LEVEL 0 TO LEVEL 1 (Siddharth Sai)

First i logged in into the game using the command ssh

bandit0@bandit.labs.overthewire.org -p 2220

and when prompted for password i entered bandit0 as it is given in the question

```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

bynss@Siddharth:~$ ssh bandit0@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-1
bandit0@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

After this i entered ls to view the files in it then after entering it i got a file readme

```
bandit0@bandit:~$ ls
readme
```


to read the content inside any file we need to use cat command

So i entered cat readme

Then i got the password for next level

```
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
```

LEVEL 0 TO LEVEL 1

LEVEL 1 TO LEVEL 2

i logged in into first level using the command ssh

bandit1@bandit.labs.overthewire.org -p 2220 and

entered the password i got in last level

```
bynss@Siddharth:~$ ssh bandit1@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-1
bandit1@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

after this i entered ls to view the files in it

```
bandit1@bandit:~$ ls
-
```

LEVEL 1 TO LEVEL 2

I got a file which is named as but in linux - is a special character and we cannot directy enter cat - to view the content in it

To determine that as a file and read its content we need to enter:

cat ./-

Then we will get the paassword for next level

```
bandit1@bandit:~$ cat ./-
263JGJPfgU6LtdEvgfWU1XP5yac29mFx
```

LEVEL 1 TO LEVEL 2

LEVEL 2 to LEVEL 3

first i logged in using the command ssh bandit2@bandit.labs.overthewire.org p2220

Then i entered the password i got in the previous level

263JGJPfgU6LtdEvgfWU1XP5yac29mFx

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit2@bandit.labs.overthewire.org -p2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                       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!

If you find any problems, please report them to the #wargames channel on
discord or IRC.
```

Then after entering i entered ls command to view the files in it and i found a file named

- --spaces in this filename--

```
bandit2@bandit:~$ ls
--spaces in this filename--
```

LEVEL 2 to LEVEL 3

Then after this i entered cat “--spaces in this filename--” to view the content inside it but i got an error

```
bandit2@bandit:~$ cat "--spaces in this filename--"
cat: unrecognized option '--spaces in this filename--'
Try 'cat --help' for more information.
bandit2@bandit:~$ cat "--spaces in this filename--"
cat: unrecognized option '--spaces in this filename--'
Try 'cat --help' for more information.
```

Then after searching this

Google Search for “dashed filename”

I added - Because in Linux commands, **anything starting with - or -- is treated as an option** unless you explicitly tell the program,

Then i got the password for next level

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

MNk8KNH3Usiio41PRUEoDFPqfxLPlSmx

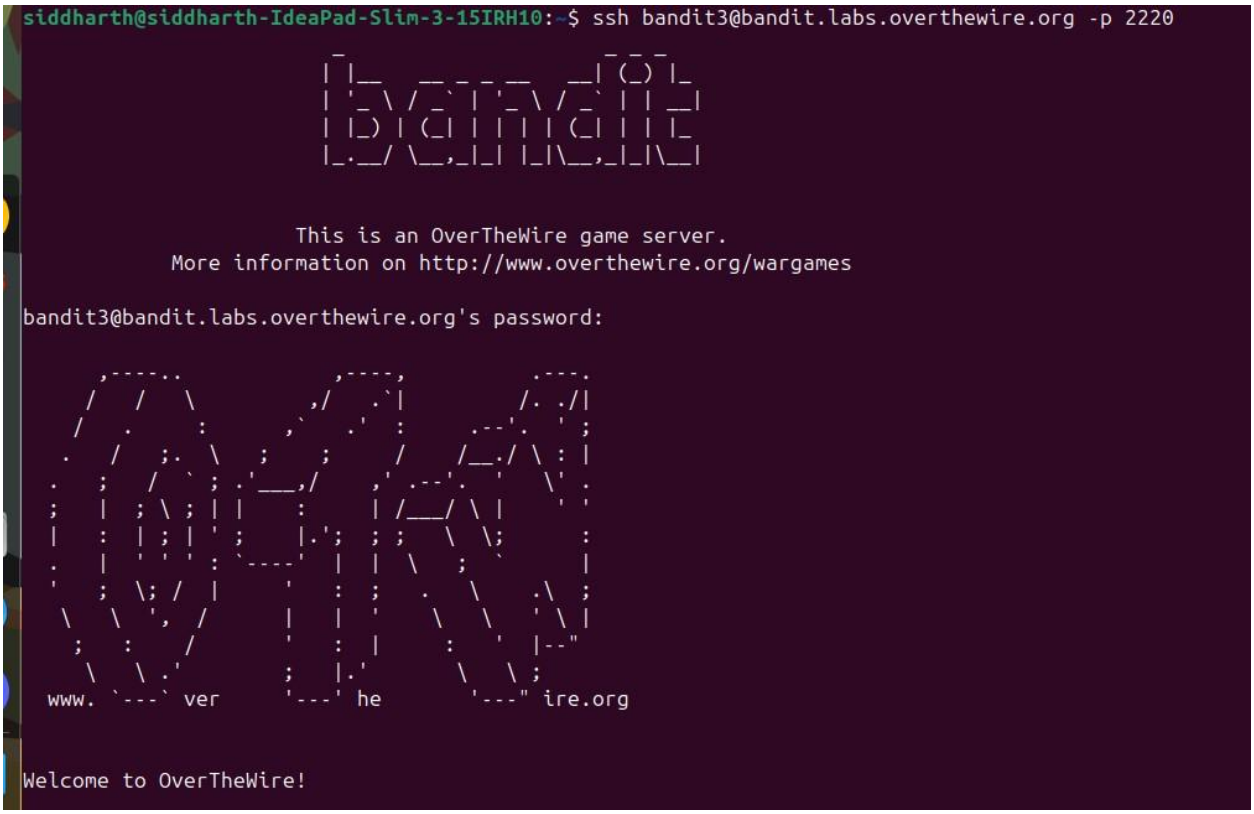
LEVEL 2 to LEVEL 3

LEVEL 3 TO LEVEL 4

First i entered using code

ssh bandit3@bandit.labs.overthewire.org -p 2220 Then i

entered the password i got in last level to login



then when i entered ls it gave a file inhere

When i tried doing cat inhere it said it was a directory

so i entered cd inhere to change the directory to inhere and view the files in it

As the files were hidden ls command did not work then i entered ls -a

This command is used to view hidden files

Then i got three files

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

When i tried cat. and cat.. it showed it was a directory and then i

tried cat …Hiding-From-You

I got the password for next level

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

2WmrDFRmJIq3IPxneAaMGhap0pFhF3NJ

LEVEL 3 TO LEVEL 4

LEVEL 4 TO LEVEL 5

First i logged in using :

ssh bandit4@bandit.labs.overthewire.org -p 2220

Then i entered the password i got in previos level

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit4@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


                      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!
```

Then i entered ls to view the files in it and found a directory inhere then i entered

cd inhere to change the directory

then there were ten files inside it

```
bandit4@bandit:~/inhere$ ls
-file00  -file02  -file04  -file06  -file08
-file01  -file03  -file05  -file07  -file09
```

the i read every file using cat command

Then i got the password for level 5 in -file07

```
bandit4@bandit:~/inhere$ ls
-file00  -file02  -file04  -file06  -file08
-file01  -file03  -file05  -file07  -file09
bandit4@bandit:~/inhere$ cat ./-file00
,9KL◆◆+ã◆'◆◆,◆BtZ◆@P0N◆◆Q◆◆bandit4@bandit:~/inhere$ cat ./-file02
◆◆J◆GNzR◆◆◆M$ĶoL◆D◆◆*◆◆@◆◆G◆◆◆◆bandit4@bandit:~/inhere$ cat ./-file03
◆◆◆◆◆JY h◆擧◆◆e◆◆◆.◆◆1◆!◆◆Owibandit4@bandit:~/inhere$ cat ./-file01
◆1◆◆56◆XI◆C◆F◆◆AD◆◆◆0◆◆◆5-bandit4@bandit:~/inhere$ cat ./-file04
ق◆◆GN◆◆◆◆Jj◆◆C◆◆TnR◆z◆◆f◆i◆fbandit4@bandit:~/inhere$ cat ./-file05
◆◆,◆◆(bandit4@bandit:~/inhere$ cat ./-file06
◆◆◆dX◆◆bandit4@bandit:~/inhere$ cat ./-file07
4oQYVPkxZOOEOO5pTW81FB8j8lxXGUQw
bandit4@bandit:~/inhere$ cat ./-file08
>◆
  ◆ ◆8◆◆<◆L3◆◆◆△ ◆◆◆◆◆=
◆◆◆◆bandit4@bandit:~/inhere$ cat ./-file09
n◆G◆◆◆O◆c◆◆A.◆i◆^◆$◆rr◆◆◆◆bandit4@bandit:~/inhere$ client_loop: send
```

4oQYVPkxZOOEOO5pTW81FB8j8lxXGUQw

LEVEL 5 TO LEVEL 6

First i logged in using command:

ssh bandit5@bandit.labs.overthewire.org -p 2220

Then i entered the password i got in last level to login

Then i entered ls to view the files in it the i got inhere directory

Then we need to use find command for finding the code for next level

The hint we got in question is

- human-readable 1033 bytes
- in size not executable
- Then i entered this code :

```
bandit5@bandit:~/inhere$ find . -type f -size 1033c ! -executable
./maybehere07/.file2
```

Then i enterd cat command to read the file

```
bandit5@bandit:~/inhere$ cat ./maybehere07/.file2
HWasnPhtq9AVKe0dmk45nxy20cvUa6EG
```

And i got the code for next level

HWasnPhtq9AVKe0dmk45nxy20cvUa6EG

LEVEL 6 TO LEVEL 7

To login into i entered the command ssh

bandit6@bandit.labs..overthewire.org -p 2220 And then i used the

password that i got in last level to login

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit6@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit6@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

After that i used the find command as given in the question

```
owned by user bandit7
owned by group bandit6
33 bytes in size
```

```
find / -user bandit7 -group bandit6 -size 33c
```

After entering this i found many files which has permission denied and after researching i found a code for not showing those permission denied files

```
/var/lib/dpkg/info/bandit7.password
```

in all those files i found only this file without the tag of permission denied

For not viewing this files you need to enter /dev/null at the end of the find code to only view the password file

Then i read the file usiing the command cat

```
bandit6@bandit:~$ cat /var/lib/dpkg/info/bandit7.password
morbNTDkSW6jIlUc0ymOdMaLnOlFVAaj
```

LEVEL 7 TO LEVEL 8

To login in into the server we enter ssh bandit7@bandit..labs.overthewire.org -p

2220

Then i logged in using the password i got in last level

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit7@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit7@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

after that i entered ls to view the files in it and it showed me a file data.txt

Here in the question they asked to find us the code that is beside a word "millionth" for that we use a linux command called grep the

format of the command is grep wordname filename.txt

So i entered grep millionth data.txt

and then i got the password

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

LEVEL 7 TO LEVEL 8

LEVEL 8 TO LEVEL 9

to login we need to enter ssh bandit8@bandit.labs.overthewire.org -p 2220 and enter the password i got in last level

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit8@banndit.labs.overthewire.org -p 2220
ssh: Could not resolve hostname banndit.labs.overthewire.org: No address associated with hostname
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit8@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit8@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

Then as it is said in question the a unique line contains code so i used sort and uniq command sort command helps in grouping identical lines together and uniq -u prints the lines that occurs only once

```
bandit8@bandit:~$ ls
data.txt
bandit8@bandit:~$ sort data.txt | uniq -u
4CKMh1JI91bUIZZPXDqGanal4xvAg0JM
bandit8@bandit:~$ client_loop: send disconnect: Broken pipe
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$
```

LEVEL 9 TO LEVEL 10

First i logged inn using :

ssh bandit9@bandit.labs.overthewire.org -p 2220

Then i entered the password i got in the last level to login

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit9@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|_|\__|


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

backend: gibson-1
bandit9@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

Then i entered ls to view the files in it and i got a file named data.txt when i entered

cat data.txt it gave me many special characters

Then i used the command string and grep to get the password strings data.txt |

grep ⍰E '⍰⍰3,}'

What’s happening

- `strings data.txt` — scans the (mostly binary) file and prints only human-readable substrings.
- `grep -E '={3,}'` — filters to lines that contain **three or more** `=` characters (the hint says “preceded by several ‘=’ characters”).

I used the string command because when i only tried to use grep as i did in in level 7 it showed me:

```
bandit9@bandit:~$ grep = data.txt
grep: data.txt: binary file matches
bandit9@bandit:~$
bandit9@bandit:~$
```

So i used string command as well and got the password for next level

```
bandit9@bandit:~$ strings data.txt | grep -E '={3,}'
========== the
========== password
Q========== is%
>u`9J========== FGUW5ilLVJrxX9kMYMmlN4MgbpfMiqey
bandit9@bandit:~$ grep = data.txt
```

FGUW5ilLVJrxX9kMYMmlN4MgbpfMiqey

LEVEL 9 TO LEVEL 10

LEVEL 10 TO LEVEL 11

First i logged in using the command : ssh

bandit10@bandit.labs.overthewire.org -p 2220

Then ii entered the password i got in last level to login

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit10@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_|_| |_|\__,_|_|\__|


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

backend: gibson-1
bandit10@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

Then i entered ls to view the files in it then i got data.txt file

```
bandit10@bandit:~$ ls
data.txt
```

Then i entered cat data.txt to read the data inside it and i got a base64 code as mentioned in the question

```
bandit10@bandit:~$ cat data.txt
VGhlIHBhc3N3b3JkIGlzIGR0UjE3M2ZaS2IwUlJzREZTR3NnMlJXbnBOVmozcVJyCg==
```

Then i entered the linux command to decode a base 64 code

```
bandit10@bandit:~$ base64 -d data.txt
The password is dtR173fZKb0RRsDFSGsg2RWnpNVj3qRr
```

Here -d represents decode

dtR173fZKb0RRsDFSGsg2RWnpNVj3qRr

LEVEL 11 TO LEVEL 12

First i logged in using

ssh bandit11@bandit.labs.overthewire,,org -p 2220

Then i entered the password i got in last level to login into the server

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit11@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-0
bandit11@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

Then i entered ls command to view the files in it

Then i got a file data.txt

To read the content in it i entered cat data.txt

```
bandit11@bandit:~$ cat data.txt
Gur cnffjbeq vf 7k16JArUVv5LxVuJfsSVdbbtaHGlw9D4
```


Then i used the tr command to get the password for next level

The `tr` **command** in Linux/Unix stands for **translate (or transliterate) characters**.

It takes input (from a file or stdin), and replaces or deletes characters according to the rules you give it.

Here i used tr command for ROT 13 cat data.txt

| tr 'A□Za-z' 'N□ZA□Mn-za-m'

The above is for replacement for 13 letters i you want to replace it with 15 letters then instean of mn op will be coming. ex- tr 'A□Za-z' 'P□ZA□Op-za-o'

```
bandit11@bandit:~$ cat data.txt | tr 'A-Za-z' 'N-ZA-Mn-za-m'
The password is 7x16WNeHIi5YkIhWsfFIqoognUTyj9Q4
```

7x16WNeHIi5YkIhWsfFIqoognUTyj9Q4

LEVEL 11 TO LEVEL 12

LEVEL 12 TO LEVEL 13 (1)

First i logged in using the command ssh

bandit12@bandit.labs.overthewire.org -p 2220 Then i

entered password i got in last level

Commands Used:

▼ mktemp -d

creates a unique temporary directory

Why here: we needed a safe workspace so we don't clutter the home directory.

▼ cp ~/data.txt .

It copies the file data.txt from the home directory (~) into the current directory (.).

Why here: so we can experiment on a copy without touching the original.

▼ xxd -r

- **Meaning:** xxd is a hex dump tool.
  - it changes hex to binary
- **Why here:** data.txt was stored as a hex dump, so we had to convert it

back into its binary form. file

▼ **Meaning:** tells you the type of a file by inspecting its contents (not by extension).

-

▼ mv

- **Meaning:** rename or move a file.

▼ gunzip

- **Meaning:** decompress .gz (gzip) files. many layers
- here were gzip compressed.

▼ bunzip2

- **Meaning:** decompress .bz2 (bzip2 files. some

layers here used bzip2 compression. tar -xf

▼ **Meaning:** extract files from a tar archive.

-

some layers were tar archives, which can hold multiple files.

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit12@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-0
bandit12@bandit.labs.overthewire.org's password:
Permission denied, please try again.
bandit12@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

```
bandit12@bandit:~$ mktemp -d
/tmp/tmp.Z4VkLVmDGR
bandit12@bandit:~$ cd /tmp/tmp.Z4VkLVmDGR
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ pwd
/tmp/tmp.Z4VkLVmDGR
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ cp ~/data.txt .
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ ls
data.txt
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ xxd -r data.txt data.bin
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data.bin
data.bin: gzip compressed data, was "data2.bin", last modified: Fri Aug 15 13:15:53 2025, max compression, from Unix, original size modulo 2^32 584
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ mv data.bin data.gz
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ gunzip data.gz
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data
data: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ mv data data.bz2
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ bunzip2 data.bz2
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data
data: gzip compressed data, was "data4.bin", last modified: Fri Aug 15 13:15:53 2025, max compression, from Unix, original size modulo 2^32 20480
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ mv data data.gz
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ gunzip data.gz
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data
data: POSIX tar archive (GNU)
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ mv data data.tar
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ tar -xf data.tar
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ ls
data5.bin  data.tar  data.txt
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data5.bin
data5.bin: POSIX tar archive (GNU)
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ mv data5.bin data5.tar
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ tar -xf data5.tar
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ ls
data5.tar  data6.bin  data.tar  data.txt
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data6.bin
data6.bin: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ mv data6.bin data6.bz2
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ bunzip 2 data6.bz2
Command 'bunzip' not found, did you mean:
  command 'runzip' from deb rzip (2.1-4.1)
  command 'lunzip' from deb lunzip (1.13-6)
  command 'funzip' from deb unzip (6.0-28ubuntu4.1)
  command 'unzip' from deb unzip (6.0-28ubuntu4.1)
  command 'gunzip' from deb gzip (1.12-1ubuntu1)
  command 'bunzip2' from deb bzip2 (1.0.8-5.1build0.1)
  command 'bunzip3' from deb bzip3 (1.3.2-1)
  command 'ebunzip' from deb eb-utils (4.4.3-14)
Try: apt install <deb name>
```

```
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ bunzip2 data6.bz2
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data6
data6: POSIX tar archive (GNU)
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ mv data6 data6.tar
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ tar -xf data6.tar
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ ls
data5.tar  data6.tar  data8.bin  data.tar  data.txt
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data8.bin
data8.bin: gzip compressed data, was "data9.bin", last modified: Fri Aug 15 13:15:53 2025, max compression, from Unix, original size modulo 2^32 49
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ mv data8.bin data8.gz
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ gunzip data8.gz
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ file data8
data8: ASCII text
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$ cat data8
The password is FO5dwFsc0cbaIiH0h8J2eUks2vdTDwAn
bandit12@bandit:/tmp/tmp.Z4VkLVmDGR$
```

FO5dwFsc0cbaIiH0h8J2eUks2vdTDwAn

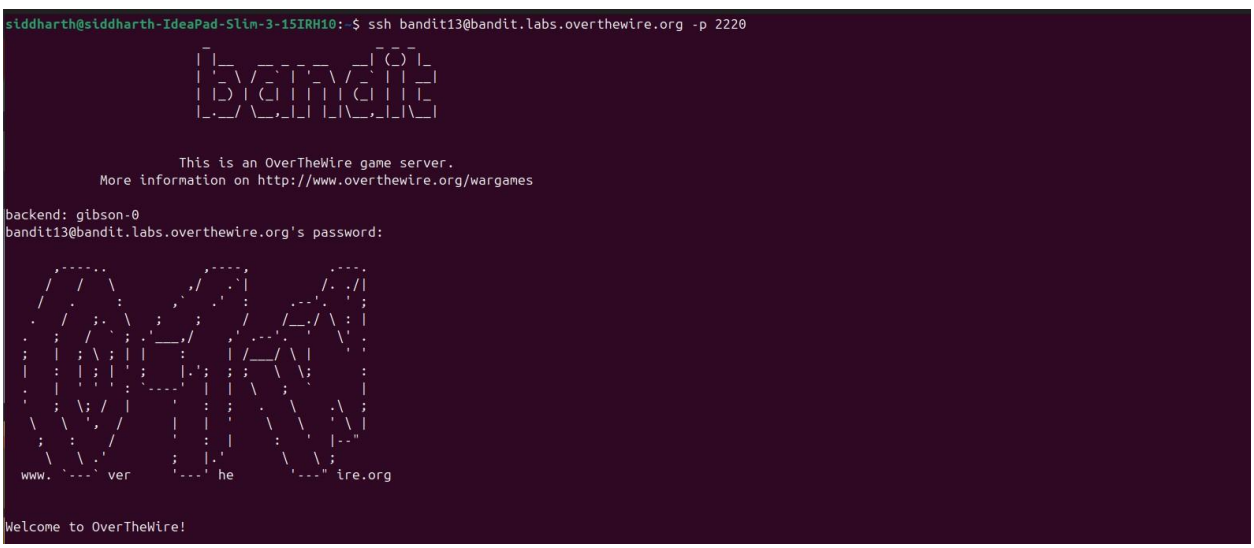
LEVEL 13 TO LEVEL 14 (1)

📄 Commands We Used

1. ssh -i sshkey.private bandit14@localhost -p 2220

- `ssh` 🔐 Secure Shell, used to log into another machine or user account.
- `i sshkey.private` → tells SSH **which private key file** to use for authentication instead of a password.

To get password of bandit14 i entered the command



```
bandit13@bandit:~$ ssh -i sshkey.private bandit14@localhost -p 2220
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 localhost.
!!! Connecting from localhost is blocked to conserve resources.
!!! Please log out and log in again.

backend: gibson-0

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


Welcome to OverTheWire!
```

This has directly logged me into bandit14 but i wanted password so i entered a command

```
bandit14@bandit:~$ cat /etc/bandit_pass/bandit14
MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS
bandit14@bandit:~$
```

This command only gives the password of that current level you are on

MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS

LEVEL 14 TO LEVEL 15

First i logged in using the local key in level 13 to level 14

Or else you can also login with the password into bandit14 itself

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit14@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-0
bandit14@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

For password for the next level you need to change the port to 30000 from 2220

for changing port you need to enter command nc

localhost 30000

and then enter the bandit 14 password itself

Then use the cat command to view the password for next level

```
bandit14@bandit:~$ nc localhost 30000
Bandit Level 14 → Level 15
Level Goal
The password for the next level can be retrieved by submitting the password of the current level to port 30000 on localhost.

Commands you may need to solve this level
ssh, telnet, nc, openssl, s_client, nmap

Helpful Reading Material
How the Internet works in 5 minutes (YouTube) (Not completely accurate, but good enough for beginners)
IP Addresses
IP Address on Wikipedia
Localhost on Wikipedia
Ports
Port (computer networking) on WikipediaWrong! Please enter the correct current password.

bandit14@bandit:~$ ^C
bandit14@bandit:~$ cat /etc/bandit_pass/bandit14 | nc localhost 30000
Correct!
8xCjnmgoKbGLhHFAZlGE5Tmu4M2tKJQo

bandit14@bandit:~$
```

LEVEL 15 TO LEVEL 16 (1)

To login into i entered the command ssh

bandit15@bandit.labs.overthewire.org -p 2220

And entered the password i got in last level to login

1. cat

- **What it does** Displays the contents of a file.

:cat /etc/bandit_pass/bandit15

2.openssl

- **What it does**: `openssl` is a tool for encryption, certificates, and secure connections. openssl s_client -connect localhost:30001

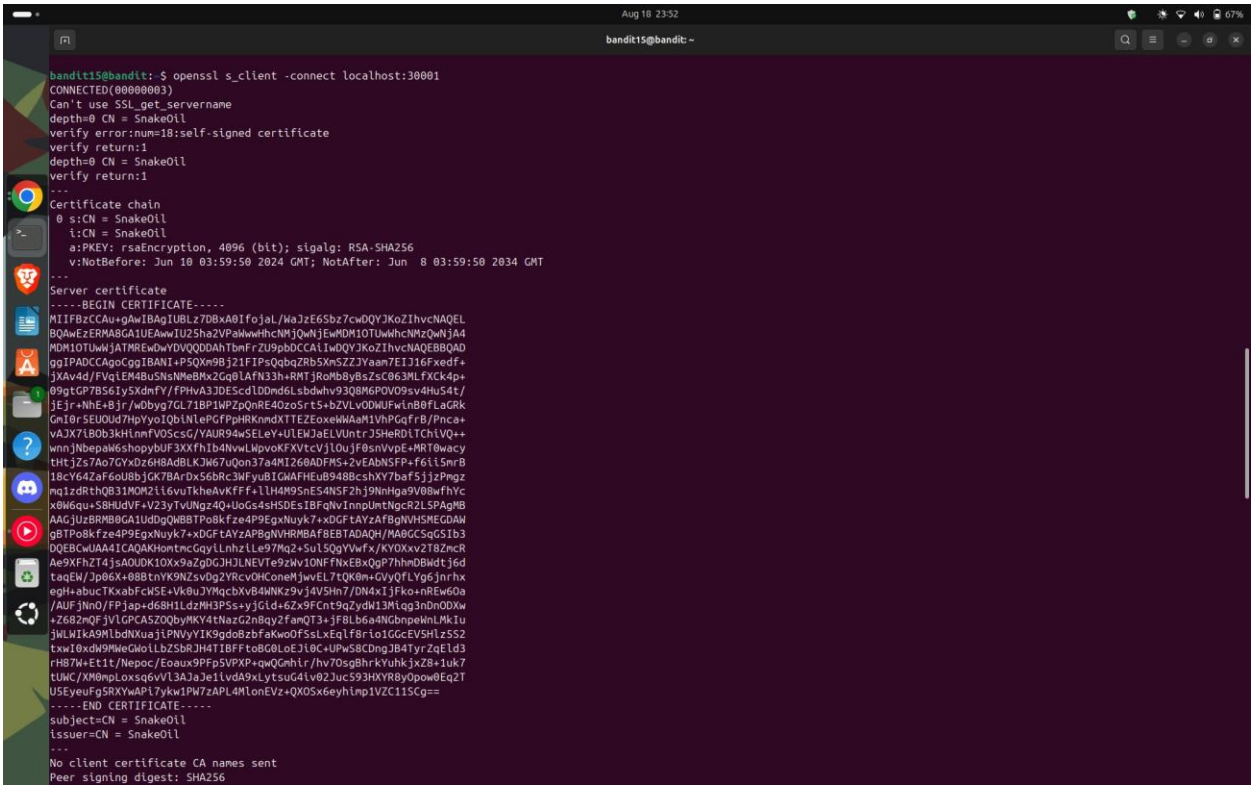
3. `|` (Pipe)

- **What it does**: Takes the **output of one command** and **sends it as input to another**. cat /etc/bandit_pass/bandit15 | openssl s_client -connect localhost:30001 -quiet

---

4. quiet

- **What it does**: Reduces extra SSL handshake debugging messages, so you only see the actual result from the server.



```
Aug 18 23:53                                                                    67%
bandit15@bandit: ~
Server Temp Key: X25519, 253 bits
---
SSL handshake has read 2103 bytes and written 373 bytes
Verification error: self-signed certificate
---
New, TLSv1.3, Cipher is TLS_AES_256_GCM_SHA384
Server public key is 4096 bit
Secure Renegotiation IS NOT supported
Compression: NONE
Expansion: NONE
No ALPN negotiated
Early data was not sent
Verify return code: 18 (self-signed certificate)
---
---
Post-Handshake New Session Ticket arrived:
SSL-Session:
    Protocol  : TLSv1.3
    Cipher    : TLS_AES_256_GCM_SHA384
    Session-ID: CB04083F2A686E440529370B29C692EB9AE8D65FCBC2EC5838B1A8438ECB1343
    Session-ID-ctx:
    Resumption PSK: 8653CC1C08D1DA4A64D1CD41A870B59A0F9A9B5BF36C9AE52BDCD5AE7571887557A7B8DD00424479C320D728040BCDCE
    PSK identity: None
    PSK identity hint: None
    SRP username: None
    TLS session ticket lifetime hint: 300 (seconds)
    TLS session ticket:
    0000 - 8f 9d d6 9b a1 38 50 28-f8 cc a3 9b dd b4 49 3d   .....BP(......I=
    0010 - 09 16 ea 0f cf 51 a7 60-f6 b2 30 7b 5c b0 c9 c9   .....Q.`..0{\...
    0020 - 35 1f 74 f5 a9 d0 c2 35-c5 e6 35 31 d1 20 24 03   5.t....5..51. $.
    0030 - 67 d0 5d f4 1c 9b 8d f7-f1 7c 29 61 9a 94 ad 90   g.]......|)a....
    0040 - cc 83 e9 bb d6 14 f9 fd-13 0f 95 ea 2e 42 c6 5d   .............B.]
    0050 - ef e5 2f 06 da 8e 95 68-db 0a 14 45 4e 7a 21 94   ../....h...ENz!.
    0060 - 5d 18 7e eb 18 9d 4a 2c-e6 c3 c2 d0 bb 82 2c 21   ].~...J,.......!
    0070 - d8 0d b4 a5 20 7b 9d 9d-a0 61 6d 04 fd 4e 57 88   .... {...am..NW.
    0080 - a6 ce 5c 67 73 df a3 f9-7b 96 8b dc 33 98 4c 2a   ..\gs...{...3.L*
    0090 - cf d6 4f 7d 3f 64 1a 3d-36 ba cf a4 8c 2f dc 18   ..O}?d.=6..../..
    00a0 - 5e cc 32 bc b0 8b 12 b7-44 06 93 f7 9c 8f b0 65   ^.2.....D......e
    00b0 - e2 d8 e3 9b 9a 64 a2 23-03 aa b8 17 a7 23 b5 0c   .....d.#.....#..
    00c0 - c3 1f 95 10 2f 10 d2 f3-1e fb cb 76 9d 5b 7d 99   ..../......v.[}.
    00d0 - 55 ff 45 74 3c 1c ce 57-f6 1f 2f 99 00 18 ed df   U.Et<..W../.....

    Start Time: 1755539172
    Timeout   : 7200 (sec)
    Verify return code: 18 (self-signed certificate)
    Extended master secret: no
    Max Early Data: 0
---
read R BLOCK
---
Post-Handshake New Session Ticket arrived:
```

```
Aug 18 23:53                                                                    67%
bandit15@bandit: ~
    00d0 - 55 ff 45 74 3c 1c ce 57-f6 1f 2f 99 00 18 ed df   U.Et<..W../.....

    Start Time: 1755539172
    Timeout   : 7200 (sec)
    Verify return code: 18 (self-signed certificate)
    Extended master secret: no
    Max Early Data: 0
---
read R BLOCK
---
Post-Handshake New Session Ticket arrived:
SSL-Session:
    Protocol  : TLSv1.3
    Cipher    : TLS_AES_256_GCM_SHA384
    Session-ID: AEF28B5D1FA6AA8C6DB3D0961FD1DACBBE83F4653DBD55A356119608359EA8DB
    Session-ID-ctx:
    Resumption PSK: DD67B5BD43F0AA6B2CE23A209F379A8924357B7079C1BE02AAAB740B09502061EBEF0620A3328CCBE7F94EC59A2A50F0
    PSK identity: None
    PSK identity hint: None
    SRP username: None
    TLS session ticket lifetime hint: 300 (seconds)
    TLS session ticket:
    0000 - 8f 9d d6 9b a1 38 50 28-f8 cc a3 9b dd b4 49 3d   .....BP(......I=
    0010 - 68 fd 03 eb ae fb 28 a9-30 9a b2 cd cd 89 8c 86   h.....(.0.......
    0020 - 91 fa 2e 82 f7 92 ee 4a-cb 27 8d 11 fe 61 f7 de   .......J.'...a..
    0030 - ec 56 8e 58 8c 46 21 dc-3e d2 7f f5 aa ba 4d 98   .V.X.F!.>.....M.
    0040 - 78 bd 0d 42 1c e9 c8 86-01 a1 da 77 ab 01 5e 2e   x..B.......w..^.
    0050 - 7c ef 3e f0 17 f3 1c ef-75 d9 ab 3e 83 bc c5 ce   |.>....u..>....
    0060 - 31 24 a8 a5 ba b4 49 cf-ac 7b 88 57 0f d3 06 79   1$....I..{.W...y
    0070 - bb 7c 30 4b a1 f2 18 31-c2 53 be 9d 20 03 0a 7b   .|0K...1.S.. ..{
    0080 - 94 9a 16 7a f9 da f5 6b-1d 57 4e 86 ac 6c fa c9   ...z...k.WN..l..
    0090 - b6 50 b9 6c 46 e9 87 e1-80 11 57 39 6f c6 34 c1   .P.lF.....W9o.4.
    00a0 - 4c 34 ed b7 e4 1d ec 67-4f ae d0 ba 0a 34 e0 c0   L4.....gO....4..
    00b0 - e6 22 4e d3 20 67 07 e9-34 69 3a 3e 97 27 b1 f8   ."N. g..4i:>.'..
    00c0 - 04 b3 d0 1a 03 2c 8b e4-53 b8 3b 8d f8 06 95 46   ......,..S.;....F
    00d0 - 45 e5 0f 20 91 4e eb 7c-2b 37 4c 20 6a d1 d0 9c   E.. .N.|+7L j...

    Start Time: 1755539172
    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:~$
```

After running this you need to enter the current level password then you will be getting next level password

LEVEL 16 TO LEVEL 17

First i logged in using command ssh

bandit16@bandit.labs.overthewire.org -p 2220 and

entered the passowrd i got in last level

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit16@bandit.labs.overthewire.org -p  2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-1
bandit16@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

In the question it is given that the password is stored in the port on the localhost in the range of 31000 to 32000

Then i entered the command

nmap -p31000-32000 localhost

this scans all the available ports in the given range and displays them

```
bandit16@bandit:~$ nmap -p31000-32000 localhost
Starting Nmap 7.94SVN ( https://nmap.org ) at 2025-08-26 09:09 UTC
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00014s latency).
Not shown: 996 closed tcp ports (conn-refused)
PORT      STATE SERVICE
31046/tcp open  unknown
31518/tcp open  unknown
31691/tcp open  unknown
31790/tcp open  unknown
31960/tcp open  unknown
```

Then i entered openssl s_client -ign_eof -connect localhost:31046 command

I entered this command for every port then for the first and second port it was echoing back

Then in the third port i got a message READ R block i entered

the current password then i got a RSA Key

cat /etc/bandit_pass/bandit16 | openssl s_client -ign_eof -connect localhost:31790 or else we can enter the command above to directly access the RSA key without entering the password as the first command is used for finding out the password in current level

```
bandit16@bandit:~$ cat /etc/bandit_pass/bandit16 | openssl s_client -ign_eof -connect localhost:31790
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 2034 GMT
```

```
read R BLOCK
Correct!
-----BEGIN RSA PRIVATE KEY-----
MIIEogIBAAKCAQEAvmOkuifmMg6HL2YPIOjon6iWfbp7c3jx34YkYWqUH57SUdyJ
imZzeyGC0gtZPGujUSxiJSWI/oTqexh+cAMTSMlOJf7+BrJObArnxd9Y7YT2bRPQ
Ja6Lzb558YW3FZl87ORiO+rW4LCDCNd2lUvLE/GL2GWyuKN0K5iCd5TbtJzEkQTu
DSt2mcNn4rhAL+JFr56o4T6z8WWAW18BR6yGrMq7Q/kALHYW3OekePQAzL0VUYbW
JGTi65CxbCnzc/w4+mqQyvmzpWtMAzJTzAzQxNbkR2MBGySxDLrjg0LWN6sK7wNX
x0YVztz/zbIkPjfkU1jHS+9EbVNj+D1XFOJuaQIDAQABAoIBABagpxpM1aoLWfvD
KHcj10nqcoBc4oE11aFYQwik7xfW+24pRNuDE6SFthOar69jp5RlLwD1NhPx3iBl
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-----

closed
```

After this i entered nano bandit17.key to save the RSA key for viewing the next level password

and we need to enter the rsa key in that file

I had some issue in my laptop it was showing DENIED PERMISSION so i used some help and found out i can do it outside of bandit server

Then i exited from bandit 16 and entered nano bandit17.key in my local machine

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ nano bandit17.key
```

After entering this it opened a bsic text editor in the server i copied the entire RSA key into this and saved this

Then after saving it i entered the another command

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ chmod 600 bandit17.key
```

This is to to **restrict the file permissions** of the private key file.

Then i entered this command to directly login into bandit 17

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh -i bandit17.key bandit17@bandit.labs.overthewire.org -p 2220
```

Then i logged into bandit 17 for the password of bandit 17 we should

enter the command

```
bandit17@bandit:~$ cat /etc/bandit_pass/bandit17
EReVavePLFHtFlFsjn3hyzMlvSuSAcRD
```

This command lists the password of current level

LEVEL 17 TO LEVEL 18

I logged into bandit 17 directly from bandit 16

As mentioned in the question that there are 2 files in this level

There are 2 files in the homedirectory: **passwords.old and passwords.new.**

And the password is in passwords.new

I used diff command here

As diff command is used to compare the diffrences between 2 files

And as mentioned in the question only one line has been changed in both the files

so i entered

diff passwords.old passwords,new

```
bandit17@bandit:~$ diff passwords.old passwords.new
42c42
< CgmS55GVlEKTgx8xpW8HuWnHlBKP924b
---
> x2gLTTjFwMOhQ8oWNbMN362QKxfRqGlO
```

And then i got the password for next level

LEVEL 18 TO LEVEL 19

After logging into level 18 with the password i got in last level then it directly logged me out giving a message Byebye

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit18@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-1
bandit18@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

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

Then as mentioned in the question that someone messed up with the .bashrc and the password is in readme file

As bashrc is the startup script for programs in linux This time i

gave the command

ssh bandit18@bandit.labs.overthewire.org -p 2220 cat readme

This command immediately reads the readme file after login and thus preventing from logginf us out

And then i got the password

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit18@bandit.labs.overthewire.org -p 2220 cat readme
                      _                     _ _ _
                     | |__   __ _ _ __   __| (_) |_
                     | '_ \ / _` | '_ \ / _` | | __|
                     | |_) | (_| | | | | (_| | | |_
                     |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-1
bandit18@bandit.labs.overthewire.org's password:
cGWpMaKXVwDUNgPAVJbWYuGHVn9zl3j8
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$
```

LEVEL 19 TO LEVEL 20

Here i logged in into bandit 19 by:

ssh bandit19@bandit.labs.overthewire.org -p 2220 and

entered the password i got in previous level

```
siddharth@siddharth-IdeaPad-Slim-3-15IRH10:~$ ssh bandit19@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

backend: gibson-1
bandit19@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

According to the question the password is stored in bandit20 and we have to access it by cat /etc/bandit_pass/bandit20

But as we are in bandit 19 we cannot access bandit 20 files

Then i entered ls -l

```
bandit19@bandit:~$ ls -l
total 16
-rwsr-x--- 1 bandit20 bandit19 14884 Aug 15 13:16 bandit20-do
```

To access bandit 20 from bandit 19 we need to enter the command

```
bandit19@bandit:~$ ./bandit20-do
```

But here we did not specify what do we want from bandit 20

Then after this command we need to enter cat /etc/bandit_pass/bandit20 so that we can view the info in it

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

And then we get the password

LEVEL 20 TO LEVEL 21

First i logged in into bandit 20

And then i entered command ls to view the files in it

As mentioned in the question here is a setuid binary in the homedirectory and that pprogram was named as suconnect

So now i need to make a connection with that program in localhost to the port i specify

so i entered ./suconnect 20000 to connect to port 20000

```
bandit20@bandit:~$ ./suconnect 20000
Read: 0qXahG8ZjOVMN9Ghs7iOWsCfZyXOUbYO
Password matches, sending next password
```

After that i entered echo "0qXahG8ZjOVMN9Ghs7iOWsCfZyXOUbYO" | nc -l -p 20000

Here echo prints the password and | is piping

So, the password text produced by `echo` is sent straight to the `nc` command.

-l tells nc to **listen** for an incoming connection, turning it into a server.

-p 20000 This tells the server which **port** to listen on

Then after this we get the password to next level

LEVEL 20 TO LEVEL 21