



# **SCM1612**

## **Wi-Fi 6 and BLE 5 Low-Power SoC**

### **SDK Demo Power Management**

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## Version History

Version	Date	Description
1.0	2024-03-05	Initial Draft
1.1	2024-03-22	Update command

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# Table of Contents

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Version History.....	3
1 Introduction.....	5
1.1 Demo.....	5
2 Power Management CLI.....	6
2.1 Build & Configuration .....	6
2.2 Commands.....	6
3 Power Management Demo .....	8
3.1 Build & Configuration .....	8
3.2 Demo.....	9

# 1 Introduction

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## 1.1 Demo

This document describes how to build and run power management demo provided within the SDK. This demo is intended to test various configurations and features of PM functions.

Refer to the following documents for additional information:

- "SCM1612 SDK Getting Started Guide" for setting up the build environment.
- "SCM1612 SDK Demo Peripheral" for building the demos.
- "SCM1612 Low Power Development Guide" for PM.
- "SCM1612 WiFi Software Development Guide" for WiFi.

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## 2 Power Management CLI

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The SDK provides CLI commands to configure and connect to a WiFi network and to monitor the status and statistics.

Before explaining the demo, it is helpful to show how to use the CLI. The next section will show how the same procedure can be done automatically by the source code.

### 2.1 Build & Configuration

To build the demo application, follow the procedures below:

```
$ make scm1612s_defconfig  
$ make
```

When the build finishes successfully, there will be `wise.mcuboot.bin`, which can be loaded onto a board.

### 2.2 Commands

From the console, using the following commands to connect to the WiFi network. Users need to configure the parameters for their WiFi AP environment:

- 1) Register event callback to receive the event:

```
$ wifi reg_evt_cb
```

- 2) Start station mode:

```
$ wifi sta_start
```

- 3) Configure the station parameter, authentication type, SSID, key:

```
$ wifi sta_cfg Redmi_Test 2 12345678 00:00:00:00:00:00  
1 0
```

- 4) Connect to the AP

```
$ wifi sta_connect
```

Try `wifi help` for the available options and the description of the command

```
$ wifi reg_evt_cb
I (11738) SCM_CLI: reg_evt_cb    OK (0)
$ wifi sta_start
I (14677) SCM_CLI: STA_STOP
I (14681) SCM_CLI: ifname: wlan0
I (14681) SCM_CLI: sta_start    OK (0)
$ I (14682) SCM_CLI: STA_START

$ wifi sta_cfg Redmi_Test 2 12345678 00:00:00:00:00:00 1 0
I (40834) SCM_CLI: sta_cfg      OK (0)
$ wifi sta_connect
I (45035) SCM_CLI: sta_connect   OK (0)
$ I (46915) SCM_CLI: STA_CONNECTED
I (46916) SCM_API: AP SSID: Redmi_Test
I (46916) SCM_API: AP BSSID: 4c:c6:4c:8f:8d:20
I (46917) SCM_API: AP CH: 11
I (46918) SCM_API: AP RSSI: -26
I (46919) SCM_API: AP Country : CN
I (46920) SCM_API: Status: CONNECTED
I (47414) SCM_CLI: WIFI GOT IP
```

By default, PM is disabled, and it can be enabled using the following commands.

1) Enable WiFi power save:

```
$ wifi sta_set_ps 1
```

2) Register PM event callback:

```
$ pm reg_cb
```

3) Enable global PM:

```
$ pm enable
```

```
wifi sta_set_ps 1
<41124555> SCM_CLI: sta_set_ps    OK <0>
pm reg_cb
pm enable
```

Try `pm` for available options and the description of the command.

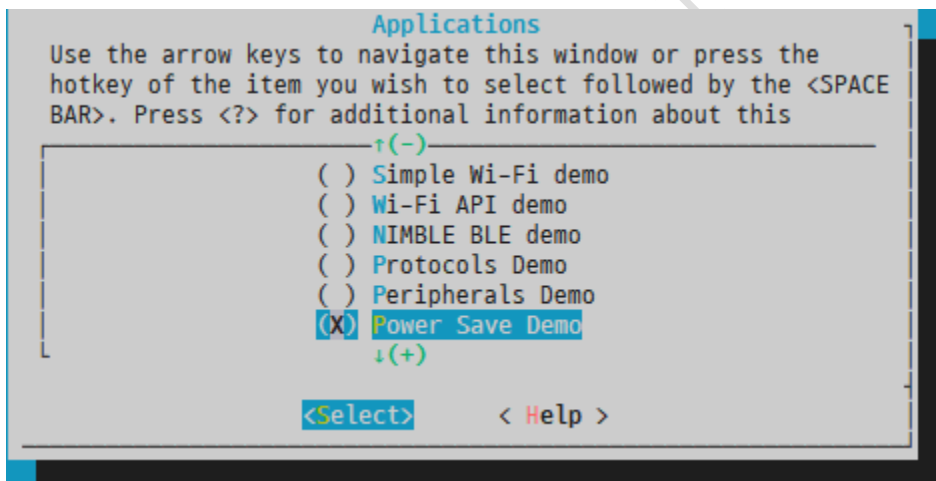
## 3 Power Management Demo

The previous section shows how to use the CLI to control the device. In this section, a demo shows how the same features can be implemented using the source code.

### 3.1 Build & Configuration

To build the low power demo application, follow the procedures below:

```
$ make scm1612s_defconfig
$ make menuconfig
  select Applications -> Power Save Demo
$ make
```



Before building the firmware, the AP information must be changed according to the test environment. The SSID, authentication type, and key should match the information of the AP to be connected to.

[Source Code Changes]

Change the source code for the following configuration:



```
#define DEMO_WIFI_SSID          "Redmi_Test"  
#define DEMO_WIFI_PASSWORD    "12345678"  
#define DEMO_WIFI_AUTH        SCM_WIFI_SECURITY_WPA2PSK  
#define DEMO_WIFI_PAIRWISE    SCM_WIFI_PAIRWISE_AES  
#define DEMO_WIFI_POWERSAVE_INTV 1000 /* 1000TU, DTIM10 */
```

When the build finishes successfully, there will be `wise.mcuboot.bin`, which can be loaded onto a board.

## 3.2 Demo

After boot, use the following command to connect to the WiFi and enable low power mode:

```
$ lowpower 1
```

The device will try connecting to the WiFi network and enter low power states. By default, the demo will configure the listen interval to be 1000.

```
$ lowpower 1  
I (16418) DEMO_LOWPPOWER: lowpower on, interval=1000  
I (16419) DEMO_LOWPPOWER: connecting to Redmi_Test  
I (16420) DEMO_LOWPPOWER: Sta Hello world!  
I (18258) DEMO_LOWPPOWER: Starting wifi sta connect!  
$ I (20160) SCM_API: AP SSID: Redmi_Test  
I (20161) SCM_API: AP BSSID: 4c:c6:4c:8f:8d:20  
I (20162) SCM_API: AP CH: 11  
I (20163) SCM_API: AP RSSI: -27  
I (20164) SCM_API: AP Country : CN  
I (20164) SCM_API: Status: CONNECTED  
DEEP_SLEEP
```