

— 、Relation MIB setting

Name		Meaning	Value	Comment
General setting	regdomain	Regulation domain	1-11 (FCC, IC, ETSI, SPAIN, FRANCE, MKK, ISREAL, MKK1, MKK2, MKK3, NCC)	
			<pre> /****** /* 2.4G /****** /* FCC */ {{1,2,3,4,5,6,7,8,9,10,11},11}, /* IC */ {{1,2,3,4,5,6,7,8,9,10,11},11}, /* ETSI */ {{1,2,3,4,5,6,7,8,9,10,11,12,13},13}, /* SPAIN */ {{10,11},2}, /* FRANCE */ {{10,11,12,13},4}, /* MKK */ {{1,2,3,4,5,6,7,8,9,10,11,12,13,14},14}, /* ISRAEL */ {{3,4,5,6,7,8,9,10,11,12,13},11}, /* MKK1 */ {{1,2,3,4,5,6,7,8,9,10,11,12,13,14},14}, /* MKK2 */ {{1,2,3,4,5,6,7,8,9,10,11,12,13,14},14}, /* MKK3 */ {{1,2,3,4,5,6,7,8,9,10,11,12,13,14},14}, /* NCC (Taiwan) */ {{1,2,3,4,5,6,7,8,9,10,11},11}, /****** /* 5G /****** /* FCC */ {{36,40,44,48,149,153,157,161,165},9}, /* IC */ {{36,40,44,48,149,153,157,161},8}, /* ETSI */ {{36,40,44,48},4}, /* SPAIN */ {{36,40,44,48},4}, /* FRANCE */ {{36,40,44,48},4}, /* MKK */ {{36,40,44,48},4}, /* ISRAEL */ {{36,40,44,48},4}, /* MKK1 */ {{34,38,42,46},4}, /* MKK2 */ {{36,40,44,48},4}, /* MKK3 */ {{36,40,44,48},4}, /* NCC (Taiwan) */ {{56,60,64,149,153,157,161,165},8}, </pre>	
			Note: FCC for the USA , ETSI for European , MKK for Japan , NCC in Taiwan.	
	channel	Operation frequency used	0 for auto channel, 1-14 for 11b/11g, 36-165 for 11a	
	opmode	Operation mode (AP or client)	16 – AP, 8 – Infrastructure client, 32 – Ad-hoc client	
	use40M	Support 40M bandwidth in 11n mode	0 – disable, 1 – enable	
	band	Band selection	1 – 11b, 2 – 11g, 4 – 11a, 8 – 11n	

			a_mode , b_mode , g_mode , n_mode , mixed	
	phyBandSelect	Set band mode for dual-band	1 – 2G, 2 – 5G	Please refer to section “Dual-band configuration”
	802_1x	Flag of using 802.1x	0 – disable, 1 – enable	When 802.1x is enabled, the Auth daemon must be invoked
	ampdu			Block ACK
	qos_enable	Support WMM and QoS	0 – disable, 1 – enable	
	vap_enable	Tell driver if multiple AP function is enabled or disabled	0 – disable, 1 – enable	If multiple AP is enabled, this mib must be set to 1.
	ssid	SSID	“string_value”, SSID with 32 characters in max	
	hiddenAP	Hidden AP enable/disable	0 – disabled, 1 – enabled	
The ssid & hiddenAP & Encryption can be setted in VAP device				
Rate control	autorate	Auto rate adaptive	0 – disable, 1 – enable	
	fixrate	Fixed Tx rate	Bit0-bit11 for CCK : 1M , 2M, 5.5M , 11M , OFDM : 6M , 9 M , 12 M , 18M , 24 M , 36, 48 M, 54M Bit12-Bit27 : MCS0~MCS15	Refer when auto rate is disabled
Encryption	authtype	802.11 Authentication type	0 – open system, 1 – shared key, 2 – auto	
	encmode	Encryption mode	0 – disabled, 1 – WEP64, 2 – TKIP, 4 – AES(CCMP), 5 – WEP128	Set to 2 always under WPA/WPA2 mode
	wepdkeyid	WEP default Tx key	0-3	

WEP	wepkey1~4		10 hex digits for WEP64, 26 hex digits for WEP128	
WPA	psk_enable	PSK mode	0 – disable, 1 – WPA, 2 – WPA2, 3 – WPA/WPA2 mixed	
	wpa_cipher	WPA PSK cipher suite	2 –TKIP, 8 – AES(CCMP), 10 – TKIP/AES mixed	
	wpa2_cipher	WPA2 PSK cipher suite	2 –TKIP, 8 – AES(CCMP), 10 – TKIP/AES mixed	
	passphrase	PSK key	32 characters or 64 hex digits	
WMM	apsd_enable	Support WMM APSD function	0 – disable, 1 – enable	

二、How to run

- A.** First change The path of wifi config(CONFIG_ROOT_DIR) in each script file(.sh) to the path about you wanting

For Example : If you want to save the wifi config to /var folder, please change the CONFIG_ROOT_DIR path in each script file.
CONFIG_ROOT_DIR=/var/rtl8192c

- B.**change the IWPRIV_PATH path in web_wifi_test.sh to the folder path of your iwpriv

For Example :

IWPRIV_PATH=/root

C.8192CE wifi Initialie

1. main interface initialize

./web_wifi_test.sh <interface> <encrypt> <ssid> <MAC address>

./web_wifi_test.sh wlan0 1 Timmy_0 00:E0:4C:81:86:70

2. virtual interface initialize

./web_vap_setting.sh <INTERFACE> <ssid> <MAC address>

./web_vap_set_init.sh wlan0-vap0 Timmy_0-vap0 00:E0:4C:81:86:80

./web_vap_set_init.sh wlan0-vap1 Timmy_0-vap1 00:E0:4C:81:86:81

./web_vap_set_init.sh wlan0-vap2 Timmy_0-vap2 00:E0:4C:81:86:82

./web_vap_set_init.sh wlan0-vap3 Timmy_0-vap3 00:E0:4C:81:86:83

- D.**If you want to change the wifi setting, you can refer following step.

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1 、 802.11b/g/n Setting

Allow ifterface : wlan0 only

=====

```
./web_set_bgn.sh <interface> <bgn_mode>
<bgn_mode> :
    b_mode ,      g_mode , n_mode , mixed
```

For Example :

```
./web_set_bgn.sh wlan0 b_mode
ifconfig wlan0 down
ifconfig wlan0 up
```

=====

2 、 multi-ssid Setting

Allow ifterface : wlan0 , wlan0-va0 , wlan0-va0 , wlan0-va1 , wlan0-va2 , wlan0-va3

=====

```
./web_set_ssid.sh <interface>    <ssid>
```

For Example :

```
./web_set_ssid.sh wlan0 Timmy_SSID
ifconfig wlan0 down
ifconfig wlan0 up
```

=====

3 、 power calibration

Allow ifterface : wlan0 only

=====

**A.(fill out the values of HW_TX_POWER_CCK_A,
HW_TX_POWER_CCK_B,
HW_TX_POWER_HT40_1S_A,
HW_TX_POWER_HT40_1S_B,
HW_TX_POWER_DIFF_HT40_2S,
HW_TX_POWER_DIFF_HT20,
HW_TX_POWER_DIFF_OFDM and
HW_WLAN0_WLAN_ADDR in web_set_power.sh ,
these value should be get after calibration)**

B. ./web_set_power.sh wlan0

**these setting value will be saved in Efuse and driver will read these
value to initialize wifi device during wifi device initialization**

C. Efuse parameter	V.S	iwpriv tool parameter
HW_TX_POWER_CCK_A		pwrlevelCCK_A
HW_TX_POWER_CCK_B		pwrlevelCCK_B
HW_TX_POWER_HT40_1S_A		pwrlevelHT40_1S_A
HW_TX_POWER_HT40_1S_B		pwrlevelHT40_1S_B
HW_TX_POWER_DIFF_HT40_2S		pwrdiffHT40_2S
HW_TX_POWER_DIFF_HT20		pwrdiffHT20
HW_TX_POWER_DIFF_OFDM		pwrdiffOFDM

**D. About the define of each field , please refer the
how_to_K_power_parameter.doc**

**E. You also can directly save the setting value in Efuse throughput MP tool.
The detail refer MP.Tool.Introduction-v1.2.pdf**

4 、channel setting

Allow ifterface : wlan0 only

```
./web_channel.sh <interface> <channel>
```

For Example :

```
./web_channel.sh wlan0 11
ifconfig wlan0 down
ifconfig wlan0 up
```

5 、Tx rate setting

Allow ifterface : wlan0 only

```
./web_tx_rate.sh <interface> <rate>
```

<rate> :

Rate control	autorate	Auto rate adaptive	0 – disable, 1 – enable	
	fixrate	Fixed Tx rate	Bit0-bit11 for CCK : 1M , 2M , 5.5M , 11M , OFDM : 6M , 9 M ,12 M ,18M ,24 M,36, 48 M, 54M	Refer when auto rate is disabled

			Bit12-Bit27 : MCS0~MCS15	
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For Example :Fixed Tx rate in MCS0

```
./web_tx_rate.sh wlan0 mcs0
```

```
ifconfig wlan0 down
```

```
ifconfig wlan0 up
```

Note : you can type following the confirm the Tx rate status.

```
iwpriv wlan0 set_mib rssi_dump=1
```

=====

6 、 WPS :

Allow ifterface : wlan0 only

=====

First please change following path in wlanapp_8192c.sh to the path of the tools in your system

```
AUTH_PATH=/root/auth
```

```
IWCONTROL_PATH=/root/iwcontrol
```

```
WSCD_PATH=/root/wscd
```

```
SIMPLECFG_PATH=/root/simplecfgservice.xml
```

```
CONFIG_FILE_PATH=/root/wscd.conf
```

1.Add Bridge interface

2.bridge wifi device into Bridge interface

3. setting IP of Bridge interface

4.Open WPS : ./web_wps_setting.sh wlan0 open
iwcontrol wlan0

5. Close WPS : ./web_wps_setting.sh wlan0 close

6.For Example

```
brctl addbr br0
```

```
brctl addif br0 wlan0
```

```
ifconfig br0 <IP address>
```

```
./web_wps_setting.sh wlan0 open
```

```
iwcontrol wlan0
```

Note : WPS2.x only support WPA2 or WPA/WPA2 mixed auth mode

Note : WPS2.x only support AES or AES/TKIP mixed encrypt mode

=====

7 、Tx/Rx packets statistic

=====

```
cat /proc/wlan0/stats
cat /proc/wlan0-va0/stats
cat /proc/wlan0-va1/stats
cat /proc/wlan0-va2/stats
cat /proc/wlan0-va3/stats
```

=====

9 、Encryption

Allow ifterface : wlan0 , wlan0-va0 , wlan0-va0 , wlan0-va1 , wlan0-va2 , wlan0-va3

=====

1. WPA Setting

1.Initialize WPA(default value)

```
./web_wpa_setting.sh <interface> <wpa/wpa2/wpa_wpa2_mixed> <tkip/aes/tkip_aes_mixes>
```

2.Setting PSK key

```
./web_wpa_password.sh <interface> <PSK key>
```

3.For Example

- a. ./web_wpa_setting.sh wlan0 wpa2 aes
- b. ./web_wpa_password.sh wlan0 1234567890
- c. ifconfig wlan0 down
- d. ifconfig wlan0 up

2. WEP Setting

1.initialize WEP

```
./web_wep_setting.sh <INTERFACE> <key_num> < default key >
```

2.SETTING KEY

```
./web_wep_key.sh wlan0 < key type > <key_num> <key>
```

3.For Example

- a. ./web_wep_setting.sh wlan0-va0 open wep_64 1
- b. ./web_wep_key.sh wlan0-va0 64_hex 1 1111111111
- c. ./web_wep_key.sh wlan0-va0 64_hex 2 2222222222
- d. ./web_wep_key.sh wlan0-va0 64_hex 3 3333333333
- e. ./web_wep_key.sh wlan0-va0 64_hex 4 4444444444

- f. ifconfig wlan0 down
- g. ifconfig wlan0 up

3.no-encrypt Setting

./web_no_encry.sh <interface>

For Example

./web_no_encry.sh wlan0

=====

11.Set hidden AP

=====

./web_set_hiddenAP.sh <INTERFACE> <option>

<option> :

0:show ssid ; 1:hidden ssid

For Example

./web_set_hiddenAP.sh wlan0 1

ifconfig wlan0 down

ifconfig wlan0 up

三、儲存模式： Save into files.

Config file 儲存路徑：在每個.sh 檔指定 \$ CONFIG_ROOT_DIR 路徑

例如：

\$ CONFIG_ROOT_DIR=/var/rtl8192c

那 wlan0 device 參數會存放在 /var/rtl8192c/wlan0

wlan0-va0 參數會存放在 /var/rtl8192c/wlan0-va0

wlan0-va1 參數會存放在 /var/rtl8192c/wlan0-va1

wlan0-va2 參數會存放在 /var/rtl8192c/wlan0-va2

wlan0-va3 參數會存放在 /var/rtl8192c/wlan0-va3

Iwpriv 儲存路徑：設定在 web_wifi_test.sh 的 \$ IWPRIV_PATH 參數中

四、WPS Test:

First please change following path in wlanapp_8192c.sh to the path of the tools in your system

```
AUTH_PATH=/root/auth  
IWCONTROL_PATH=/root/iwcontrol  
WSCD_PATH=/root/wscd  
SIMPLECFG_PATH=/root/simplecfgservice.xml  
CONFIG_FILE_PATH=/root/wscd.conf
```

1.Add Bridge interface

2.bridge wifi device into Bridge interface

3. setting IP of Bridge interface

4. Open WPS:

```
./web_wps_setting.sh wlan0 open
```

5. Close WPS:

```
./web_wps_setting.sh wlan0 close
```

6.For Example

```
brctl addbr br0  
brctl addif br0 wlan0  
ifconfig br0 <IP address>  
./web_wps_setting.sh wlan0 open
```

Note : WPS2.x only support WPA2 or WPA/WPA2 mixed auth mode

Note : WPS2.x only support AES or AES/TKIP mixed encrypt mode

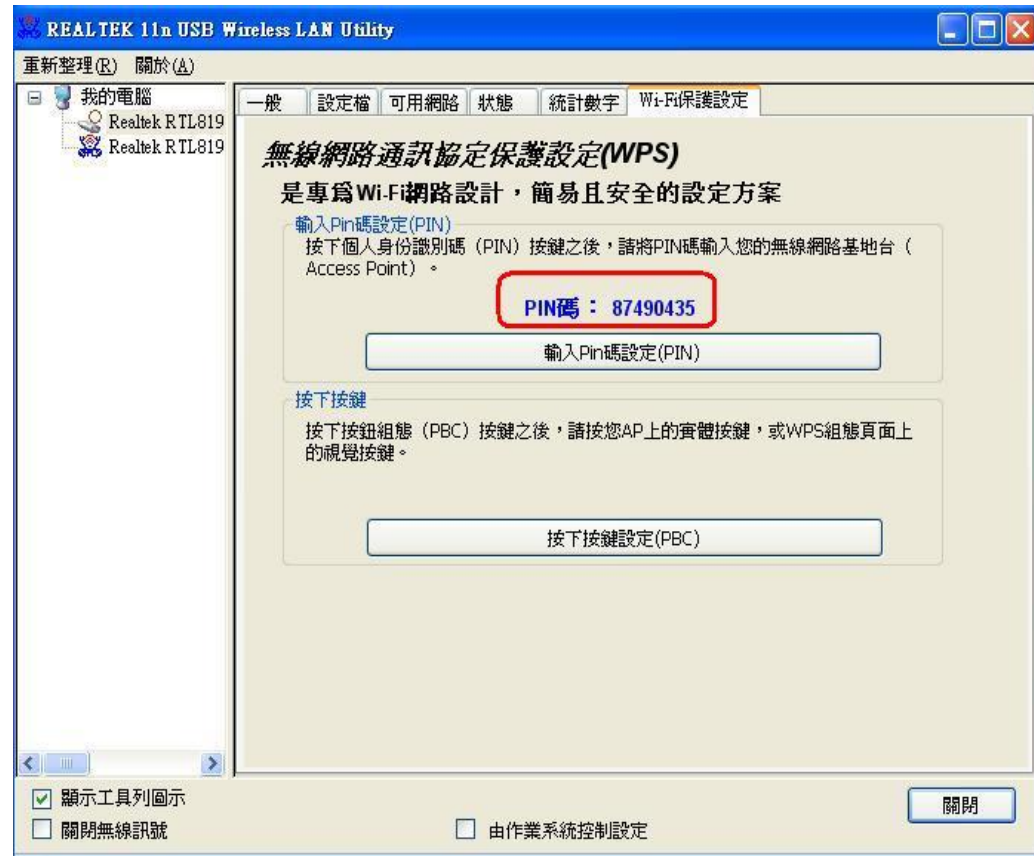
WPS test :

Here I take my PC environment as an example.

<PIN Code>

Client endian :

1.First , get the PIN code in my wifi device.My SSID of AP is “For_AP_Test_1”.



Double click the AP to entry PIN mode

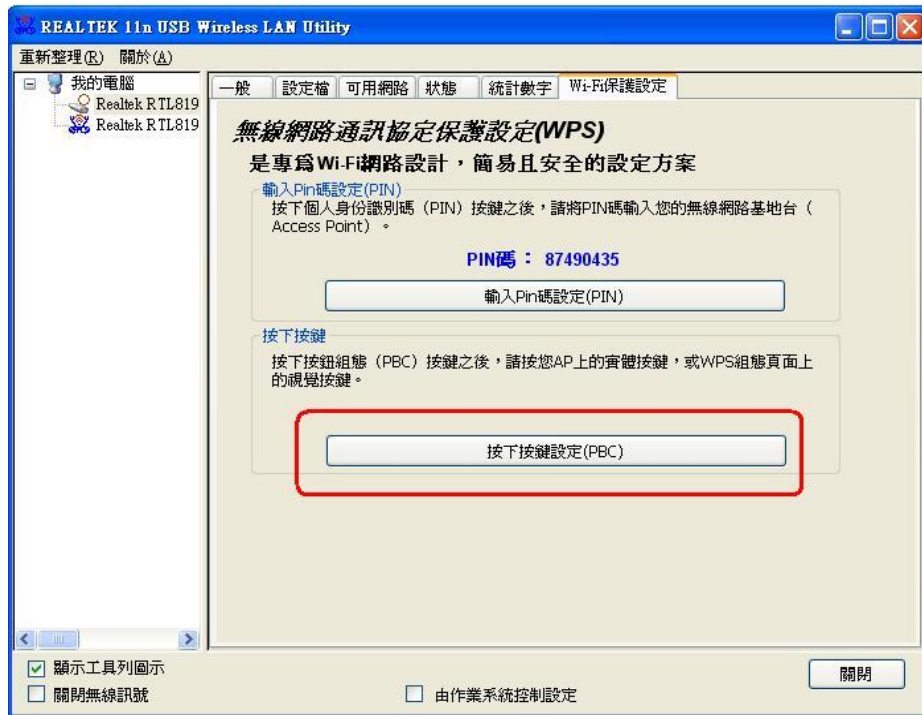


AP Endian

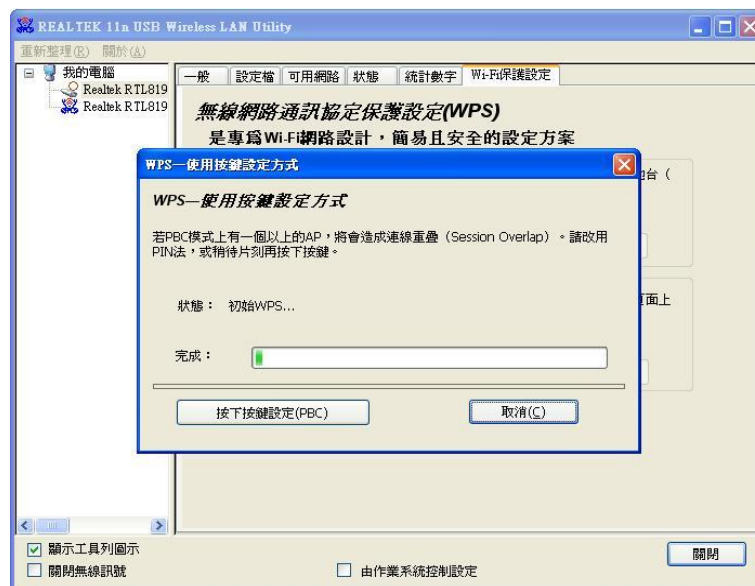
iwpriv wlan0 set_mib pin=<your PIN code>

<PBC Code>

Client endian :



Click PBC button



Entry PBC mode

AP Endian :

```
wscd -sig_pbc wlan0
```

802.1x

1.First please change following path in radius_server.sh to the path of the tools in your system

```
AUTH_PATH=/root/auth  
FLASH_PATH=/root/flash  
IWCONTROL_PATH=/root/iwcontrol  
CONFIG_ROOT_DIR=/var/rtl8192c
```

2.Execute 802.1x

```
./radius_server.sh "<interface> <radius_server_ip> <auth interface>"  
<option> :
```

```
    <radius_server_ip>  
        radius server IP address  
    <auth interface>  
        The interface located the side of radius server
```

For Example

Example 1 :

- A.wlan0 run in 802.1x mode
- B.Radius server IP is 172.20.10.250
- C.eth0 is same subnet with Radius Server
- D.Execute:
radius_server.sh open wlan0 172.20.10.250 eth0
iwcontrol wlan0 wlan0-van0 wlan0-van1 wlan0-van2 wlan0-van3

Example 2 :

- A. If you want to run wlan0 wlan0-van0 wlan0-van2 in 802.1x mode
- B. Radius server IP is 172.20.10.250
- C. eth0 is same subnet with Radius Server
radius_server.sh open wlan0 172.20.10.250 eth0
radius_server.sh open wlan0-van0 172.20.10.250 eth0
radius_server.sh open wlan0-van2 172.20.10.250 eth0
ifconfig eth0 <IP address>
iwcontrol wlan0 wlan0-van0 wlan0-van1 wlan0-van2 wlan0-van3

Example 3 :

If you want to close 802.1x mode from wlan0 wlan0-va1

radius_server.sh close wlan0 wlan0-va1

iwcontrol wlan0 wlan0-va0 wlan0-va1 wlan0-va2 wlan0-va3

Example 5 :

A. wlan0 using WPS

B. wlan0-va0 wlan0-va1 wlan0-va2 wlan0-va3 run in 802.1x

radius server IP : 172.20.10.250

interface : br0

web_wps_setting.sh wlan0 open

radius_server.sh open wlan0-va0 172.20.10.250 br0

radius_server.sh open wlan0-va1 172.20.10.250 br0

radius_server.sh open wlan0-va2 172.20.10.250 br0

radius_server.sh open wlan0-va3 172.20.10.250 br0

iwcontrol wlan0 wlan0-va0 wlan0-va1 wlan0-va2 wlan0-va3

Example 6 :

Close WPS : from wlan0

Close 802.1x : from wlan0-va0

web_wps_setting.sh wlan0 close

radius_server.sh close wlan0-va0 172.20.10.250 br0

iwcontrol wlan0 wlan0-va0 wlan0-va1 wlan0-va2 wlan0-va3

Note :

If you have re-start the wifi device.

A. device is root device (wlan0)

You must re-start the auth daemon of every wifi device.

For Example :

a. wlan0 is in 802.1x mode

b. If you re-start wlan0

ifconfig wlan0 down

ifconfig wlan0 up

c.

The you must re-start all 802.1x from each wifi device

./radius_server.sh close wlan0 , wlan0-va0 , wlan0-va1 , wlan0-va2 ,
wlan0-va3

./radius_server.sh open wlan0 172.20.10.250 br0

./radius_server.sh open wlan0-va0 172.20.10.250 br0

./radius_server.sh open wlan0-va1 172.20.10.250 br0

./radius_server.sh open wlan0-va2 172.20.10.250 br0

./radius_server.sh open wlan0-va3 172.20.10.250 br0

./iwcontrol wlan0 wlan0-va0 wlan0-va1 wlan0-va2 wlan0-va3

B. device is virtual device (wlan0)

You only need re-start the auth daemon of correspond wifi device.

For Example :

a. wlan0-va0 is in 802.1x mode

b. If you re-start wlan0-va0

ifconfig wlan0-va0 down

ifconfig wlan0-va0 up

c.

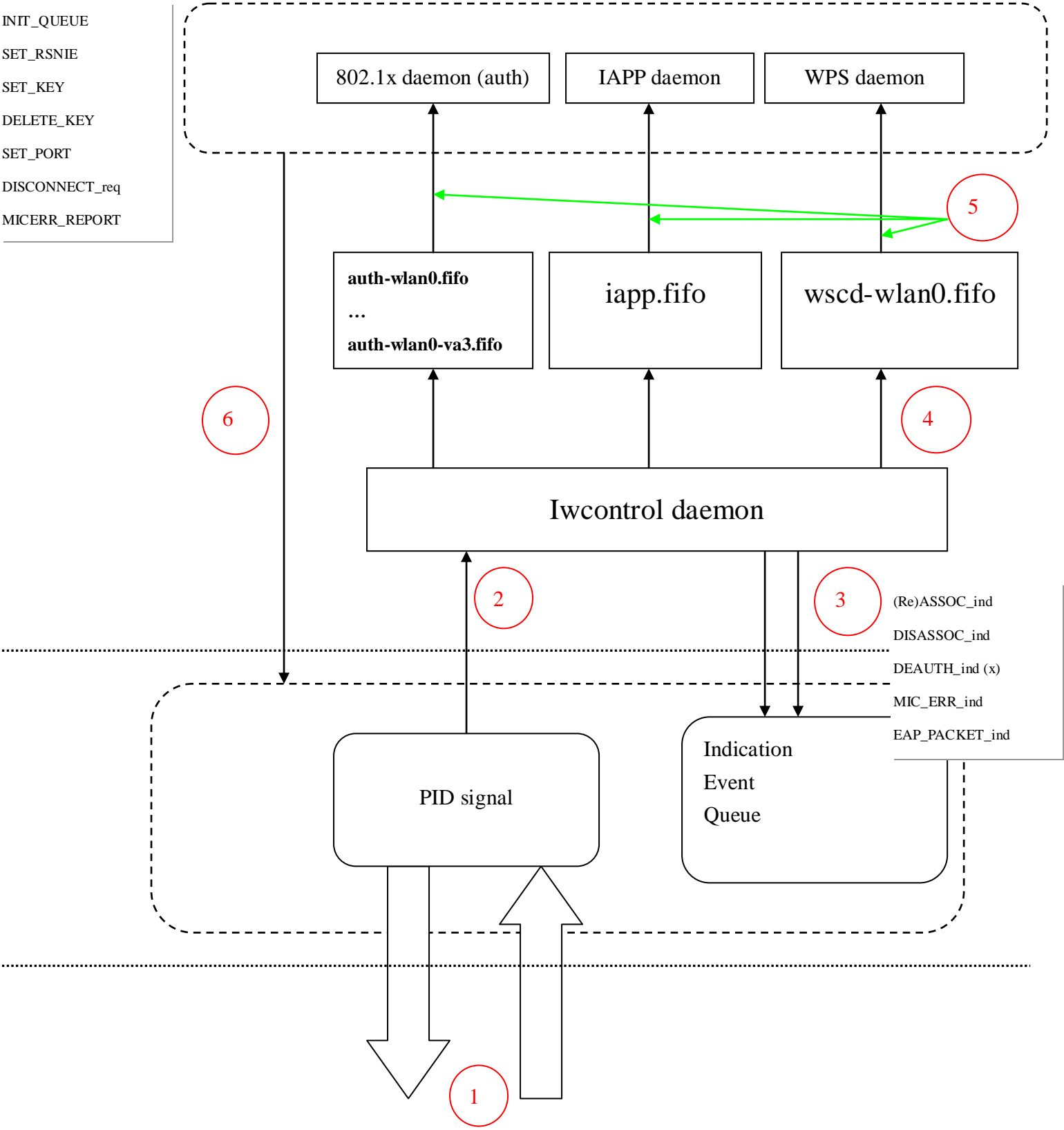
The you only need re-start the auth daemon of wlan0-va0

./radius_server.sh close wlan0-va0

./radius_server.sh open wlan0-va0 172.20.10.250 br0

./iwcontrol wlan0 wlan0-va0 wlan0-va1 wlan0-va2 wlan0-va3

System Architecture



1. Driver receive one request.
2. Driver assign one single-SIGIO to **iwcontrol daemon**
3. **iwcontrol daemon** get the request from driver through ioctl command.and
4. **iwcontrol daemon** assign one command to correspond FIFO files.
5. **wifi daemon(ahth,iapp,wscd...)** receive one command from corresponding FIFO file.
6. **wifi daemon(ahth,iapp,wscd...)** addign one command through ioctl command.

Power Calibration

I.

There are two way to save the power index.

- 1.Save power index into wifi chip internal memory(Efuse).
- 2.Save power index in files.

The wifi driver will read the power value from either Efuse or files(Depend on driver define) and write it into wifi chip through iwpriv command.

If the power index was saved in (Efuse),you can access the the power value throughput following 3 command.

iwpriv <Interface> < efuse_set / efuse_get / efuse_sync >

efuse_set : save power index value in one temporary space.

For Example :

```
iwpriv <Interface> efuse_set HW_TX_POWER_CCK_A=<power Index>
```

```
iwpriv <Interface> efuse_set HW_TX_POWER_CCK_B=<power Index>
```

efuse_get : get power index correspond from the temporary space of Efuse

```
iwpriv <Interface> efuse_get
```

For Example :

```
iwpriv <Interface> efuse_get HW_TX_POWER_CCK_A
```

```
iwpriv <Interface> efuse_get HW_TX_POWER_CCK_B
```

efuse_sync : Save the temporary space value into Efuse

```
iwpriv <Interface> efuse_sync
```

The detail Please refer the web_set_power.sh

II. How to use the the web_set_power.sh

A.

fill out the values of **HW_TX_POWER_CCK_A** , **HW_TX_POWER_CCK_B** ,
HW_TX_POWER_HT40_1S_A , **HW_TX_POWER_HT40_1S_B** ,
HW_TX_POWER_DIFF_HT40_2S , **HW_TX_POWER_DIFF_HT20**
,**HW_TX_POWER_DIFF_OFDM** and **HW_WLAN0_WLAN_ADDR** in **web_set_power.sh** ,

these value should be get after calibration)

B.

./web_set_power.sh <interface>

these setting value will be saved in Efuse and driver will read these value to initialize wifi device during wifi device initialization

C. Efuse parameter V.S Iwpriv tool parameter

Efuse parameter	iwpriv tool parameter
HW_TX_POWER_CCK_A	pwrlevelCCK_A
HW_TX_POWER_CCK_B	pwrlevelCCK_B
HW_TX_POWER_HT40_1S_A	pwrlevelHT40_1S_A
HW_TX_POWER_HT40_1S_B	pwrlevelHT40_1S_B
HW_TX_POWER_DIFF_HT40_2S	pwrdiffHT40_2S
HW_TX_POWER_DIFF_HT20	pwrdiffHT20
HW_TX_POWER_DIFF_OFDM	pwrdiffOFDM

D.

About the define of each field , please refer the how_to_K_power_parameter.doc

E.

You also can directly save the setting value in Efuse throughput MP tool.The detail refer MP.Tool.Introduction-v1.2.pdf

III. How to use Mptools

1. Put USPServer to root folder (/)
2. Put **irf** & **orf** to **/bin** folder
- 3.cd /
- 4./UDPServer &
5. Run the Mptools in Windows Platform.
- 6.fill in the IP address & press Open button on Mptool UI.

The detail refer [MP.Tool.Introduction.pdf](#)