



M5STACK

DualKey

1. Description

The DualKey is a programmable dual-button input development board. It is equipped with the ESP32-S3FN8 microcontroller, and features two mechanical keyboard switches (blue switches) and two programmable RGB LEDs on the front, providing excellent interactive feedback. With a built-in 350mAh lithium battery and low-power design, it offers good battery life. Utilizing the expandable design of the M5Stack Chain series, it is equipped with two HY2.0-4P expansion interfaces, supporting horizontal expansion and connection to other sensor devices. Leveraging the USB-OTG peripheral function built into the ESP32-S3, it is suitable for applications such as smart home, keyboard peripherals, and macro keyboards.



2. Specifications

Specification	Parameters
SoC	ESP32-S3FN8 @ Dual-core Xtensa LX7 processor, up to 240MHz main frequency
Flash	8MB
Input Power	USB: DC 5V
RGB LED	2x WS2812B
Operating Temperature	0 ~ 40°C
Product Size	47.9 x 23.9 x 34.35mm

3. Quick Start

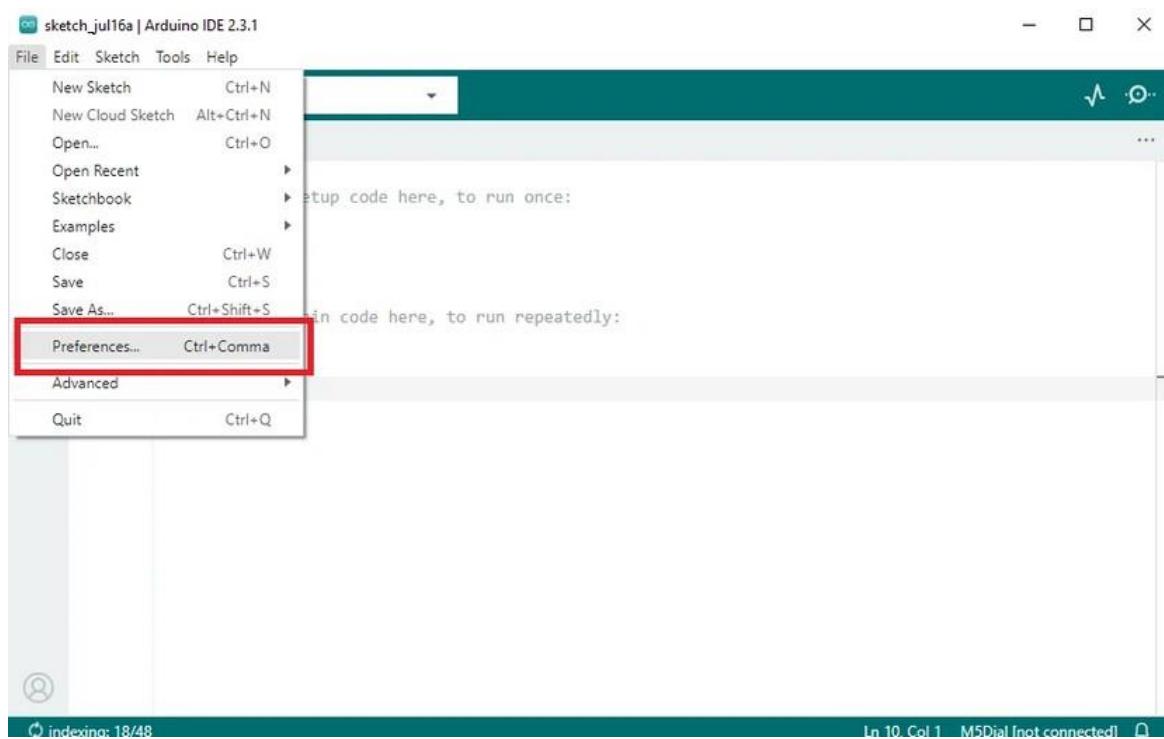
3.1 Preparation

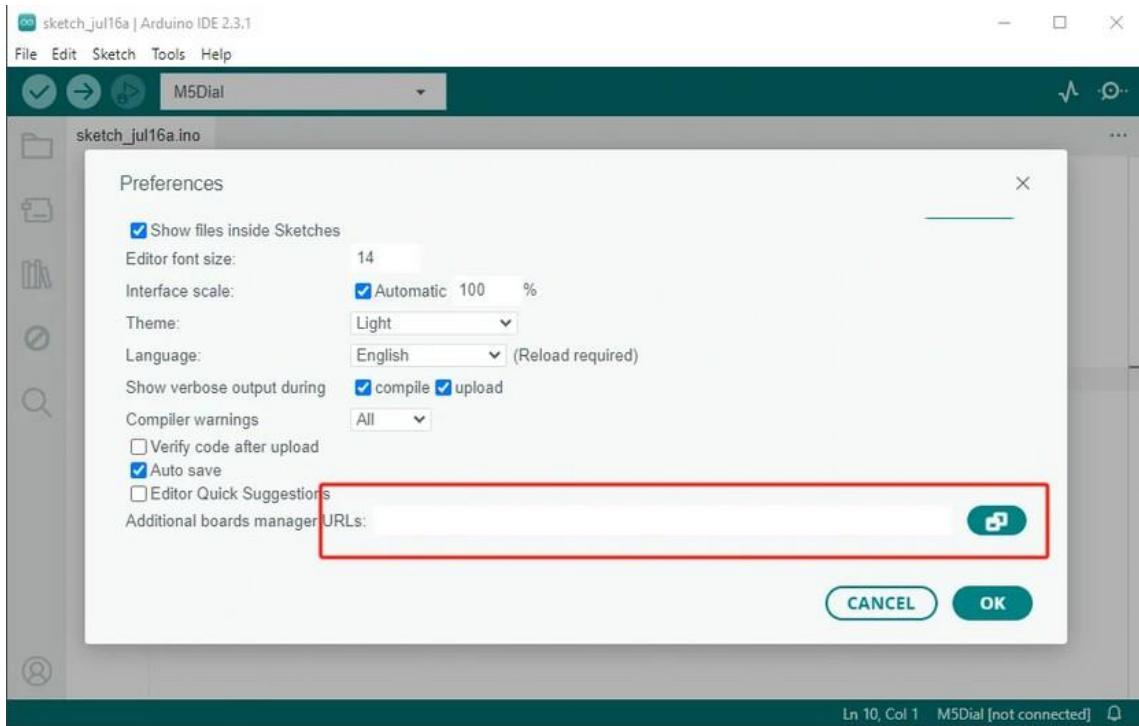
1. Visit the official Arduino website and install the Arduino IDE

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

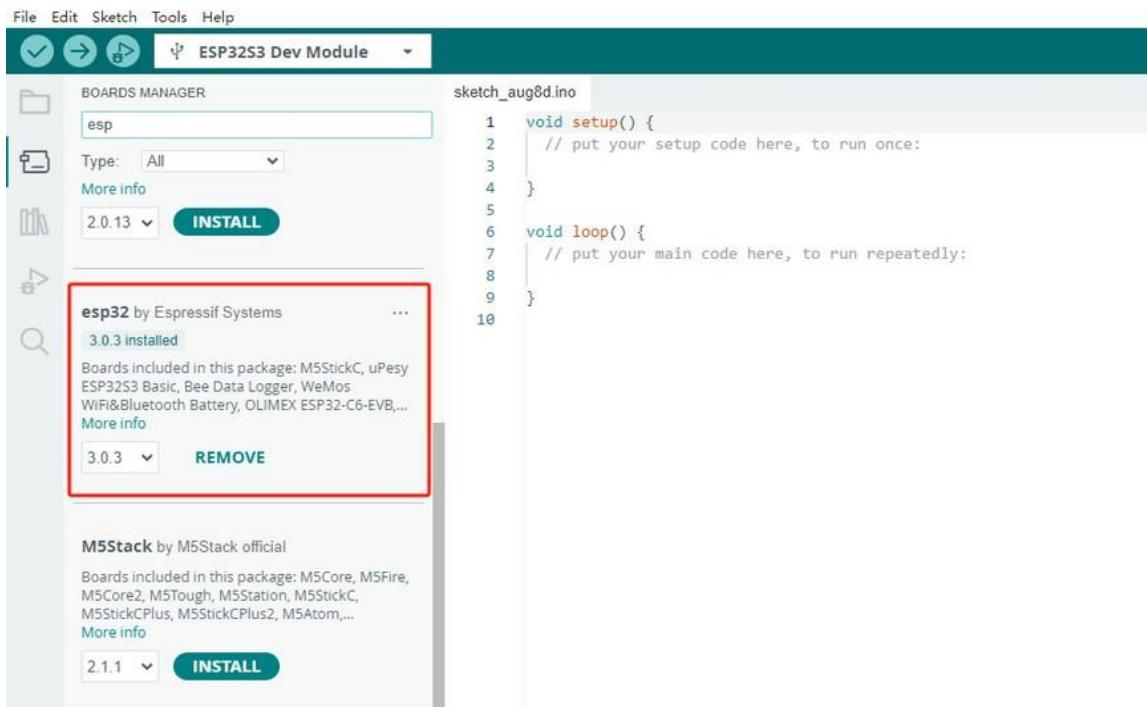
2. Add the following Board Manager URL to File → Preferences → Additional Boards Manager URLs:

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



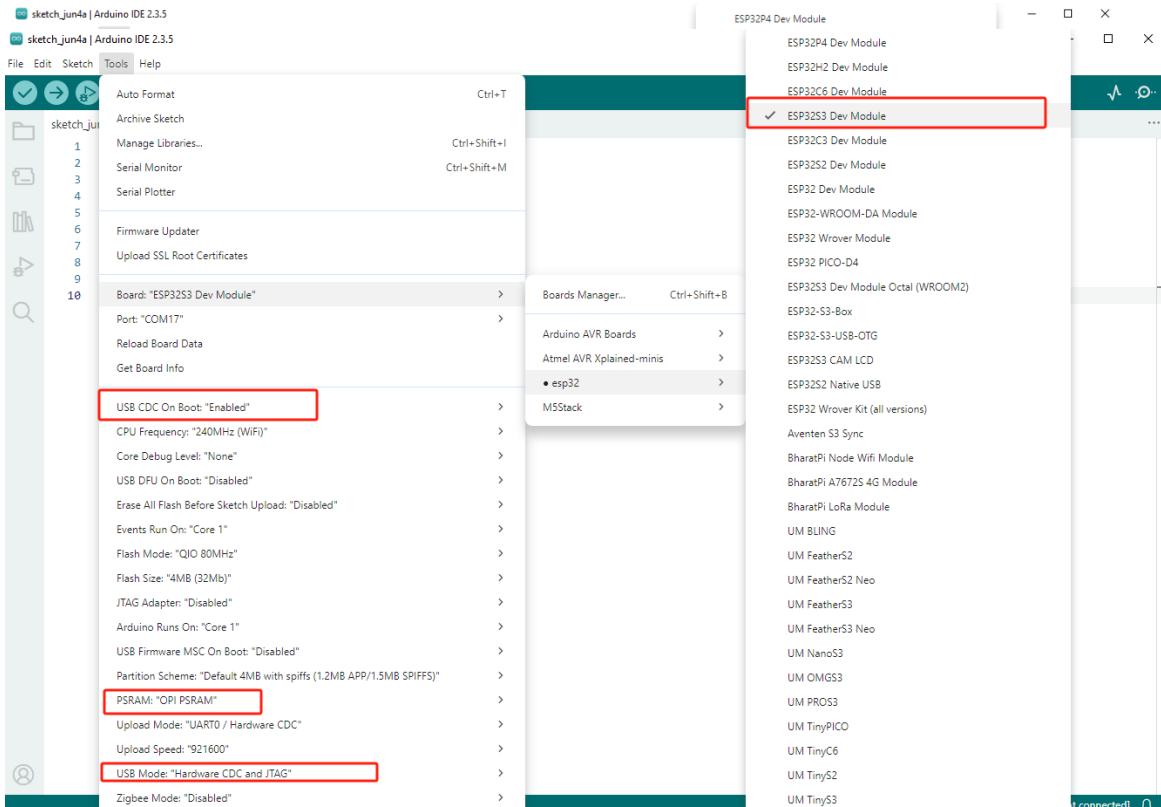


3. Open the Boards Manager, search for "ESP32", and click install.



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

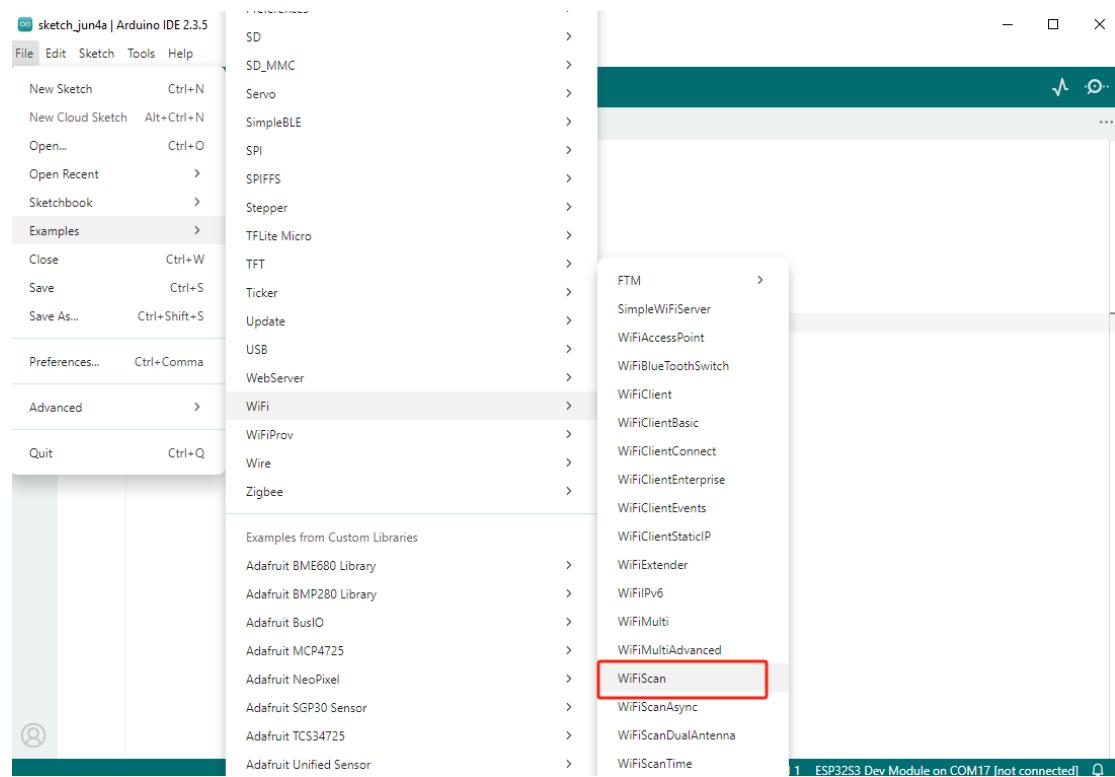
5. Configure the following options. USB CDC On Boot: "Enabled", USB Mode: "Hardware CDC and JTAG"

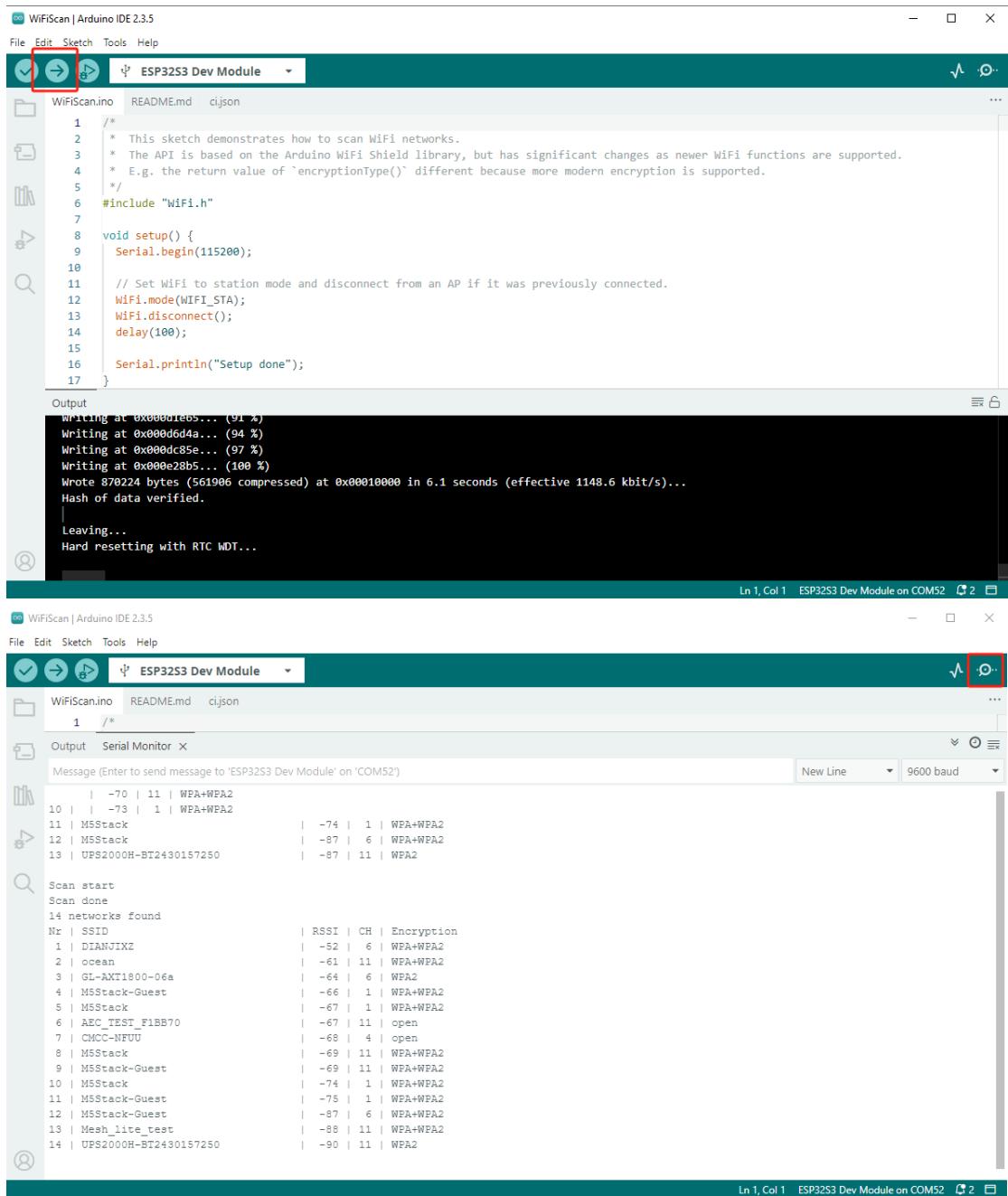


3.2 Wi-Fi Scan

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.





WiFiScan | Arduino IDE 2.3.5

File Edit Sketch Tools Help

ESP32S3 Dev Module

WiFiScan.ino README.md cJSON

```

1  /*
2  * This sketch demonstrates how to scan WiFi networks.
3  * The API is based on the Arduino WiFi Shield library, but has significant changes as newer WiFi functions are supported.
4  * E.g. the return value of `encryptionType()` different because more modern encryption is supported.
5  */
6 #include "WiFi.h"
7
8 void setup() {
9   Serial.begin(115200);
10
11 // Set WiFi to station mode and disconnect from an AP if it was previously connected.
12 WiFi.mode(WIFI_STA);
13 WiFi.disconnect();
14 delay(100);
15
16 Serial.println("Setup done");
17 }
```

Output

```

Writing at 0x00001e65... (91 %)
Writing at 0x000d6d4a... (94 %)
Writing at 0x000dc85e... (97 %)
Writing at 0x000e28b5... (100 %)
Wrote 87024 bytes (561906 compressed) at 0x00010000 in 6.1 seconds (effective 1148.6 kbit/s)...
Hash of data verified.
|
Leaving...
Hard resetting with RTC WDT...
```

Ln 1, Col 1 ESP32S3 Dev Module on COM52 □ 2

WiFiScan | Arduino IDE 2.3.5

File Edit Sketch Tools Help

ESP32S3 Dev Module

WiFiScan.ino README.md cJSON

Output Serial Monitor X

Message (Enter to send message to 'ESP32S3 Dev Module' on 'COM52')

```

| -70 | 11 | WPA+WPA2
10 | -73 | 1 | WPA+WPA2
11 | MSStack | -74 | 1 | WPA+WPA2
12 | MSStack | -87 | 6 | WPA+WPA2
13 | UPS2000H-BT2430157250 | -87 | 11 | WPA2

Scan start
Scan done
14 networks found
Nr | SSID | RSSI | CH | Encryption
1 | DIANJIXZ | -52 | 6 | WPA+WPA2
2 | ocean | -61 | 11 | WPA+WPA2
3 | GI-AXT1800-06a | -64 | 6 | WPA2
4 | MSStack-Guest | -66 | 1 | WPA+WPA2
5 | MSStack | -67 | 1 | WPA+WPA2
6 | AEC_TEST_F1BB70 | -67 | 11 | open
7 | CMCC-NFUU | -68 | 4 | open
8 | MSStack | -69 | 11 | WPA+WPA2
9 | MSStack-Guest | -69 | 11 | WPA+WPA2
10 | MSStack | -74 | 1 | WPA+WPA2
11 | MSStack-Guest | -75 | 1 | WPA+WPA2
12 | MSStack-Guest | -87 | 6 | WPA+WPA2
13 | Mesh_lite_test | -88 | 11 | WPA+WPA2
14 | UPS2000H-BT2430157250 | -90 | 11 | WPA2
```

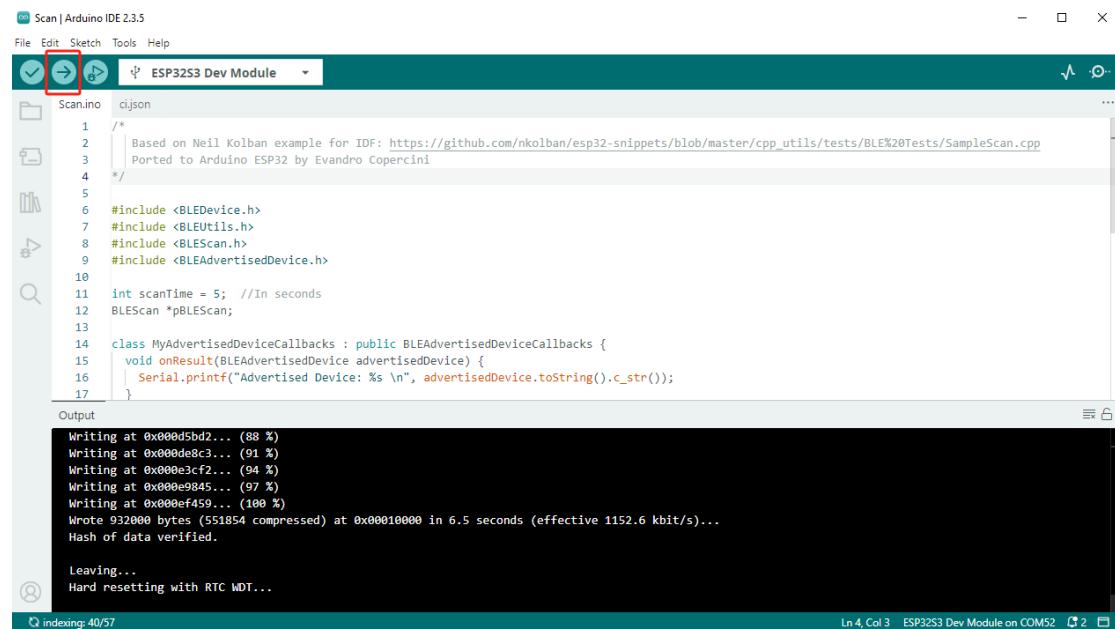
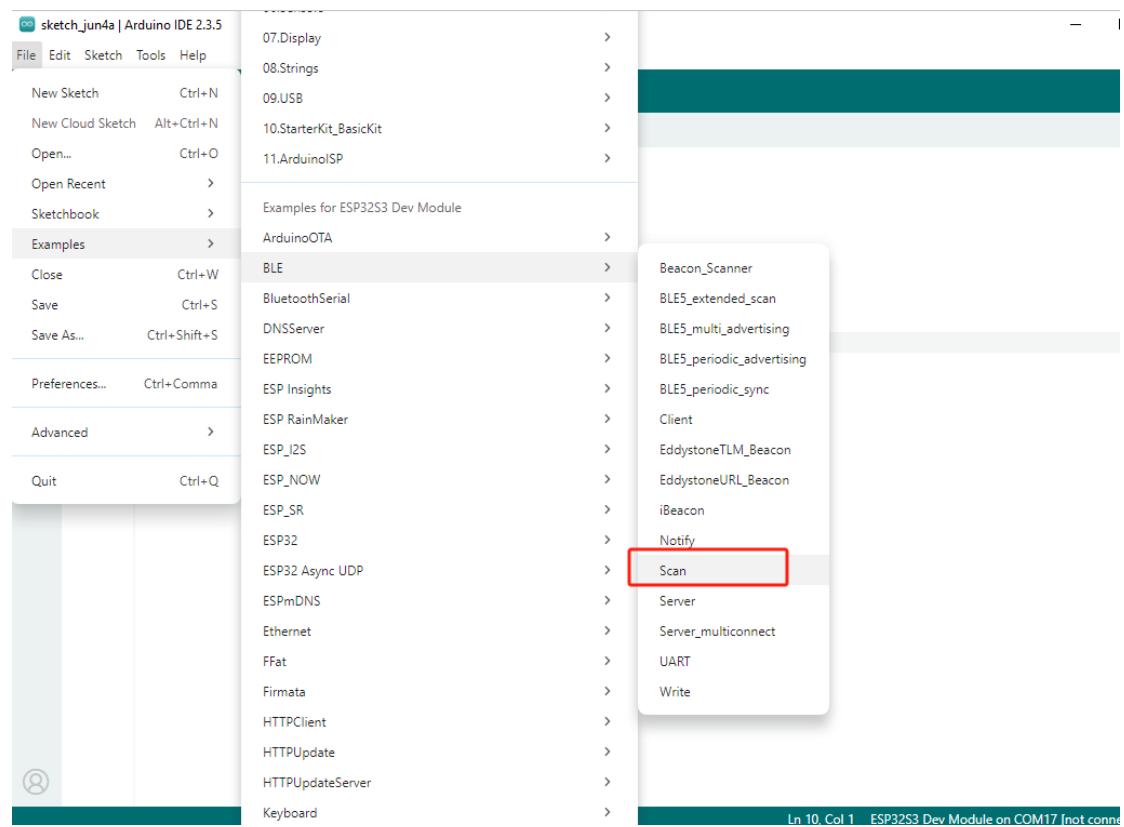
New Line 9600 baud

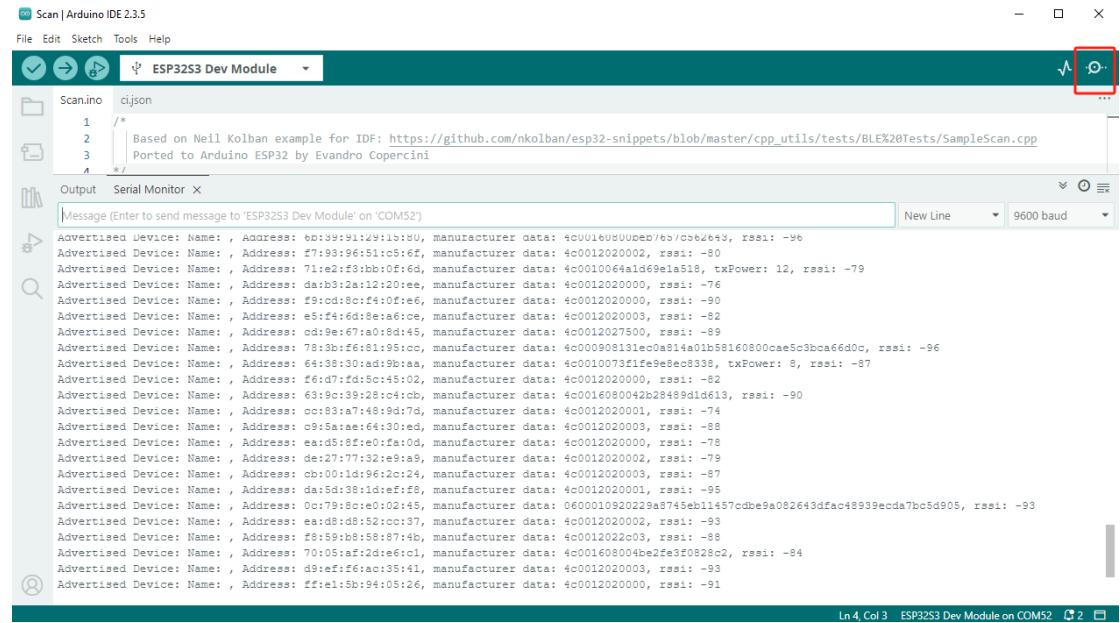
Ln 1, Col 1 ESP32S3 Dev Module on COM52 □ 2

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.





```

Scan | Arduino IDE 2.3.5
File Edit Sketch Tools Help
ESP32S3 Dev Module
Scan.ino c.json
1 /*
2  Based on Neil Kolban example for IDF: https://github.com/nkolban/esp32-snippets/blob/master/cpp\_utils/tests/BLE%20Tests/SampleScan.cpp
3  Ported to Arduino ESP32 by Evandro Copercini
4 */

Output Serial Monitor X
Message (Enter to send message to 'ESP32S3 Dev Module' on 'COM52')
New Line 9600 baud
Advertiser Device: Name: , Address: 6d:93:91:29:15:0, manufacturer data: 4c0016080000, rssi: -96
Advertiser Device: Name: , Address: f7:93:96:51:c5:6f, manufacturer data: 4c0012020002, rssi: -80
Advertiser Device: Name: , Address: 71:e2:f3:bb:0f:6d, manufacturer data: 4c0010064a1d9e91a518, txPower: 12, rssi: -79
Advertiser Device: Name: , Address: da:b3:2a:12:20:ee, manufacturer data: 4c0012020000, rssi: -76
Advertiser Device: Name: , Address: f9:cd:8c:f4:0f:e6, manufacturer data: 4c0012020000, rssi: -90
Advertiser Device: Name: , Address: e5:f4:6d:be:a6:ce, manufacturer data: 4c0012020003, rssi: -82
Advertiser Device: Name: , Address: cd:8e:67:a0:8d:45, manufacturer data: 4c0012027500, rssi: -89
Advertiser Device: Name: , Address: 78:3b:f6:81:95:0c, manufacturer data: 4c000908131ec0e814a01b58160800cae5c3bca66d0c, rssi: -96
Advertiser Device: Name: , Address: 64:38:30:ad:9b:aa, manufacturer data: 4c0010073f1fe9e8c338, txPower: 8, rssi: -87
Advertiser Device: Name: , Address: f6:d7:fd:5c:45:02, manufacturer data: 4c0012020000, rssi: -82
Advertiser Device: Name: , Address: 63:9c:39:28:c4:cb, manufacturer data: 4c0016080042b284991d613, rssi: -90
Advertiser Device: Name: , Address: cc:83:a7:48:9d:7d, manufacturer data: 4c0012020001, rssi: -74
Advertiser Device: Name: , Address: c9:5a:ae:64:30:ed, manufacturer data: 4c0012020003, rssi: -88
Advertiser Device: Name: , Address: e4:d5:8f:ee:0:fa:0d, manufacturer data: 4c0012020000, rssi: -78
Advertiser Device: Name: , Address: de:27:77:32:e9:a9, manufacturer data: 4c0012020002, rssi: -79
Advertiser Device: Name: , Address: cb:00:1d:96:2c:24, manufacturer data: 4c0012020003, rssi: -87
Advertiser Device: Name: , Address: da:5d:38:1:de:ff:f8, manufacturer data: 4c0012020001, rssi: -95
Advertiser Device: Name: , Address: 0c:79:8c:ee:0:02:45, manufacturer data: 0600010920229a8745eb11457cdbe9a082643dfac48939ecda7bc5d905, rssi: -93
Advertiser Device: Name: , Address: ea:08:d5:52:cc:37, manufacturer data: 4c0012020002, rssi: -93
Advertiser Device: Name: , Address: f8:59:bb:58:87:4b, manufacturer data: 4c0012022c03, rssi: -88
Advertiser Device: Name: , Address: 70:05:af:2:d1:e6:01, manufacturer data: 4c001608004be2f3f0828c2, rssi: -84
Advertiser Device: Name: , Address: d5:ef:f6:ac:35:41, manufacturer data: 4c0012020003, rssi: -93
Advertiser Device: Name: , Address: ff:e1:5b:94:05:26, manufacturer data: 4c0012020000, rssi: -91

```

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 0.174 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