**Mqtt protocol with esp32 lab installation**

Requirements

Mosquitto broker.

Arduino ide.

Mqtt client dashboard on both pc and mobile.

Downloads

* <https://mosquitto.org/download/> from this link download the mosquitto broker for windows.
* <https://www.arduino.cc/en/software> from this link you can download the arduino ide for windows.
* <http://mqtt-explorer.com/> from here you can get mqtt explorer for pc which act as client.

Installations

* To install mosquitto follow the steps and install the broker. Now broker is ready.
* Follow the installation steps for mqtt explorer and make it ready.

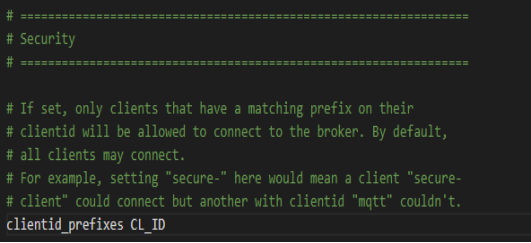
Steps to configure mosquitto

* Open the mosquitto config file and do the following to listen to the port number 1883.

**listener 1883**

* For giving client id authentication you can give the client name to this eg. **clientid prefixes CL\_ID**.

**clientid\_prefixes \_\_\_\_\_**

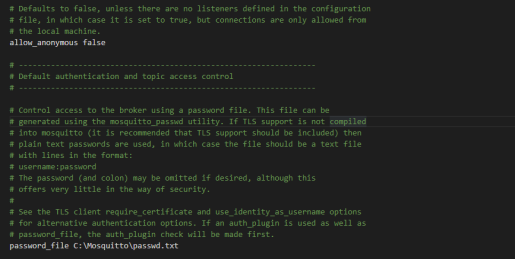
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* To enable client authentication using credentials, you also need to set **allow\_anonymous** parameter to false in mosquitto.conf file.

**allow\_anonymous false**

* To create a password file, the mosquitto broker comes with mosquitto\_passwd utility which creates a password file. To create the user name and password “**mosquitto\_passwd -c passwordfile username**” the it ask for password and give.Make the password to be hash by this command  **“mosquitto\_passwd -U passwordfile”** In the mosquitto config file give the path of our password file. Then start the mosquitto broker.

**password\_file C:\Programfile\mosquitto\passwordfile**

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* Open the command prompt and give the command to start the broker.

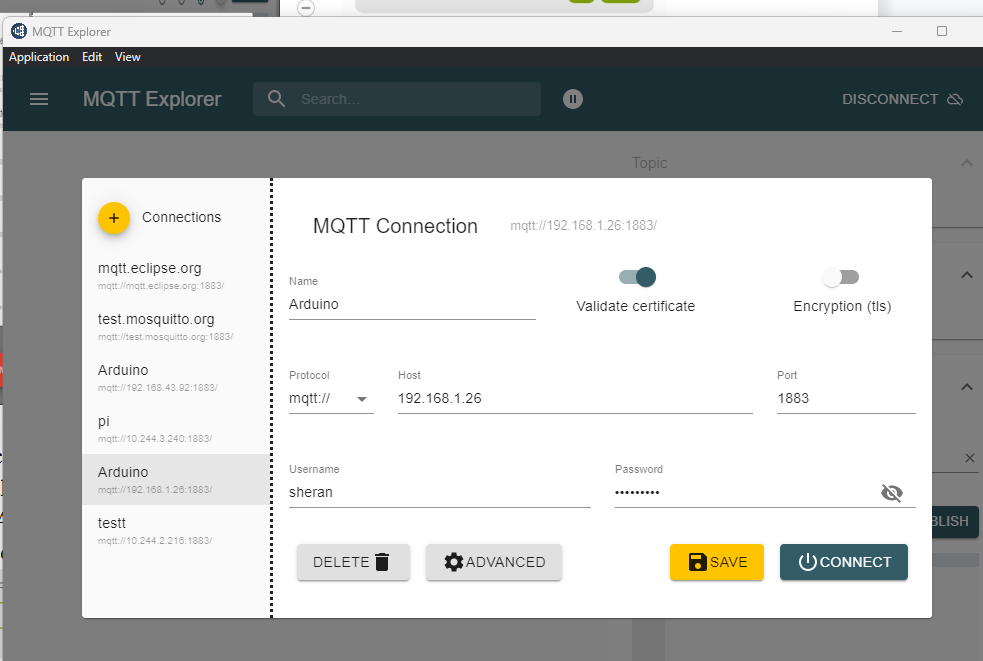
**mosquitto -c mosquitto.conf -v**

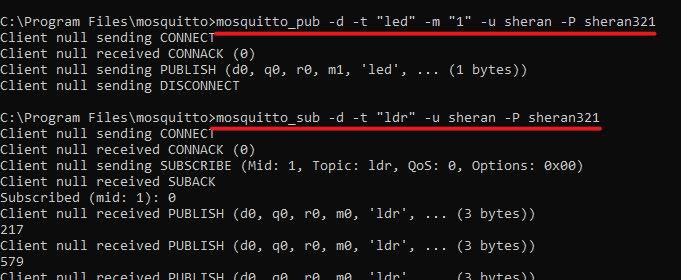
* Now broker will start to run.
* Open one more command prompt in administration mode then try to establish the connection

**Mosquitto\_sub -d -t topic -u username -P password**

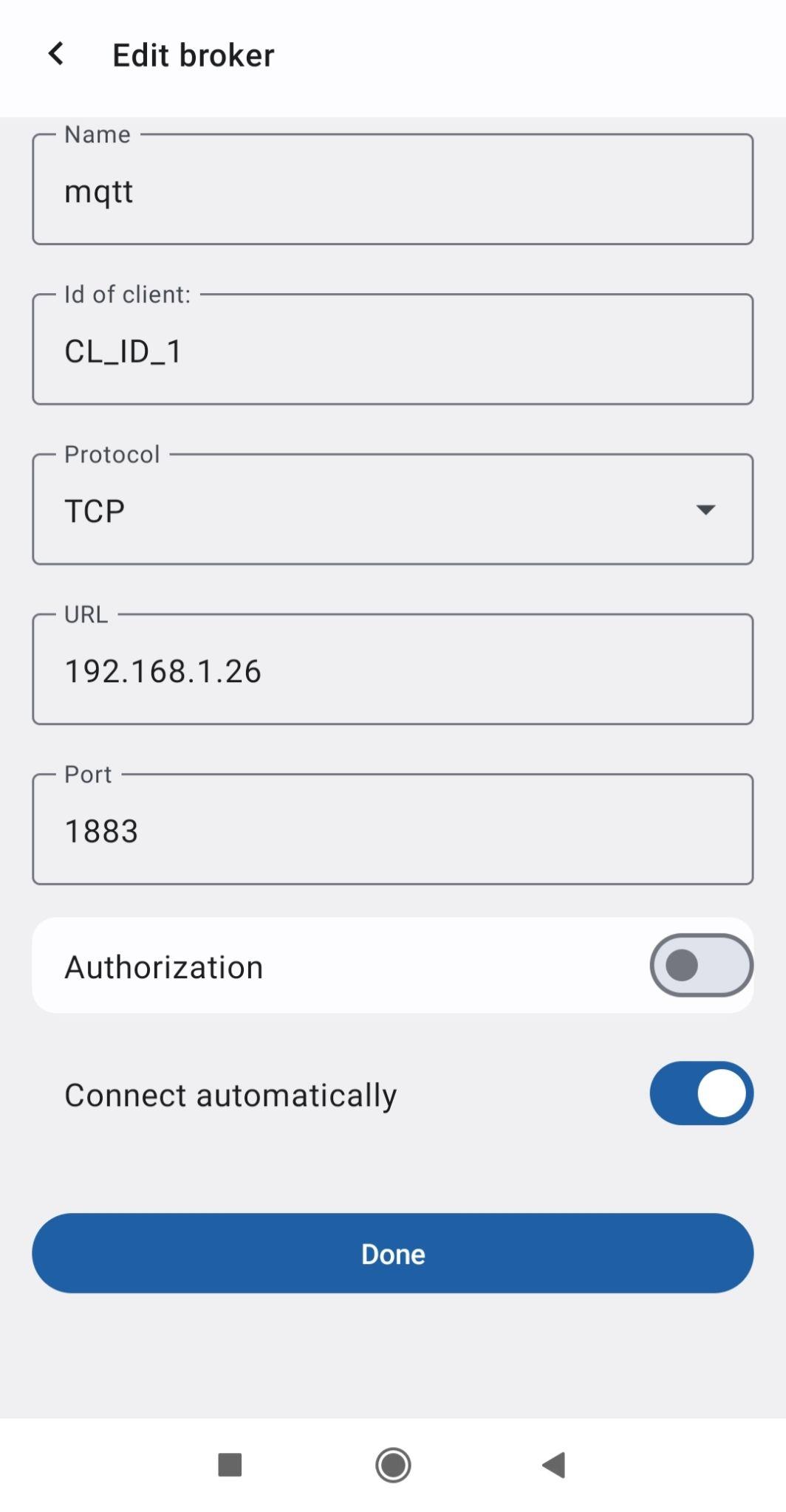
OR

* From mqtt explorer also you can connect to the broker





Mobile client to connect with broker.



Steps to connect esp32 as client

* Open arduino ide and write code for the esp32. We need to install ESP32 dev module, mqtt pub-sub client library, choose the port number correctly.
* Provide the proper clientid , username and password to establish the connection inside the code.

You can see the connection details in the serial monitor.

**NOTE :- incase authentication error rc=5 occurring do this steps.**

For using 1883 port number go to windows defender firewall >advance setting > inbounded > new rules. Make enable the port number 1883.

