1. 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) | | |  |
|  | | | | | | |
| 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 |
|  | | | | | | | | | |
| WEP | | wepdkeyid | | | WEP default Tx key | | 0-3 | |  |
| 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 | | |  |
|  | | | | |  | |  | | |  |

1. How to run
2. 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-va0 Timmy\_0-va0 00:E0:4C:81:86:80

./web\_vap\_set\_init.sh wlan0-va1 Timmy\_0-va1 00:E0:4C:81:86:81

./web\_vap\_set\_init.sh wlan0-va2 Timmy\_0-va2 00:E0:4C:81:86:82

./web\_vap\_set\_init.sh wlan0-va3 Timmy\_0-va3 00:E0:4C:81:86:83

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

**==================================================**

**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  Bit12-Bit27 : MCS0~MCS15 | Refer when auto rate is disabled |

**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

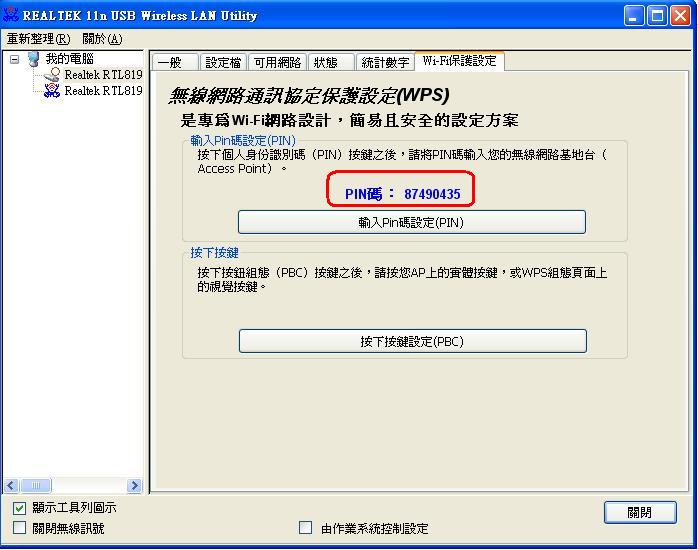
Note : WPS2.x only support WPA2 or WPA/WPA2 mixed auth mode

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”.



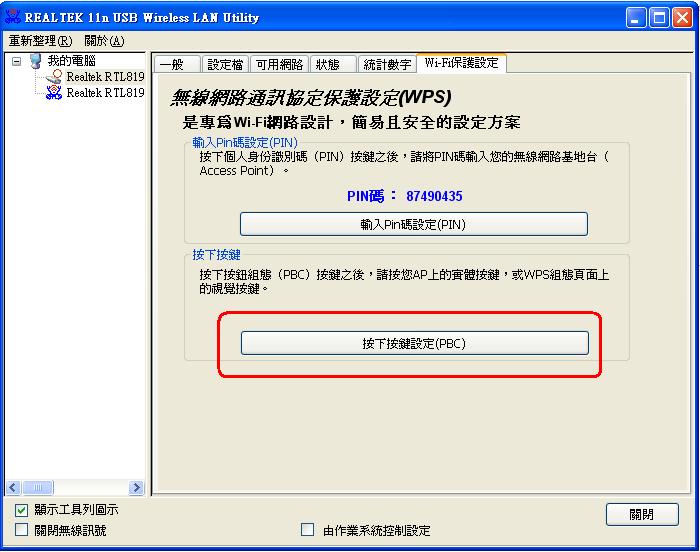
Double click the AP to entry PIN mode



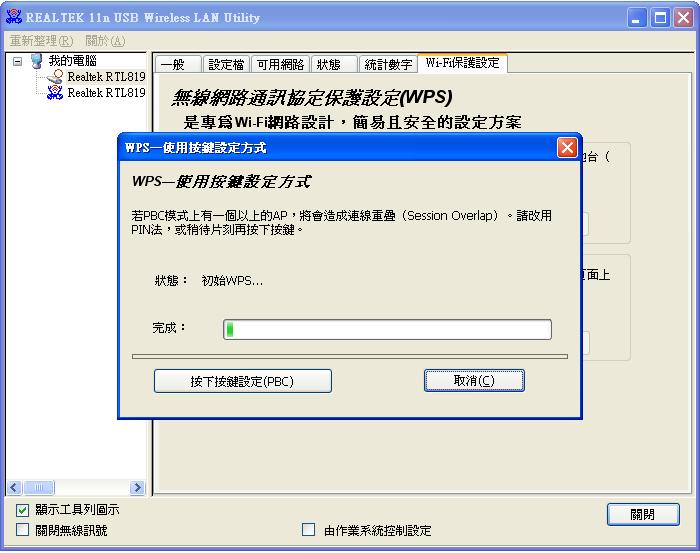
AP Endian  
iwpriv wlan0 set\_mib pin=<your PIN code>

<PBC Code>

Client endian：



Click PBC buttom



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\_serveer\_ip> <auth interface>"

<option> :

<radius\_serveer\_ip>

radius server IP avvress

<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-va0 wlan0-va1 wlan0-va2 wlan0-va3

Example 2 :

A. If you want to run wlan0 wlan0-va0 wlan0-va2 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-va0 172.20.10.250 eth0

radius\_server.sh open wlan0-va2 172.20.10.250 eth0

ifconfig eth0 <IP address>

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

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

INIT\_QUEUE

SET\_RSNIE

SET\_KEY

DELETE\_KEY

SET\_PORT

DISCONNECT\_req

MICERR\_REPORT

QUERY\_GKEY\_TSC

ACCT\_SET\_EXPIRE (x)

ACCT\_QUERY\_STAT (x)

802.1x daemon (auth)

IAPP daemon

WPS daemon

wscd-wlan0.fifo

iapp.fifo

**auth-wlan0.fifo**

**…**

**auth-wlan0-va3.fifo**

Iwcontrol daemon

(Re)ASSOC\_ind

DISASSOC\_ind

DEAUTH\_ind (x)

MIC\_ERR\_ind

EAP\_PACKET\_ind

Indication

Event

Queue

PID signal

1. Driver receive one request.
2. Driver assign one signle-SIGIO to **iwcontrol daemon**
3. **iwcontrol daemon** get the request from driver through ioctl commamd.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