CyberSec Recruitment Tasks – Week 2 Release

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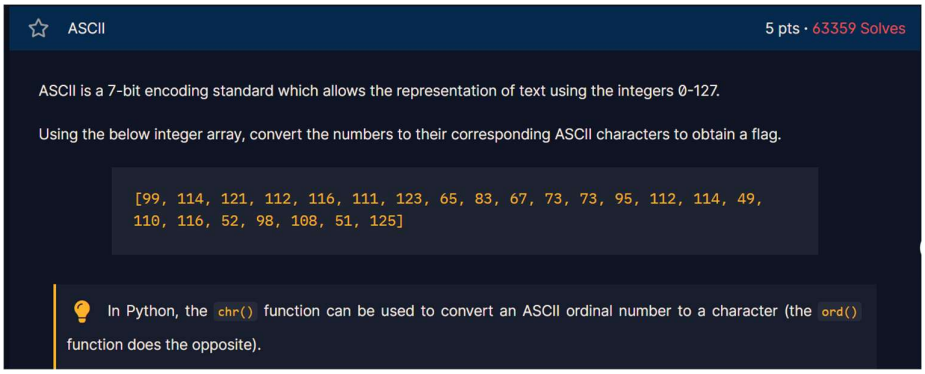
3. CryptoHack – General Category

- ENCODING :-

A.

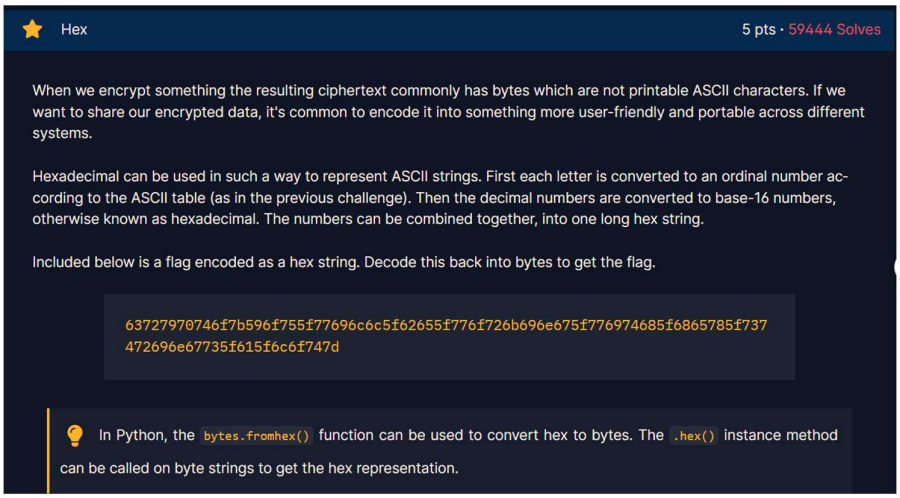


Solution :-

```
ascii_codes = [99, 114, 121, 112, 116, 111, 123, 65, 83, 67, 73, 73, 95, 112, 114, 49, 110, 116, 52, 98, 108, 51, 125

flag = ""
for num in ascii_codes:
    flag += chr(num)
print(flag)
```

Here I created a empty string flag . Then converted ascii to letters in FOR loop using chr() function. The FLAG is **crypto{ASCII_pr1nt4bl3}**

B.

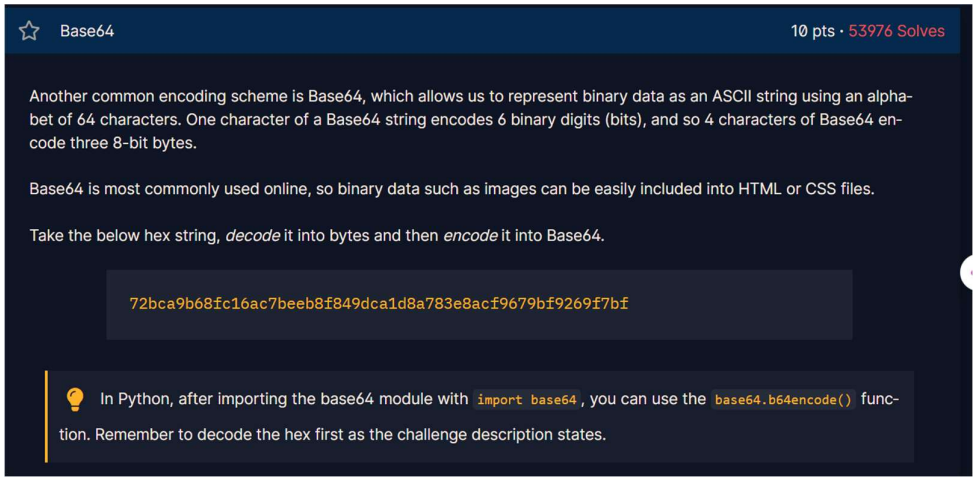


Solution :-

```
hex = "63727970746f7b596f755f77696c6c5f62655f776f726b696e675f776974685f6865785f737472696e67735f615f6c6f747d"

flag = bytes.fromhex(hex)
print(flag)
```

Here the function bytes.fromhex() is used to convert hex bytes to readable format. The Flag obtained is **crypto{You_will_be_working_with_hex_strings_a_lot}**

C.



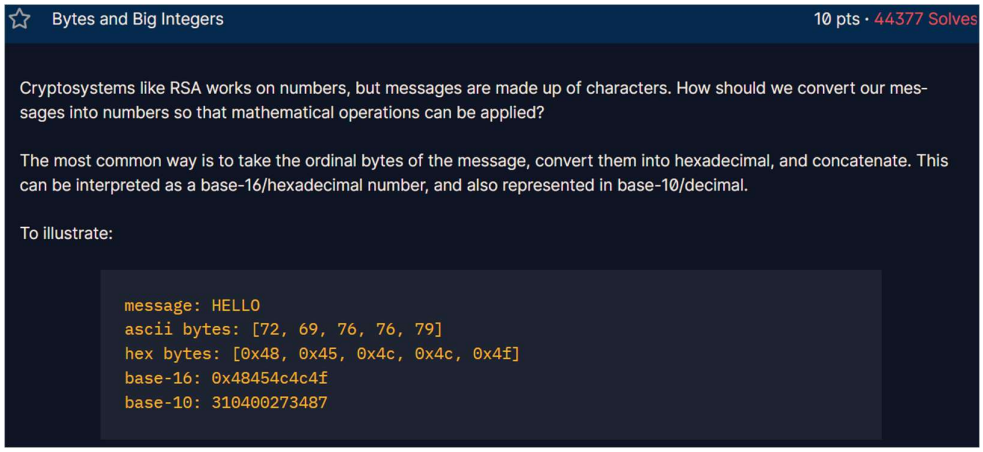
Solution :-

```
hex = "72bca9b68fc16ac7beeb8f849dca1d8a783e8acf9679bf9269f7bf"

byte_string = bytes.fromhex(hex)
print(byte_string)
```

```
byte = "r\xbc\xa9\xb6\x8f\xc1j\xc7\xbe\xeb\x8f\x84\x9d\xca\x1d\x8ax>\x8a\xcf\x96y\xbf\x92i\xf7\xbf"

flag  = base64.b64encode(byte)
print(flag)
```

Here first I converted hex to bytes using bytes.fromhex() function, i obtained **“r\xbc\xa9\xb6\x8f\xc1j\xc7\xbe\xeb\x8f\x84\x9d\xca\x1d\x8ax>\x8a\xcf\x96y\xbf\x92i\xf7\xbf"**
Then converted this bytes to base64 using base64.b64encode() function.Flag obtained is **crypto/Base+64+Encoding+is+Web+Safe/**

D.

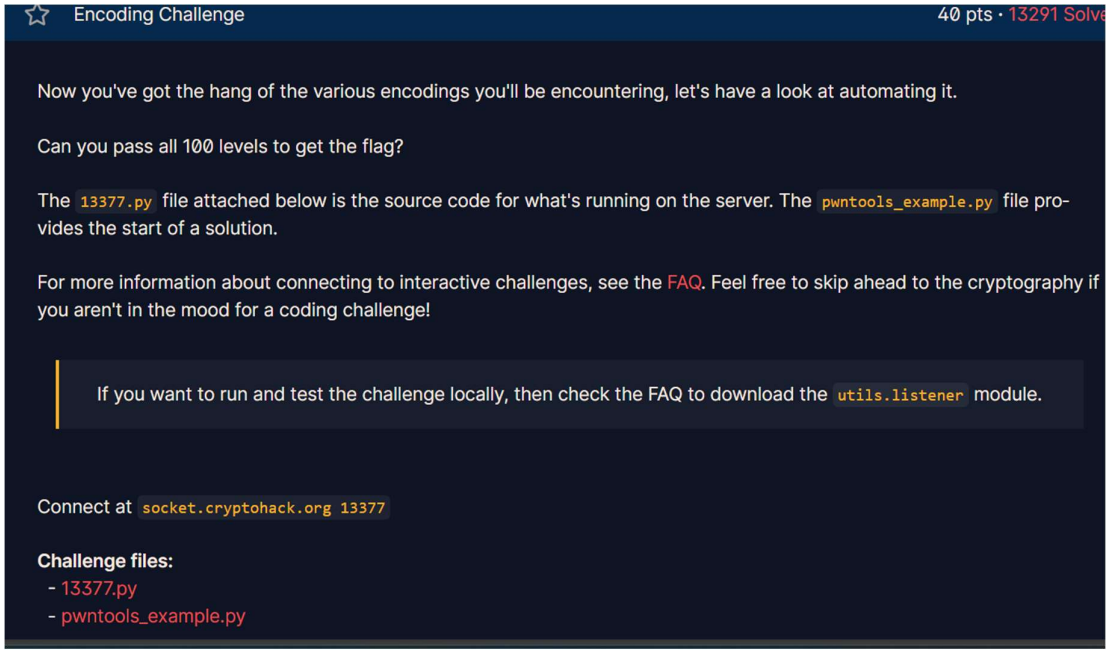


Solution :-

```
from Crypto.Util.number import long_to_bytes
a = 11515195063862318899931685488813747395775516287289682636499965282714637259206269
flag = long_to_bytes(a)
print(flag)
```

The flag obtained is **crypto{3nc0d1n6_4ll_7h3_w4y_d0wn}**

E.



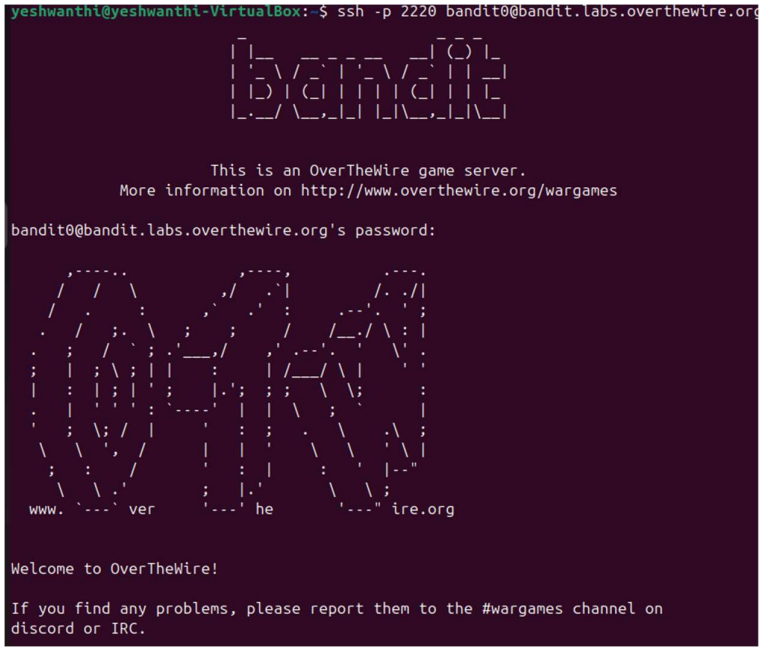
Solution:-

```python
from pwn import *  # pip install pwntools
import json
import base64
import codecs
from Crypto.Util.number import long_to_bytes
# Connect to the CryptoHack challenge server
r = remote('socket.cryptohack.org', 13377, level='debug')
# Receive JSON from server
def json_recv():
    line = r.recvline()
    return json.loads(line.decode())
# Send JSON to server
def json_send(hsh):
    request = json.dumps(hsh).encode()
    r.sendline(request)
# Decode based on encoding type
def decode(enc_type, value):
    if enc_type == "base64":
        return base64.b64decode(value).decode()
    elif enc_type == "hex":
        return bytes.fromhex(value).decode()
    elif enc_type == "rot13":
        return codecs.decode(value, 'rot_13')
    elif enc_type == "bigint":
        return long_to_bytes(int(value, 16)).decode()
    elif enc_type == "utf-8":
        return ''.join([chr(c) for c in value])
    else:
        return "unknown"
# Main loop: solve 100 levels
for _ in range(101):
    received = json_recv()

    # If flag is received
    if "flag" in received:
        print("\n FLAG:", received["flag"])
        break
    print("\n Received:")
    print("Type:", received["type"])
    print("Encoded:", received["encoded"])
    decoded = decode(received["type"], received["encoded"])
    print("Decoded:", decoded)
    to_send = {
        "decoded": decoded
    }
    json_send(to_send)
```

I saved the above code in a file named encode.py then runned the command **python encode.py** then obtained the flag **crypto{3nc0d3_d3c0d3_3nc0d3}.**

OVER THE WIRE -BANDIT

LEVEL -0



LEVEL 0 – 1

```
bandit0@bandit:~$ ls
readme
bandit0@bandit:~$ cat readme
Congratulations on your first steps into the bandit game!!
Please make sure you have read the rules at https://overthewire.org/rules/
If you are following a course, workshop, walkthrough or other educational activity,
please inform the instructor about the rules as well and encourage them to
contribute to the OverTheWire community so we can keep these games free!

The password you are looking for is: ZjLjTmM6FvvyRnrb2rfNWOZOTa6ip5If
```

```
bandit0@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit1@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit1@bandit.labs.overthewire.org's password:

      ,-----.           ,----,          .----.
     /   /   \         ,/   .`|         /. ./|
    /   .     :      ,`    .'  :     .--'.  ' ;
   .   /   ;.  \   ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.  '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'  |  |  \   ;  `      |
  '   ;  \; /  |      '   :  ;   .   \    .\  ;
   \   \  ',  /       |   |  '    \   \   ' \ |
    ;   :    /        '   :  |     :    '  |--"
     \   \ .'          ;   |.'       \   \ ;
  www. `---` ver      '---' he        '---" ire.org


Welcome to OverTheWire!
```

LEVEL 1-2

```
bandit1@bandit:~$ cat <-
263JGJPfgU6LtdEvgfWU1XP5yac29mFx
```

```
bandit1@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit2@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit2@bandit.labs.overthewire.org's password:

      ,-----.           ,----,          .----.
     /   /   \         ,/   .`|         /. ./|
    /   .     :      ,`    .'  :     .--'.  ' ;
   .   /   ;.  \   ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.  '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'  |  |  \   ;  `      |
  '   ;  \; /  |      '   :  ;   .   \    .\  ;
   \   \  ',  /       |   |  '    \   \   ' \ |
    ;   :    /        '   :  |     :    '  |--"
     \   \ .'          ;   |.'       \   \ ;
  www. `---` ver      '---' he        '---" ire.org


Welcome to OverTheWire!
```

LEVEL 2 -3

```
bandit2@bandit:~$ cat "spaces in this filename"
MNk8KNH3Usiio41PRUEoDFPqfxLPlSmx
```

```
bandit2@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit3@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit3@bandit.labs.overthewire.org's password:

      ,-----..           ,----,         .---.
     /   /   \        ,/   .`|        /. ./|
    /   .     :     ,`   .'  :     .--'.  ' ;
   .   /   ;.  \   ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.   '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'  |  |  \   ;  `      |
  '   ;  \; /  |      '   : ;   .   \    .\  ;
   \   \  ',  /       |   | '    \   \   ' \ |
    ;   :    /        '   : |     :   '  |--"
     \   \ .'          ;   |.'       \   \ ;
  www. `---` ver      '---' he        '---" ire.org


Welcome to OverTheWire!
```

LEVEL 3 -4

```
bandit3@bandit:~/inhere$ ls -a
.  ..  ...Hiding-From-You
bandit3@bandit:~/inhere$ cat ...Hiding-From-You
2WmrDFRmJIq3IPxneAaMGhap0pFhF3NJ
```

```
bandit3@bandit:~/inhere$ exit
logout
Connection to bandit.labs.overthewire.org closed.
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit4@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit4@bandit.labs.overthewire.org's password:

      ,-----..           ,----,         .---.
     /   /   \        ,/   .`|        /. ./|
    /   .     :     ,`   .'  :     .--'.  ' ;
   .   /   ;.  \   ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.   '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'  |  |  \   ;  `      |
  '   ;  \; /  |      '   : ;   .   \    .\  ;
   \   \  ',  /       |   | '    \   \   ' \ |
    ;   :    /        '   : |     :   '  |--"
     \   \ .'          ;   |.'       \   \ ;
  www. `---` ver      '---' he        '---" ire.org


Welcome to OverTheWire!
```

LEVEL 4 -5

```
bandit4@bandit:~$ ls
inhere
bandit4@bandit:~$ cd inhere
bandit4@bandit:~/inhere$ ls -R
.:
-file00  -file01  -file02  -file03  -file04  -file05  -file06  -file07  -file08  -file09
bandit4@bandit:~/inhere$ cat <-file00
ĥOT⊕⊕⊕S ⊕plS]-EH⊕t⊕:-⊕Z⊕
                        bandit4@bandit:~/inhere$ cat <-file01
N$⊕⊕⊕'⊕⊕⊕Se⊕⊕
             \⊕- V⊕P⊕jls⊕⊕⊕⊕⊕bandit4@bandit:~/inhere$ cat <-file02

o5e⊕Mz9⊕#P⊕ws⊕⊕⊕⊕⊕⊕Oh||xt⊕⊕bandit4@bandit:~/inhere$ cat <-file03
6|,⊕⊕V⊐⊕⊕q ⊕⊕*rMX^';b\⊕bandit4@bandit:~/inhere$ cat <-file04

x⊕⊕⊕⊕]C⊕
        ⊕H`⊕/⊕X⊕⊕⊕OGLVbandit4@bandit:~/inhere$ cat <-file05
⊕⊕*⊕⊕-o⊕⊕w9⊕P⊕RAz⊕b⊕⊕⊕[⊕⊕F⊕bandit4@bandit:~/inhere$ cat <-file06
⊕⊕_⊕⊕+J⊕⊕2X1⊕M⊕O⊕g⊕⊕Y⊕⊕⊕⊕d⊕Ŧjbandit4@bandit:~/inhere$ cat <-file07
4oQYVPkxZOOEOO5pTW81FB8j8lxXGUQw
```

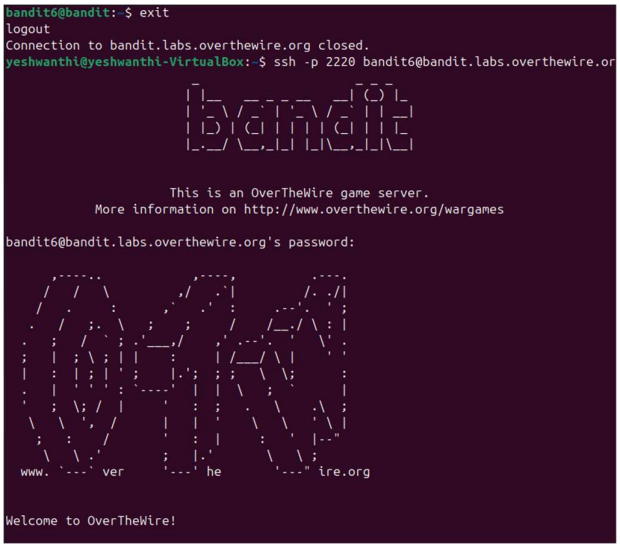
Found the password in file07

```
bandit4@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit5@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit5@bandit.labs.overthewire.org's password:

      ,----..            ,----,          .----.
     /   /   \         ,/   .`|         /. ./|
    /   .     :       ,`   .'  :     .--'.  ' ;
   .   /   ;.  \    ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.  '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'  |  |  \   ;  `      |
  '   ;  \; /  |      '   :  ;   .   \    .\  ;
   \   \  ',  /       |   |  '    \   \   ' \ |
    ;   :    /        '   :  |     :    '  |--"
     \   \ .'          ;   |.'       \   \ ;
  www. `---` ver      '---' he        '---" ire.org


Welcome to OverTheWire!
```

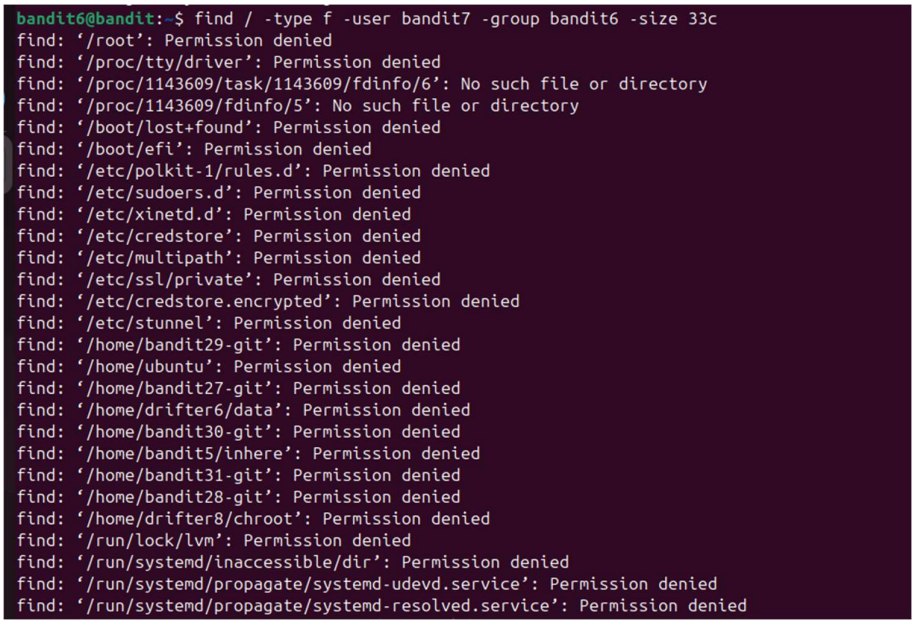
LEVEL 5 – 6

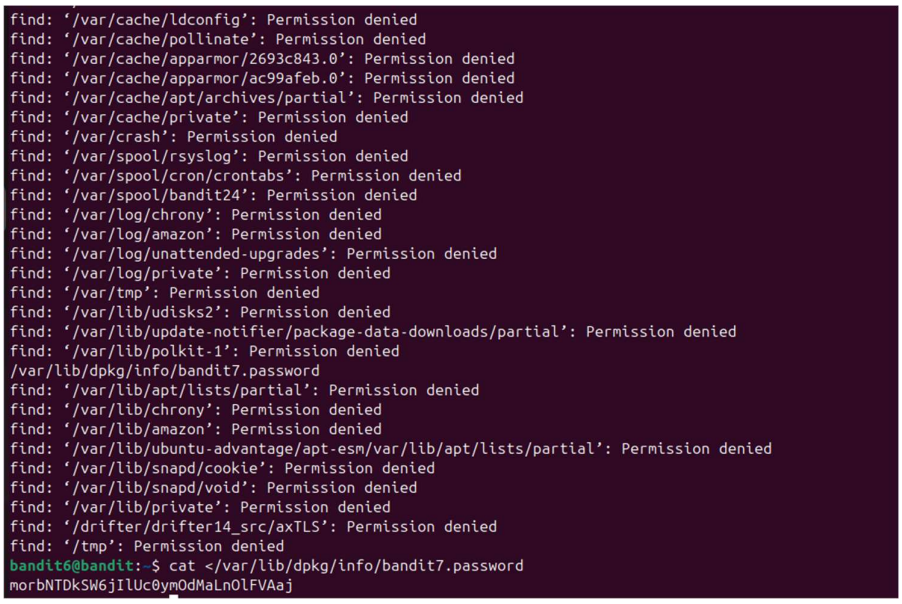
```
bandit5@bandit:~$ cd inhere
bandit5@bandit:~/inhere$ ls
maybehere00  maybehere03  maybehere06  maybehere09  maybehere12  maybehere15  maybehere18
maybehere01  maybehere04  maybehere07  maybehere10  maybehere13  maybehere16  maybehere19
maybehere02  maybehere05  maybehere08  maybehere11  maybehere14  maybehere17
```

```
bandit5@bandit:~$ cd inhere
bandit5@bandit:~/inhere$ find -type f -size 1033c
./maybehere07/.file2
bandit5@bandit:~/inhere$ cat ./maybehere07/.file2
HWasnPhtq9AVKe0dmk45nxy20cvUa6EG
```

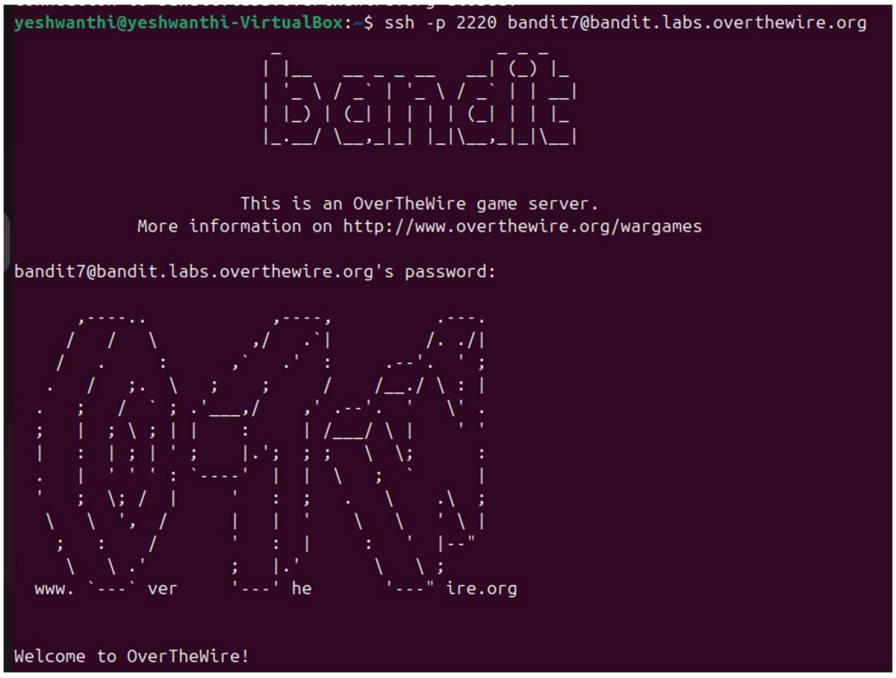


LEVEL 6 -7



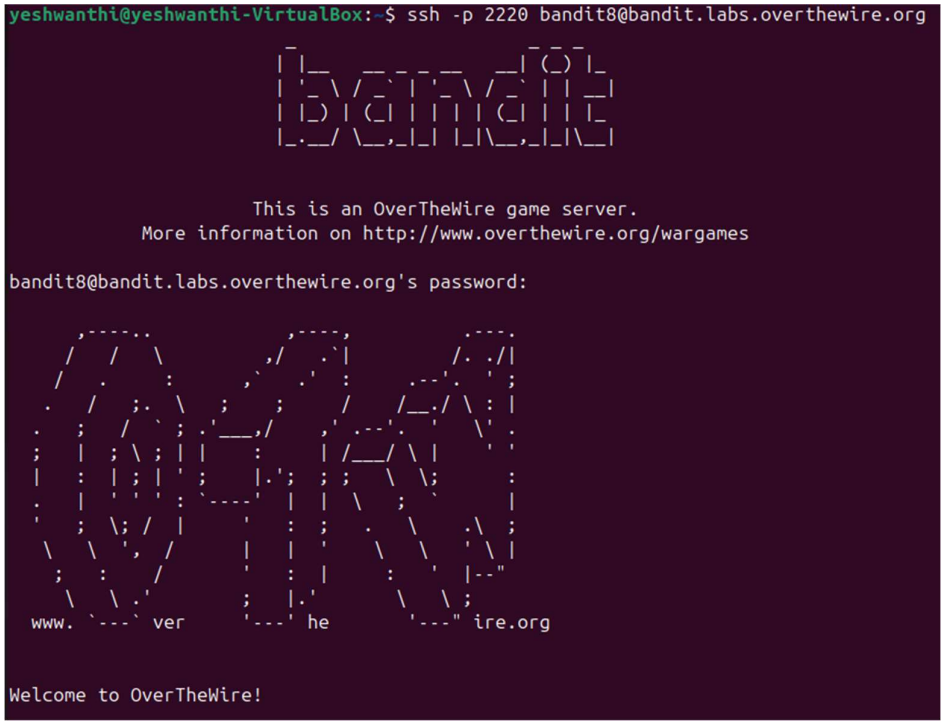


Found the password in /var/lib/dpkg/info/bandit7.password.


yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit7@bandit.labs.overthewire.org
This is an OverTheWire game server.
More information on http://www.overthewire.org/wargames
bandit7@bandit.labs.overthewire.org's password:
Welcome to OverTheWire!

LEVEL 7 – 8


bandit7@bandit:~$ ls
data.txt
bandit7@bandit:~$ cat data.txt | grep millionth
millionth dfwvzFQi4mU0wfNbFOe9RoWskMLg7eEc


yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit8@bandit.labs.overthewire.org
This is an OverTheWire game server.
More information on http://www.overthewire.org/wargames
bandit8@bandit.labs.overthewire.org's password:
Welcome to OverTheWire!

LEVEL 8 – 9

```
bandit8@bandit:~$ sort data.txt | uniq -u
4CKMh1JI91bUIZZPXDqGanal4xvAg0JM
```

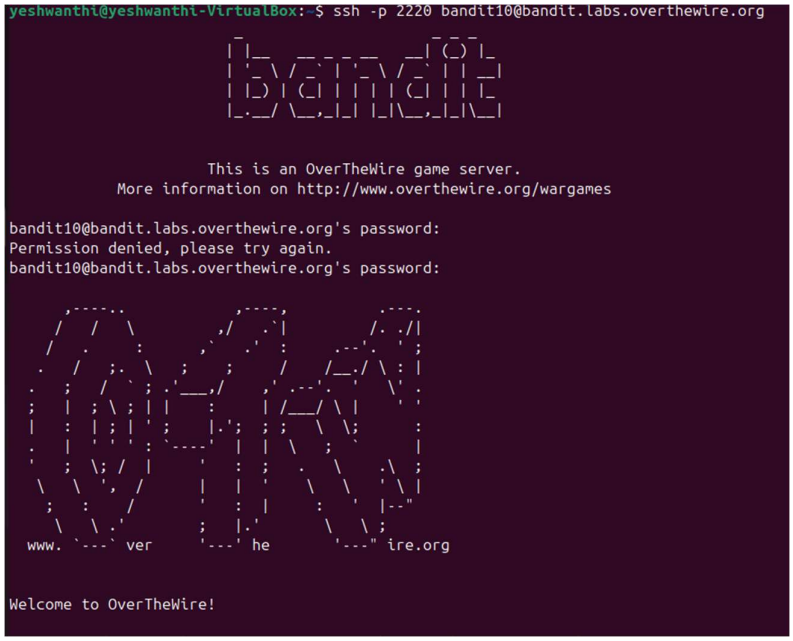
```
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit9@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit9@bandit.labs.overthewire.org's password:

      ,------.           ,----,          .----.
     /   /   \        ,/   .`|         /. ./|
    /   .     :      ,`   .'  :     .--'.  ' ;
   .   /   ;.  \   ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.   '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'  |  |  \   ;  `      |
  '   ;  \; /  |      '   :  ;   .   \    .\  ;
   \   \  ',  /       |   |  '    \   \   ' \ |
    ;   :    /        '   :  |     :   '  |--"
     \   \ .'         ;   |.'       \   \ ;
  www. `---` ver      '---' he       '---" ire.org


Welcome to OverTheWire!
```

LEVEL 9 – 10

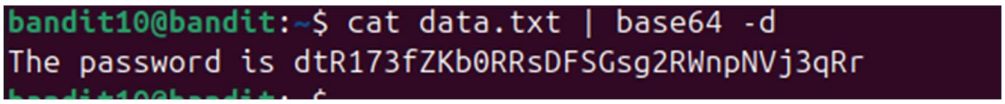
```
bandit9@bandit:~$ strings data.txt
l0@P(
,k=?
tIsrQ
k`Dl5
X7;9
wR73I
@k*=
"1"f
yCP
qxQ>+O
]t|C
Kam9
~V./
ORfZ
Tvw1
```

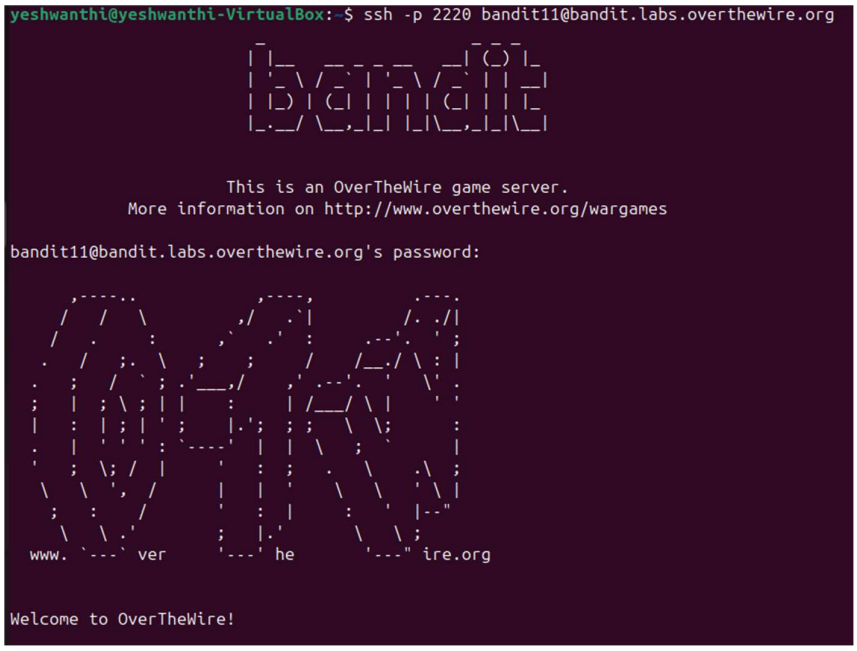
.....

```
`>+_F
j`VcX
2#U?
V/3(o
=3?lOt
bD/@
2wNXK|
========== FGUW5ilLVJrxX9kMYMmlN4MgbpfMiqey
v3A|
"y~
#kT\
=D!f
gD6YbTJ
2a18
fKes
8xXZX
frw\
2*Fx
`9ZD
S*7w
h04W]
hKQ\
```

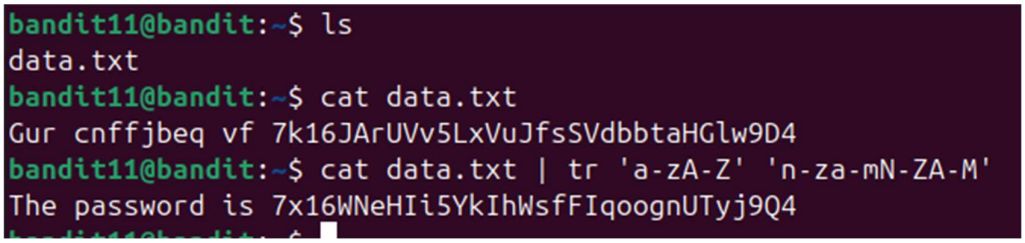


LEVEL 10 -11

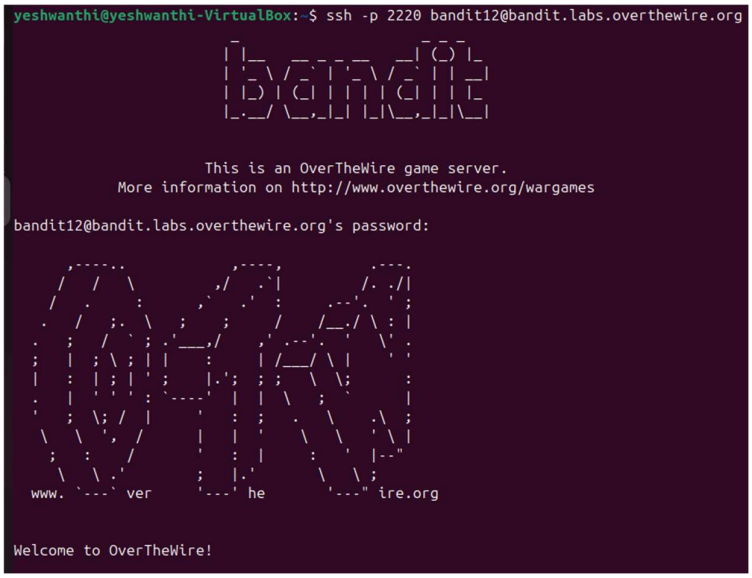




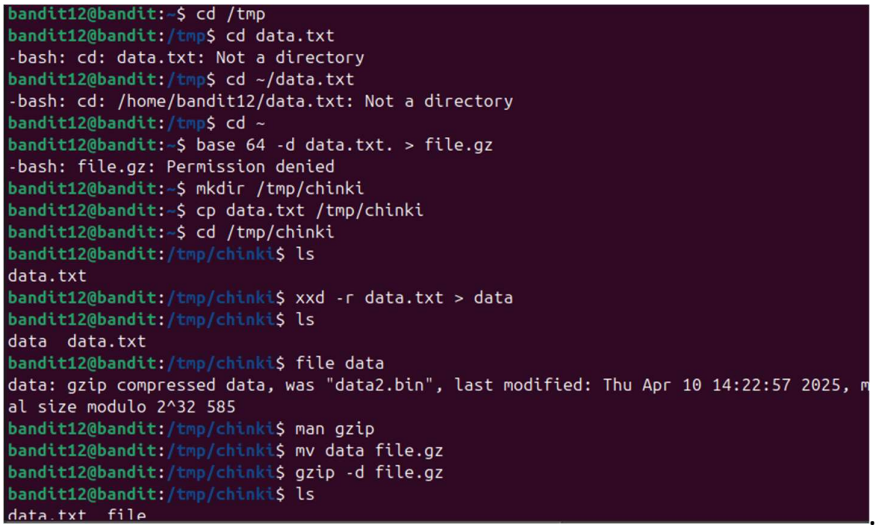
LEVEL 11 – 12



Here tr is used to rotate 13 encode/decode

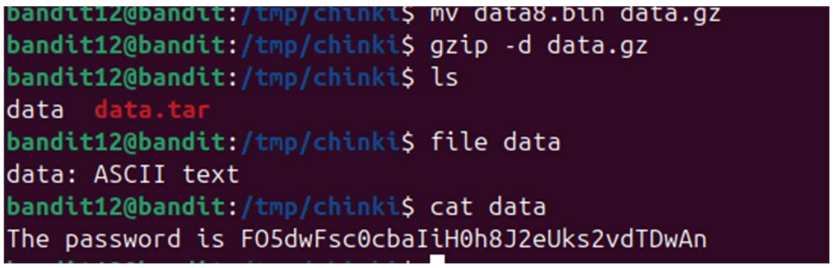


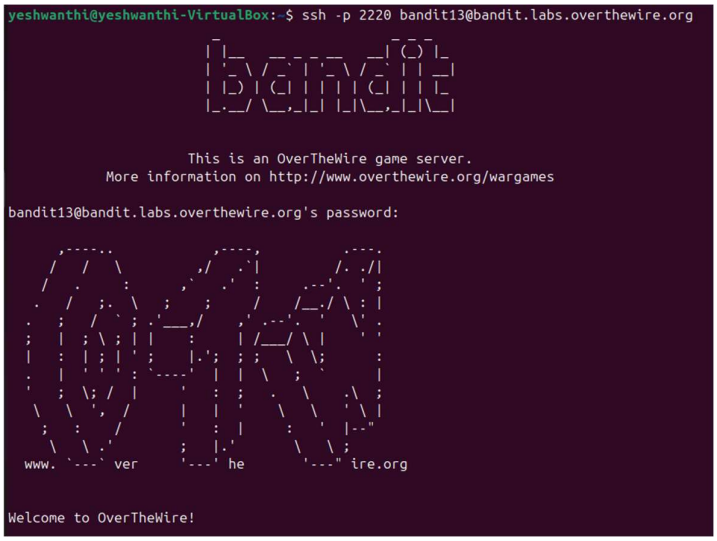
LEVEL 12 -13



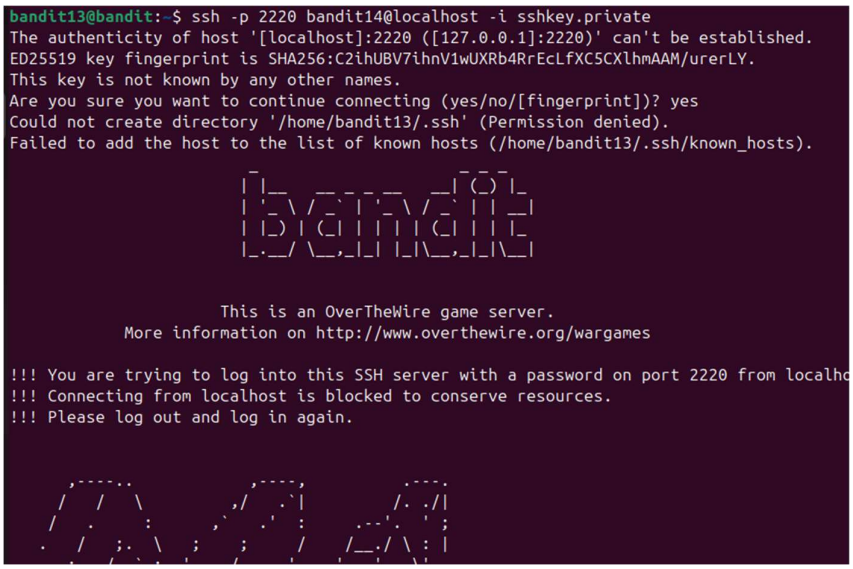
.....

Then after compressing continuously at end




yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit13@bandit.labs.overthewire.org
This is an OverTheWire game server.
More information on http://www.overthewire.org/wargames
bandit13@bandit.labs.overthewire.org's password:
Welcome to OverTheWire!

LEVEL 13 -14


bandit13@bandit:~$ ssh -p 2220 bandit14@localhost -i sshkey.private
The authenticity of host '[localhost]:2220 ([127.0.0.1]:2220)' can't be established.
ED25519 key fingerprint is SHA256:C2ihUBV7ihnV1wUXRb4RrEcLfXC5CXlhmAAM/urerLY.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Could not create directory '/home/bandit13/.ssh' (Permission denied).
Failed to add the host to the list of known hosts (/home/bandit13/.ssh/known_hosts).
This is an OverTheWire game server.
More information on http://www.overthewire.org/wargames
!!! You are trying to log into this SSH server with a password on port 2220 from localho
!!! Connecting from localhost is blocked to conserve resources.
!!! Please log out and log in again.


* pwntools (https://github.com/Gallopsled/pwntools)
* radare2 (http://www.radare.org/)
--[More information]--
For more information regarding individual wargames, visit
http://www.overthewire.org/wargames/
For support, questions or comments, contact us on discord or IRC.
Enjoy your stay!
bandit14@bandit:~$ cat </etc/bandit_pass/bandit14
MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS

LEVEL 14 -15

```
bandit14@bandit:~$ nc localhost 30000
MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS
Correct!
8xCjnmgoKbGLhHFAZlGE5Tmu4M2tKJQo

^C
```

Connected to localhost server using nc command to get password for next level

```
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit15@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit15@bandit.labs.overthewire.org's password:

      ,-----.           ,----,          .----.
     /   /   \        ,/   .`|        /. ./|
    /   .     :     ,`   .'  :     .--'.  ' ;
   .   /   ;.  \   ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.   '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'  |  |  \   ;  `      |
  '   ;  \; /  |      '   :  ;   .   \     .\  ;
   \   \  ',  /       |   |  '    \   \   ' \ |
    ;   :    /        '   :  |     :    '  |--"
     \   \ .'          ;   |.'       \    \ ;
  www. `---` ver      '---' he        '---" ire.org


Welcome to OverTheWire!
```

LEVEL 15 -16

```
bandit15@bandit:~$ openssl s_client -connect localhost:30001
CONNECTED(00000003)
Can't use SSL_get_servername
depth=0 CN = SnakeOil
verify error:num=18:self-signed certificate
verify return:1
depth=0 CN = SnakeOil
verify return:1
---
Certificate chain
 0 s:CN = SnakeOil
   i:CN = SnakeOil
   a:PKEY: rsaEncryption, 4096 (bit); sigalg: RSA-SHA256
   v:NotBefore: Jun 10 03:59:50 2024 GMT; NotAfter: Jun  8 03:59:50 
```

.....

```
    Start Time: 1753678373
    Timeout   : 7200 (sec)
    Verify return code: 18 (self-signed certificate)
    Extended master secret: no
    Max Early Data: 0
---
read R BLOCK
8xCjnmgoKbGLhHFAZlGE5Tmu4M2tKJQo
Correct!
kSkvUpMQ7lBYyCM4GBPvCvT1BfWRy0Dx

closed
bandit15@bandit:~$
```

```
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit16@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit16@bandit.labs.overthewire.org's password:

      ,-----.           ,----,          .---.
     /   /   \         ,/   .`|         /. ./|
    /   .     :      ,`   .'  :     .--'.  ' ;
   .   /   ;.  \   ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.  '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'  |  |  \   ;  `      |
  '   ;  \; /  |      '   :  ;   .   \    .\  ;
   \   \  ',  /       |   |  '    \   \   ' \ |
    ;   :    /        '   :  |     :   '  |--"
     \   \ .'          ;   |.'       \   \ ;
  www. `---` ver      '---' he        '---" ire.org


Welcome to OverTheWire!
```

LEVEL 16 -17

```
bandit16@bandit:~$ nmap -sV localhost -p 31000-32000
Starting Nmap 7.94SVN ( https://nmap.org ) at 2025-07-28 06:22 UTC
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00011s latency).
Not shown: 996 closed tcp ports (conn-refused)
PORT      STATE SERVICE     VERSION
31046/tcp open  echo
31518/tcp open  ssl/echo
31691/tcp open  echo
31790/tcp open  ssl/unknown
31960/tcp open  echo
1 service unrecognized despite returning data. If you know the service/version, please submit the following fingerprint
at https://nmap.org/cgi-bin/submit.cgi?new-service :
SF-Port31790-TCP:V=7.94SVN%T=SSL%I=7%D=7/28%Time=68871753%P=x86_64-pc-linu
SF:x-gnu%r(GenericLines,32,"Wrong!\x20Please\x20enter\x20the\x20correct\x2
SF:0current\x20password\.\n")%r(GetRequest,32,"Wrong!\x20Please\x20enter\x
SF:20the\x20correct\x20current\x20password\.\n")%r(HTTPOptions,32,"Wrong!\
SF:x20Please\x20enter\x20the\x20correct\x20current\x20password\.\n")%r(RTS
SF:PRequest,32,"Wrong!\x20Please\x20enter\x20the\x20correct\x20current\x20
SF:password\.\n")%r(Help,32,"Wrong!\x20Please\x20enter\x20the\x20correct\x
SF:20current\x20password\.\n")%r(FourOhFourRequest,32,"Wrong!\x20Please\x2
SF:0enter\x20the\x20correct\x20current\x20password\.\n")%r(LPDString,32,"W
SF:rong!\x20Please\x20enter\x20the\x20correct\x20current\x20password\.\n")
SF:%r(SIPOptions,32,"Wrong!\x20Please\x20enter\x20the\x20correct\x20curren
SF:t\x20password\.\n");

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 162.81 seconds
```

```
bandit16@bandit:~$ ncat --ssl localhost 31790
kSkvUpMQ7lBYyCM4GBPvCvT1BfWRy0Dx
Correct!
-----BEGIN RSA PRIVATE KEY-----
MIIEogIBAAKCAQEAvmOkuifmMg6HL2YPIOjon6iWfbp7c3jx34YkYWqUH57SUdyJ
imZzeyGC0gtZPGujUSxiJSWI/oTqexh+cAMTSMlOJf7+BrJObArnxd9Y7YT2bRPQ
Ja6Lzb558YW3FZl87ORiO+rW4LCDCNd2lUvLE/GL2GWyuKN0K5iCd5TbtJzEkQTu
DSt2mcNn4rhAL+JFr56o4T6z8WWAW18BR6yGrMq7Q/kALHYW3OekePQAzL0VUYbW
JGTi65CxbCnzc/w4+mqQyvmzpWtMAzJTzAzQxNbkR2MBGySxDLrjg0LWN6sK7wNX
x0YVztz/zbIkPjfkU1jHS+9EbVNj+D1XFOJuaQIDAQABAoIBABagpxpM1aoLWfvD
KHcj10nqcoBc4oE11aFYQwik7xfW+24pRNuDE6SFthOar69jp5RllLwD1NhPx3iBl
J9nOM8OJ0VToum43UOS8YxF8WwhXriYGnc1sskbwpXOUDc9uX4+UESzH22P29ovd
d8WErY0gPxun8pbJLmxkAtWNhpMvfe0050vk9TL5wqbu9AlbssgTcCXkMQnPw9nC
YNN6DDP2lbcBrvgT9YCNL6C+ZKufD52yOQ9qOkwFTEQpjtF4uNtJom+asvlpmS8A
vLY9r60wYSvmZhNqBUrj7lyCtXMIu1kkd4w7F77k+DjHoAXyxcUp1DGL51sOmama
+TOWWgECgYEA8JtPxP0GRJ+IQkX262jM3dEIkza8ky5moIwUqYdsx0NxHgRRhORT
8c8hAuRBb2G82so8vUHk/fur85OEfc9TncnCY2crpoqsghifKLxrLgtT+qDpfZnx
SatLdt8GfQ85yA7hnWWJ2MxF3NaeSDm75Lsm+tBbAiyc9P2jGRNtMSkCgYEAypHd
HCctNi/FwjulhttFx/rHYKhLidZDFYeiE/v45bN4yFm8x7R/b0iE7KaszX+Exdvt
SghaTdcG0Knyw1bpJVyusavPzpaJMjdJ6tcFhVAbAjm7enCIvGCSx+X3l5SiWg0A
R57hJglezIiVjv3aGwHwvlZvtszK6zV6oXFAu0ECgYAbjo46T4hyP5tJi93V5HDi
Ttiek7xRVxUl+iU7rWkGAXFpMLFteQEsRr7PJ/lemmEY5eTDAFMLy9FL2m9oQWCg
R8VdwSk8r9FGLS+9aKcV5PI/WEKlwgXinB3OhYimtiG2Cg5JCqIZFHxD6MjEGOiu
L8ktHMPvodBwNsSBULpG0QKBgBAplTfC1HOnWiMGOU3KPwYWt0O6CdTkmJOmL8Ni
blh9elyZ9FsGxsgtRBXRsqXuz7wtsQAgLHxbdLq/ZJQ7YfzOKU4ZxEnabvXnvWkU
YOdjHdSOoKvDQNWu6ucyLRAWFuISeXw9a/9p7ftpxm0TSgyvmfLF2MIAEwyzRqaM
77pBAoGAMmjmIJdjp+Ez8duyn3ieo36yrttF5NSsJLAbxFpdlc1gvtGCWW+9Cq0b
dxviW8+TFVEBl1O4f7HVm6EpTscdDxU+bCXWkfjuRb7Dy9GOtt9JPsX8MBTakzh3
vBgsyi/sN3RqRBcGU40fOoZyfAMT8s1m/uYv52O6IgeuZ/ujbjY=
-----END RSA PRIVATE KEY-----
```

```
                -n namespace -s signature_file [-r krl_file] [-O optio
bandit16@bandit:~$ mkdir -p /tmp/mybandit17
bandit16@bandit:~$ nano /tmp/mybandit17/privatekey
Unable to create directory /home/bandit16/.local/share/nano/: No such fi
It is required for saving/loading search history or cursor positions.

bandit16@bandit:~$ chmod 600 /tmp/mybandit17/privatekey
bandit16@bandit:~$ ssh-keygen -1 -f /tmp/mybandit17/privatekey
unknown option -- 1
```

```
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit17@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit17@bandit.labs.overthewire.org's password:

      ,-----.           ,----,          .----.
     /   /   \         ,/   .`|         /. ./|
    /   .     :      ,`   .'  :     .--'.  ' ;
   .   /   ;.  \   ;    ;     /    /__./ \ : |
  .   ;   /  ` ; .'___,/    ,' .--'.   '   \' .
  ;   |  ; \ ; | |    :     | /___/ \ |    ' '
  |   :  | ; | ' ;    |.';  ; ;   \  \;      :
  .   |  ' ' ' : `----'   |  |  \   ;  `      |
  '   ;  \; /  |     '   :  ;   .   \    .\  ;
   \   \  ',  /      |   |  '    \   \   ' \ |
    ;   :    /       '   :  |     :   '  |--"
     \   \ .'        ;   |.'       \   \ ;
  www. `---` ver     '---' he       '---" ire.org


Welcome to OverTheWire!
```

LEVEL 17 -18

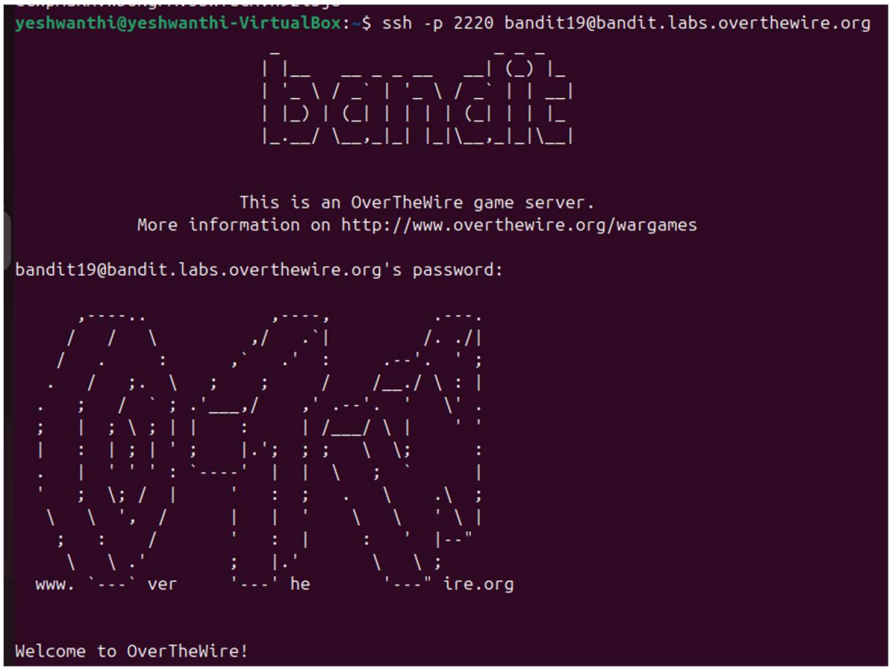
```
bandit17@bandit:~$ ls
passwords.new  passwords.old
bandit17@bandit:~$ diff passwords.old passwords.new
42c42
< C6XNBdYOkgt5ARXESMKWWOUwBeaIQZ0Y
---
> x2gLTTjFwMOhQ8oWNbMN362QKxfRqGlO
```

```
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit18@bandit.labs.overthewire.org
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit18@bandit.labs.overthewire.org's password:
```

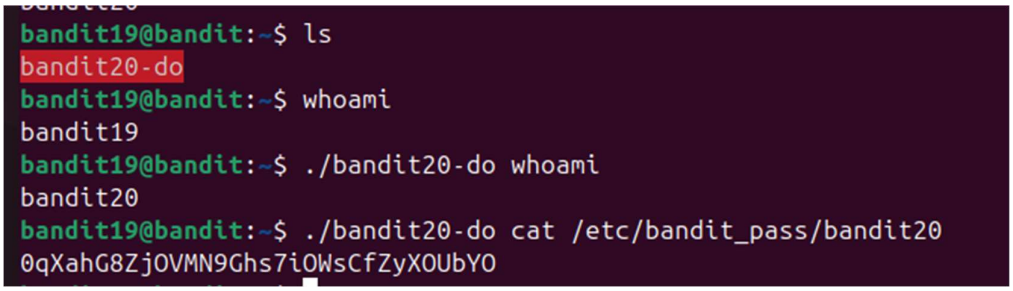
```
--[ More information ]--

  For more information regarding individual wargames, visi
  http://www.overthewire.org/wargames/

  For support, questions or comments, contact us on discor

  Enjoy your stay!

Byebye !
Connection to bandit.labs.overthewire.org closed.
```

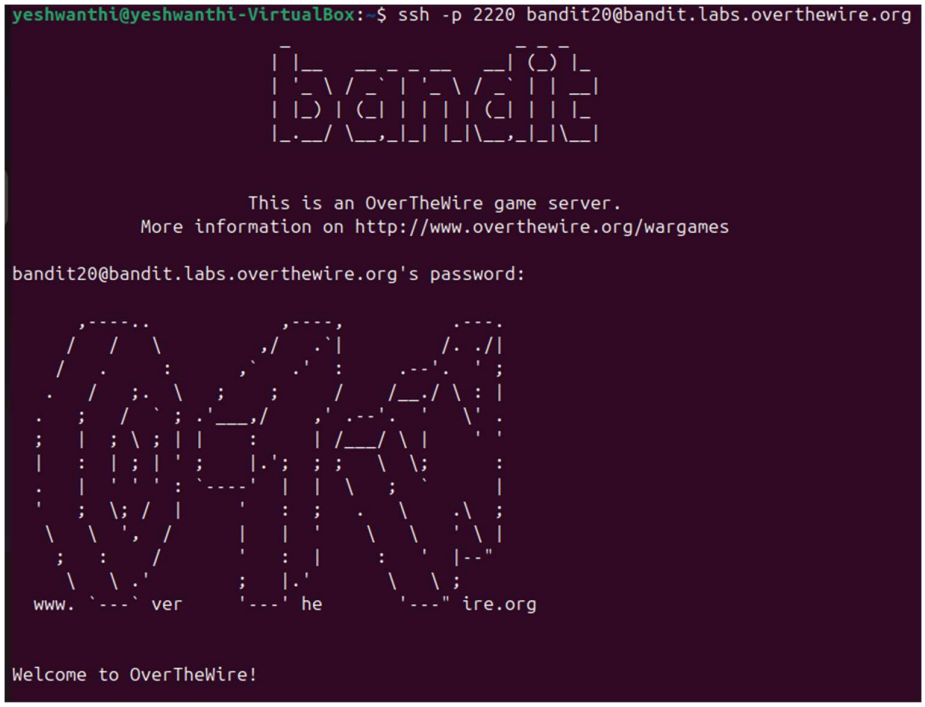
LEVEL 18 -19

```
yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit18@bandit.labs.overthewire.org "cat readme"
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      This is an OverTheWire game server.
            More information on http://www.overthewire.org/wargames

bandit18@bandit.labs.overthewire.org's password:
cGWpMaKXVwDUNgPAVJbWYuGHVn9zl3j8
```


yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit19@bandit.labs.overthewire.org
This is an OverTheWire game server.
More information on http://www.overthewire.org/wargames
bandit19@bandit.labs.overthewire.org's password:
Welcome to OverTheWire!

LEVEL 19 -20


bandit19@bandit:~$ ls
bandit20-do
bandit19@bandit:~$ whoami
bandit19
bandit19@bandit:~$ ./bandit20-do whoami
bandit20
bandit19@bandit:~$ ./bandit20-do cat /etc/bandit_pass/bandit20
0qXahG8ZjOVMN9Ghs7iOWsCfZyXOUbYO


yeshwanthi@yeshwanthi-VirtualBox:~$ ssh -p 2220 bandit20@bandit.labs.overthewire.org
This is an OverTheWire game server.
More information on http://www.overthewire.org/wargames
bandit20@bandit.labs.overthewire.org's password:
Welcome to OverTheWire!

LEVEL 20-21

Terminal 1:-

```
bandit20@bandit:~$ ls
suconnect
bandit20@bandit:~$ echo "0qXahG8ZjOVMN9Ghs7iOWsCfZyXOUbYO" | nc -l -p 12345
EeoULMCra2q0dSkYj561DX7s1CpBuOBt
```

Terminal 2:-

```
bandit20@bandit:~$ ./suconnect 12345
Read: 0qXahG8ZjOVMN9Ghs7iOWsCfZyXOUbYO
Password matches, sending next password
```

Echo – nc -l -p 12345(port 12345 is random)

./suconnect – connects to fake server(terminal1) and asks for password

If password is correct(ie in terminal1) then sends out the bandit21 passoword as output in terminal2

LEVEL 21 -22

```
bandit21@bandit:/etc/cron.d$ ls
clean_tmp  cronjob_bandit22  cronjob_bandit23  cronjob_bandit24  e2scrub_all  otw-tmp-dir  sysstat
bandit21@bandit:/etc/cron.d$ cat cronjob_bandit22
@reboot bandit22 /usr/bin/cronjob_bandit22.sh &> /dev/null
* * * * * bandit22 /usr/bin/cronjob_bandit22.sh &> /dev/null
bandit21@bandit:/etc/cron.d$ cat /usr/bin/cronjob_bandit22.sh
#!/bin/bash
chmod 644 /tmp/t7O6lds9S0RqQh9aMcz6ShpAoZKF7fgv
cat /etc/bandit_pass/bandit22 > /tmp/t7O6lds9S0RqQh9aMcz6ShpAoZKF7fgv
bandit21@bandit:/etc/cron.d$ cat /tmp/t7O6lds9S0RqQh9aMcz6ShpAoZKF7fgv
tRae0UfB9v0UzbCdn9cY0gQnds9GF58Q
```

Now logged in into bandit 22

```
    * pwntools (https://github.com/Gallopsled/pwntools)
    * radare2 (http://www.radare.org/)

--[ More information ]--

  For more information regarding individual wargames, visit
  http://www.overthewire.org/wargames/

  For support, questions or comments, contact us on discord or IRC.

  Enjoy your stay!

bandit22@bandit:~$
```

LEVEL 22- 23

```
bandit22@bandit:/etc/cron.d$ ls
clean_tmp  cronjob_bandit22  cronjob_bandit23  cronjob_bandit24  e2scrub_all  otw-tmp-dir  sysstat
bandit22@bandit:/etc/cron.d$ cat cronjob_bandit23
@reboot bandit23 /usr/bin/cronjob_bandit23.sh  &> /dev/null
* * * * * bandit23 /usr/bin/cronjob_bandit23.sh  &> /dev/null
bandit22@bandit:/etc/cron.d$ cat /usr/bin/cronjob_bandit23.sh
#!/bin/bash

myname=$(whoami)
mytarget=$(echo I am user $myname | md5sum | cut -d ' ' -f 1)

echo "Copying passwordfile /etc/bandit_pass/$myname to /tmp/$mytarget"

cat /etc/bandit_pass/$myname > /tmp/$mytarget
bandit22@bandit:/etc/cron.d$ echo I am user bandit23 | md5sum | cut -d ' ' -f 1
8ca319486bfbbc3663ea0fbe81326349
bandit22@bandit:/etc/cron.d$ cat /tmp/8ca319486bfbbc3663ea0fbe81326349
0Zf11ioIjMVN551jX3CmStKLYqjk54Ga
```

```
firewall.

--[ Tools ]--

For your convenience we have installed a few useful tools which you can find
in the following locations:

    * gef (https://github.com/hugsy/gef) in /opt/gef/
    * pwndbg (https://github.com/pwndbg/pwndbg) in /opt/pwndbg/
    * gdbinit (https://github.com/gdbinit/Gdbinit) in /opt/gdbinit/
    * pwntools (https://github.com/Gallopsled/pwntools)
    * radare2 (http://www.radare.org/)

--[ More information ]--

  For more information regarding individual wargames, visit
  http://www.overthewire.org/wargames/

  For support, questions or comments, contact us on discord or IRC.

  Enjoy your stay!
```

CYRPTOHACK – XOR CHALLENGES

1) XOR STARTER

```
given = "label"
print("crypto{", end="")
for x in given:
  print(chr(ord(x)^13), end="")
print("}")
```

Ord() gives the ascii number for a character while chr() does the opposite(ie ascii no – character).

The flag obtained is :-

```
crypto{aloha}
```

2)XOR PROPERTIES

Here Flag = ciphertext ^ flag where ciphertext = flag ^key1^key2^key3

Key2 = (key2^key1) ^key1

Key 3 = (key2^key3)^key2

main.py +

```
from pwn import xor
from binascii import unhexlify
# Convert all hex strings to bytes
key1 = bytes.fromhex("a6c8b6733c9b22de7bc0253266a3867df55acde8635e19c73313")
key2_xor_key1 = bytes.fromhex("37dcb292030faa90d07eec17e3b1c6d8daf94c35d4c9191a5e1e")
key2_xor_key3 = bytes.fromhex("c1545756687e7573db23aa1c3452a098b71a7fbf0fdddddde5fc1")
flag_xor_all = bytes.fromhex("04ee9855208a2cd59091d04767ae47963170d1660df7f56f5faf")

key2 = xor(key2_xor_key1, key1)
key3 = xor(key2_xor_key3, key2)
key_total = xor(xor(key1, key2), key3)
flag = xor(flag_xor_all, key_total)
print("Flag:", flag.decode())
```

The Flag obtained is **crypto{x0r_i5_ass0c1at1v3}**

3)FAVOURITE BYTE

```python
def singlebyte_XOR(input_bytes,key):
    flag = b''
    for a in input_bytes:
        flag += bytes([a ^ key])
    return flag.decode('utf-8')
data = "73626960647f6b206821204f21254f7d694f7624662065622127234f726927756d"
decoded = bytes.fromhex(data)
for k in range(256):
    outcome = singlebyte_XOR(decoded,k)
    if 'crypto' in outcome:
        print(outcome)
        break
```

FLAG obtained is **crypto{0x10_15_my_f4v0ur173_by7e}**

4)YOU EITHER KNOW,XOR YOU DON'T

It contains one hexed string, and they also mentioned a "secret key" that's been XORed with the "Flag" the end result being the bytes that we can get after decoding the hex.

So We will have to get the "Secret Key" and XORing that with the encrypted string will give us the flag.

main.py +

```python
from pwn import xor
flag = bytes.fromhex('0e0b213f26041e480b26217f27342e175d0e070a3c5b103e2526217f27342e175d0e07
print(xor(flag, 'crypto{'.encode()))
# This gives us the key
print(xor(flag, 'myXORkey'.encode()))
```

Firstly decoding the hex to bytes then xor with flag to retrive flag Finally using the actual key with 'y' added, to get the flag.
The flag obtained is **crypto{1f_y0u_Kn0w_En0uGH_y0u_Kn0w_1t_4ll}**

5) lemur xor

I couldn't solve this challenge …

OVERTHWIRE KRYPTON

I couldn’t paste the screenshot as its not working(some error) ….

LEVEL 0 -1

echo S1JZUFRPTklTR1JFQVQ= | base64 -d

OUTPUT : - **KRYPTONISGREAT**

LEVEL 1 – 2

Login to next level by command:-

sshpass -p KRYPTONISGREAT ssh krypton.labs.overthewire.org -p 2231 -l krypton1

Finding thepassword :-

krypton1@bandit:~$ cd /krypton/
krypton1@bandit:/krypton$ ls
krypton1 krypton2 krypton3 krypton4 krypton5 krypton6
krypton1@bandit:/krypton$ cd krypton1
krypton1@bandit:/krypton/krypton1$ ls
krypton2 README
krypton1@bandit:/krypton/krypton1$ cat README

……

krypton1@bandit:/krypton/krypton1$ cat krypton2
YRIRY GJB CNFFJBEQ EBGGRA
krypton1@bandit:/krypton/krypton1$ echo "YRIRY GJB CNFFJBEQ EBGGRA" | tr [A-Z] [N-ZA-M]
LEVEL TWO PASSWORD **ROTTEN**

LEVEL 2 – 3

Next level login acess:-

sshpass -p rotten ssh krypton.labs.overthewire.org -p 2231 -l krypton2

Finding the password :-
cd /tmp/tmp.WrDJiHZeW9

ln -s /krypton/krypton2/keyfile.dat

chmod 777

echo AAA > test

/krypton/krypton2/encrypt test

cat ciphertext

cat krypton3 | tr "[:alpha:]" "O-ZA-No-za-n"

CAESARISEASY

LEVEL 3 – 4

Initial acess:-

sshpass -p caesariseasy ssh krypton.labs.overthewire.org -p 2231 -l krypton3

Finding the password :-

cd /krypton

ls -l

cat krypton4

cat krypton4 | tr [A-Z] [BOIHGKNQVTWYURXZAJEMSLDFPC]

WELLD ONETH ELEVE LFOUR PASSW ORDIS **BRUTE**

LEVEL 4 -5

sshpass -p brute ssh krypton.labs.overthewire.org -p 2231 -l krypton4

by using cyberchef the password obtained is **CLEAR TEXT**

OVERTHEWIRE - NATAS

LEVEL 0

Opened the link and go through page source(CTRL +U)

The password for natas1 is **0nzCigAq7t2iALyvU9xcHlYN4MlkIwlq**

LEVEL 0 -1

Opened the link and go through page source(CTRL +U)

The password for natas2 is **TguMNxKo1DSa1tujBLuZJnDUlCcUAPll**

LEVEL 1 - 2
Viewed page source (CTRL + U), found an HTML comment leading to a hidden image or file.
opened the hidden resource and found the password.
The password for natas3 is **3gqisGdR0pjm6tpkDKdIWO2hSvchLeYH**

LEVEL 2 - 3
The HTML source mentions a directory listing.
Navigated to the directory and found a users.txt file.
Opened it to retrieve the password.
The password for natas4 is **QryZXc2e0zahULdHrtHxzyYkj59kUxLQ**

LEVEL 3 - 4
Found a comment in the HTML pointing to a hidden URL.
Opened the hidden page and got the password.
The password for natas5 is **0n35PkggAPm2zbEpOU802c0*0Msn1ToK**

LEVEL 4 - 5
Used browser Developer Tools (F12) to inspect network traffic and cookies.
Modified the cookie value to simulate "logged in" state (loggedin=1).
Page granted access and showed password.
The password for natas6 is **0RoJwHdSKWFTYR5WuiAewauSuNaBXned**

Or can be done with wireshrak …

LEVEL 5 - 6
Page mentions there is something hidden in an image directory.
Checked directory listing of images, found a specific file containing the password.
The password for natas7 is **bmg8SvU1LizuWjx3y7xkNERkHxGre0GS**

LEVEL 6 - 7
HTML mentions use of include() function in PHP.
Modified the ?page= parameter to traverse directories (e.g.,
?page=../../etc/natas_webpass/natas8).
Successfully retrieved password file.
The password for natas8 is **xcoXLmzMkoIP9D7hlgPlh9XD7OgLAe5Q**

LEVEL 7 - 8
Input to ?page= parameter was vulnerable.
Changed value to point to internal system files.
Read the password file directly.
The password for natas9 is **ZE1ck82lmdGIoErlhQgWND6j2Wzz6b6t**

LEVEL 8 - 9
Input sanitization attempted to remove spaces and certain characters.
Used encoded characters like $IFS (Internal Field Separator) or URL encoding to bypass it.
Injected a command to read the password file.
The password for natas10 is **t7I5VHvpa14sJTUGV0cbEsbYfFP2dmOu**

LEVEL 9 - 10
Discovered a form input vulnerable to command injection.
Appended ; cat /etc/natas_webpass/natas11 to the input.
Server executed the command and returned password.
The password for natas11 is **UJdqkK1pTu6VLt9UHWAgRZz6sVUZ3lEk**

LEVEL 10 - 11
Input was filtered
Payload like $(cat /etc/natas_webpass/natas12) executed.
Returned password from the file.
The password for natas12 is **yZdkjAYZRd3R7tq7T5kXMjMjlOIkzDeB**

LEVEL 11 - 12
Vulnerability in file upload functionality.
Uploaded a PHP file disguised as an image (e.g., .php.jpg).
Executed the uploaded shell to read password file.
The password for natas13 is **trbs5pCjCrkuSknBBKHhaBxq6Wm1j3LC**

LEVEL 12 - 13
Logged browser requests using a custom User-Agent.
PHP code in logs was injected and later interpreted when the log file was included as a page.
Gained code execution and read password.
The password for natas14 is **z3UYcr4v4uBpeX8f7EZbMHlzK4UR2XtQ**

LEVEL 13 - 14
Login form vulnerable to SQL Injection.
Used payload ' OR 1=1 -- to bypass authentication.
Got access and password was revealed.
The password for natas15 is **SdqIqBsFcz3yotlNYErZSZwblkm0lrvx**

LEVEL 14 - 15
SQL Injection without visible response (blind SQLi).

Used payloads that confirmed character-by-character correctness.
Automated with a Python script.
The password for natas16 is **hPkjKYviLQctEW33QmuXL6eDVfMW4sGo**

LEVEL 15 - 16
Blind SQL injection using time delay (SLEEP function).
Identified each character by measuring server response time.
Extracted password completely.
The password for natas17 is **EqjHJbo7LFNb8vwhHb9s75hoKh5TF00C**

LEVEL 16 - 17
Found that a custom XOR cipher was used in source code.
Wrote script to reverse XOR encryption.
Got original password by decoding.
The password for natas18 is **60G1PbKdVjyBlpxgD4DDbRG6ZLlCGgCJ**

LEVEL 17 - 18
Used brute-force attack to find a valid session ID.
Each session ID represented a user.
Logged in as admin by finding correct session.
The password for natas19 is **tnwER7PdfWkxsG4FNWUtoAZ9VyZTJqJr**

LEVEL 18 - 19
Similar to previous level but sessions were encoded.
Used base64 decoding or similar method to decode and brute-force session.
Successfully authenticated and got password.
The password for natas20 is **p5mCvP7GS2K6Bmt3gqhM2Fc1A5T8MVyw**