

## Developing a python script

Date	10 November 2022
Team Id	PNT2022TMID48690
Title	Hazardous Area Monitoring for Industrial Plant using IoT

## Python Code

Python Script IOT.py - C:\Users\91934\Downloads\Python Script IOT.py (3.7.0)

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```
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "4wj0mx"
deviceType = "NodeMCU"
deviceId = "IoT001"
authMethod = "token"
authToken = "1234567890"

# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status == "lighton":
        print("led in on")
    else :
        print ("led is off")

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod, "auth-token": authToken}
    deviceCli = ibmiotf.device.Client(deviceOptions)
    #.....

except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()

while True:
    #Get Sensor Data from DHT11
    temp=random.randint(0,100)
    humid=random.randint(0,100)
    data = {'temp' : temp, 'humid' : humid}
    #print data
    def myOnPublishCallback():
        print ("Published Temperature = %s C" % temp, "Humidity:%s" %humid)

    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0, on_publish=myOnPublishCallback)
    if not success:
        print("Not connected to IoTF")
        time.sleep(1)

    deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

## Generated Values

```
Python 3.7.0 Shell
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\91934\Downloads\Python Script IOT.py =====
2022-11-09 22:48:15,741 ibmiotf.device.Client INFO Connected successfully: d:4wj0mx:NodeMCU:IoT001
Published Temperature = 68 C Humidity:97
Published Temperature = 12 C Humidity:10
Published Temperature = 0 C Humidity:79
Published Temperature = 95 C Humidity:56
Published Temperature = 91 C Humidity:64
Published Temperature = 25 C Humidity:78
Published Temperature = 24 C Humidity:69
Published Temperature = 82 C Humidity:50
Published Temperature = 75 C Humidity:45
Published Temperature = 44 C Humidity:9
Published Temperature = 59 C Humidity:44
Published Temperature = 67 C Humidity:12
Published Temperature = 0 C Humidity:31
Published Temperature = 3 C Humidity:21
Published Temperature = 32 C Humidity:8
Published Temperature = 7 C Humidity:90
Published Temperature = 71 C Humidity:42
Published Temperature = 99 C Humidity:76
Published Temperature = 97 C Humidity:45
Published Temperature = 10 C Humidity:95
Published Temperature = 19 C Humidity:19
Published Temperature = 85 C Humidity:13
Published Temperature = 11 C Humidity:57
Published Temperature = 70 C Humidity:86
Published Temperature = 54 C Humidity:91
Published Temperature = 59 C Humidity:8
Published Temperature = 35 C Humidity:11
Published Temperature = 39 C Humidity:42
Published Temperature = 17 C Humidity:85
Published Temperature = 69 C Humidity:46
Published Temperature = 40 C Humidity:9
Published Temperature = 90 C Humidity:90
Published Temperature = 64 C Humidity:41
Published Temperature = 70 C Humidity:91
Published Temperature = 17 C Humidity:89
Published Temperature = 20 C Humidity:58
Published Temperature = 63 C Humidity:65
Published Temperature = 60 C Humidity:92
Published Temperature = 87 C Humidity:1
Published Temperature = 58 C Humidity:37
Published Temperature = 70 C Humidity:85
Published Temperature = 90 C Humidity:43
Published Temperature = 59 C Humidity:0
Published Temperature = 0 C Humidity:3
Published Temperature = 52 C Humidity:26
```

## Publishing the value to IBM cloud

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar is present with the text 'Search by Device ID'. The main content area shows a table of devices, with one device selected: IoT001, which is 'Connected' and of type 'NodeMCU'. Below the table, a 'Recent Events' tab is active, showing a list of events with columns for 'Event', 'Value', 'Format', and 'Last Received'. The events are JSON objects containing temperature and humidity data.

Event	Value	Format	Last Received
IoTSensor	{"temp":69,"humid":46}	json	a few seconds ago
IoTSensor	{"temp":17,"humid":85}	json	a few seconds ago
IoTSensor	{"temp":39,"humid":42}	json	a few seconds ago
IoTSensor	{"temp":35,"humid":11}	json	a few seconds ago
IoTSensor	{"temp":59,"humid":8}	json	a few seconds ago