

# Configuration files or steps to operate on the device

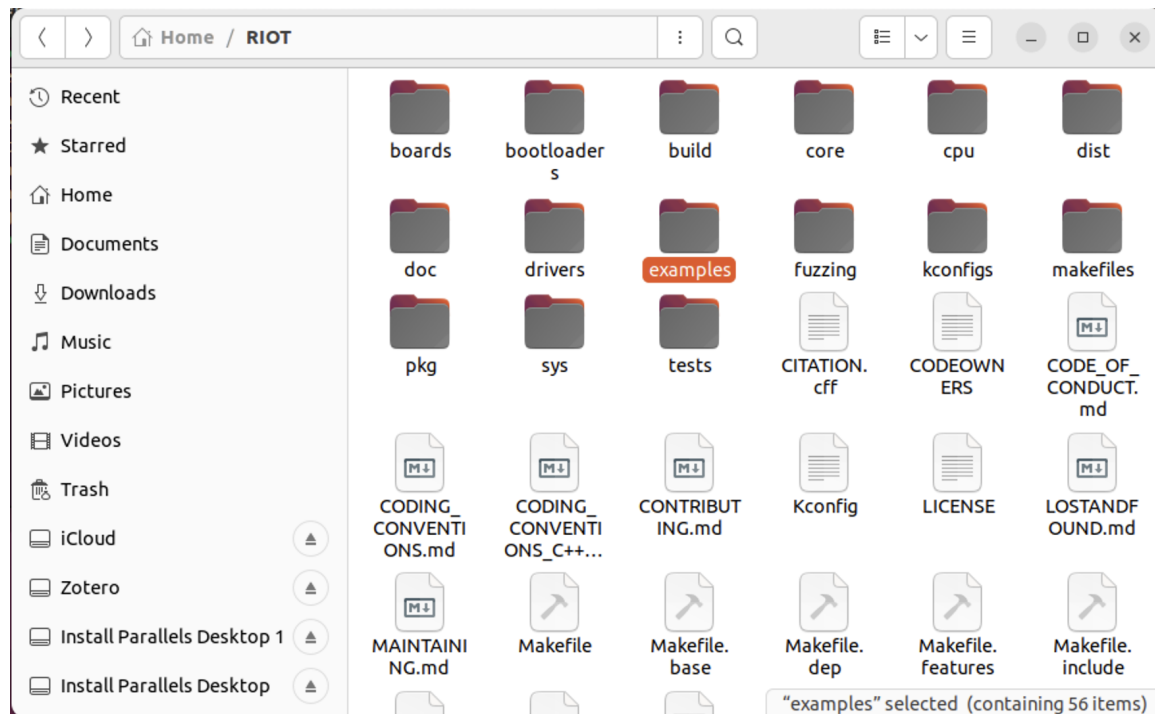
Try to install everything on an ubuntu machine.

## 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>' .

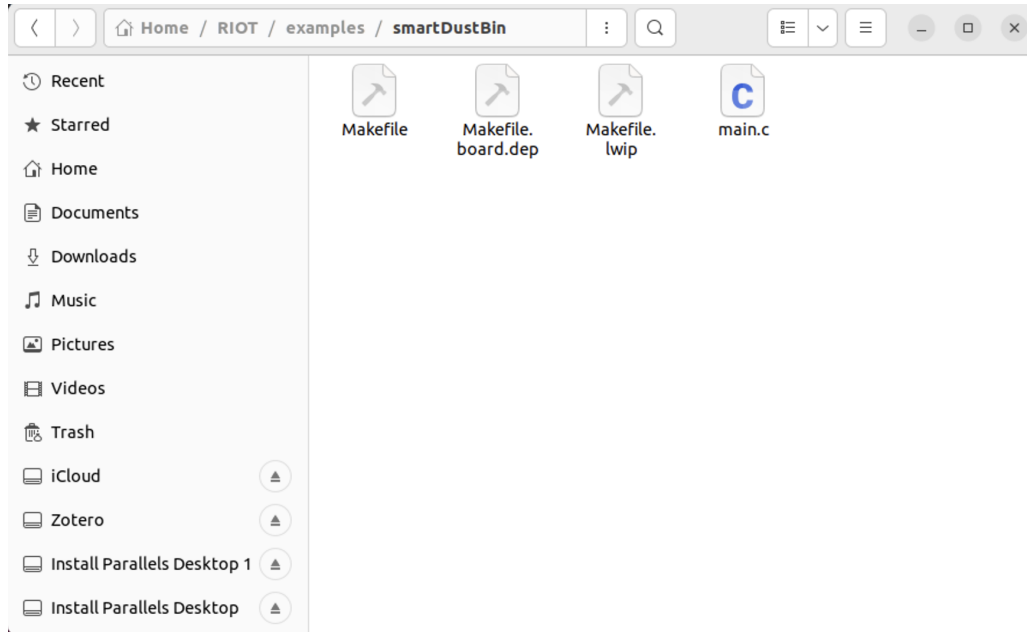
## Step 2: Create an application

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



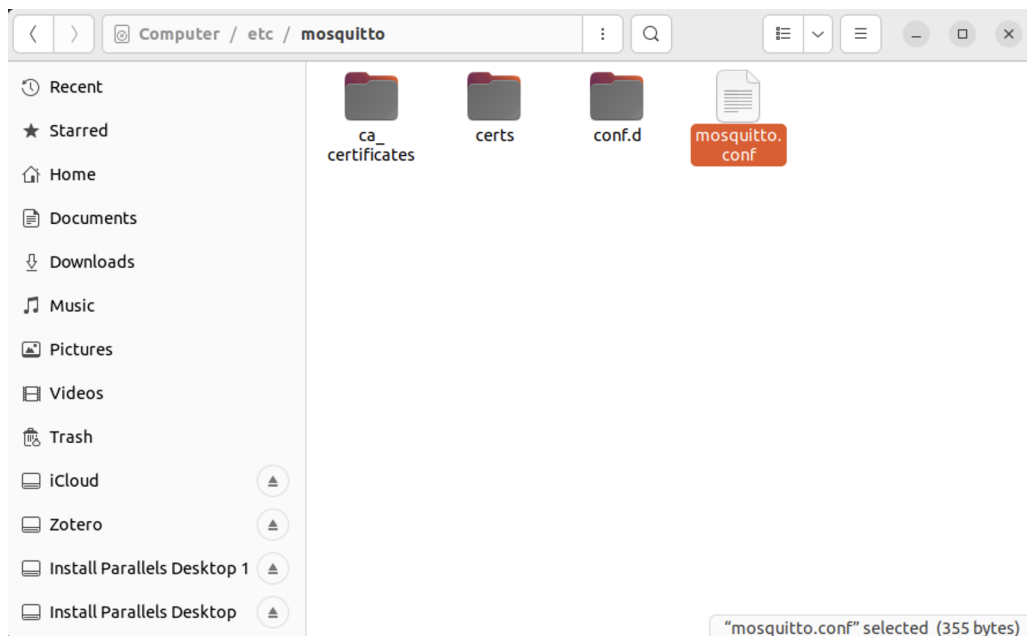
Go into the examples folder and create a new folder 'smartDustBin'. Paste 'Makefile', 'Makefile.board.dep', 'Makefile.lwip' and 'main.c' code files into the smartDustBin folder.

# Configuration files or steps to operate on the device



## 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.



# Configuration files or steps to operate on the device

Add 'allow\_anonymous true' and 'listener 1883' lines into the file.

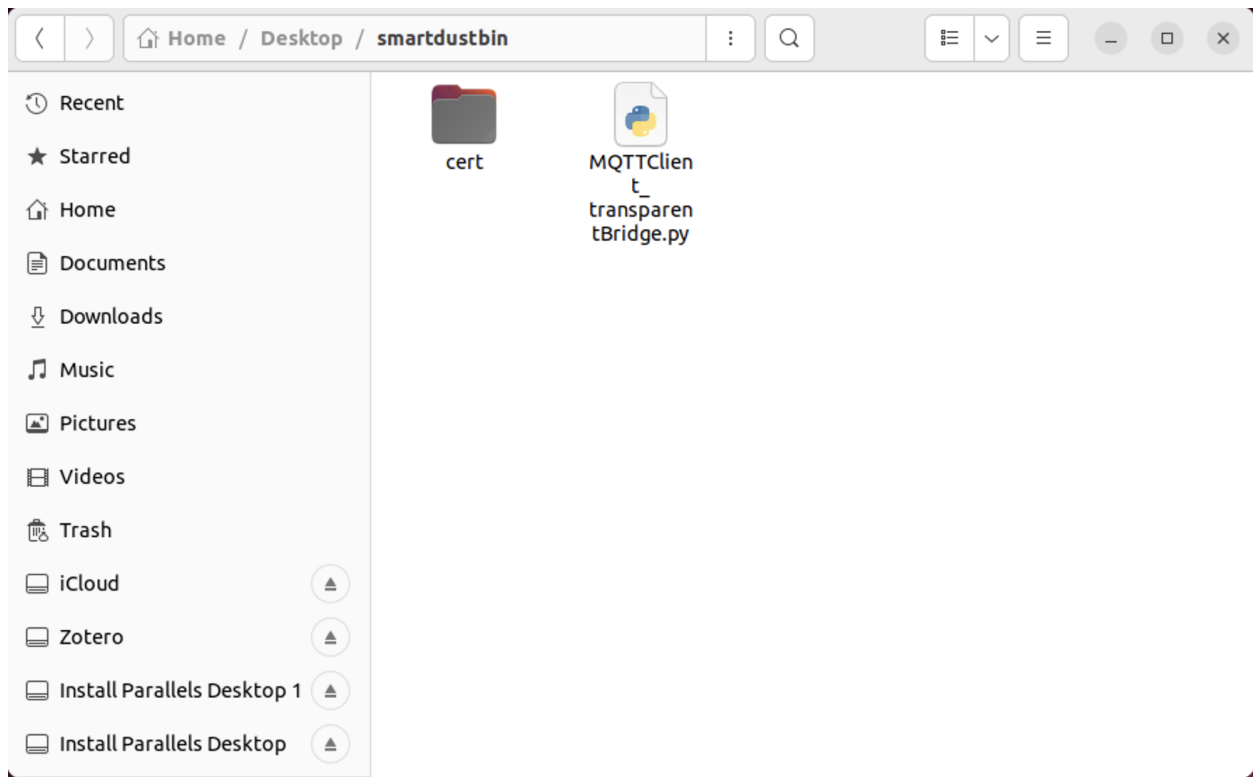
A screenshot of a text editor window titled 'mosquitto.conf [Read-Only]' with the path '/etc/mosquitto' shown below the title. The editor contains the following configuration lines:

```
1 # Place your local configuration in /etc/mosquitto/conf.d/
2 #
3 # A full description of the configuration file is at
4 # /usr/share/doc/mosquitto/examples/mosquitto.conf.example
5
6 persistence true
7 persistence_location /var/lib/mosquitto/
8
9 log_dest file /var/log/mosquitto/mosquitto.log
10
11 include_dir /etc/mosquitto/conf.d
12
13 allow_anonymous true
14
15 listener 1883
16
17
18 |
```

The line numbers 1 through 18 are visible on the left side of the editor.

## 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.



# Configuration files or steps to operate on the device

## 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/authentication-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
```