

Owfuzz

Owfuzz: a WiFi protocol fuzzing tool using openwifi

Discovered vulnerabilities

- CVE-2021-34173
- CVE-2021-34174
- CVE-2021-1903
- CVE-2021-30310
- CVE-2021-33028(Undisclosed)
- CVE-2021-33029(Undisclosed)
- Qualcomm Vulnerabilities

CVE-2021-34173

An attacker can cause a Wi-Fi Denial of Service(DoS) and kernel panic in v4.2 and earlier versions of Espressif's esp32 via a malformed beacon CSA frame. Esp32 device requires a reboot to recover.

- Crash logs

```
I (3494) wifi station: got ip:192.168.50.242
I (3504) wifi station: connected to ap SSID:AS password:1234567890/
Guru Meditation Error: Core 0 panic'ed (LoadProhibited). Exception was unhandled.

Core 0 register dump:
PC      : 0x400f2319  PS      : 0x00060b30  A0      : 0x8008e499  A1      : 0x3ffc0f40
0x400f2319: ieee80211_recv_bar at ??:?

A2      : 0x3ffb5428  A3      : 0x3ffb92cc  A4      : 0x00000088  A5      : 0x00000018
A6      : 0x00000001  A7      : 0x00000000  A8      : 0x3ffb5448  A9      : 0x3ffb9344
A10     : 0x3ffb5428  A11     : 0x03000000  A12     : 0x00000011  A13     : 0x3ffb010
A14     : 0x40084294  A15     : 0x80000000  SAR     : 0x00000020  EXCCAUSE: 0x0000001c
0x40084294: task_ms_to_tick_wrapper at /Users/sc3d4r/Environment/esp/esp-idf/components/esp_wifi/esp32/esp_adapter.c:401

EXCVADDR: 0x03000000  LBEG    : 0x4000c2e0  LEND    : 0x4000c2f6  LCOUNT   : 0xffffffff

Backtrace:0x400f2316:0x3ffc0f40 0x4008e496:0x3ffc0f60 0x4008e525:0x3ffc0fb0 0x400923b1:0x3ffc0fd0 0x400900f8:0x3ffc0ff0
0x40089f75:0x3ffc1020
0x400f2316: ieee80211_recv_bar at ??:?

0x4008e496: sta_input at ??:?

0x4008e525: sta_rx_cb at ??:?

0x400923b1: ppRxPkt at ??:?

0x400900f8: ppTask at ??:?

0x40089f75: vPortTaskWrapper at /Users/sc3d4r/Environment/esp/esp-idf/components/freertos/port/xtensa/port.c:168

ELF file SHA256: 20d93a4b64d36560

Rebooting...
Re-enable cpu cache.
Guru Meditation Error: Core 0 panic'ed (IllegalInstruction). Exception was unhandled.
Memory dump at 0x400e9e5c: 2e0856e1 09ad6da9 9802d222
0x400e9e5c: rtc_clk_cpu_freq_to_xtal at /Users/sc3d4r/Environment/esp/esp-idf/components/esp_hw_support/port/esp32/rtc_clk.c:439

Core 0 register dump:
PC      : 0x400e9e62  PS      : 0x00060833  A0      : 0x800876a0  A1      : 0x3ffc0d40
0x400e9e62: rtc_clk_cpu_freq_set_xtal at /Users/sc3d4r/Environment/esp/esp-idf/components/esp_hw_support/port/esp32/rtc_clk.c:510

A2      : 0x00000000  A3      : 0x3ff000c4  A4      : 0x00000000  A5      : 0x00000001
A6      : 0x3ffb92cc  A7      :
0x400817a6: _xt_user_exc at /Users/sc3d4r/Environment/esp/esp-idf/components/freertos/port/xtensa/xtensa_vectors.S:697
```

```
0x400f2316: ieee80211_recv_bar at ???  
  
0x4008e496: sta_input at ???  
  
0x4008e525: sta_rx_cb at ???  
  
0x400923b1: ppRxPkt at ???  
  
0x400900f8: ppTask at ???  
  
0x40089f75: vPortTaskWrapper at /Users/sc3d4r/Environment/esp-esp-idf/components/freertos/port/xtensa/port.c:168
```

CVE-2021-34174

This vulnerability is discovered in broadcom's BCM4352 and BCM43684 chips. Any wireless router using BCM4352 and BCM43684 will be affected, such as ASUS AX6100. An attacker may cause a Denial of Service (DoS) to any device connected to BCM4352 or BCM43684 routers by an association or reassociation frame.

Qualcomm-Vulnerabilities

- Snapdragon series
- Killer Wireless AC 1535
- QCA9005

Please see [\[pocs\]](#) dir.

Reproduce

(1) Linux (ubuntu/kali) OS

```
apt-get install pkg-config libnl-3-dev libnl-genl-3-dev libpcap-dev  
git clone https://github.com/aircrack-ng/mdk4  
cd mdk4  
make
```

```
cd src
```

```
#Write payload into ./pocs/poc_test  
echo "payload hex str" > ./pocs/poc_test
```

(2) Reproducing this issue

- a. Connecting device to AP
- b. To see what channel the AP is working on
- c. To see the MAC address of the AP and the device
- d. Plugging a WiFi USB adapter(support monitor mode and packet injection, 2.4G/5G) into the PC(linux) and to see the usb wifi interface name.

```
sudo ifconfig iface_name down  
sudo iwconfig iface_name mode monitor  
sudo ifconfig iface_name up
```

- e. Reproduce using mdk4: `sudo mdk4 [iface_name] x -c [channel_number] -v poc_test -s 1 -B [ap-mac] -S [ap-mac] -T [sta-mac]`

Releases

No releases published

Packages

No packages published