



## Using the ESP32 as MQTT Clients

**Mouli Sankaran**

# Focus: IoT - Tutorial 2

## IoT – Tutorial 1 – MQTT Protocol

Go over this tutorial for an Introduction to MQTT

[YouTube Link: IoT-Tutorial1](#)

- Two ESP32 Sensors
  - Controlled through MQTT
- ESP32 as MQTT Clients
  - Installing **EspMQTTClient** Library
  - Client Applications

### Prerequisites:

1. Working setup of ESP32 with Arduino Genuino IDE.
2. You have one or two ESP32 family development boards.



## **Demo Architecture**



# Using the ESP32 as MQTT Clients

**ESP32 SNS1**

**Subscriber:**  
Topic: **sns1\_ctrl**  
**Publisher:**  
Topic: **sns\_status**

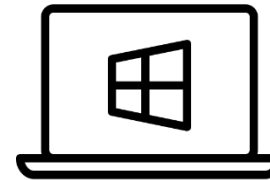
**Publishers:**  
Topics: **sns1\_ctrl** and **sns2\_ctrl**

**Broker:**  
Over TLS

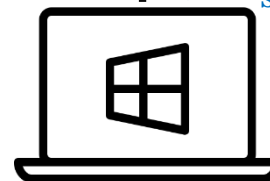


**HIVEMQ**

Commands forwarded to subscribers, by the Broker



SNS1 and SNS2 commands



**Subscriber:**  
Topic: **sns\_status**

Home WiFi

SNS1 commands

SNS2 commands

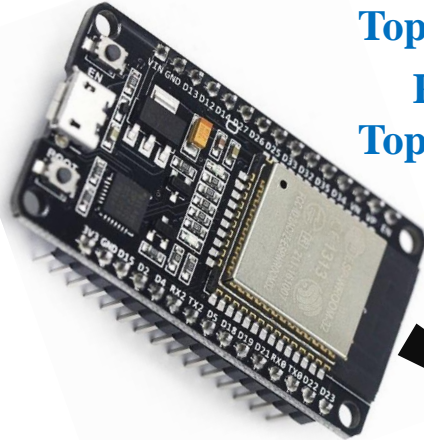
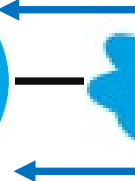
**Subscriber:**  
Topic: **sns2\_ctrl**  
**Publisher:**  
Topic: **sns\_status**

**ESP32 SNS2**

**Subscriber:**  
Topic: **sns1\_ctrl**  
**Publisher:**  
Topic: **sns\_status**

Topic: **sns1\_ctrl**

Topic: **sns\_status**



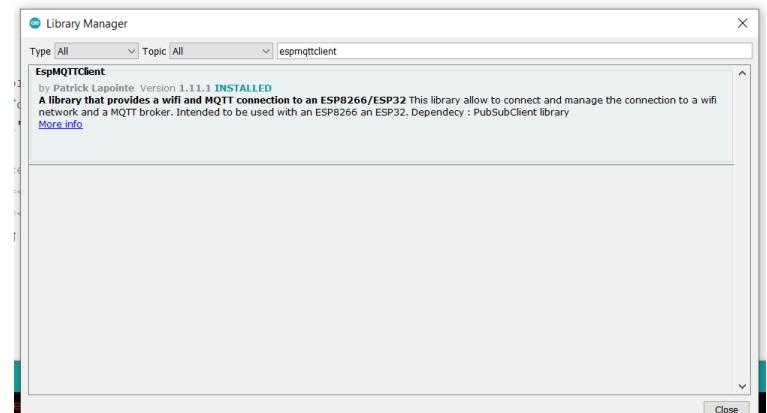
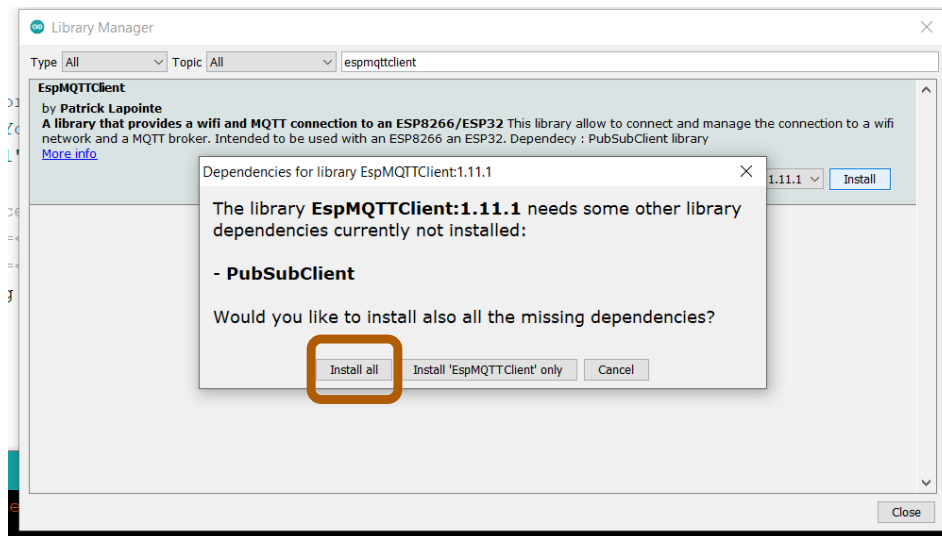
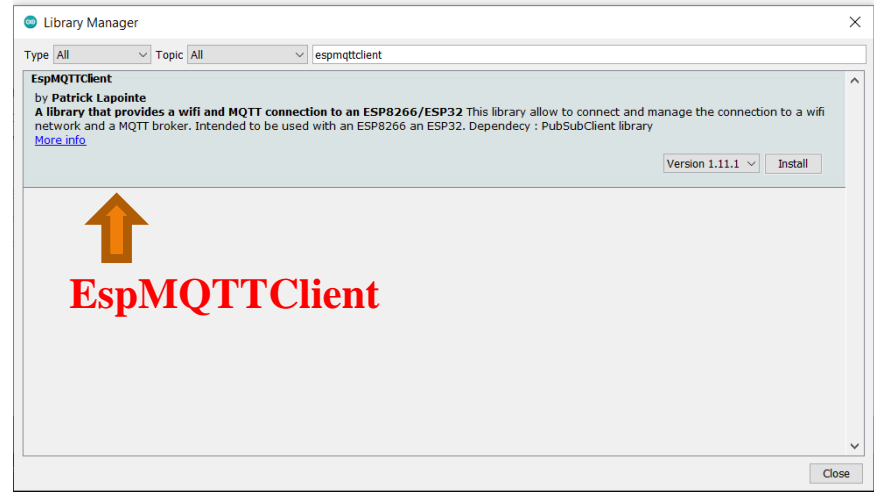
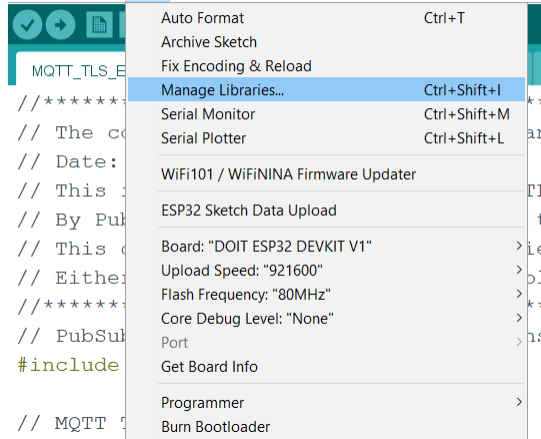


## **Installing EspMQTTClient Library on Arduino Genuino IDE**

# Installing EspMQTTClient Library

MQTT\_TLS\_ESP32\_SNS2 | Arduino 1.8.15 (Windows Store 1.8.49.0)

File Edit Sketch Tools Help



**Note: Install both EspMQTTClient and PubSubClient Libraries.**

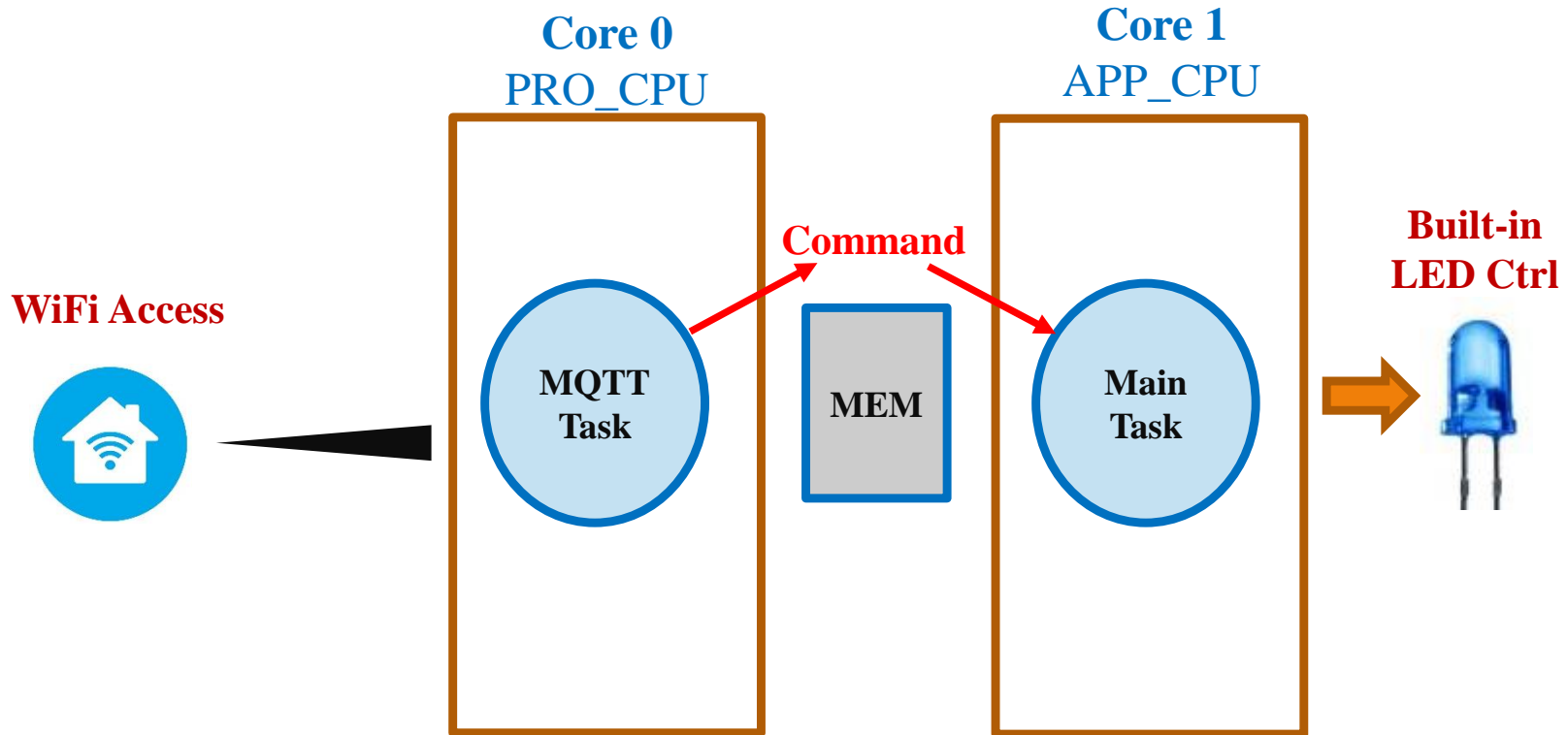




# MQTT Client Application Structure

# MQTT Client Application Structure

Dual Core ESP32





# Summary: IoT - Tutorial 2

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# References: For ESP32

Ref 1

## ESP32

Technical Reference Manual

[Link](#)



Version 4.3  
Espressif Systems  
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Ref 2

## ESP32 Series Datasheet

Including:

ESP32-D0WD-V3  
ESP32-D0WDQ6-V3  
ESP32-D0WD  
ESP32-D0WDQ6  
ESP32-D2WD  
ESP32-S0WD  
ESP32-U4WDH

[Link](#)



Version 3.5  
Espressif Systems

Ref 3

Tensilica Datasheet

## Xtensa LX6 Customizable DPU

High performance with flexible I/Os and wide data fetches

[Link](#)

Ref 4

## ESP32 Bluetooth Networking User Guide

[Link](#)