



M5STACK

PaperMono

Company Name: M5Stack Technology Co.,Ltd

Address: Block A10, Expo Bay South Coast, Fuhai Street, Bao'an District, Shenzhen,Guangdong,China

1. Description

PaperMono is a development board featuring a 3.97-inch touch-enabled monochrome E-Paper display driven by the SSD1677 controller at a resolution of 480x800, supporting 1-bit black-and-white rendering. It integrates an FT6336G touch controller and a front-light illumination system for comfortable reading in dark or low-light environments. Powered by the ESP32-S3R8 SoC equipped with 16 MB flash memory and 8 MB PSRAM, it supports a 40MHz crystal oscillator, it supports 2.4 GHz Wi-Fi, BLE wireless communication. The board incorporates a buzzer, a PDM microphone (LMD4737T261-AC02), an RGB LED, a BMI270 6-axis IMU, an M5IOE1 IO expander, a microSD card slot, and an RX8130CE real-time clock. NFC capability is provided by the ST25R3916 high-performance frontend chip, supporting ISO14443A, ISO14443B, FeliCa™, and ISO15693 protocols for reliable read/write operations with various NFC/RFID tags and cards, with reader mode, card emulation mode, custom protocol support, automatic antenna tuning, and high-sensitivity reception. LoRa communication is based on the SX1262 chip (Stamp LoRa-1262) with a built-in FPC antenna, supporting the 868–923 MHz band with strong anti-interference and long-range communication capabilities. Combined with the M5PM1 multi-level power management system and a 1150mAh lithium battery, it delivers sustained low-power operation. Suitable for e-readers, electronic signage, access control systems, identity authentication, intelligent transportation, and other IoT and embedded applications.



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2. Specifications

Specification	Parameters
SoC	ESP32-S3R8 @ Dual-core Xtensa LX7 Processor, up to 240MHz
PSRAM	8MB
Flash	16MB
Wi-Fi	2.4 GHz Wi-Fi: 2412-2462MHz
BLE	2.4 GHz BLE: 2402-2480MHz
Display	3.97" E-Paper (Mono) SSD1677 @ 480x800, Touch FT6336G
Front Light	Integrated E-Paper front light
Power Input	USB Type-C DC 5V
Battery	1150mAh
Microphone	PDM microphone LMD4737T261-AC02
Buzzer	Built-in buzzer
IMU	BMI270
IO Expander	M5IOE1
External Storage	microSD card
RTC	RX8130CE
RGB LED	Built-in RGB LED
NFC	ST25R3916 (ISO14443A/B, FeliCa™, ISO15693: 13.56MHz
LoRa	903.0-914.9MHz
User Keys	2x user keys + 1x power key (ON/OFF/RESET/BOOT)
Hardware version NO	V1.0
Software version NO	V1.0

3. Quick Start

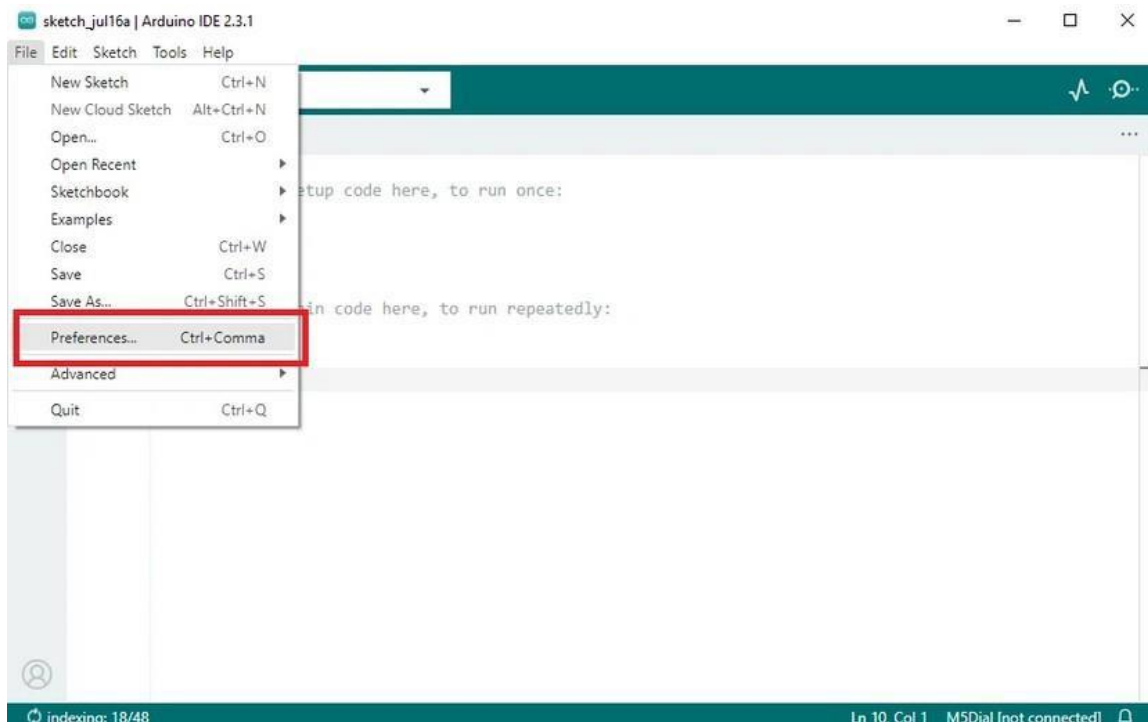
3.1 Preparation

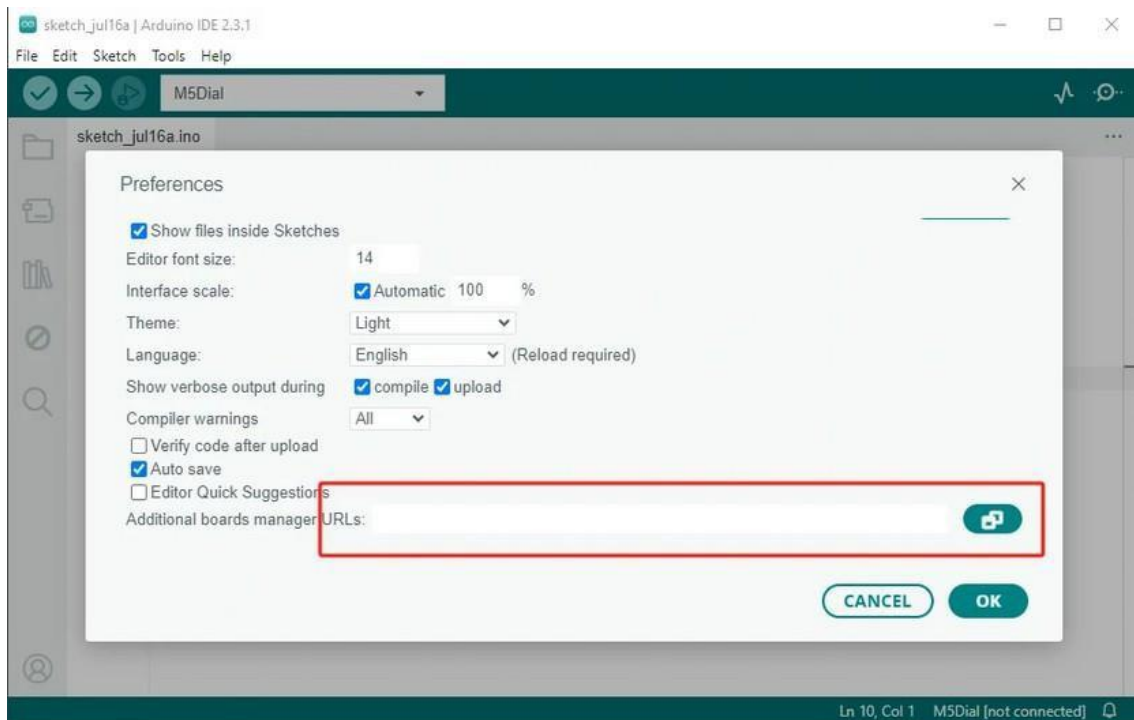
1. Visit the official Arduino website and install the Arduino IDE

<https://www.arduino.cc/en/Main/Software>

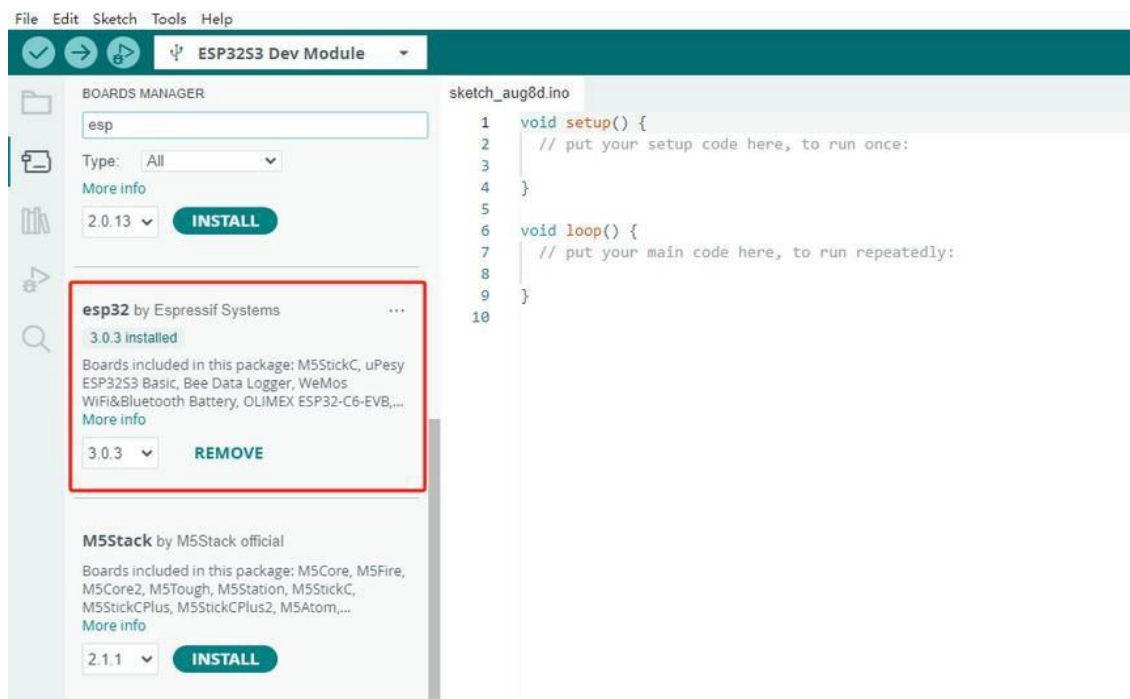
2. Add the following Board Manager URL to File → Preferences → Additional Boards Manager URLs:

https://espressif.github.io/arduino-esp32/package_esp32_dev_index.json



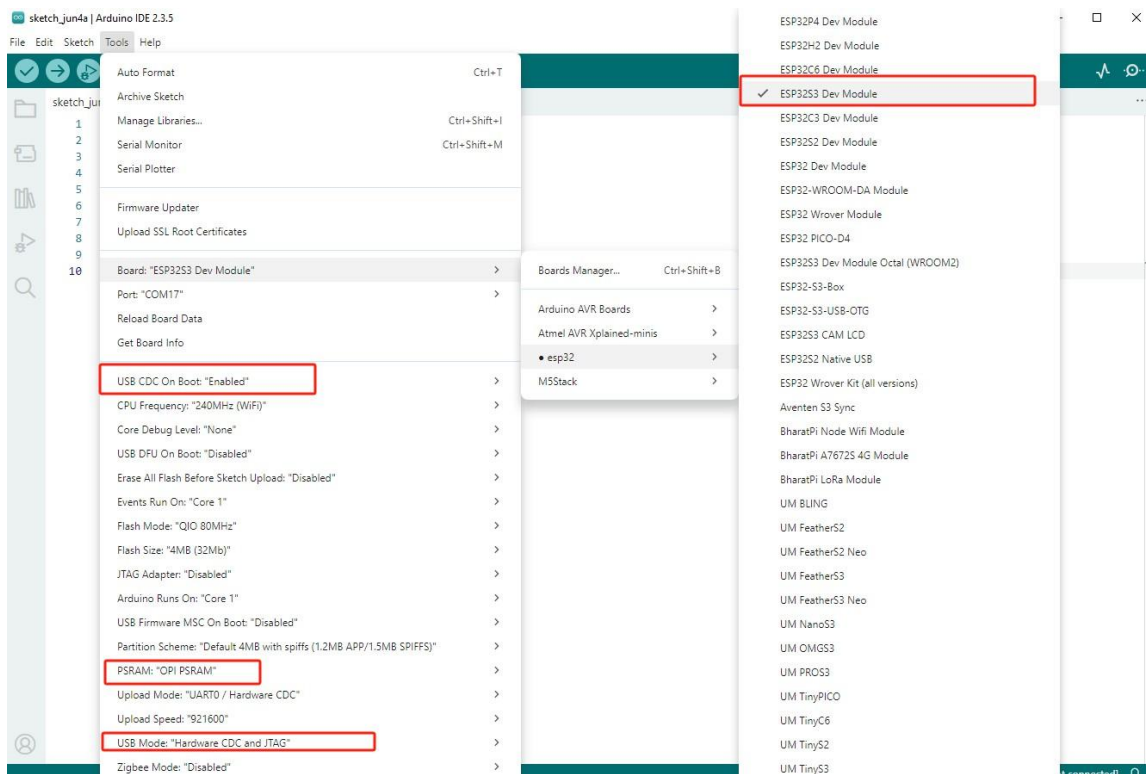


3. Open the Boards Manager, search for "ESP32", and click install.



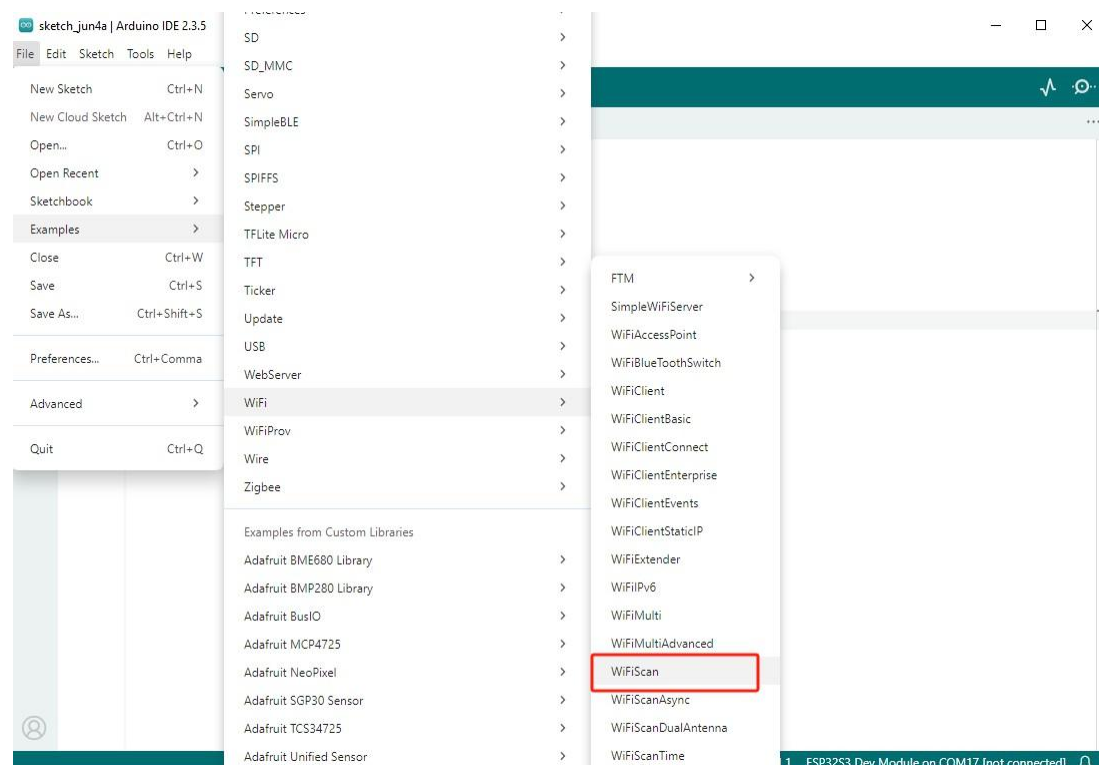
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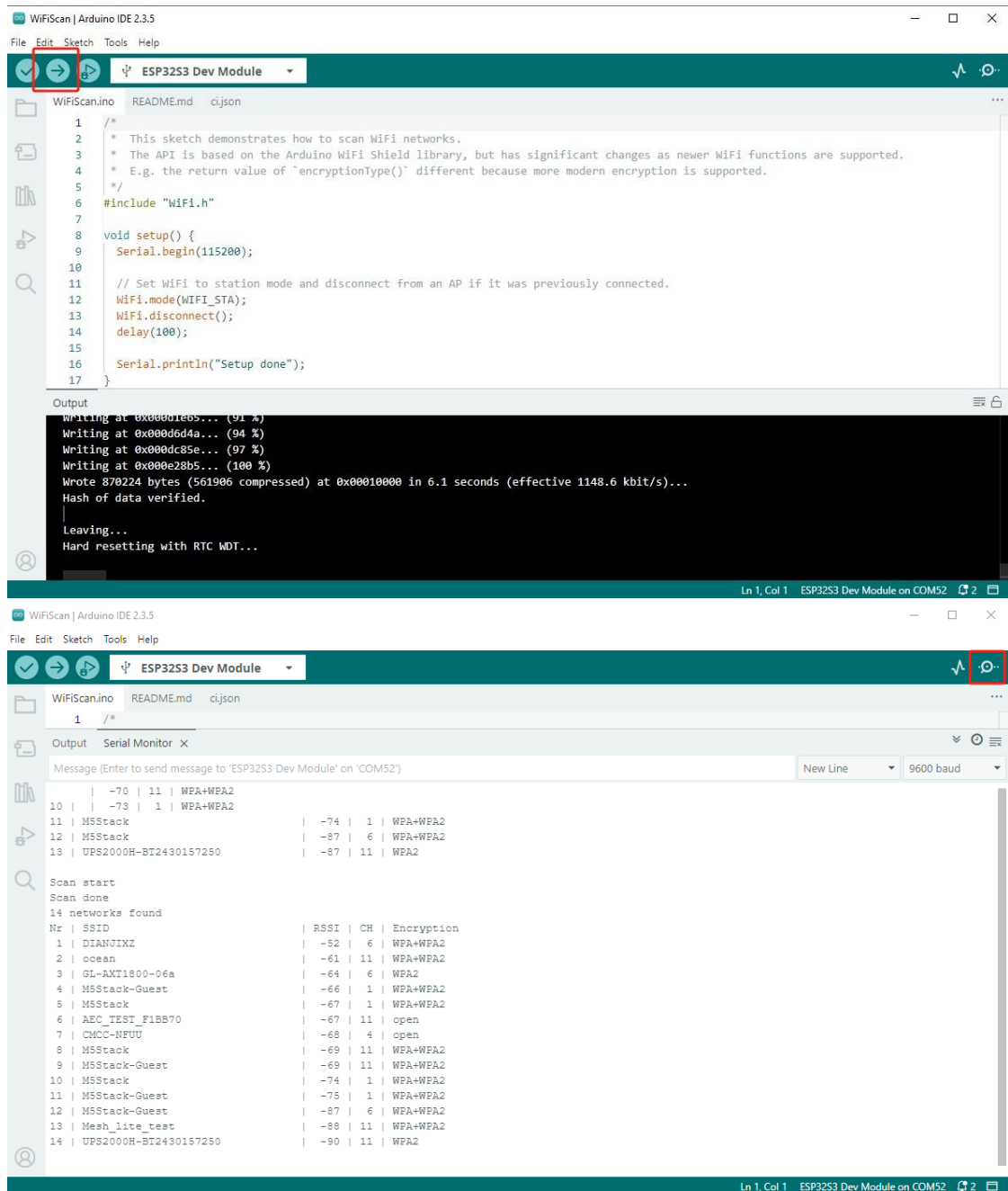
4. After installation, select the board "ESP32S3 Dev Module"
5. Configure the following options. USB CDC On Boot: "Enabled", PSRAM: "OPI PSRAM", USB Mode: "Hardware CDC and JTAG"



3.2 Wi-Fi Scan

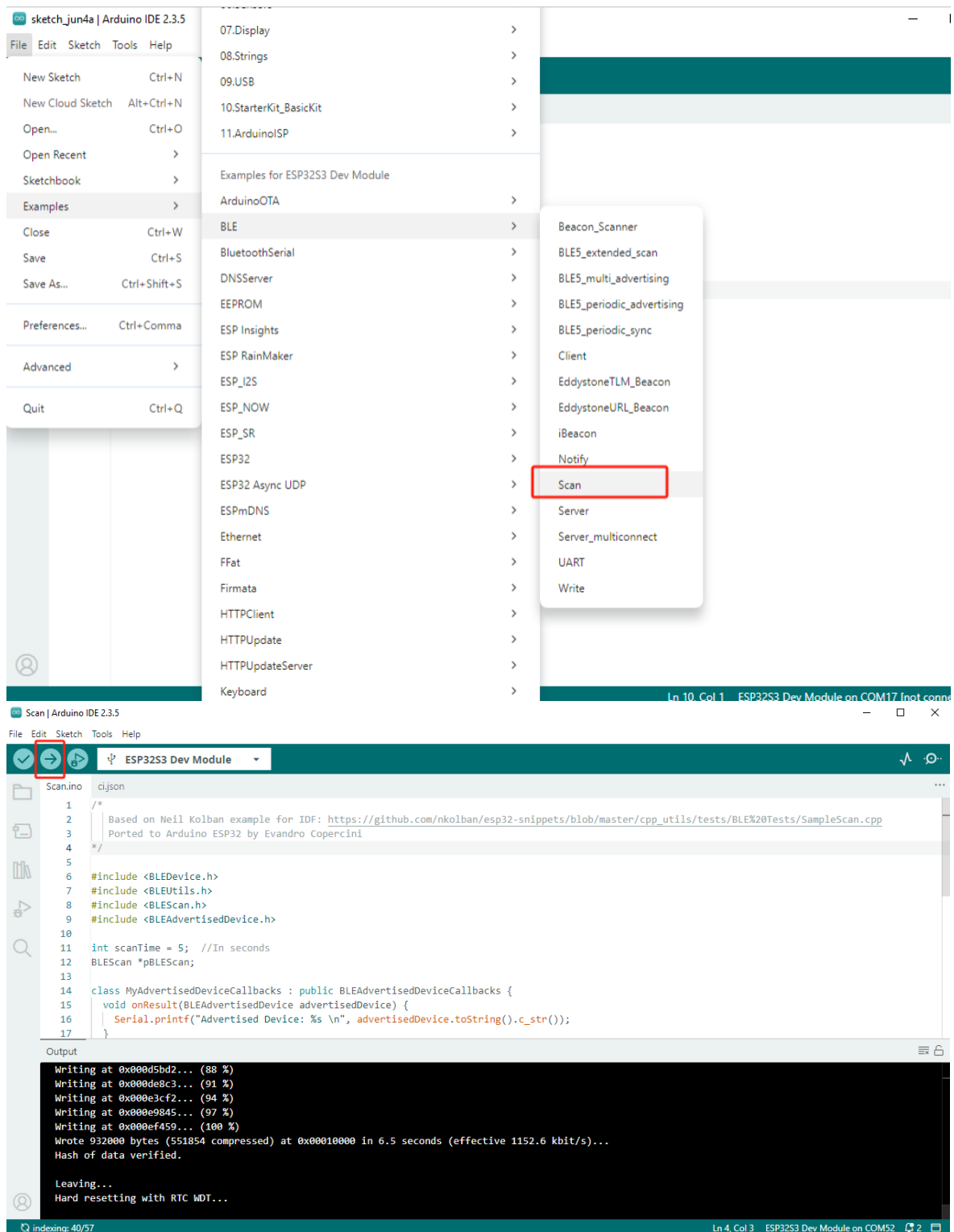
Select the example program "Examples" → "WiFi" → "WiFiScan", choose the port corresponding to your device, and click the compile and upload button in the top-left corner. After uploading is complete, open the Serial Monitor to view Wi-Fi scan information.



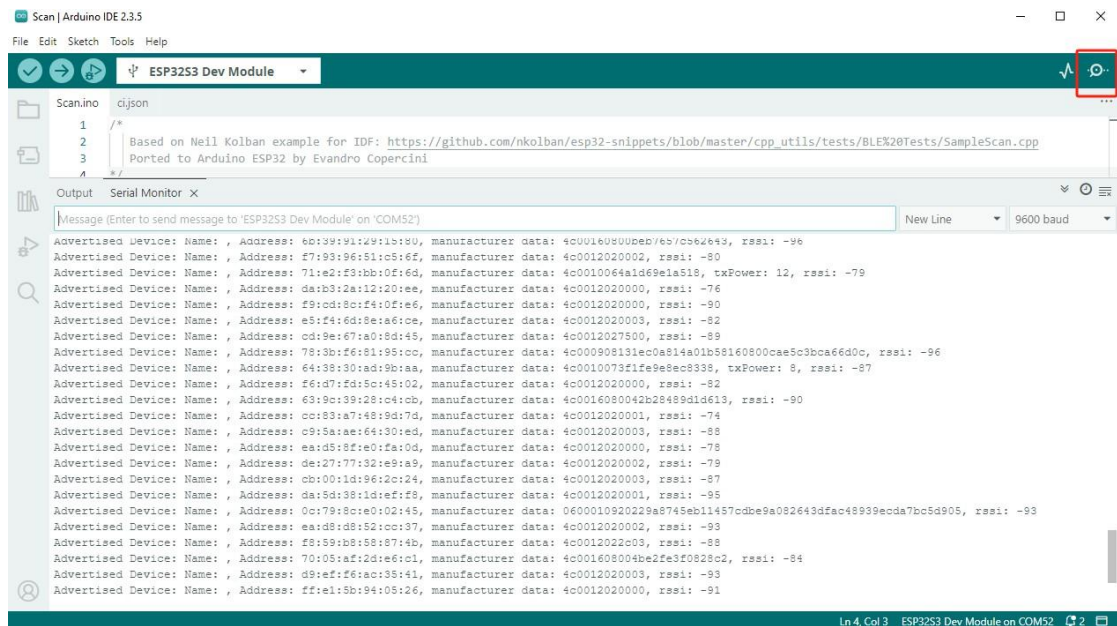


3.3 BLE Scan

Select the example program "Examples" → "BLE" → "Scan", choose the port corresponding to your device, and click the compile and upload button in the top-left corner. After uploading is complete, open the Serial Monitor to view BLE scan information.



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4. FCC Warning

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

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