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SKEL-IoT Platform / Deploying a sample S-type service



# Welcome!

In this page we will try to give you an example of a sensing service that publishes measurements to our platform and demonstrate how to deploy it, step by step!

For this particular demonstration we chose to deploy an **S-type service** (see *Services* section in *Home* Wiki) which utilises a **TEMPer** USB sensor connected to your machine, to get the *room temperature* as an *input* and display it in *Celsius* or *Fahrenheit* format as an *output*.

# **First things First!**

Log in to SYNAISTHISI the way we described in the Home Wiki page and go to the Topics menu.

There, you should create the following 4 topics, exactly as described:

### 1st Topic:

- Name: configuration\_input
- **Description:** Receives a configuration command based on the CommandType v2 protocol

#### 2nd Topic:

- Name: celsius\_output
- **Description:** Posts a temperature measurement in celsius degrees

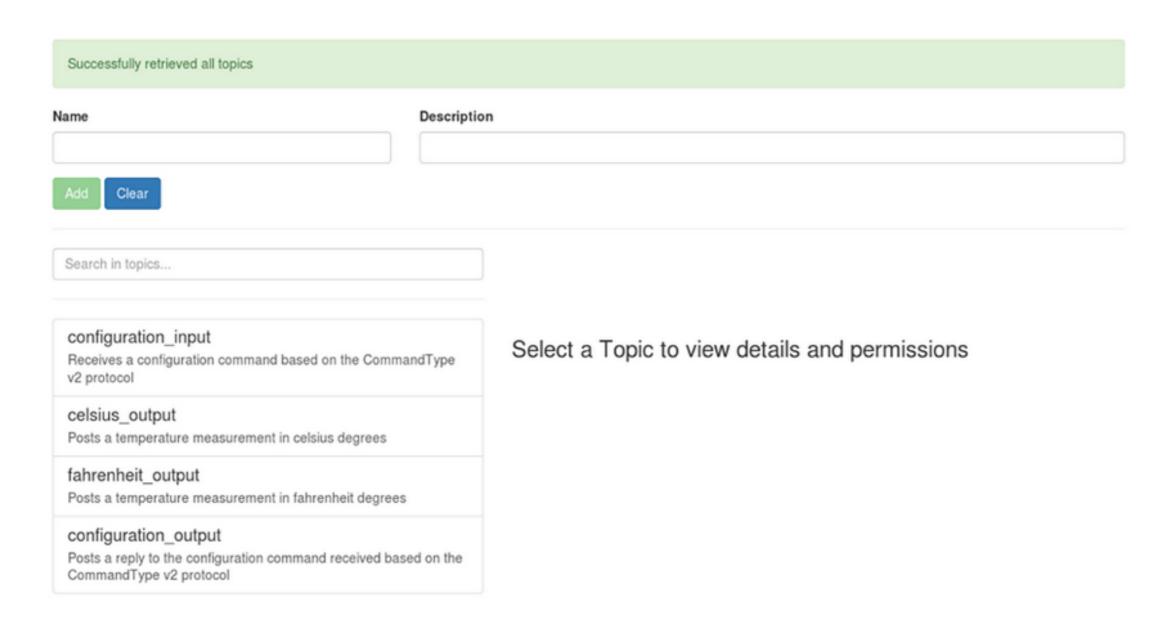
#### **3rd Topic:**

- Name: fahrenheit\_output
- **Description:** Posts a temperature measurement in fahrenheit degrees

### 4th Topic:

- Name: configuration\_output
- Description: Posts a reply to the configuration command received based on the CommandType v2 protocol

When you are finished, the Topics menu should look like:



## Next up...

We have prepared for you and uploaded the s-type service file necessary for the service to be deployed. Navigate to **synaisthisi-container/examples/temper s-type service** file in the repository and download the **temperature\_sensing.py** file.

The TEMPer repository is also needed. You can download it here.

When downloading is done, extract the contents of the file in your *Home* directory and then, place **temperature\_sensing.py** inside *temper-python/temperusb*.

Open a terminal and navigate to this folder using the following command:

```
cd temper-python/temperusb
```

Then, execute the command below to start the service:

```
Tip: Log in SYNAISTHISI now, if you haven't already!
```

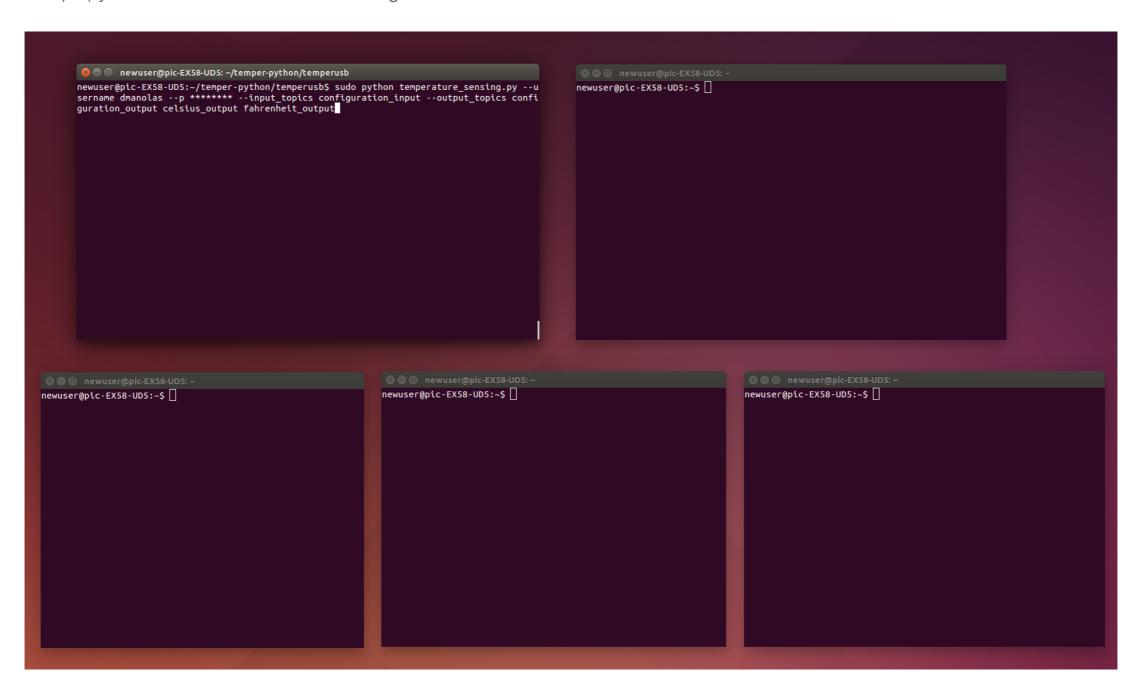
```
sudo python temperature_sensing.py --username <your username> --p <your password> --input_topics configuration_input --outp
```

### That should be all!

If you want to make sure that everything is working, follow these next steps:

Open another 4 different terminal windows and organize them side by side with the one that's already open in your screen, so that every one of them is visible simultaneously.

For example, your screen should look something like this:



Type each of the following 4 commands on a different blank terminal:

```
    mosquitto_pub -h 'localhost' -p 1883 -t 'configuration_input' -u <your username> -P <your password> -i 123 -m
    mosquitto_sub -h 'localhost' -p 1883 -t 'configuration_output' -u <your username> -P <your password> -i 12345
    mosquitto_sub -h 'localhost' -p 1883 -t 'celsius_output' -u <your username> -P <your password> -i 456
```

Hint: Where you execute the above command will dictate where the temperature output is going to show in Celsius degrees!

```
4. mosquitto_sub -h 'localhost' -p 1883 -t 'fahrenheit_output' -u <your username> -P <your password> -i 789
```

Hint: Where you execute the above command will dictate where the temperature output is going to show in Fahrenheit degrees!

A few moments in the process your screen should start looking like this:

```
newuser@pic-EX58-UD5:~$ mosquitto_pub -h 'localhost' -p 1883 -t 'configuration_i nput' -u dmanolas -P ******* -i 123 -m 'START,1,2,CMD_SENDF,777,celsius_output,4,20,END'
             ('log: ', "Sending PUBLISH (d0, q0, r0, m1669), 'celsius_output', ... (111 bytes)")
('log: ', "Sending PUBLISH (d0, q0, r0, m1670), 'fahrenheit_output', ... (114 bytes)")
DisConnected flags 1, result code:0, client_id: synaisthisi-client
             ('log: ', 'Sending CONNECT (u1, p1, wr0, wq0, wf0, c1, k60) client_id=synaisthisi-clie
             ('log: ', 'Received CONNACK (0, 0)')
('connecting to broker ', 'localhost')
            conflecting to topics
subscribing to topics
('log: ', "Sending SUBSCRIBE (d0) [('configuration_input', 0)]")
('log: ', "Sending SUBSCRIBE (d0) [('disconnect', 0)]")
Disconnected flags 1, result code:0, client_id: synaisthisi-client
('log: ', 'Sending CONNECT (u1, p1, wr0, wq0, wf0, c1, k60) client_id=synaisthisi-client
           nt')
('log: ', 'Received CONNACK (0, 0)')
('connecting to broker ', 'localhost')
subscribing to topics
('log: ', "Sending SUBSCRIBE (d0) [('configuration_input', 0)]")
('log: ', "Sending SUBSCRIBE (d0) [('disconnect', 0)]")
('log: ', 'Received SUBACK')
('log: ', 'Received SUBACK')
('log: ', 'Received SUBACK')
('log: ', "Sending PUBLISH (d0, q0, r0, m1679), 'celsius_output', ... (111 bytes)")
('log: ', "Sending PUBLISH (d0, q0, r0, m1680), 'fahrenheit_output', ... (114 bytes)")
Disconnected flags 1, result code:0, client_id: synaisthisi-client
 🔞 🗐 🗊 newuser@pic-EX58-UD5: ~
newuser@pic-EX58-UD5:~$ mosquitto_sub -h 'localhost' -p 1883
-t 'configuration_output' -u dmanolas -P ******* -i 12345
                                                                                                                  us_output, message => Room temperature: 27.0°C
                                                                                                                                                                                                                                            it_output, message => Room temperature: 80.6°(
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us_output, message => Room temperature: 27.0°C
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Received in topic configuration_input, Publishing in topic celsi
                                                                                                                  us_output, message => Room temperature: 27.0°C
                                                                                                                                                                                                                                            it_output, message => Room temperature: 80.6°C
```

Notice how, the terminals in the bottom right of the screenshot, display the room temperature in Celsius/Fahrenheit and refresh the output stream every few seconds.

Well, the "seconds" part is actually configurable...

Changing the parameters in the end of command no.1 of the listed commands can affect the information you are getting in various ways.

For example, in...

```
mosquitto_pub -h 'localhost' -p 1883 -t 'configuration_input' -u <your username> -P <your password> -i 123 -m 'START,1,2,
```

- The '4' at the end stands for the refresh rate (in seconds) of the output stream.
- The '20' refers to the duration of the selected refresh rate, after witch it returns to its default refresh rate of 1 sec.
- Instead of "celsius\_output" you can try "fahrenheit\_output" to change the Fahrenheit output stream refresh rate.

Here are some other commands to experiment with on your own and get a little more acquainted with the whole process.

```
mosquitto_pub -h 'localhost' -p 1883 -t 'configuration_input' -u <your username> -P <your password> -i 123 -m 'START,1,2,CMD_SEN mosquitto_pub -h 'localhost' -p 1883 -t 'configuration_input' -u <your username> -P <your password> -i 123 -m 'START,1,2,CMD_SEN mosquitto_pub -h 'localhost' -p 1883 -t 'configuration_input' -u <your username> -P <your password> -i 123 -m 'START,1,2,CMD_CLI mosquitto_pub -h 'localhost' -p 1883 -t 'configuration_input' -u <your username> -P <your password> -i 123 -m 'START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,2,CMD_START,1,
```

You can now proceed to our next wiki, Deploying an SPA Micro-service for face detection.