POTATO

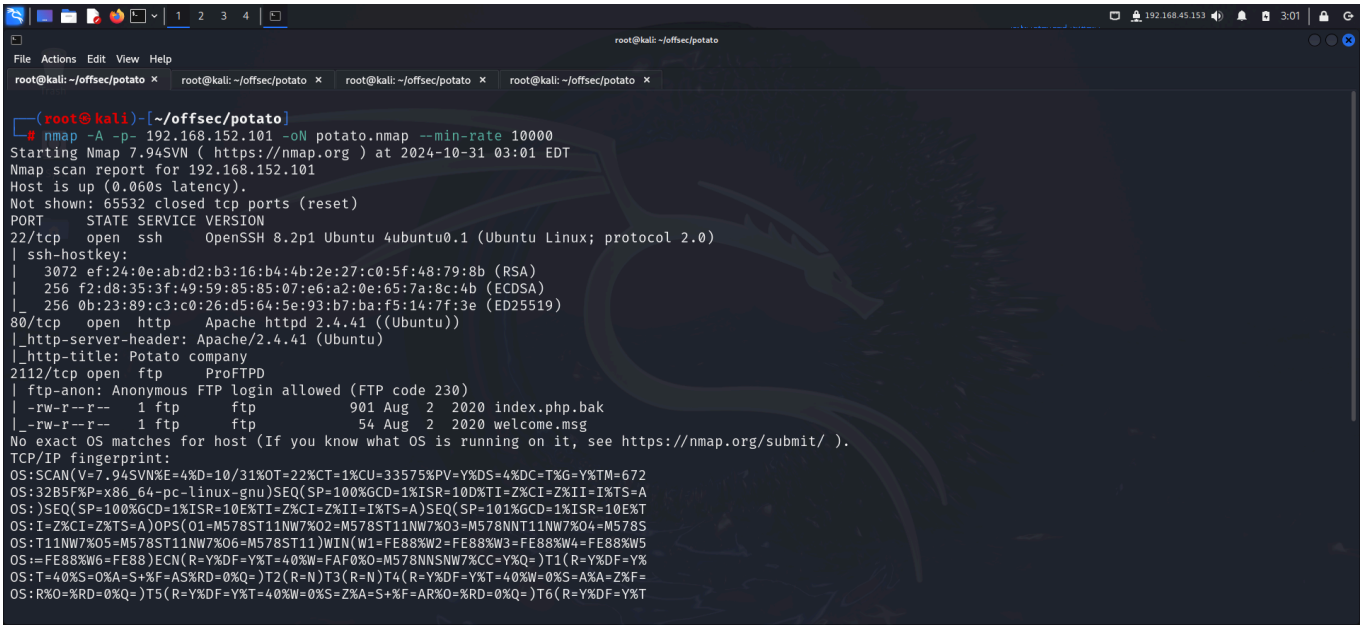
GETTING STARTED

To access the lab, visit [proving grounds] and download the vpn configuration file. Connect to the vpn using `openvpn <file.ovpn>` and start the machine to get an IP.

> **Note**
>
> This writeup documents the steps that successfully led to pwnage of the machine. It does not include the dead-end steps encountered during the process (which were numerous). This is just my take on pwning the machine and you are welcome to choose a different path.

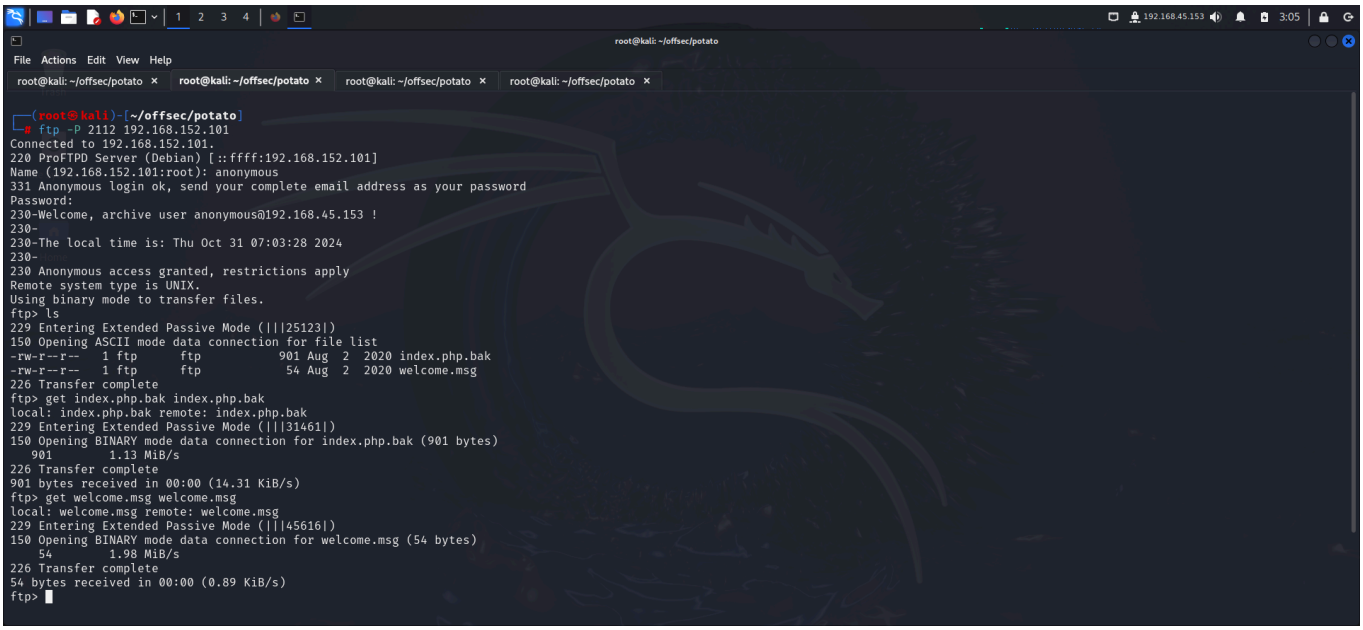
RECONNAISSANCE

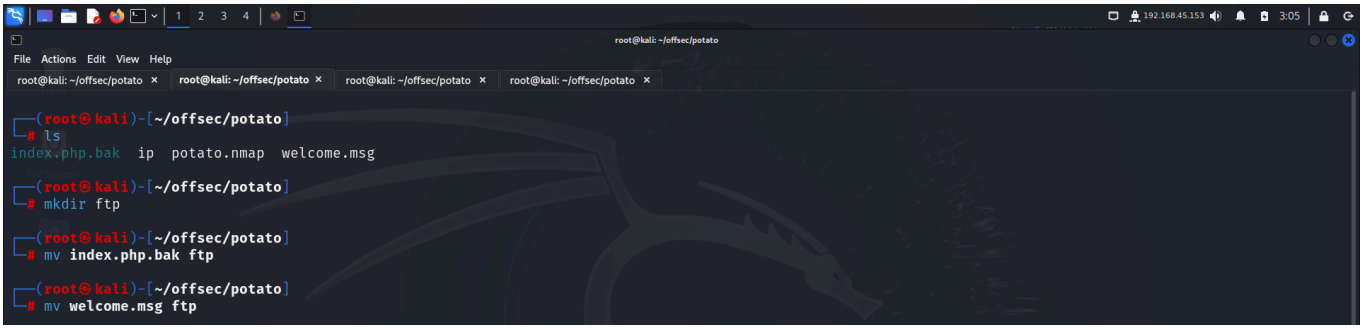
I performed an **nmap** aggressive scan to find information about the target.

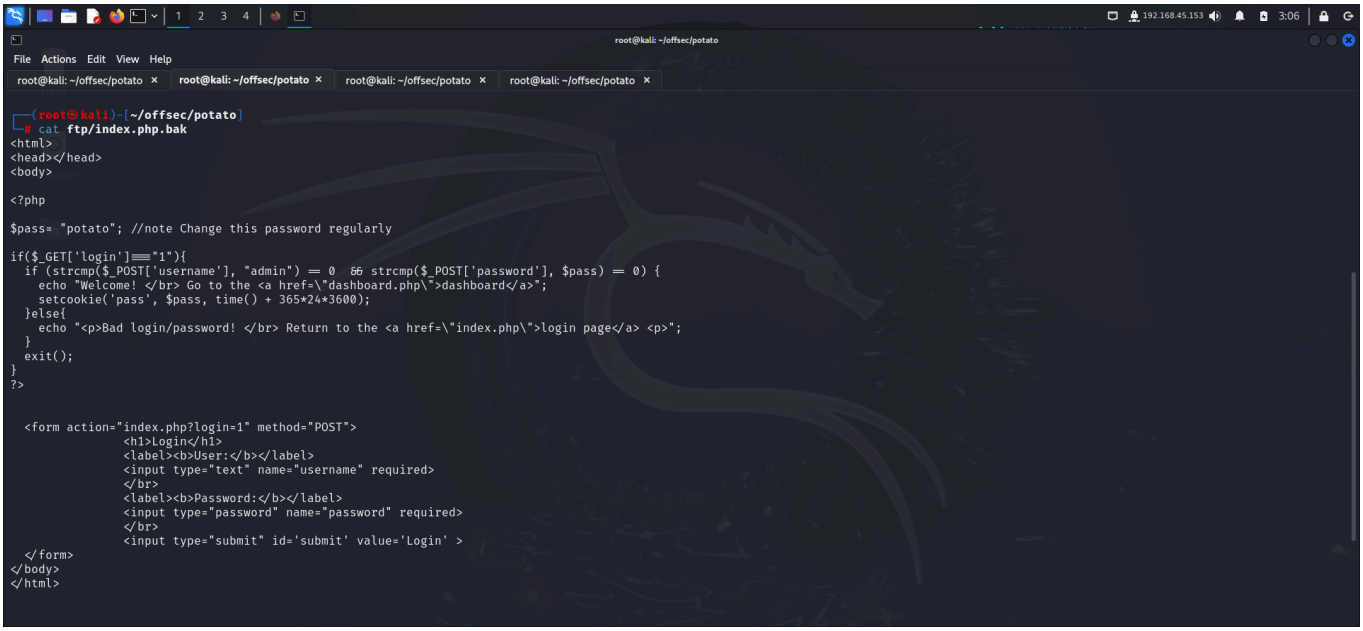


FOOTHOLD

Since the **nmap** scan detected that the **ftp** server allowed **anonymous** login, I logged into the **ftp** server using `anonymous:anonymous`. Here I found 2 files which I transferred onto my local machine.



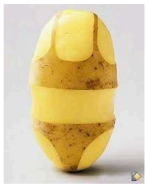




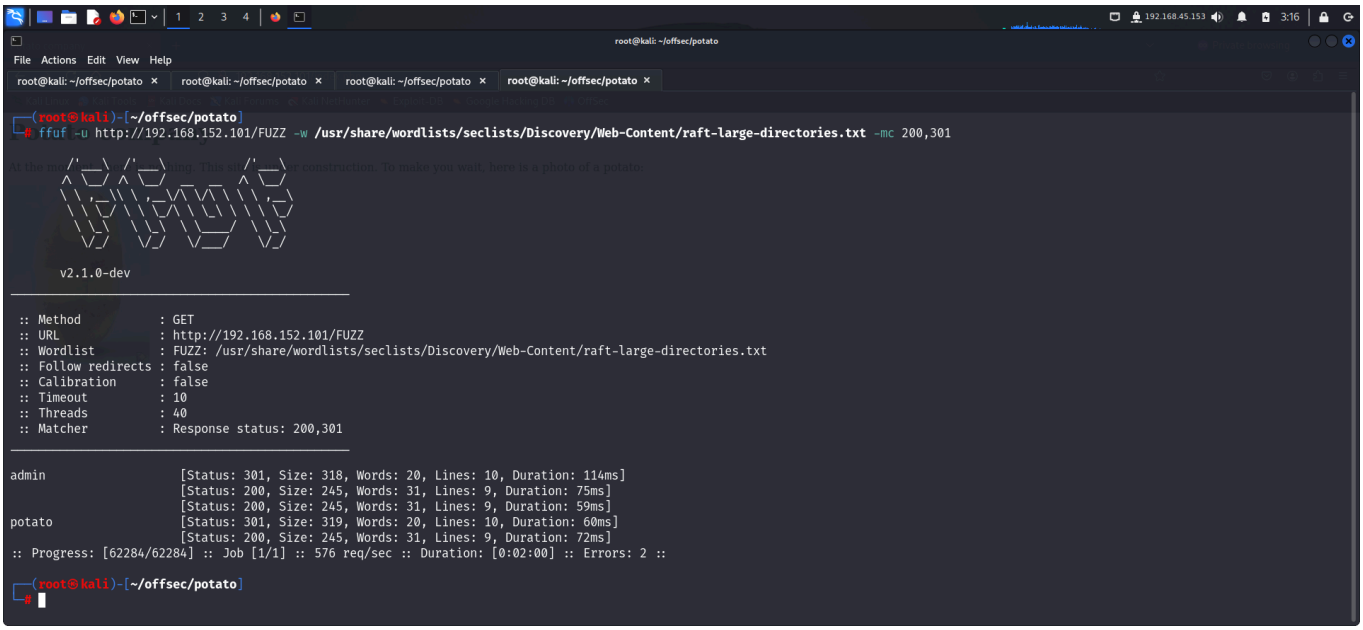
The `index.php.bak` file looked like the source code for a login panel. I then navigated to the web server.

Potato company

At the moment, there is nothing. This site is under construction. To make you wait, here is a photo of a potato:



I performed a web directory brute force using **ffuf** to find hidden directories. Here I found 2 directories, `admin` and `potato`.



Index of /potato

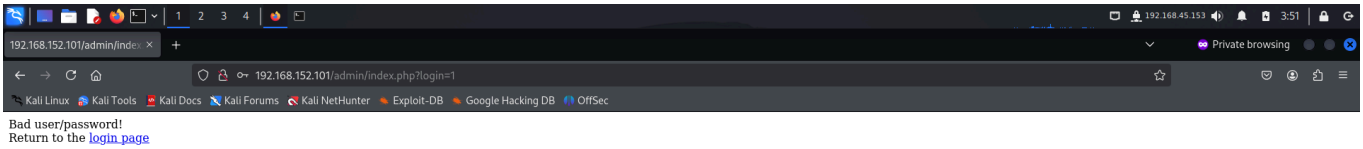
Name	Last modified	Size	Description
Parent Directory		-	

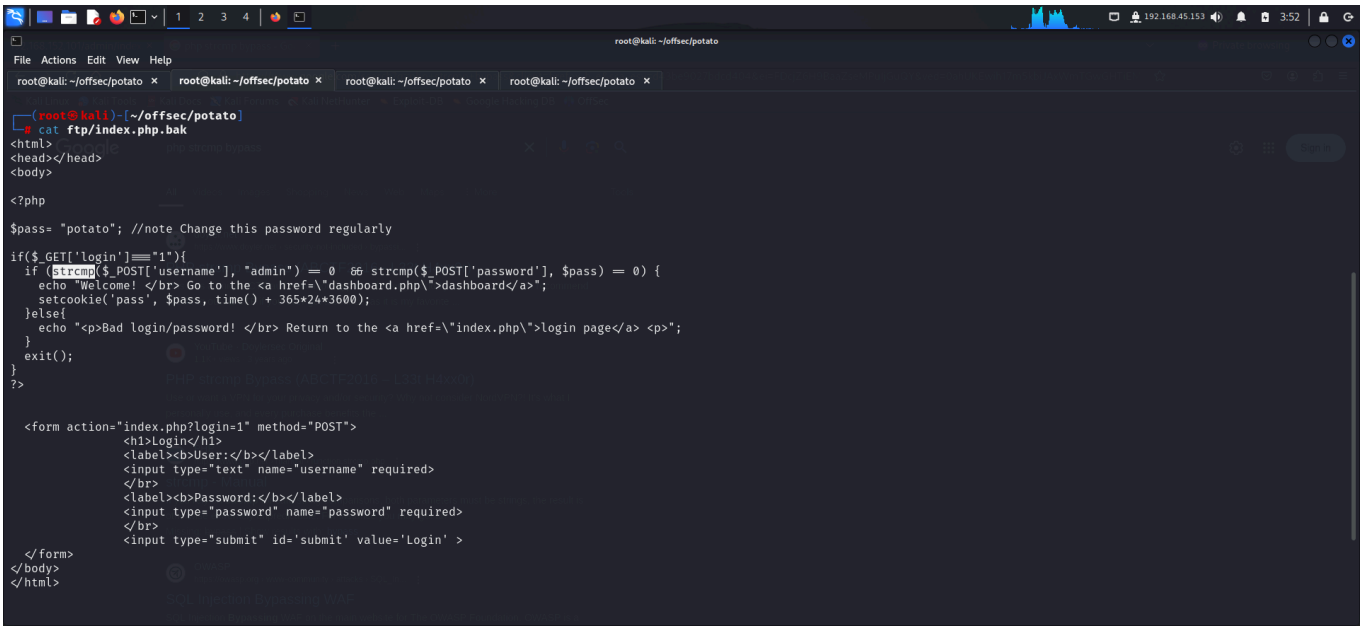
Apache/2.4.41 (Ubuntu) Server at 192.168.152.101 Port 80

Login

User:
Password:
Login

I tried logging in using default credentials but those didn't work. I then tried logging in using the username and password that were hardcoded in the source code found on the **ftp** server.





Here's what this script did:

```
$pass = "potato"; //note Change this password regularly
```

Here, a variable `$pass` is defined and assigned the string `"potato"` as the password.

```
if($_GET['login'] === "1"){
```

This checks if the URL query parameter `login` is equal to `"1"`. If it is, the code within this `if` block will execute.

```
  if (strcmp($_POST['username'], "admin") == 0 && strcmp($_POST['password'], $pass) == 0) {
```

Within the `login` check, a second `if` statement compares the submitted `username` and `password` values:

- `strcmp($_POST['username'], "admin") == 0` checks if the `username` from the form (`$_POST['username']`) matches the string `"admin"`.

- `strcmp($_POST['password'], $pass) == 0` checks if the submitted `password` matches the value stored in `$pass` (`"potato"`).
- If both are `true` , it means the credentials are correct.

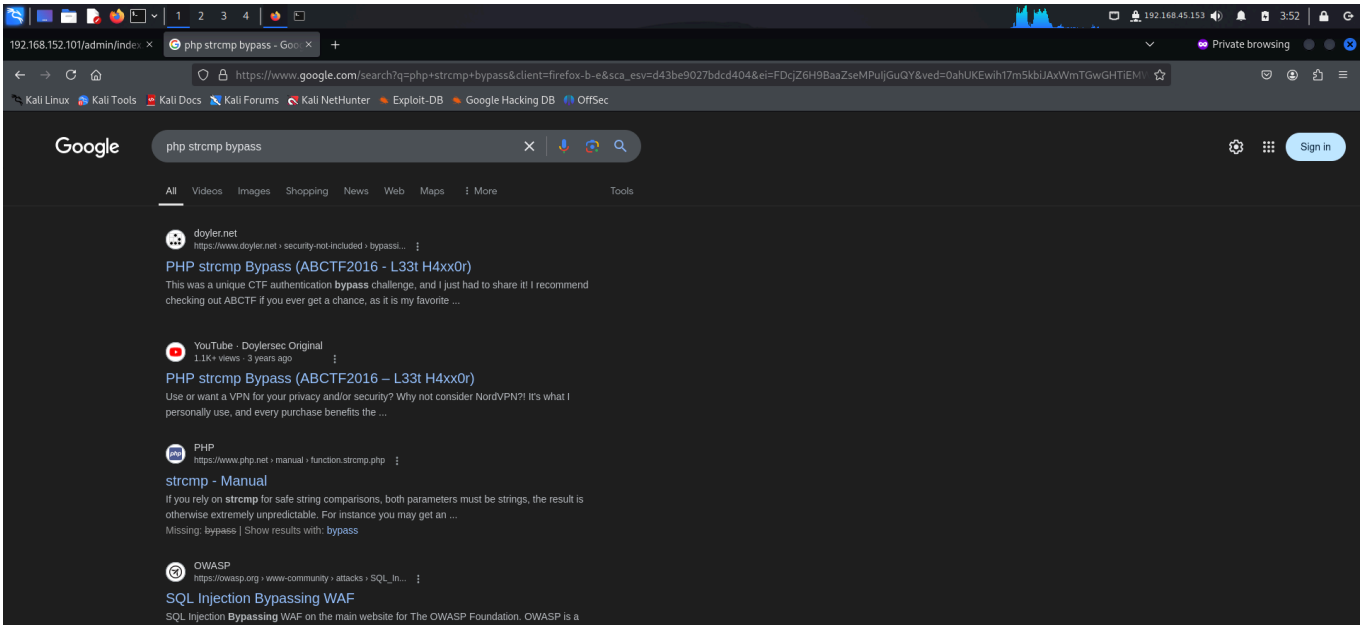
If the credentials match, it displays a welcome message and a link to `dashboard.php` .

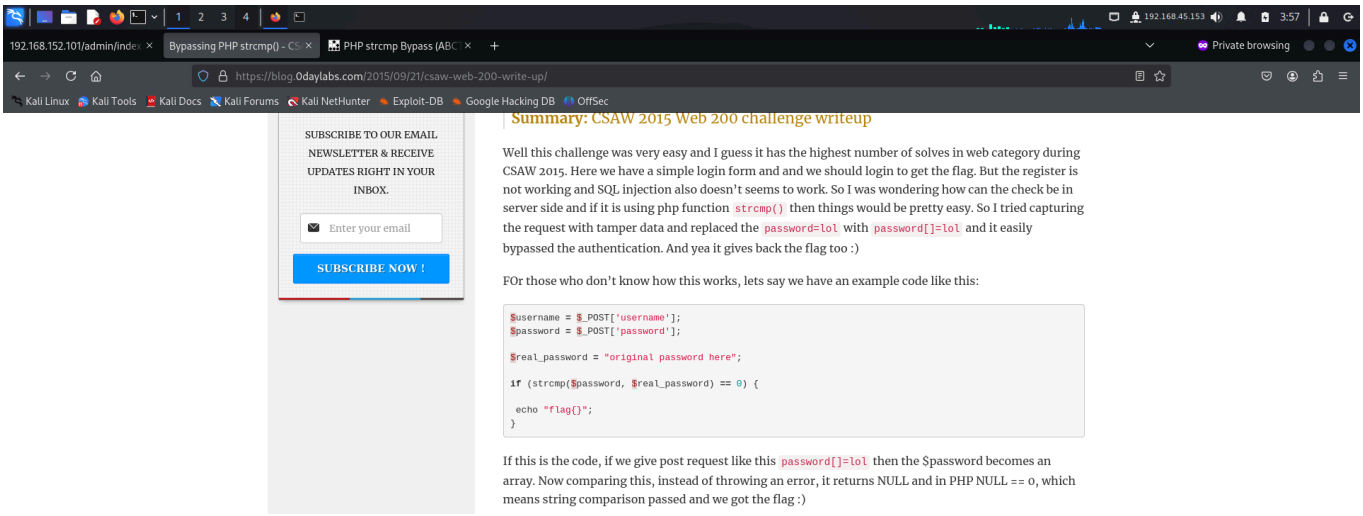
```
    setcookie('pass', $pass, time() + 365*24*3600);
```

This sets a cookie named `pass` with the value of `$pass` (in this case, `"potato"`), which will expire in one year (`365*24*3600` seconds).

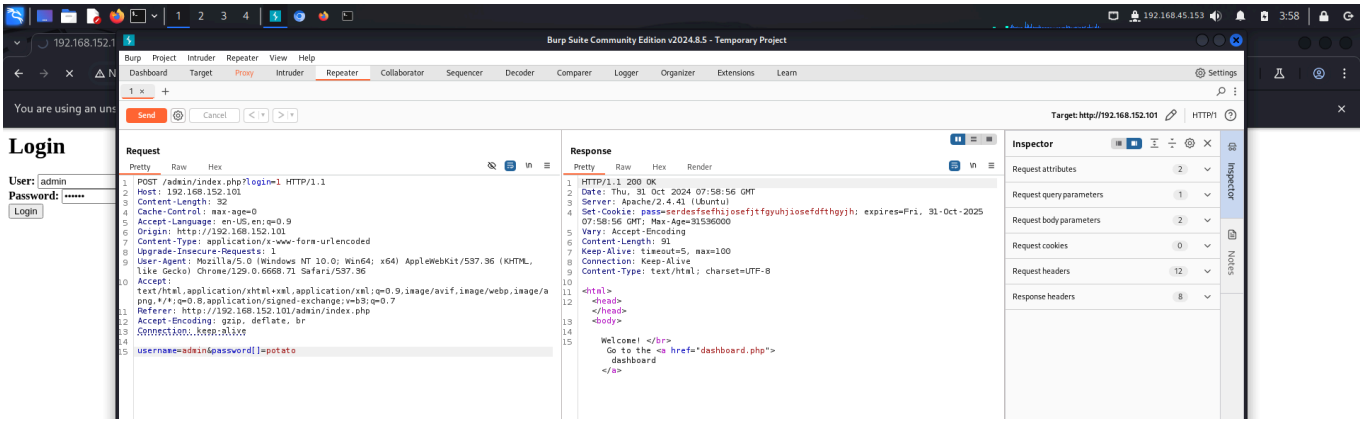
If the login fails, it displays an error message and provides a link back to `index.php` , the login page.

I looked for ways to bypass the comparison done by the **strcmp** function and found a way on google.

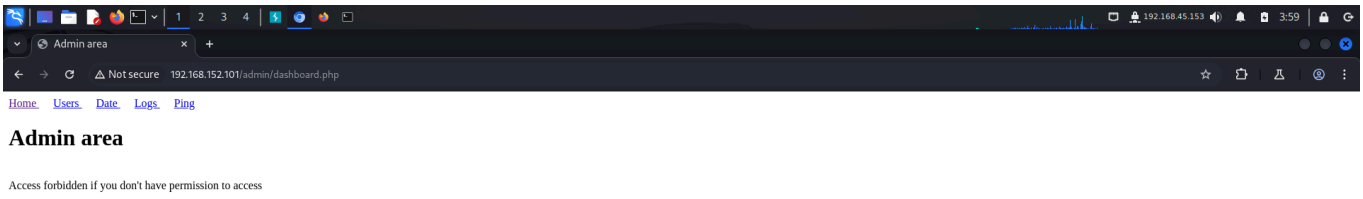




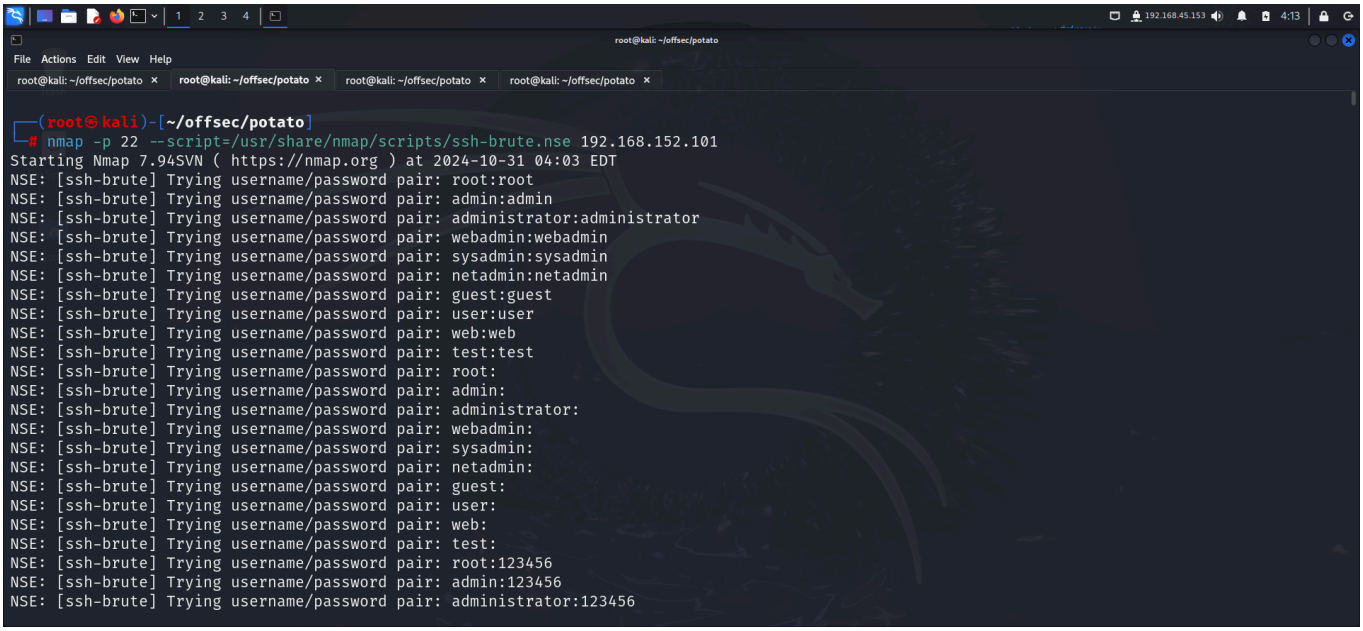
Hence if I modified the password parameter, I could potentially bypass the security check. To try it out, I fired up **burp suite** and captured a login request. I then changed the `password` parameter as show below and forwarded the request.

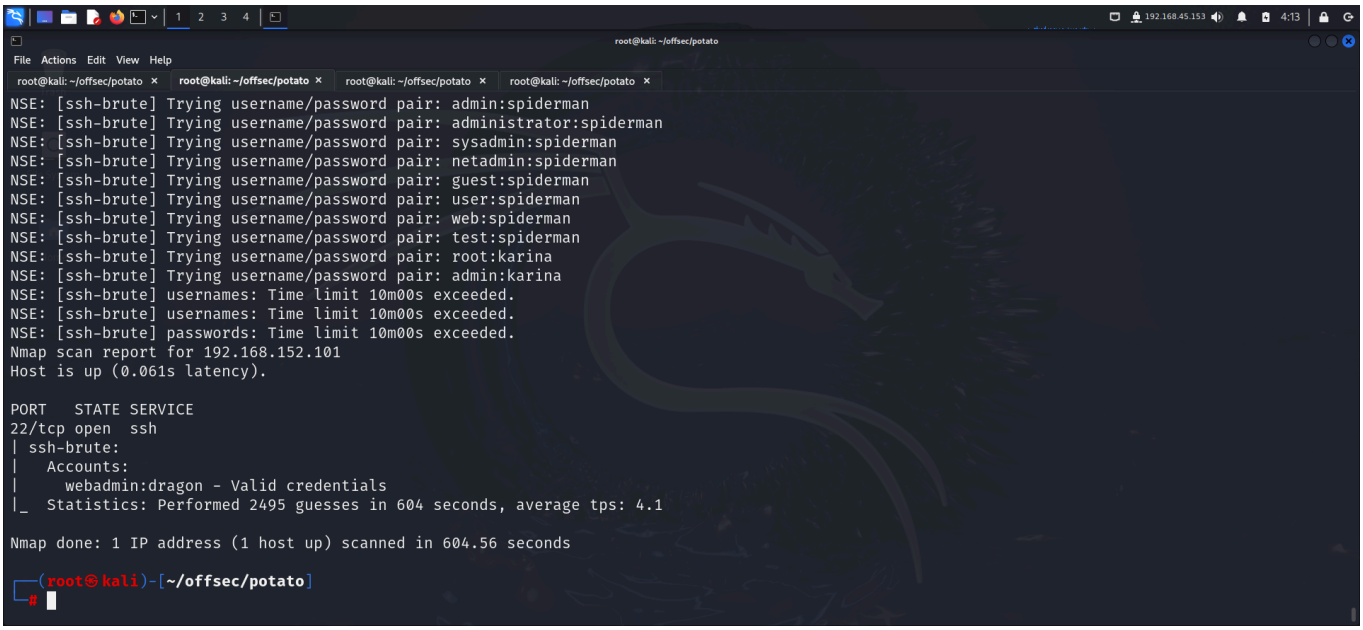


Hence I got access to the admin area. However I found nothing useful here.

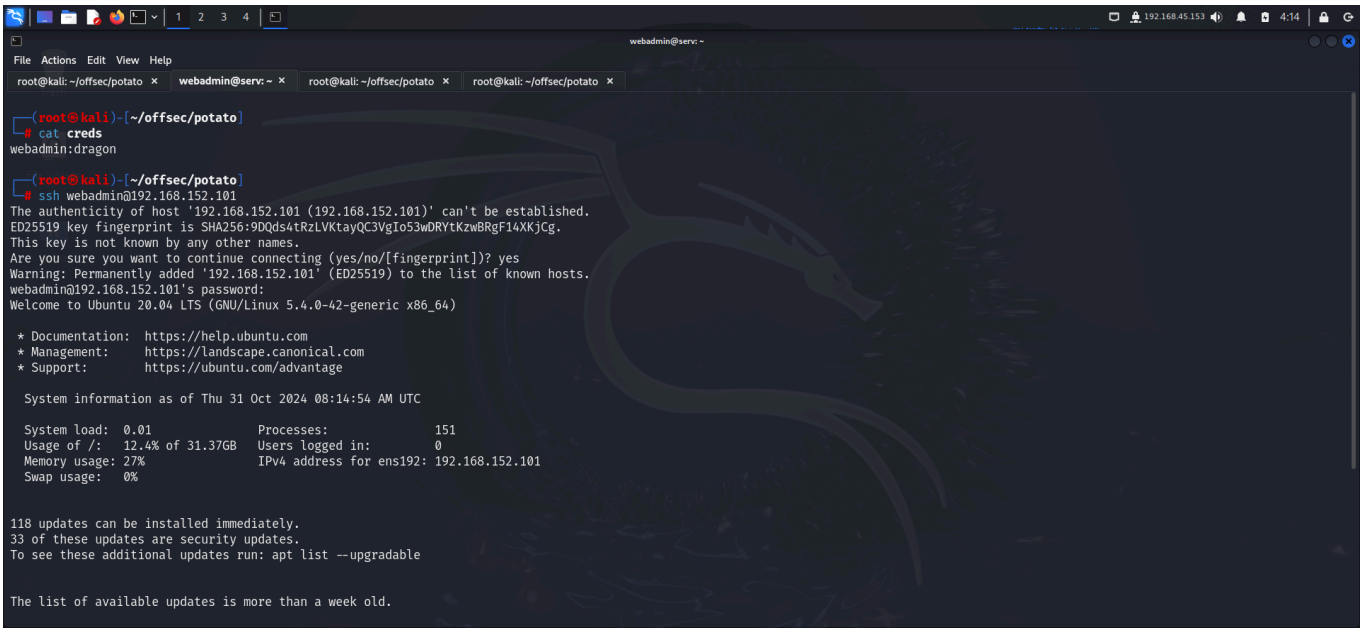


As a last resort, I tried to bruteforce **ssh** credentials using **nmap** and succeeded.



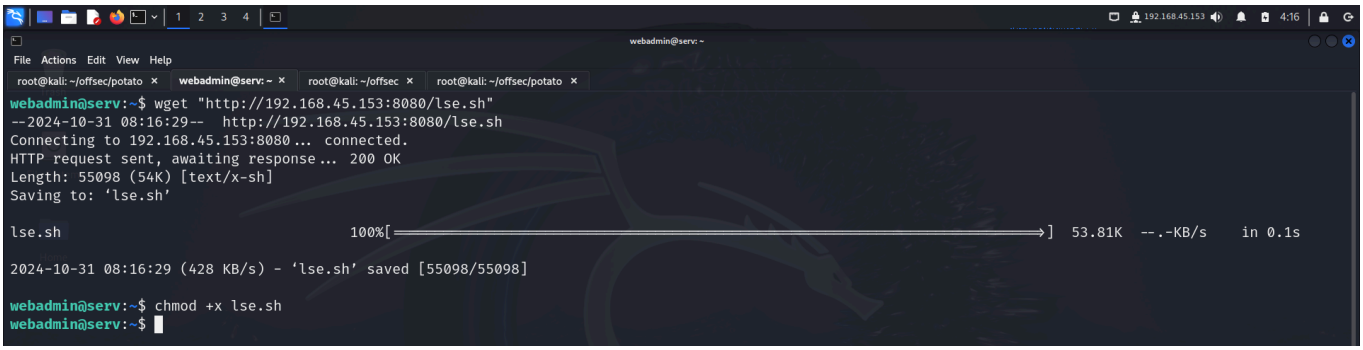


I used these credentials to log into the system.

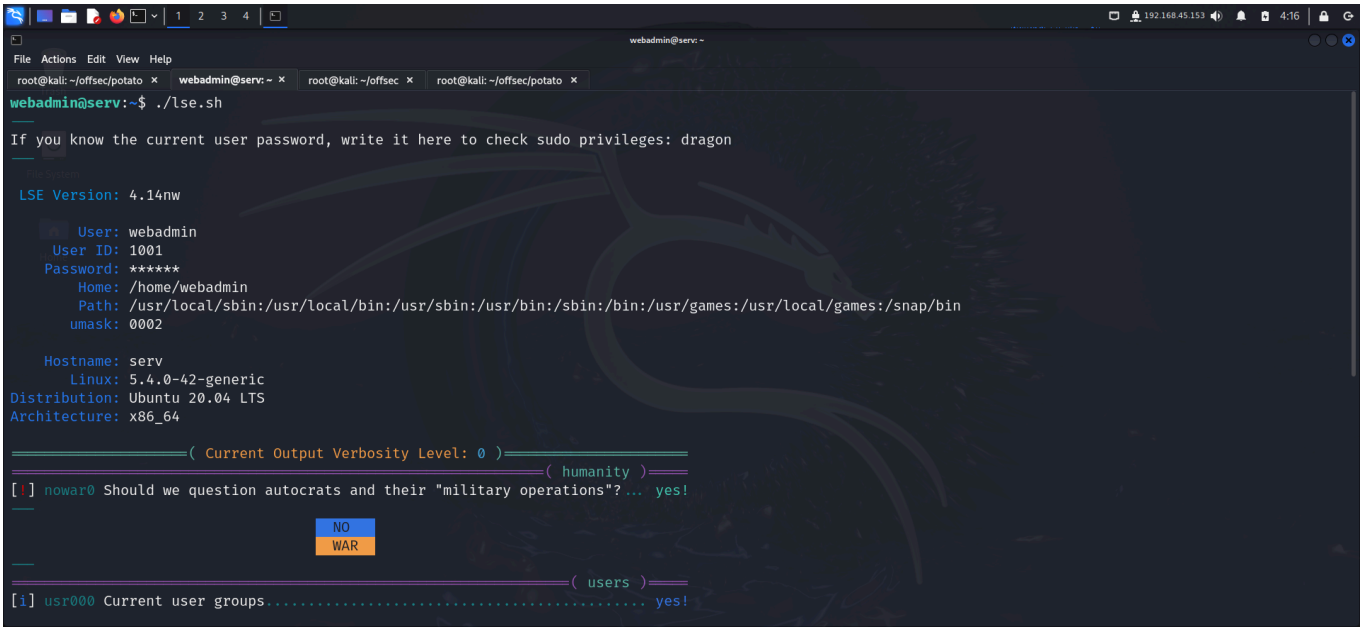


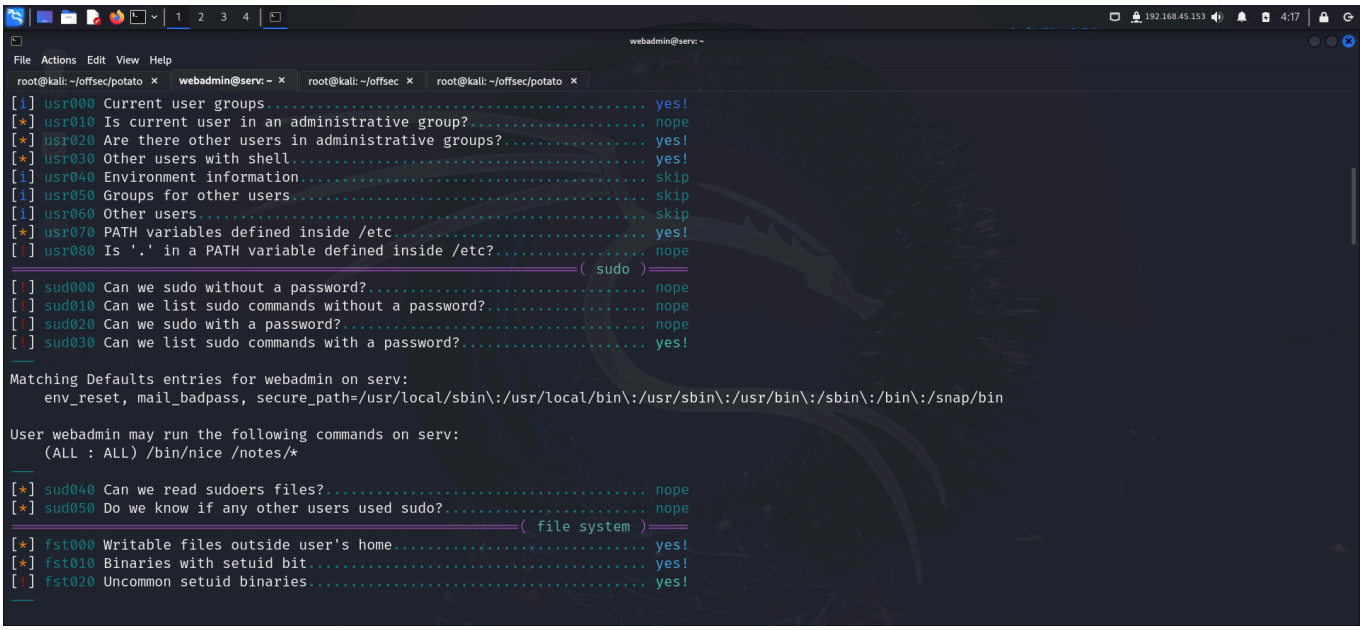
PRIVILEGE ESCALATION

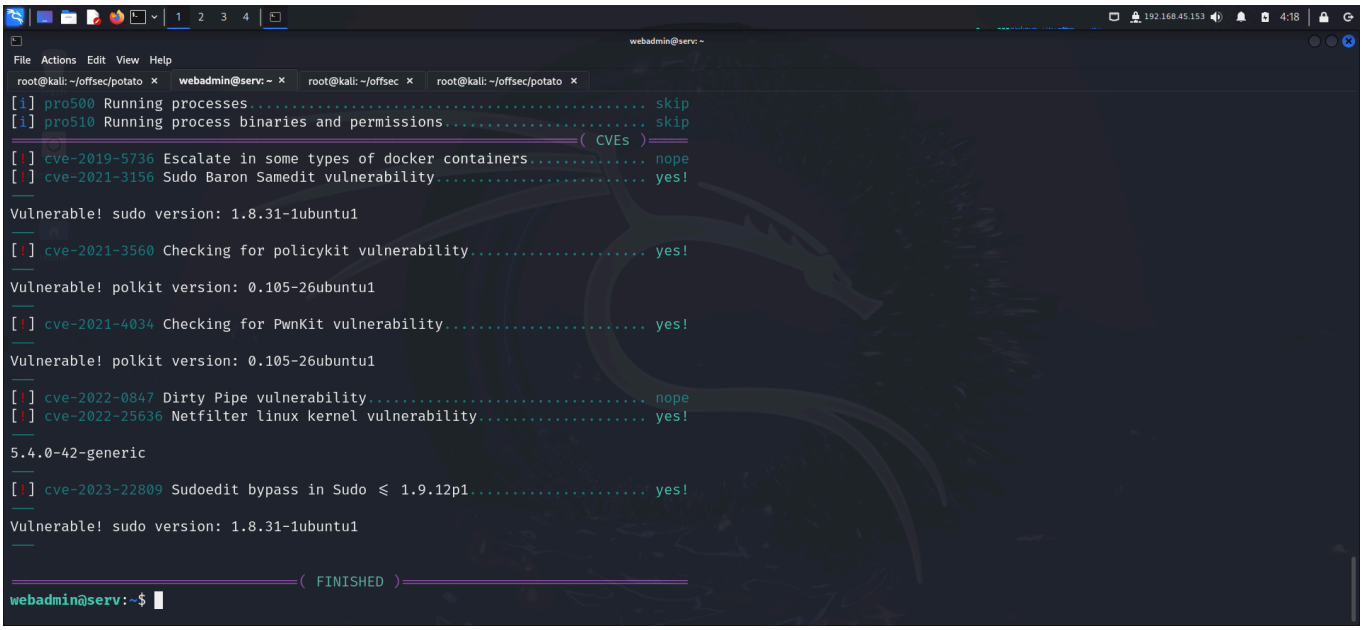
I downloaded the **linux smart enumeration** script on the target and gave it executable permission.



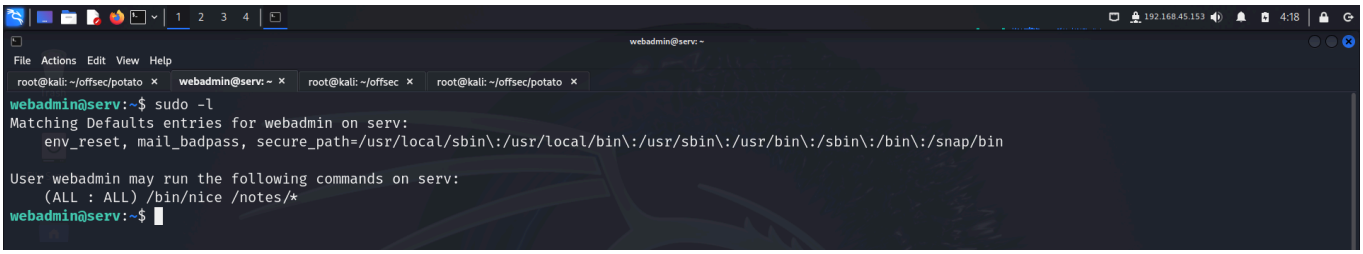
I then ran the script to find available misconfigurations on the system.







The script revealed I could run a particular command as **sudo** without any password.



I looked for ways to exploit a the **nice** binary on **gtfobins** and tried it, however, it failed.

It can be used to break out from restricted environments by spawning an interactive system shell.

```
nice /bin/sh
```

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.

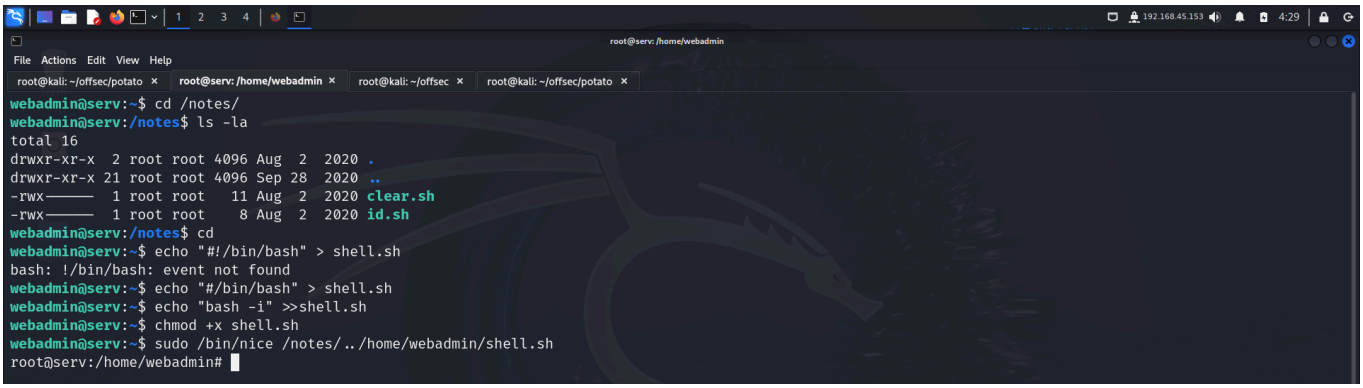
```
sudo install -m =xs $(which nice) .

./nice /bin/sh -p
```

Sudo

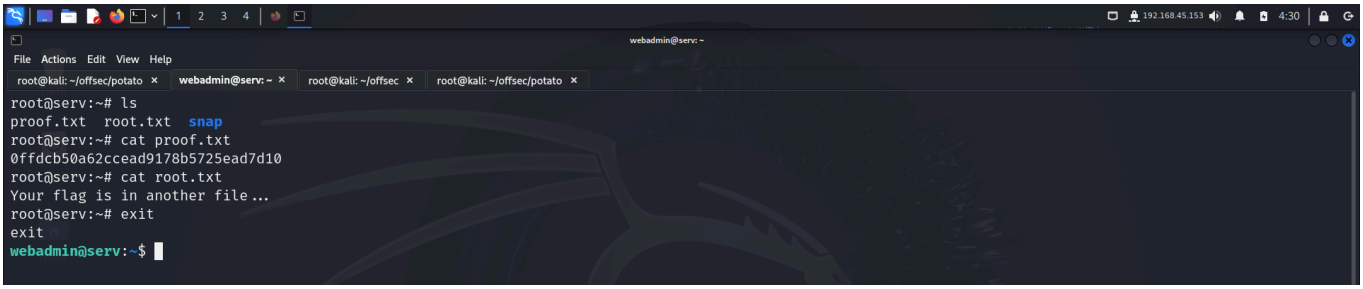
If the binary is allowed to run as superuser by `sudo`, it does not drop the elevated privileges and may be used to access the file system, escalate or maintain privileged access.

```
sudo nice /bin/sh
```

This means I could only execute the entire command and not a single binary. Also, I looked inside the `/notes` directory and found shell scripts in it. This means I could run shell scripts present inside the folder. However, due to lack of privilege, I couldn't add or modify any script here. So I used relative path to make it execute a shell script from my home directory.



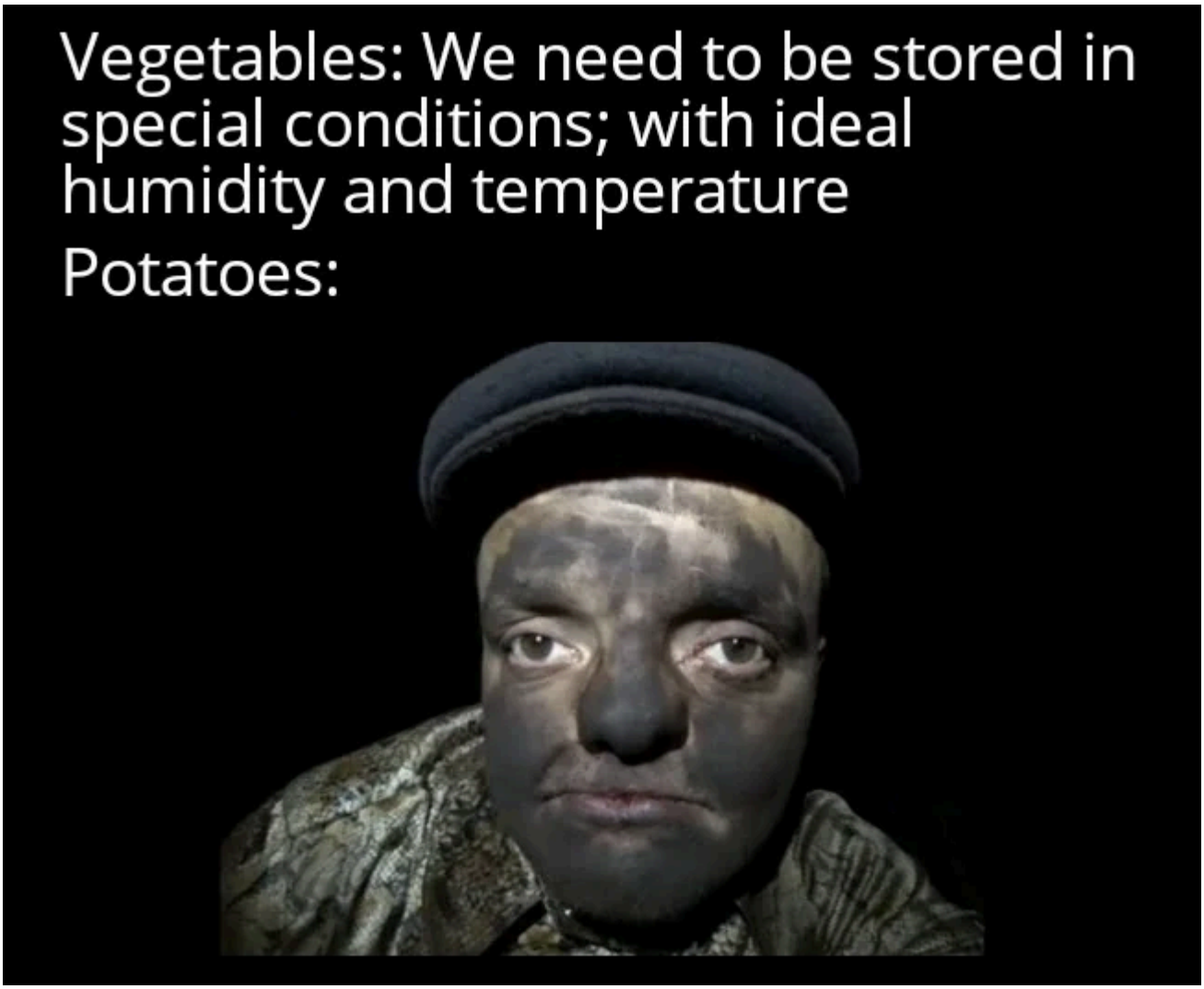
This approach made me a **root** user. I then captured the flag from the `/root` directory.



CONCLUSION

That was the complete walkthrough of **potato**. Hope you learnt something new!

Happy Hacking :)


Vegetables: We need to be stored in special conditions; with ideal humidity and temperature
Potatoes: