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.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 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.

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)
- 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

