RFID Setup And Data Extraction

This document explains the entire process of setting up the RFID system and extracting RSSI and Phase data for each tag. This document assumes that the mosquito server has been already setup on your raspberry pi

Wiring Connections for the RFID system

1. Connect one end of the coaxial cable to the reader

2. Connect the other end of the coaxial cable to the switch (top end). Connect the power cable and one end of the ethernet cable (red cable) to the switch (right end)

3. Connect the other end of the ethernet cable to the router (red cable). Connect one end of the other ethernet cable to the router (green)

4. Connect the other end of the ethernet cable to the raspberry pi

Setup the RFID Reader to Stream Data

Note that the procedure here contains images from a server that was already set so the 'Modify' will be seen as 'Add' when the procedure is followed

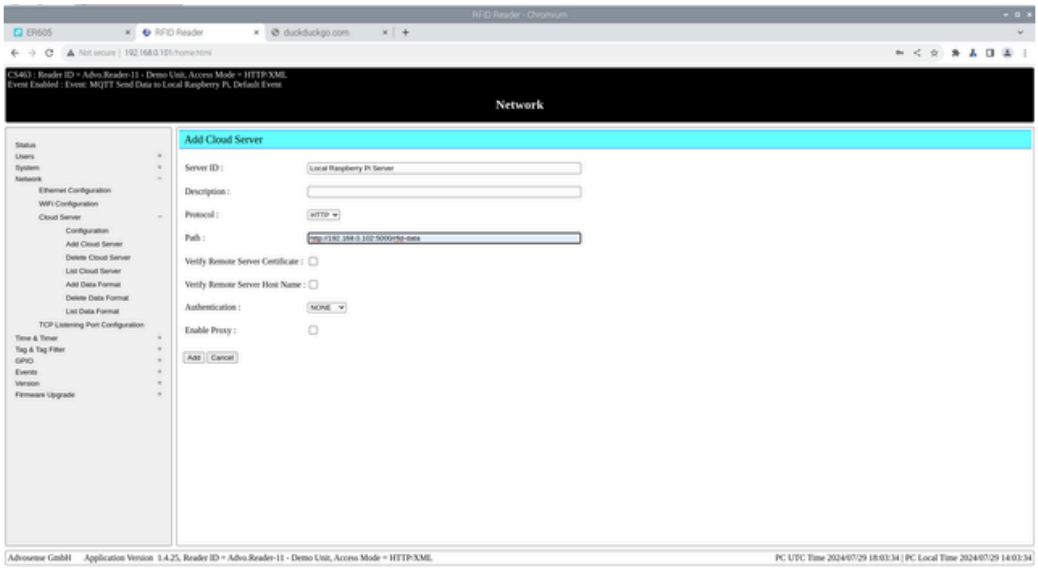
1. Open a browser on raspberry pi and enter the IP: 192.168.0.101 (this should be static and labeled on the switch)
2. Enter username and password. username: 'root', password: 'csl'
3. Open a terminal on the pi and enter:

```
ifconfig
```

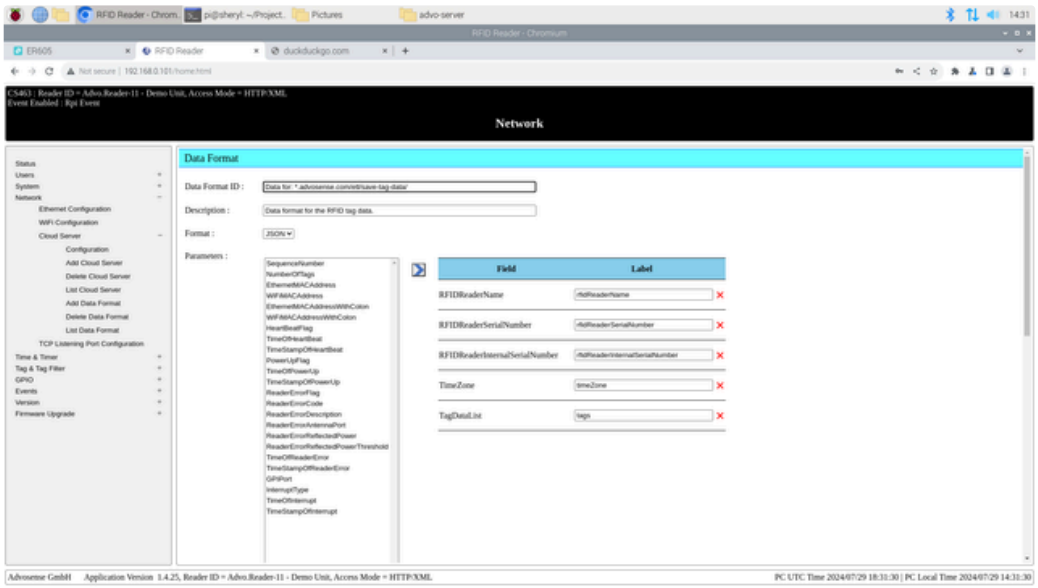
4. Check the IP under eth0. Here you will see the IP is 192.168.0.102. Check IP of your local system

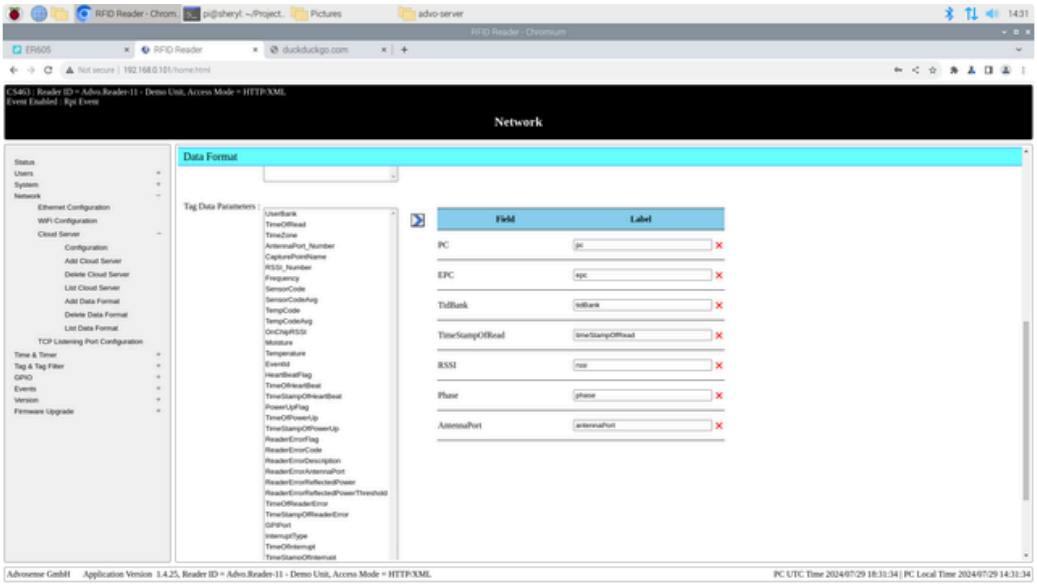
```
pi@sheryl:~ $ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.0.102  netmask 255.255.255.0  broadcast 192.168.0.255
        inet6 fe80::a5d3:eb82:535d:7b88  prefixlen 64  scopeid 0x20<link>
        ether e4:5f:01:f9:d0:a2  txqueuelen 1000  (Ethernet)
        RX packets 3960  bytes 3137841 (2.9 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 2924  bytes 367258 (358.6 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 48  bytes 5495 (5.3 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 48  bytes 5495 (5.3 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

5. Go to Network-->Cloud Server-->Add Cloud Server. The Path is: http://192.168.0.102:5000/rfid-data and replace 192.168.0.102 with the IP of your local system that you saw in Step 4

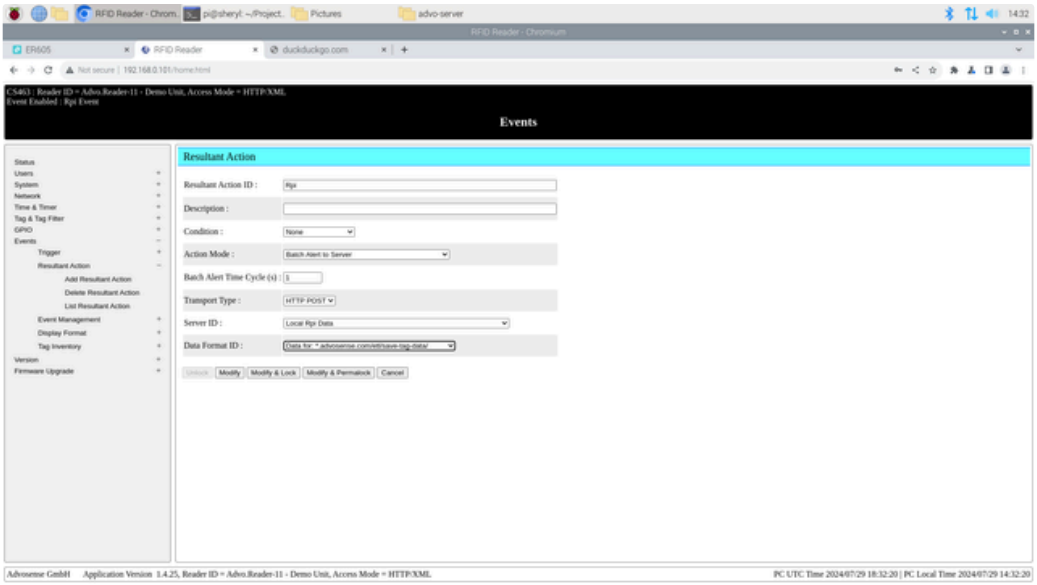


6. Go to Network-->Cloud Server-->Add Data Format

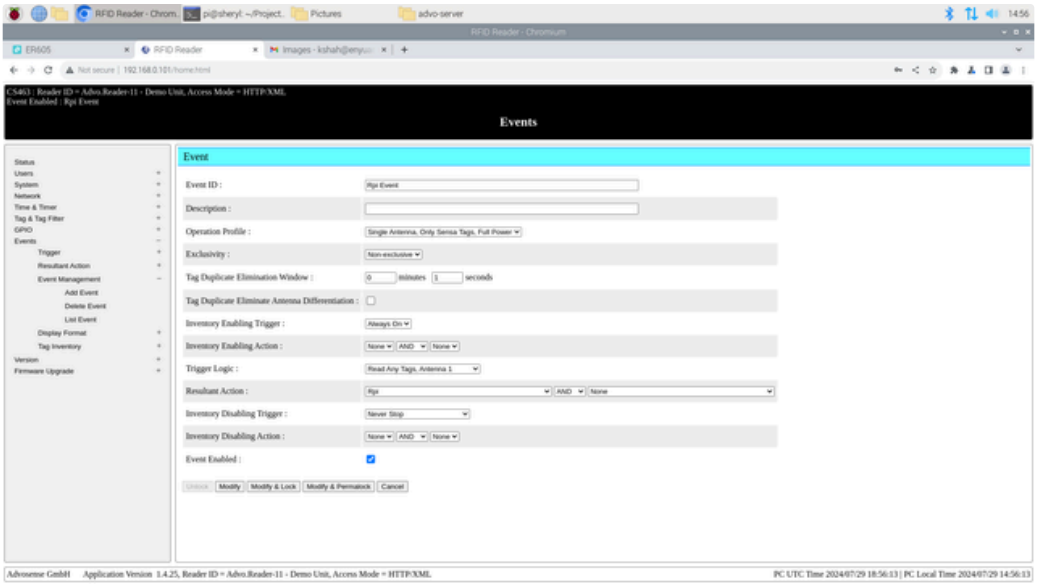




7. Go to Events-->Resultant Action-->Add Resultant Action



8. Go to Events-->Event Management-->Add Event



9. The last step is to check ‘Event Enabled' and hit 'Modify’ under Events-->Event Management-->List Events after you find the newly created event

Run the Server

1. Import the code from GitHub - Enyuare/rfid-data-extraction and go to the directory where you have imported the code

```
cd my-directory
```

2. Run the server script

```
python3 bramble.py
```

3. Hit 'Ctrl+C' when you want to stop collecting data

Extract Data to CSV.

1. A .json file should appear in the directory
2. Run the script as:

```
python3 extract_data.py name_of_file.json
```

3. Open the newly generated CSV. Each column has RSSI and Phase data but all the detected tags