

This document had described the way to inform the wpa\_supplicant to do the WiFi connection by using the wpa\_cli. The wpa\_supplicant had supported all kinds of security connections and WPS defined in the 802.11 specification. So, we suggest use the wpa\_supplicant to do the WiFi connection rather than the iwconfig wireless tool.

## ***(A) WPA\_SUPPLICANT + WPA\_CLI User Guide***

### **1.start wpa\_supplicant in the background**

```
wpa_supplicant -Dnl80211 -iwlan0 -c /tmp/net/wpa.conf -B  
or
```

```
wpa_supplicant -Dwext -iwlan0 -c /tmp/net/wpa.conf -B
```

### **2.Scanning AP and See Results**

```
wpa_cli -p/var/run/wpa_supplicant scan  
wpa_cli -p/var/run/wpa_supplicant scan_results
```

### **3.Connect to AP**

#### **a.OPEN**

```
wpa_cli -p/var/run/wpa_supplicant remove_network 0  
wpa_cli -p/var/run/wpa_supplicant ap_scan 1  
wpa_cli -p/var/run/wpa_supplicant add_network  
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""dlink""  
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt NONE  
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

#### **b.WEP40 with open system**

```
wpa_cli -p/var/run/wpa_supplicant remove_network 0  
wpa_cli -p/var/run/wpa_supplicant ap_scan 1  
wpa_cli -p/var/run/wpa_supplicant add_network  
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""dlink""  
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt NONE  
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_key0 1234567890  
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_tx_keyidx 0  
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

#### **c.WEP40 with shared key mode**

```
wpa_cli -p/var/run/wpa_supplicant remove_network 0  
wpa_cli -p/var/run/wpa_supplicant ap_scan 1  
wpa_cli -p/var/run/wpa_supplicant add_network  
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""dlink""  
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt NONE  
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_key0 1234567890  
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_tx_keyidx 0
```

```
wpa_cli -p/var/run/wpa_supplicant set_network 0 auth_alg SHARED
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

#### **d.WEP104 with open system**

```
wpa_cli -p/var/run/wpa_supplicant remove_network 0
wpa_cli -p/var/run/wpa_supplicant ap_scan 1
wpa_cli -p/var/run/wpa_supplicant add_network
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""dlink""
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt NONE
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_key0
12345678901234567890123456
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_tx_keyidx 0
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

#### **e.WEP104 with shared key mode**

```
wpa_cli -p/var/run/wpa_supplicant remove_network 0
wpa_cli -p/var/run/wpa_supplicant ap_scan 1
wpa_cli -p/var/run/wpa_supplicant add_network
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""dlink""
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt NONE
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_key0
12345678901234567890123456
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_tx_keyidx 0
wpa_cli -p/var/run/wpa_supplicant set_network 0 auth_alg SHARED
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

**#If wep key is ASCII type,use the following cmd:**

```
#WEP40: wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_key0 ""12345""
#WEP104: wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_key0
""1234567890123""
```

**#WEP key index is X from 0 to 3, change X for other key index and select it.**

```
#wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_keyX
12345678901234567890123456
#wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_tx_keyidx X
```

#### **f.TKIP and AES**

```
wpa_cli -p/var/run/wpa_supplicant remove_network 0
wpa_cli -p/var/run/wpa_supplicant ap_scan 1
wpa_cli -p/var/run/wpa_supplicant add_network
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""dlink""
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt WPA-PSK
wpa_cli -p/var/run/wpa_supplicant set_network 0 psk ""12345678""
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

#### 4. Ad-hoc mode

##### a. OPEN

```
wpa_cli -p/var/run/wpa_supplicant scan
wpa_cli -p/var/run/wpa_supplicant scan_results
wpa_cli -p/var/run/wpa_supplicant remove_network 0
wpa_cli -p/var/run/wpa_supplicant ap_scan 2
wpa_cli -p/var/run/wpa_supplicant add_network
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""Adhoc_test""
wpa_cli -p/var/run/wpa_supplicant set_network 0 mode 1
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt NONE
wpa_cli -p/var/run/wpa_supplicant set_network 0 frequency 2412
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

#frequency is to set the channel frequency for Ad-hoc master.

##### b. WEP40

```
wpa_cli -p/var/run/wpa_supplicant scan
wpa_cli -p/var/run/wpa_supplicant scan_results
wpa_cli -p/var/run/wpa_supplicant remove_network 0
wpa_cli -p/var/run/wpa_supplicant ap_scan 2
wpa_cli -p/var/run/wpa_supplicant add_network
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""Adhoc_test""
wpa_cli -p/var/run/wpa_supplicant set_network 0 mode 1
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt NONE
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_key0 1234567890
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_tx_keyidx 0
wpa_cli -p/var/run/wpa_supplicant set_network 0 frequency 2412
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

##### c. WEP104

```
wpa_cli -p/var/run/wpa_supplicant scan
wpa_cli -p/var/run/wpa_supplicant scan_results
wpa_cli -p/var/run/wpa_supplicant remove_network 0
wpa_cli -p/var/run/wpa_supplicant ap_scan 2
wpa_cli -p/var/run/wpa_supplicant add_network
wpa_cli -p/var/run/wpa_supplicant set_network 0 ssid ""Adhoc_test""
wpa_cli -p/var/run/wpa_supplicant set_network 0 mode 1
wpa_cli -p/var/run/wpa_supplicant set_network 0 key_mgmt NONE
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_key0
12345678901234567890123456
wpa_cli -p/var/run/wpa_supplicant set_network 0 wep_tx_keyidx 0
wpa_cli -p/var/run/wpa_supplicant set_network 0 frequency 2412
wpa_cli -p/var/run/wpa_supplicant select_network 0
```

#### 5. Save the Current Connection AP configuration file

```
wpa_cli -p/var/run/wpa_supplicant save_config
```

## 6.WPS Connection

**Push Button:**

**wpa\_cli -p/var/run/wpa\_supplicant remove\_network 0**

**wpa\_cli -p/var/run/wpa\_supplicant wps\_pbc any**

**Pin Code:**

**wpa\_cli -p/var/run/wpa\_supplicant remove\_network 0**

**wpa\_cli -p/var/run/wpa\_supplicant wps\_pin any 12345670**

**or**

**wpa\_cli -p/var/run/wpa\_supplicant remove\_network 0**

**wpa\_cli -p/var/run/wpa\_supplicant wps\_pin any**

## 7.Get Current Status of wpa\_supplicant

**wpa\_cli -p/var/run/wpa\_supplicant status**

## 8.Disable current network connection

**wpa\_cli -p/var/run/wpa\_supplicant disable\_network 0**

## (B) WPA\_SUPPLICANT + WPA\_CLI - Control interface commands

Following commands can be used with `wpa_cli`

### PING

This command can be used to test whether wpa\_supplicant is replying to the control interface commands. The expected reply is PONG if the connection is open and wpa\_supplicant is processing commands.

### STATUS

Request current status information. The output is a text block with each line in variable=value format. For example:

```
bssid=02:00:01:02:03:04
ssid=test network
pairwise_cipher=CCMP
group_cipher=CCMP
key_mgmt=WPA-PSK
wpa_state=COMPLETED
```

### LIST\_NETWORKS

List configured networks.

```
network id / ssid / bssid / flags
0 example network any [CURRENT]
```

(note: fields are separated with tabs)

### SCAN

Request a new BSS scan.

## SCAN\_RESULTS

Get the latest scan results.

ssid / frequency / signal level / flags / ssid  
00:09:5b:95:e0:4e 2412 208 [WPA-PSK-CCMP] jkm private  
02:55:24:33:77:a3 2462 187 [WPA-PSK-TKIP] testing  
00:09:5b:95:e0:4f 2412 209 jkm guest  
(note: fields are separated with tabs)

## ADD\_NETWORK

Add a new network. This command creates a new network with empty configuration. The new network is disabled and once it has been configured it can be enabled with ENABLE\_NETWORK command. ADD\_NETWORK returns the [network id](#) of the new network or FAIL on failure

## SELECT\_NETWORK <network id>

Select a network (disable others). Network id can be received from the LIST\_NETWORKS command output.

## ENABLE\_NETWORK <network id>

Enable a network. Network id can be received from the LIST\_NETWORKS command output.

## DISABLE\_NETWORK <network id>

Disable a network. Network id can be received from the LIST\_NETWORKS command output. Special network id [all](#) can be used to disable all network.

## REMOVE\_NETWORK <network id>

Remove a network. Network id can be received from the LIST\_NETWORKS command output. Special network id [all](#) can be used to remove all network.

## SET\_NETWORK <network id> <variable> <value>

Set network variables. Network id can be received from the LIST\_NETWORKS command output. This command uses the same variables and data formats as the configuration file.

- ssid (network name, SSID)
- psk (WPA passphrase or pre-shared key)
- key\_mgmt (key management protocol, NONE, WPA-PSK, WPA-EAP)
- proto ( WPA WPA2)
- pairwise ( CCMP TKIP)
- group ( CCMP TKIP WEP40 WEP104)
- wep\_key0 ( set wep key for key index 0)
- wep\_tx\_keyidx ( select wep key index)
- frequency ( Channel frequency in megahertz (MHz) for IBSS )

## GET\_NETWORK <network id> <variable>

Get network variables. Network id can be received from the LIST\_NETWORKS command output.

## SAVE\_CONFIG

Save the current configuration.

**AP\_SCAN** <ap\_scan value>

Change ap\_scan value: 0 = no scanning, 1 = wpa\_supplicant requests scans and uses scan results to select the AP, 2 = wpa\_supplicant does not use scanning and just requests driver to associate and take care of AP selection

Realtek