running) continue with Flashing the ESP8266Station sketch.

Flashing the ESP8266Station sketch:

To flash the sketch, first the ESP8266 library has to be installed. Follow the documentation on <https://arduino-esp8266.readthedocs.io/en/latest/installing.html> to install the library. After that follow these steps:

- Set the all dipswitches on the board to off
- Set dipswitch 5 and 6 to on to connect the USB to the ESP8266 module.
- Set dipswitch 7 to on to enable the ESP8266 uploading mode.
- Open the ESP8266Station sketch.
- In the Arduino Tools Menu select Tools | Board and select the generic ESP8266 module.
- In the Arduino Tools Menu select Tools | Upload-Speed and select the 115200 upload speed.
- Flash the ESP8266Station sketch by pressing the Upload button
- Remove the 2 slashes in the ESP8266 station sketch line to enable debugging output:
///`define Trace`
- Set your Wi-Fi router SSID in the ESP8266 station sketch line
`#define ssid "YourSSID"`
- Set your Wi-Fi router password in the ESP8266 station sketch line
`#define Password "YourPasswordr"`
- Set the listening port for the ESP8266 module in the ESP8266 station sketch line
`#define ServerPort 23`
- Set the host name for the ESP8266 module in the ESP8266 station sketch line
`#define HostName "YourHostname"`
- Start the Serial Monitor by pressing the Serial Monitor button in the Arduino IDE.
- Press the Arduino reset button (this has to be done before every upload of an ESP8266 sketch).

- Now flash the ESP8266 station sketch by pressing the upload button in the Arduino IDE.
After uploading is done, You can monitor the debug output of the sketch. It shows the settings it uses to connect to your Wi-Fi router and the IP-address it receives from the Wi-Fi router.
- Open a CMD terminal on your computer and try to ping to the IP-address of the ESP8266 module by sending a ping command:
example ***Ping 192.168.10.105***
- If you can ping the ESP8266 modules IP-address, try to ping it by its host name:
example ***ping Lathe2***
- Retype the 2 slashes in the ESP8266 station sketch line to disable debugging output:
///define Trace****
- Press the Arduino reset button (this has to be done before every upload of an ESP8266 sketch).
- Now flash the ESP8266 station sketch (without debug output) by pressing the upload button in the Arduino IDE.
After uploading is done, You can monitor the debug output of the sketch, should be nothing!
- Set the all dipswitches on the board to off
- Set dipswitch 3 and 4 to on to connect the USB to the Arduino.
- Upload your Arduino sketch and **check if it is working**.
- Set the all dipswitches on the board to off
- Set dipswitch 1 and 2 to on to connect the TX/RX pins of the ESP8266 to the RX/TX pins of the Arduino.
- Now you can communicate to the Arduino using the host name (or IP-address) and port set in the ESP8266station sketch

Test information:

This software is tested on 2 boards with 2 applications on June 12 2018

Arduino IDE version: 1.8.5

ESP8266WIFI library version 1.0.0

Board: (Arduino R3 with build in Wi-Fi) from <https://robotdyn.com/>

UNO Wi-Fi R3 ATmega328P ESP8266, 32Mb flash, USB-TTL CH340G, Micro-USB

Board: (Arduino R3 with separate Wi-Fi)

Arduino R3 with ESP-01 module

Software: (GRBL CNC lathe software) <https://www.microsoft.com/store/apps/9p42tb5t697h>

CNCL version 2.3.3.0

Software: (Grbl-Panel) <http://github.com/Gerritv/Grbl-Panel/wiki>

Grbl-Panel version 1.0.9.17