Bandit Write-Up: Levels 10—>15

This write-up covers the transition from **Level 10 to Level 15** in OverTheWire's Bandit wargame, including the SSH connection process and solving the challenges for each level. The format follows the same structure as the previous write-ups, with screenshots provided for reference.

Level 10 → Level 11: Decoding Base64 Data

Level Goal

- The password for the next level is stored in the file `data.txt`, which contains base64 encoded data.

Steps to Solve Level 10 → Level 11

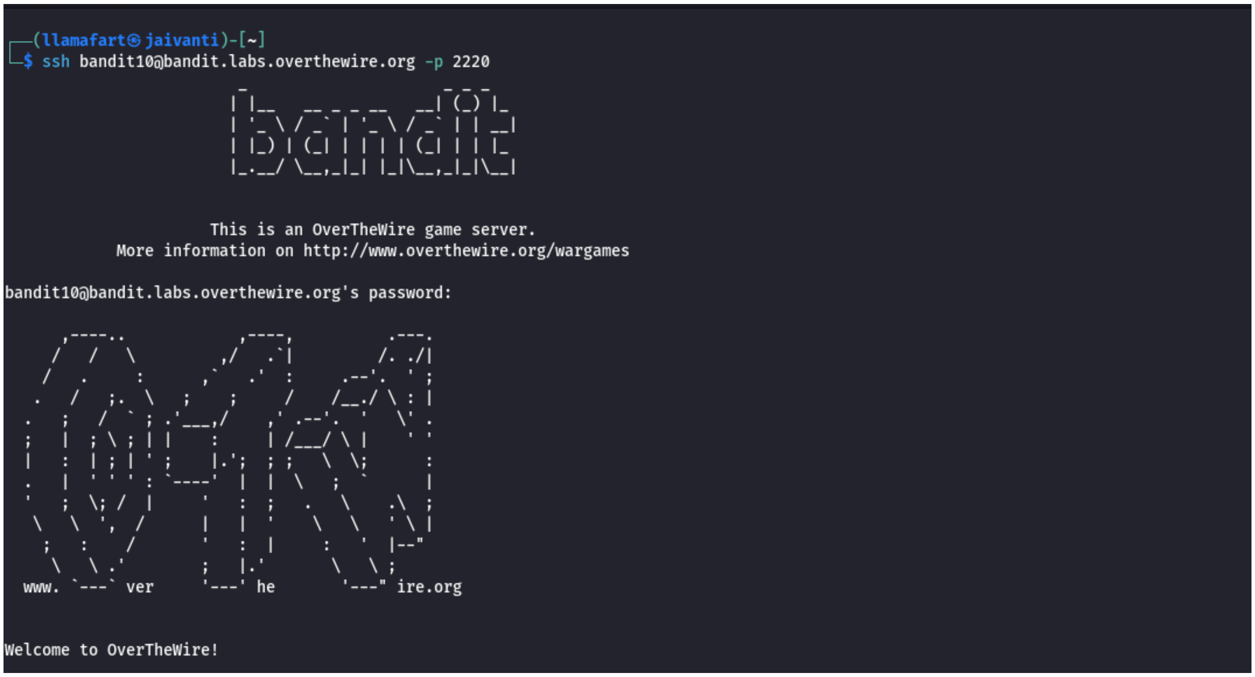
1. Log into Bandit10

Command

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

Password for SSH Login

- The password for `bandit10` is: `FGUW5ilLVJrxX9kMYMmlN4MgbpfMiqey`



```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit10@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit10@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

Explanation

- The `ssh` command is used to connect to the Bandit server.
- `bandit10` is the username for Level 10.
- `bandit.labs.overthewire.org` is the server address.
- `-p 2220` specifies the port number.

2. Locate the File `data.txt`

Command

`ls`

Explanation

- The `ls` command lists all files and directories in the current directory.
- This reveals the file `data.txt`.

3. Decode the Base64 Data

Command

`base64 -d data.txt`

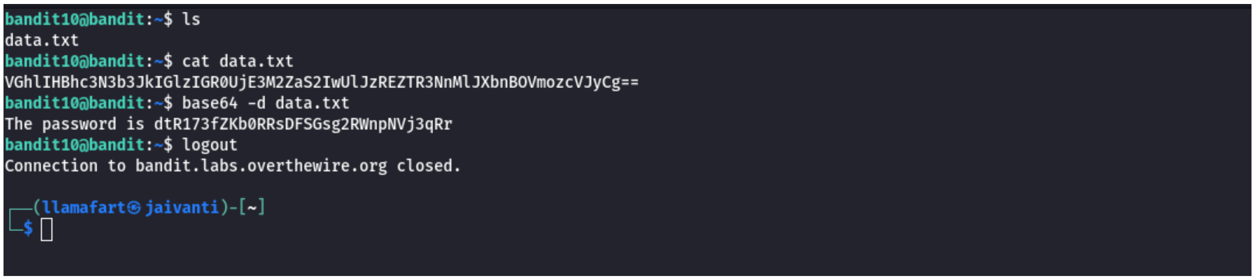
Explanation

- The `base64 -d` command decodes the base64 encoded data in `data.txt`.
- The output shows the decoded password for Level 11.

4. Logout

Command

`logout`



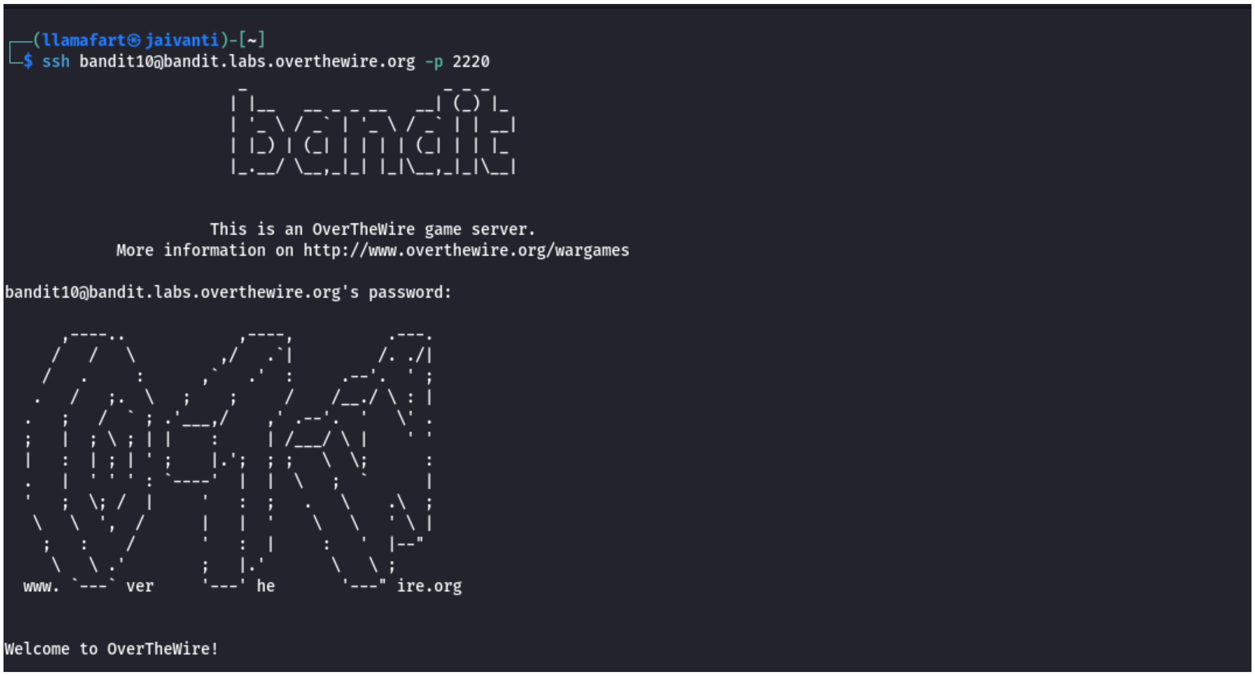
```
bandit10@bandit:~$ ls
data.txt
bandit10@bandit:~$ cat data.txt
VGhlIHBhc3N3b3JkIGlzIGR0UjE3M2ZaS2IwUlJzREZTR3NnMlJXbnBOVmozcVJyCg==
bandit10@bandit:~$ base64 -d data.txt
The password is dtR173fZKb0RRsDFSGsg2RWnpNVj3qRr
bandit10@bandit:~$ logout
Connection to bandit.labs.overthewire.org closed.

┌──(llamafart㉿jaivanti)-[~]
└─$ 
```

Password for Level 11

- The password for `bandit11` is: `dtR173fZKb0RRsDFSGsg2RWnpNVj3qRr`

Screenshots



```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit10@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit10@bandit.labs.overthewire.org's password:

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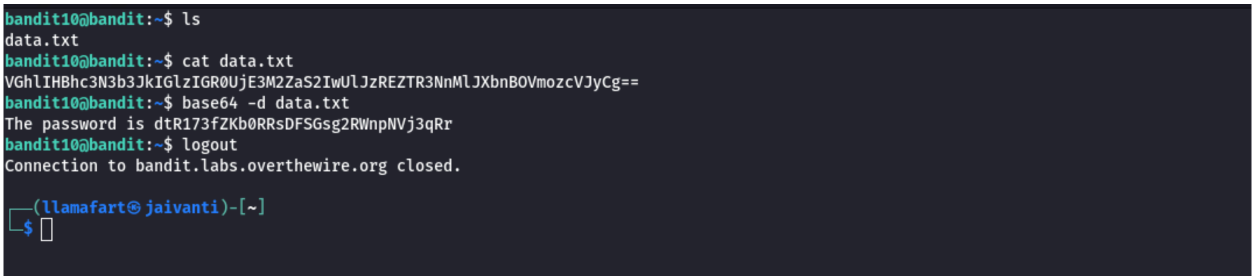



```
bandit10@bandit:~$ ls
data.txt
bandit10@bandit:~$ cat data.txt
VGhlIHBhc3N3b3JkIGlzIGR0UjE3M2ZaS2IwUlJzREZTR3NnMlJXbnBOVmozcVJyCg==
bandit10@bandit:~$ base64 -d data.txt
The password is dtR173fZKb0RRsDFSGsg2RWnpNVj3qRr
bandit10@bandit:~$ logout
Connection to bandit.labs.overthewire.org closed.

┌──(llamafart㉿jaivanti)-[~]
└─$ 
```

- The screenshot shows the terminal during the SSH login process for `bandit10`.
- The screenshot shows the terminal after logging into `bandit10`.
- The `base64 -d data.txt` command is used to decode the base64 encoded data, revealing the password for Level 11.

Conclusion

This level teaches how to decode base64 encoded data using the `base64` command. This skill is useful for working with encoded data in various formats, such as configuration files, logs, and other data storage formats.

Level 11 → Level 12: Decoding Rot13 Data

Level Goal

- The password for the next level is stored in the file `data.txt`, where all lowercase (a-z) and uppercase (A-Z) letters have been rotated by 13 positions (Rot13).

Steps to Solve Level 11 → Level 12

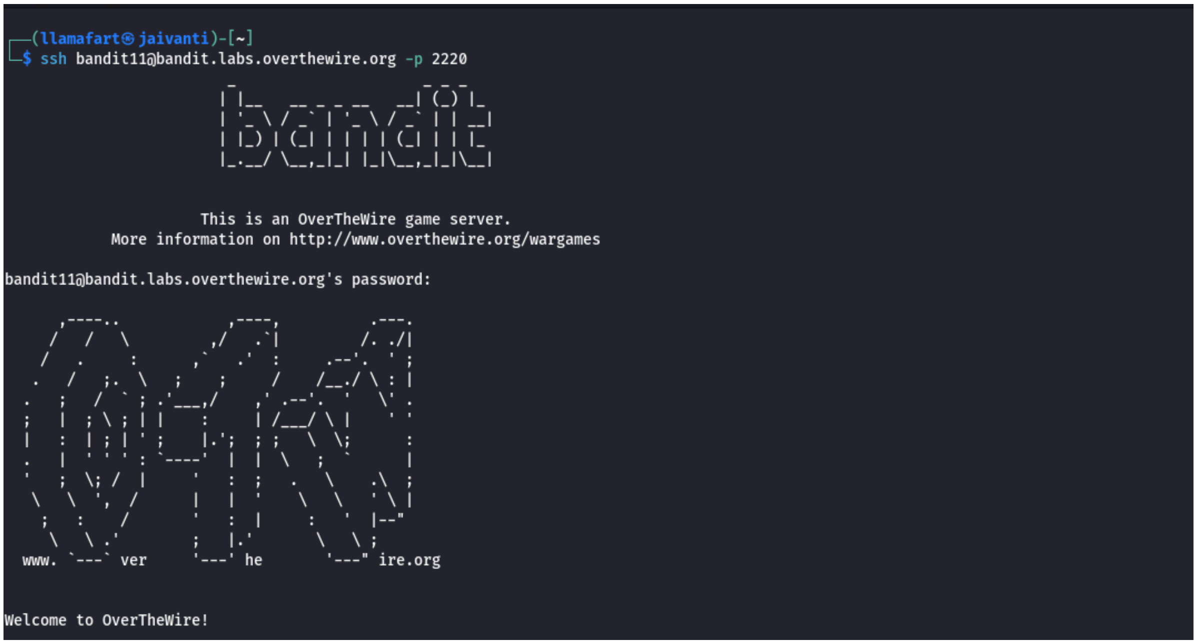
1. Log into Bandit11

Command

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

Password for SSH Login

- The password for `bandit11` is: `dtR173fZKb0RRsDFSGsg2RWnpNVj3qRr`



```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit11@bandit.labs.overthewire.org -p 2220
                      _                     _ _ _
                     | |__   __ _ _ __   __| (_) |_
                     | '_ \ / _` | '_ \ / _` | | __|
                     | |_) | (_| | | | | (_| | | |_
                     |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit11@bandit.labs.overthewire.org's password:

Welcome to OverTheWire!
```

Explanation

- The `ssh` command is used to connect to the Bandit server.
- `bandit11` is the username for Level 11.
- `bandit.labs.overthewire.org` is the server address.
- `-p 2220` specifies the port number.

2. Locate the File `data.txt`

Command

`ls`

Explanation

- The `ls` command lists all files and directories in the current directory.
- This reveals the file `data.txt`.

3. Decode the Rot13 Data

Command

`cat data.txt | tr '[A-Za-z]' '[N-ZA-Mn-za-m]’`

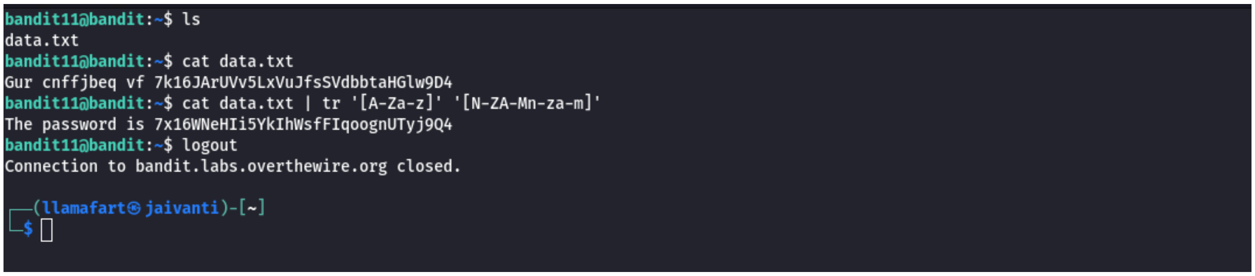
Explanation

- The `cat` command is used to display the contents of `data.txt`.
- The `tr '[A-Za-z]' '[N-ZA-Mn-za-m]'` command translates (rotates) the letters by 13 positions (Rot13).
- The output shows the decoded password for Level 12.

4. Logout

Command

`logout`

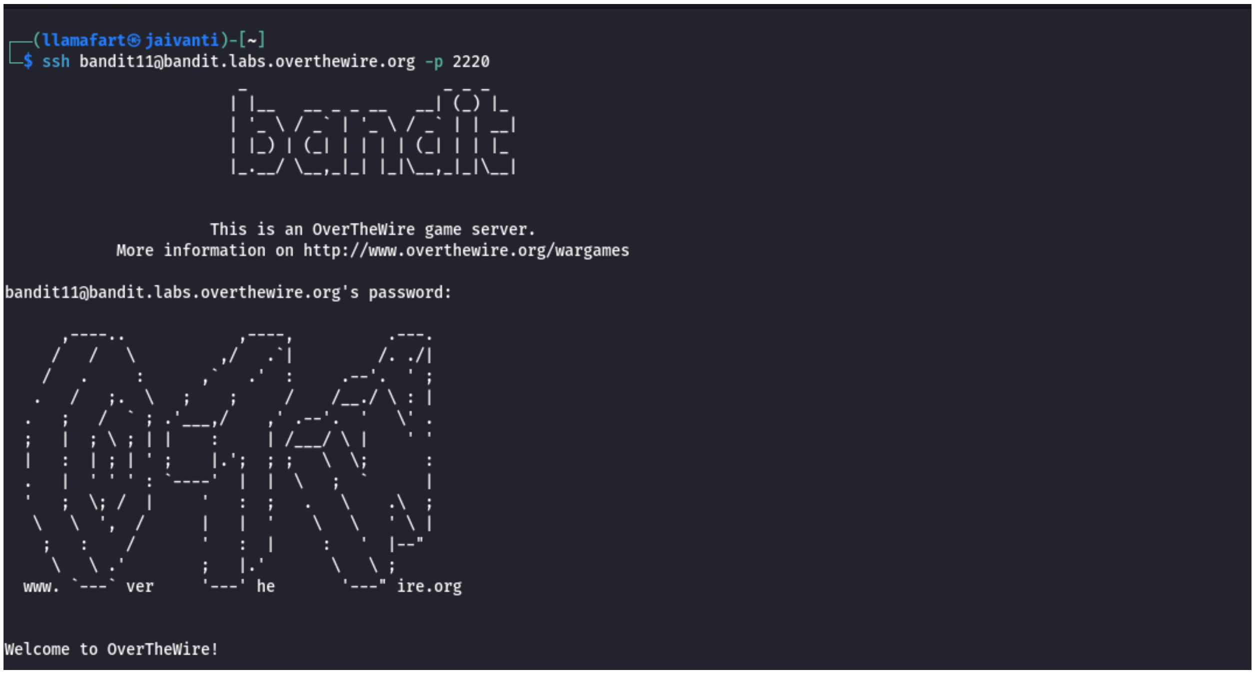


```
bandit11@bandit:~$ ls
data.txt
bandit11@bandit:~$ cat data.txt
Gur cnffjbeq vf 7k16JArUVv5LxVuJfsSVdbbtaHGlw9D4
bandit11@bandit:~$ cat data.txt | tr '[A-Za-z]' '[N-ZA-Mn-za-m]'
The password is 7x16WNeHIi5YkIhWsfFIqoognUTyj9Q4
bandit11@bandit:~$ logout
Connection to bandit.labs.overthewire.org closed.

┌──(llamafart㉿jaivanti)-[~]
└─$ 
```

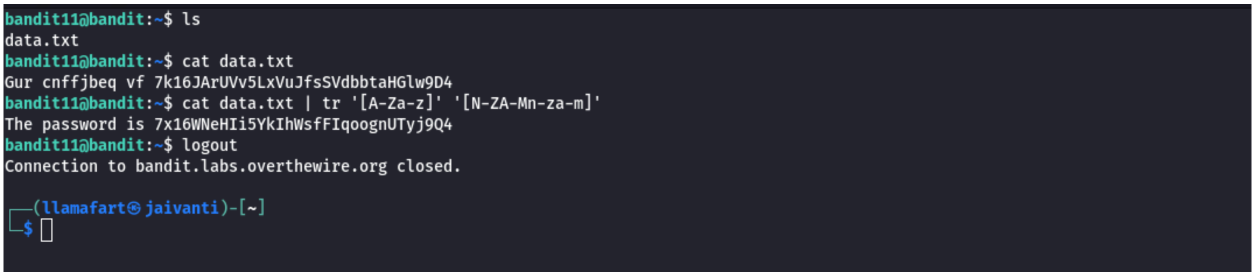
Password for Level 12

- The password for `bandit12` is: `7×16WNeHIi5YkIhWsfFIqoognUTyj9Q4`

Screenshots



```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit11@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit11@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```



```
bandit11@bandit:~$ ls
data.txt
bandit11@bandit:~$ cat data.txt
Gur cnffjbeq vf 7k16JArUVv5LxVuJfsSVdbbtaHGlw9D4
bandit11@bandit:~$ cat data.txt | tr '[A-Za-z]' '[N-ZA-Mn-za-m]'
The password is 7x16WNeHIi5YkIhWsfFIqoognUTyj9Q4
bandit11@bandit:~$ logout
Connection to bandit.labs.overthewire.org closed.

┌──(llamafart㉿jaivanti)-[~]
└─$ ▯
```

- The screenshot shows the terminal during the SSH login process for `bandit11`.
- The screenshot shows the terminal after logging into `bandit11`.
- The `cat data.txt | tr '[A-Za-z]' '[N-ZA-Mn-za-m]'` command is used to decode the Rot13 encoded data, revealing the password for Level 12.

Conclusion

This level teaches how to decode Rot13 encoded data using the `tr` command. Rot13 is a simple letter rotation cipher, and this skill is useful for working with encoded text in various contexts, such as obfuscated data or simple encryption.

Level 12 → Level 13: Decompressing a Repeatedly Compressed File

Level Goal

- The password for the next level is stored in the file `data.txt`, which is a hexdump of a file that has been repeatedly compressed. For this level, it may be useful to create a directory under `/tmp` in which you can work. Use `mkdir` with a hard-to-guess directory name or the command `mktemp -d`. Then, copy the data file using `cp` and rename it using `mv`.

Steps to Solve Level 12 → Level 13

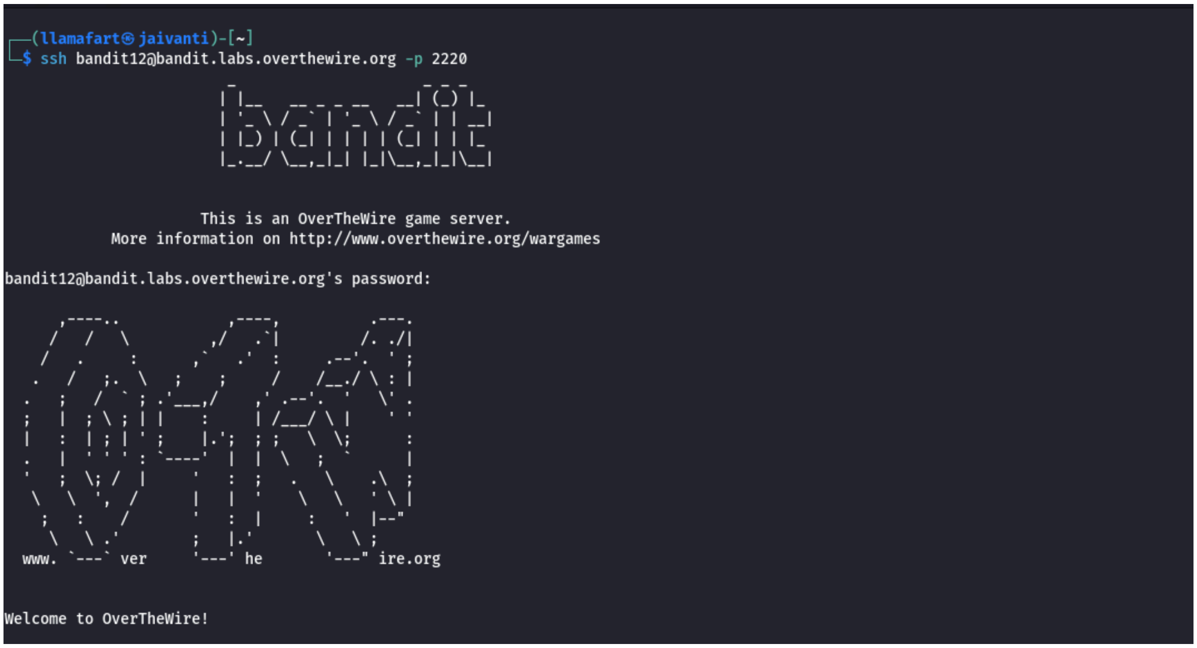
1. Log into Bandit12

Command

`ssh` `bandit12@bandit.labs.overthewire.org` `-p 2220`

Password for SSH Login

- The password for `bandit12` is: `7×16WNeHli5YklhWsfFlqoognUTyj9Q4`



```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit12@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit12@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

Explanation

- The `ssh` command is used to connect to the Bandit server.
- `bandit12` is the username for Level 12.
- `bandit.labs.overthewire.org` is the server address.
- `-p 2220` specifies the port number.
- This directory will be used to work with the compressed files.

2. List the Contents of the Home Directory

Command

`ls`

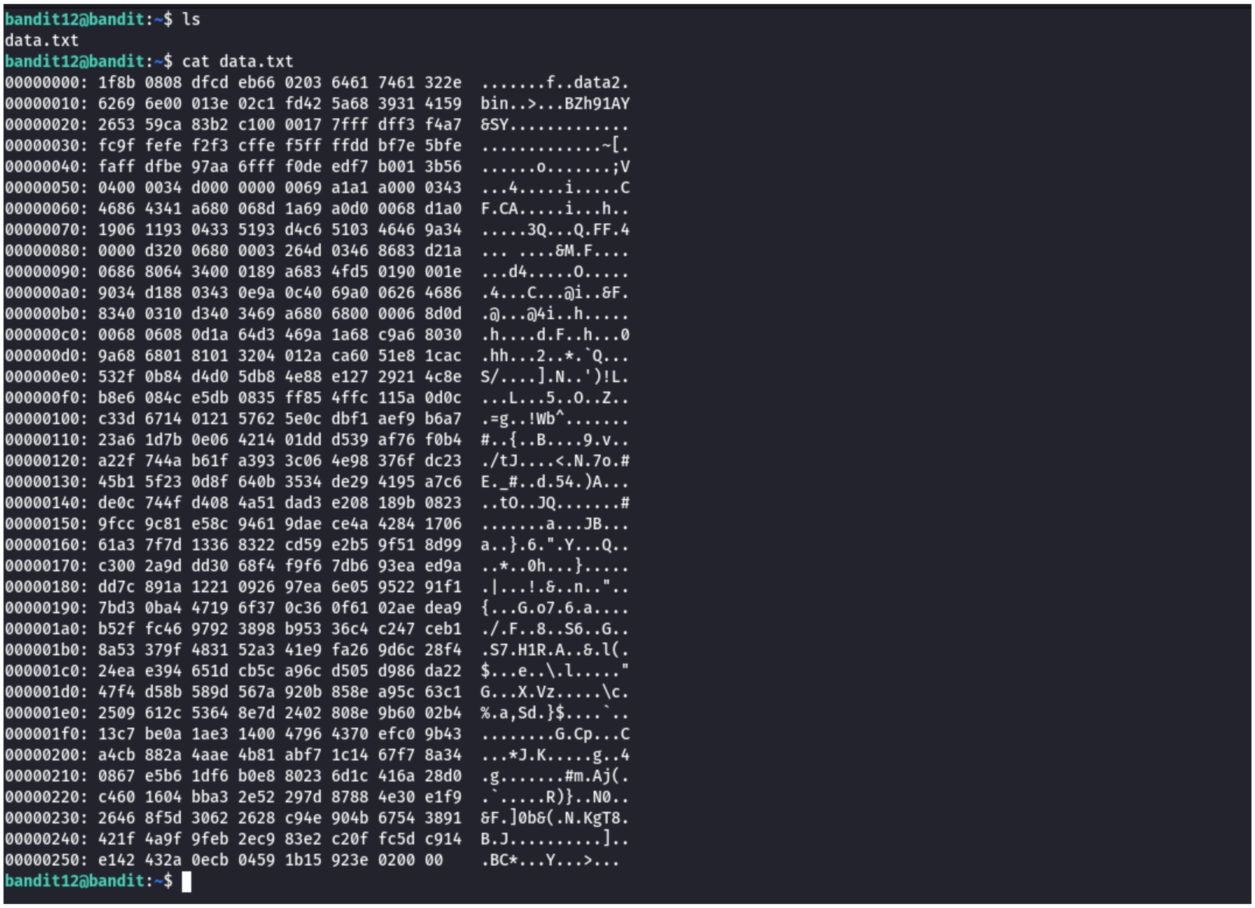
Explanation

- The `ls` command lists all files and directories in the current directory.
- This reveals the file `data.txt`.

3. View the Contents of `data.txt`

Command

`cat data.txt`



```
bandit12@bandit:~$ ls
data.txt
bandit12@bandit:~$ cat data.txt
00000000: 1f8b 0808 dfcd eb66 0203 6461 7461 322e  .......f..data2.
00000010: 6269 6e00 013e 02c1 fd42 5a68 3931 4159  bin..>...BZh91AY
00000020: 2653 59ca 83b2 c100 0017 7fff dff3 f4a7  &SY.............
00000030: fc9f fefe f2f3 cffe f5ff ffdd bf7e 5bfe  .............~[.
00000040: faff dfbe 97aa 6fff f0de edf7 b001 3b56  ......o.......;V
00000050: 0400 0034 d000 0000 0069 a1a1 a000 0343  ...4.....i.....C
00000060: 4686 4341 a680 068d 1a69 a0d0 0068 d1a0  F.CA.....i...h..
00000070: 1906 1193 0433 5193 d4c6 5103 4646 9a34  .....3Q...Q.FF.4
00000080: 0000 d320 0680 0003 264d 0346 8683 d21a  ... ....&M.F....
00000090: 0686 8064 3400 0189 a683 4fd5 0190 001e  ...d4.....O.....
000000a0: 9034 d188 0343 0e9a 0c40 69a0 0626 4686  .4...C...@i..&F.
000000b0: 8340 0310 d340 3469 a680 6800 0006 8d0d  .@...@4i..h.....
000000c0: 0068 0608 0d1a 64d3 469a 1a68 c9a6 8030  .h....d.F..h...0
000000d0: 9a68 6801 8101 3204 012a ca60 51e8 1cac  .hh...2..*.`Q...
000000e0: 532f 0b84 d4d0 5db8 4e88 e127 2921 4c8e  S/....].N..')!L.
000000f0: b8e6 084c e5db 0835 ff85 4ffc 115a 0d0c  ...L...5..O..Z..
00000100: c33d 6714 0121 5762 5e0c dbf1 aef9 b6a7  .=g..!Wb^.......
00000110: 23a6 1d7b 0e06 4214 01dd d539 af76 f0b4  #..{..B....9.v..
00000120: a22f 744a b61f a393 3c06 4e98 376f dc23  ./tJ....<.N.7o.#
00000130: 45b1 5f23 0d8f 640b 3534 de29 4195 a7c6  E._#..d.54.)A...
00000140: de0c 744f d408 4a51 dad3 e208 189b 0823  ..tO..JQ.......#
00000150: 9fcc 9c81 e58c 9461 9dae ce4a 4284 1706  .......a...JB...
00000160: 61a3 7f7d 1336 8322 cd59 e2b5 9f51 8d99  a..}.6.".Y...Q..
00000170: c300 2a9d dd30 68f4 f9f6 7db6 93ea ed9a  ..*..0h...}.....
00000180: dd7c 891a 1221 0926 97ea 6e05 9522 91f1  .|...!.&..n.."..
00000190: 7bd3 0ba4 4719 6f37 0c36 0f61 02ae dea9  {...G.o7.6.a....
000001a0: b52f fc46 9792 3898 b953 36c4 c247 ceb1  ./.F..8..S6..G..
000001b0: 8a53 379f 4831 52a3 41e9 fa26 9d6c 28f4  .S7.H1R.A..&.l(.
000001c0: 24ea e394 651d cb5c a96c d505 d986 da22  $...e..\.l....."
000001d0: 47f4 d58b 589d 567a 920b 858e a95c 63c1  G...X.Vz.....\c.
000001e0: 2509 612c 5364 8e7d 2402 808e 9b60 02b4  %.a,Sd.}$....`..
000001f0: 13c7 be0a 1ae3 1400 4796 4370 efc0 9b43  ........G.Cp...C
00000200: a4cb 882a 4aae 4b81 abf7 1c14 67f7 8a34  ...*J.K.....g..4
00000210: 0867 e5b6 1df6 b0e8 8023 6d1c 416a 28d0  .g.......#m.Aj(.
00000220: c460 1604 bba3 2e52 297d 8788 4e30 e1f9  .`.....R)}..N0..
00000230: 2646 8f5d 3062 2628 c94e 904b 6754 3891  &F.]0b&(.N.KgT8.
00000240: 421f 4a9f 9feb 2ec9 83e2 c20f fc5d c914  B.J..........]..
00000250: e142 432a 0ecb 0459 1b15 923e 0200 00    .BC*...Y...>...
bandit12@bandit:~$
```

Explanation

- The `cat` command displays the contents of `data.txt`.
- The file contains a hexdump of a repeatedly compressed file.

4. Create a Temporary Working Directory

Command

`mkdir /tmp/<temporary_directory_name>`

Explanation

- The `mkdir` command creates a temporary directory with a unique name under `/tmp/<temporary_directory_name>`.
- This directory will be used to work with the compressed files.

5. Copy the Data File to the Temporary Directory

Command

```
cp data.txt /tmp/<temporary_directory_name>
cd /tmp/<temporary_directory_name>
```

Explanation

- The `cp` command copies the `data.txt` file to the temporary directory.
- The `cd` command changes the current directory to the temporary directory.

6. Convert the Hexdump Back to Binary

Command

```
xxd -r data.txt > data
```

Explanation

- The `xxd -r` command reverses the hexdump, converting it back to binary format.
- The output is saved to a file named `data`.

7. Identify the File Type and Decompress

Command

```
file data
```

Explanation

- The `file` command identifies the type of the `data` file.
- Based on the file type, use the appropriate decompression command.

8. Repeatedly Decompress the File

Commands

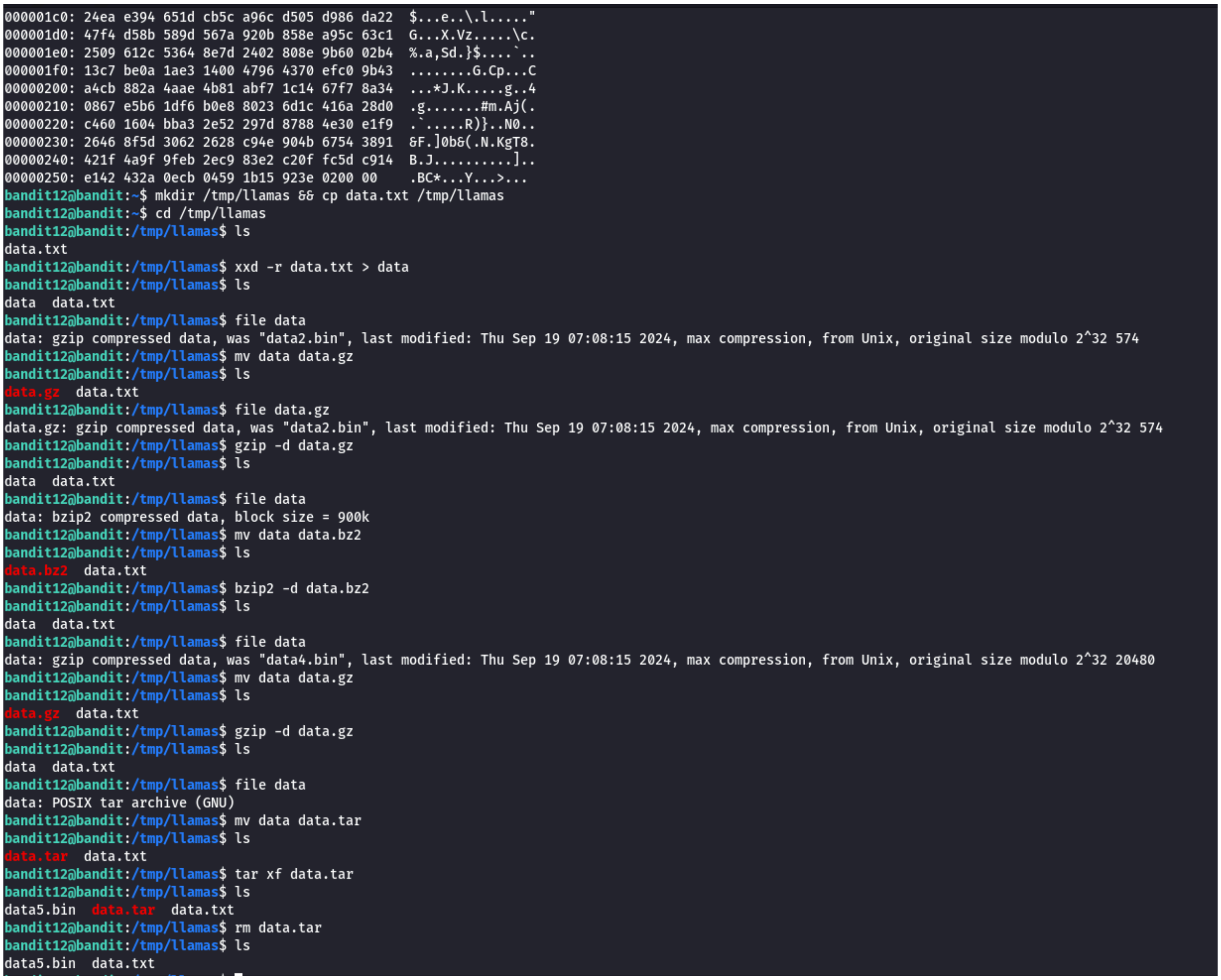
# Example decompression steps

```
mv data data.gz
gzip -d data.gz
```

```
mv data data.bz2
bzip2 -d data.bz2
```

```
mv data data.tar
tar xf data.tar
```

# Repeat the process until the file is fully decompressed



```
000001c0: 24ea e394 651d cb5c a96c d505 d986 da22  $...e..\.l....."
000001d0: 47f4 d58b 589d 567a 920b 858e a95c 63c1  G...X.Vz.....\c.
000001e0: 2509 612c 5364 8e7d 2402 808e 9b60 02b4  %.a,Sd.}$....`..
000001f0: 13c7 be0a 1ae3 1400 4796 4370 efc0 9b43  ........G.Cp...C
00000200: a4cb 882a 4aae 4b81 abf7 1c14 67f7 8a34  ...*J.K.....g..4
00000210: 0867 e5b6 1df6 b0e8 8023 6d1c 416a 28d0  .g.......#m.Aj(.
00000220: c460 1604 bba3 2e52 297d 8788 4e30 e1f9  .`.....R)}..N0..
00000230: 2646 8f5d 3062 2628 c94e 904b 6754 3891  &F.]0b&(.N.KgT8.
00000240: 421f 4a9f 9feb 2ec9 83e2 c20f fc5d c914  B.J..........]..
00000250: e142 432a 0ecb 0459 1b15 923e 0200 00    .BC*...Y...>...
bandit12@bandit:~$ mkdir /tmp/llamas && cp data.txt /tmp/llamas
bandit12@bandit:~$ cd /tmp/llamas
bandit12@bandit:/tmp/llamas$ ls
data.txt
bandit12@bandit:/tmp/llamas$ xxd -r data.txt > data
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: gzip compressed data, was "data2.bin", last modified: Thu Sep 19 07:08:15 2024, max compression, from Unix, original size modulo 2^32 574
bandit12@bandit:/tmp/llamas$ mv data data.gz
bandit12@bandit:/tmp/llamas$ ls
data.gz  data.txt
bandit12@bandit:/tmp/llamas$ file data.gz
data.gz: gzip compressed data, was "data2.bin", last modified: Thu Sep 19 07:08:15 2024, max compression, from Unix, original size modulo 2^32 574
bandit12@bandit:/tmp/llamas$ gzip -d data.gz
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/llamas$ mv data data.bz2
bandit12@bandit:/tmp/llamas$ ls
data.bz2  data.txt
bandit12@bandit:/tmp/llamas$ bzip2 -d data.bz2
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: gzip compressed data, was "data4.bin", last modified: Thu Sep 19 07:08:15 2024, max compression, from Unix, original size modulo 2^32 20480
bandit12@bandit:/tmp/llamas$ mv data data.gz
bandit12@bandit:/tmp/llamas$ ls
data.gz  data.txt
bandit12@bandit:/tmp/llamas$ gzip -d data.gz
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: POSIX tar archive (GNU)
bandit12@bandit:/tmp/llamas$ mv data data.tar
bandit12@bandit:/tmp/llamas$ ls
data.tar  data.txt
bandit12@bandit:/tmp/llamas$ tar xf data.tar
bandit12@bandit:/tmp/llamas$ ls
data5.bin  data.tar  data.txt
bandit12@bandit:/tmp/llamas$ rm data.tar
bandit12@bandit:/tmp/llamas$ ls
data5.bin  data.txt
```

Explanation

- The file is repeatedly compressed using different formats (e.g., gzip, bzip2, tar).
- Use the appropriate decompression command for each format:
    - `gzip -d` for `.gz` files
    - `bzip2 -d` for `.bz2` files
    - `tar xf` for `.tar` files

9. Read the Final Decompressed File

Command

`cat data`

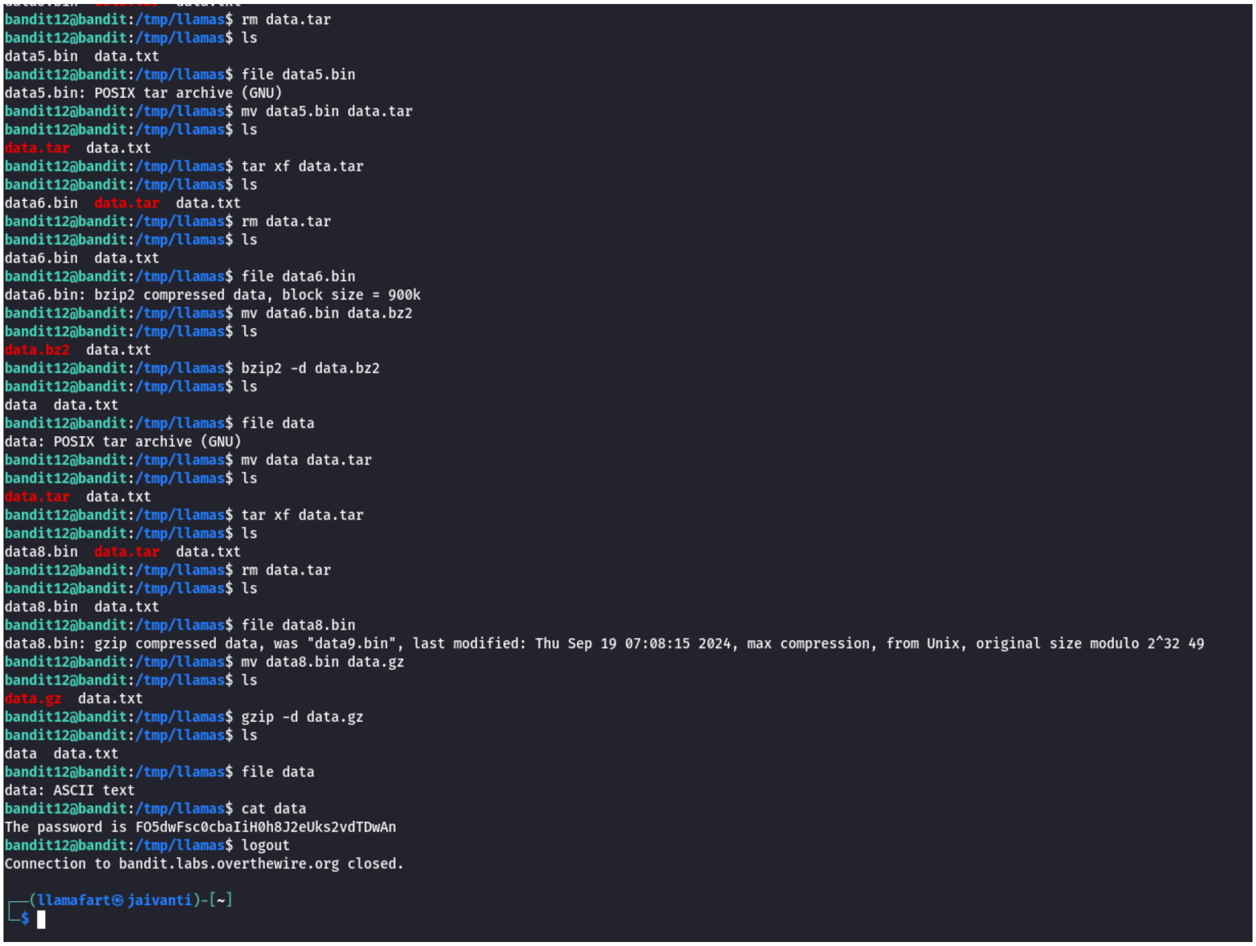
Explanation

- The `cat` command displays the contents of the final decompressed file.
- The output shows the password for Level 13.

10. Logout

Command

`logout`

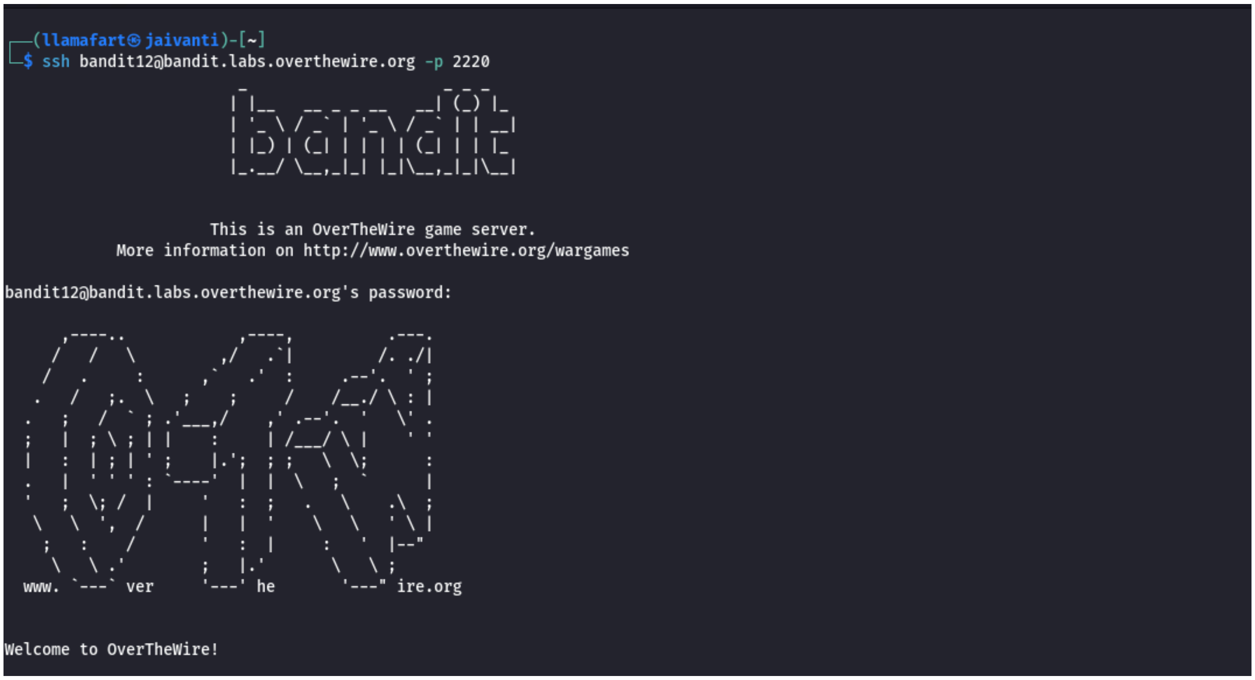


```
bandit12@bandit:/tmp/llamas$ rm data.tar
bandit12@bandit:/tmp/llamas$ ls
data5.bin  data.txt
bandit12@bandit:/tmp/llamas$ file data5.bin
data5.bin: POSIX tar archive (GNU)
bandit12@bandit:/tmp/llamas$ mv data5.bin data.tar
bandit12@bandit:/tmp/llamas$ ls
data.tar  data.txt
bandit12@bandit:/tmp/llamas$ tar xf data.tar
bandit12@bandit:/tmp/llamas$ ls
data6.bin  data.tar  data.txt
bandit12@bandit:/tmp/llamas$ rm data.tar
bandit12@bandit:/tmp/llamas$ ls
data6.bin  data.txt
bandit12@bandit:/tmp/llamas$ file data6.bin
data6.bin: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/llamas$ mv data6.bin data.bz2
bandit12@bandit:/tmp/llamas$ ls
data.bz2  data.txt
bandit12@bandit:/tmp/llamas$ bzip2 -d data.bz2
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: POSIX tar archive (GNU)
bandit12@bandit:/tmp/llamas$ mv data data.tar
bandit12@bandit:/tmp/llamas$ ls
data.tar  data.txt
bandit12@bandit:/tmp/llamas$ tar xf data.tar
bandit12@bandit:/tmp/llamas$ ls
data8.bin  data.tar  data.txt
bandit12@bandit:/tmp/llamas$ rm data.tar
bandit12@bandit:/tmp/llamas$ ls
data8.bin  data.txt
bandit12@bandit:/tmp/llamas$ file data8.bin
data8.bin: gzip compressed data, was "data9.bin", last modified: Thu Sep 19 07:08:15 2024, max compression, from Unix, original size modulo 2^32 49
bandit12@bandit:/tmp/llamas$ mv data8.bin data.gz
bandit12@bandit:/tmp/llamas$ ls
data.gz  data.txt
bandit12@bandit:/tmp/llamas$ gzip -d data.gz
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: ASCII text
bandit12@bandit:/tmp/llamas$ cat data
The password is FO5dwFsc0cbaIiH0h8J2eUks2vdTDwAn
bandit12@bandit:/tmp/llamas$ logout
Connection to bandit.labs.overthewire.org closed.

┌──(llamafart㉿jaivanti)-[~]
└─$ █
```

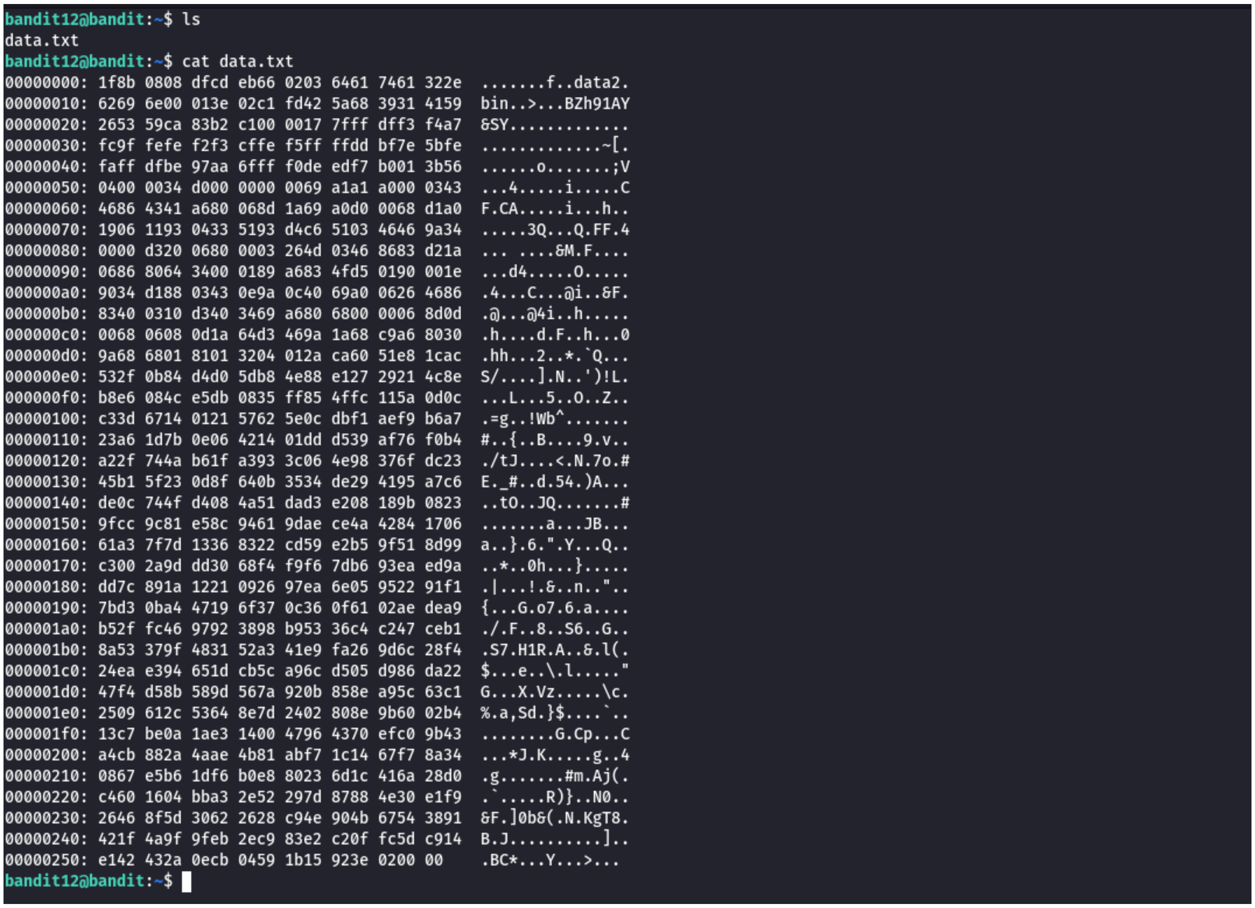
Password for Level 13

- The password for `bandit13` is: `FO5dwFsc0cbaIiH0h8J2eUks2vdTDwAn`

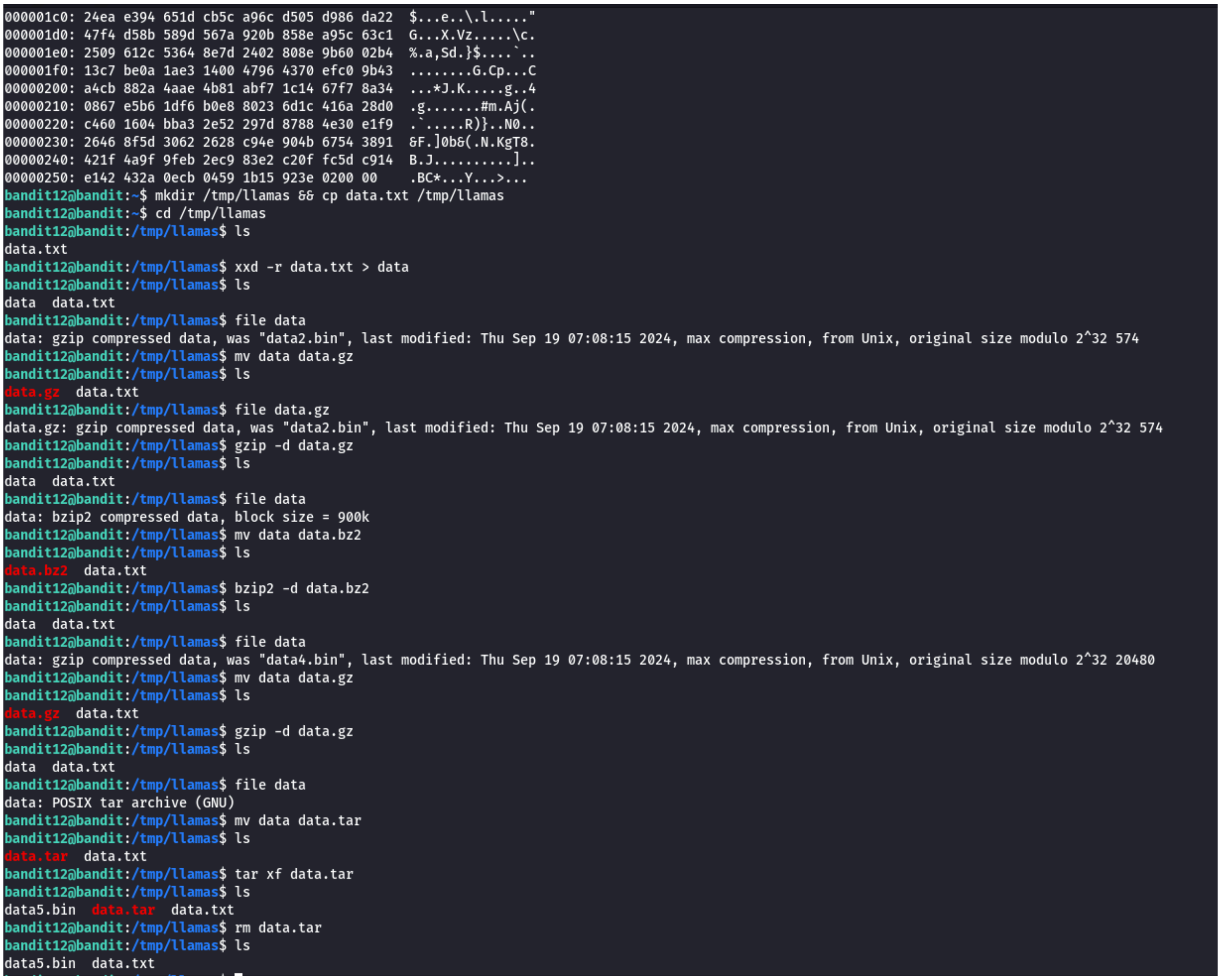
Screenshots



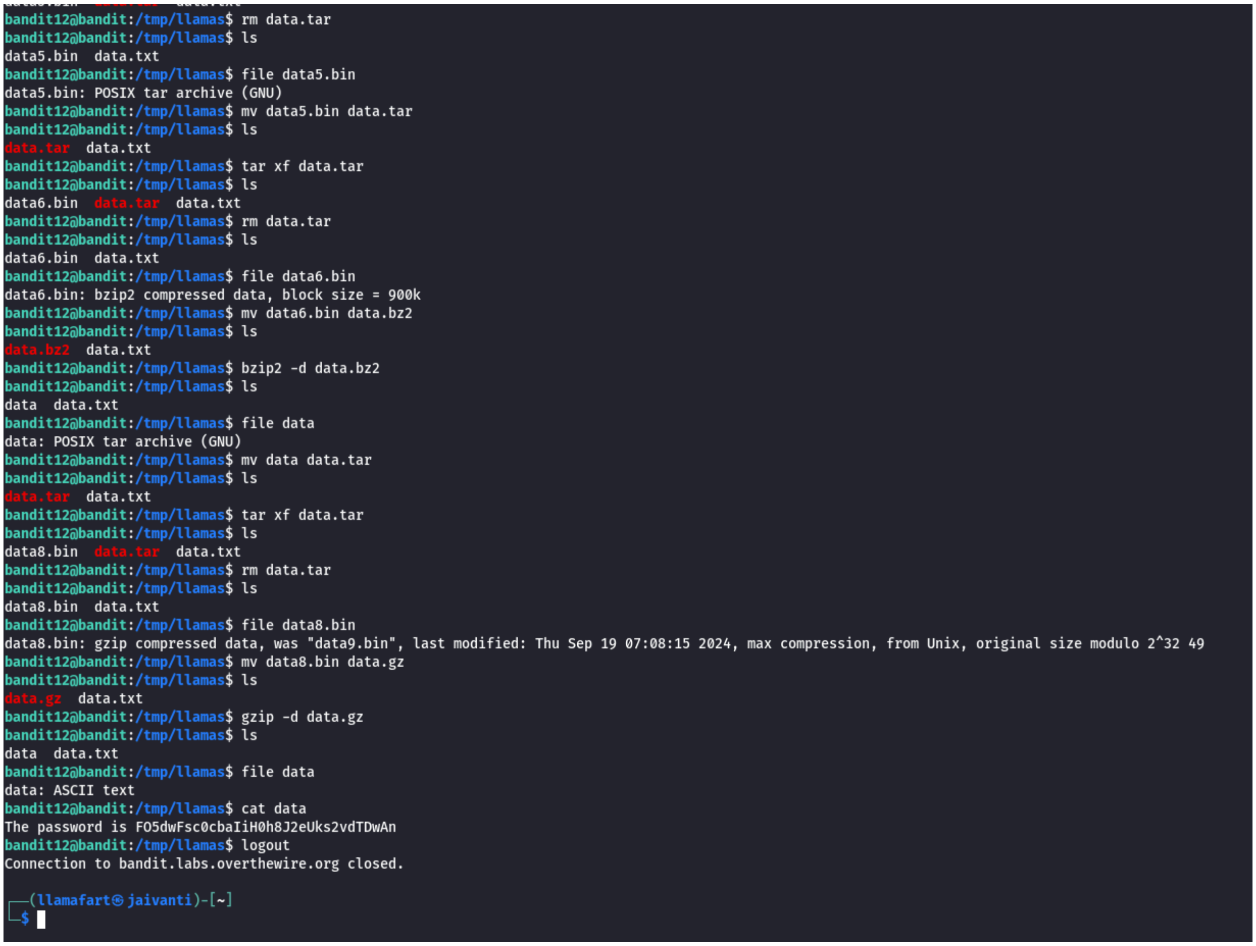
```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit12@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit12@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```



```
bandit12@bandit:~$ ls
data.txt
bandit12@bandit:~$ cat data.txt
00000000: 1f8b 0808 dfcd eb66 0203 6461 7461 322e  .......f..data2.
00000010: 6269 6e00 013e 02c1 fd42 5a68 3931 4159  bin..>...BZh91AY
00000020: 2653 59ca 83b2 c100 0017 7fff dff3 f4a7  &SY.............
00000030: fc9f fefe f2f3 cffe f5ff ffdd bf7e 5bfe  .............~[.
00000040: faff dfbe 97aa 6fff f0de edf7 b001 3b56  ......o.......;V
00000050: 0400 0034 d000 0000 0069 a1a1 a000 0343  ...4.....i.....C
00000060: 4686 4341 a680 068d 1a69 a0d0 0068 d1a0  F.CA.....i...h..
00000070: 1906 1193 0433 5193 d4c6 5103 4646 9a34  .....3Q...Q.FF.4
00000080: 0000 d320 0680 0003 264d 0346 8683 d21a  ... ....&M.F....
00000090: 0686 8064 3400 0189 a683 4fd5 0190 001e  ...d4.....O.....
000000a0: 9034 d188 0343 0e9a 0c40 69a0 0626 4686  .4...C...@i..&F.
000000b0: 8340 0310 d340 3469 a680 6800 0006 8d0d  .@...@4i..h.....
000000c0: 0068 0608 0d1a 64d3 469a 1a68 c9a6 8030  .h....d.F..h...0
000000d0: 9a68 6801 8101 3204 012a ca60 51e8 1cac  .hh...2..*.`Q...
000000e0: 532f 0b84 d4d0 5db8 4e88 e127 2921 4c8e  S/....].N..')!L.
000000f0: b8e6 084c e5db 0835 ff85 4ffc 115a 0d0c  ...L...5..O..Z..
00000100: c33d 6714 0121 5762 5e0c dbf1 aef9 b6a7  .=g..!Wb^.......
00000110: 23a6 1d7b 0e06 4214 01dd d539 af76 f0b4  #..{..B....9.v..
00000120: a22f 744a b61f a393 3c06 4e98 376f dc23  ./tJ....<.N.7o.#
00000130: 45b1 5f23 0d8f 640b 3534 de29 4195 a7c6  E._#..d.54.)A...
00000140: de0c 744f d408 4a51 dad3 e208 189b 0823  ..tO..JQ.......#
00000150: 9fcc 9c81 e58c 9461 9dae ce4a 4284 1706  .......a...JB...
00000160: 61a3 7f7d 1336 8322 cd59 e2b5 9f51 8d99  a..}.6.".Y...Q..
00000170: c300 2a9d dd30 68f4 f9f6 7db6 93ea ed9a  ..*..0h...}.....
00000180: dd7c 891a 1221 0926 97ea 6e05 9522 91f1  .|...!.&..n.."..
00000190: 7bd3 0ba4 4719 6f37 0c36 0f61 02ae dea9  {...G.o7.6.a....
000001a0: b52f fc46 9792 3898 b953 36c4 c247 ceb1  ./.F..8..S6..G..
000001b0: 8a53 379f 4831 52a3 41e9 fa26 9d6c 28f4  .S7.H1R.A..&.l(.
000001c0: 24ea e394 651d cb5c a96c d505 d986 da22  $...e..\.l....."
000001d0: 47f4 d58b 589d 567a 920b 858e a95c 63c1  G...X.Vz.....\c.
000001e0: 2509 612c 5364 8e7d 2402 808e 9b60 02b4  %.a,Sd.}$....`..
000001f0: 13c7 be0a 1ae3 1400 4796 4370 efc0 9b43  ........G.Cp...C
00000200: a4cb 882a 4aae 4b81 abf7 1c14 67f7 8a34  ...*J.K.....g..4
00000210: 0867 e5b6 1df6 b0e8 8023 6d1c 416a 28d0  .g.......#m.Aj(.
00000220: c460 1604 bba3 2e52 297d 8788 4e30 e1f9  .`.....R)}..N0..
00000230: 2646 8f5d 3062 2628 c94e 904b 6754 3891  &F.]0b&(.N.KgT8.
00000240: 421f 4a9f 9feb 2ec9 83e2 c20f fc5d c914  B.J..........]..
00000250: e142 432a 0ecb 0459 1b15 923e 0200 00    .BC*...Y...>...
bandit12@bandit:~$ █
```



```
000001c0: 24ea e394 651d cb5c a96c d505 d986 da22  $...e..\.l....."
000001d0: 47f4 d58b 589d 567a 920b 858e a95c 63c1  G...X.Vz.....\c.
000001e0: 2509 612c 5364 8e7d 2402 808e 9b60 02b4  %.a,Sd.}$....`..
000001f0: 13c7 be0a 1ae3 1400 4796 4370 efc0 9b43  ........G.Cp...C
00000200: a4cb 882a 4aae 4b81 abf7 1c14 67f7 8a34  ...*J.K.....g..4
00000210: 0867 e5b6 1df6 b0e8 8023 6d1c 416a 28d0  .g.......#m.Aj(.
00000220: c460 1604 bba3 2e52 297d 8788 4e30 e1f9  .`.....R)}..N0..
00000230: 2646 8f5d 3062 2628 c94e 904b 6754 3891  &F.]0b&(.N.KgT8.
00000240: 421f 4a9f 9feb 2ec9 83e2 c20f fc5d c914  B.J..........]..
00000250: e142 432a 0ecb 0459 1b15 923e 0200 00    .BC*...Y...>...
bandit12@bandit:~$ mkdir /tmp/llamas && cp data.txt /tmp/llamas
bandit12@bandit:~$ cd /tmp/llamas
bandit12@bandit:/tmp/llamas$ ls
data.txt
bandit12@bandit:/tmp/llamas$ xxd -r data.txt > data
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: gzip compressed data, was "data2.bin", last modified: Thu Sep 19 07:08:15 2024, max compression, from Unix, original size modulo 2^32 574
bandit12@bandit:/tmp/llamas$ mv data data.gz
bandit12@bandit:/tmp/llamas$ ls
data.gz  data.txt
bandit12@bandit:/tmp/llamas$ file data.gz
data.gz: gzip compressed data, was "data2.bin", last modified: Thu Sep 19 07:08:15 2024, max compression, from Unix, original size modulo 2^32 574
bandit12@bandit:/tmp/llamas$ gzip -d data.gz
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/llamas$ mv data data.bz2
bandit12@bandit:/tmp/llamas$ ls
data.bz2  data.txt
bandit12@bandit:/tmp/llamas$ bzip2 -d data.bz2
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: gzip compressed data, was "data4.bin", last modified: Thu Sep 19 07:08:15 2024, max compression, from Unix, original size modulo 2^32 20480
bandit12@bandit:/tmp/llamas$ mv data data.gz
bandit12@bandit:/tmp/llamas$ ls
data.gz  data.txt
bandit12@bandit:/tmp/llamas$ gzip -d data.gz
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: POSIX tar archive (GNU)
bandit12@bandit:/tmp/llamas$ mv data data.tar
bandit12@bandit:/tmp/llamas$ ls
data.tar  data.txt
bandit12@bandit:/tmp/llamas$ tar xf data.tar
bandit12@bandit:/tmp/llamas$ ls
data5.bin  data.tar  data.txt
bandit12@bandit:/tmp/llamas$ rm data.tar
bandit12@bandit:/tmp/llamas$ ls
data5.bin  data.txt
```



```
data5.bin  data.tar  data.txt
bandit12@bandit:/tmp/llamas$ rm data.tar
bandit12@bandit:/tmp/llamas$ ls
data5.bin  data.txt
bandit12@bandit:/tmp/llamas$ file data5.bin
data5.bin: POSIX tar archive (GNU)
bandit12@bandit:/tmp/llamas$ mv data5.bin data.tar
bandit12@bandit:/tmp/llamas$ ls
data.tar  data.txt
bandit12@bandit:/tmp/llamas$ tar xf data.tar
bandit12@bandit:/tmp/llamas$ ls
data6.bin  data.tar  data.txt
bandit12@bandit:/tmp/llamas$ rm data.tar
bandit12@bandit:/tmp/llamas$ ls
data6.bin  data.txt
bandit12@bandit:/tmp/llamas$ file data6.bin
data6.bin: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/llamas$ mv data6.bin data.bz2
bandit12@bandit:/tmp/llamas$ ls
data.bz2  data.txt
bandit12@bandit:/tmp/llamas$ bzip2 -d data.bz2
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: POSIX tar archive (GNU)
bandit12@bandit:/tmp/llamas$ mv data data.tar
bandit12@bandit:/tmp/llamas$ ls
data.tar  data.txt
bandit12@bandit:/tmp/llamas$ tar xf data.tar
bandit12@bandit:/tmp/llamas$ ls
data8.bin  data.tar  data.txt
bandit12@bandit:/tmp/llamas$ rm data.tar
bandit12@bandit:/tmp/llamas$ ls
data8.bin  data.txt
bandit12@bandit:/tmp/llamas$ file data8.bin
data8.bin: gzip compressed data, was "data9.bin", last modified: Thu Sep 19 07:08:15 2024, max compression, from Unix, original size modulo 2^32 49
bandit12@bandit:/tmp/llamas$ mv data8.bin data.gz
bandit12@bandit:/tmp/llamas$ ls
data.gz  data.txt
bandit12@bandit:/tmp/llamas$ gzip -d data.gz
bandit12@bandit:/tmp/llamas$ ls
data  data.txt
bandit12@bandit:/tmp/llamas$ file data
data: ASCII text
bandit12@bandit:/tmp/llamas$ cat data
The password is FO5dwFsc0cbaIiH0h8J2eUks2vdTDwAn
bandit12@bandit:/tmp/llamas$ logout
Connection to bandit.labs.overthewire.org closed.

┌──(llamafart㉿jaivanti)-[~]
└─$ 
```

- The screenshot shows the terminal during the SSH login process for `bandit12`.
- The screenshot shows the terminal after logging into `bandit12`.
- The `ls` and `cat data.txt` commands are used to list the contents of the home directory and view the hexdump.
- The screenshot shows the terminal after logging into `bandit12`.
- The `file`, `mv`, and decompression commands are used to repeatedly decompress the file until the password is revealed.

Conclusion

This level teaches how to work with hexdumps and repeatedly compressed files. By using commands like `xxd`, `file`, `gzip`, `bzip2`, and `tar`, you can identify and decompress files in various formats. These skills are essential for handling complex file structures and extracting data in real-world scenarios.

Level 13 → Level 14: Using a Private SSH Key

Level Goal

- The password for the next level is stored in `/etc/bandit_pass/bandit14` and can only be read by user `bandit14`. For this level, you don't get the next password, but you get a private SSH key that can be used to log into the next level.
  Note: `localhost` is a hostname that refers to the machine you are working on.

Steps to Solve Level 13 → Level 14

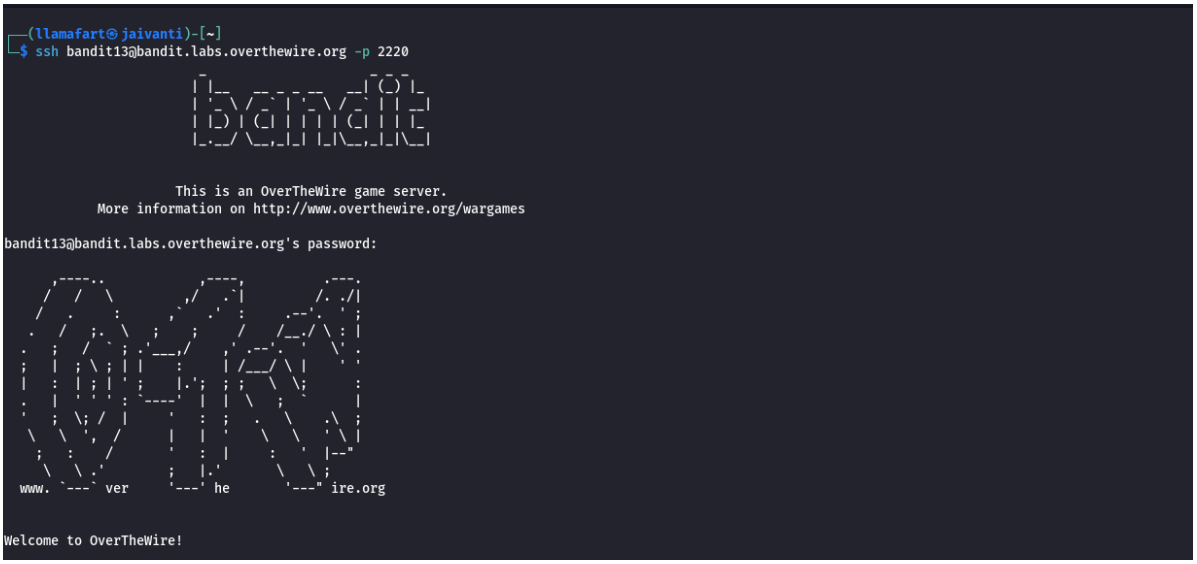
1. Log into Bandit13

Command

`ssh` `bandit13@bandit.labs.overthewire.org` `-p 2220`

Password for SSH Login

- The password for `bandit13` is: `FO5dwFsc0cbaliH0h8J2eUks2vdTDwAn`



```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit13@bandit.labs.overthewire.org -p 2220

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

bandit13@bandit.labs.overthewire.org's password:

Welcome to OverTheWire!
```

Explanation

- The `ssh` command is used to connect to the Bandit server.
- `bandit13` is the username for Level 13.
- `bandit.labs.overthewire.org` is the server address.

- `-p 2220` specifies the port number.

2. List the Contents of the Home Directory

Command

`ls`

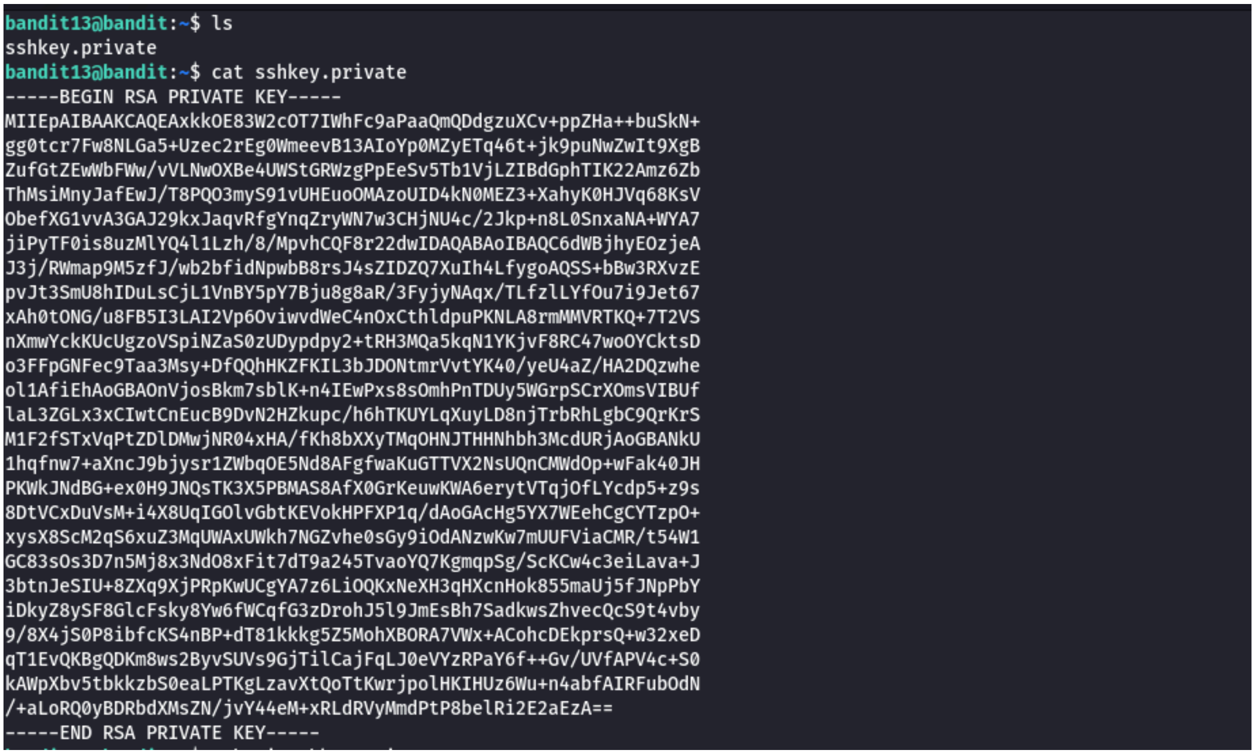
Explanation

- The `ls` command lists all files and directories in the current directory.
- This reveals the file `sshkey.private`.

3. View the Contents of `sshkey.private`

Command

`cat sshkey.private`



```
bandit13@bandit:~$ ls
sshkey.private
bandit13@bandit:~$ cat sshkey.private
-----BEGIN RSA PRIVATE KEY-----
MIIEpAIBAAKCAQEAxkkOE83W2cOT7IWhFc9aPaaQmQDdgzuXCv+ppZHa++buSkN+
gg0tcr7Fw8NLGa5+Uzec2rEg0WmeevB13AIoYp0MZyETq46t+jk9puNwZwIt9XgB
ZufGtZEwWbFWw/vVLNwOXBe4UWStGRWzgPpEeSv5Tb1VjLZIBdGphTIK22Amz6Zb
ThMsiMnyJafEwJ/T8PQO3myS91vUHEuoOMAzoUID4kN0MEZ3+XahyK0HJVq68KsV
ObefXG1vvA3GAJ29kxJaqvRfgYnqZryWN7w3CHjNU4c/2Jkp+n8L0SnxaNA+WYA7
jiPyTF0is8uzMlYQ4l1Lzh/8/MpvhCQF8r22dwIDAQABAoIBAQC6dWBjhyEOzjeA
J3j/RWmap9M5zfJ/wb2bfidNpwbB8rsJ4sZIDZQ7XuIh4LfygoAQSS+bBw3RXvzE
pvJt3SmU8hIDuLsCjL1VnBY5pY7Bju8g8aR/3FyjyNAqx/TLfzlLYfOu7i9Jet67
xAh0tONG/u8FB5I3LAI2Vp6OviwvdWeC4nOxCthldpuPKNLA8rmMMVRTKQ+7T2VS
nXmwYckKUcUgzoVSpiNZaS0zUDypdpy2+tRH3MQa5kqN1YKjvF8RC47woOYCktsD
o3FFpGNFec9Taa3Msy+DfQQhHKZFKIL3bJDONtmrVvtYK40/yeU4aZ/HA2DQzwhe
ol1AfiEhAoGBAOnVjosBkm7sblK+n4IEwPxs8sOmhPnTDUy5WGrpSCrXOmsVIBUf
laL3ZGLx3xCIwtCnEucB9DvN2HZkupc/h6hTKUYLqXuyLD8njTrbRhLgbC9QrKrS
M1F2fSTxVqPtZDlDMwjNR04xHA/fKh8bXXyTMqOHNJTHHNhbh3McdURjAoGBANkU
1hqfnw7+aXncJ9bjysr1ZWbqOE5Nd8AFgfwaKuGTTVX2NsUQnCMWdOp+wFak40JH
PKWkJNdBG+ex0H9JNQsTK3X5PBMAS8AfX0GrKeuwKWA6erytVTqjOfLYcdp5+z9s
8DtVCxDuVsM+i4X8UqIGOlvGbtKEVokHPFXP1q/dAoGAcHg5YX7WEehCgCYTzpO+
xysX8ScM2qS6xuZ3MqUWAxUWkh7NGZvhe0sGy9iOdANzwKw7mUUFViaCMR/t54W1
GC83sOs3D7n5Mj8x3NdO8xFit7dT9a245TvaoYQ7KgmqpSg/ScKCw4c3eiLava+J
3btnJeSIU+8ZXq9XjPRpKwUCgYA7z6LiOQKxNeXH3qHXcnHok855maUj5fJNpPbY
iDkyZ8ySF8GlcFsky8Yw6fWCqfG3zDrohJ5l9JmEsBh7SadkwsZhvecQcS9t4vby
9/8X4jS0P8ibfcKS4nBP+dT81kkkg5Z5MohXBORA7VWx+ACohcDEkprsQ+w32xeD
qT1EvQKBgQDKm8ws2ByvSUVs9GjTilCajFqLJ0eVYzRPaY6f++Gv/UVfAPV4c+S0
kAWpXbv5tbkkzbS0eaLPTKgLzavXtQoTtKwrjpolHKIHUz6Wu+n4abfAIRFubOdN
/+aLoRQ0yBDRbdXMsZN/jvY44eM+xRLdRVyMmdPtP8belRi2E2aEzA==
-----END RSA PRIVATE KEY-----
```

Explanation

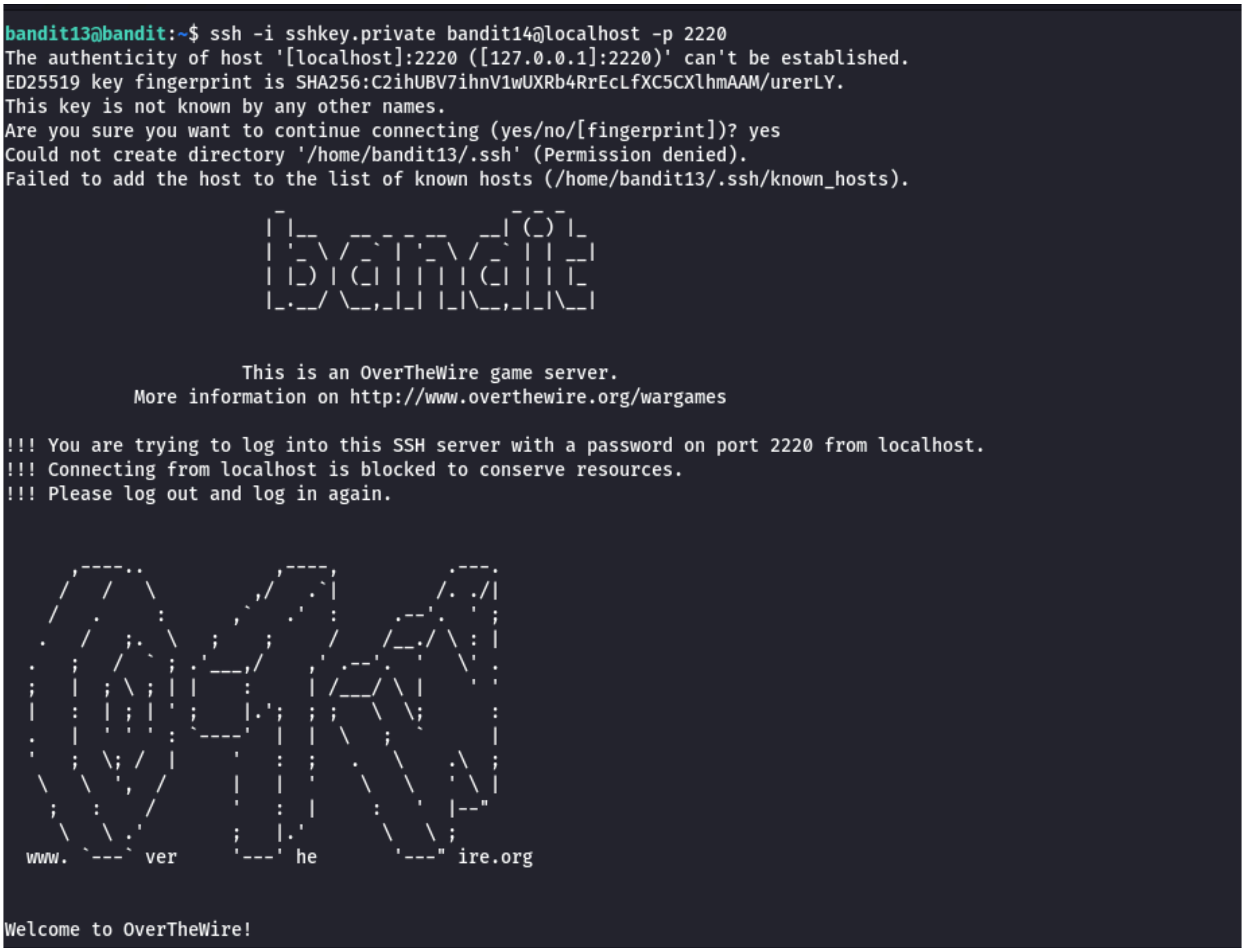
- The `cat` command displays the contents of `sshkey.private`.

- The file contains an RSA private key.

4. Use the Private Key to Log into Bandit14

Command

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



```
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.


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


Welcome to OverTheWire!
```

Explanation

- The `ssh -i` command is used to log into the server using a private key.
- `sshkey.private` is the private key file.
- `bandit14` is the username for Level 14.
- `localhost` refers to the current machine.
- `-p 2220` specifies the port number.

5. Read the Password for Bandit14

Command

`cat /etc/bandit_pass/bandit14`

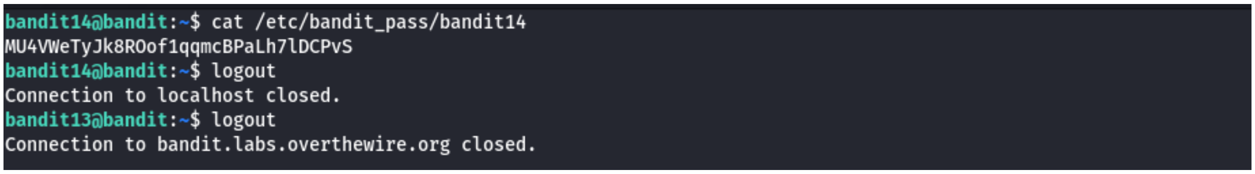
Explanation

- The `cat` command displays the contents of `/etc/bandit_pass/bandit14`.
- The output shows the password for Level 14.

6. Logout

Command

`logout`

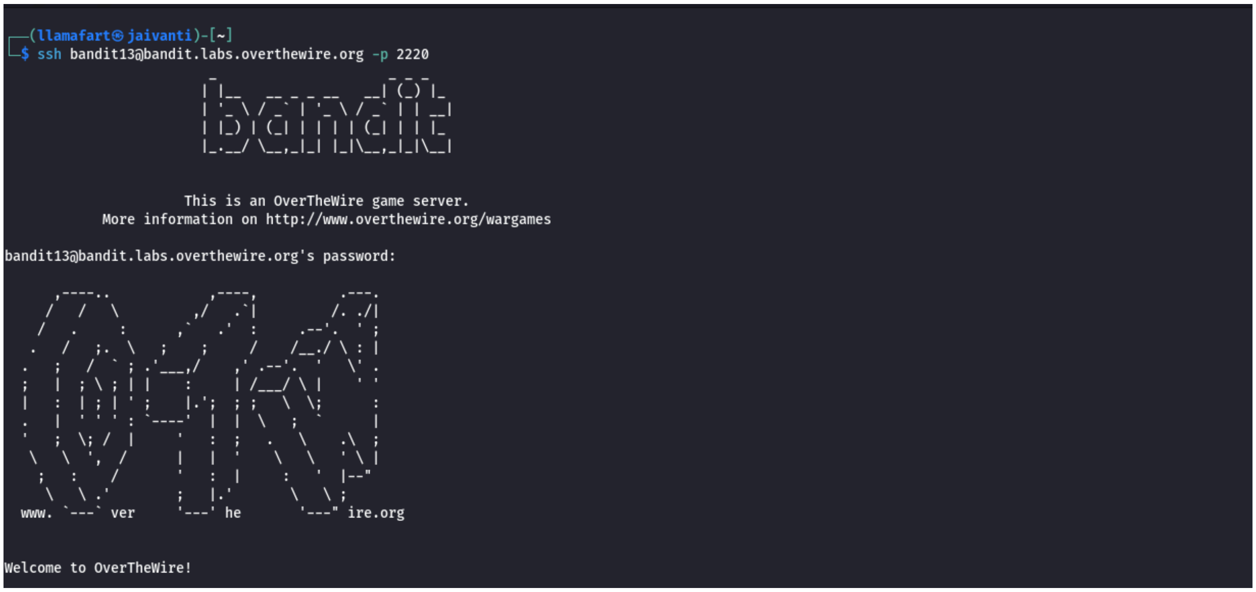


```
bandit14@bandit:~$ cat /etc/bandit_pass/bandit14
MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS
bandit14@bandit:~$ logout
Connection to localhost closed.
bandit13@bandit:~$ logout
Connection to bandit.labs.overthewire.org closed.
```

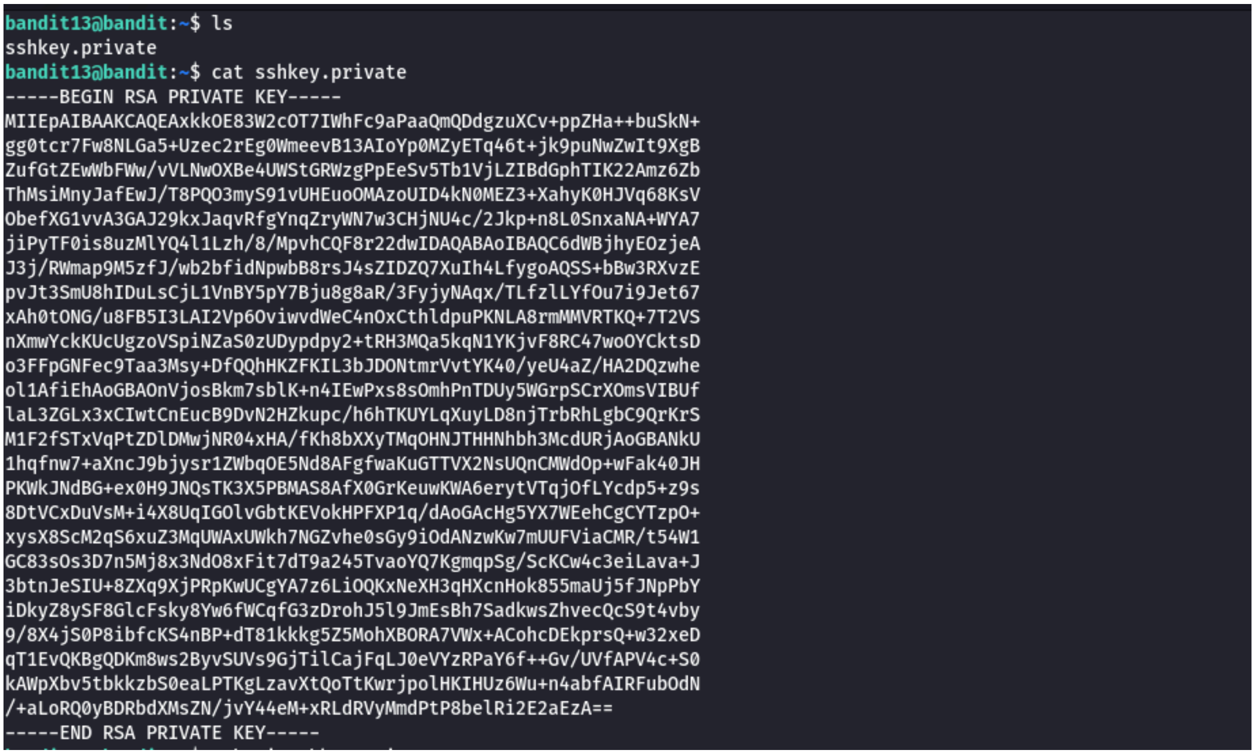
Password for Level 14

- The password for `bandit14` is: `MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS`

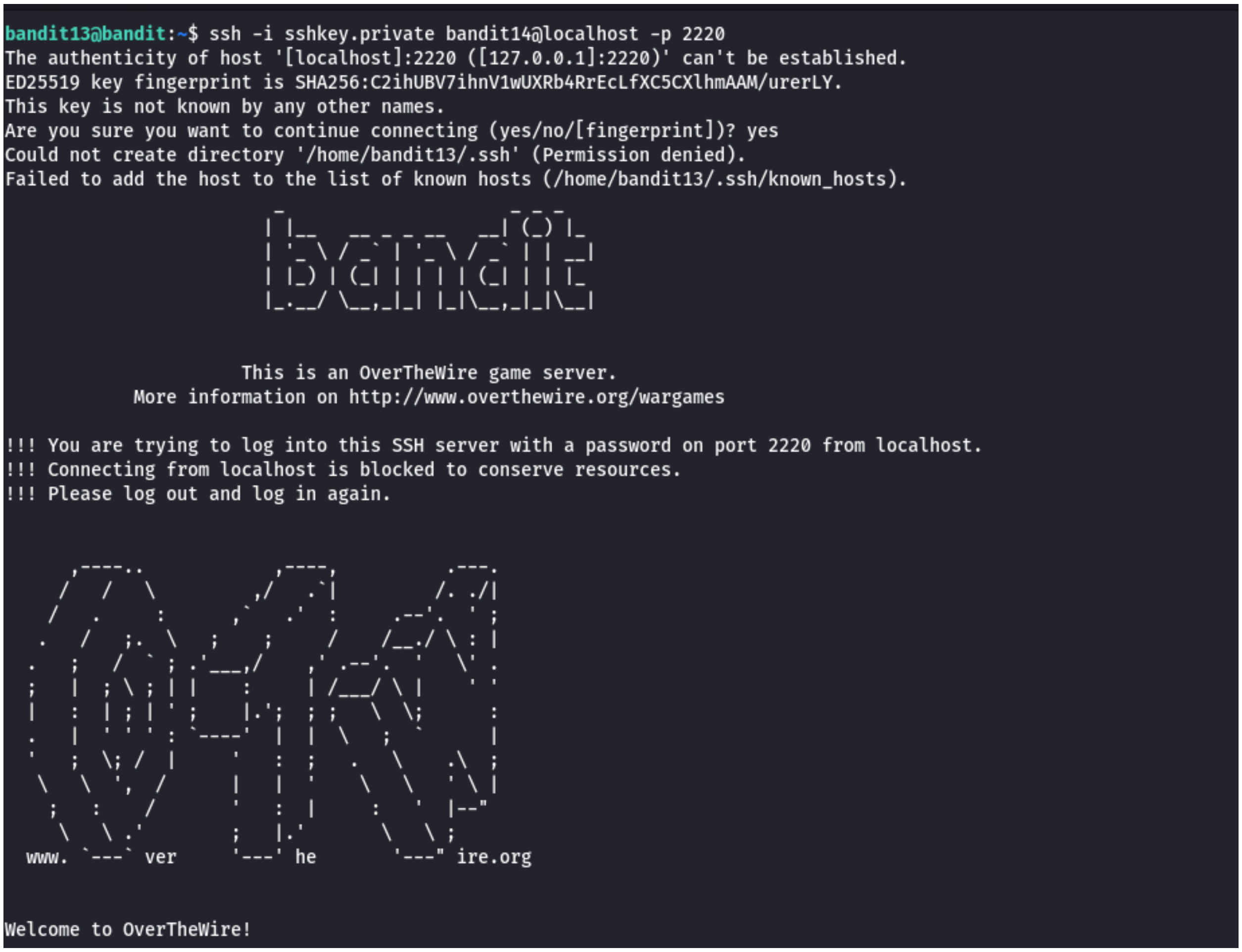
Screenshots



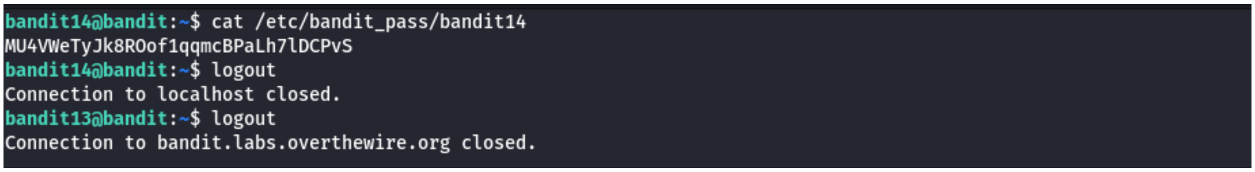
```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit13@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit13@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```



```
bandit13@bandit:~$ ls
sshkey.private
bandit13@bandit:~$ cat sshkey.private
-----BEGIN RSA PRIVATE KEY-----
MIIEpAIBAAKCAQEAxkkOE83W2cOT7IWhFc9aPaaQmQDdgzuXCv+ppZHa++buSkN+
gg0tcr7Fw8NLGa5+Uzec2rEg0WmeevB13AIoYp0MZyETq46t+jk9puNwZwIt9XgB
ZufGtZEwWbFWw/vVLNwOXBe4UWStGRWzgPpEeSv5Tb1VjLZIBdGphTIK22Amz6Zb
ThMsiMnyJafEwJ/T8PQO3myS91vUHEuoOMAzoUID4kN0MEZ3+XahyK0HJVq68KsV
ObefXG1vvA3GAJ29kxJaqvRfgYnqZryWN7w3CHjNU4c/2Jkp+n8L0SnxaNA+WYA7
jiPyTF0is8uzMlYQ4l1Lzh/8/MpvhCQF8r22dwIDAQABAoIBAQC6dWBjhyEOzjeA
J3j/RWmap9M5zfJ/wb2bfidNpwbB8rsJ4sZIDZQ7XuIh4LfygoAQSS+bBw3RXvzE
pvJt3SmU8hIDuLsCjL1VnBY5pY7Bju8g8aR/3FyjyNAqx/TLfzlLYfOu7i9Jet67
xAh0tONG/u8FB5I3LAI2Vp6OviwvdWeC4nOxCthldpuPKNLA8rmMMVRTKQ+7T2VS
nXmwYckKUcUgzoVSpiNZaS0zUDypdpy2+tRH3MQa5kqN1YKjvF8RC47woOYCktsD
o3FFpGNFec9Taa3Msy+DfQQhHKZFKIL3bJDONtmrVvtYK40/yeU4aZ/HA2DQzwhe
ol1AfiEhAoGBAOnVjosBkm7sblK+n4IEwPxs8sOmhPnTDUy5WGrpSCrXOmsVIBUf
laL3ZGLx3xCIwtCnEucB9DvN2HZkupc/h6hTKUYLqXuyLD8njTrbRhLgbC9QrKrS
M1F2fSTxVqPtZDlDMwjNR04xHA/fKh8bXXyTMqOHNJTHHNhbh3McdURjAoGBANkU
1hqfnw7+aXncJ9bjysr1ZWbqOE5Nd8AFgfwaKuGTTVX2NsUQnCMWdOp+wFak40JH
PKWkJNdBG+ex0H9JNQsTK3X5PBMAS8AfX0GrKeuwKWA6erytVTqjOfLYcdp5+z9s
8DtVCxDuVsM+i4X8UqIGOlvGbtKEVokHPFXP1q/dAoGAcHg5YX7WEehCgCYTzpO+
xysX8ScM2qS6xuZ3MqUWAxUWkh7NGZvhe0sGy9iOdANzwKw7mUUFViaCMR/t54W1
GC83sOs3D7n5Mj8x3NdO8xFit7dT9a245TvaoYQ7KgmqpSg/ScKCw4c3eiLava+J
3btnJeSIU+8ZXq9XjPRpKwUCgYA7z6LiOQKxNeXH3qHXcnHok855maUj5fJNpPbY
iDkyZ8ySF8GlcFsky8Yw6fWCqfG3zDrohJ5l9JmEsBh7SadkwsZhvecQcS9t4vby
9/8X4jS0P8ibfcKS4nBP+dT81kkkg5Z5MohXBORA7VWx+ACohcDEkprsQ+w32xeD
qT1EvQKBgQDKm8ws2ByvSUVs9GjTilCajFqLJ0eVYzRPaY6f++Gv/UVfAPV4c+S0
kAWpXbv5tbkkzbS0eaLPTKgLzavXtQoTtKwrjpolHKIHUz6Wu+n4abfAIRFubOdN
/+aLoRQ0yBDRbdXMsZN/jvY44eM+xRLdRVyMmdPtP8belRi2E2aEzA==
-----END RSA PRIVATE KEY-----
```



```
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.


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


Welcome to OverTheWire!
```



```
bandit14@bandit:~$ cat /etc/bandit_pass/bandit14
MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS
bandit14@bandit:~$ logout
Connection to localhost closed.
bandit13@bandit:~$ logout
Connection to bandit.labs.overthewire.org closed.
```

- The screenshot shows the terminal after logging into `bandit13`.
- The `ls` command lists the file `sshkey.private`.
- The `cat sshkey.private` command displays the private key.
- The screenshot shows the terminal using the private key to log into `bandit14`.
- The screenshot shows the terminal after logging into `bandit14`.
- The `cat /etc/bandit_pass/bandit14` command displays the password for Level 14.

Conclusion

This level teaches how to use a private SSH key to log into a server. By using the `ssh -i` command, you can authenticate without a password, which is a common practice for secure access to remote systems. This skill is essential for managing secure connections in real-world scenarios.

Level 14 → Level 15: Submitting the Password to a Port

Level Goal

- The password for the next level can be retrieved by submitting the password of the current level to port 30000 on `localhost`.

Steps to Solve Level 14 → Level 15

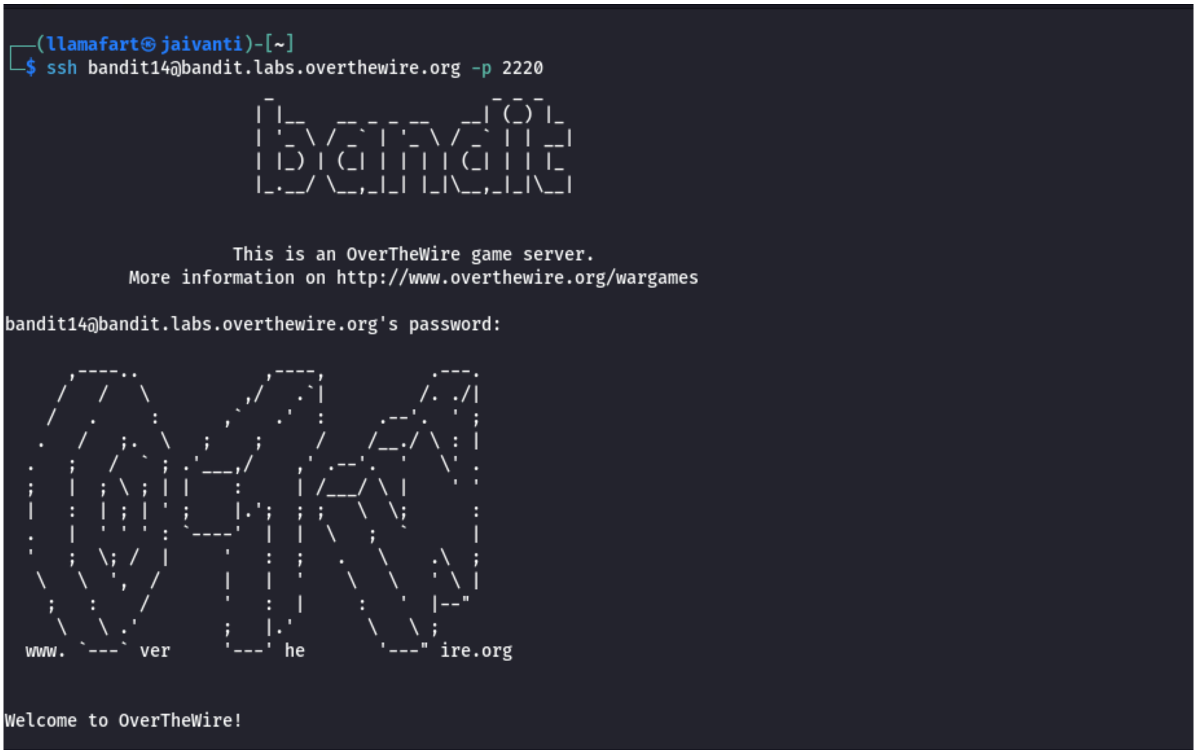
1. Log into Bandit14

Command

`ssh bandit14@bandit.labs.overthewire.org -p 2220`

Password for SSH Login

- The password for `bandit14` is: `MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS`



```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit14@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit14@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```

Explanation

- The `ssh` command is used to connect to the Bandit server.
- `bandit14` is the username for Level 14.
- `bandit.labs.overthewire.org` is the server address.
- `-p 2220` specifies the port number.

2. Submit the Password to Port 30000

Command

`echo "MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS" | nc localhost 30000`

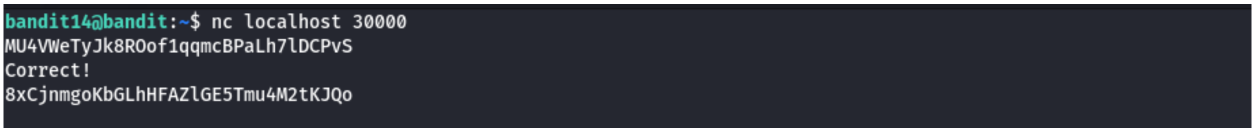
Explanation

- The `echo` command sends the password for Level 14 to the standard output.
- The `nc` (netcat) command connects to `localhost` on port 30000 and sends the password.
- The server responds with the password for Level 15.

3. Logout

Command

`logout`

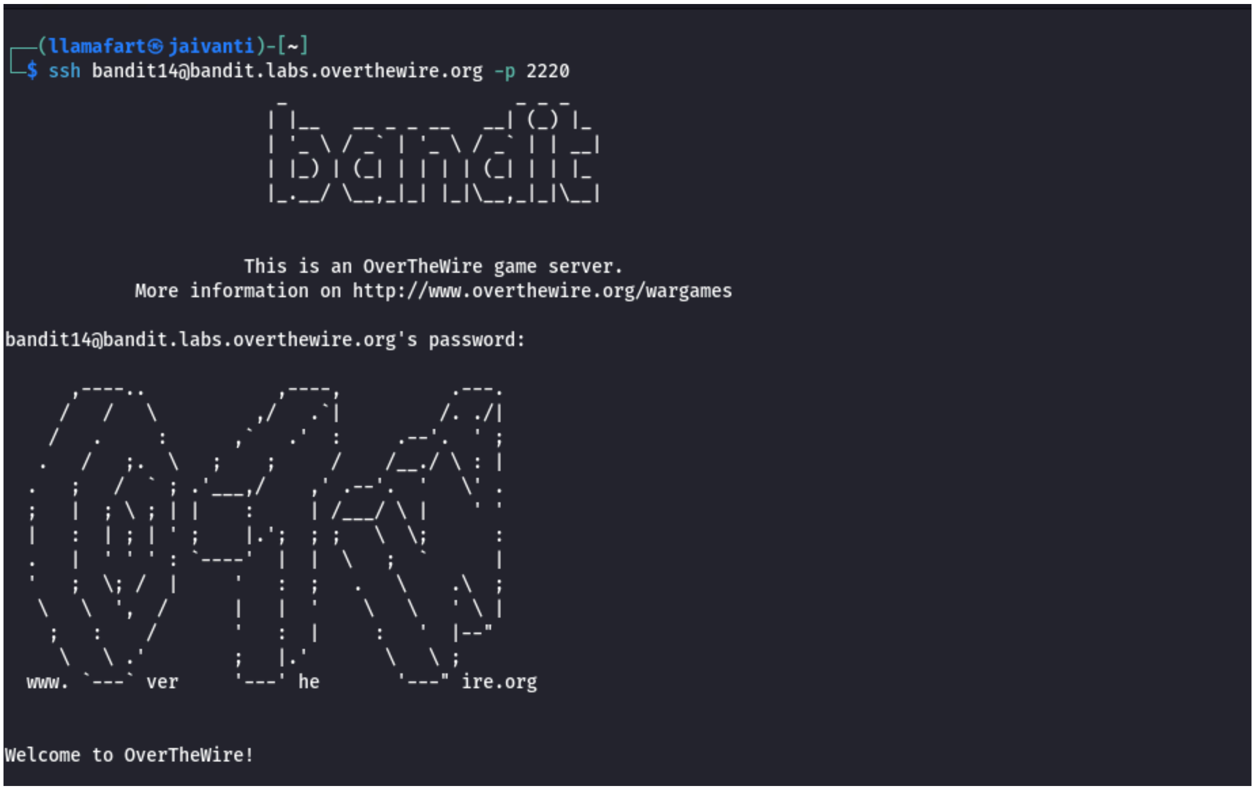


```
bandit14@bandit:~$ nc localhost 30000
MU4VWeTyJk8ROof1qqmcBPaLh7lDCPvS
Correct!
8xCjnmgoKbGLhHFAZlGE5Tmu4M2tKJQo
```

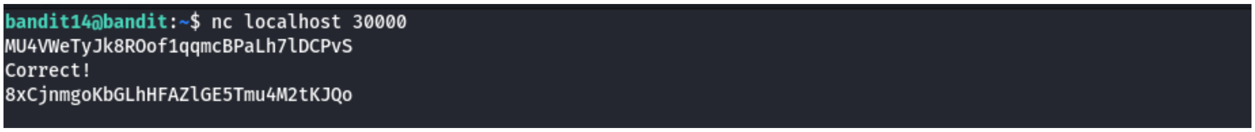
Password for Level 15

- The password for `bandit15` is: `8xCjnmgoKbGLhHFAZlGE5Tmu4M2tKJQo`

Screenshots



```
┌──(llamafart㉿jaivanti)-[~]
└─$ ssh bandit14@bandit.labs.overthewire.org -p 2220
                         _                     _ _ _
                        | |__   __ _ _ __   __| (_) |_
                        | '_ \ / _` | '_ \ / _` | | __|
                        | |_) | (_| | | | | (_| | | |_
                        |_.__/ \__,_|_| |_|\__,_|_|\__|


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

bandit14@bandit.labs.overthewire.org's password:

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


Welcome to OverTheWire!
```



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

- The screenshot shows the terminal after logging into `bandit14`.

- The `nc localhost 30000` command is used to submit the password for Level 14 and receive the password for Level 15.

Conclusion

This level teaches how to interact with network services using the `nc` (netcat) command. By sending data to a specific port, you can retrieve information or perform actions on remote servers. This skill is essential for working with network protocols and services in real-world scenarios.