

# Quick Start Guide for WPA3

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## Introduction

The next generation of Wi-Fi® security, bringing new capabilities to enhance Wi-Fi protections in personal and enterprise networks.:

- WPA3-Personal (WPA3-SAE):**

more resilient, password-based authentication even when users choose passwords that fall short of typical complexity recommendations. WPA3 leverages Simultaneous Authentication of Equals (SAE), a secure key establishment protocol between devices, to provide stronger protections for users against password guessing attempts by third parties.

- WPA3-Enterprise (192-bit Mode/Suite B):**

offers the equivalent of 192-bit cryptographic strength, providing additional protections for networks transmitting sensitive data, such as government or finance. The 192-bit security suite ensures a consistent combination of cryptographic tools are deployed across WPA3 networks.

## 1. WPA3-Peresonal Required for RTK driver

### A. Linux Kernel Version

- Available for WPA3-Personal Station **above kernel v4.17**. If kernel version below v4.17, you can choose patch<sup>1</sup> kernel or use RTK maintain's hostapd/wpa\_supplicant.
- Available for WPA3-Personal SoftAP **above kernel v5.1**. If kernel version below v5.1, you can choose patch<sup>2</sup> kernel or use RTK maintain's hostapd/wpa\_supplicant.
- If you use the RTK maintain's hostapd/wpa\_supplicant, it can available above kernel v3.8.

### B. Realtek Linux Driver Version

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<sup>1</sup> Support offloading wireless authentication to userspace via NL80211\_CMD\_EXTERNAL\_AUTH

<sup>2</sup> Authentication offload to user space in AP mode

- a. Available for WPA3-Personal Station/SoftAP above driver v5.8.
- C. RTK maintain's hostapd/wpa\_supplicant Version
  - a. For Pure Linux, you have to use version wpa\_supplicant\_8\_O\_8x\_rtw<sup>3</sup> above the revision 33457.
  - b. For Android system, please contact the FAE.

## 2. WPA3-Enterpris Required for RTK driver (not ready)

- A. Linux Kernel Version
- B. Realtek Linux Driver Version
- C. RTK maintain's hostapd/wpa\_supplicant Version

## 3. Start the WPA3-Personal

- A. For further information about wpa\_cli and wpa\_supplicant, please refer to: document/wpa\_cli\_with\_wpa\_supplicant.pdf.

You have to enable below settings when build wpa\_supplicant.

```
CONFIG_TLS=openssl
CONFIG_IEEE80211W=y
CONFIG_SAE=y
```

You can scan two kind of WPA3 Access Points.

### a. WPA3-SAE mode:

Only WPA3-SAE station can connect.

```
bssid / frequency / signal level / flags / ssid
00:11:22:33:44:21 2432 -37 [WPA2-SAE-CCMP][WPS][ESS] WPA3- AP
```

### b. WPA3-SAE Transition Mode:

WPA2-PSK and WPA3-SAE station can connect.

```
bssid / frequency / signal level / flags / ssid
00:11:22:33:44:21 2432 -37 [WPA2-PSK+SAE-CCMP][WPS][ESS] WPA3- AP
```

You can use the same configuration to connect both Access Point.

The sample configuration as:

```
ctrl_interface=/var/run/wpa_supplicant
network={
    ssid="WPA3-AP"
    key_mgmt=SAE
    psk="87654321"
    ieee80211w=2
}
```

<sup>3</sup> wpa\_supplicant\_8\_O\_8.x\_rtw\_r33457.20190507.tar.gz.

B. For further information about hostapd\_cli and hostapd, please refer to: document/Quick\_Start\_Guide\_for\_SoftAP.pdf.

You have to enable below settings when build hostapd.

```
CONFIG_TLS=openssl
CONFIG_IEEE80211W=y
CONFIG_SAE=y
```

You can setup the WPA3 SoftAP as:

a. **WPA3-SAE mode:**

There are three setting you have to configure as:

```
auth_algs=3
ieee80211w=2
wpa_key_mgmt=SAE
```

b. **WPA3-SAE Transition Mode:**

There are four setting you have to configure as:

```
auth_algs=3
ieee80211w=1
sae_require_mfp=1
wpa_key_mgmt=SAE WPA-PSK
```

The sample configuration:

```
ctrl_interface=/var/run/hostapd
interface=wlan0
driver=nl80211
ssid=WPA3-SAE
channel=1
beacon_int=100
hw_mode=g
ieee80211w=1
auth_algs=3
ignore_broadcast_ssid=0
wpa=2
wpa_passphrase=87654321
wpa_key_mgmt=SAE WPA-PSK
sae_require_mfp=1
wpa_pairwise=CCMP
rsn_pairwise=CCMP
max_num_sta=16
wmm_enabled=1
```

4. **Start the WPA3-Enterprise** (not ready)

not ready

5. **Document revision history**

Version	Date YYYY-MM-DD	Remarks
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1.0	2018-05-28	Initial release
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