

```

#include<WiFi.h>
#include<PubSubClient.h>
#include<ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "nafgr4"
#define DEVICE_TYPE "Bin1"
#define DEVICE_ID "Tiruvallur"
#define TOKEN "T12345678"
#define speed 0.034
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/status1/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server,1883, wifiClient);
void publishData();
const int trigpin=5;
const int echopin=19;
String command;
String data="";
String latitude="13.1231";
String longitude="79.9120";
long duration;
int dist;
String icon;
void setup()
{
  Serial.begin(115200);
  pinMode(trigpin,OUTPUT);
  pinMode(echopin,INPUT);
  wifiConnect();
  mqttConnect();
}
void loop(){
  publishData();
  delay(500);
  if(!client.loop()){
    mqttConnect();
  }
}
void wifiConnect(){
  Serial.print("Connecting to ");
  Serial.print("Wifi");
  WiFi.begin("Wokwi-GUEST","",6);
  while(WiFi.status() != WL_CONNECTED){
    delay(500);
    Serial.print(".");
  }
}

```

```

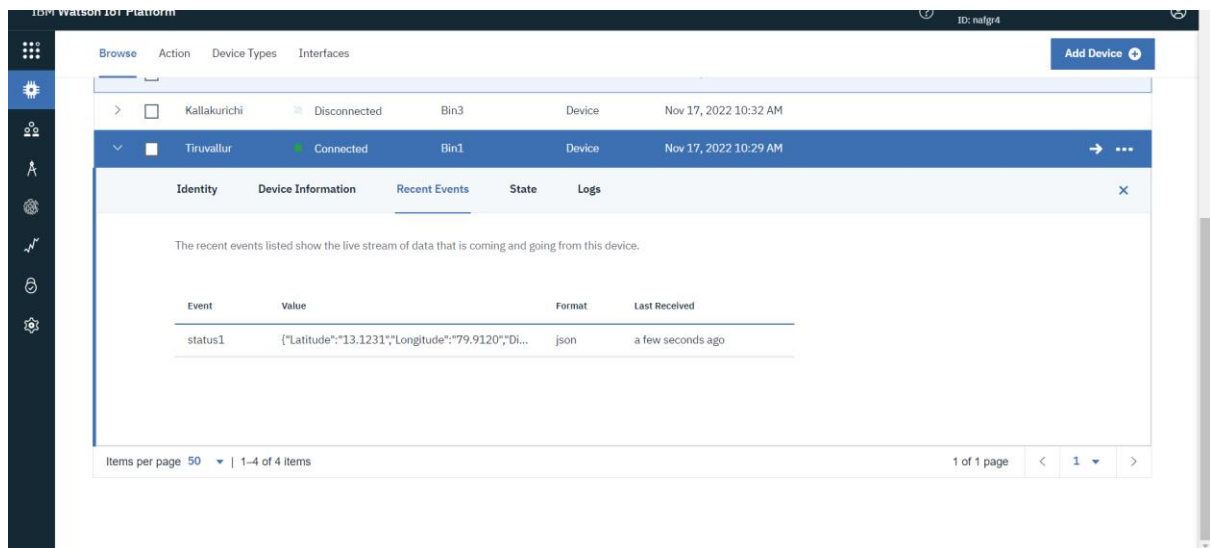
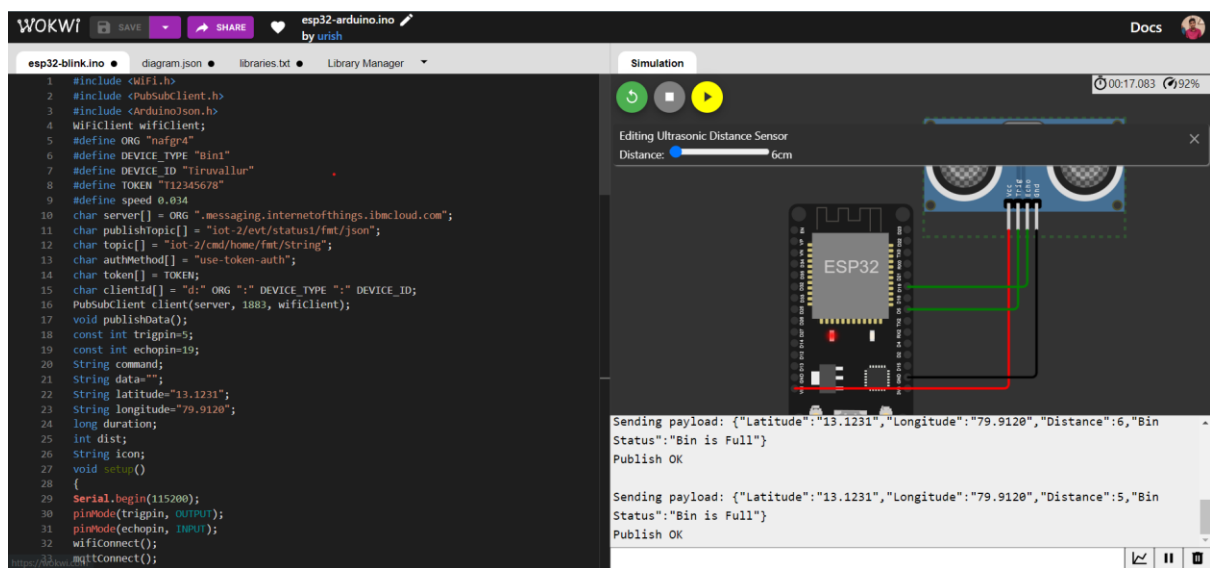
}
Serial.print("WiFi connected, IP address: ");Serial.println(WiFi.localIP());
}
void mqttConnect(){
if(!client.connected()){
Serial.print("Reconnecting MQTT client to ");Serial.println(server);
while(!client.connect(clientId, authMethod, token)){
Serial.print(".");
Serial.print("*");
delay(1000);
}
}
initManagedDevice();
Serial.println();
}
}
void initManagedDevice(){
if(client.subscribe(topic)){
Serial.println(client.subscribe(topic));
Serial.println("subscribe to cmd OK");
}
else{
Serial.println("subscribe to cmd FAILED");
}
}
void publishData()
{
digitalWrite(trigpin,LOW);
digitalWrite(trigpin,HIGH);
delayMicroseconds(10);
digitalWrite(trigpin,LOW);
duration=pulseIn(echopin,HIGH);
dist=duration*speed/2;
if(dist<20){
icon="Bin is Full";
}
else{
icon="Bin is not Full";
}
}
DynamicJsonDocument doc(1024);
String payload;
doc["Latitude"]=latitude;
doc["Longitude"]=longitude;
doc["Distance"]=dist;
doc["Bin Status"]=icon;
serializeJson(doc, payload);
delay(3000);
Serial.print("\n");
Serial.print("Sending payload: ");

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Serial.println(payload);
if(client.publish(publishTopic,(char*) payload.c_str())){
Serial.println("Publish OK");
}
else{
Serial.println("Publish FAILED");
}
}
}

```



Bin2

```

#include<WiFi.h>
#include<PubSubClient.h>
#include<ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "nafgr4"
#define DEVICE_TYPE "Bin2"
#define DEVICE_ID "Chennai"
#define TOKEN "C12345678"
#define speed 0.034
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/status1/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server,1883, wifiClient);
void publishData();
constint trigpin=5;
constint echopin=19;
String command;
String data="";
String latitude="13.0827";
String longitude="80.2707";
long duration;
int dist;
String icon;
void setup()
{
  Serial.begin(115200);
  pinMode(trigpin,OUTPUT);
  pinMode(echopin,INPUT);
  wifiConnect();
  mqttConnect();
}
void loop(){
  publishData();
  delay(500);
  if(!client.loop()){
    mqttConnect();
  }
}
void wifiConnect(){
  Serial.print("Connecting to ");
  Serial.print("Wifi");
  WiFi.begin("Wokwi-GUEST","",6);
  while(WiFi.status() != WL_CONNECTED){
    delay(500);
    Serial.print(".");
  }
}

```

```

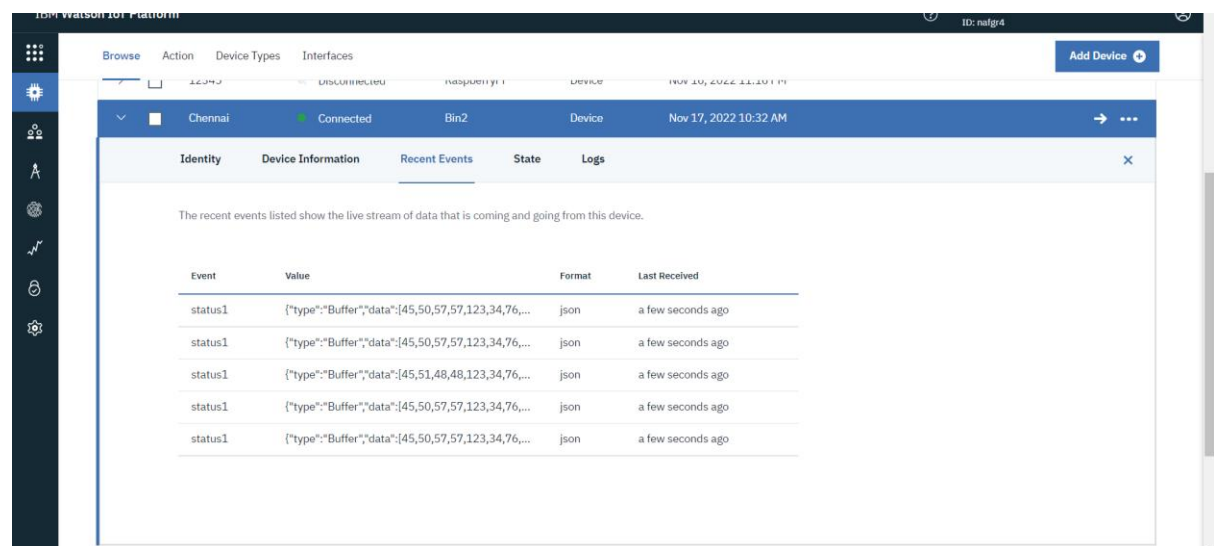
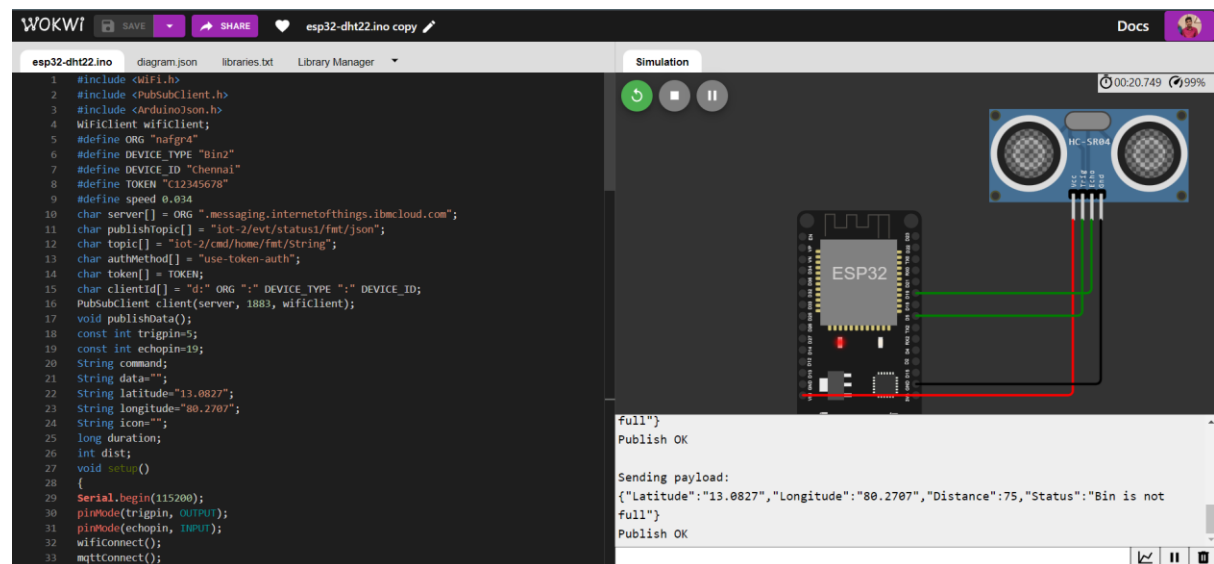
}
Serial.print("WiFi connected, IP address: ");Serial.println(WiFi.localIP());
}
void mqttConnect(){
if(!client.connected()){
Serial.print("Reconnecting MQTT client to ");Serial.println(server);
while(!client.connect(clientId, authMethod, token)){
Serial.print(".");
Serial.print("*");
delay(1000);
}
}
initManagedDevice();
Serial.println();
}
}
void initManagedDevice(){
if(client.subscribe(topic)){
Serial.println(client.subscribe(topic));
Serial.println("subscribe to cmd OK");
}
else{
Serial.println("subscribe to cmd FAILED");
}
}
void publishData()
{
digitalWrite(trigpin,LOW);
digitalWrite(trigpin,HIGH);
delayMicroseconds(10);
digitalWrite(trigpin,LOW);
duration=pulseIn(echopin,HIGH);
dist=duration*speed/2;
if(dist<20){
icon="Bin is Full";
}
else{
icon="Bin is not Full";
}
}
DynamicJsonDocument doc(1024);
String payload;
doc["Latitude"]=latitude;
doc["Longitude"]=longitude;
doc["Distance"]=dist;
doc["Bin Status"]=icon;
serializeJson(doc, payload);
delay(3000);
Serial.print("\n");
Serial.print("Sending payload: ");

```

```

Serial.println(payload);
if(client.publish(publishTopic,(char*) payload.c_str())){
Serial.println("Publish OK");
}
else{
Serial.println("Publish FAILED");
}
}
}

```



Bin3

```

#include<WiFi.h>
#include<PubSubClient.h>
#include<ArduinoJson>
WiFiClient wificlient;

```

```

#define ORG "nafgr4"
#define DEVICE_TYPE "Bin3"
#define DEVICE_ID "Kallakurichi"
#define TOKEN "K12345678"
#define speed 0.034
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/status1/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
void publishData();
const int trigpin = 5;
const int echopin = 19;
String command;
String data = "";
String latitude = "11.7348";
String longitude = "78.9639";
String icon = "";
long duration;
int dist;
void setup()
{
  Serial.begin(115200);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
  mqttConnect();
}
void loop() {
  publishData();
  delay(500);
  if (!client.loop()) {
    mqttConnect();
  }
}
void wifiConnect() {
  Serial.print("Connecting to ");
  Serial.print("Wifi");
  WiFi.begin("Wokwi-GUEST", "", 6);
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.print("WiFi connected, IP address: ");
  Serial.println(WiFi.localIP());
}
void mqttConnect() {

```

```

if(!client.connected()){
Serial.print("Reconnecting MQTT client to ");Serial.println(server);
while(!client.connect(clientId, authMethod, token)){
Serial.print(".");
Serial.print("*");
delay(1000);
}
initManagedDevice();
Serial.println();
}
}

void initManagedDevice(){
if(client.subscribe(topic)){
Serial.println(client.subscribe(topic));
Serial.println("subscribe to cmd OK");
}
else{
Serial.println("subscribe to cmd FAILED");
}
}

void publishData()
{
digitalWrite(trigpin,LOW);
digitalWrite(trigpin,HIGH);
delayMicroseconds(10);
digitalWrite(trigpin,LOW);
duration=pulseIn(echopin,HIGH);
dist=duration*speed/2;
if(dist<20){
icon="Bin is full";
}
else{
icon="Bin is not full";
}
DynamicJsonDocument doc(1024);
String payload;
doc["Latitude"]=latitude;
doc["Longitude"]=longitude;
doc["Distance"]=dist;
doc["Status"]=icon;
serializeJson(doc, payload);
delay(3000);
Serial.print("\n");
Serial.print("Sending payload: ");
Serial.println(payload);
if(client.publish(publishTopic,(char*) payload.c_str())){
Serial.println("Publish OK");
}
}

```



```

else{
Serial.println("Publish FAILED");
}
}

```

WOKWI SAVE SHARE esp32-dht22.ino copy Docs

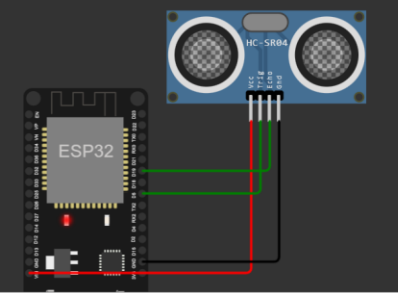
esp32-dht22.ino diagram.json libraries.txt Library Manager

```

1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4 WiFiClient wifiClient;
5 #define ORG "nafgr4"
6 #define DEVICE_TYPE "Bin3"
7 #define DEVICE_ID "Kallakurichi"
8 #define TOKEN "612345678"
9 #define speed 0.034
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt/status1/fmt/json";
12 char topic[] = "iot-2/cmd/home/fmt/String";
13 char authMethod[] = "use-token-auth";
14 char token[] = TOKEN;
15 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
16 PubSubClient client(server, 1883, wifiClient);
17 void publishData();
18 const int trigpin=5;
19 const int echopin=19;
20 String command;
21 String data="";
22 String latitude="11.7348";
23 String longitude="78.9639";
24 String icon="";
25 long duration;
26 int dist;
27 void setup()
28 {
29   Serial.begin(115200);
30   pinMode(trigpin, OUTPUT);
31   pinMode(echopin, INPUT);
32   wifiConnect();
33   mqttconnect();

```

Simulation 00:10.050 100%



subscribe to cmd OK

Sending payload:
{"Latitude":"11.7348","Longitude":"78.9639","Distance":27,"Status":"Bin is not full"}
Publish OK

IBM Watson IoT Platform ID: natgr4

Browse Action Device Types Interfaces Add Device

Identity Device Information **Recent Events** State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status1	{"Latitude":"11.7348","Longitude":"78.9639","Di...	json	a few seconds ago
status1	{"Latitude":"11.7348","Longitude":"78.9639","Di...	json	a few seconds ago

> ☐ Tiruvallur ☐ Disconnected Bin1 Device Nov 17, 2022 10:29 AM

Items per page 50 | 1-4 of 4 items 1 of 1 page < 1 >

Final Output

