

Visual Wireless manual

Rev1.0

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MYK, inc.

Change history

Rev	Date	Author	Detail
0.1	2020/2/25	O.minoru	Initial
1.0	2021/08/27		Add log function

Table of Contents

1.1 Requirements.....	5
1.2 Install.....	5
2. In first time use.....	6
3. Main panel.....	7
Edit.....	7
AP stats.....	7
STA stats.....	7
Channel stats.....	7
Capturing.....	7
Capture scanning STAs.....	7
Export.....	7
4. Configurations.....	8
Enabled.....	8
Name.....	8
Dump.....	8
BW.....	8
All channels.....	9
Channel number.....	9
Capture slot.....	9
Capture Directory.....	9
Config file.....	9
Save/Load.....	9
Config file:.....	10
Detail graph duration.....	10

Export detail graph.....	10
Export Directory:.....	10
Font size.....	10
5. AP stats.....	11
No.....	11
SSID.....	11
BSSID.....	11
channel.....	11
RSSI(now).....	11
RSSI(max).....	11
RSSI(min).....	11
RSSI(ave).....	12
alive(%).....	12
alive(sec).....	12
auth/assoc frame(cnt).....	12
EAPOL frame(cnt).....	12
Tx frame(bytes).....	12
Tx rate(Mbps).....	12
Rx frame(bytes).....	12
Rx rate(Mbps).....	12
FCS error(%).....	13
FCS error(cnt).....	13
encryption.....	13
capability.....	13
5.1 AP detail.....	14
SSID.....	14
BSSID.....	14
Channel.....	14
Graph.....	15
RSSI selection.....	15
6. STA stats.....	16
SSID filter.....	16
No.....	16
SSID.....	16
BSSID.....	16
STA MAC.....	16

STA state.....	17
The rest.....	17
6.1 STA detail.....	18
SSID.....	18
STA MAC.....	18
Channel information.....	18
The rest.....	18
7. Channel Stats.....	19
7.1 AP.....	19
7.2 STA.....	19
7.3 FCS error.....	20
8. Cautions when using.....	21
8.1 802.11ac ax.....	21
8.2 Network manager.....	21

1. Install

1.1 Requirements

A computer with Ubuntu OS.

WiFi device with monitor mode.

* We have some preinstalled computer you can buy.

** We have some WiFi device with monitor mode you can buy.

1.2 Install

Download ubuntu OS from this link and install it:

<http://releases.ubuntu.com/18.04/>

or ubuntu 20.04 TLS

Delete mlocate and avahi-daemon

```
$ sudo apt remove mlocate avahi-daemon
```

To disable security boot, do:

```
$ sudo mokutil --disable-validation
```

* set a password here

```
$ sudo reboot
```

On rebooting, below message is displayed :

```
$ change secure boot state
```

* use password you set.

To install some WiFi driver, do:

```
$ sudo apt update
```

```
$ sudo apt upgrade
```

Install RTL8812AU driver, if you used :

```
$ sudo apt install dkms
```

```
$ git clone https://github.com/aircrack-ng/rtl8812au/
```

```
$ cd rtl8812au/
```

```
$ git checkout v5.6.4.2
```

* or use the last rev one.

```
$ make
```

```
$ sudo make install
```

```
$ sudo reboot
```

Install some libs/APP and this APP:

```
$ sudo apt install libpcap0.8 smartmontools libxcb-xinput0
```

```
$ sudo apt install dpkg
```

```
$ sudo dpkg -i visual-wireless_xxx_amd64.deb
```

* uninstall: `$ sudo dpkg -r visual-wireless`

Note: You can stop the auto update of OS, to keep you installed driver working:

```
$ sudo dpkg-reconfigure --priority=low unattended-upgrades
```

2. In first time use

To get license file for this APP, do:

```
$ sudo visual_wireless serial
```

Send the result :

```
Serial Number: "  ABCDEF  "
```

to our mail address(support@myk-inc.com)

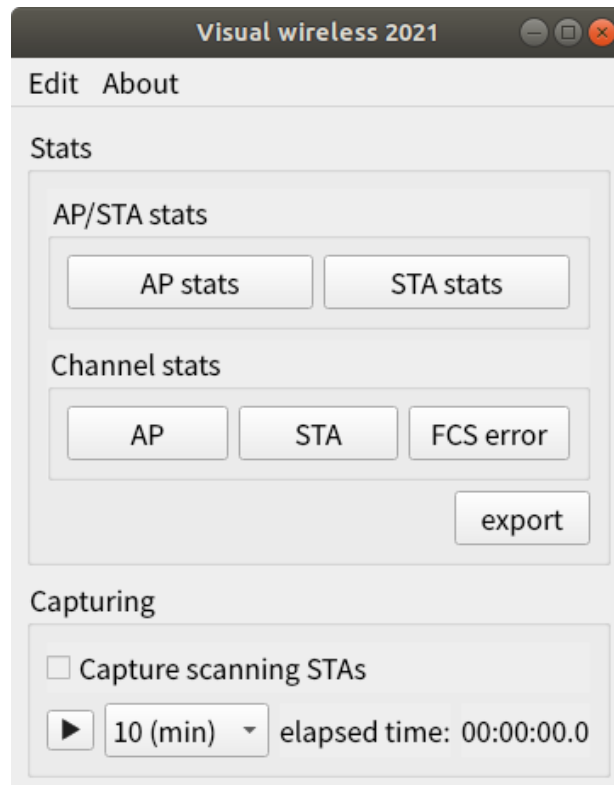
Then we will send back a checkcode file to you. Please copy it to `/etc/visual_wireless/`

You now can start to use it:

```
$ sudo visual_wireless
```

3. Main panel

After you started the APP, the main panel is generated:



Edit

Configurations: Setting can be save or load here.

AP stats

Selected channel's AP information can be displayed.

STA stats

Selected channel's STA information can be displayed.

Channel stats

Selected channel's AP and STA number and TX/RX data amount, FCS number are displayed.

Capturing

Start / Stop, and play time.

Capture scanning STAs

Check this option to Show STA that are not connected to an AP.

Export

Export log file.

4. Configurations

In Edit, press 「Configurations」 to show Capture tag:

	Enabled	Name	Dump	BW	All channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	36	40	44	48	52	56
1	<input checked="" type="checkbox"/>	wlp12s0	<input type="checkbox"/>	80	on	off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	wlp13s0	<input type="checkbox"/>	20	on	off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input checked="" type="checkbox"/>	wlp14s0	<input type="checkbox"/>	20	on	off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	wlp15s0	<input type="checkbox"/>	20	on	off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input checked="" type="checkbox"/>	wlp1s0	<input type="checkbox"/>	20	on	off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	<input checked="" type="checkbox"/>	wlp2s0	<input type="checkbox"/>	20	on	off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	<input checked="" type="checkbox"/>	wlan24cbe711...	<input type="checkbox"/>	20	on	off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Capture slot: 100 (msec)

Capture Directory: /home/asus1/capture/ [Change path](#)

[Save](#) [Load](#)

Enabled

Enable the interface to monitor WiFi packet. The checked interface is became monitor mode after started.

Name

The name of WiFi interface.

Dump

If this item is checked, the packet(.pcap format, can be displayed by wireshark) is saved at capture directory.

BW

Select the band width of 11n/ac/ax.

Band width

Mode	Control channel	Description
NOHT	All	11a/b/g
20	All	11n/ac/ax at 20MHz band width
40-	5-13, 40,48,56,64, 104,112,120,128,136,144, 153,161ch,169,177ch.	11n/ac/ax at 40MHz band width, control channel at upper channel of band.

40+	1-9, 36,44,52,60, 100,108,116,124,132,140, 149,157,165,173ch.	11n/ac/ax at 40MHz band width, control channel at lower channel of band.
80	36 - 177ch.	11/ac/ax at 80MHz band width.
160	36 - 128, 149 - 177ch.	11n/ac/ax at 160MHz band width.

All channels

Select all channels.

Channel number

Select individual channel. If use one interface to monitor multiple channels, the channels are monitored sequentially at capture slot time period.

One channel can not be monitored by multiple interfaces.

Capture slot

Channel change time, when one interface monitor multiple channels.

Capture Directory

Dump file save to this directory. In this directory, a sub-directory named as `yyyymmdd_hhmmssms` is generated at start timing.

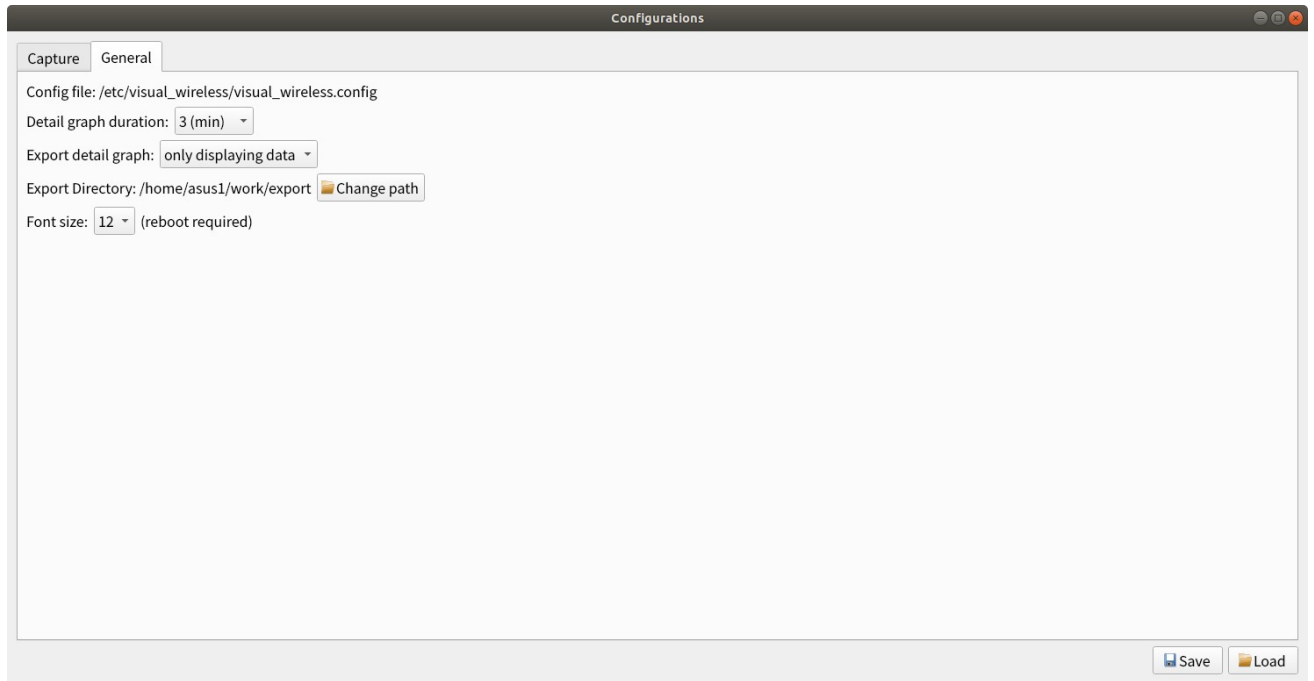
Config file

Configuration file is save in this directory.

Save/Load

Saving or loading the configuration file.

In General tag:



Config file:

save or load configuration file in/from this path.

Detail graph duration

Select the duration time for RSSI detail graph.

Export detail graph

Select the export log option: All or displaying data.

Export Directory:

Select the export file store directory.

Font size

Select font size

5. AP stats

AP stats (cnt=32)																	
SSID filter																	
	SSID	BSSID	channel	RSSI (now)	RSSI (max)	RSSI (min)	RSSI (ave)	alive (%)	alive (sec)	auth/assoc frame (cnt)	EAPOL frame (cnt)	Tx frame (bytes)	Tx rate (Mbps)	Rx frame (bytes)	Rx rate (Mbps)	encryption	capability
1	11ax5g2	04:d9:f5:b3:7c:88	140/5700/40+/80	-39	-37	-93	-39	98.1	588.9	0	0	2M	0.1	1K	0.0	WPA2-PSK (CCMP/CCMP)	WPS/11n/11ac/11ax
2	AP1	24:cb:e7:11:ce:2a	1/2412/20	-43	-33	-73	-42	87.3	523.8	0	0	1M	0.0	8K	0.0	WPA2-PSK (CCMP/CCMP)	11n
3	11ax5g1	04:d9:f5:b3:7c:84	40/5200/40-/160	-35	-33	-83	-43	97.5	585.0	0	0	7M	0.0	444K	0.0	WPA2-PSK (CCMP/CCMP)	WPS/11n/11ac/11ax
4	*****	40:16:7e:30:a5:f9	1/2412/20	-61	-55	-64	-61	19.2	115.4	0	0	321K	0.0	0	0.0	WPA2-PSK (CCMP/CCMP)	11n
5	*****	40:16:7e:30:a5:f8	1/2412/20	-59	-54	-64	-61	19.5	116.8	0	0	359K	0.0	0	0.0	WPA2-EAP (CCMP/CCMP)	11n
6	W04_3CFA438A041E	3c:fa:43:8a:04:1e	1/2412/20	-44	-33	-77	-63	0.7	4.4	0	0	17K	0.0	134	0.0	WPA-PSK (CCMP/TKIP)/WPA2-PSK (CCMP/TKIP)	WPS/11n
7	MWSYAP	00:4e:35:43:1a:00	1/2412/20	-69	-69	-69	-69	0.0	0.1	0	0	218	0.0	0	0.0	WPA2-PSK (CCMP/CCMP)	11n
8	aterm-361fe6-a	c0:25:a2:48:63:d7	36/5180/40+/80	-70	-38	-94	-70	96.6	579.5	0	0	2M	0.1	882	0.0	WPA-PSK (CCMP/CCMP)/WPA2-PSK (CCMP/CCMP)	11n/11ac
9		ac:44:f2:55:ab:98	1/2412/20	-72	-72	-72	-72	0.0	0.1	0	0	243	0.0	0	0.0	WPA2-PSK (CCMP/CCMP)	11n/11ac
10	CHSY	10:6f:3f:f5:f9:94	1/2412/20	-74	-72	-74	-73	0.1	0.5	0	0	1K	0.0	0	0.0	Open	WPS/11n
11		00:18:0a:7f:25:bc	1/2412	-78	-75	-80	-77	0.4	2.5	0	0	12K	0.0	0	0.0	Open	
12	BCW710J-366AE-G	fc:4a:e9:53:19:5b	1/2412/20	-78	-78	-78	-78	0.0	0.1	0	0	296	0.0	0	0.0	WPA-PSK (CCMP/TKIP)/WPA2-PSK (CCMP/TKIP)	WPS/11n

You can filter AP by SSID. The regular expression can be used.

No.

You can press the index No. to display a graph of this AP.

SSID

SSID of this AP

BSSID

BSSID of this AP

channel

Channel No. , frequency, band width of this AP

RSSI(now)

This show RSSI every 100ms, can use find signal strength real time for antenna setting etc.

* If use one interface to monitor multiple channels, the interface update this information every capture slot time.

RSSI(max)

Showing maxes of RSSI.

RSSI(min)

Showing minim of RSSI.

RSSI(ave)

Showing average of RSSI.

alive(%)

The discoverable rate of an AP, updating every 100ms.

* If use one interface to monitor multiple channels, the interface update this information every capture slot time.

alive(sec)

The discoverable time(accumulation) of an AP, updating every 100ms.

* If use one interface to monitor multiple channels, the interface update this information every capture slot time.

auth/assoc frame(cnt)

Number of authentication request/response, association request/response, reassociation request/response frames are showed.

* If use one interface to monitor multiple channels, the interface update this information every capture slot time.

EAPOL frame(cnt)

Number of EPAOL frames are showed.

* If use one interface to monitor multiple channels,the interface update this information every capture slot time.

Tx frame(bytes)

Number of TX frames are showed every 100ms.

* If use one interface to monitor multiple channels,the interface update this information every capture slot time.

Tx rate(Mbps)

Tx rate(Mbps) is showed every 100ms.

* If use one interface to monitor multiple channels,the interface update this information every capture slot time.

Rx frame(bytes)

Number of RX frames are showed every 100ms.

* If use one interface to monitor multiple channels, the interface update this information every capture slot time.

Rx rate(Mbps)

Rx rate(Mbps) is showed every 100ms.

* If use one interface to monitor multiple channels, the interface update this information every capture slot time.

FCS error(%)

The FCS error rate of an AP, updating every 100ms.

*If use one interface to monitor multiple channels, the interface update this information every capture slot time. Some WiFi device can not get FCS error information.

FCS error(cnt)

The number of FCS error frames of an AP, updating every 100ms.

* If use one interface to monitor multiple channels, the interface update this information every capture slot time. Some WiFi device can not get FCS error information.

encryption

Encryption type of an AP.

capability

Capability of an AP.

5.1 AP detail

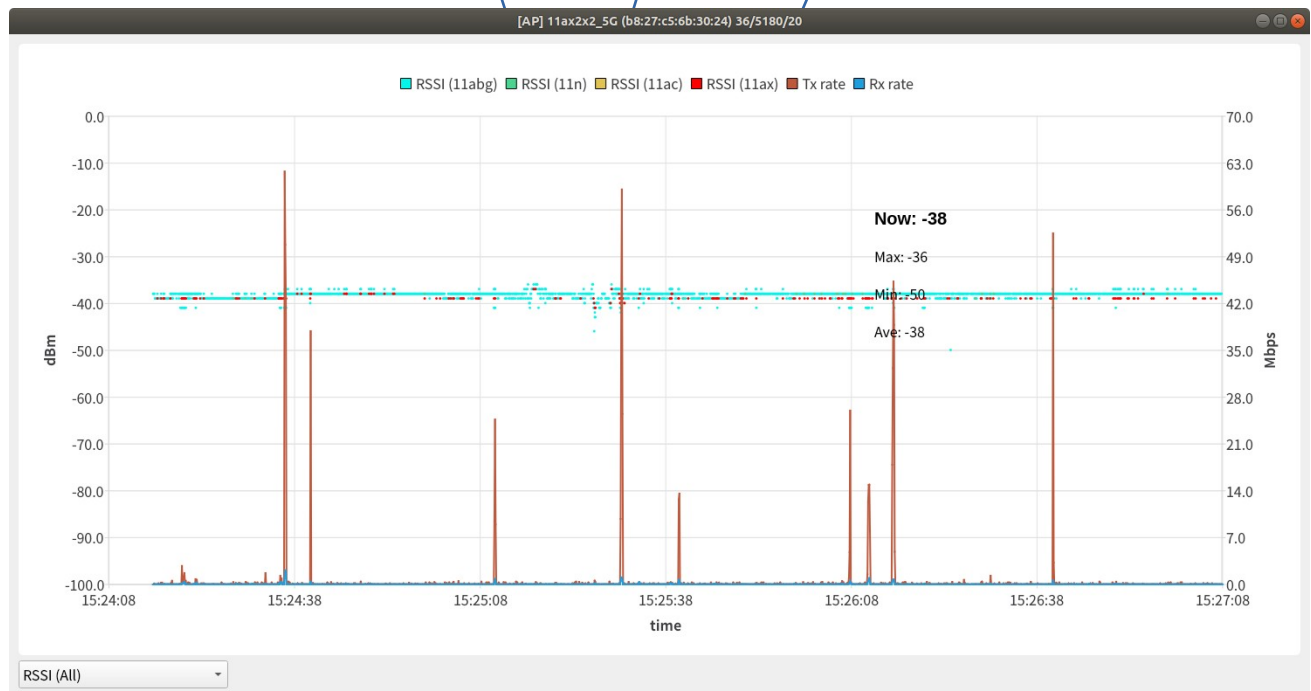
To display the AP detail graph, press the No. of that AP.

AP stats (cnt=32)																	
SSID filter																	
	SSID	BSSID	channel	RSSI (now)	RSSI (max)	RSSI (min)	RSSI (ave)	alive (%)	alive (sec)	auth/assoc frame (cnt)	EAPOL frame (cnt)	Tx frame (bytes)	Tx rate (Mbps)	Rx frame (bytes)	Rx rate (Mbps)	encryption	capability
1	lax5g2	04:d9:f5:b3:7c:88	140/5700/40+/80	-39	-37	-93	-39	98.1	588.9	0	0	2M	0.1	1K	0.0	WPA2-PSK (CCMP/CCMP)	WPS/11n/11ac/11ax
2	P1	24:cb:e7:11:ce:2a	1/2412/20	-43	-33	-73	-42	87.3	523.8	0	0	1M	0.0	8K	0.0	WPA2-PSK (CCMP/CCMP)	11n
3	lax5g1	04:d9:f5:b3:7c:84	40/5200/40-/160	-35	-33	-83	-43	97.5	585.0	0	0	7M	0.0	444K	0.0	WPA2-PSK (CCMP/CCMP)	WPS/11n/11ac/11ax
4	*****	40:16:7e:30:a5:f9	1/2412/20	-61	-55	-64	-61	19.2	115.4	0	0	321K	0.0	0	0.0	WPA2-PSK (CCMP/CCMP)	11n
5	*****	40:16:7e:30:a5:f8	1/2412/20	-59	-54	-64	-61	19.5	116.8	0	0	359K	0.0	0	0.0	WPA2-EAP (CCMP/CCMP)	11n
6	04_3CFA438A041E	3c:fa:43:8a:04:1e	1/2412/20	-44	-33	-77	-63	0.7	4.4	0	0	17K	0.0	134	0.0	WPA-PSK (CCMP/TKIP)/WPA2-PSK (CCMP/TKIP)	WPS/11n
7	WSYAP	00:4e:35:43:1a:00	1/2412/20	-69	-69	-69	-69	0.0	0.1	0	0	218	0.0	0	0.0	WPA2-PSK (CCMP/CCMP)	11n
8	term-361fe6-a	c0:25:a2:48:63:d7	36/5180/40+/80	-70	-38	-94	-70	96.6	579.5	0	0	2M	0.1	882	0.0	WPA-PSK (CCMP/CCMP)/WPA2-PSK (CCMP/CCMP)	11n/11ac
9		ac:44:f2:55:ab:98	1/2412/20	-72	-72	-72	-72	0.0	0.1	0	0	243	0.0	0	0.0	WPA2-PSK (CCMP/CCMP)	11n/11ac
10	HSY	10:6f:3f:f5:f9:94	1/2412/20	-74	-72	-74	-73	0.1	0.5	0	0	1K	0.0	0	0.0	Open	WPS/11n
11		00:18:0a:7f:25:bc	1/2412	-78	-75	-80	-77	0.4	2.5	0	0	12K	0.0	0	0.0	Open	
12	CW710J-366AE-G	fc:4a:e9:53:19:5b	1/2412/20	-78	-78	-78	-78	0.0	0.1	0	0	296	0.0	0	0.0	WPA-PSK (CCMP/TKIP)/WPA2-PSK (CCMP/TKIP)	WPS/11n

SSID

BSSID

Channel



RSSI selection

SSID

SSID is name of the AP.

BSSID

BSSID MAC address of the AP

Channel

Channel number, Frequency, Band width

Graph

Showing the RSSI vs time, TX rate and RX rate vs time graph every 100ms.

And showing the information of RSSI(Now, MAX, MIN, AVG).

* If use one interface to monitor multiple channels, the interface update this information every capture slot time.

RSSI selection

Selection the RSSI by WiFi frame type.

RSSI selection

Item	Description
All RSSI	All type of WiFi frame
RSSI(11abg)	802.11abg type frame
RSSI(11n)	802.11n type frame
RSSI(11ac)	802.11ac type frame
RSSI(11ax)	802.11ax type frame

6. STA stats

No.

STA stats (cnt=41)																			
SSID filter																			
	SSID	BSSID	STA MAC	STA state	channel	RSSI (now)	RSSI (max)	RSSI (min)	RSSI (ave)	alive (%)	alive (sec)	auth/assoc frame (cnt)	EAPOL frame (cnt)	Tx frame (bytes)	Tx rate (Mbps)	Rx frame (bytes)	Rx rate (Mbps)	FCS error (cnt)	
1	logitec65	00:01:8e:...	1c:39:47:4e:...	connected	10/2457/20	--	--	--	--	0.3	1.0	0	0	0	0.0	420	0.0	0	
2	0001docomo	b4:c7:99:d9:...	d2:a5:72:ef:...	connected	36/5180/20	-86	-83	-88	-85	7.2	27.7	3	6	2K	0.0	5K	0.0	0	
3	CHSY	34:3d:c4:83:...	d0:c6:37:21:...	connected	1/2412/20	--	--	--	--	0.2	0.9	0	0	0	0.0	3K	0.0	0	
4	as-1wlan	06:18:1a:7f:...	e2:2e:...	connected	44/5220/20	--	--	--	--	0.0	0.1	0	0	0	0.0	640	0.0	0	
5	CHSY	10:6f:...	38:78:62:89:...	connected	9/2452/20	-78	-70	-84	-77	6.7	25.8	0	0	15K	0.0	90K	0.0	0	
6			4c:77:6d:cc:...	disconn...	6/2437/20	--	--	--	--	0.1	0.2	4	0	0	0.0	120	0.0	0	
7	11ax2x2_5G	b8:27:c5:6b:...	8c:...	connected	36/5180/20	-46	-41	-47	-43	52.5	201.5	0	0	69K	0.0	735K	0.0	0	
8	aquarius	24:4b:fe:...	18:ec:e7:ce:...	connected	36/5180/4...	--	--	--	--	98.3	377.4	0	0	0	0.0	822K	0.0	0	
9	logitec65	00:01:8e:...	96:b0:53:ef:...	connected	10/2457/20	--	--	--	--	0.7	2.5	0	0	0	0.0	1K	0.0	0	
10			40:b8:37:a0:...	scanning	1/2412/20	-74	-74	-74	-74	0.1	0.2	0	0	34	0.0	51	0.0	0	
11	justecguest	ac:...	4c:ef:c0:ac:...	connected	36/5180/4...	--	--	--	--	6.5	25.0	0	0	0	0.0	5K	0.0	0	
12	YOKOHAMA...	4c:36:4e:...	6f:...	connected	6/2437/20	-78	-78	-78	-78	0.0	0.1	0	0	20	0.0	0	0.0	0	
13	rs500k-509...	2c:ff:...	38:9d:92:fb:...	connected	1/2412/20	-74	-74	-74	-74	0.1	0.4	0	0	20	0.0	56	0.0	0	
14	11ax2x2_5G	b8:27:c5:6b:...	12:11:2b:...	connected	36/5180/20	-54	-53	-59	-55	2.3	8.9	0	0	9K	0.0	15K	0.0	2	
15	CHSY	10:6f:...	d6:4a:...	connected	8/2447/20	--	--	--	--	1.7	6.4	0	0	0	0.0	1K	0.0	0	
16			00:c0:59:12:...	scanning	44/5220	--	--	--	--	0.1	0.2	2	1	0	0.0	715	0.0	0	
17	Buffalo-G...	dc:fb:...	b0:99:28:42:...	connected	6/2437/20	-74	-72	-78	-75	0.5	2.1	0	0	600	0.0	84	0.0	0	
18	0001docomo	b4:c7:99:d9:...	d4:38:9c:...	connected	36/5180/4...	-86	-85	-88	-86	3.7	14.2	1	2	1K	0.0	33K	0.0	0	
19	0001docomo	b4:c7:99:d9:...	76:e6:45:17:...	connected	36/5180/20	-87	-86	-87	-86	4.4	16.8	1	0	370	0.0	3K	0.0	0	
20	YOKOHAMA...	4c:36:4e:...	3e:0f:75:3e:...	connected	6/2437/20	--	--	--	--	0.3	1.1	0	0	0	0.0	584	0.0	0	

SSID filter

You can filter STA by SSID. The regular expression can be used.

No.

You can press the No. to show detail of the STA.

SSID

Showing the name of AP that STA is communicating with.

BSSID

Showing the BSSID(MAC address) of AP that STA is communicating with.

STA MAC

Showing the MAC address of the STA.

STA state

State	Description
unknown	Unknown
scanning	Scanning
authenticating	authentication request/response
associating	Association/Re-association request/response
eapol	EAP communicating
connected	Connected to AP
disconnected	Disconnected from AP

The rest

Same to AP states.

6.1 STA detail

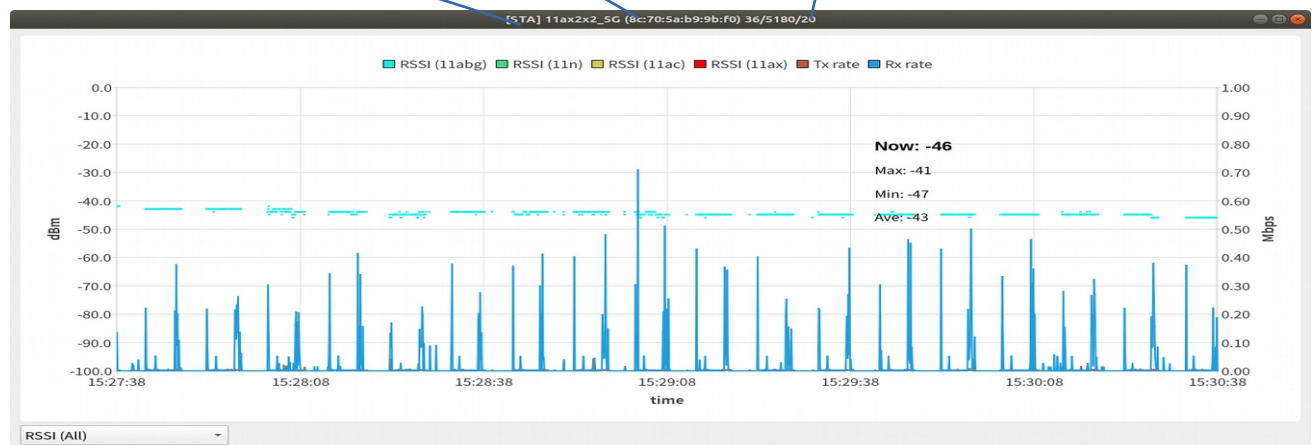
To display the STA detail graph, press the No. of that STA.

STA stats (cnt=18)																	
SSID filter																	
	SSID	BSSID	STA MAC	STA state	channel	RSSI (now)	RSSI (max)	RSSI (min)	RSSI (ave)	alive (%)	alive (sec)	auth/assoc frame (cnt)	EAPOL frame (cnt)	Tx frame (bytes)	Tx rate (Mbps)	Rx frame (bytes)	Rx rate (Mbps)
1	11ax5g1	04:d9:f5:b3:7c:84	0c:3e:9f:68:f8:48	connected	40/5200/40-/160	-35	-33	-65	-42	6.5	38.8	0	0	391K	0.0	4M	0.0
2	MWSY-Guest	00:4e:35:43:1a:11	18:f1:d8:b2:65:9d	connected	52/5260/40+/80	-85	-84	-87	-85	1.3	7.9	0	0	0	0.0	1K	0.0
3	AP1	24:cb:e7:11:ce:2a	24:cb:e7:11:cb:92	connected	1/2412/20	-43	-40	-44	-42	0.7	4.0	0	0	7K	0.0	1K	0.0
4	Buffalo-A-FCF8	18:c2:bf:a1:fc:fc	34:a8:eb:14:11:69	connected	36/5180/40+/80	-91	-84	-92	-89	0.5	3.3	0	0	0	0.0	796	0.0
5	0001docomo	b4:c7:99:d9:52:74	5c:09:47:45:42:4a	connected	36/5180/20	-89	-89	-93	-90	0.2	1.1	2	3	0	0.0	825	0.0
6	0001docomo	b4:c7:99:d9:52:74	74:42:8b:dc:7a:96	connected	36/5180/20	-92	-87	-95	-90	7.1	42.6	2	3	56	0.0	94K	0.0
7			88:19:08:93:2f:ae	disconnected	36/5180/20	-91	-79	-94	-88	2.5	15.0	5	6	5K	0.0	11K	0.0
8	0001docomo	b4:c7:99:d9:52:74	90:dd:5d:33:7a:0b	connected	36/5180/20	-90	-88	-93	-90	0.7	4.3	0	3	0	0.0	3K	0.0

SSID

STA MAC

Channel information



SSID

Showing SSID of AP that is communicating with the STA.

STA MAC

Showing MAC address of the STA.

Channel information

Showing Channel No., Frequency, Band width of the STA.

The rest

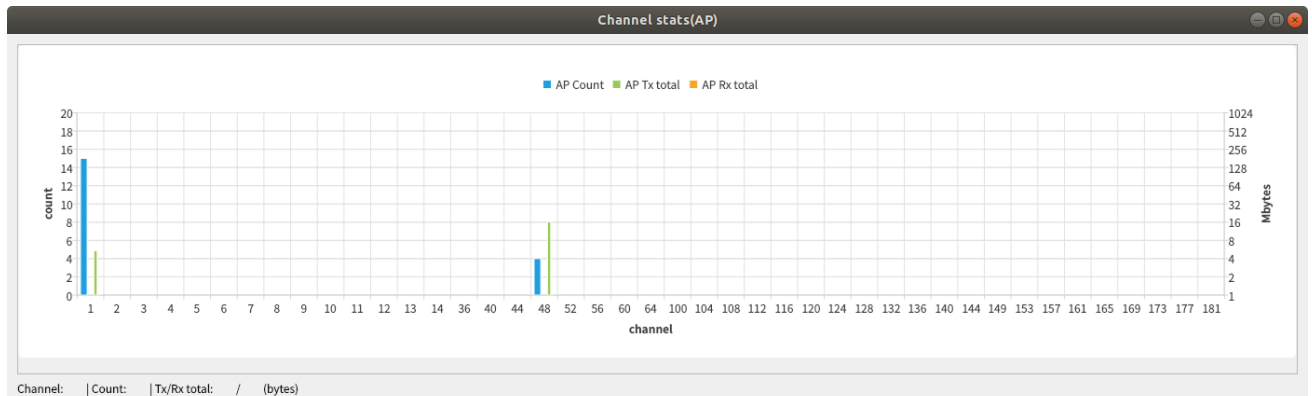
Same as AP detail.

* The STA's information may be not be updated constantly, as STA not need send signal like AP periodically.

7. Channel Stats

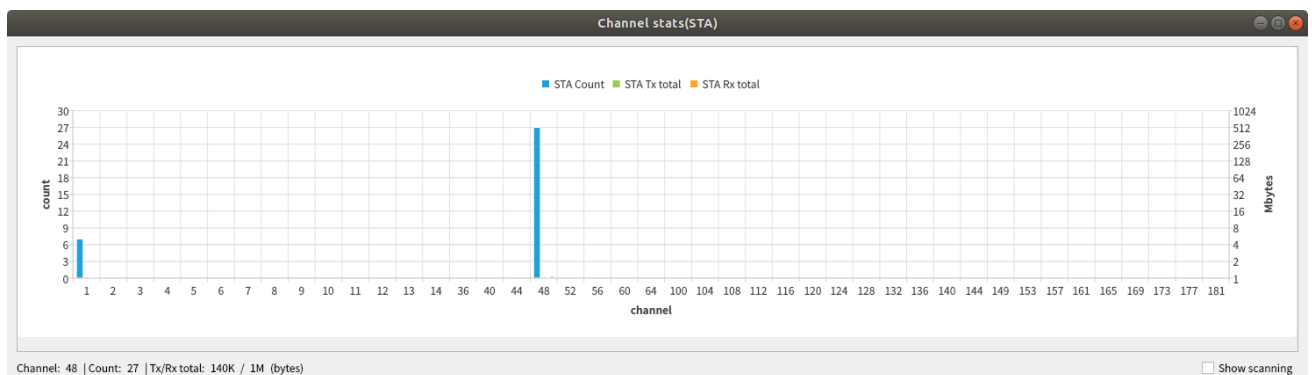
This part show AP, STA and FCS stats at all channel that enabled. This can find congestion degree of etch channel.

7.1 AP



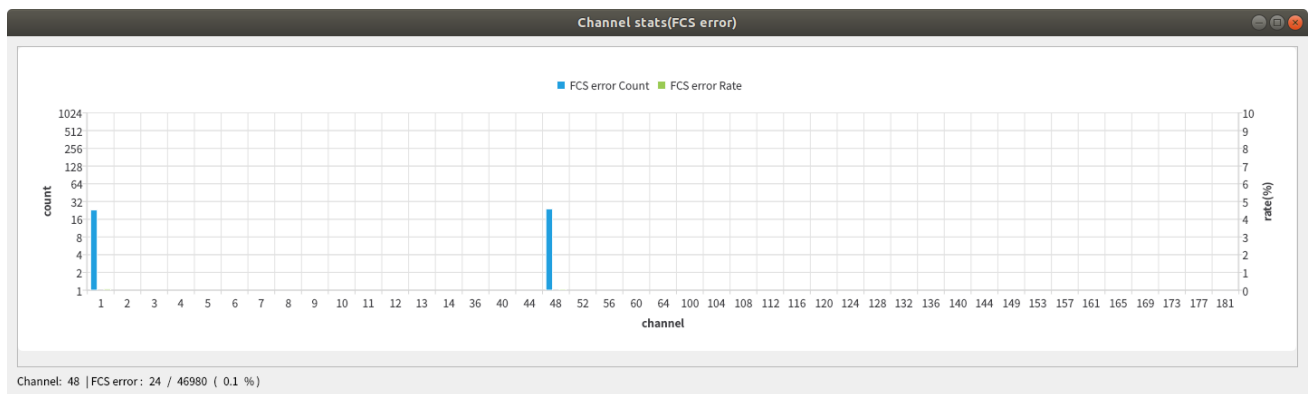
Show number of AP, TX bytes of AP, RX bytes of AP at etch channel. Put the cursor in graph can show digital number of the channel(Count: |Tx/Rx total: / bytes).

7.2 STA



Show number of STA, TX bytes of STA, RX bytes of STA at etch channel. Put the cursor in graph can show digital number of the channel(Count: |Tx/Rx total: / bytes).

7.3 FCS error



Show number of FCS error packet , FCS error rate at each channel. Put the cursor in graph can show digital number of the channel(FCS error: / (%)).

* To show FCS error information, need the WiFi device that can get FCS error information.

** If RSSI is normal and FCS error rate is high, showing the DUT is NG, or some interference exist.

8. Cautions when using

8.1 802.11ac ax

When test 802.11ac or ax device, you need place this software installed unit at LOS of AP and STA.

8.2 Network manager

When this software is started, the network manager is stopped. So you must periodic get IP address of Ethernet:

```
sudo dhclient <if name>
```