

Project 3 Report Part 1

Setting Up the IoT Device with AWS IoT Core

Group 8

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5 November 2025

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MCP9808 Temperature Sensor

```
venv: error: the following arguments are required: ENV_DIR
pi@CYT160Project:~ $ python3 -m venv
usage: venv [-h] [--system-site-packages] [--symlinks | --copies] [-
             --upgrade] [--without-pip] [--prompt PROMPT] [--upgrade
             [--without-scm-ignore-files]
             ENV_DIR [ENV_DIR ...]
venv: error: the following arguments are required: ENV_DIR
pi@CYT160Project:~ $ source iot_project_env/bin/activate
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.5625 °C
(iot_project_env) pi@CYT160Project:~ $ █
```

Interpreting the Temperature Sensor Reading

```
[--without-scm-ignore-files]
ENV_DIR [ENV_DIR ...]
venv: error: the following arguments are required: ENV_DIR
pi@CYT160Project:~ $ source iot_project_env/bin/activate
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.5625 °C
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.5 °C
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.5 °C
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.3125 °C
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.1875 °C
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.3125 °C
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.375 °C
(iot_project_env) pi@CYT160Project:~ $ python3 sensor_test.py
Temperature: 24.375 °C
(iot_project_env) pi@CYT160Project:~ $ █
```

View Messages in the AWS IoT Console

The screenshot shows the AWS IoT Subscriptions interface. On the left, there's a sidebar titled "Subscriptions" with a single entry: "sdk/test/python". The main area is titled "sdk/test/python" and contains a "Message payload" section with the JSON code: { "message": "Hello from AWS IoT console" }. Below it is an "Additional configuration" section with a "Publish" button. The message history shows two entries:

- November 05, 2025, 14:38:43 (UTC-0500): Hello from mqtt5 sample [7]
- November 05, 2025, 14:38:41 (UTC-0500): Hello from mqtt5 sample [6]

The screenshot shows a terminal window on a Raspberry Pi (pi@CYT160Project) running a Python MQTT client. The application is named "PubSub Sample" and is connected to an AWS endpoint. It's publishing messages to the topic "sdk/test/python" and receiving them back. The log output is as follows:

```
File Edit Tabs Help
(pi@CYT160Project:~/Desktop/CYT160/project3) pi@CYT160Project:~/Desktop/CYT160/project3$ ./start.sh
Running pub/sub sample application...
Starting MQTT5 X509 PubSub Sample
==== Creating MQTT5 Client ====
==== Starting client ====
Lifecycle Connection Attempt
Connecting to endpoint: 'aishp6zvy6pv1v-ats.iot.us-east-1.amazonaws.com' with client ID'basicPubSub'
Lifecycle Connection Success with reason code:<ConnectReasonCode.SUCCESS: 0>
==== Subscribing to topic 'sdk/test/python' ====
Suback received with reason code:[<SubackReasonCode.GRANTED_QOS_1: 1>]
==== Sending messages until program killed ====
Publishing message to topic 'sdk/test/python': Hello from mqtt5 sample [1]
PubAck received with <PubackReasonCode.SUCCESS: 0>
==== Received message from topic 'sdk/test/python': Hello from mqtt5 sample [1] ====
Publishing message to topic 'sdk/test/python': Hello from mqtt5 sample [2]
PubAck received with <PubackReasonCode.SUCCESS: 0>
==== Received message from topic 'sdk/test/python': Hello from mqtt5 sample [2] ====
Publishing message to topic 'sdk/test/python': Hello from mqtt5 sample [3]
PubAck received with <PubackReasonCode.SUCCESS: 0>
==== Received message from topic 'sdk/test/python': Hello from mqtt5 sample [3] ====
Publishing message to topic 'sdk/test/python': Hello from mqtt5 sample [4]
PubAck received with <PubackReasonCode.SUCCESS: 0>
==== Received message from topic 'sdk/test/python': Hello from mqtt5 sample [4] ====
Publishing message to topic 'sdk/test/python': Hello from mqtt5 sample [5]
PubAck received with <PubackReasonCode.SUCCESS: 0>
==== Received message from topic 'sdk/test/python': Hello from mqtt5 sample [5] ====
Publishing message to topic 'sdk/test/python': Hello from mqtt5 sample [6]
PubAck received with <PubackReasonCode.SUCCESS: 0>
==== Received message from topic 'sdk/test/python': Hello from mqtt5 sample [6] ====
Publishing message to topic 'sdk/test/python': Hello from mqtt5 sample [7]
PubAck received with <PubackReasonCode.SUCCESS: 0>
==== Received message from topic 'sdk/test/python': Hello from mqtt5 sample [7] ====

```