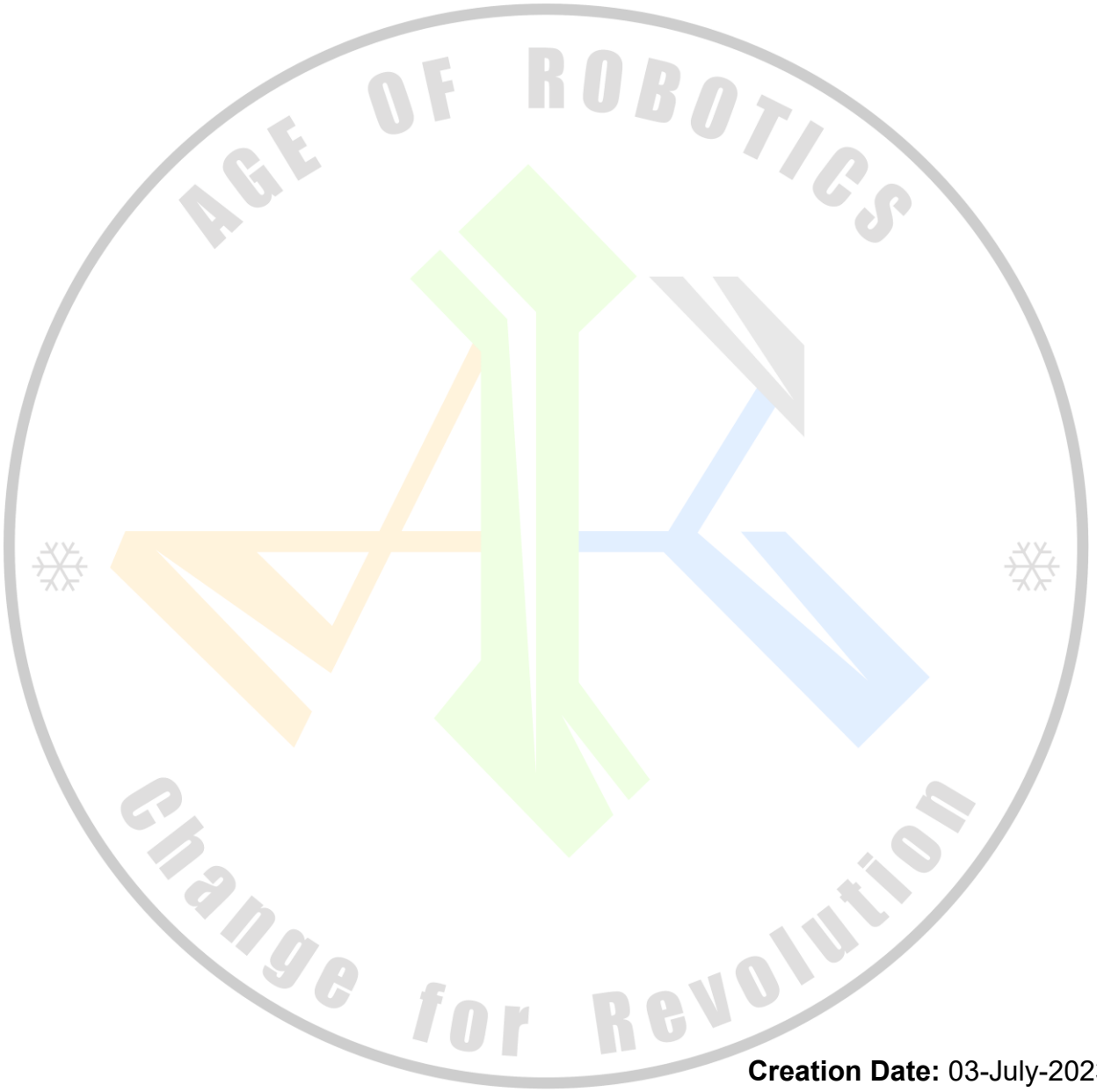
# Installing MQTT Client on Raspberry PI

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**Version of Rpi OS Used:** Bullseye
**Created By:** https://www.youtube.com/@Age.of.Robotics
**Video Tutorial:** TBA

This Tutorial is for those who want to install MQTT Client on their Raspberry PI

# Contents

# Introduction

In this Tutorial, we will install the Mosquitto MQTT Broker on our Raspberry PI. The MQTT Broker is useful in various IOT project.

This tutorial is conducted using Raspberry PI 4 having “Bullseye” Raspbian OS installed on it.

Thank you for refereeing to this tutorial. Hope it will be helpful to you!

# Conventions Used

In this document, some colour coding is done to distinguish some notations. They are as given below

- **Command to execute in terminal:**
  To distinguish one command from another command, $ is used at the beginning of a new command. The part after the $ symbol is the actual command.


***Note:*** *Reader should only copy the blue part of the command and not the $ symbol.*

- **Red coloured Code:** The lines in a code snippet displayed by RED colour are already available in the file which is asked to be edited.
- **Green Coloured Code:** The lines in a code snippet displayed by GREEN colour need to be added by the reader in the file which is asked to be edited.
- **Purple Coloured Code**: The Part of the code snippet, reader need to change before pasting in the desired file.
- **Home directory:** “~/” this part in a command means your home directory.
- ***Notes:*** *Notes are written in italics.*
- **Comments:**
  - Comments in YAML starts with #
    #This is YAML comment
  - Comments in XML are enclosed in <!-- and -->
    <!--This is XML Comment -->

# 1 Installing and Setting Up MQTT Client on Raspberry Pi

Please follow the steps given below to install MQTT Broker on Your Raspberry PI

## 1.1 Install Mosquitto Broker and Mosquitto Clients on the Raspberry PI

1. Update the packages
   $ sudo apt-get update
2. Upgrade the packages (Optional)
   $ sudo apt-get upgrade
3. Import the mosquitto repository package signing key
   $ wget http://repo.mosquitto.org/debian/mosquitto-repo.gpg.key

   $ sudo apt-key add mosquitto-repo.gpg.key
4. Make the newly added repository available to apt
   $ cd /etc/apt/sources.list.d/
5. Then download the list files for your raspberry pi OS.
   *Use one of the commands from below as per your version of Rpi OS*
   $ sudo wget http://repo.mosquitto.org/debian/mosquitto-jessie.list
   OR
   $ sudo wget http://repo.mosquitto.org/debian/mosquitto-stretch.list

   OR
   $ sudo wget http://repo.mosquitto.org/debian/mosquitto-buster.list

   OR
   $ sudo wget https://repo.mosquitto.org/debian/mosquitto-bullseye.list

   *(Note: I used the 4th command, as I have installed Bullseye version of Rpi OS)*
6. Update the packages again
   $ sudo apt-get update
7. Install Mosquito Broker
   $ sudo apt-get install mosquitto
8. Install Mosquitto Clients on you raspberry pi
   $ sudo apt-get install mosquitto-clients
9. Test the version of Mosquitto Broker that we just installed
   $ mosquitto -v

## 1.2 Enable Mosquitto Services to AutoStart when Raspberry PI Restarts/Reboots

As we have installed the Mosquitto broker, now it should start automatically when we boot the raspberry pi. This will save our efforts to restart the Mosquito services every time we boot the raspberry pi.

1. Enable Mosquitto services to restart automatically when raspberry pi boots up
   $ sudo systemctl enable mosquitto.service

## 1.3 Enable anonymous connection to the Mosquitto client.

As we are making this project for our personal use, we will enable anonymous access to the Mosquitto client. So, we will not need to enter the username and password to send data over MQTT using our Mosquitto client. If needed, one can follow the steps given on "https://mosquitto.org/documentation/authentication-methods/" this website to enable password protection to the Mosquitto client.

Follow the steps given below to enable anonymous access to your mosquitto broker.

1. Open the mosquito.config file
   $ sudo nano /etc/mosquitto/mosquitto.conf

```
listener 1883
allow_anonymous true
```

2. Take your cursor at the bottom/end of the file and add the lines given below at the end of the config file.
3. Press **"Ctrl + X"** to save and exit the file.
4. If it prompts, enter **"Y"** and press **"Enter"** to exit the file.
5. Restart the Mosquitto to apply the changes
   $ sudo systemctl restart mosquitto

## 1.4 Getting the Hostname of Raspberry PI

For using the MQTT Client in our IOT Projects that we are going to make using Arduino and ESP32, we will need to IP address of Raspberry PI

1. Type the command given below in the terminal and execute it to get the IP Adress of your Raspberry PI.
   $ hostname -I

## 1.5 Test if the Mosquitto Broker is working fine using Terminals.

Now, let's test if the mosquito broker is working fine.

2. Open two terminal windows.
3. In 1st window, type the below command to subscribe to the topic "myMassages/greetings"
   $ mosquitto_sub –d –t myMassages/greetings

   *Note: **"-d"** is to enable debug massages and **"-t"** is added before the topic to which we want to subscribe. To know more about "mosquitto_sub" visit here.*
4. In second window, type the below command to publish "Hello Everybody" massage on the topic "myMassages/greetings"
   $ mosquitto_pub –d –t myMassages/greetings -m "Hello Everybody"

   *Note: **"-d"** is to enable debug massages and **"-t"** is added before the topic to which we want to publish & **"-m"** is added before the massage to be published. To know more about "mosquitto_sub" visit here.*
5. After executing the publish command in 2nd window, if you see the massage received in 1st window, it means that, your Mosquitto broker is successfully installed and working perfect.

# 2 References:

1. https://mosquitto.org/