



M5STACK

Paper Color

1. Description

Paper Color is a development board featuring a 4-inch E Ink Spectra 6 full-color e-paper display with a resolution of 400×600, offering the combined advantages of low power consumption and high visibility. At its core is the integrated ESP32-S3R8 main controller, equipped with 16MB Flash and 8MB PSRAM, and supporting 2.4GHz Wi-Fi wireless communication. The board integrates a complete human-machine interaction system, including three programmable buttons, an audio system based on the ES8311 audio codec, a MEMS microphone with AEC echo cancellation functionality, and AW8737A amplifier-driven speakers, enabling high-quality voice capture and audio playback. For expanded functionality, the board includes an onboard SHT40I temperature and humidity sensor, an RX8130CE real-time clock, a microSD card slot, an infrared transmitter, two RGB LEDs, and an HY2.0-4P expansion interface. Combined with the M5PM1 multi-stage power management system and a 1250mAh lithium battery, it enables long-lasting, low-power operation. It is suitable for IoT and embedded applications such as electronic signage, voice interaction terminals, environmental monitoring instruments, and artistic display installations.



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
Audio Codec	ES8311: 24-bit resolution,
Microphone	MEMS Microphone, ES7210 Audio ADC, integrated AEC circuit
Speaker	8Ω @ 1W 2520 Speaker, AW8737A Audio Amplifier
Temperature & Humidity Sensor	SHT40I-AD1B-R2
Charging IC	IP2315

3. Quick Start

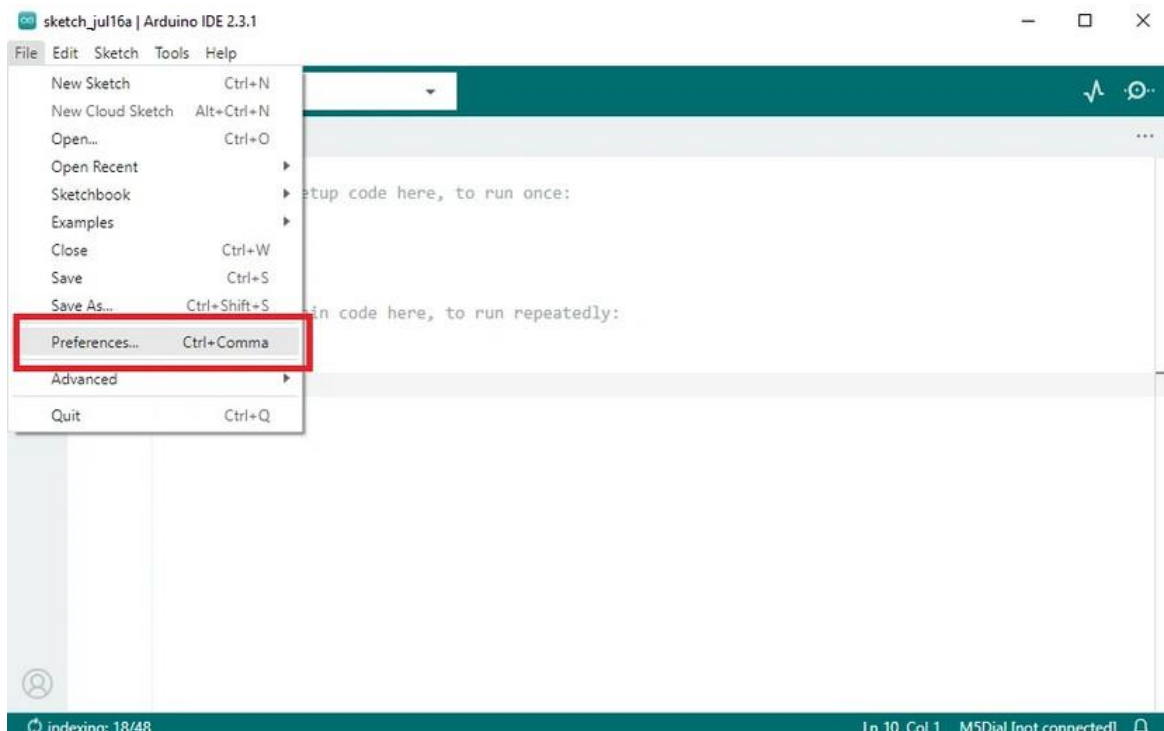
3.1 Preparation

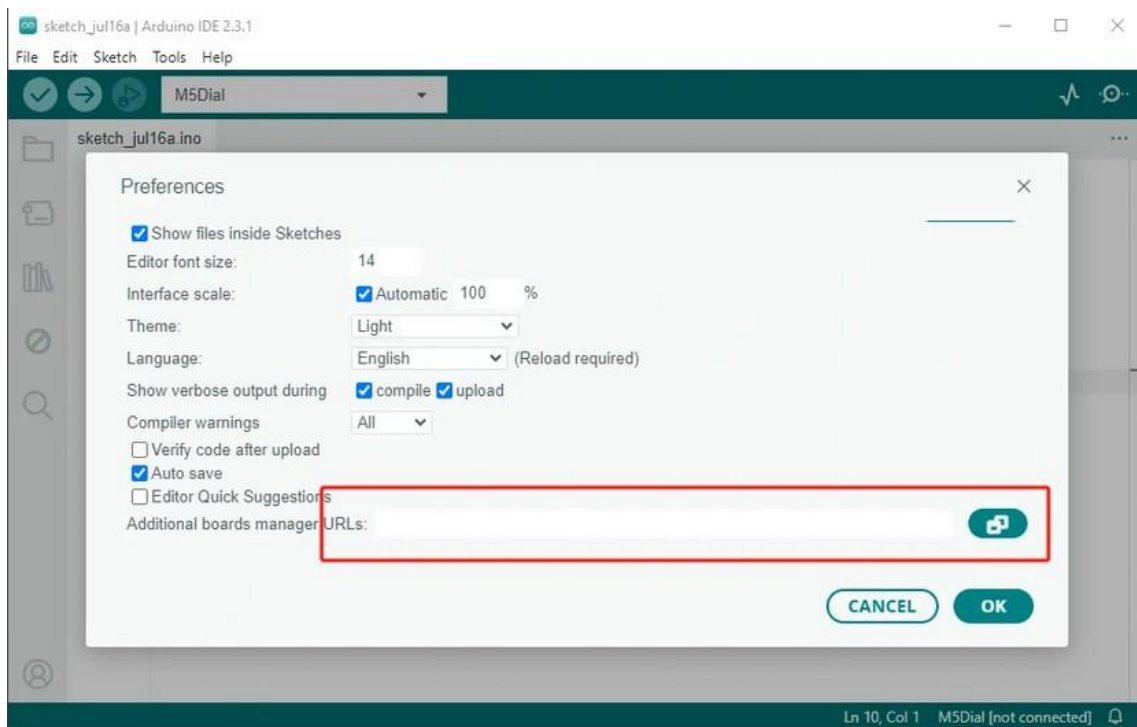
1. Visit the official Arduino website and install the Arduino IDE

<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



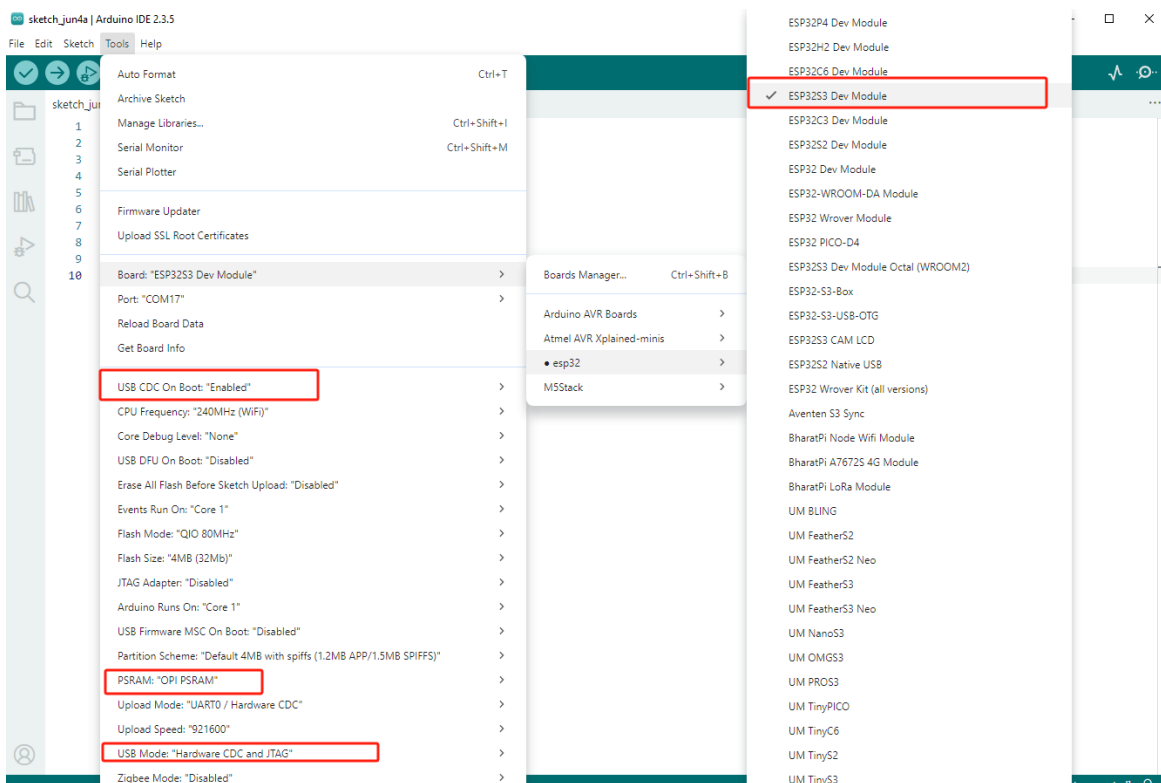


3. Open the Boards Manager, search for "ESP32", and click install.



4. After installation, select the board "ESP32S3 Dev Module"

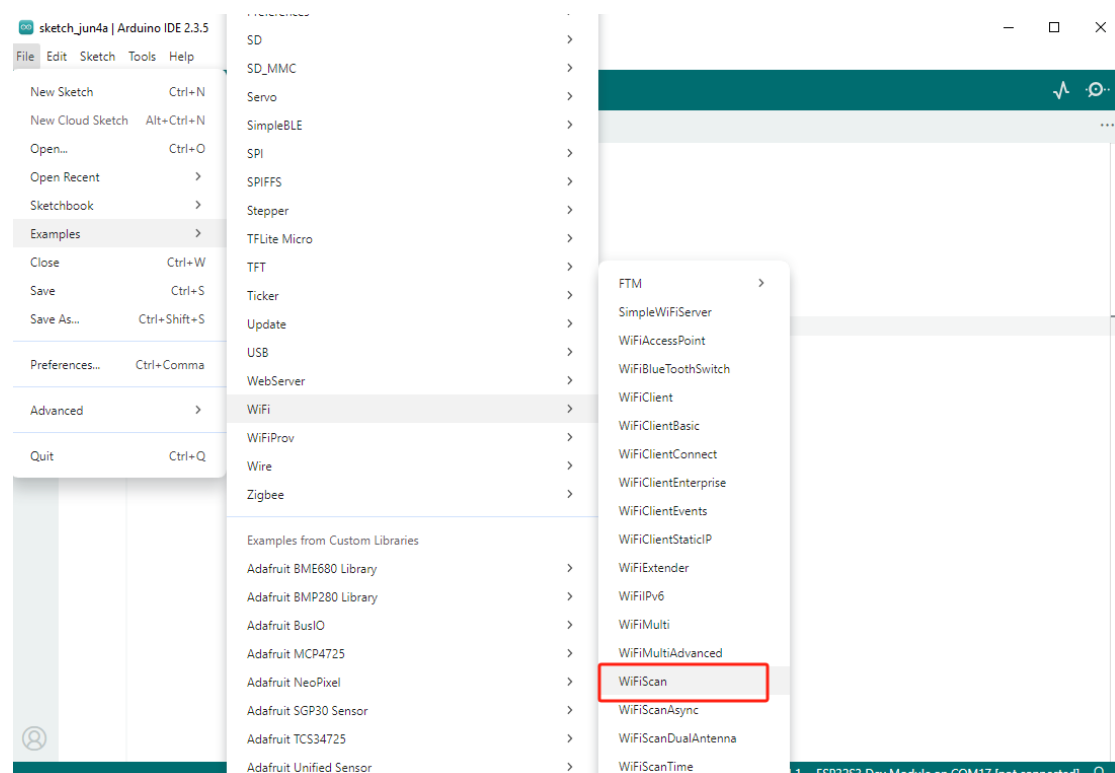
5. Configure the following options. USB CDC On Boot: "Enabled", PSRAM: "OPI PSRAM", USB Mode: "Hardware CDC and JTAG"

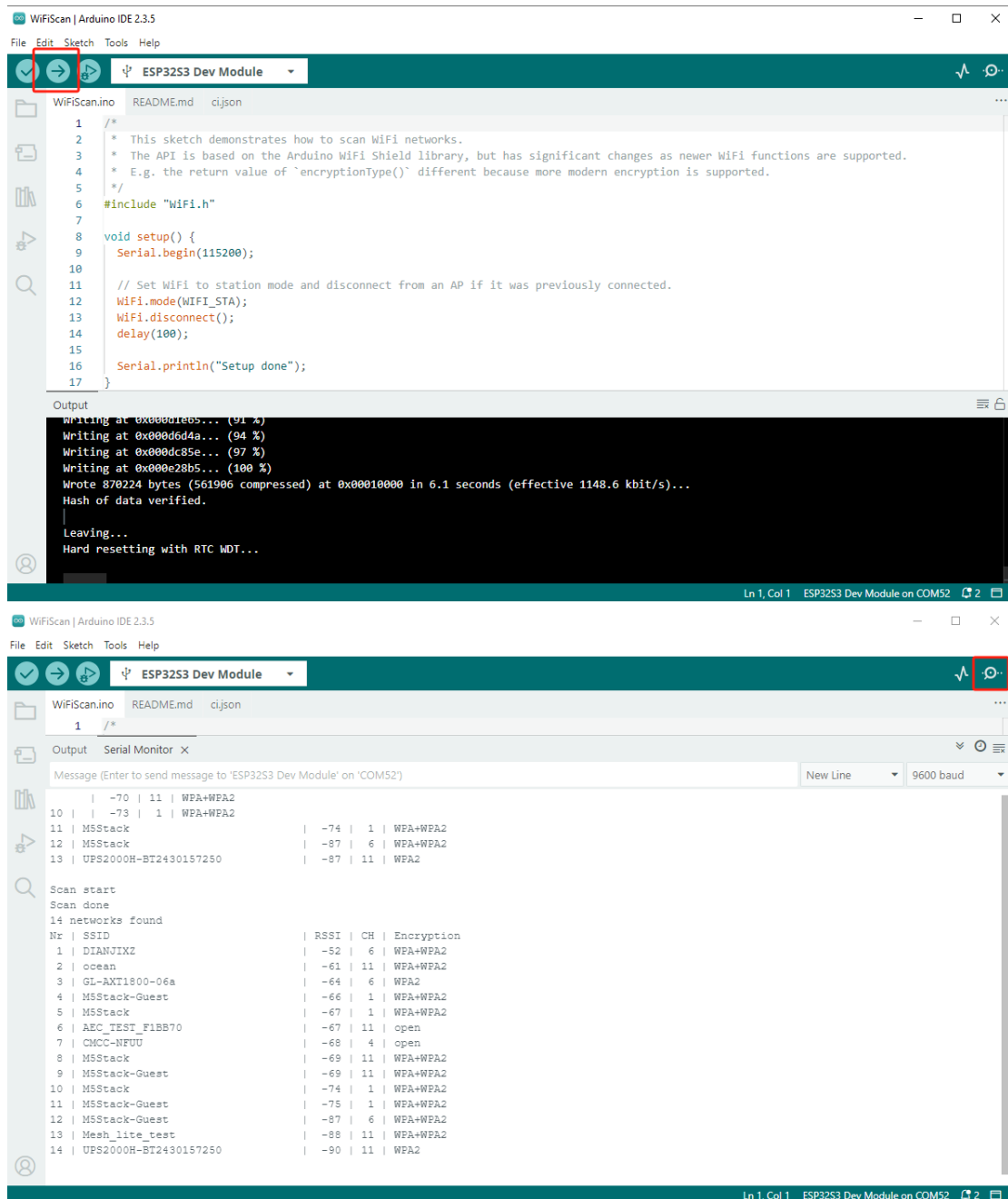


3.2 Wi-Fi Scan

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.

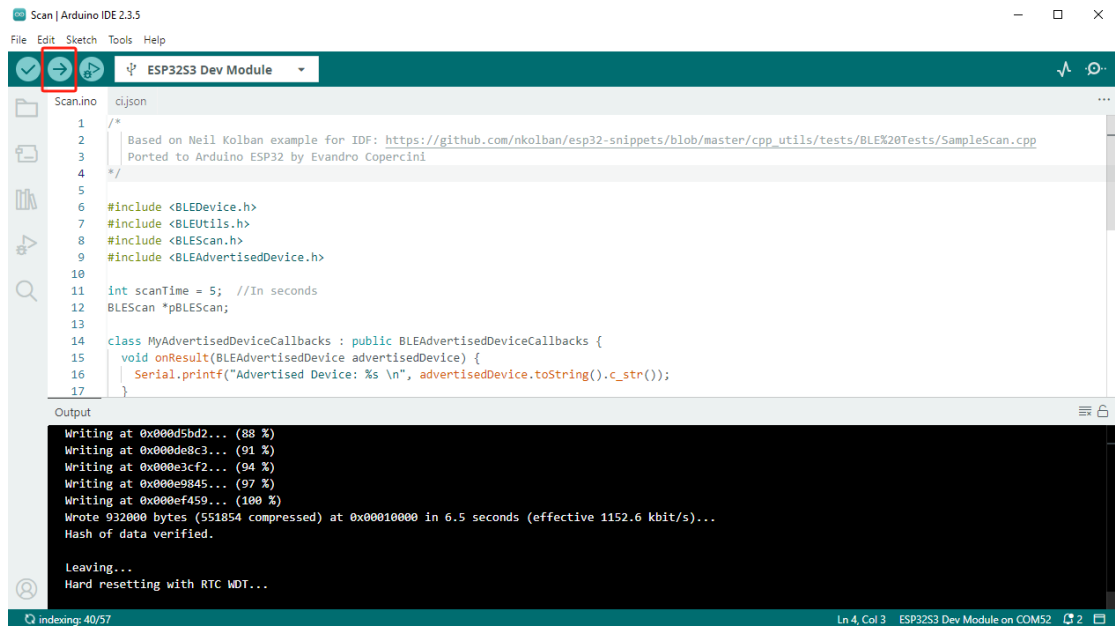
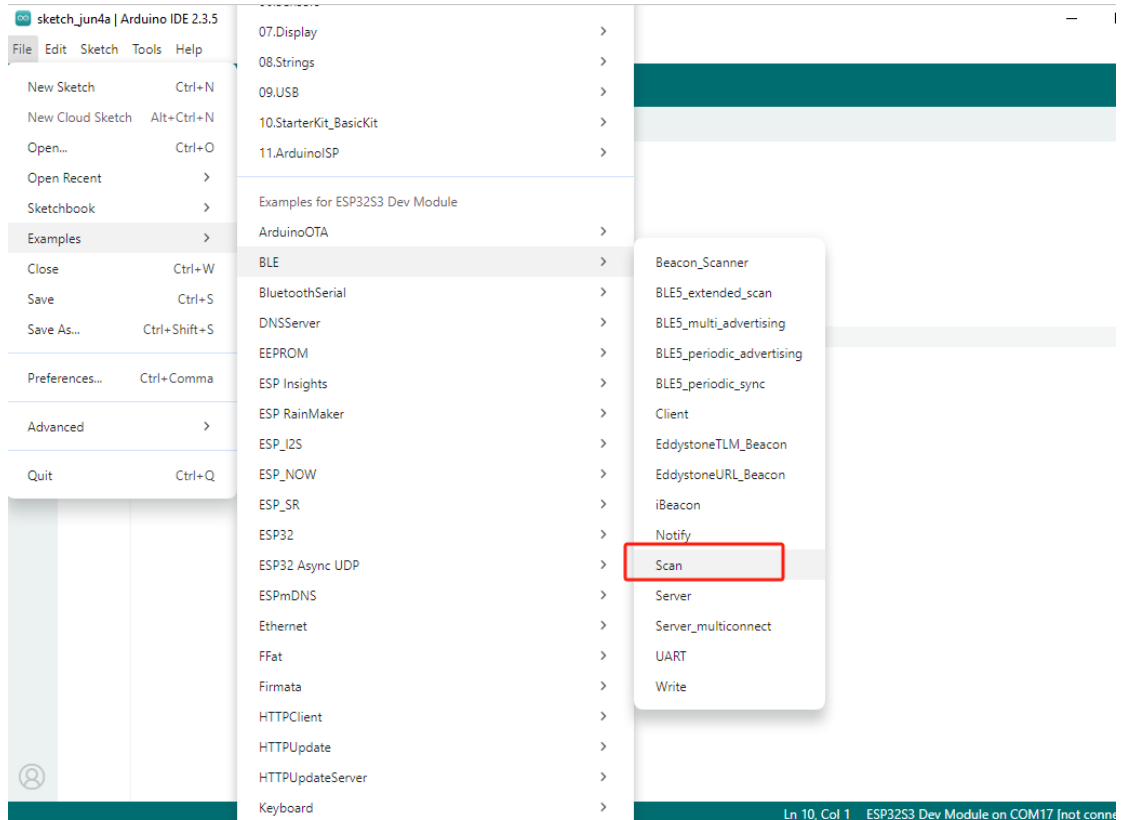
After uploading is complete, open the Serial Monitor to view Wi-Fi scan information.

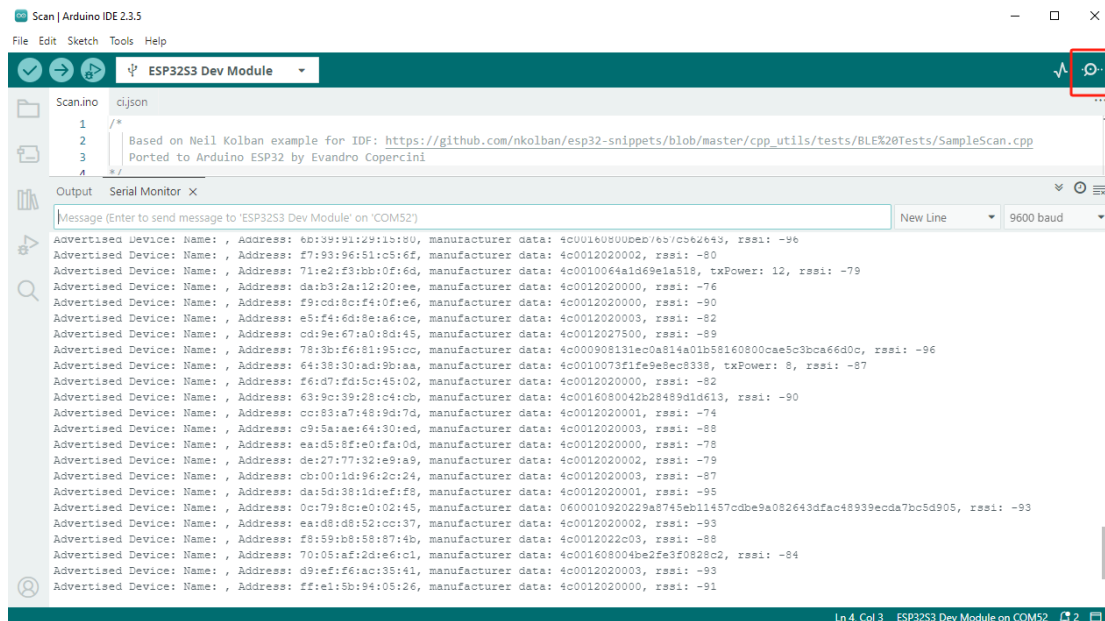




3.3 BLE Scan

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.





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 model product has been tested and meets the RF exposure guidelines with the test distance 0mm for body worn. The highest SAR1g value is 0.365 W/Kg. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with RF exposure requirements, and should be avoided