Guide for Arduino based ESP8266

Below steps will guide you to run ESP8266 based MQTT samples via Arduino IDE.

Arduino IDE Setup

- Install the Arduino IDE 1.6.4 or greater from this site
- To Install the ESP8266 Board Package, go to **File->Preferences** from IDE menu.
- Add below URL into **Additional Boards Manager URLs** section.

```
http://arduino.esp8266.com/stable/package_esp8266com_index.json
```

- Go to Boards Manager from **Tools->Board->Boards Manager** and search for **esp8266** and press install.
- After installation, you will be able to select ESP8266 based devices as a board under **Tools->Board**.
- Select "NodeMCU 1.0" as board. It will auto complete board specifications; 80 MHz as CPU Frequency, 4M (1M SPIFFS) as Flash Size.
- To be able to write SW on device and get traces, select a proper device path from **Tools->Port** section.
- For linux users, add your user to the group of dialout to enable serial comm :

```
$ sudo adduser $USER dialout
```

Required Arduino Libraries

- To install required MQTT library, navigate to **Sketch->Manage Libraries->Library Manager** and type below name of the library :

```
PubSubClient
```

Running the sample code

- Now you are ready to get the sample code. First, clone the IoTPractices repository via git or just download as zip :

```
$ git clone https://github.com/cagdasdoner/IoTPractices.git
```

- Now, switch to ESP8266 Arduino workshop code directory :

```
$ cd IoTPractices/devices/esp8266_arduino/actuator
```

- Import **actuator.ino** file into the **Arduino IDE** via **File->Open** to get all other required files.
- Open **Credentials.h** file to update the given credentials with yours, like below:

```
/* WiFi Credentials*/
#define STA_SSID "YOUR_WIFI_SSID"
#define STA_PASS "YOUR_WIFI_PASS"

/* MQTT Credentials */
#define MQTT_BROKER       "www.maqiatto.com"
#define MQTT_BROKER_PORT  1883
#define MQTT_USERNAME     "YOUR_MQTT_USER"
#define MQTT_KEY          "YOUR_MQTT_PASS"

/* ThingSpeak Credentials */
#define TSPEAK_HOST       "http://api.thingspeak.com"
#define TSPEAK_PORT       80
#define TSPEAK_API_KEY    "YOUR_TS_API_KEY"
```

- NOTICE that, maqiatto.com will be your MQTT broker during the practice.
- After updating the credentials, workshop code is ready to be burnt into your device. You can now follow the given instructions during the workshop.
- After you have successfully connect to your WiFi Network, MQTT connection will be provided. you can see below logs under **Serial Monitor** of the IDE :

```
Waiting for AP connection ...

Connected to AP. IP : 192.168.1.101
Trace   : Attempting MQTT connection...
Trace   : Connected to Broker.
```