

How to Support WPA3 Personal in ST60

Sterling™ 60

Application Note

v2.0

1 Introduction

When we refer to WPA3 personal as it's implemented in the Sterling 60 series, it indicates the support Simultaneous Authentication of Equals (SAE) to replace Pre-Shared Key (PSK), and the protection of management frames specified in 802.11w amendment is also included.

In the Sterling™ 60, it also supports OWE (Opportunistic Wireless Encryption) to enhance the security and privacy of users connecting to open (public) Wi-Fi networks.

This guide establishes how to build and setup a WPA3-Personal network with Sterling™ 60 in Linux platform. (iMX8MP in Linux 5.4 is the reference setup in this document)

2 Requirements

To set up the build environment for WPA3 Personal Wi-Fi connection, you'll need the following:

- iMX8MP DVK
- Sterling 60 DVK
- Development PC with Yocto build environment
- Terminal software for console message dump
- AP which can support WPA3 SAE and OWE modes, (Cisco Aironet 2800 series Access Point is used as a reference)

3 Build Environment Setup

To support SAE in the wpasupplicant, you'll need to enable CONFIG_SAE and CONFIG_IEEE80211W options in the wpasupplicant config file and rebuild the wpasupplicant package. If you need to support OWE mode, you'll also need to configure the option for CONFIG_OWE.

If you use sterling-suppliant, the configuration file is located at the following path:

```
"~/imx-yocto-bsp/build/tmp/work/aarch-poky-linux/sterling-suppliant/8.6.0.12-r0/sterling_suppliant-8.6.0.12/laird"
```

After modified the config file, you may need to use the following two commands to configure and compile sterling-suppliant package.

```
bitbake -f -c do_configure sterling-suppliant
bitbake -f -c compile sterling-suppliant
```

You can then build your own image which will include the new sterling-suppliant build base on the new config setting.

For the Ezurio package integration by Yocto, you may refer README at the following link:

<https://github.com/Ezurio/meta-summit-radio/tree/master>

4 AP Setup

For this example, we're using the Cisco Aironet 2800 series Access Point.

Complete the following steps to configure the AP in SAE mode.

1. Choose **WLANs** to open the WLANs page.
2. Click the ID number of the corresponding WLAN to open the **WLANs > Edit** page.
3. Choose the **Security > Layer 2** tabs.
4. From the **Layer 2 Security** drop-down list, choose **WPA2+WPA3**.

5. From the **Security Type** drop-down list, choose **Personal** from the following options:
 - Personal
 - Enterprise
6. While you have chosen **Personal**, Encryption Cipher is limited to CCMP128(AES) and Authentication Key Management is in the PSK format. Also, if only WPA3 is selected as the security policy, Fast Transition is set to **Disabled** state, Protected Management Frame is set to **Required** state.
7. While you have chosen security type as **Personal** and the security policy as **WPA3**, configure the PSK in the **Authentication Key Management** section by specifying the PSK format and the key.
8. Save the configuration.

To configure the AP in OWE mode, complete the following steps:

1. Choose **WLANS** to open the WLANS page.
2. Click the ID number of the desired WLAN to open the **WLANS > Edit** page.
3. Choose the **Security > Layer 2** tabs.
4. Choose **Enhanced Open** from the **Layer 2 Security** drop-down list.
5. Enable **MAC Filtering** if required.
6. In the **Protected Management Frame** section, **PMF** is by default set to **Required** state.
7. Save the configuration.

5 IMX8MP Setup

After loading the new image with new sterling-supplciant, you'll still need to configure the correct settings in wpa_supplicant.conf to connect with SAE network.

Here is an example of the correct settings for wpa_supplicant.conf.

```
ctrl_interface=/var/run/wpa_supplicant
network={
ssid="WPA3_SAE"
key_mgmt=SAE
sae_password="wpa3saenetwork"
ieee80211w=2
}
```

To connect to an OWE network, here is an example of the wpa_supplicant settings.

```
ctrl_interface=/var/run/wpa_supplicant
network={
ssid="WPA3_OWE"
key_mgmt=OWE
pairwise=CCMP
ieee80211w=2
}
```

6 Revision History

Version	Date	Notes	Contributor(s)	Approver
1.0	1 Aug 2022	Initial Release	Miles Chung	Dave Drogowski
2.0	7 May 2024	Ezurio rebranding	Sue White	Dave Drogowski

Ezurio's products are subject to standard [Terms & Conditions](#).