

# Real-Time River Water Quality Monitoring and Control Systems

## DEVELOP THE PYTHON SCRIPT

**Develop a python script to publish random sensor data to the IBM IoT platform**

<b>Date</b>	<b>29/10/2022</b>
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<b>Project Name</b>	<b>Real-Time Water Quality Monitoring And Control System</b>

### Code:

```
import random
import time
import sys
import ibmiotf.application
import ibmiotf.device

# Provide your IBM Watson Device Credentials
organization = "f5rl2v" # repalce it with organization ID
deviceType = "weather_device" # replace it with device type
deviceId = "weather_today" # repalce with device id
authMethod = "token"
authToken = "2VcVpo)hG4rnKKIG)x" # repalce with token

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data)
    if cmd.data['command'] == 'lighton':
        print("LIGHT ON")
    elif cmd.data['command'] == 'lightoff':
        print("LIGHT 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()

deviceCli.connect()
while True:
    pH = random.randint(0,100)
    conductivity = random.randint(0,100)
    T = random.randint(0,100)
    oxygen = random.randint(0,100)
    turbidity = random.randint(0,100)
    #Send Temperature & Humidity to IBM Watson
    data =
{"turbidity":turbidity,'temp':T,'ph':pH,'Salinity':conductivity,'oxygen':oxygen}

print (data)
def myOnPublishCallback():
    print("Published data",data, "to IBM Watson")

success = deviceCli.publishEvent("event", "json", data, 0,
myOnPublishCallback)
if not success:
    print("Not connected to IoTf")
time.sleep(5)

deviceCli.commandCallback = myCommandCallback

```

## python output:

```

OUTPUT  DEBUG CONSOLE  TERMINAL  4  JUPYTER  SQL CONSOLE  COMMENTS
▼ TERMINAL
Published data {'turbidity': 85, 'temp': 67, 'ph': 60, 'Salinity': 70
, 'oxygen': 18} to IBM Watson
Published data {'turbidity': 13, 'temp': 49, 'ph': 91, 'Salinity': 57
, 'oxygen': 82} to IBM Watson
Published data {'turbidity': 57, 'temp': 88, 'ph': 0, 'Salinity': 5, 'oxygen': 51} to IBM Watson
Published data {'turbidity': 44, 'temp': 62, 'ph': 22, 'Salinity': 10, 'oxygen': 31} to IBM Watson
Published data {'turbidity': 15, 'temp': 97, 'ph': 16, 'Salinity': 66, 'oxygen': 0} to IBM Watson
Published data {'turbidity': 10, 'temp': 33, 'ph': 64, 'Salinity': 71, 'oxygen': 5} to IBM Watson
Published data {'turbidity': 57, 'temp': 12, 'ph': 59, 'Salinity': 17, 'oxygen': 84} to IBM Watson
Published data {'turbidity': 64, 'temp': 34, 'ph': 97, 'Salinity': 98, 'oxygen': 80} to IBM Watson
Published data {'turbidity': 78, 'temp': 26, 'ph': 54, 'Salinity': 13, 'oxygen': 79} to IBM Watson
Published data {'turbidity': 3, 'temp': 47, 'ph': 96, 'Salinity': 40, 'oxygen': 7} to IBM Watson
Published data {'turbidity': 51, 'temp': 33, 'ph': 65, 'Salinity': 47, 'oxygen': 75} to IBM Watson
Published data {'turbidity': 56, 'temp': 1, 'ph': 4, 'Salinity': 10, 'oxygen': 9} to IBM Watson
Published data {'turbidity': 10, 'temp': 98, 'ph': 20, 'Salinity': 26, 'oxygen': 74} to IBM Watson
Published data {'turbidity': 70, 'temp': 22, 'ph': 91, 'Salinity': 65, 'oxygen': 29} to IBM Watson
Published data {'turbidity': 54, 'temp': 7, 'ph': 40, 'Salinity': 37, 'oxygen': 73} to IBM Watson
Published data {'turbidity': 36, 'temp': 61, 'ph': 96, 'Salinity': 43, 'oxygen': 42} to IBM Watson

```

IBM CLOUD OUTPUT:

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added
▼ <input type="checkbox"/>	weather_today	<span>●</span> Connected	weather_device	Device	Nov 15, 2022 8:03 PM
<div>IdentityDevice InformationRecent EventsStateLogs</div>					
The recent events listed show the live stream of data that is coming and going from this device.					
Event	Value	Format	Last Received		
event_1	{"Salinity":13,"temp":49,"oxygen":12,"turbidity":3}	json	a few seconds ago		
event_1	{"Salinity":9,"temp":25,"oxygen":12,"turbidity":31}	json	a few seconds ago		
event_1	{"Salinity":8,"temp":9,"oxygen":2,"turbidity":4}	json	a few seconds ago		
event_1	{"Salinity":41,"temp":44,"oxygen":12,"turbidity":...	json	a few seconds ago		
event_1	{"Salinity":23,"temp":38,"oxygen":6,"turbidity":46}	json	a few seconds ago		