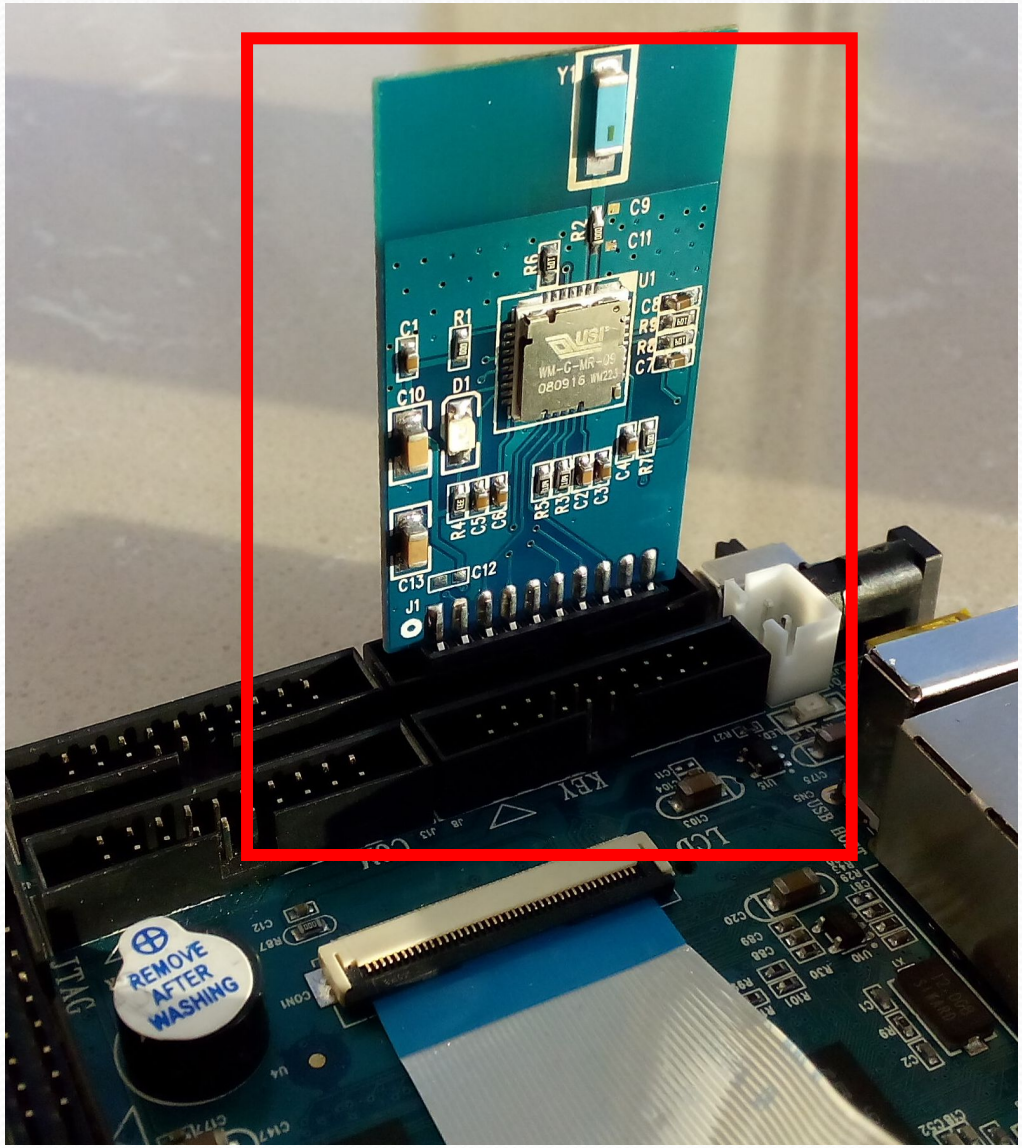
Embedded Application

Part 7

Index of today's topic

- Connect WIFI for OK6410
- Browse Web based WIFI on OK6410

Hardware connections



- Wifi plug into "SD1 INTERFACE"
- Chip side of WIFI towards inside of board

Wireless Router Configuration

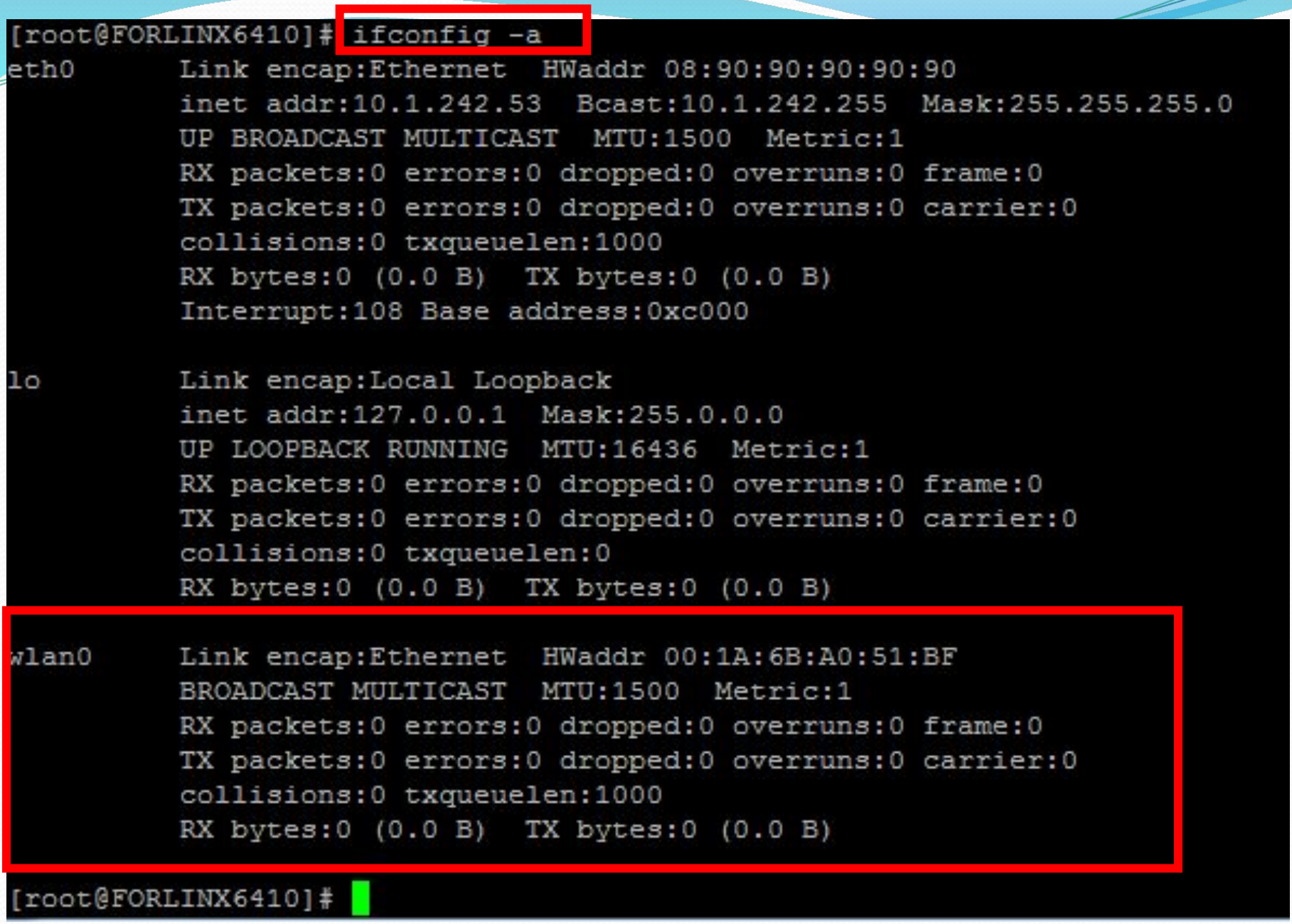
System Start Information

```
can: broadcast manager protocol (rev 20090105 t)
lib80211: common routines for IEEE802.11 drivers
Registering the dns_resolver key type
s3c-rtc s3c64xx-rtc: setting system clock to 2000-01-01 04:14:36 UTC (946700076)
libertas_sdio mmc1:0001:1: (unregistered net_device): 00:1a:6b:a0:51:bf, fw 9.70.3p24, cap 0x000
00303
libertas_sdio mmc1:0001:1: wlan0: Marvell WLAN 802.11 adapter
```

```
[root@FORLINX6410]# ifconfig
eth0      Link encap:Ethernet  HWaddr 08:90:90:90:90:90
          inet addr:10.1.242.53  Bcast:10.1.242.255  Mask:255.255.255.0
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Interrupt:108 Base address:0xc000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

[root@FORLINX6410]#
```


[root@FORLINX6410]# ifconfig -a
eth0 Link encap:Ethernet HWaddr 08:90:90:90:90:90
inet addr:10.1.242.53 Bcast:10.1.242.255 Mask:255.255.255.0
UP BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
Interrupt:108 Base address:0xc000
lo Link encap:Local Loopback
inet addr:127.0.0.1 Mask:255.0.0.0
UP LOOPBACK RUNNING MTU:16436 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
wlan0 Link encap:Ethernet HWaddr 00:1A:6B:A0:51:BF
BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
[root@FORLINX6410]#

Configure wireless network

- wpa_supplicant tool used to config wireless network。
- wpa_supplicant tool include: wpa_supplicant and wpa_cli。
- wpa_supplicant is core programe, which is like the server, wpa_cli like the client. wpa_supplicant should run at background, use wpa_cli to search、set and configure network。

run wpa_supplicant depends on configuration file: /etc/wpa_supplicant.conf

```
[root@FORLINX6410]# vi /etc/wpa_supplicant.conf
```

```
# WPA-PSK/TKIP
ctrl_interface=/var/run/wpa_supplicant

#network={
#        ssid="D-Link_Fervent"
#        key_mgmt=WPA-PSK
#        proto=WPA
#        #pairwise=TKIP
#        #group=TKIP
#        psk="12345678"
#}
```

just keep this line

```
wpa_supplicant -Dwext -iwlan0 -c/etc/wpa_supplicant.conf
&
wpa_cli -i wlan0
> add_network
> set_network 0 ssid "wireless network name"
> set_network 0 key_mgmt WPA-PSK     //Network encryption
> set_network 0 psk “wireless network password"
> enable_network 0
> quit

ifconfig wlan0 192.168.0.105   //configure IP
route add default gw 192.168.0.1 //add gateway
```

wpa_cli:Support others commands
status:Lists the current networking status。
list: Lists all alternate networks。the current connecting network is marked with[CURRENT], Disable network is marked with [DISABLE]。
add_network: Adding an alternate network, output a new network number.

```
[root@FORLINX6410]# wpa_supplicant -Dwext -iwlan0 -c/etc/wpa_supplicant.conf &
[root@FORLINX6410]# wpa_cli -i wlan0
wpa_cli v0.7.3
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under the terms of the GNU General Public License version 2.

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BSD license. See README and COPYING for more details.
```
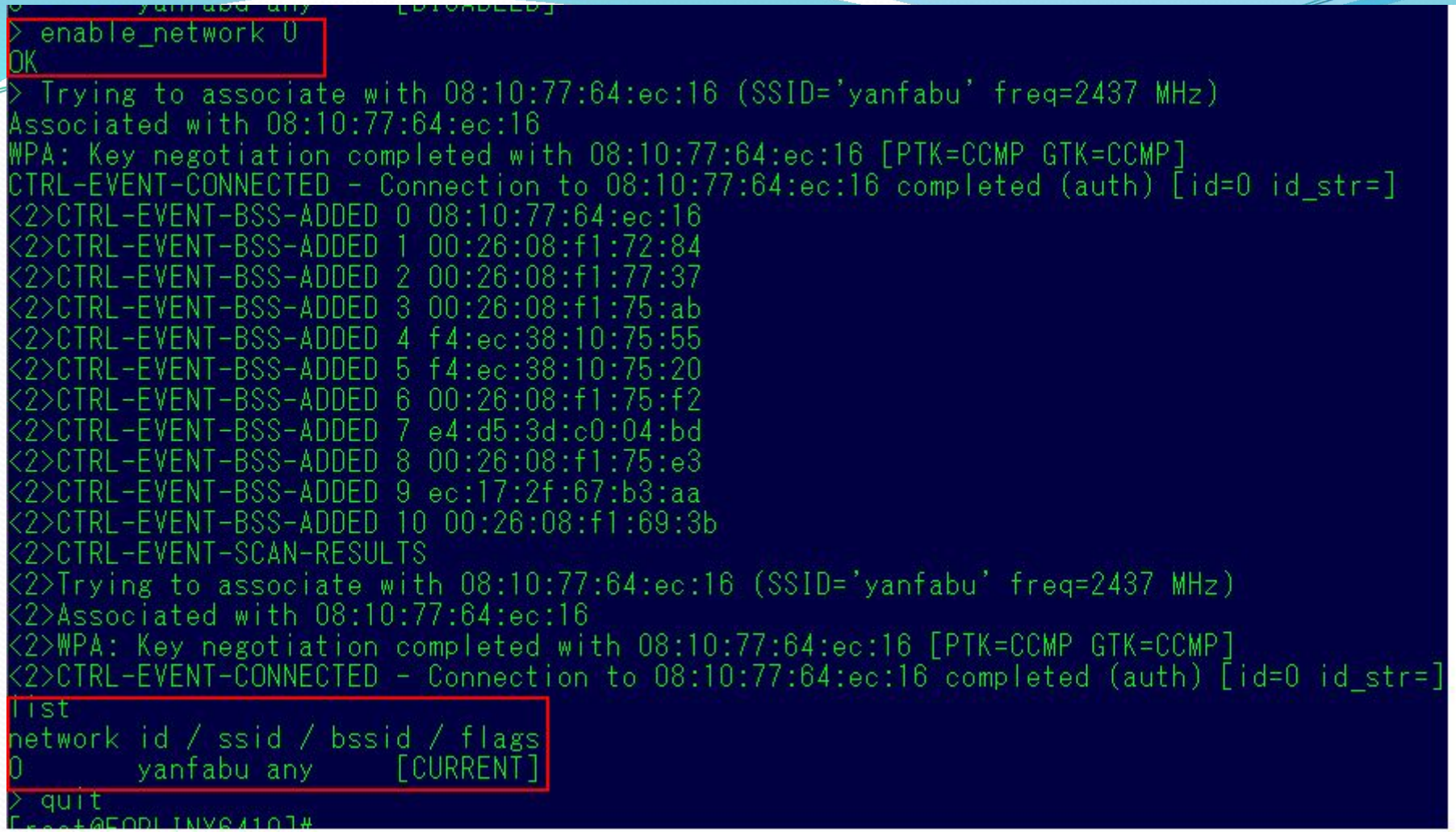
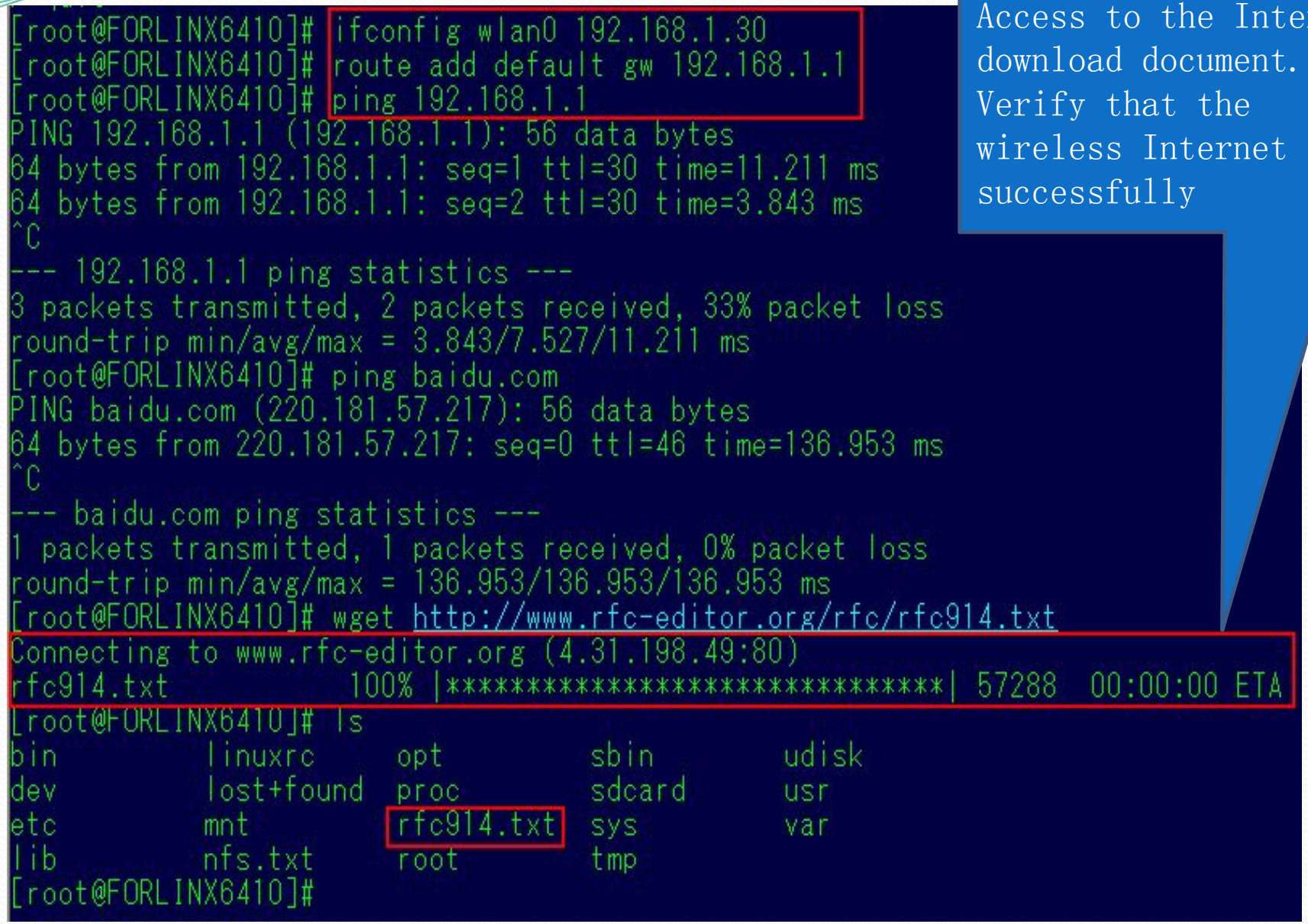
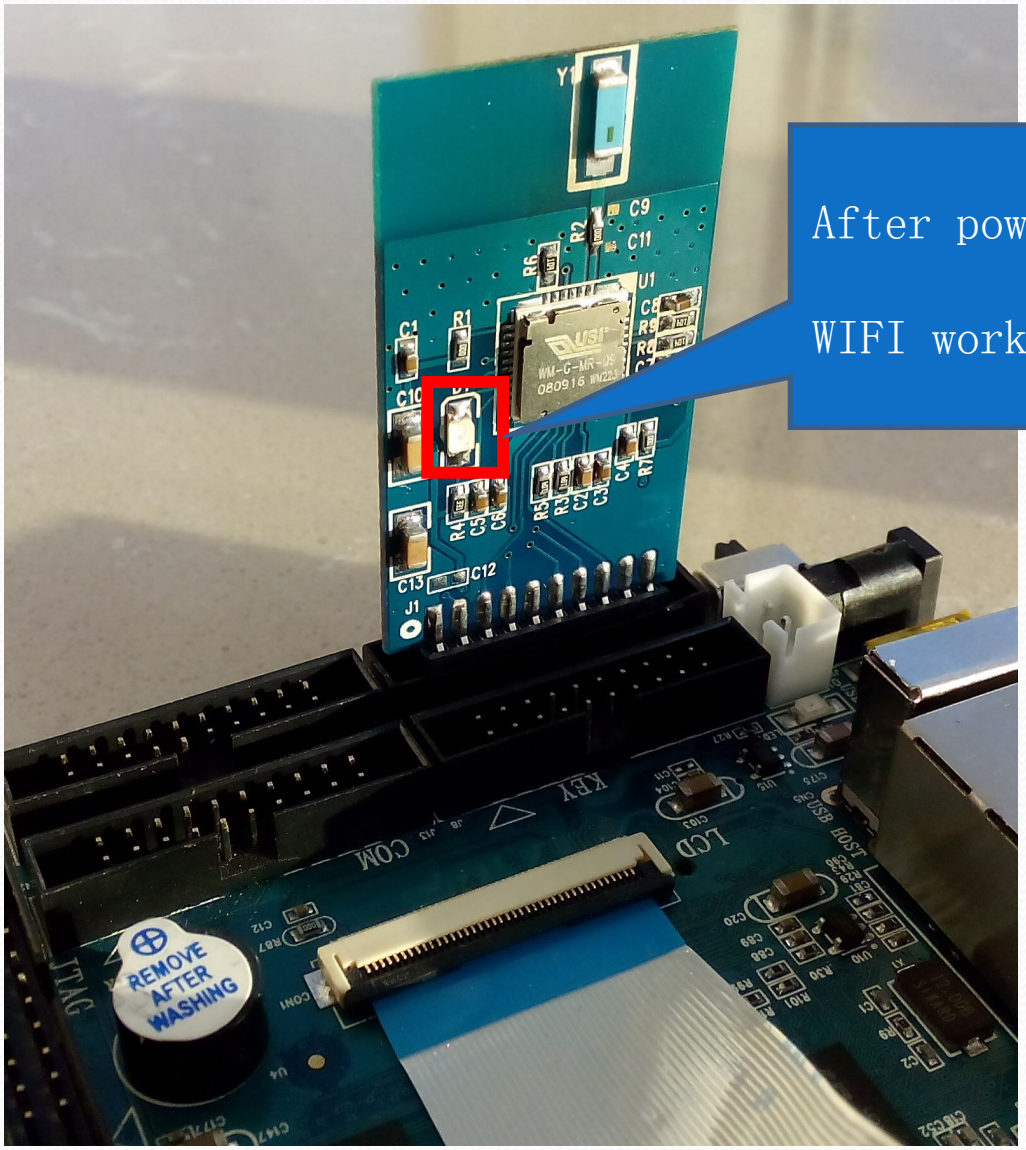

```
Interactive mode

> status
wpa_state=INACTIVE
> list
network id / ssid / bssid / flags
> add_network
0
> set_network 0 ssid "yanfabu"
OK
> set_network 0 key_mgmt WPA-PSK
OK
> set_network 0 psk "yanfabu305"
OK
> list
network id / ssid / bssid / flags
0       yanfabu any     [DISABLED]
> enable_network 0
OK
> Trying to associate with 08:10:77:64:ec:16 (SSID='yanfabu' freq=2437 MHz)
Associated with 08:10:77:64:ec:16
WPA: Key negotiation completed with 08:10:77:64:ec:16 [PTK=CCMP GTK=CCMP]
CTRL-EVENT-CONNECTED - Connection to 08:10:77:64:ec:16 completed (auth) [id=0 id_str=]
<2>CTRL-EVENT-BSS-ADDED 0 08:10:77:64:ec:16
```


> enable_network 0
OK
> Trying to associate with 08:10:77:64:ec:16 (SSID='yanfabu' freq=2437 MHz)
Associated with 08:10:77:64:ec:16
WPA: Key negotiation completed with 08:10:77:64:ec:16 [PTK=CCMP GTK=CCMP]
CTRL-EVENT-CONNECTED - Connection to 08:10:77:64:ec:16 completed (auth) [id=0 id_str=]
<2>CTRL-EVENT-BSS-ADDED 0 08:10:77:64:ec:16
<2>CTRL-EVENT-BSS-ADDED 1 00:26:08:f1:72:84
<2>CTRL-EVENT-BSS-ADDED 2 00:26:08:f1:77:37
<2>CTRL-EVENT-BSS-ADDED 3 00:26:08:f1:75:ab
<2>CTRL-EVENT-BSS-ADDED 4 f4:ec:38:10:75:55
<2>CTRL-EVENT-BSS-ADDED 5 f4:ec:38:10:75:20
<2>CTRL-EVENT-BSS-ADDED 6 00:26:08:f1:75:f2
<2>CTRL-EVENT-BSS-ADDED 7 e4:d5:3d:c0:04:bd
<2>CTRL-EVENT-BSS-ADDED 8 00:26:08:f1:75:e3
<2>CTRL-EVENT-BSS-ADDED 9 ec:17:2f:67:b3:aa
<2>CTRL-EVENT-BSS-ADDED 10 00:26:08:f1:69:3b
<2>CTRL-EVENT-SCAN-RESULTS
<2>Trying to associate with 08:10:77:64:ec:16 (SSID='yanfabu' freq=2437 MHz)
<2>Associated with 08:10:77:64:ec:16
<2>WPA: Key negotiation completed with 08:10:77:64:ec:16 [PTK=CCMP GTK=CCMP]
<2>CTRL-EVENT-CONNECTED - Connection to 08:10:77:64:ec:16 completed (auth) [id=0 id_str=]
list
network id / ssid / bssid / flags
0 yanfabu any [CURRENT]
> quit


[root@FORLINX6410]# ifconfig wlan0 192.168.1.30
[root@FORLINX6410]# route add default gw 192.168.1.1
[root@FORLINX6410]# ping 192.168.1.1
PING 192.168.1.1 (192.168.1.1): 56 data bytes
64 bytes from 192.168.1.1: seq=1 ttl=30 time=11.211 ms
64 bytes from 192.168.1.1: seq=2 ttl=30 time=3.843 ms
^C
--- 192.168.1.1 ping statistics ---
3 packets transmitted, 2 packets received, 33% packet loss
round-trip min/avg/max = 3.843/7.527/11.211 ms
[root@FORLINX6410]# ping baidu.com
PING baidu.com (220.181.57.217): 56 data bytes
64 bytes from 220.181.57.217: seq=0 ttl=46 time=136.953 ms
^C
--- baidu.com ping statistics ---
1 packets transmitted, 1 packets received, 0% packet loss
round-trip min/avg/max = 136.953/136.953/136.953 ms
[root@FORLINX6410]# wget http://www.rfc-editor.org/rfc/rfc914.txt
Connecting to www.rfc-editor.org (4.31.198.49:80)
rfc914.txt 100% |**********| 57288 00:00:00 ETA
[root@FORLINX6410]# ls
bin linuxrc opt sbin udisk
dev lost+found proc sdcard usr
etc mnt rfc914.txt sys var
lib nfs.txt root tmp
[root@FORLINX6410]#
Access to the Internet, download document. Verify that the wireless Internet successfully

Added:



After power up, this light is not lit

WIFI working, lit.

Exercise

- Installation WIFI in your FL6410 target

- Download some file from internet via WIFI