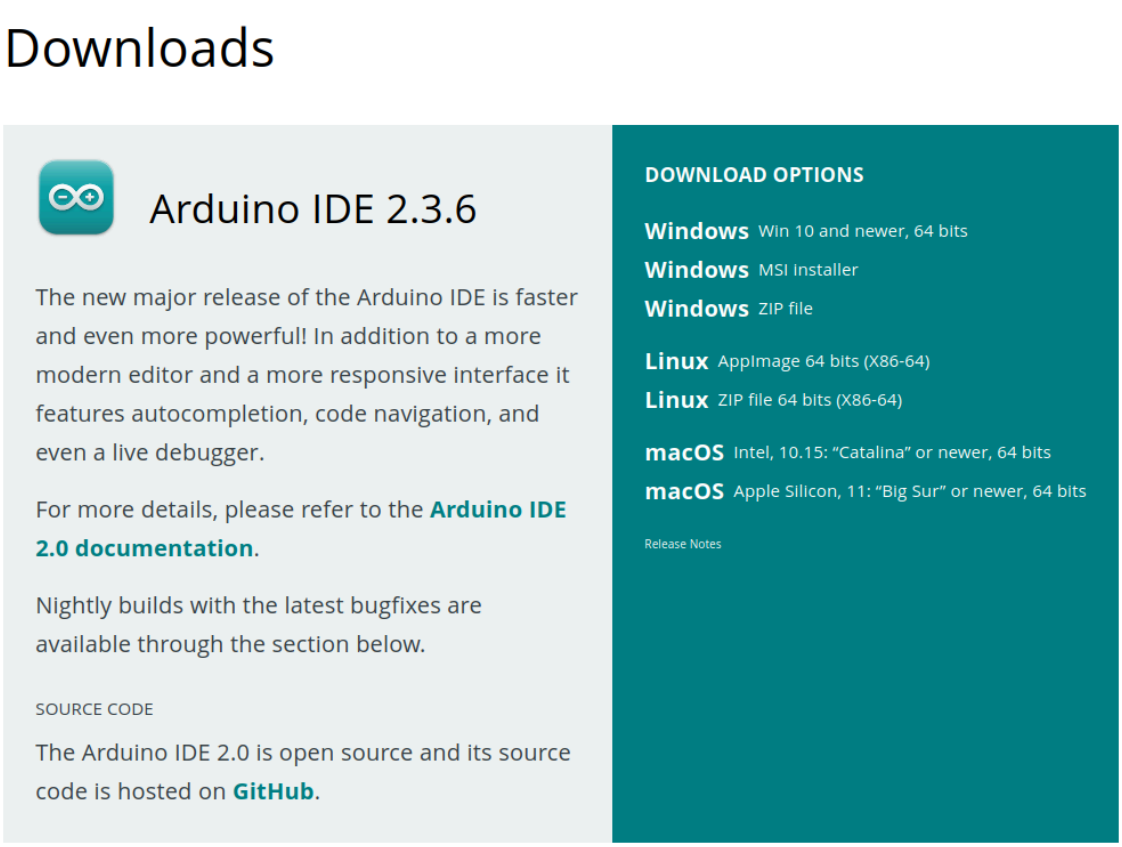
HubVolt Setup Guide

Table of Contents

1. Installing Arduino IDE

Step 1: Download Arduino IDE

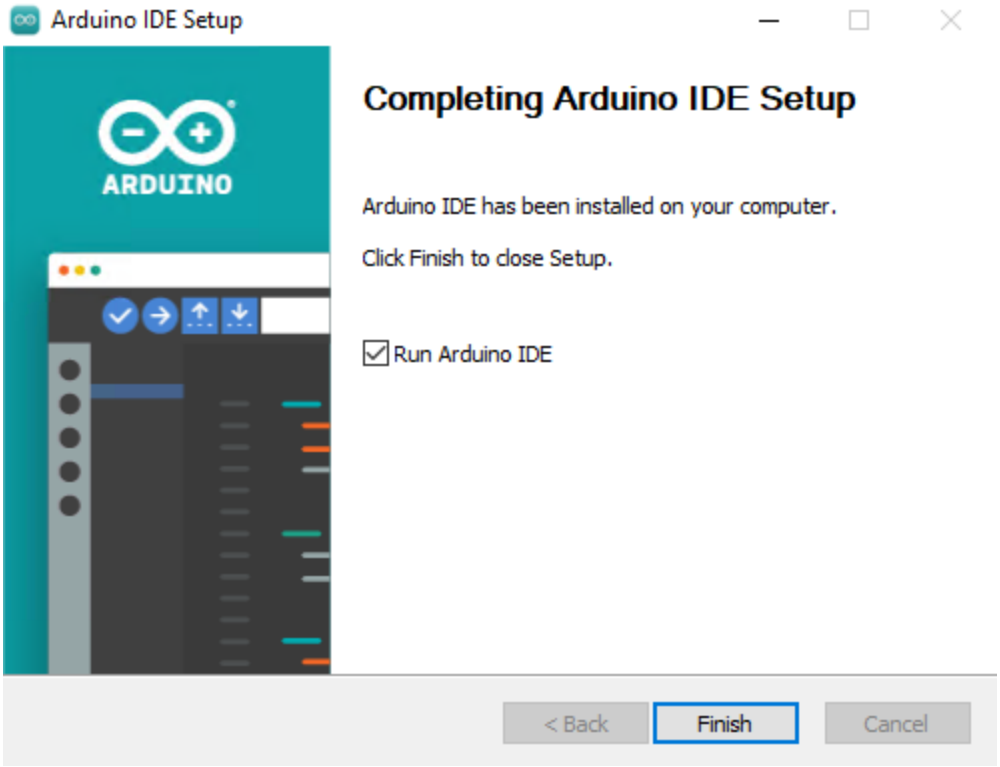
Visit: https://www.arduino.cc/en/software



Download the IDE for your operating system (Windows, macOS, or Linux).

Step 2: Install and Launch

Run the installer and follow the setup instructions.



Launch the Arduino IDE after installation.

2. Installing Required Libraries

Step 1: Add ESP32 Board Support

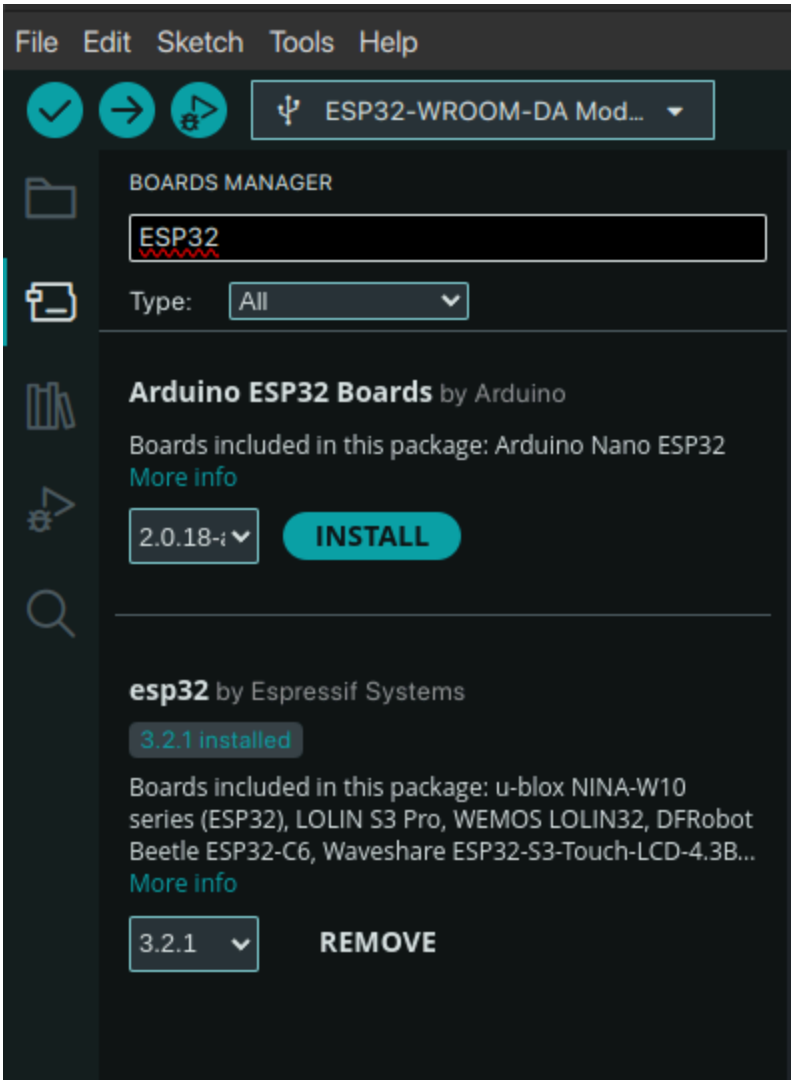
Go to File > Preferences.

In 'Additional Board Manager URLs', paste:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json

Step 2: Install Board Package

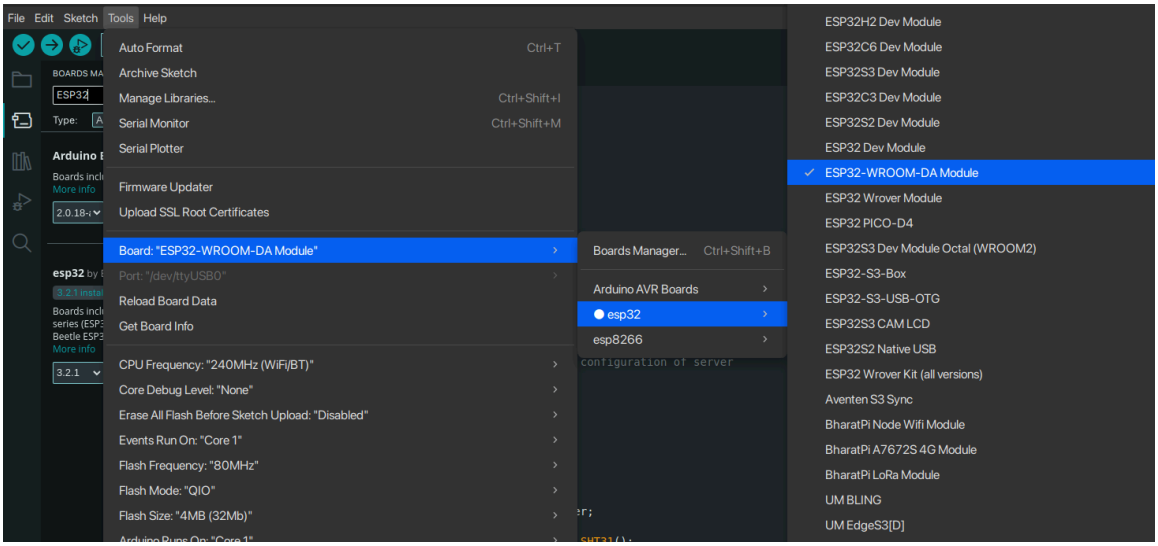
Go to Tools > Board > Boards Manager.



Search for 'esp32' and install 'esp32 by Espressif Systems'.

Step 3: Select Board

Go to Tools > Board and select 'ESP32 Dev Module'.

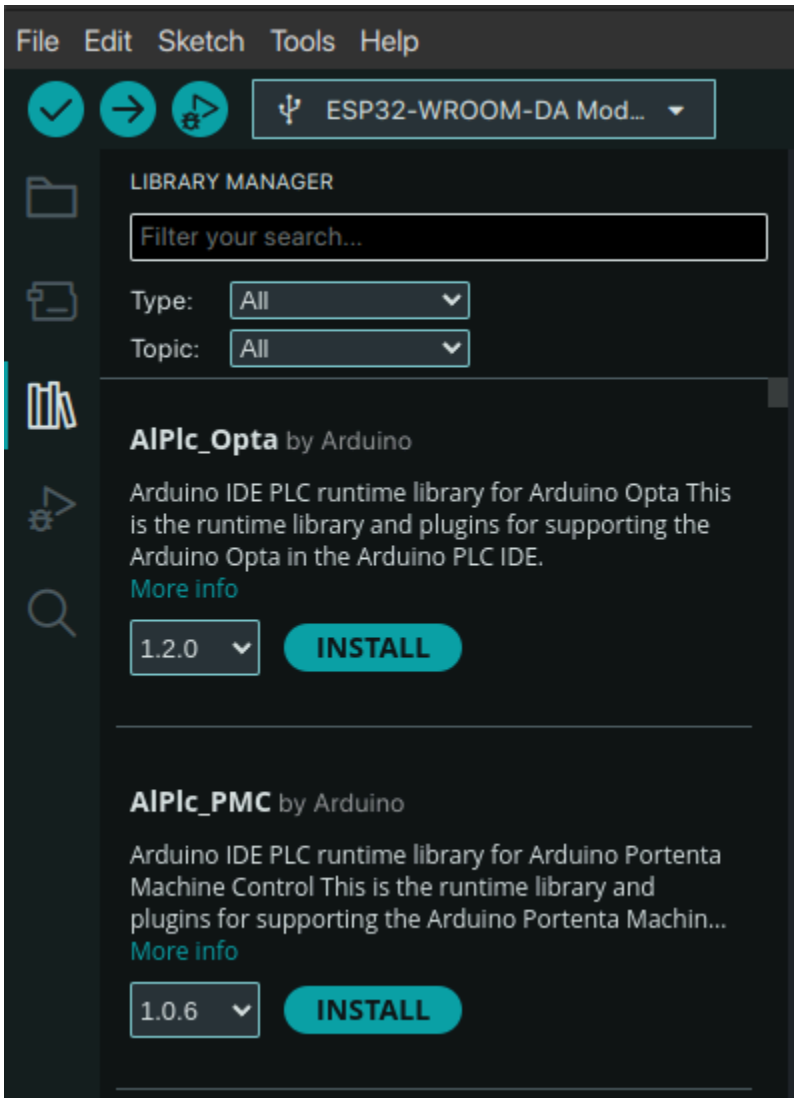


Step 4: Install Required Libraries

In case of hubvolt there is no need to download the libraries because the libraries used are already installed because of the esp32 by Espressif Systems board manager package. In case of any trouble this is for the reference which library is used for what purpose and further you can see their documentation at the official website of ESP32 Documentation.

- WiFi: Built into ESP32 core
- WebServer: Built into ESP32 core
- Preferences: Built into ESP32 core
- WiFiClient: TCP Client (built-in ESP32)
- esp_wpa2: For enterprise WiFi auth (ESP32)
- esp_wifi: Low-level WiFi functions (ESP32)
- Wire: I2C communication

You can use the Library manager tab to do so.

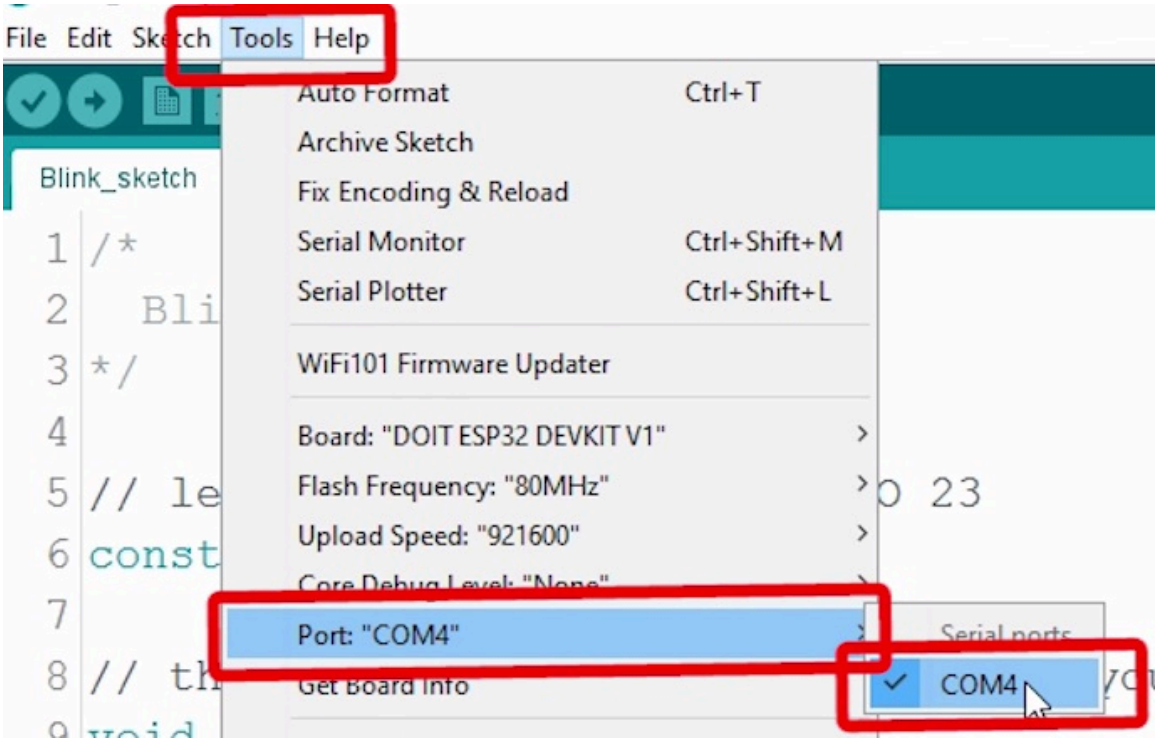


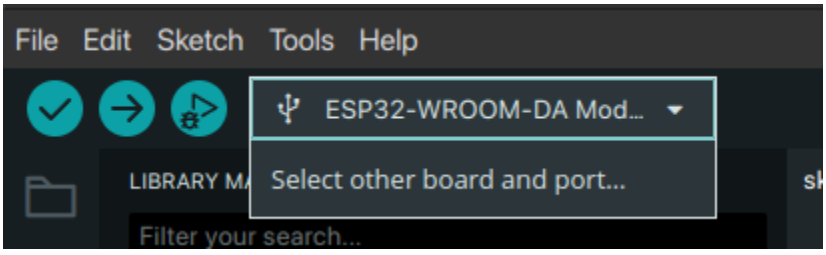
3. Connecting the HubVolt Device

1. Connect your ESP32-WROOM-DA module to your PC using a data-capable USB cable.

2. Open Arduino IDE.

3. Go to Tools > Port and select the correct COM port.





Once the esp32 is connected you will see this tab in BOLD letters.

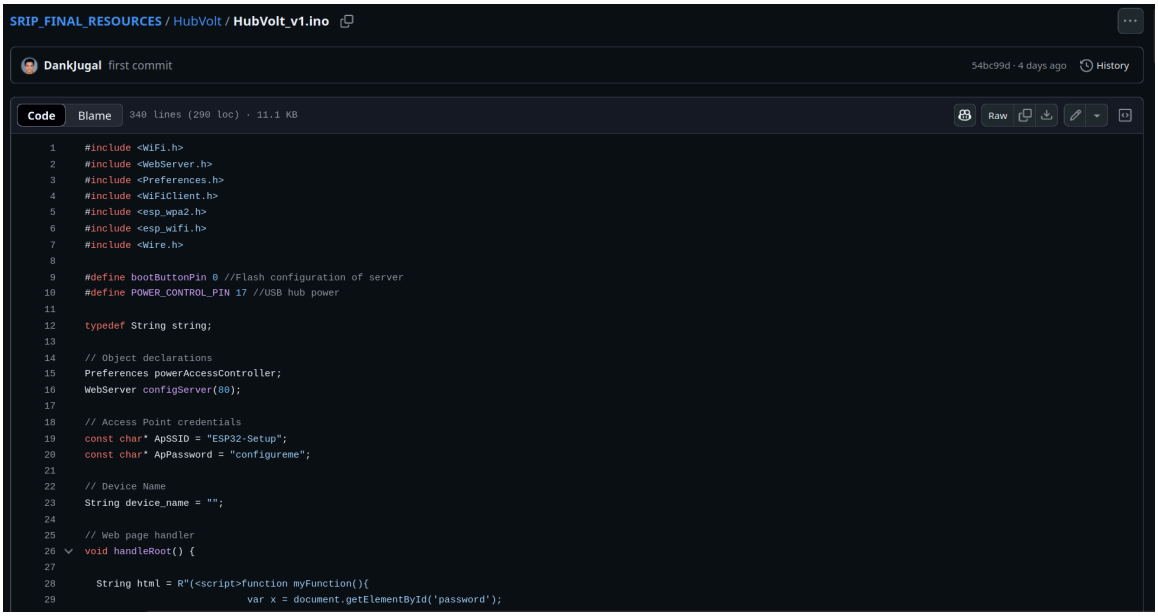
4. Uploading Code to ESP32

Step 1: Download Firmware

GitHub Repository:

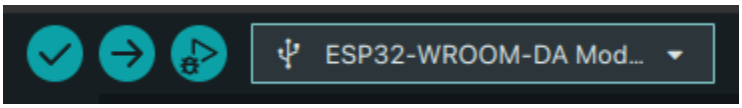
https://github.com/DankJugal/SRIP_FINAL_RESOURCES

Open the `.ino` file for the HubVolt firmware and ensure all required libraries are installed.



Step 2: Upload the Code

Click the Upload button in Arduino IDE.



Click on the arrow button for uploading the code to ESP32.

Step 3: Check Serial Monitor

Open Tools > Serial Monitor and set baud rate to 115200.

5. Configuration via Access Point

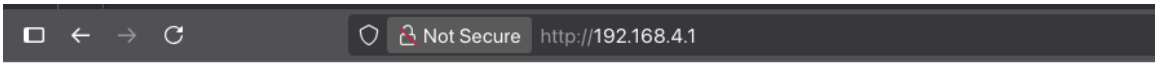
Step 1: Connect to the Access Point

Connect to WiFi network: ESP32-Setup

Password: configureme

Step 2: Open Configuration Portal

Open browser and visit: http://192.168.4.1



HubVolt (v1.0)

Welcome to HubVolt.

WiFi & Server Configuration

Device Name (It should not have any space & special characters):

SSID:

Connection-Type: Open

Username (Not needed for Open/Personal):

Password (Not needed for Open):

Show Password

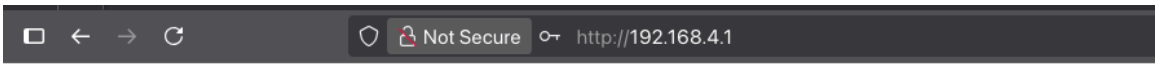
Server IP:

Server TCP Port:

Save

Step 3: Enter Configuration Details

Enter WiFi SSID, Password, server details, and other configuration values.



HubVolt (v1.0)

Welcome to HubVolt.

WiFi & Server Configuration

Device Name (It should not have any space & special characters): HubVolt_Device_006

SSID: IITGN-GUEST

Connection-Type: Personal

Username (Not needed for Open/Personal): Jugal

Password (Not needed for Open): ●●●●●

Show Password

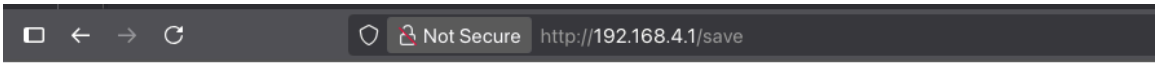
Server IP: 10.1.159.249

Server TCP Port: 3000

Save

Step 4: Save & Reboot

Click Save. The device will reboot and attempt to connect to your network.



Configuration saved. Device is ready now.

6. Reconfiguration of ESP32

Method 1 : Using Reset and Boot Buttons

1. **Press the Reset button**, then **immediately press the Boot button**.
2. Wait until the **red LED starts blinking** — this indicates that the ESP32 has entered **AP mode** again.
3. Connect to the `ESP32-Setup` WiFi network and repeat the configuration steps.

Method 2 : Power-Cycle with Boot Press

1. **Power off** the ESP32 device.
2. While powering **on**, **immediately press and hold the Boot button**.
3. When the **red light blinks**, the device is again in **AP mode** and ready for reconfiguration.

This allows users to re-enter the configuration portal if credentials or settings need to be updated after the initial setup.