PSP0201

Week 2

Writeup

Group Name: Capybozos

Members

ID	Name	Role
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1211100732	Ephraim Tee Yu Yang	Member

Day 1: Web Exploitation – A Christmas Crisis

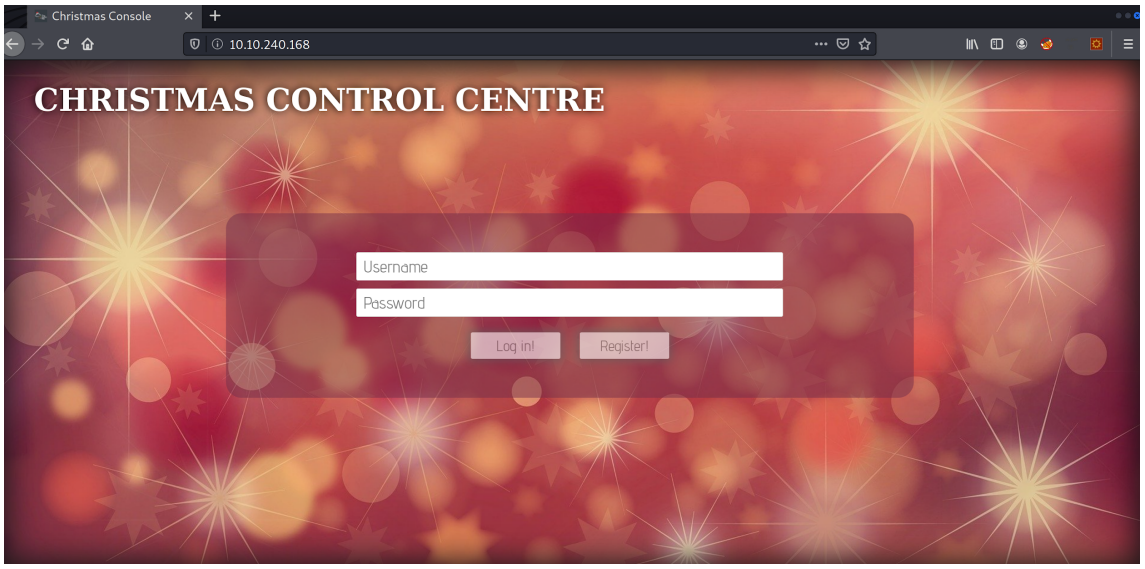
Tools used: Kali Linux, Firefox

Solution/walkthrough:

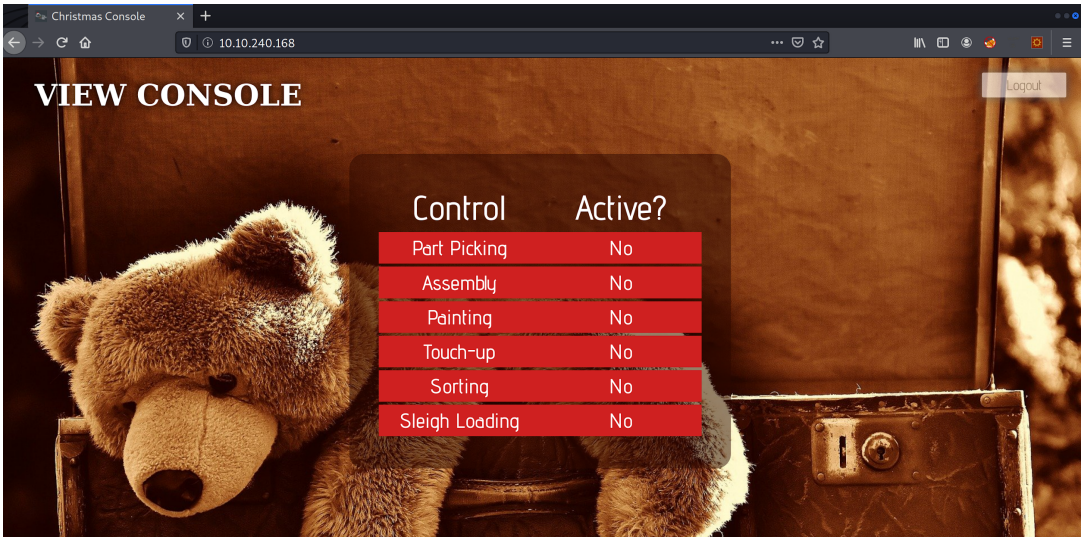
Q: What is the name of the cookie used for authentication?

auth

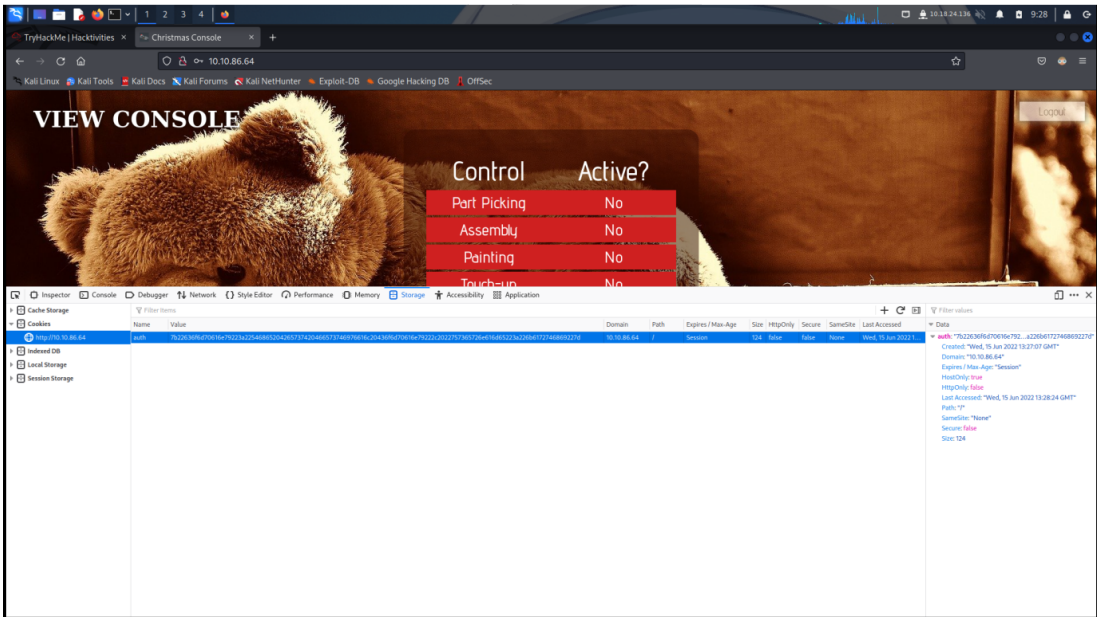
1. Register as a new user using any username and password and log in into it



2. After Log in you will be prompted with control page but we cant activate it



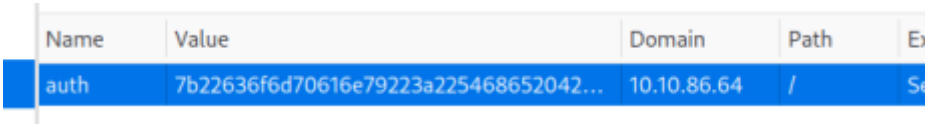
3. To gain access to the switch we need to be in santa account and and we do that by opening the developer tools , then we're able to see the value of the cookie under the storage tab, cookies sub-tab



Q: In what format is the value of this cookie encoded?

Hexadecimal

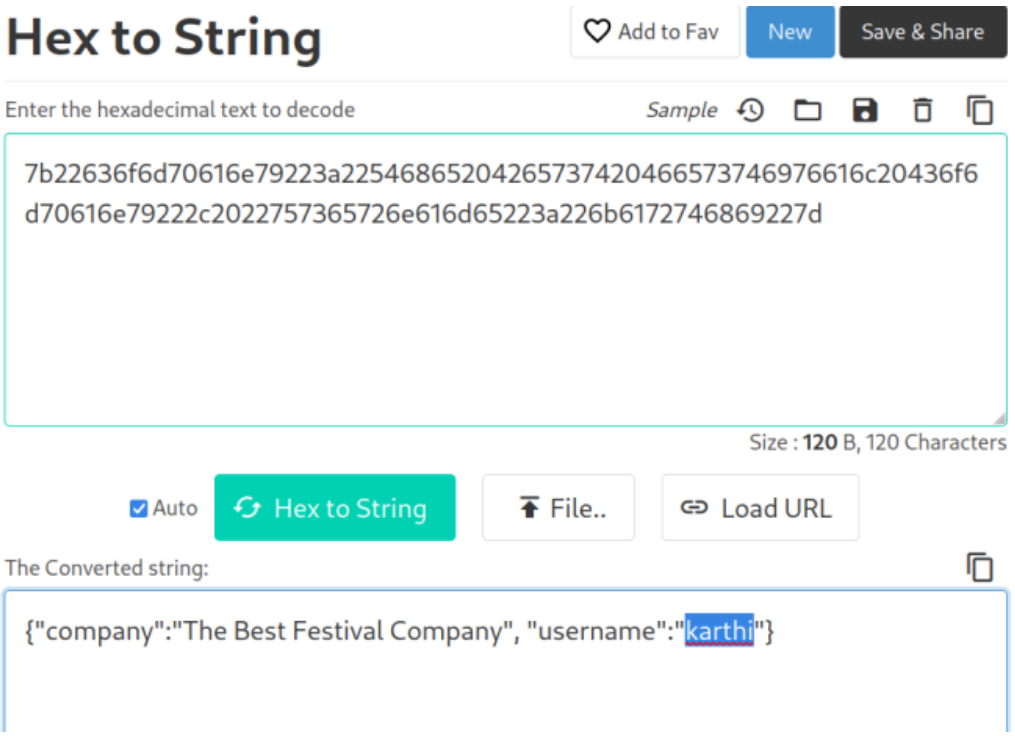
1. There isn't any letter other than 0 to f, so we can confirm that it's actually encoded in hexadecimal



Q: Having decoded the cookie, what format is the data stored in?

JSON

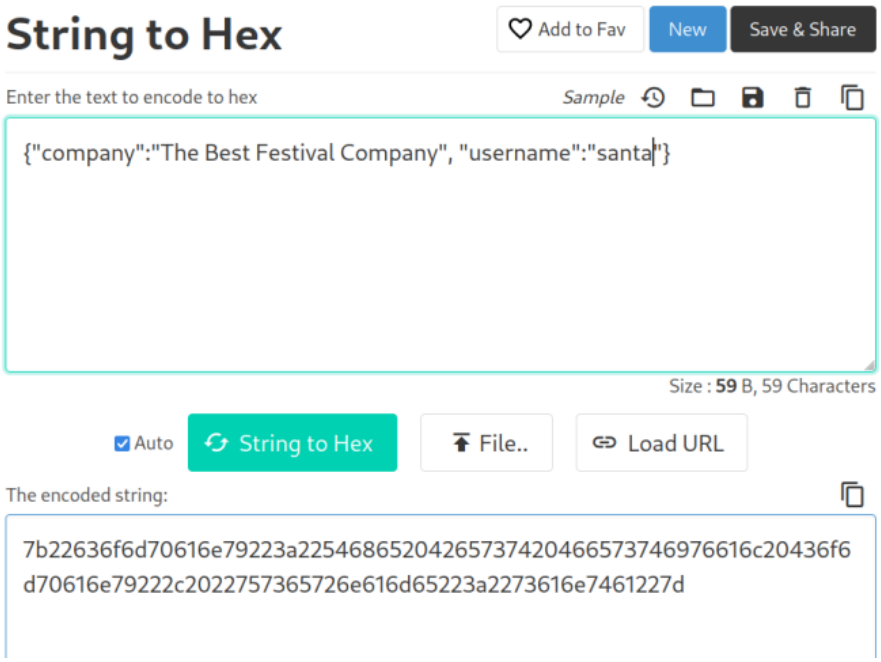
1. By using codebeautify.org, we can convert the Hexadecimal value to JSON



Q: What is the value of Santa's cookie?

**7b22636f6d70616e79223a22546865204265737420466573746976616c20436f6d706
16e79222c2022757365726e616d65223a2273616e7461227d**

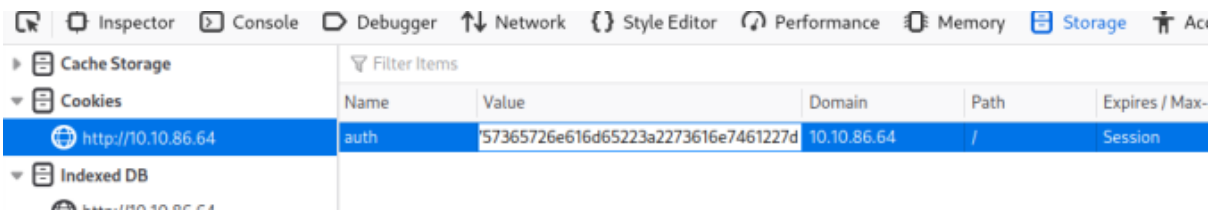
1. By changing the highlighted text to santa which is a user with the access of the control we're able to spoof the website that we are santa



Q: What is the flag you're given when the line is fully active?

THM{MjY0Yzg5NTJmY2Q1NzM1NjBmZWFhYmQy}

1. We are going to use the altered Hexadecimal value and change the cookies value



2. And hit refresh, boom! We have the ability to toggle the switch

3. Now turning all these switch on and the flag will be presented

Thought Process/Methodology:

Having accessed the target machine, we were shown a login/registration page. We proceeded to register an account and login. After logging in, we opened the browser's developer tool and viewed the site cookie from the Storage tab. Looking at the cookie value, we deduced it to be a hexadecimal value and proceeded to convert it to text using Codebeautify.org. We found a JSON string with the username element. Using Codebeautify.org, We altered the username to 'santa', the administrator account, and converted it back to hexadecimal using Codebeautify.org. We replaced the cookie value with a converted one and refreshed the page. We are now shown an administrator page (Santa's) and proceeded to enable every control, which in turn showed the flag.

Day 2 : Web Explotation - The Elf Strikes Back

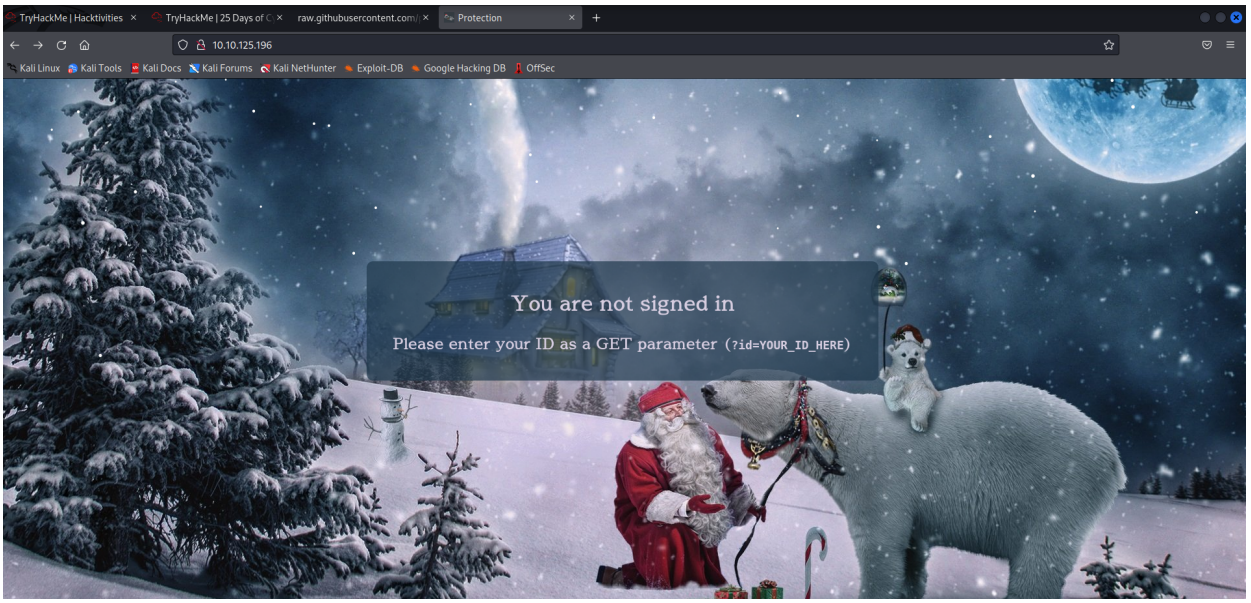
Tool Used : Kali Linux, Firefox, Reverse Shell, Netcat

Solution/walkthrough:

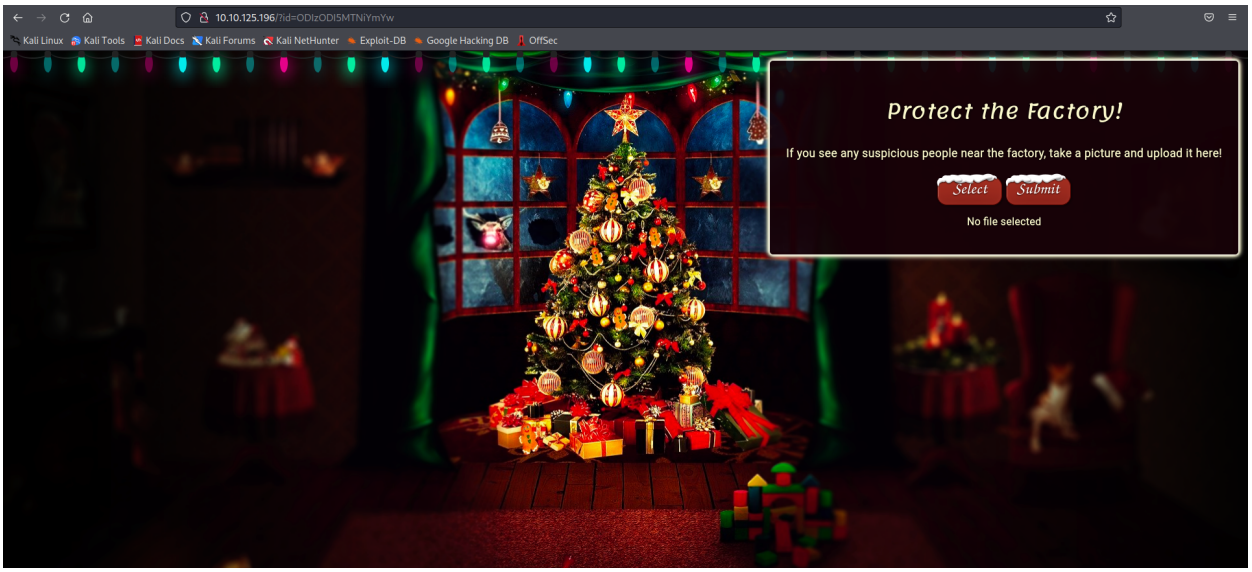
Q: What string of text needs adding to the URL to get access to the upload page?

/id=ODIzODI5MTNiYmYw

1. We were told to enter the ID (`ODIzODI5MTNiYmYw`) with the GET parameter (/?id=)



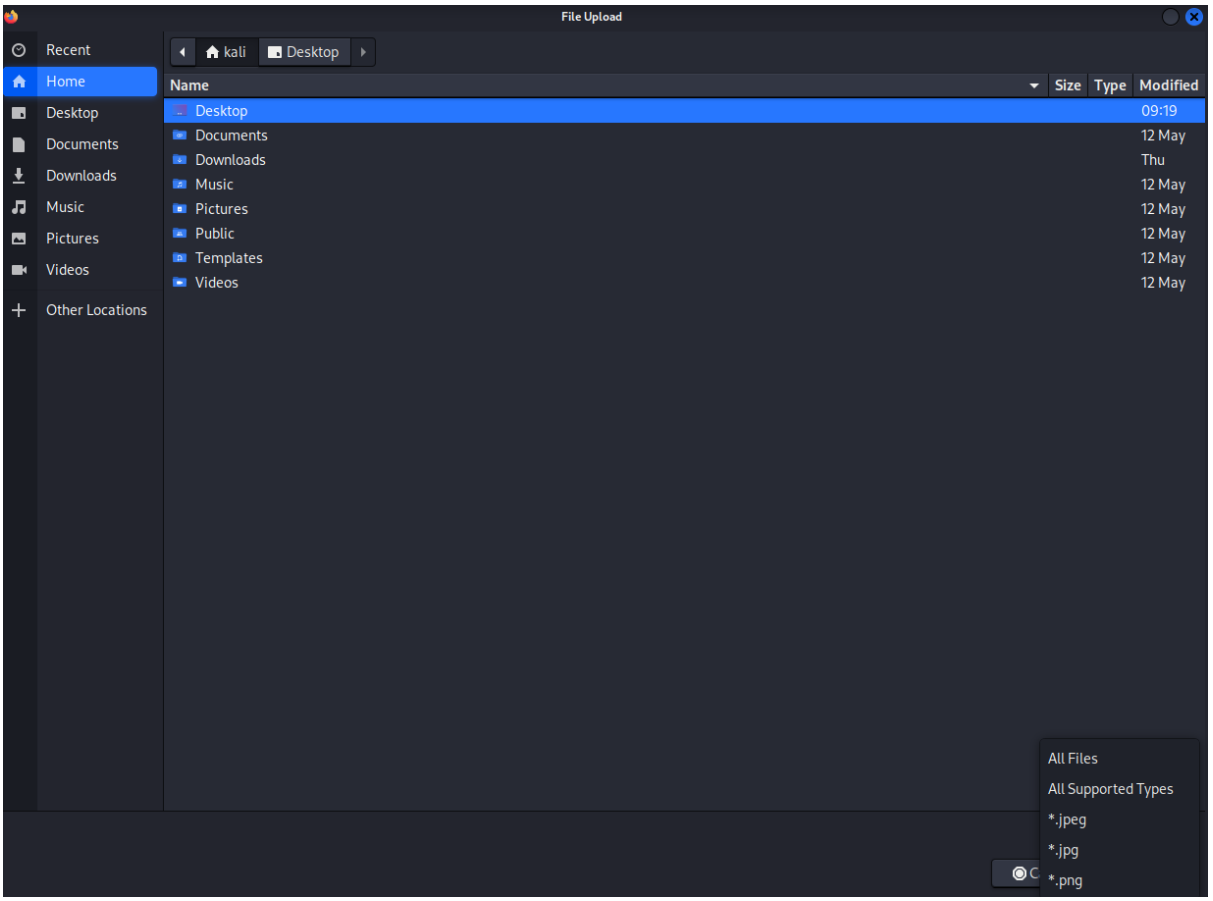
2. We were then brought to this secret protection site, after using the id we were given.



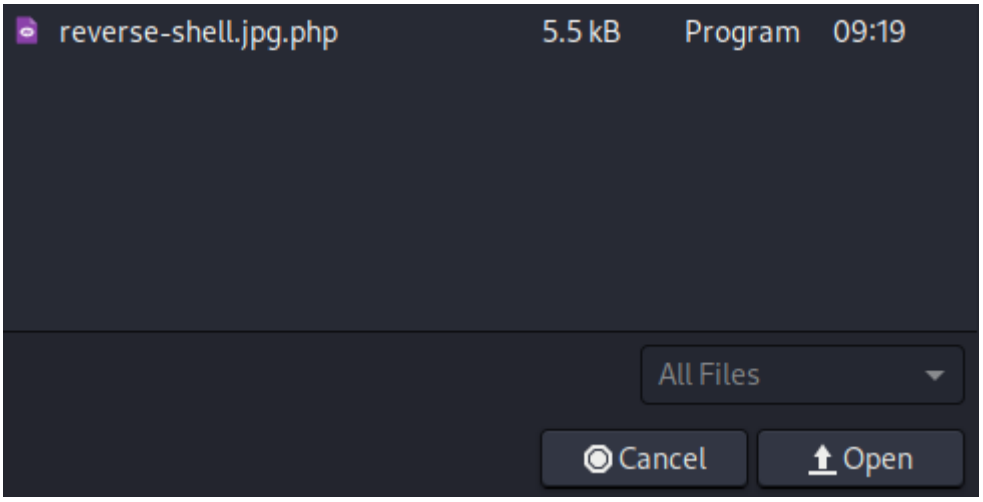
Q: What type of file is accepted by the site?

image

1. The only supported file types are image.



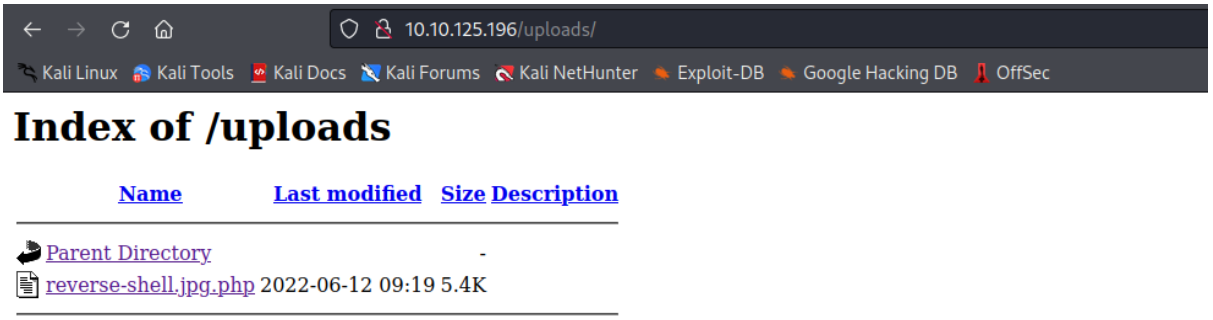
2. Select ‘All files’ as file types, and upload our reverse shell with .jpg.php extension to trick the filter



Q: In which directory are the uploaded files stored?

/uploads

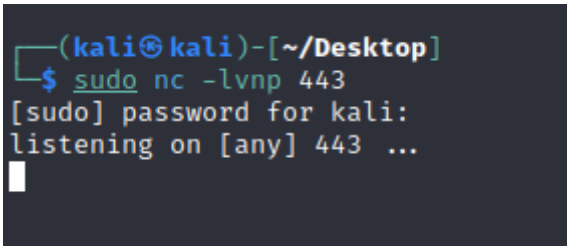
1. By trying those common upload directory (`/uploads`, `/images`, `/media`, or `/resources`) or by using prepared wordlist on kali with GoBuster



It turned out that /uploads is indeed the one that contains the uploaded files

Q: Activate your reverse shell and catch it in a netcat listener!

1. Do the command "**sudo nc -lvnp 443**" to activate the reverse shell listener that listen to the port 443.



2. Execute the reverse shell php script in the browser

```
┌──(kali㉿kali)-[~/Desktop]
└─$ sudo nc -lvnp 443
[sudo] password for kali:
listening on [any] 443 ...
connect to [10.18.25.94] from (UNKNOWN) [10.10.125.196] 42286
Linux security-server 4.18.0-193.28.1.el8_2.x86_64 #1 SMP Thu Oct 22 00:20:22
 UTC 2020 x86_64 x86_64 x86_64 GNU/Linux
 09:42:01 up 31 min,  0 users,  load average: 0.00, 0.00, 0.21
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
uid=48(apache) gid=48(apache) groups=48(apache)
sh: cannot set terminal process group (845): Inappropriate ioctl for device
sh: no job control in this shell
sh-4.4$
```

3. And we're in!

Q: What is the flag in `/var/www/flag.txt`?

THM{MGU3Y2UyMGUwNjExYTY4NTAxOWJhMzhh}

1. Navigate through the target directory (/var/www/), and check the content of flag.txt, here we obtain the flag

```
You've reached the end of the Advent of Cyber, Day 2 -- hopefully you're enjo
ying yourself so far, and are learning lots!
This is all from me, so I'm going to take the chance to thank the awesome @Va
rgnaar for his invaluable design lessons, without which the theming of the pa
st two websites simply would not be the same.


Have a flag -- you deserve it!
THM{MGU3Y2UyMGUwNjExYTY4NTAxOWJhMzhh}


Good luck on your mission (and maybe I'll see y'all again on Christmas Eve)!
 --Muiri (@MuirlandOracle)
```

Thought Process/ Methodology

First, we enter the site, with the ID provided. And the first thing showed up in the site is the file uploader, which is obviously the thing we're going to try to bypass. The only supported type for uploading is image file with file extensions like, .jpg, .jpeg, .png. But we can easily select the option, 'All File Types' and upload our reverse shell. The most notably thing in this part is we're going to trick the filter at the backend, by renaming our file to '.(any image extension).php'. One vulnerability we can exploit is the fact that the file filter splits the file where '.' is seen. We're going to trick the filter to believe that we're uploading an image, but it's actually a php reverse shell. Once it's uploaded, we can use GoBuster to brute force the common wordlist of website directory. It turned out that /uploads/ is actually the place where the uploaded files are stored. Next thing we do is to set up a reverse shell listener, which is netcat, we're going to make netcat listen to the specific port we set for the reverse shell. We can do this by simply running the command "sudo nc -lvnp PORT" . Then, we execute the reverse shell, the netcat should catch what's being sent back from the reverse shell, and we're in. The last thing, we're going to do is to navigate to the target directory, and capture the flag.

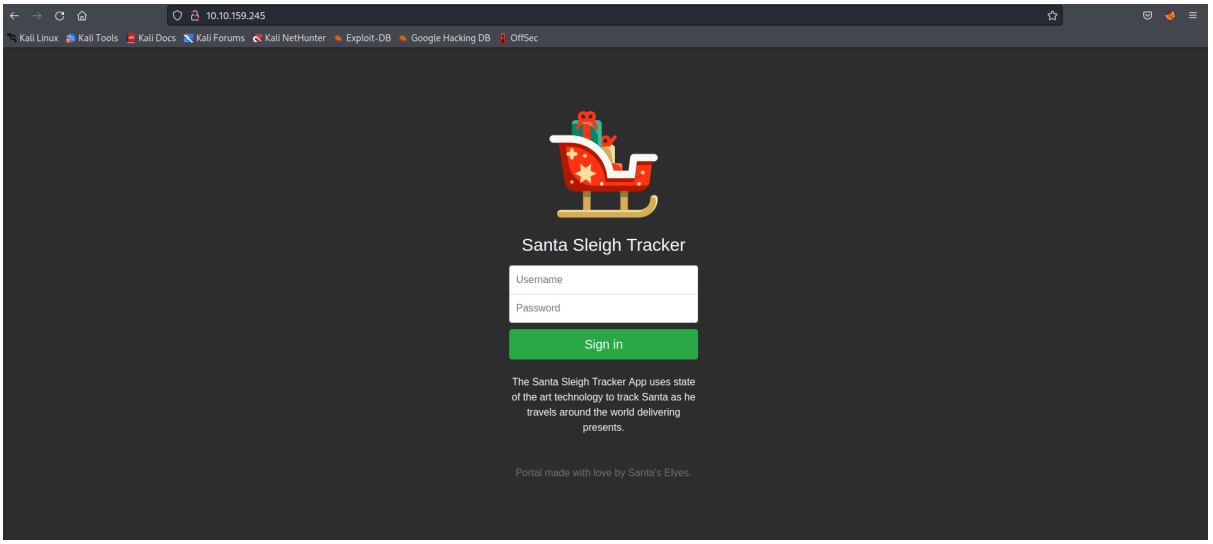
Day 3 : Web Explotation - Christmas Chaos

Solution/walkthrough:

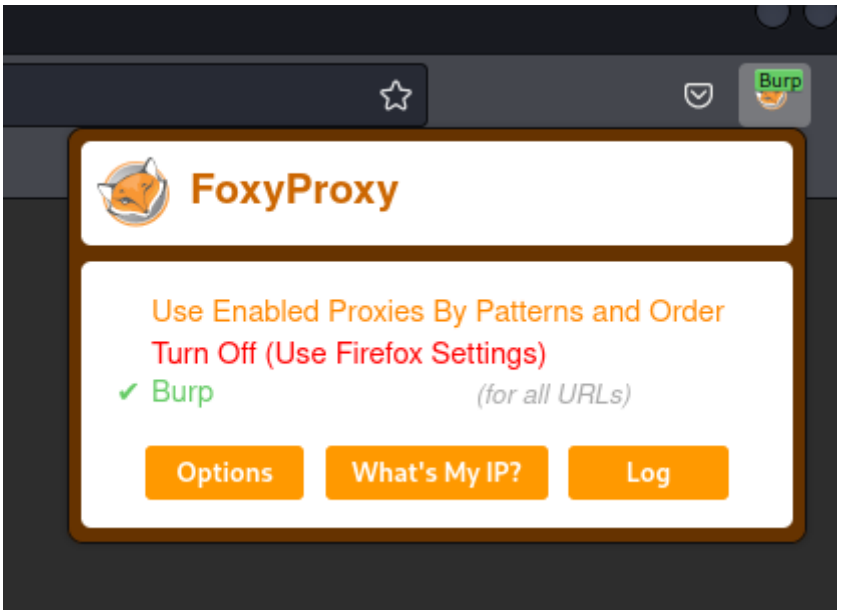
Q: What is the flag?

THM{885ffab980e049847516f9d8fe99ad1a}

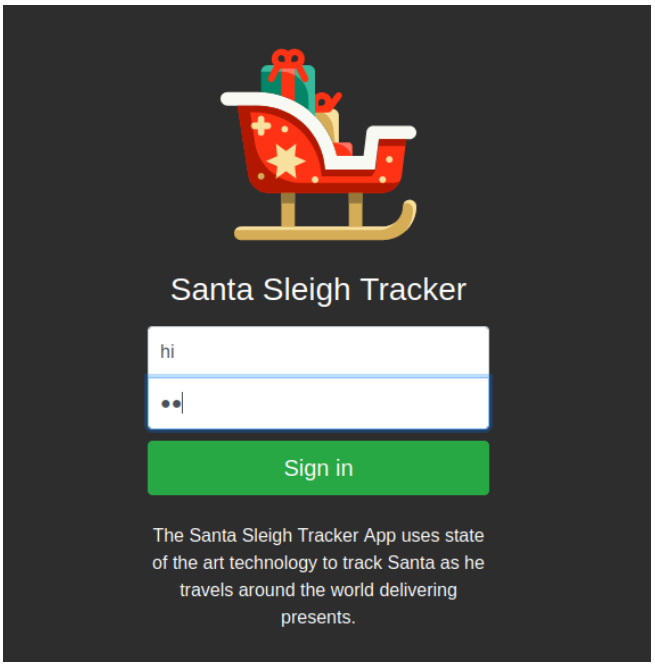
1. Accessing the machine via IP address



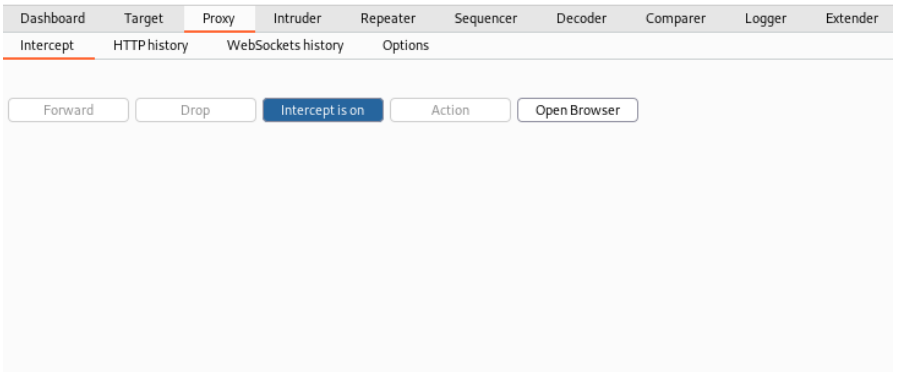
2. Activate FoxyProxy and BurpSuite

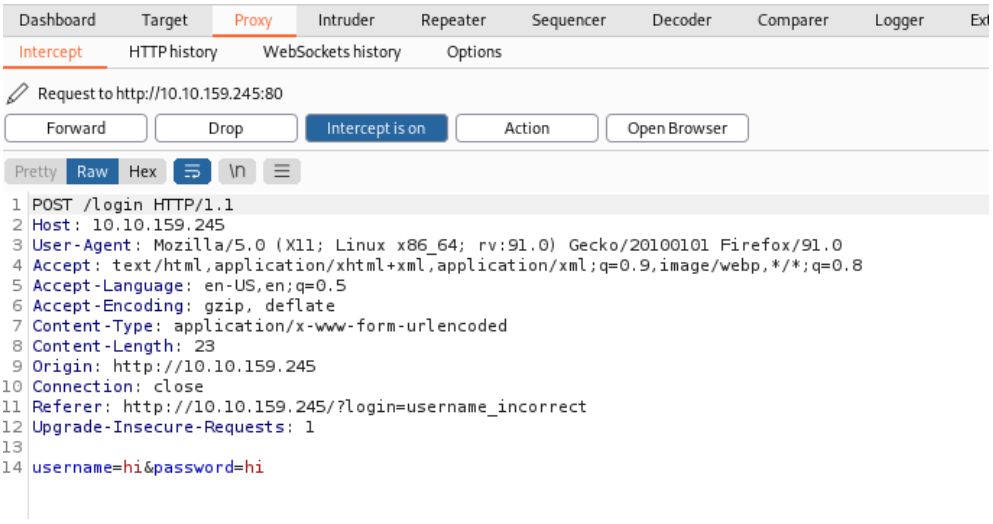


3. Enter in credentials for username and password on the form. (Any credentials will work)

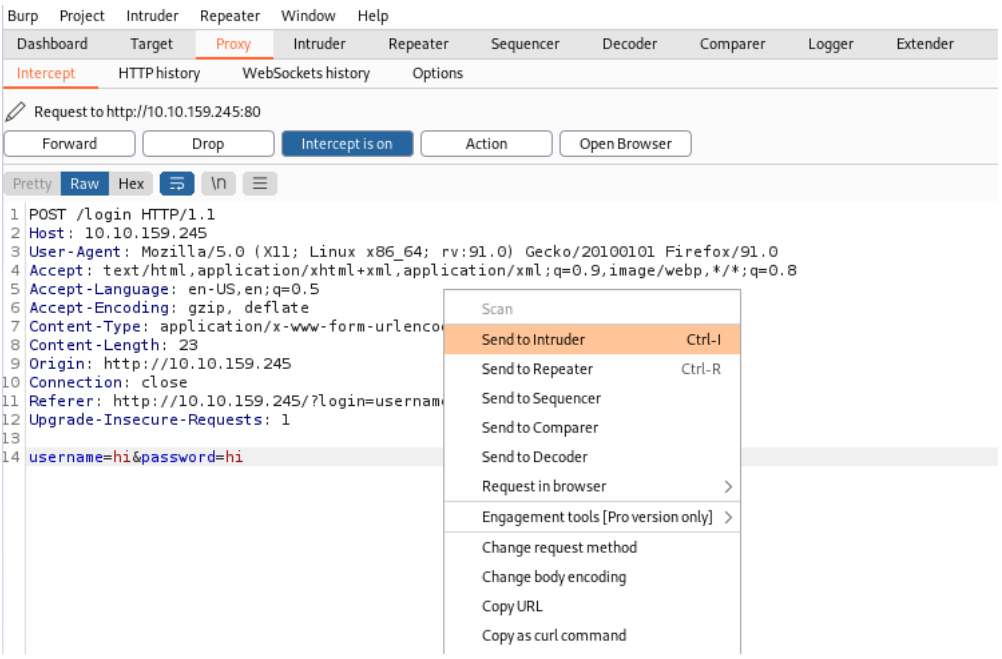


4. Press the "Sign in" button on the website to intercept request (make sure Intercept is turned on inside Burpsuite)

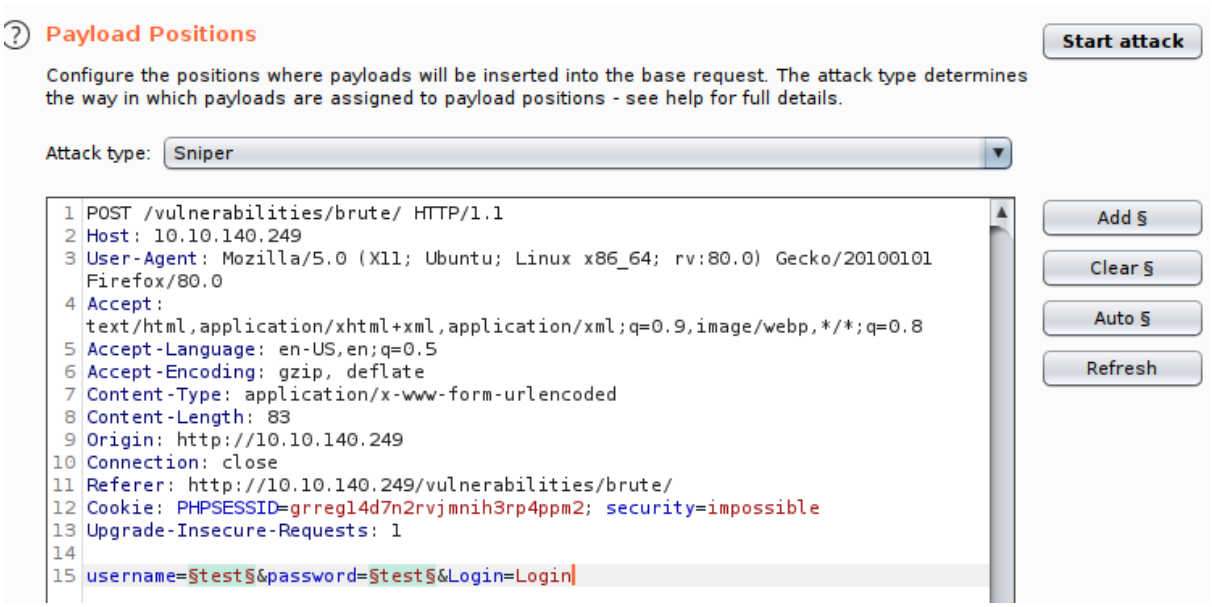




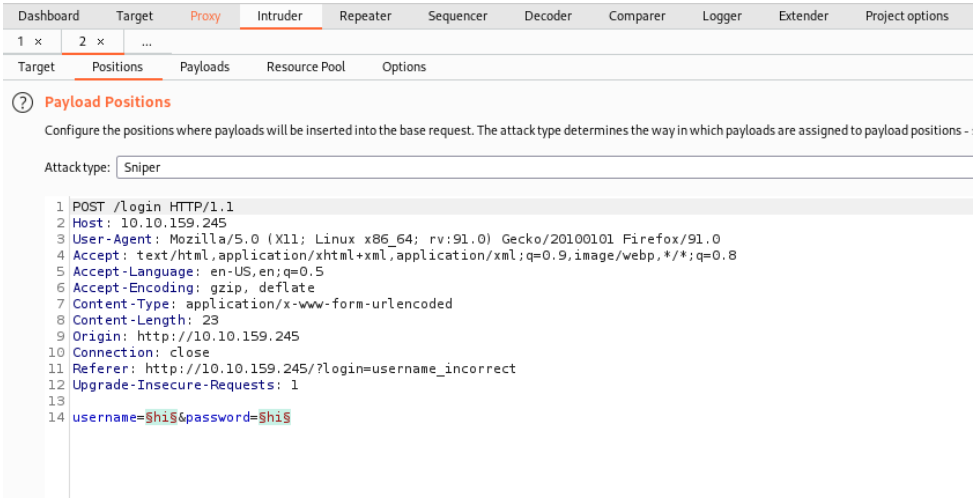
5. Right click on captured request inside Proxy tab and click “Send to Intruder”

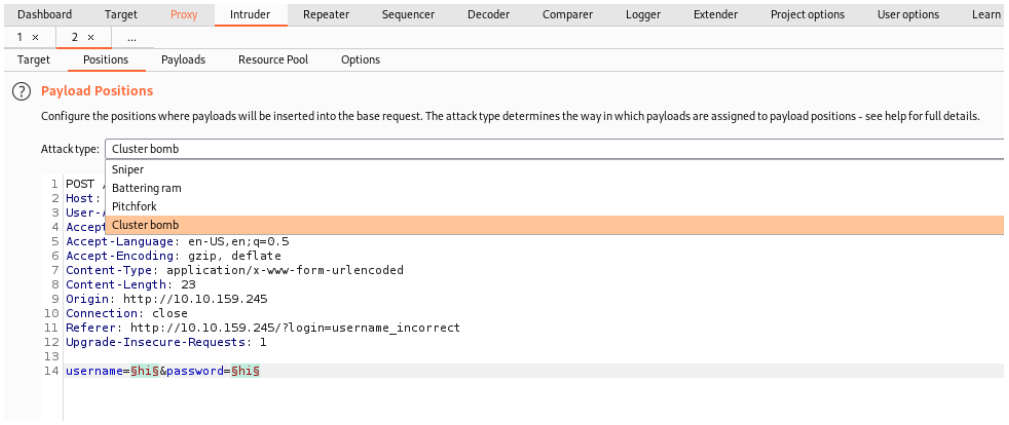


6. Go to the “Intruder” tab, select “Positions”. In case the username and password (highlighted in green) isn’t automatically highlighted, hover over and select the username and password, then press “Add” on the right side.

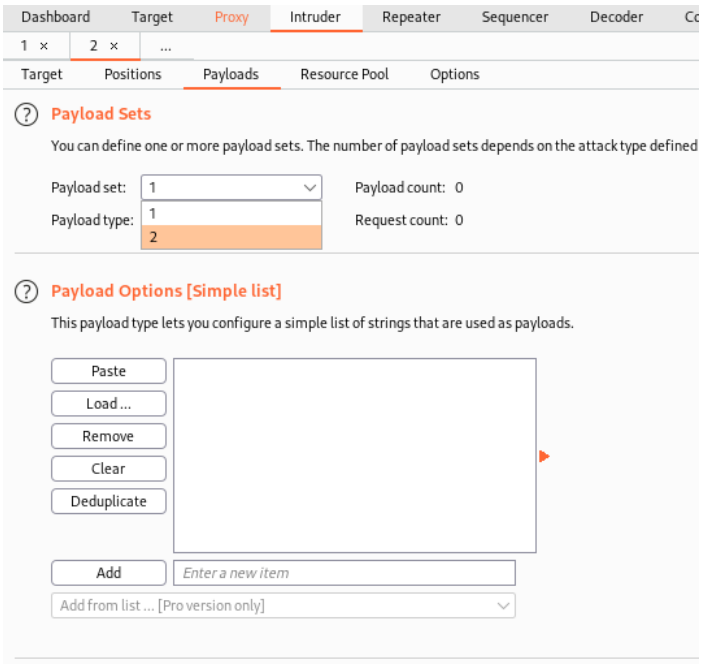


7. Click on the dropdown at the top, select “Cluster bomb” attack type.

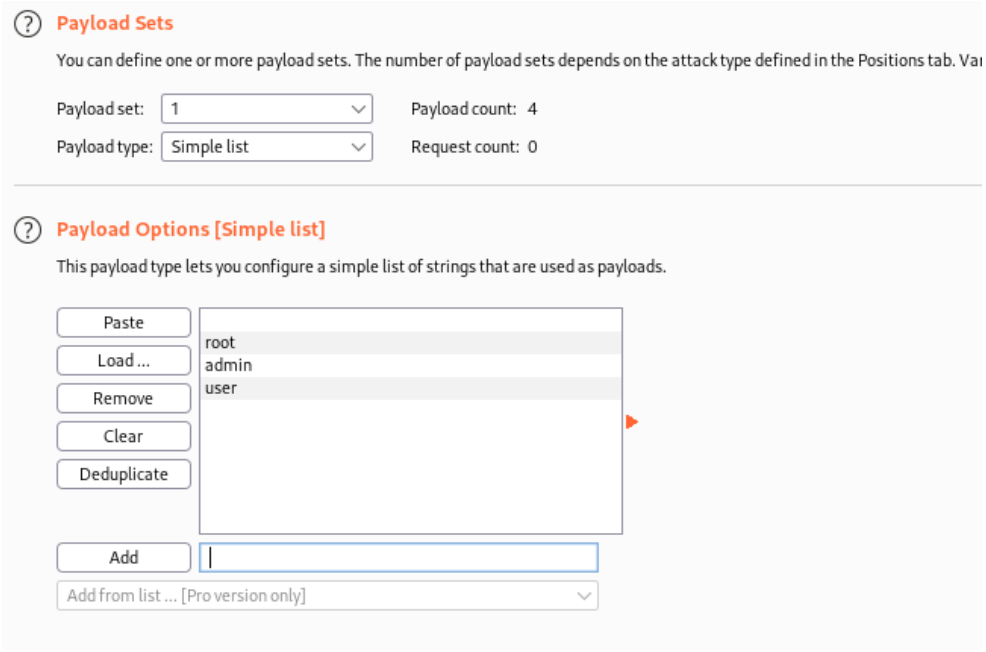


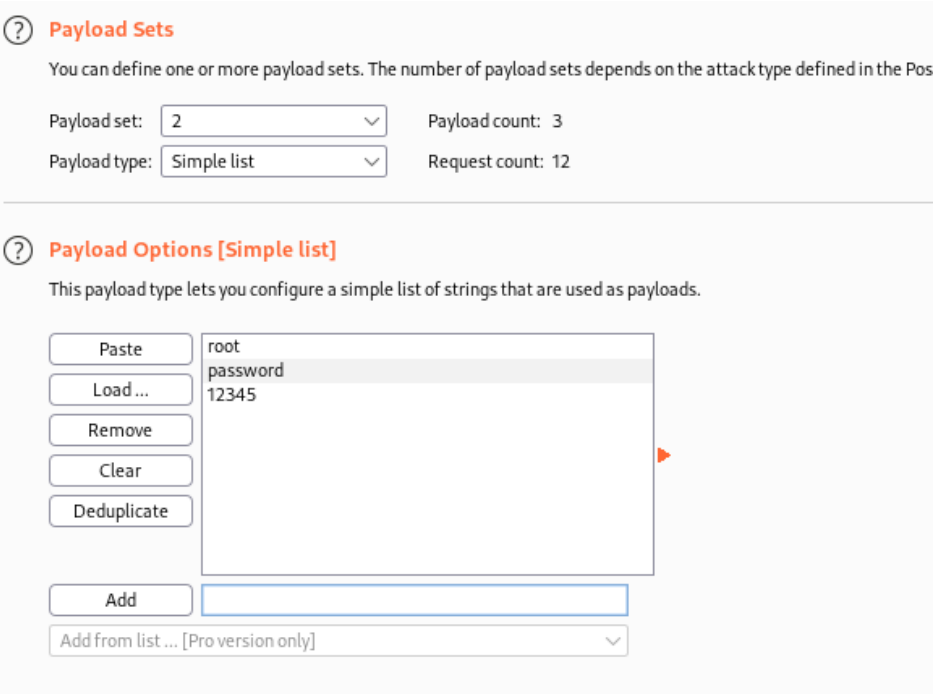


8. Now go to the “Payloads” tab and select the Payload set from the dropdown, each set corresponds to the entry form, so “1” is the username and “2” is the password. Set the payload type for both sets to be a “Simple list”

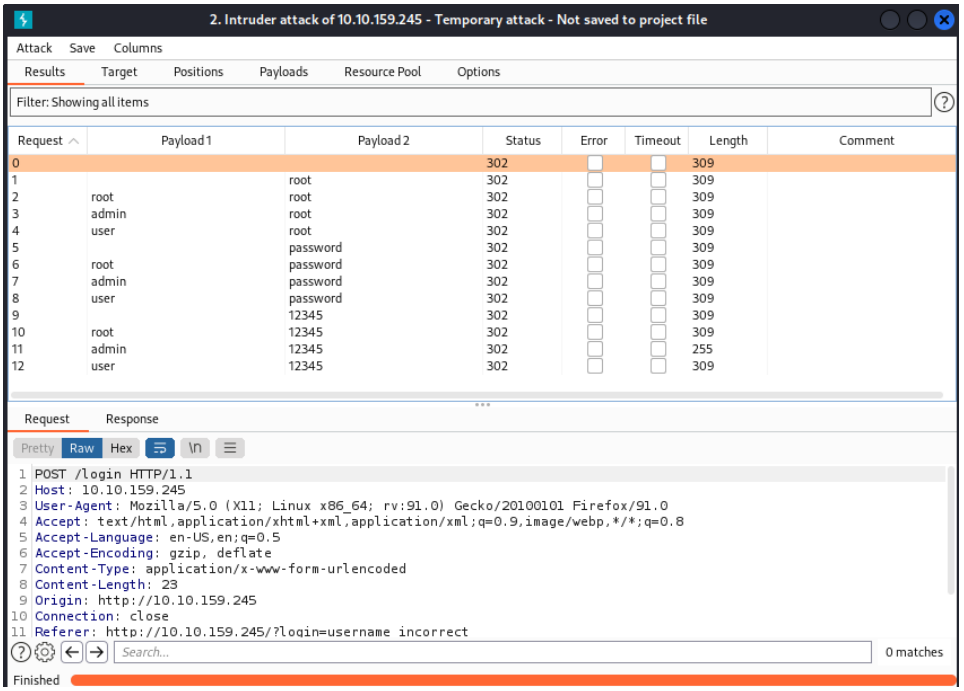


9. For payload set 1 which is the username form, go to “Payload Options” and input potential usernames such as “root”, “admin” and “user”. On payload set 2 which is the password form, input potential passwords such as “root”, “password” and “12345”. Click “Add” to input them into the list.

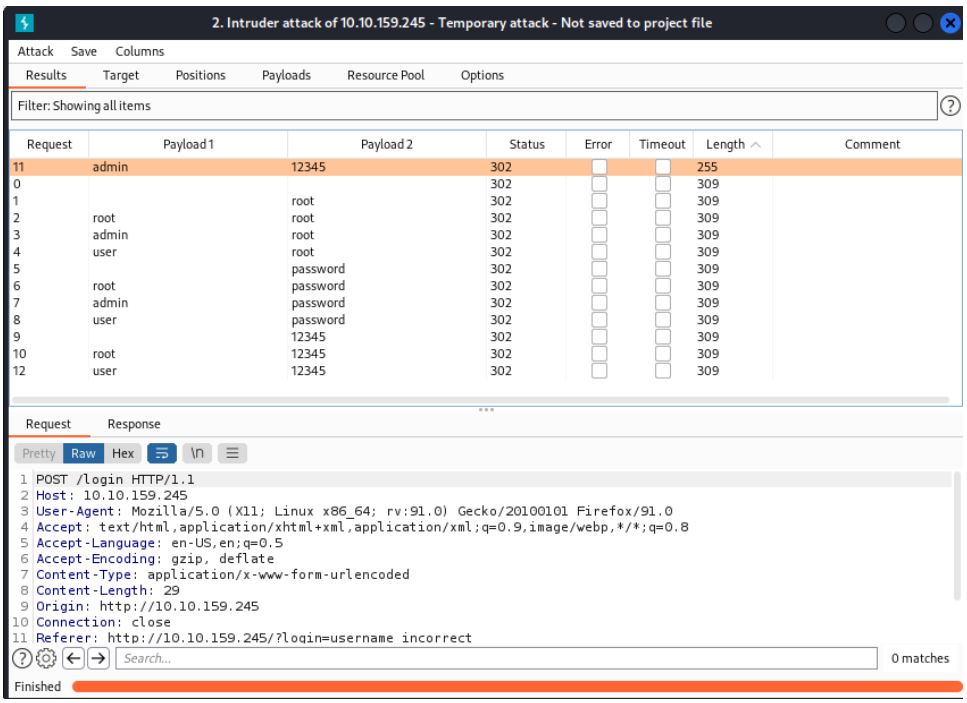




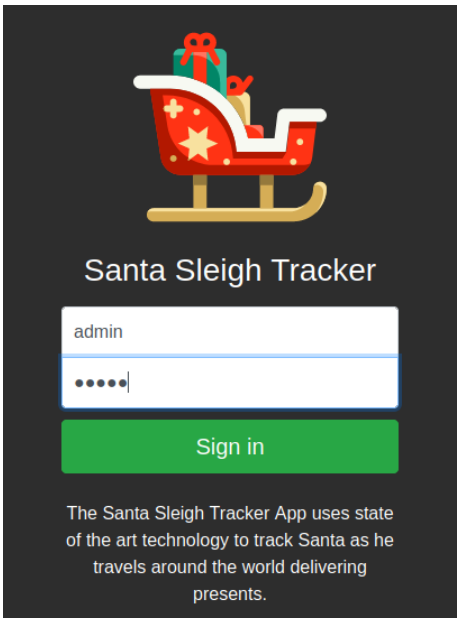
10. Press “Start Attack”, Burpsuite will display a list of combinations used to break into the website.



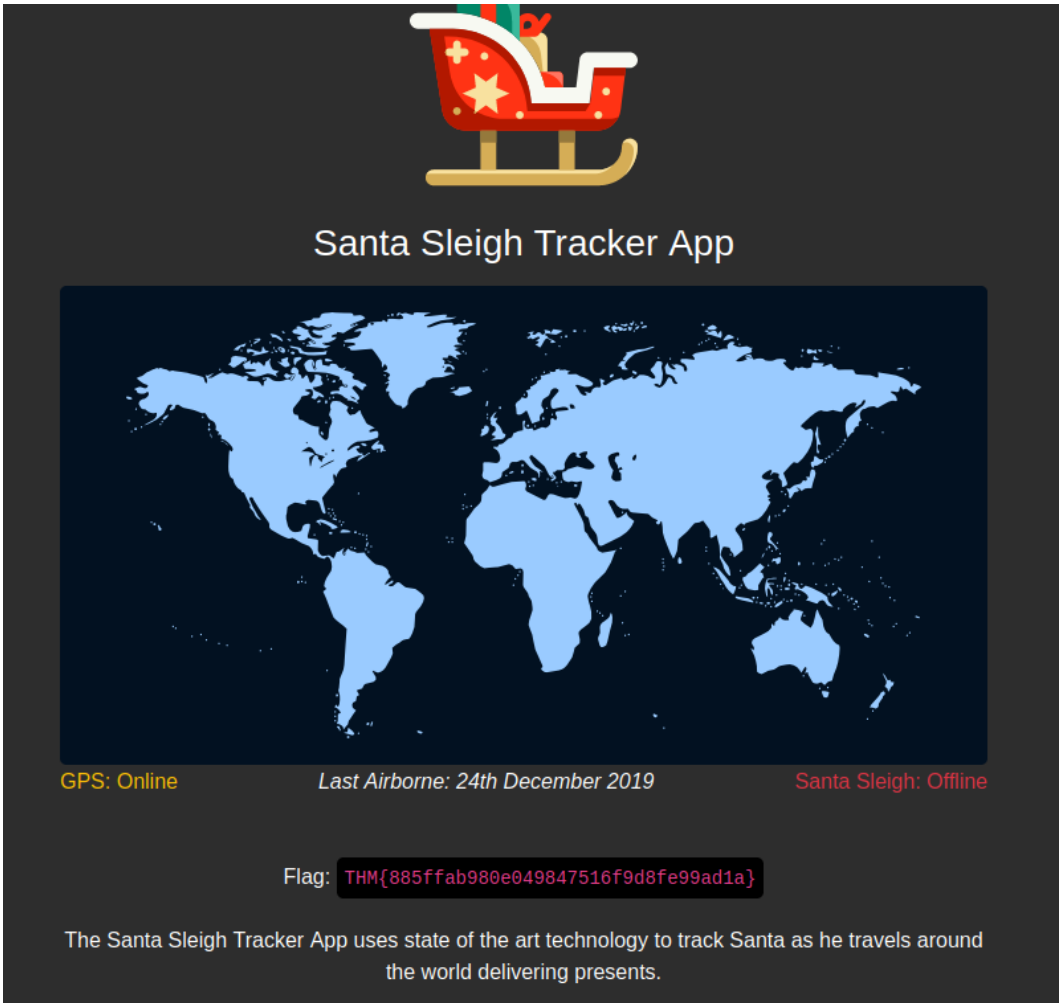
11. After sorting by length, we see that Request 11 has a different length compared to the others. Incorrect logins will have the same status or length inside Burpsuite, since Request 11 has a different length, it is the correct username and password combination.



12. Using the correct combination from Burpsuite (“admin” and “12345”) login to the Santa Sleigh Tracker.



13. The flag is displayed once we are signed in.



Thought Process/Methodology

After activating the machine and going to the specified IP address, we arrive at a login form which requires a username and password. In order to find the correct combination, we will be using Burpsuite to brute force our way to get the correct credentials instead of trial and error which takes up a lot of time. We intercept the login request using Burpsuite so we can input a list of potential credentials for the website. After capturing the request, we send it to the Intruder tab to configure the attack type. First, we set it to a “Cluster bomb” type which iterates through each payload set in turn, so every combination that we input into the program is tested against the website. Secondly, we select the “Payloads” tab to input the potential usernames and passwords. Since the payload type for both sets is a “Simple List”, we simply have to provide a list of usernames and passwords that we think may be correct, and Burpsuite will test it for us. Third, we press “Start Attack” to start the attack, using the usernames and passwords that we inputted just now, Burpsuite will display the list of combinations used to break into the website. Once the attack is finished, it will display a list of combinations used, and after sorting by length, we notice that Request #11 has a different length compared to the rest of the entries. Typically, incorrect logins will have the same status or length as all the others, so the fact that Request 11 is the odd one out must mean that it is the correct one. Using the credentials in that request (username = “admin”, password = “12345”) we log in to the Santa Sleigh Tracker and grab the Tryhackme flag for the question.

Day 4 : Web Explotation - Santa's Watching

Tool Used : Kali Linux, Firefox, Gobuster, wfuzz

Solution/walkthrough:

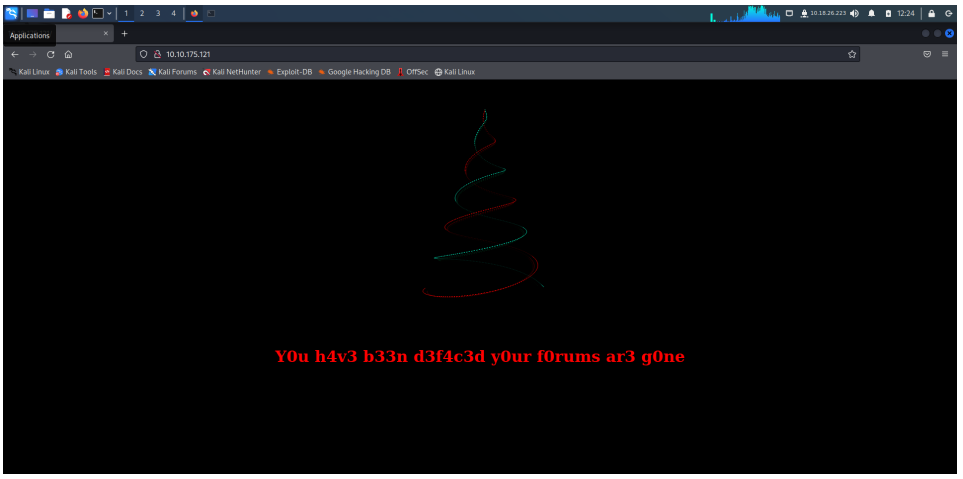
Q: Given the URL "http://shibes.xyz/api.php", what would the entire wfuzz command look like to query the "breed" parameter using the wordlist "big.txt" (assume that "big.txt" is in your current directory)

wfuzz -c -z file,big.txt http://shibes.xyz/api.php?breed=FUZZ

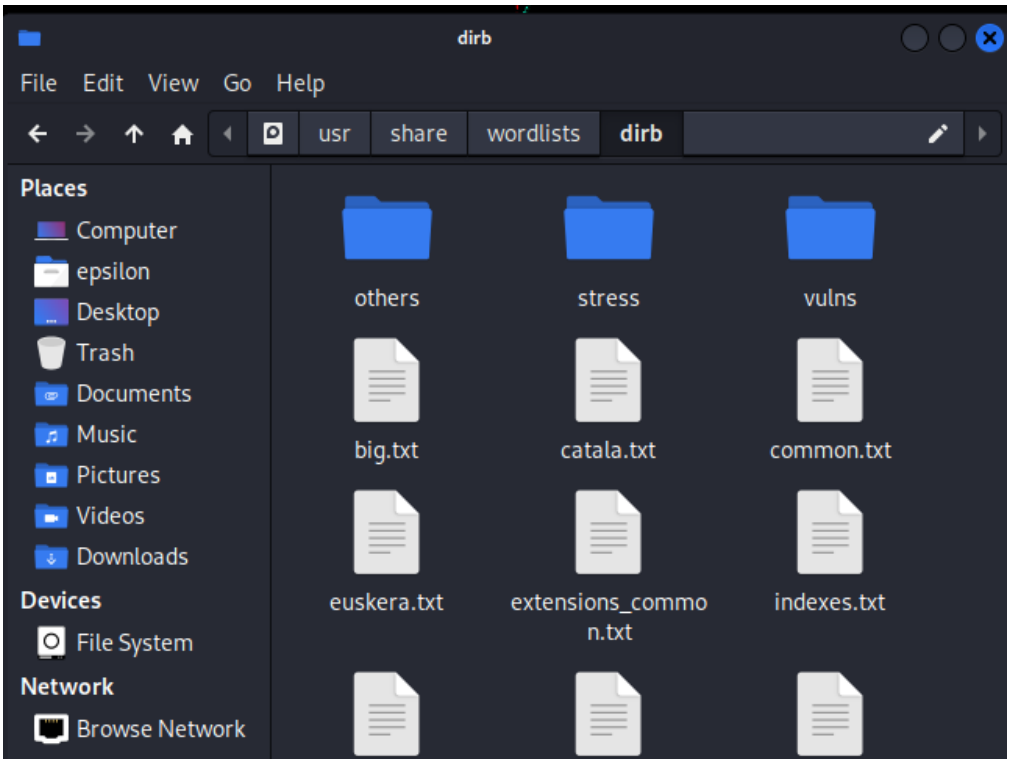
Q: Use GoBuster (against the target you deployed -- not the shibes.xyz domain) to find the API directory. What file is there?

site-log.php

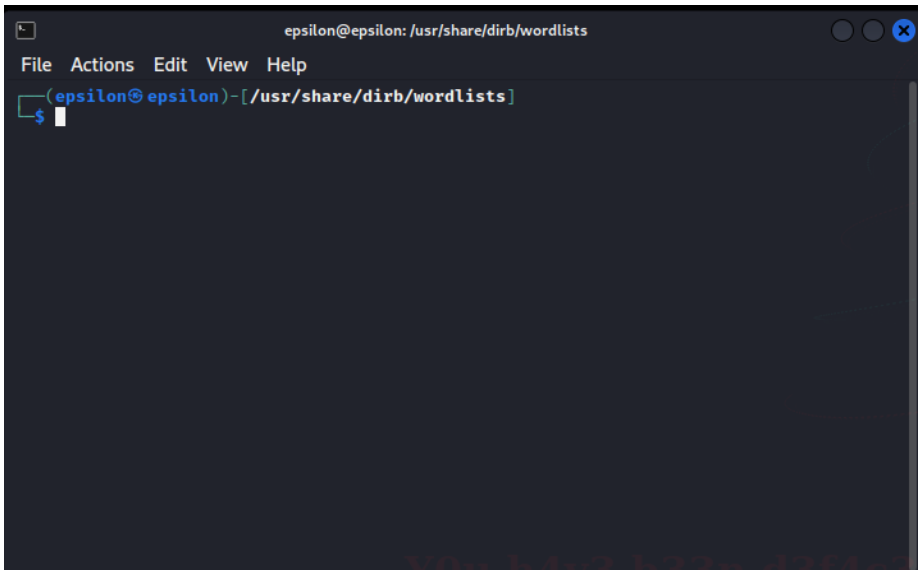
1. Go to the target domain



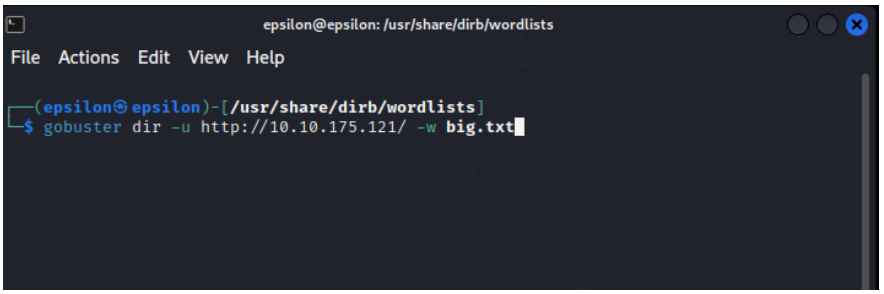
2. Open up your file explorer and open up the /usr/share/wordlists/dirb/ directory and find a file called big.txt



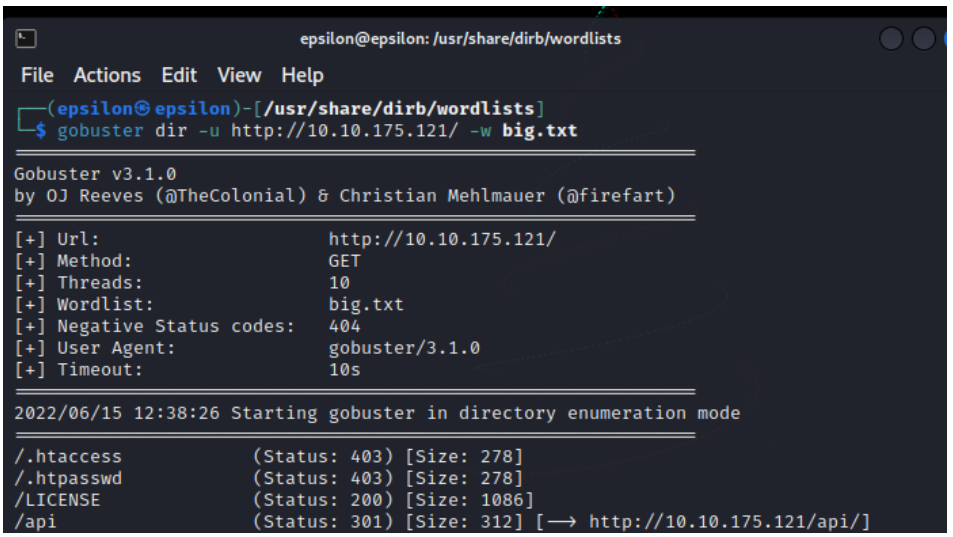
3. Right click on any empty space and select “Open Terminal Here”



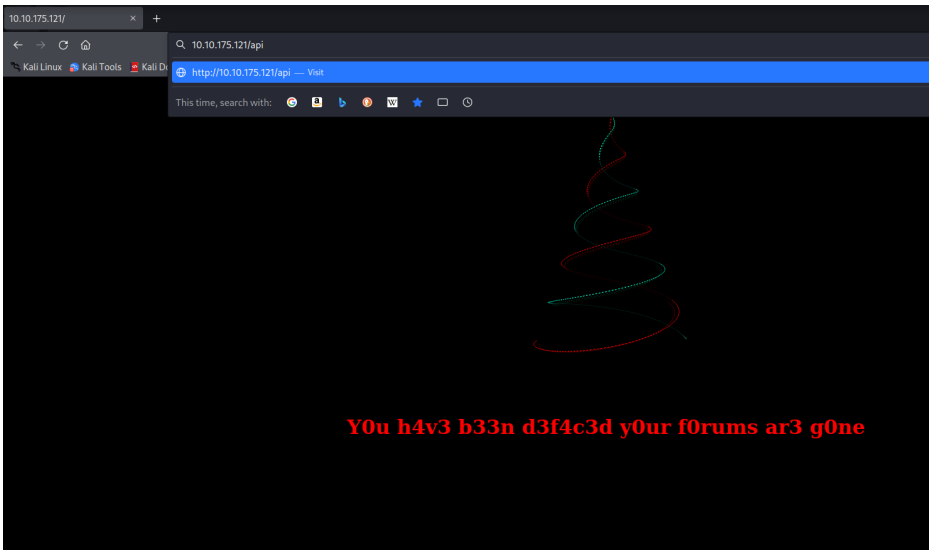
4. Run the command “gobuster dir -u http://10.10.175.121/ -w big.txt”. Replace the url “http://10.10.175.121/” with whatever your target is



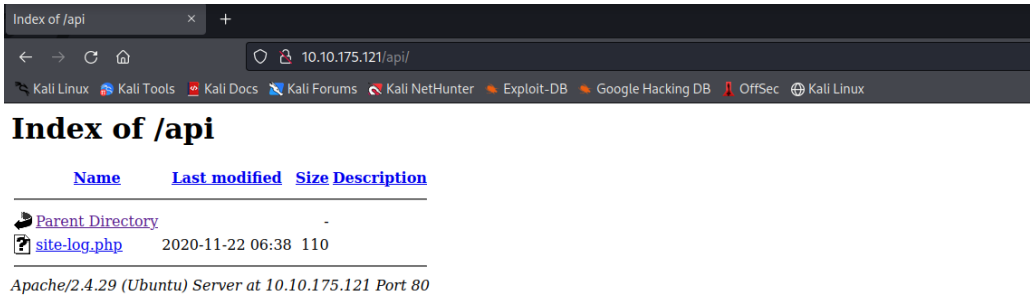
5. You should now see all the directories available to us



6. Go to the /api directory in your browser



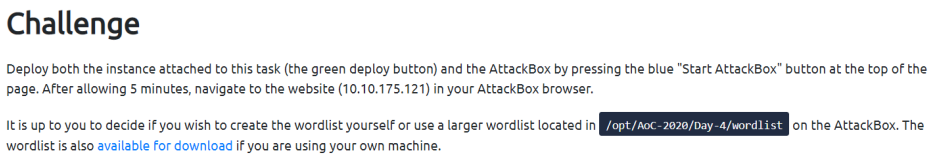
7. You should see a file called site-log.php



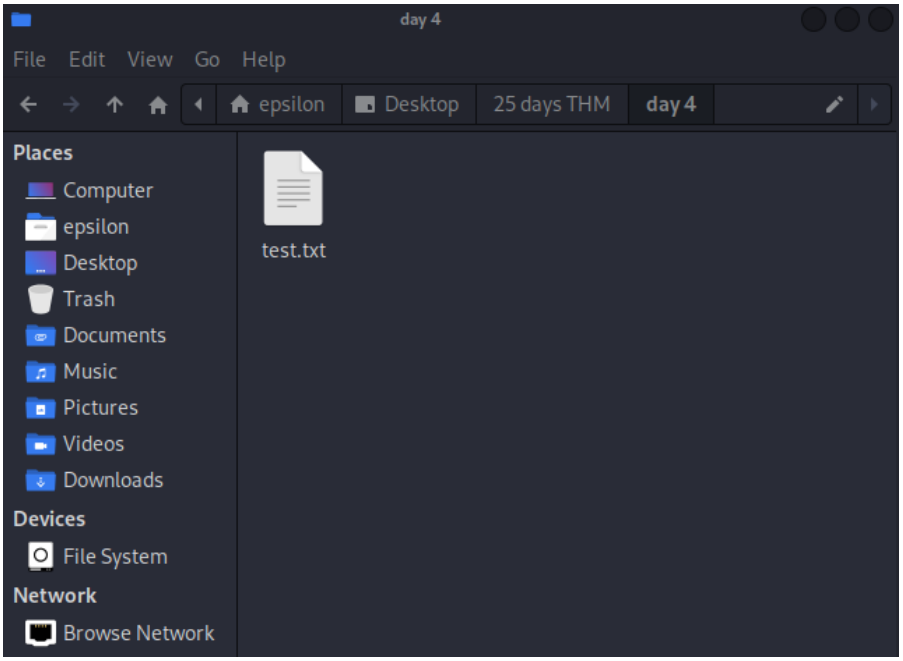
Q: Fuzz the date parameter on the file you found in the API directory. What is the flag displayed in the correct post?

THM{D4t3_AP1}

1. If you are using your own VM, download the file from THM



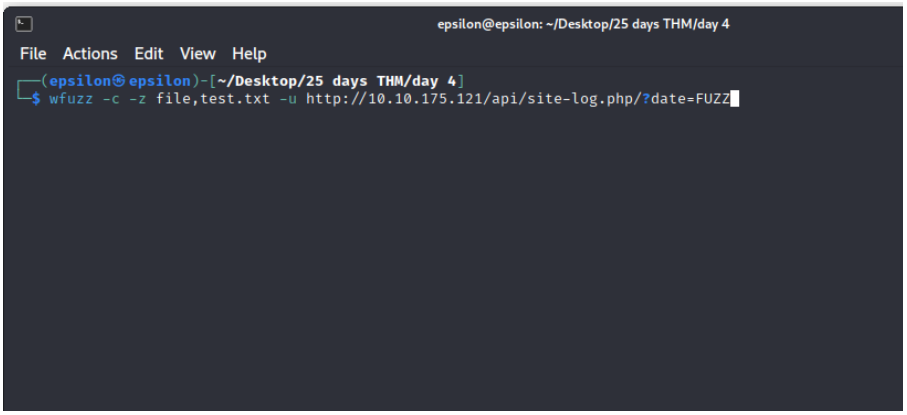
2. Open up the directory where that file is stored



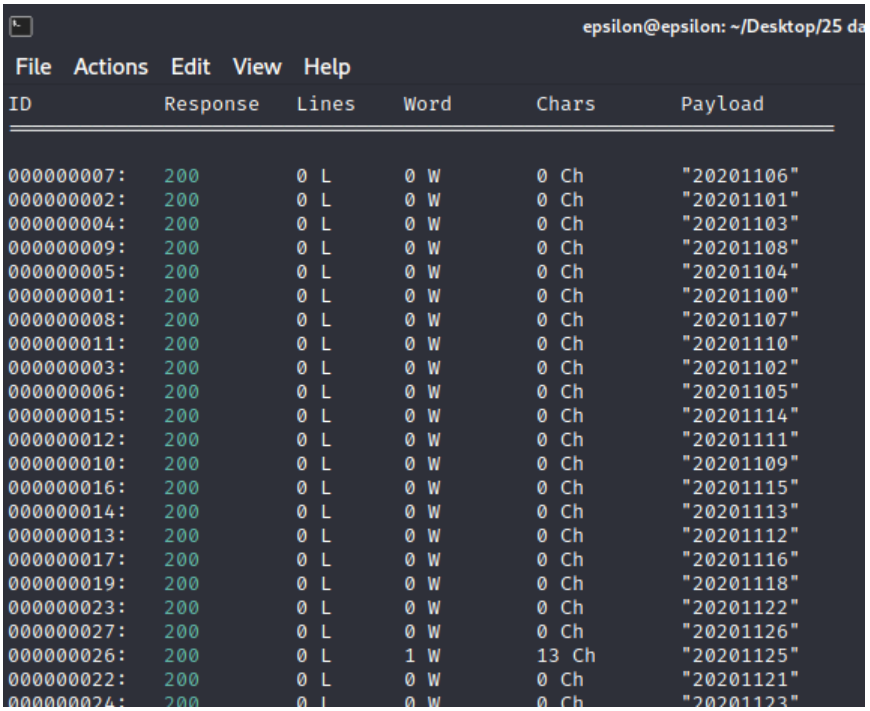
3. Open up your terminal in that directory

4. Enter the command

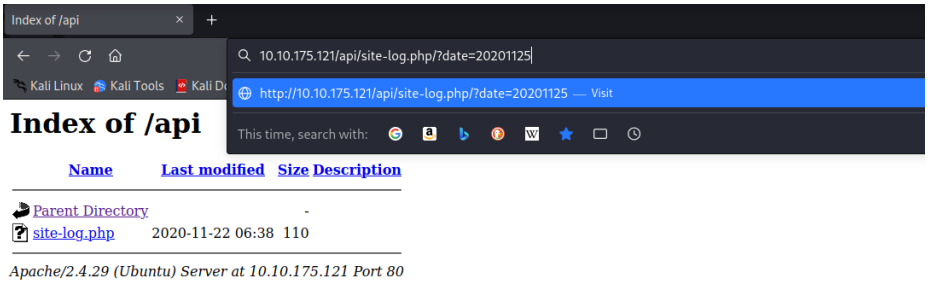
   “wfuzz -c -z file,test.txt -u http://10.10.175.121/api/site-log.php/?date=FUZZ”, replacing the url with your target of choice



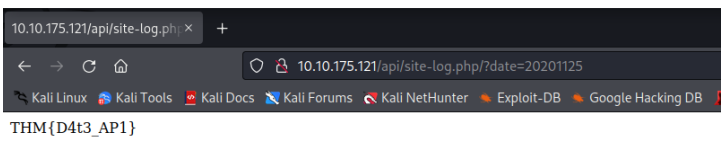
5. From the results produced, you should see one of the payloads having a word with 13 characters



6. Go to your browser and enter the location of where you fuzzed the date parameter and replace “FUZZ” with the desired payload



7. You should see the flag on this page



Thought Process/Methodology

After activating the machine and going to the specified IP address, we just see a static page. Using Gobuster, we iterated through a list of words to see if we can find any hidden directories. After running the program, a hidden directory called /api was found. Going to that directory on the target IP, we found a file called site-log.php. Using wfuzz, we fuzzed that php file with a given list of dates. The payload "20201125" is the only one containing a word longer than 0 characters. We checked the site and entered that payload as a parameter value, and found the flag located there.

Day 5: Web Exploitation – Someone stole Santa's gift list!

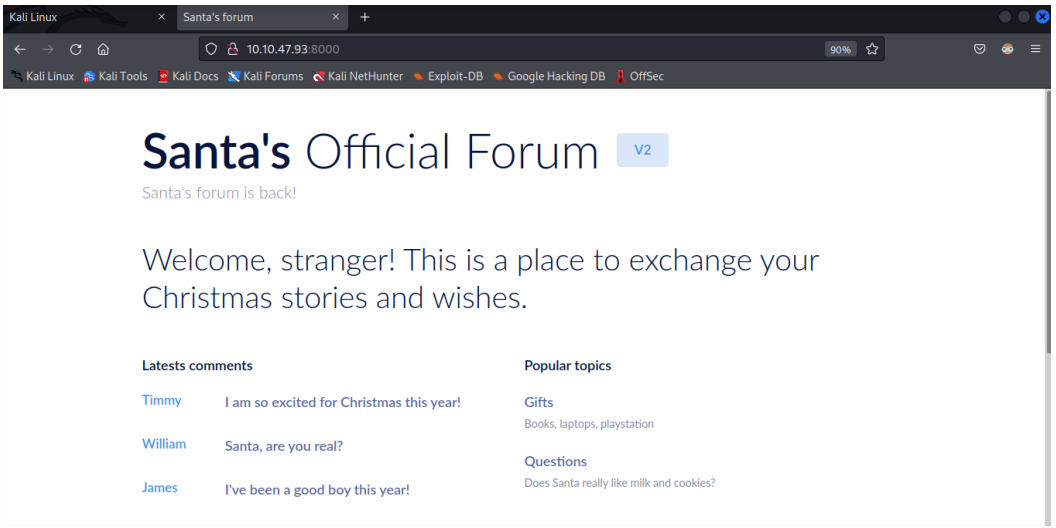
Tools used: Kali Linux, Firefox,Burpsuite,Sqlmap

Solution/walkthrough:

Q: Without using directory brute forcing, what's Santa's secret login panel?

/santapanel

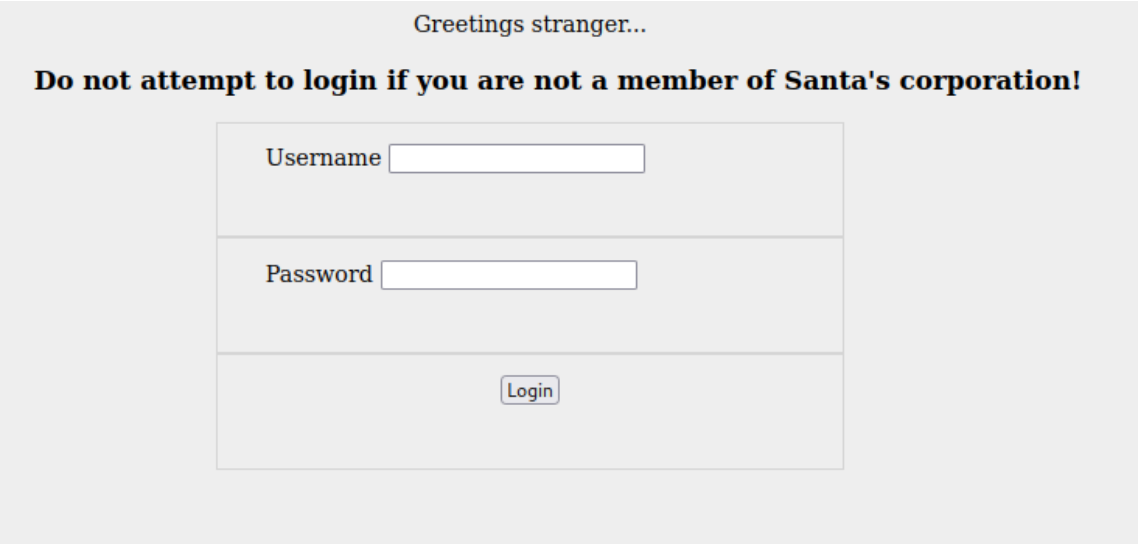
1. We tried figuring out Santa login panel through trial and error



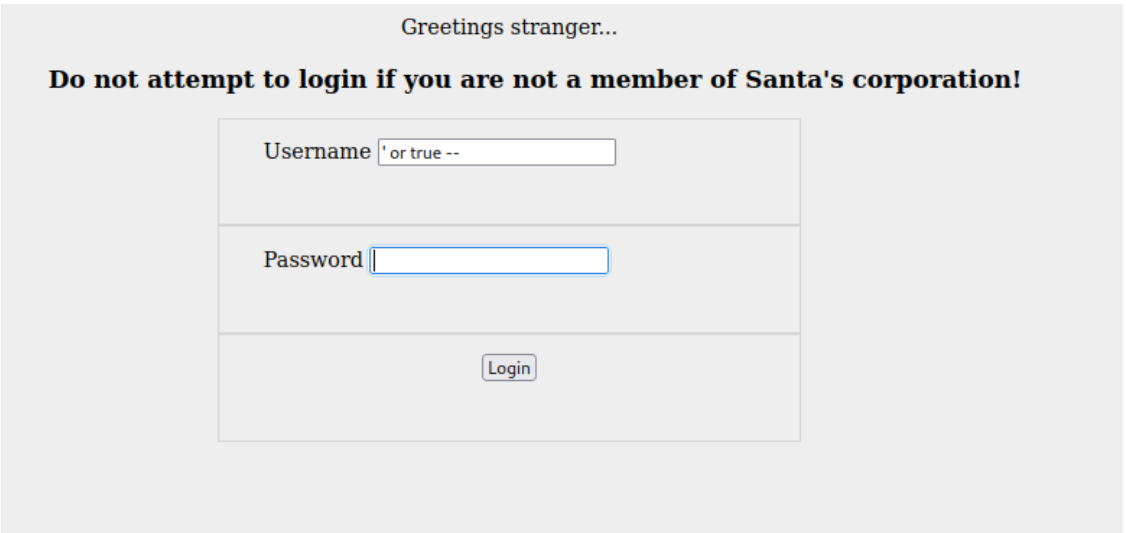
2. By guessing around the url as such 10.10.47.93/login,10.10.47.93/santa we are able to figure out to access url of the login page which is 10.10.47.93/santapanel

Q: Visit Santa's secret login panel and bypass the login using SQLi

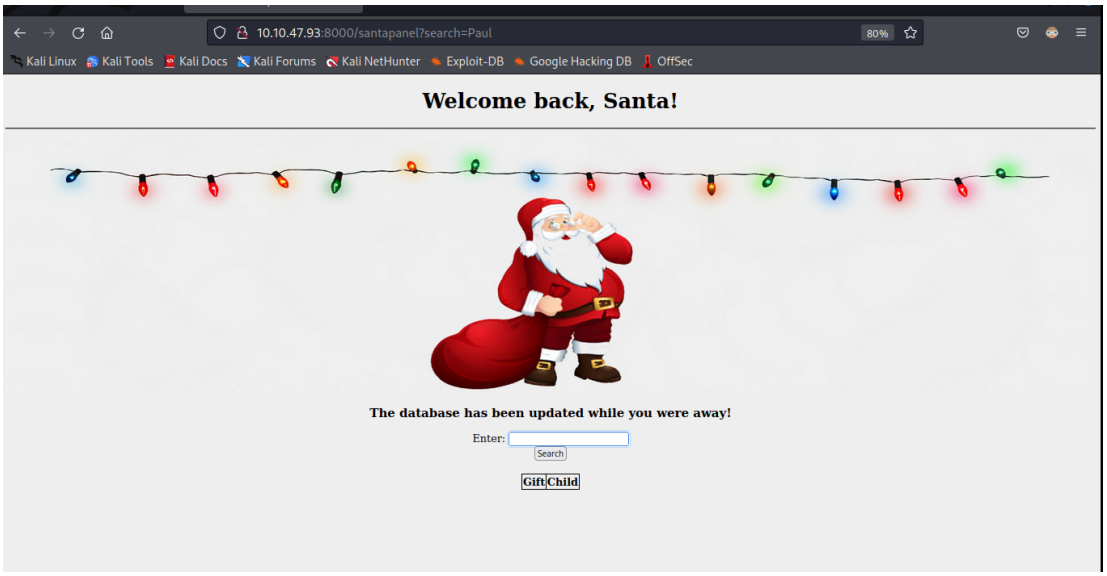
1. After figuring out the login panel we are prompted this



2. To bypass this log in screen we can use SQL injection where we add **'or true --** in the username.By adding the **'or true --** we are able to comment out the password checking part and allow us to log in.



3. After successfully logging in, we are greeted with this page



Q: How many entries are there in the gift database?

22

Q: What did Paul ask for?

GitHub Ownership

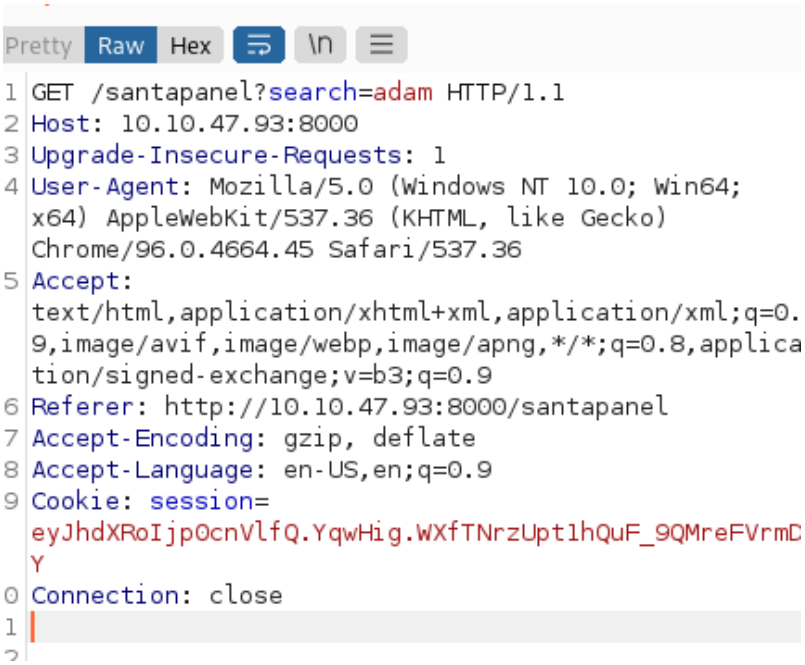
Q: What is the flag?

thmfox{All_I_Want_for_Christmas_Is_You}

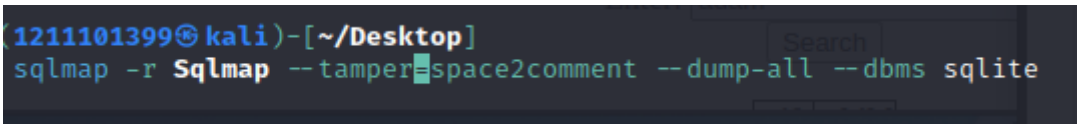
Q: What is admin's password?

EhCNSWzzFP6sc7gB

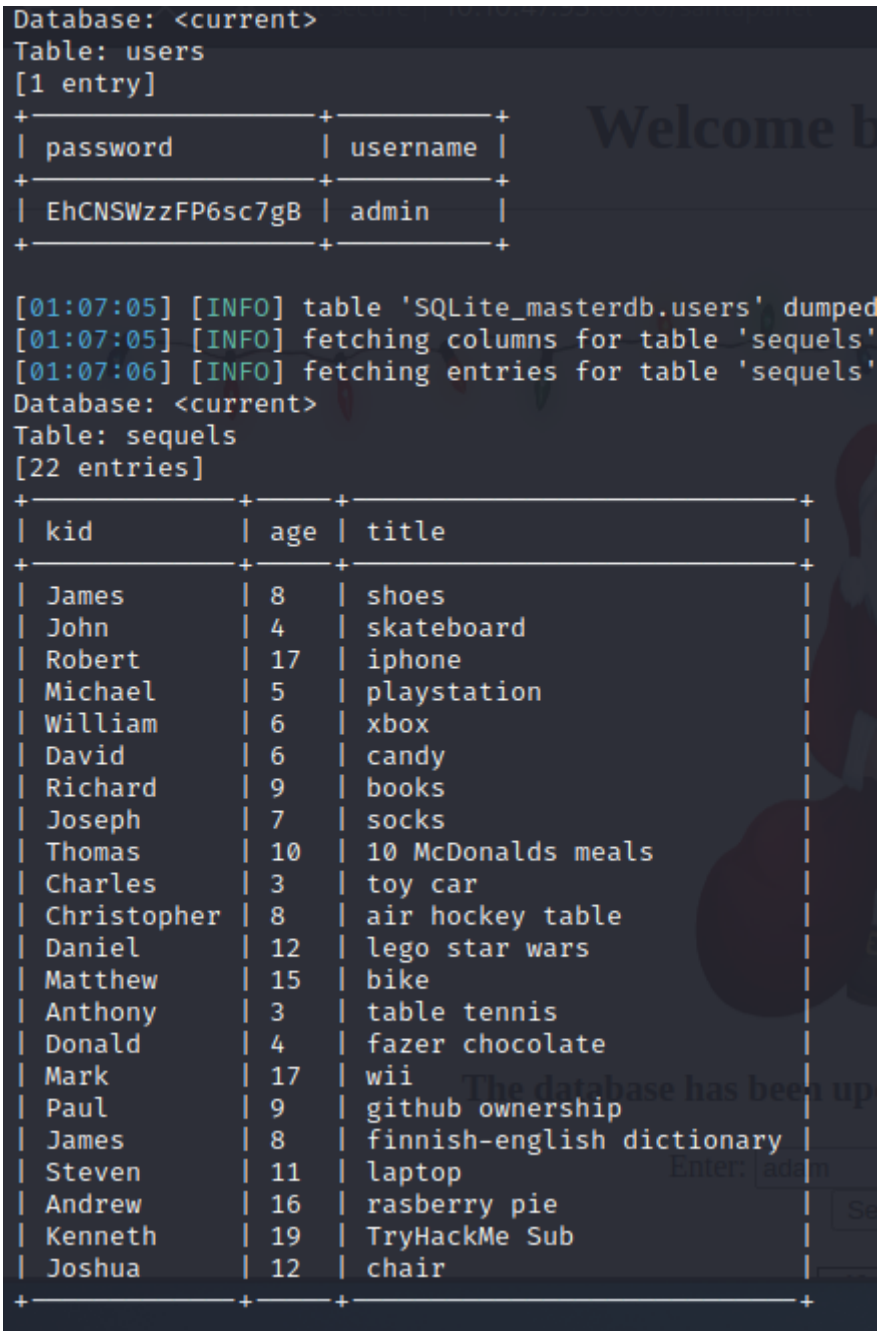
1. We can use BurpSuite and Sqlmap to get the SQL Tables and Values



2. By intercepting the request we received this in burpsuite and proceeded to save this file and send it to Sqlmap



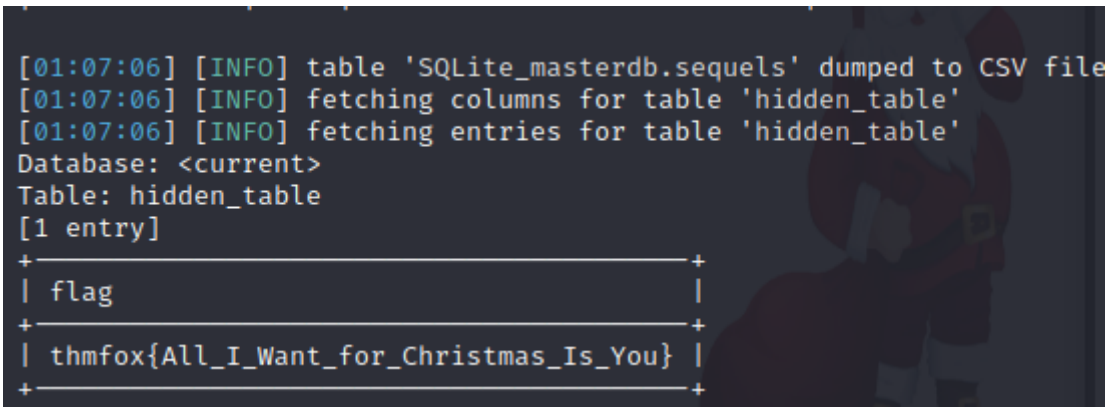
3. After doing the exploitation, sqlmap will prompt us with the gift list, user details, and the flag , which are the answers to the questions above.



```
Database: <current>
Table: users
[1 entry]
+------------------+----------+
| password         | username |
+------------------+----------+
| EhCNSWzzFP6sc7gB | admin    |
+------------------+----------+

[01:07:05] [INFO] table 'SQLite_masterdb.users' dumped
[01:07:05] [INFO] fetching columns for table 'sequels'
[01:07:06] [INFO] fetching entries for table 'sequels'
Database: <current>
Table: sequels
[22 entries]
+-------------+-----+---------------------------------+
| kid         | age | title                           |
+-------------+-----+---------------------------------+
| James       | 8   | shoes                           |
| John        | 4   | skateboard                      |
| Robert      | 17  | iphone                          |
| Michael     | 5   | playstation                     |
| William     | 6   | xbox                            |
| David       | 6   | candy                           |
| Richard     | 9   | books                           |
| Joseph      | 7   | socks                           |
| Thomas      | 10  | 10 McDonalds meals              |
| Charles     | 3   | toy car                         |
| Christopher | 8   | air hockey table                |
| Daniel      | 12  | lego star wars                  |
| Matthew     | 15  | bike                            |
| Anthony     | 3   | table tennis                    |
| Donald      | 4   | fazer chocolate                 |
| Mark        | 17  | wii                             |
| Paul        | 9   | github ownership                |
| James       | 8   | finnish-english dictionary      |
| Steven      | 11  | laptop                          |
| Andrew      | 16  | rasberry pie                    |
| Kenneth     | 19  | TryHackMe Sub                   |
| Joshua      | 12  | chair                           |
+-------------+-----+---------------------------------+
```

4. The flag can be found inside one of the tables in the database



Thought Process/Methodology:

Having gained access to the target machine, we were shown a gift list and by guessing around the url we are able to get access to the login page. By using SQL injection we are able to bypass the password checking mechanisms and log us in. Once logged in we are able to find the data by using burpsuite to intercept the request and send it to Sqlmap. Sqlmap was able to exploit the database and send us all the gift list as well as all other relevant information.