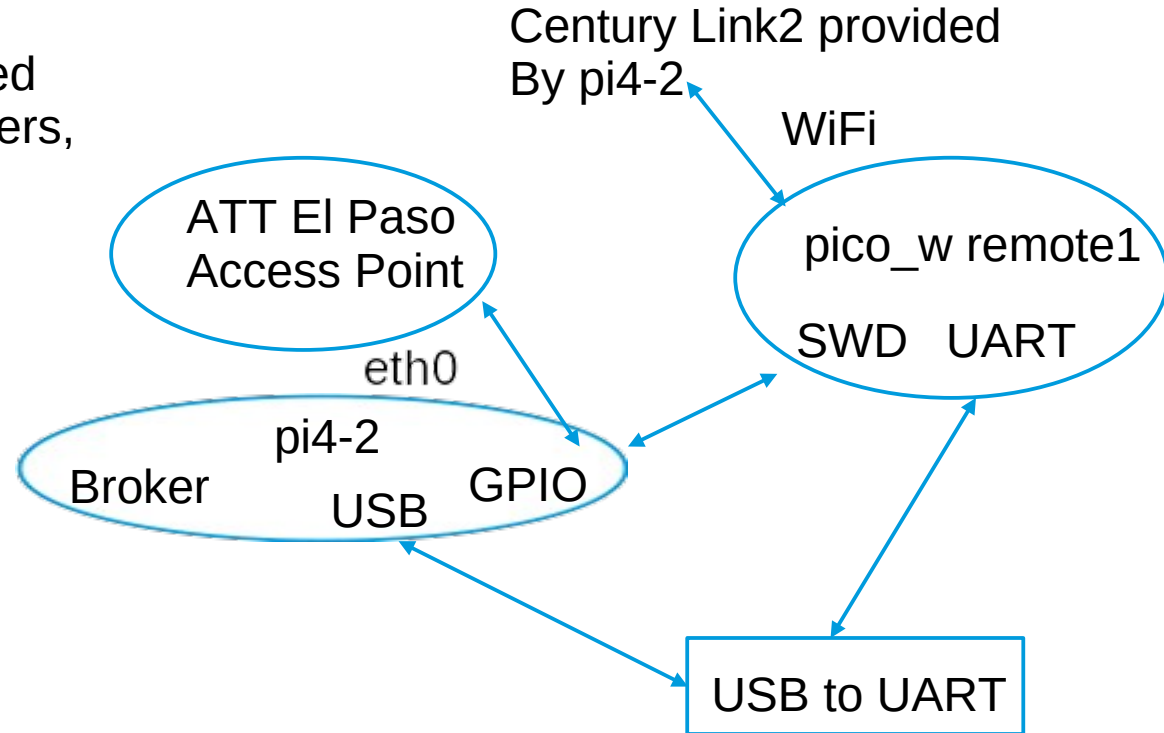
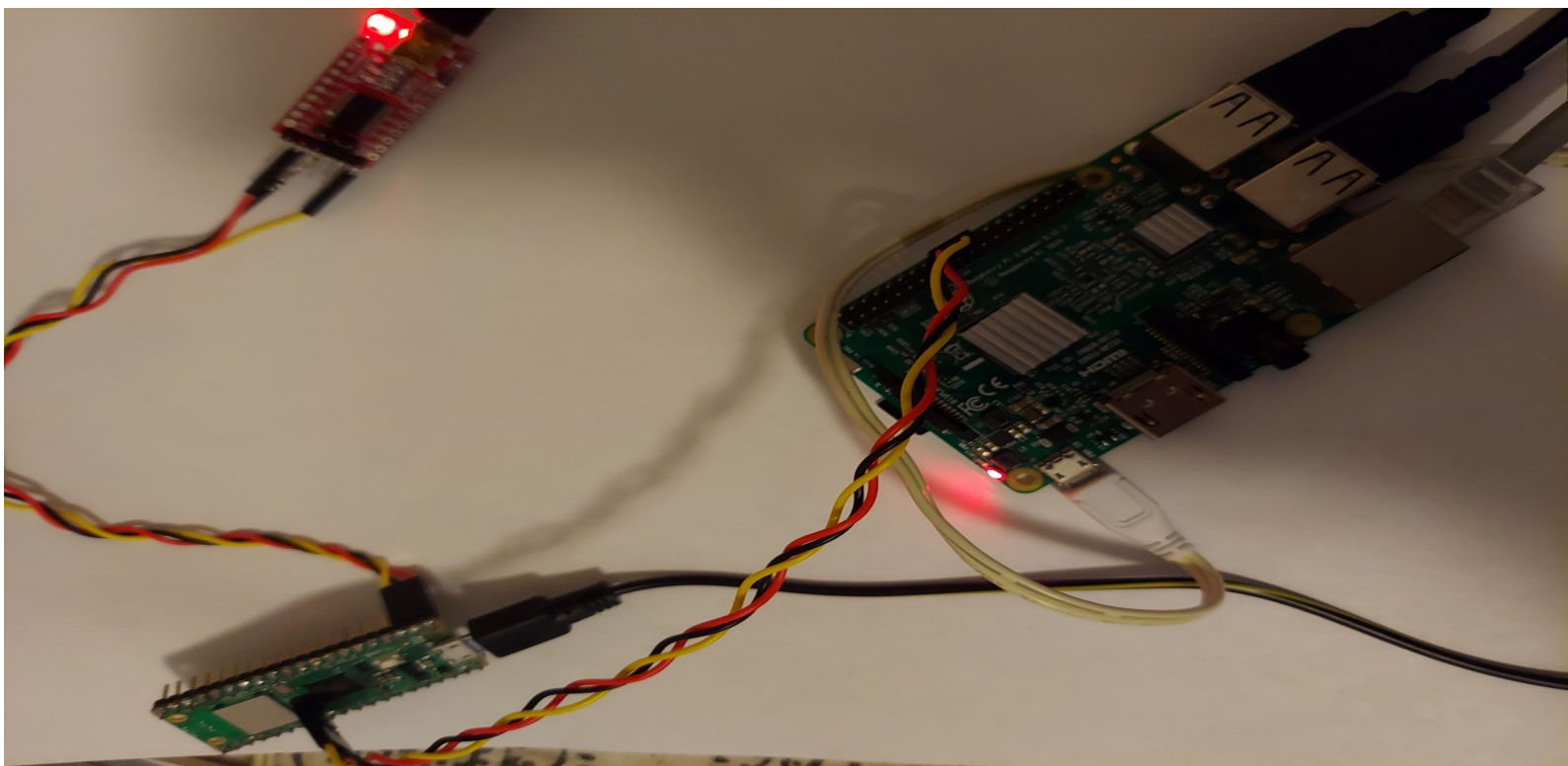


# Raspberry Pi3B+ pi4-2 & pi4-1

Code development performed  
on pi4-2 RPi3B+ git, compilers,  
and editors.





## Steps to build pico\_w code

- Edit pico\_w-mqtt/6remotes.sh
- Edit pico\_w-mqtt/pico\_w/wifi/freertos/iperf/picow\_freertos\_iperf.c
- ./6remotes.sh
- cd remote1
- ./exe-ocd.sh

# FreeRtos pico\_w-mqtt Tasks

```
#define ADC_TASK_PRIORITY          ( tskIDLE_PRIORITY + 8UL )
#define NTP_TASK_PRIORITY          ( tskIDLE_PRIORITY + 5UL )
#define WATCHDOG_TASK_PRIORITY    ( tskIDLE_PRIORITY + 1UL )
#define MQTT_TASK_PRIORITY         ( tskIDLE_PRIORITY + 4UL )
#define SOCKET_TASK_PRIORITY       ( tskIDLE_PRIORITY + 6UL )
#define TEST_TASK_PRIORITY         ( tskIDLE_PRIORITY + 2UL )
#define BLINK_TASK_PRIORITY        ( tskIDLE_PRIORITY
                                   + 3UL )
```

```
devel@pi4-2:~ $ mosquitto_sub -h 'pi4-50' -t  
'pico/status' -u 'testuser' -P 'password123'
```

```
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2
```

```
devel@pi4-2:~ $ mosquitto_sub -t 'pico/status' -  
u 'testuser' -P 'password123'
```

```
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2
```

```
devel@pi4-1:~ $ mosquitto_sub -h 'pi4-50' -t  
'pico/status' -u 'testuser' -P 'password123'
```

```
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2
```



```
devel@pi4-1:~ $ mosquitto_sub -t 'pico/status' -  
u 'testuser' -P 'password123'
```

```
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2  
Onboard temperature = 25.27 C remote2
```

```
Remote debug devel@p4-2:~/pico_w-mqtt $  
./pi_tcp_tests/cli1
```

- Socket created successfully
- Connected with server successfully
- Starting FreeRTOS on core 0: ver 0.0.09 remote1 Connected. iperf server 192.168.13.116 4001 mqtt\_ip = 0xda01a8c0 mqtt\_port = 1883 16/07/2023 12:45:20  
56789012345678901234567890123012345678901234567890123456789012345678901234567890123456789  
01234567890123012345678901234567890123456789012345678901234567890123456789012301234567890  
12345678901234567890123456789012345678901234567890123@A???

```
devel@pi4-1:~ $ mosquitto_sub -h 'pi4-50' -t  
'pico/status' -u 'testuser' -P 'password123'
```

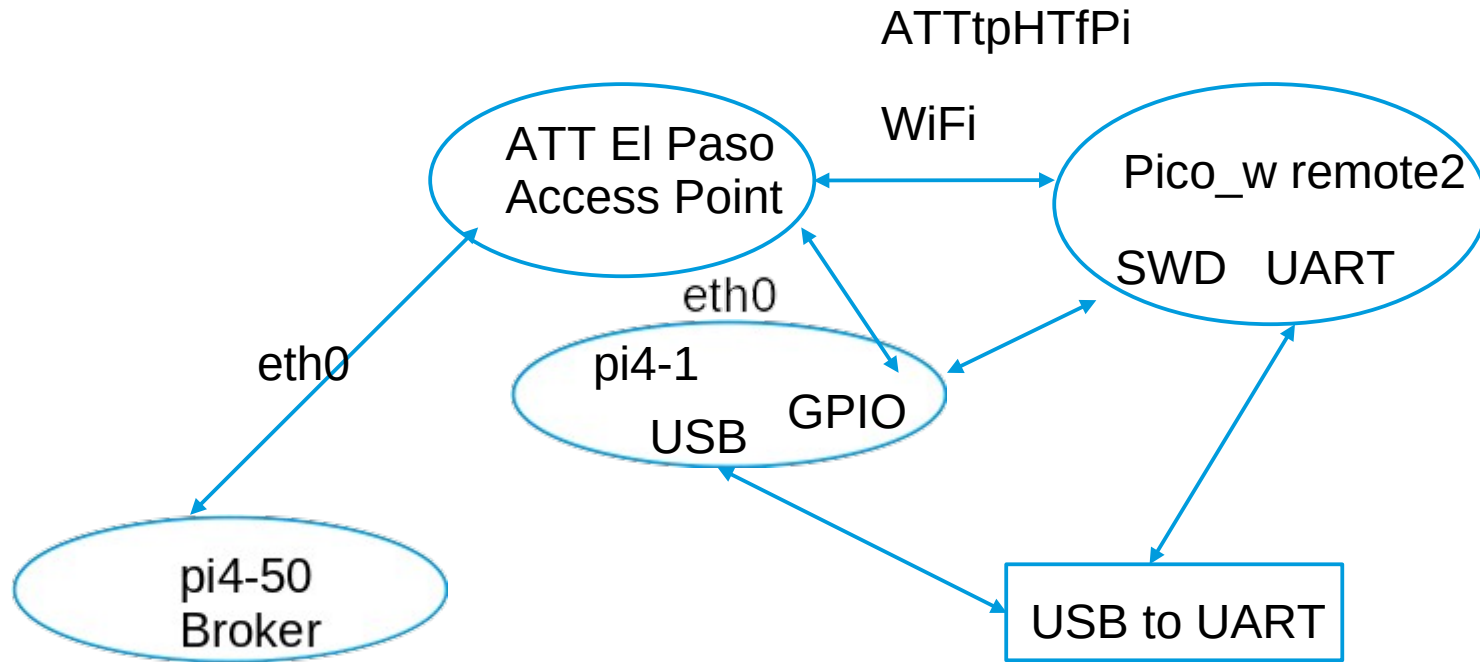
```
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2
```

```
devel@pi4-1:~ $ mosquitto_sub -t 'pico/status' -  
u 'testuser' -P 'password123'
```

```
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2
```

```
devel@pi4-2:~ $ mosquitto_sub -t 'pico/status' -  
u 'testuser' -P 'password123'
```

```
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2  
Onboard temperature = 77.48 F remote2
```



# Switching Broker from pi4-50 to pi4-1

pico\_w-mqtt/pico\_w/wifi/feertos/iperf/picow\_freertos\_iperf.c

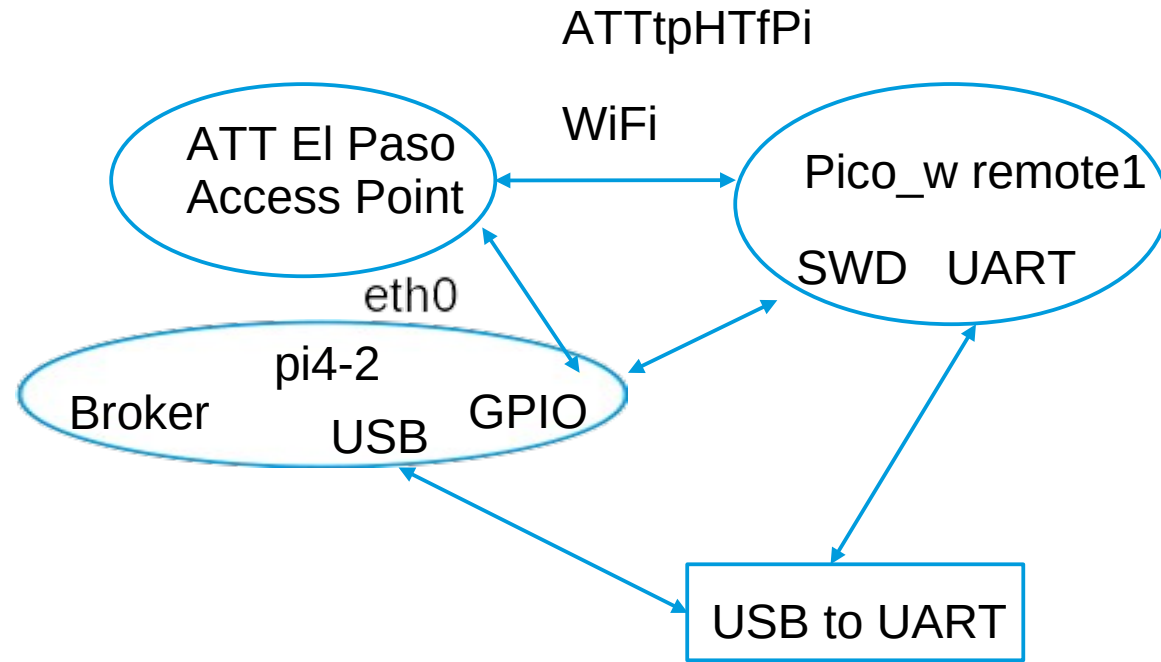
```
/*192.168.1.212 0xc0a801d4 LWIP_MQTT_EXAMPLE_IPADDR_INIT pi4-50*/
    #define LWIP_MQTT_EXAMPLE_IPADDR_INIT =
IPADDR4_INIT(PP_HTONL(0xc0a801d4))
    /*192.168.1.215 0xc0a801d7 LWIP_MQTT_EXAMPLE_IPADDR_INIT
raspberrypig*/
    #define LWIP_MQTT_EXAMPLE_IPADDR_INIT =
IPADDR4_INIT(PP_HTONL(0xc0a801d7))
```

# Switching Broker from pi4-50 to pi4-2

pico\_w-mqtt/pico\_w/wifi/feertos/iperf/picow\_freertos\_iperf.c

```
/*192.168.1.212 0xc0a801d4 LWIP_MQTT_EXAMPLE_IPADDR_INIT pi4-50*/
#define LWIP_MQTT_EXAMPLE_IPADDR_INIT =
IPADDR4_INIT(PP_HTONL(0xc0a801d4))
/*192.168.1.218 0xc0a801da LWIP_MQTT_EXAMPLE_IPADDR_INIT
raspberrypig*/
#define LWIP_MQTT_EXAMPLE_IPADDR_INIT =
IPADDR4_INIT(PP_HTONL(0xc0a801da))
```





# devel@pi4-1:~ \$ minicom myusb0

Starting FreeRTOS on core 0:

Connected.

MQTT client "remote2" connection cb: status 0

MQTT client "remote2" request cb: err 0

MQTT client "remote2" request cb: err 0

Starting server at 192.168.17.102 on port 4001

ntp address 207.5.137.133

got ntp response: 14/07/2023 22:01:58

```
devel@pi4-2:~ $ minicom myusb0
```

Welcome to minicom 2.8

OPTIONS: l18n

Port /dev/ttyUSB0, 20:50:31

Press CTRL-A Z for help on special keys

got ntp response: 16/07/2023 11:40:01

# devel@pi4-2:~ \$ minicom myusb0

```
Starting FreeRTOS on core 0:  
Connecting to Wi-Fi...  
Starting FreeRTOS on core 0:  
Connecting to Wi-Fi...  
Connected.  
MQTT client "remote1" connection cb: status 0  
MQTT client "remote1" request cb: err 0  
MQTT client "remote1" request cb: err 0  
Starting server at 192.168.13.116 on port  
4001  
ntp address 147.182.158.78  
got ntp response: 16/07/2023 11:41:41  
got ntp response: 16/07/2023 11:42:12  
Alarm Fired At Sunday 16 July 11:42:41 2023  
ntp address 162.159.200.1  
got ntp response: 16/07/2023 11:42:43
```

```
devel@p4-2:~/pico_w-mqtt/remote1 $ iperf -c  
remote1
```

```
-----  
Client connecting to remote1, TCP port 5001  
TCP window size: 85.0 KByte (default)  
-----
```

```
[ 3] local 192.168.13.1 port 34422 connected with 192.168.13.116 port  
5001
```

```
[ ID] Interval      Transfer    Bandwidth
```

```
[ 3] 0.0000-10.0340 sec 16.0 MBytes 13.4 Mbits/sec
```