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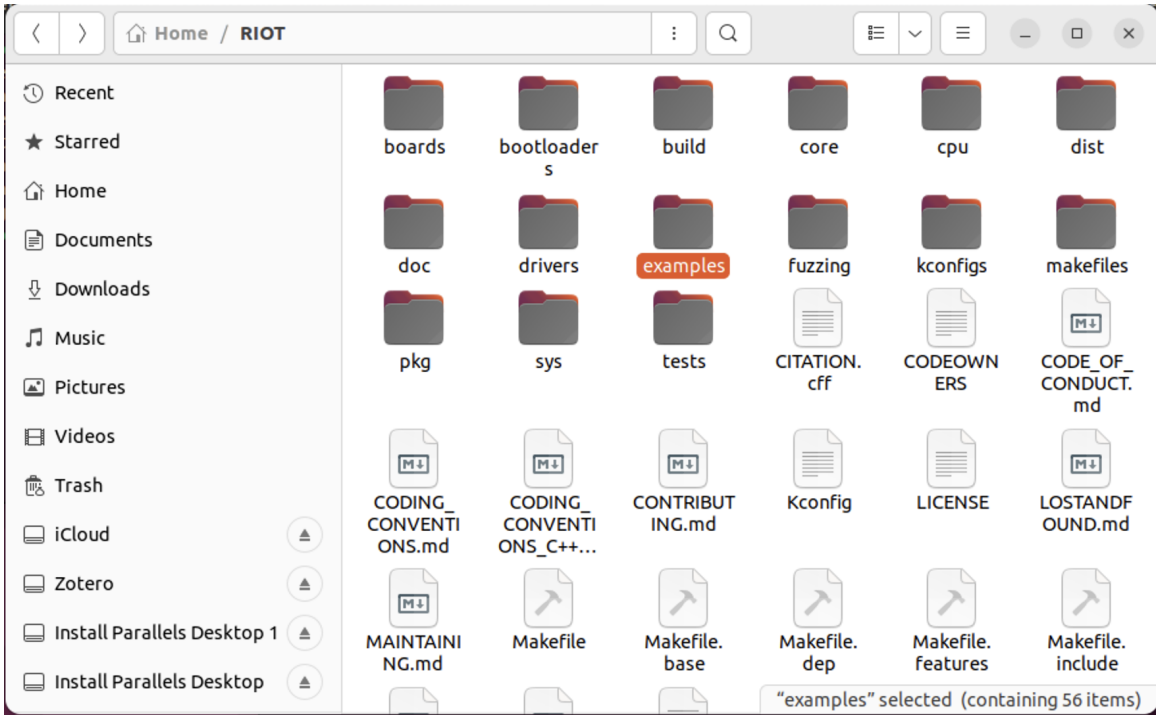
Try to install everything on an ubuntu machine.

Step 1: Install RIOT OS

Install RIOT OS and all its dependencies by cloning it via git using command '$ git clone https://github.com/RIOT-OS/RIOT' .

Step 2: Create an application

After installing RIOT, go into its directory and you will find examples folder in it.



Go into the examples folder and create a new folder 'smartDustBin'. Paste 'Makefile', 'Makefile.board.dep', 'Makefile.lwip' and 'main.c' code files into the smartDustBin folder.

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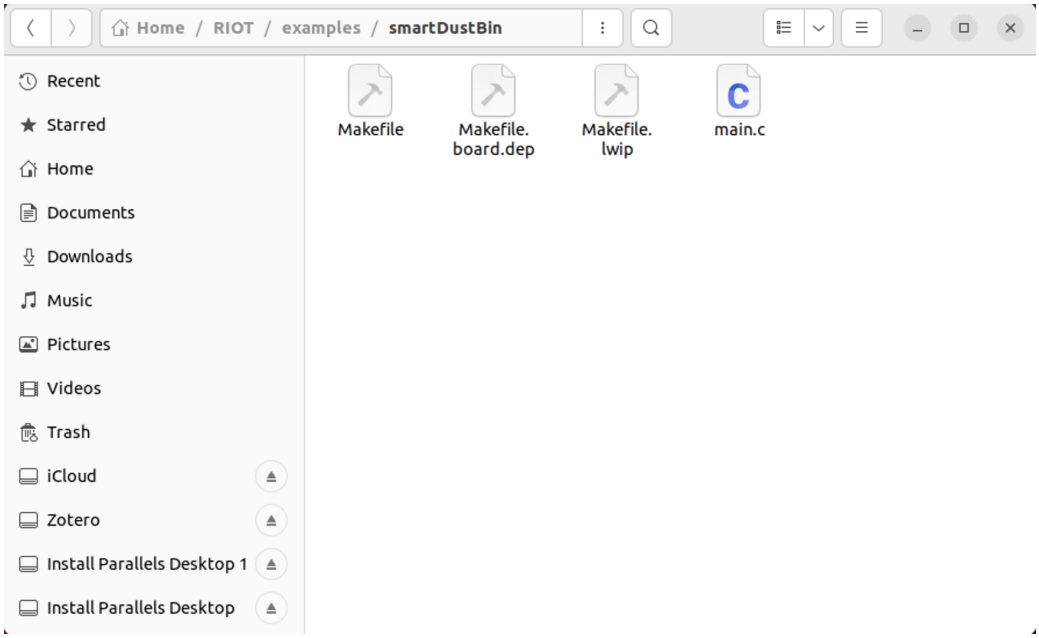
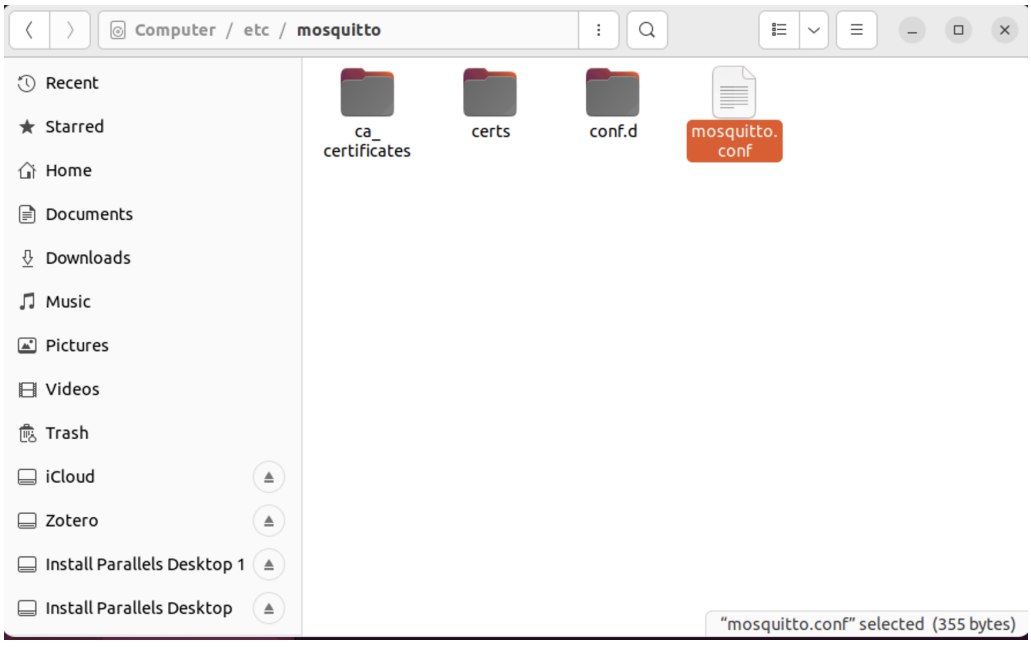


Step 3: Configure Mosquitto(MQTT Broker)

Mosquitto is available in the Ubuntu repositories so you can install it as with any other package. If you are on an earlier version of Ubuntu or want a more recent version of mosquitto, add the mosquitto-dev PPA to your repositories list using the 'sudo apt-add-repository ppa:mosquitto-dev/mosquitto-ppa' command and update using 'sudo apt-get update' command. Go to etc/mosquitto and create a 'mosquitto.conf' file.



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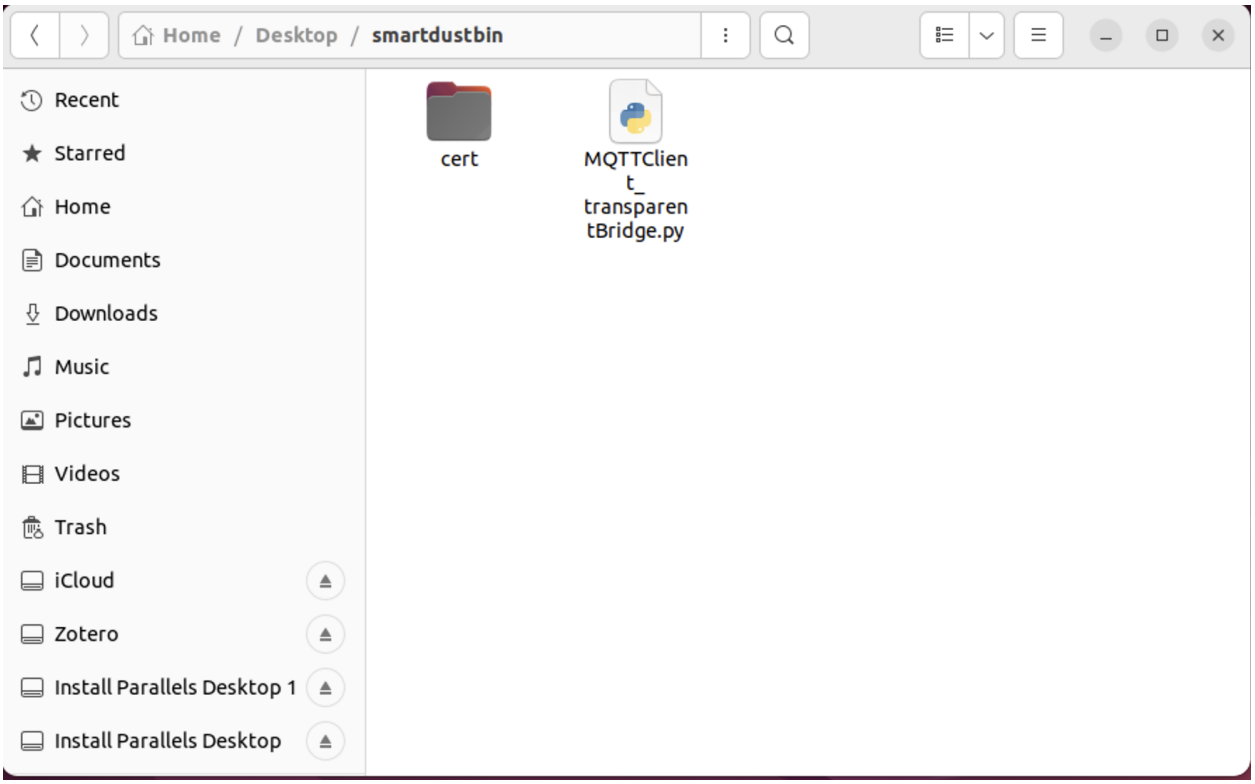
Add ‘allow_anonymous true’ and ‘listener 1883’ lines into the file.

Step 4: Establish connection between Mosquitto MQTT and IoT core

Create a new folder on the desktop and name it smartdustbin. Now create a new file named MQTTClient_transparentBridge in the smartdustbin folder and paste the code from the ‘MQTTClient_transparentBridge’ code file.



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Running the Code:

Step 1: Go into the Riot application folder and flash the firmware onto your esp32 board using the following command:

‘sudo BOARD=esp32s3-devkit BUILD_IN_DOCKER=1 DOCKER="sudo docker" PORT=/dev/ttyUSB0 make all flash’.

Step 2: Run Mosquitto from its root directory with the command ‘mosquitto -v’.

```
parallels@ubuntu-linux-22-04-02-desktop:/etc/mosquitto$ mosquitto -v
1701688174: mosquitto version 2.0.18 starting
1701688174: Using default config.
1701688174: Starting in local only mode. Connections will only be possible from
clients running on this machine.
1701688174: Create a configuration file which defines a listener to allow remote
 access.
1701688174: For more details see https://mosquitto.org/documentation/authenticat
ion-methods/
1701688174: Opening ipv4 listen socket on port 1883.
1701688174: Opening ipv6 listen socket on port 1883.
1701688174: mosquitto version 2.0.18 running
```

Step 3: Start the bridge using the command ‘python3 MQTTClient_transparentBridge’.

```
parallels@ubuntu-linux-22-04-02-desktop:~/Desktop/smartdustbin$ python3 MQTTClient_transparentBridge.py
Trying to connect to AWS IOT CORE
```