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

## 2. Scaning 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 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 select_network 0
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 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 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.
bssid / 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)

#### 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