WiFi, Rpi and Lua, Oh My

How to program and communicate with an ESP8266 WiFi device using a Raspberry Pi

Clone from Github

```
$ cd

$ git clone \
http://github.com/Hackerspace-Charlotte/RaspberryPiNight

$ cd ~/RaspberryPiNight/esp8266/Session2
```

- If luatool is not installed, cd to Session1, get presentation and follow steps.
- Install firefox if not installed:

```
$ sudo apt-get update

$ sudo apt-get install firefox-esr
```

- Write a function to make using luatool easier:

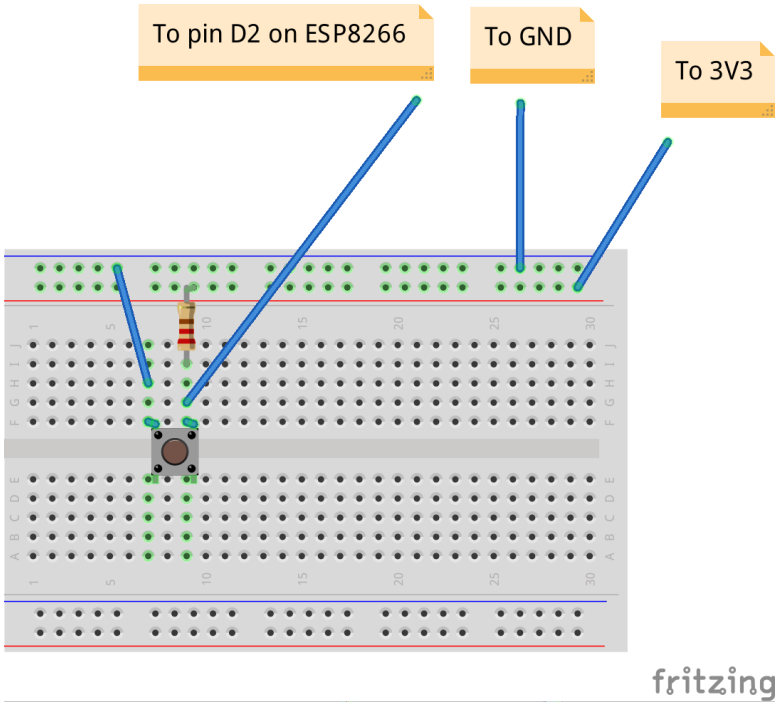
```
$ function luatool() \

{ luatool.py --port /dev/ttyUSB0 --baud 115200 \

--src $1 --dest $1; }
```

Use ESP8266 to detect input

- Create the circuit:



Use ESP8266 to detect input

- Upload Lua program to detect a switch:

```
$ cd
~/RaspberryPiNight/esp8266/Session2/switch

$ luatool init.lua

$ luatool main.lua
```

- Then connect with picocom:

```
$ picocom --baud 115200 /dev/ttyUSB0
```

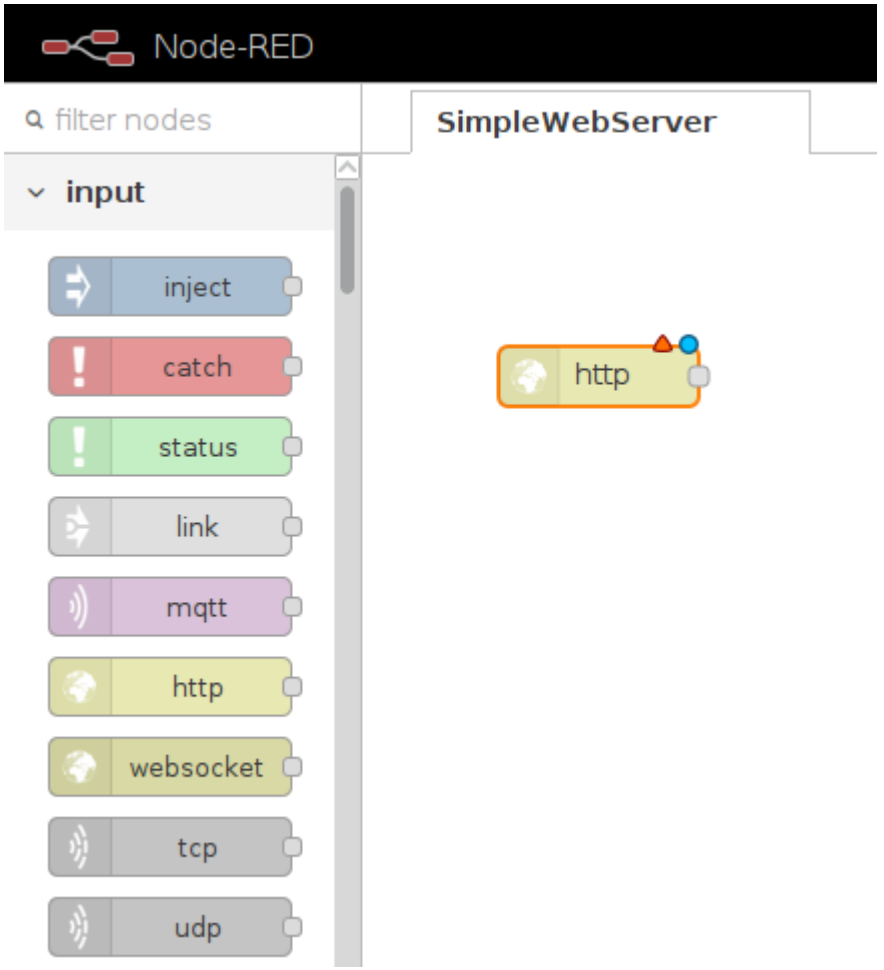
- Press Reset button on ESP8266, take note of IP address that it gets when connected. Will use later.
- Then press and release switch. Output is “Switch pressed” and “Switch released”

Send the output to a web server

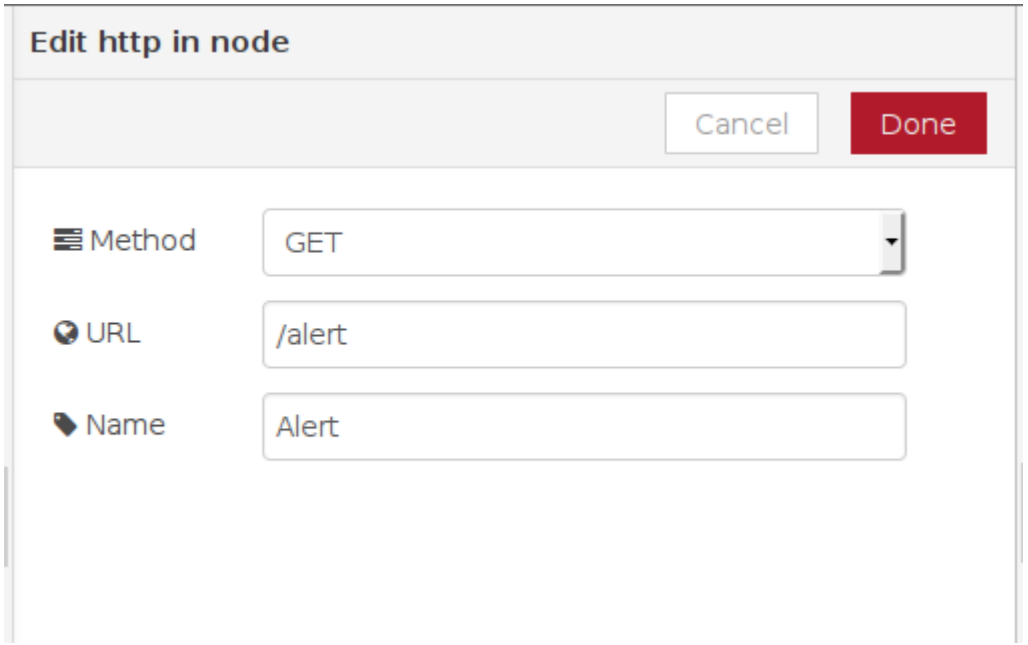
- Use NodeRED to create the web server
- Start NodeRED from the menu
- Open firefox, go to http://localhost:1880
- NodeRED interface, ready to build flow.

Add HTTP input node

Drag “http” node onto flow.

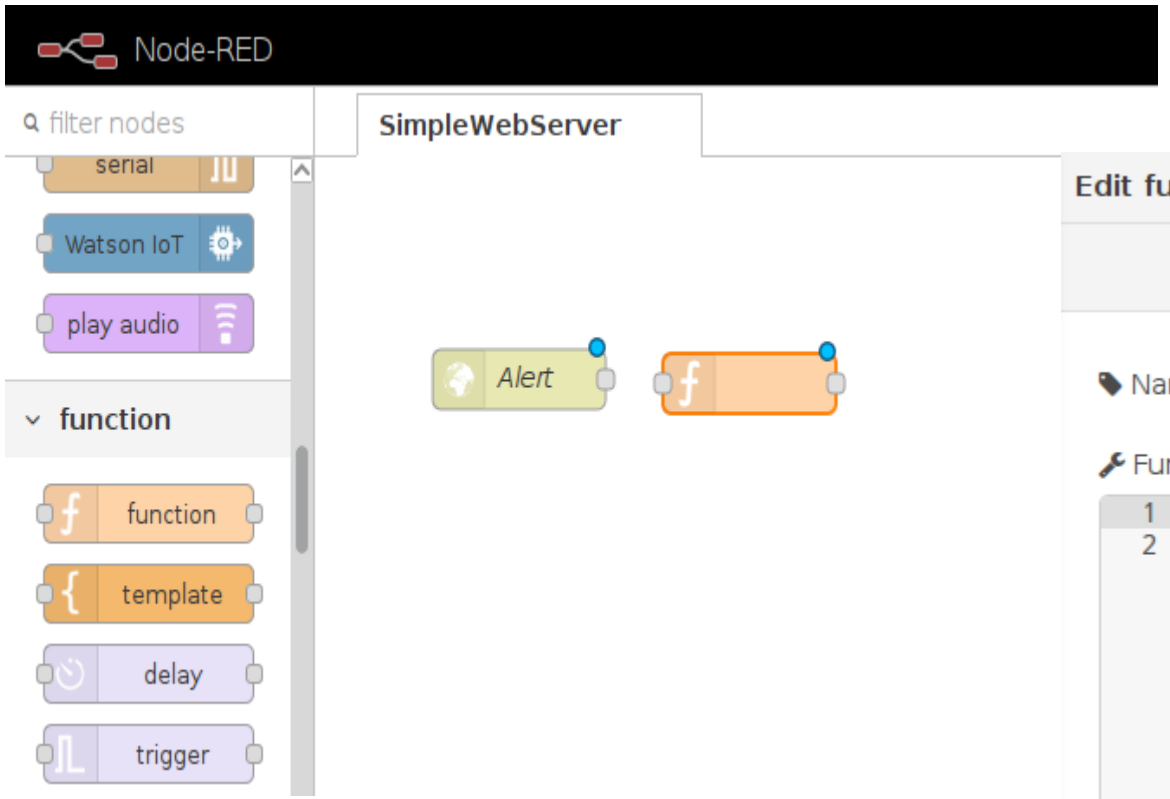


Double click and add URL.

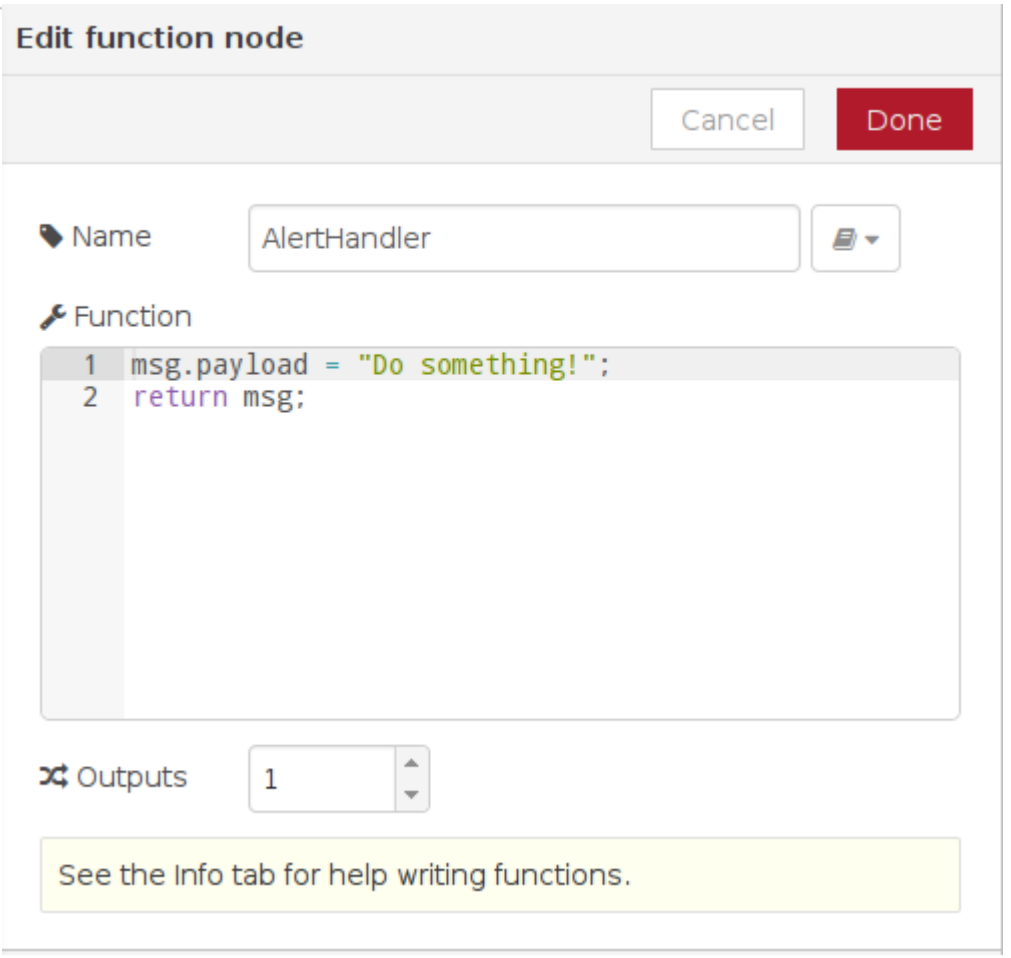


Add handler node

Drag “function” node onto flow.

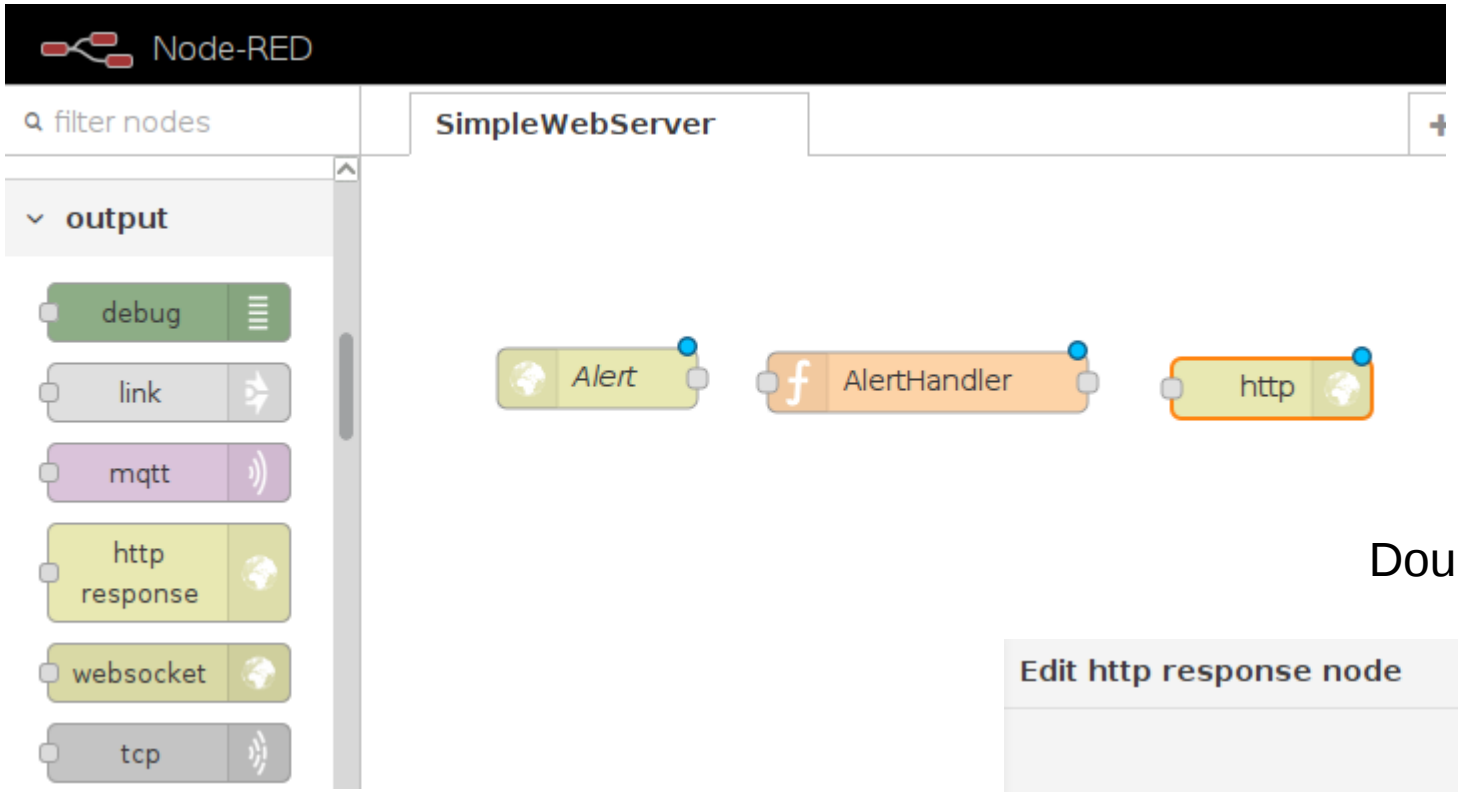


Double click and add message.

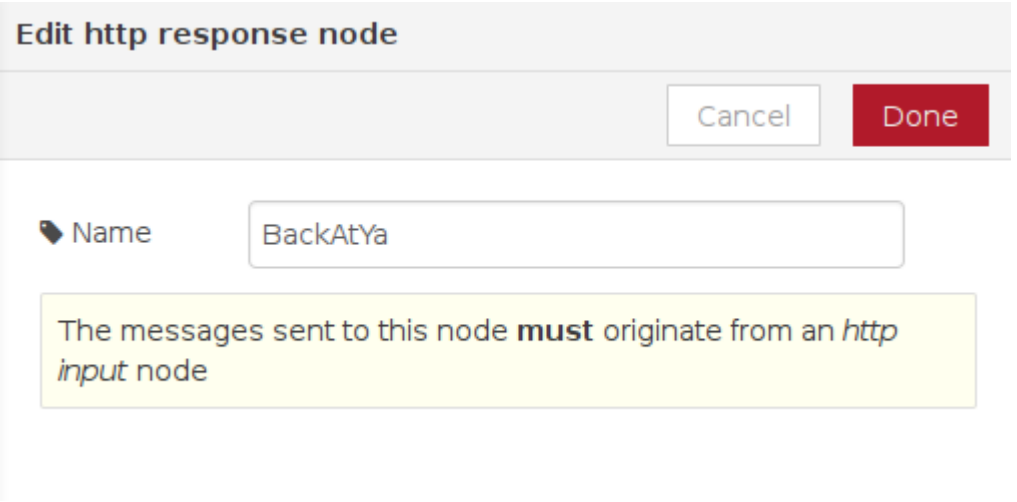


Add HTTP respone node

Drag http response node onto flow.



Double click, rename, **deploy**.



Program the ESP8266

- Upload Lua programs:

```
$ cd ~/RaspberryPiNight/esp8266/Session2/sendswitch
```

- Modify main.lua – change `serverurl` to use IP address found earlier.

```
$ luatool init.lua
```

```
$ luatool main.lua
```

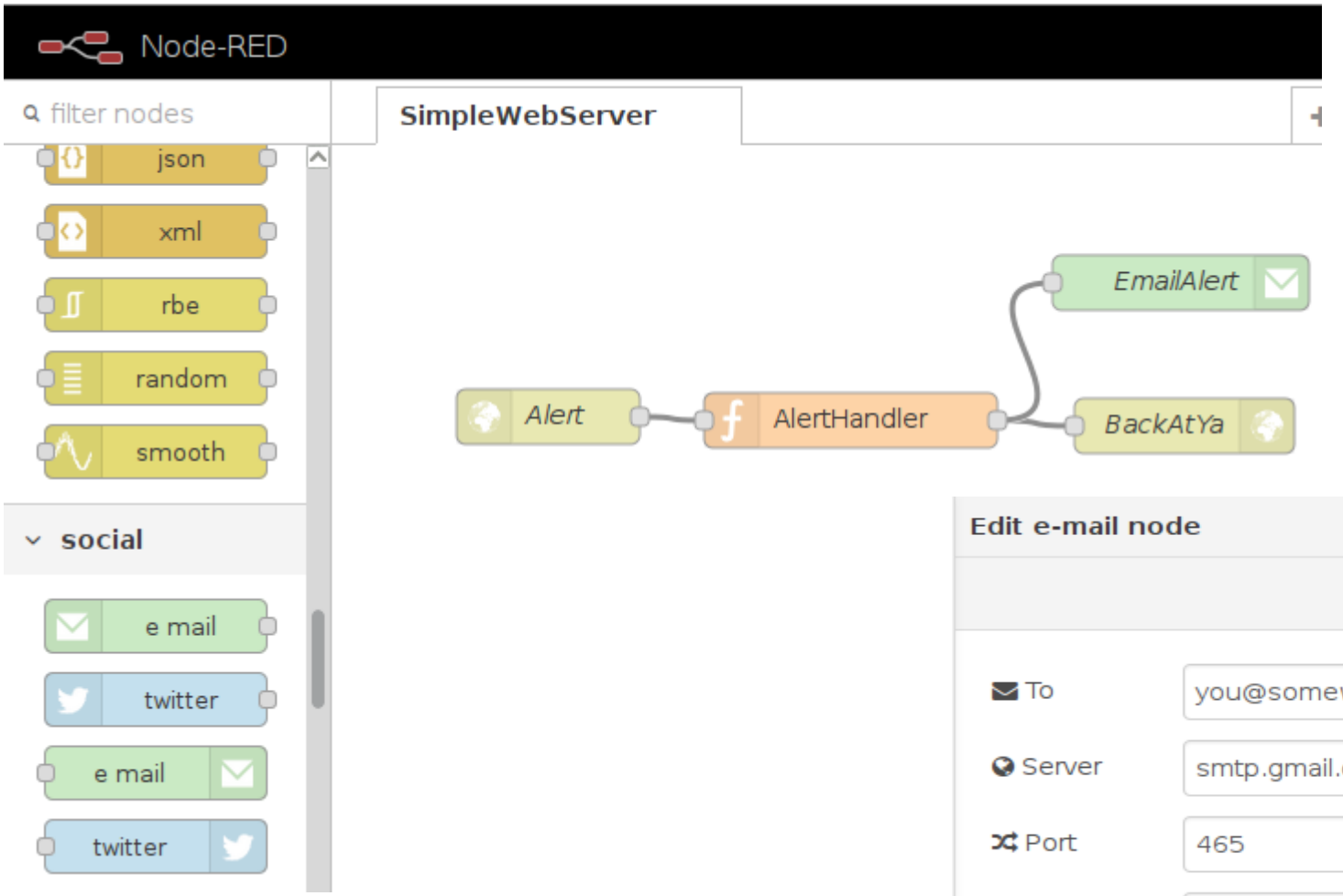
- Then connect with picocom:

```
$ picocom --baud 115200 /dev/ttyUSB0
```

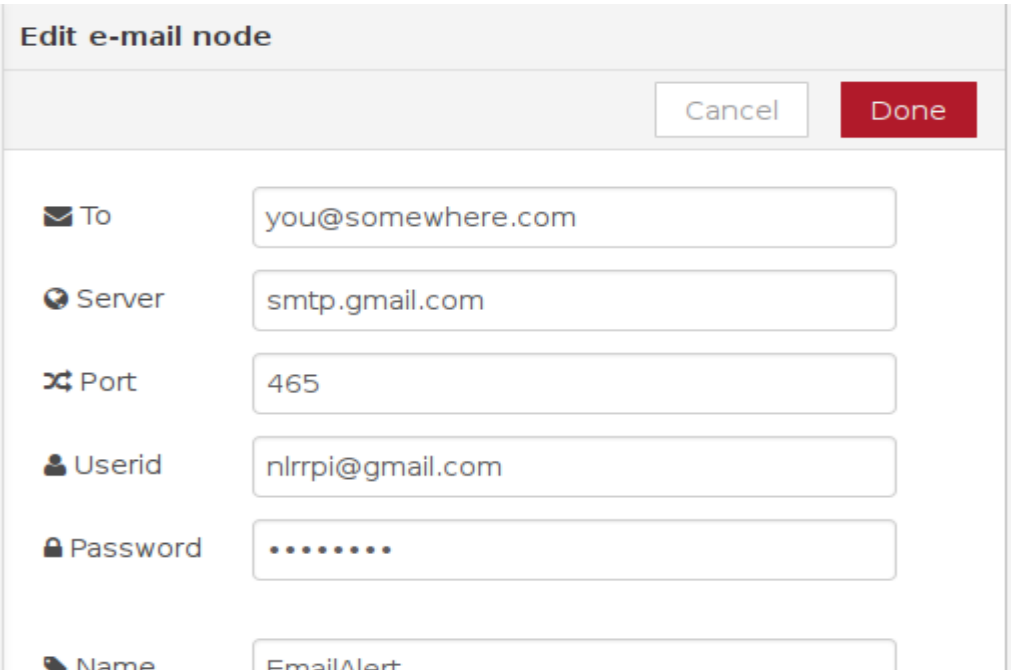
- Press Reset button
- Press switch until it says “Switch pressed”. Output should show HTTP request and response after switch is pressed.

Add email alert node

Drag email *output* node onto flow.



Double click and edit.



Check email

- Connect with picocom

  ```
  $ picocom --baud 115200 /dev/ttyUSB0
  ```

- Press Reset button, verify it says “Switch released”
- Press switch, watch flow.
- Flow should say “Sending” briefly.
- Check your email.