

```
nblir@Ubuntu:~/SWE4504_Software_Security/Labi$ ssh bandit0@bandit.labs.overthewire.org -p 2220

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

bandit0@bandit.labs.overthewire.org's password:

bandit0@bandit:~$ ls -alps
total 24
4 drwxr-xr-x  2 root    root      4096 Apr 23 18:04 ./
4 drwxr-xr-x 70 root    root      4096 Apr 23 18:05 ../
4 -rw-r--r--  1 root    root        220 Jan  6  2022 .bash_logout
4 -rw-r--r--  1 root    root      3771 Jan  6  2022 .bashrc
4 -rw-r--r--  1 root    root       807 Jan  6  2022 .profile
4 -rw-r----- 1 bandit1 bandit0   33 Apr 23 18:04 readme
bandit0@bandit:~$ cat readme
NH2SXQwCBdpmTEzi3bvBHMM9H66vVXjL
bandit0@bandit:~$
```

Password: NH2SXQwcBdpmTEzi3bvBHMM9H66vVXjL

Level 1 to 2

```
banditi@bandit:~$ ls -la
total 24
-rw-r----- 1 bandit2 bandit1 33 Apr 23 18:04 -
drwxr-xr-x 2 root root 4096 Apr 23 18:04 .
drwxr-xr-x 70 root root 4096 Apr 23 18:05 ..
-rw-r--r-- 1 root root 220 Jan 6 2022 .bash_logout
-rw-r--r-- 1 root root 3771 Jan 6 2022 .bashrc
-rw-r--r-- 1 root root 807 Jan 6 2022 .profile
banditi@bandit:~$ cat ./-
rRGizSaX8Mk1RTb1CNQoXTcYZWU6lgzi
banditi@bandit:~$
```

Password: rRGizSaX8Mk1RTb1CNQoXTcYZWU6lgzi

Level 2 to 3

```
nibir@Ubuntu:~/SWE4504_Software Security/Lab1$ ssh bandit2@bandit.labs.overthewire.org -p 2220
```

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

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

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

```
bandit2@bandit:~$ ls -la
total 24
drwxr-xr-x  2 root    root    4096 Apr 23 18:04 .
drwxr-xr-x 70 root    root    4096 Apr 23 18:05 ..
-rw-r--r--  1 root    root     220 Jan  6  2022 .bash_logout
-rw-r--r--  1 root    root    3771 Jan  6  2022 .bashrc
-rw-r--r--  1 root    root     807 Jan  6  2022 .profile
-rw-r-----  1 bandit3 bandit2   33 Apr 23 18:04 spaces in this filename
bandit2@bandit:~$ cat spaces\ in\ this\ filename
aBZ0W5EmUfAf7kHTQeOwd8bauFJ2lAiG
bandit2@bandit:~$
```

Password: aBZ0W5EmUfAf7kHTQeOwd8bauFJ2IAiG

Level 3 to 4

```
nibir@Ubuntu:~/SWE4504_Software_Security/Lab1$ ssh bandit3@bandit.labs.overthewire.org -p 2220
```

```

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  _ _ _ _ _

```

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

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

```
bandit3@bandit:~$ ls -la
total 24
drwxr-xr-x  3 root root 4096 Apr 23 18:04 .
drwxr-xr-x 70 root root 4096 Apr 23 18:05 ..
-rw-r--r--  1 root root  220 Jan  6  2022 .bash_logout
-rw-r--r--  1 root root 3771 Jan  6  2022 .bashrc
drwxr-xr-x  2 root root 4096 Apr 23 18:04 inhere
-rw-r--r--  1 root root  807 Jan  6  2022 .profile
bandit3@bandit:~$ cd inhere/
bandit3@bandit:~/inhere$ cat .hidden
2EW7BBsr6aMMoJ2HjW067dm8EgX26xNe
bandit3@bandit:~/inhere$
```

Password: 2EW7BBsr6aMMoJ2HjW067dm8EgX26xNe

Level 4 to 5:

```
bandit4@bandit:~$ ls -la
total 24
drwxr-xr-x  3 root root 4096 Apr 23 18:04 .
drwxr-xr-x 70 root root 4096 Apr 23 18:05 ..
-rw-r--r--  1 root root  220 Jan  6  2022 .bash_logout
-rw-r--r--  1 root root 3771 Jan  6  2022 .bashrc
drwxr-xr-x  2 root root 4096 Apr 23 18:04 inhere
-rw-r--r--  1 root root  807 Jan  6  2022 .profile
bandit4@bandit:~$ cd inhere/
bandit4@bandit:~/inhere$ ls -la
total 48
drwxr-xr-x  2 root  root  4096 Apr 23 18:04 .
drwxr-xr-x  3 root  root  4096 Apr 23 18:04 ..
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file00
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file01
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file02
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file03
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file04
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file05
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file06
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file07
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file08
-rw-r-----  1 bandit5 bandit4   33 Apr 23 18:04 -file09
bandit4@bandit:~/inhere$ find . -type f | xargs file
./-file03: data
./-file06: data
./-file08: data
./-file07: ASCII text
./-file04: data
./-file00: data
./-file01: data
./-file02: data
./-file09: Non-ISO extended-ASCII text, with no line terminators
./-file05: data
bandit4@bandit:~/inhere$
```

```
bandit4@bandit:~/inhere$ cat ./-file07
lrIWWI6bB37kxfiCQZqUdOIYfr6eEeqR
```

Password lrIWWI6bB37kxfiCQZqUdOIYfr6eEeqR

Level 5 to 6:

```
bandit5@bandit:~$ ls
inhere
bandit5@bandit:~$ cd inhere/
bandit5@bandit:~/inhere$ find . -type -f -size 1033c ! -executable
find: Unknown argument to -type: -
bandit5@bandit:~/inhere$ find . -type f -size 1033c ! -executable
./maybehere07/.file2
bandit5@bandit:~/inhere$ cat ./maybehere07/.file2
P4L4vucdmLnm8I7Vl7jG1ApGSfjYKqJU
```

Password: P4L4vucdmLnm8l7VI7jG1ApGSfjYKqJU

Level 6 to 7:

```
bandit6@bandit:~$ find / -type f -user bandit7 -group bandit6 -size 33c
find: '/var/log': Permission denied
find: '/var/crash': Permission denied
find: '/var/spool/rsyslog': Permission denied
find: '/var/spool/bandit24': Permission denied
find: '/var/spool/cron/crontabs': Permission denied
find: '/var/tmp': Permission denied
find: '/var/lib/polkit-1': Permission denied
/var/lib/dpkg/info/bandit7.password
find: '/var/lib/chrony': Permission denied
find: '/var/lib/apt/lists/partial': Permission denied
find: '/var/lib/amazon': Permission denied
find: '/var/lib/update-notifier/package-data-downloads/partial': Permission denied
find: '/var/lib/snapd/void': Permission denied
find: '/var/lib/snapd/cookie': Permission denied
find: '/var/lib/ubuntu-advantage/apt-esm/var/lib/apt/lists/partial': Permission denied
find: '/var/lib/private': Permission denied
find: '/var/snap/lxd/common/lxd': Permission denied
find: '/var/cache/ldconfig': Permission denied
find: '/var/cache/apt/archives/partial': Permission denied
find: '/var/cache/pollinate': Permission denied
find: '/var/cache/private': Permission denied
find: '/var/cache/apparmor/a4dd844e.0': Permission denied
find: '/var/cache/apparmor/8eeb6286.0': Permission denied
find: '/drifter/drifter14_src/axTLS': Permission denied
find: '/home/bandit29-git': Permission denied
find: '/home/drifter6/data': Permission denied
find: '/home/bandit28-git': Permission denied
find: '/home/drifter8/chroot': Permission denied
find: '/home/ubuntu': Permission denied
find: '/home/bandit5/inhere': Permission denied
find: '/home/bandit27-git': Permission denied
find: '/home/bandit30-git': Permission denied

bandit6@bandit:~$ cat /var/lib/dpkg/info/bandit7.password
z7WtoNQU2XfjmMtWA8u5rN4vzqu4v99S
```

Password: z7WtoNQU2XfjmMtWA8u5rN4vzqu4v99S

Level 7 to 8:

cat data.txt to get the following data


```

schoolboy      LSWFfkawUJCXgqJR91fGWLTheZpL26w3
neuter  x14yMhDIDISW1Z9IE6nGY4dJB14hHVtt
primitives     v1a52734C8qUn9mGVyCqmGFhydWVwqLR
hostage's      bVPRtr56YssDN5luiqfv5CNW50k3G3Ga
montage 2tUg0v0fa9lRauuB7rqisBnqFpx0pxYX
preservation   iPTfdRW3awxvrmpw7GUm0vCm9jYEmRIy
Ellie  dTgNlp5XGQq4qr05DZZ3RU41a0SEJEW
herringboned   KSRBXWGaA3GbYEqRP64kFssGLJDxQW5a
satisfying     JlpheUuYzFxrTxM8pomlJ7IQ7Sr93Tph
strangulation  u0kKBQYftUwvNaaQHwBs4RWmTGu2zs2B
severing       OalyyQBtSjfyMn31fbW1xuCR8fH8VqKB
bigger  pZTiLYZl3iElSW5iEn16URP9Cv4Ft0XC
circus's       jT65tmrY6hgQsGoorZwvLZjmpLYXRCTm
transvestism's vU9mZnYcUPgzAC0wVRV8qegl4EV84GPm
sering  6ag04AXGDErYPWtrZdUr5fXVVNuDIflz
bourgeoisie's  owj9Dyfr5mLBzGFhAyd9tJX4KYBnSMzZ
delegation's   DkFq00UAHmpHXAoyGFdYbNgic1JZ3bT0
hauls  tWGCtyzTCB2KwSww6vhr3Yd0EWpz5uG
mosquitos     0G3p8zLXNuRUZEpl1zpNl5IApDXdqBsM
cruel  Qp3diK35mdgo3VbhbrFKM6pujAaIpVif
swampy  VL7A7WHcPiwXB5XXTJvaAW6PYyPsvtMu
lunchtime's    jG8lzDxtYu0ucFFFzrcGgm80NaeaGJA1
requisition    qRKISXE2RsyemkkxIEheH3LuIQj3wbH1
complainant    2GGolY9rGb10qe8ZviamSKaImQ80ydkH
scattered      Ucq17ZipFmEXUmXfGIYXDjtvS1EWdtI8
dawdle  lA7yQ308V7gm3xyW5yF9Sh0rc4owyVHR
mastery's      XWolopTHm705T7TQ5yz0v85K5DdhQeEV
graphs  sI990KnmzmmgMuQwKdym72g6oSrdkCXaA
crumbed  FLLR0bocQ0tAFKHynG75hQpcht2nxxVW
newness's      T1Wx7NQwT5u4uC4xkpo66arsUm2NfD97
Caesarean      mKq51XFsz9R7qVprU760059oHt78ACPw
bandit7@bandit:~$ strings data.txt | grep "millionth"
millionth      TESKZC0XvTetK0S9xNwm25STk5iWrBvP
bandit7@bandit:~$

```

Password: TESKZC0XvTetK0S9xNwm25STk5iWrBvP

Level 8 to 9:

```
data.txt: command not found
bandit8@bandit:~$ sort data.txt | uniq -c
 10 08Jd2vmb6FjR4zXPteGHhpJm8A000A5B
 10 0dEKX1sDwYtc4vyjrKpGu30ecWbsDDa9
 10 0YDTDPCLc585IaFu911ukeE9QfD6Ykrlz
 10 0zP9wfUcMKjZM2hiQUYR1nTfmaRdYSQE
 10 11FFcDRW5ZXXmX7geZORYRwiJfj8B3Gh
```

```
10 9dCnpqB3AKmTOSNBvjInAZRR33QePTZe
10 a6SMGsFpTKq8UGdndarh86o0ohHccjb0
10 AWuhqidoTFNEaYmsX7njF8elfk6UTt8V
10 Bap5iwr9yiz7NNLdn2pRIBDuzjS4apt6
10 bbFQ44ZGHTUPiPEBvfADGWpwXzdhco23
10 cBuyMeLeTl5bFQMjLzWIGHpbVwqQZkWQ
10 cmtlazWcnfmS07dz52EdwhfVXD5hm80x
10 DCEBvsEhDdFKdhuYgoK5615G0hkxkRbS
10 dMnFFW0t7tDLsN6jM4t15q7sGdXIjLD0
 1 EN632PlfYiZbn3PhVK3XOGSlnInNE00t
10 EoxGdakqWSJE03uzpJBLKabYeb5J458U
10 eRgm0TR1FqHWaSneu0XDIC7r2MZVeLMU
10 FJHGxIQ8lboC0UFsaF91voZjntUpyHPW
10 FUx7SEmtclai0dBobIv7AbALW69gIBXZ
```

Password: EN632PlfYiZbn3PhVK3XOGSlnInNE00t

Level 9 to 10:

```
bandit9@bandit:~$ strings data.txt | grep "="
4===== the#
5P=GnFE
===== password
'DN9=5
===== is
$Z=_
=TU%
=^,T,?
W=y
q=W
X=K,
===== G7w8LIi6J3kTb8A7j9LgrywtEUlyyp6s
&S=(
nd?=
```

Password: G7w8LIi6J3kTb8A7j9LgrywtEUlyyp6s

Level 10 to 11:

```
bandit10@bandit:~$ cat data.txt
VGhliHBhc3N3b3JkIGlzIDZ6UGV6aUxkUjJSS05kTllGTmI2blZDS3pwaGxYSEJNCg==
bandit10@bandit:~$ base64 -d data.txt
The password is 6zPezILdR2RKNdNYFNb6nVCKzphlXHBM
bandit10@bandit:~$
```

Password: 6zPezILdR2RKNdNYFNb6nVCKzphlXHBM

Level 11 to 12:

```
bandit11@bandit:~$ cat data.txt
Gur cnffjbeq vf WIA00SFzMjXXBC0KoSKBbJ8puQm5lIEi
```

The screenshot shows a web-based ROT13 decryption tool. On the left, under the heading "Recipe", there are three checkboxes: "Rotate lower case chars" (checked), "Rotate upper case chars" (checked), and "Rotate numbers" (unchecked). Next to the "Rotate numbers" checkbox is a small input field labeled "Amount" with the value "13". On the right, under the heading "Input", the text "Gur cnffjbeq vf WIA00SFzMjXXBC0KoSKBbJ8puQm5lIEi" is entered. Below the input field, under the heading "Output", the decrypted text is displayed: "The password is JVNBBFSmZwKKOP0XbFX0oW8chDz5yVRv".

Password: JVNBBFSmZwKKOP0XbFX0oW8chDz5yVRv

Level 12 to 13:

```
bandit12@bandit:~$ cat data.txt
00000000: 1f8b 0808 2773 4564 0203 6461 7461 322e  ....'sEd..data2.
00000010: 6269 6e00 0145 02ba fd42 5a68 3931 4159  bin..E...BZh91AY
00000020: 2653 597b 4f96 5f00 0018 ffff fd6f e7ed  &SY{0._.....o..
00000030: bff7 bef7 9fdb d7ca ffbf edff 8ded dfd7  .....
00000040: bfe7 bbff bfdb fbff ffbf ff9f b001 3b56  .....;V
00000050: 0400 0068 0064 3400 d341 a000 0680 0699  ...h.d4..A.....
00000060: 0000 69a0 0000 1a00 1a0d 0034 0034 d3d4  ..i.....4.4..
```

```
bandit12@bandit:~$ mkdir /tmp/nibir
bandit12@bandit:~$ cp data.txt /tmp/nibir
bandit12@bandit:~$ cd /tmp/nibir
bandit12@bandit:/tmp/nibir$ ls
data.txt
```



```
bandit12@bandit:/tmp/niblr$ xxd -r data.txt > data
bandit12@bandit:/tmp/niblr$ ls
data data.txt
bandit12@bandit:/tmp/niblr$ file data
data: gzip compressed data, was "data2.bin", last modified: Sun Apr 23 18:04:23 2023, max compression, from Unix, original
lo 2^32 581
bandit12@bandit:/tmp/niblr$ mv data file.gz
bandit12@bandit:/tmp/niblr$ gzip -d file.gz
bandit12@bandit:/tmp/niblr$ ls
data.txt file
bandit12@bandit:/tmp/niblr$ file file
file: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/niblr$ mv file file.bz2
bandit12@bandit:/tmp/niblr$ bzip2 -d file.bz2
bandit12@bandit:/tmp/niblr$ ls
data.txt file
bandit12@bandit:/tmp/niblr$ file file
file: gzip compressed data, was "data4.bin", last modified: Sun Apr 23 18:04:23 2023, max compression, from Unix, original
lo 2^32 20480
bandit12@bandit:/tmp/niblr$ mv file file.gz
bandit12@bandit:/tmp/niblr$ gzip -d file.gz
bandit12@bandit:/tmp/niblr$ ls
data.txt file
bandit12@bandit:/tmp/niblr$ file file
file: POSIX tar archive (GNU)
bandit12@bandit:/tmp/niblr$ mv file file.tar
bandit12@bandit:/tmp/niblr$ tar xf file.tar
bandit12@bandit:/tmp/niblr$ ls
data5.bin data.txt file.tar
bandit12@bandit:/tmp/niblr$ file data5.bin
data5.bin: POSIX tar archive (GNU)
bandit12@bandit:/tmp/niblr$ rm file.tar
bandit12@bandit:/tmp/niblr$ rm data
rm: cannot remove 'data': No such file or directory
bandit12@bandit:/tmp/niblr$
```

```
banditt12@banditt: /tmp/nlibir$ rm data.txt
banditt12@banditt: /tmp/nlibir$ ls
data5.bin
banditt12@banditt: /tmp/nlibir$ file data5.bin
data5.bin: POSIX tar archive (GNU)
banditt12@banditt: /tmp/nlibir$ mv data5.bin data.tar
banditt12@banditt: /tmp/nlibir$ tar xf data.tar
banditt12@banditt: /tmp/nlibir$ ls
data6.bin  data.tar
banditt12@banditt: /tmp/nlibir$ file data6.bin
data6.bin: bzip2 compressed data, block size = 900k
banditt12@banditt: /tmp/nlibir$ mv data6.bin data.bz2
banditt12@banditt: /tmp/nlibir$ bzip2 -d data.bz2
banditt12@banditt: /tmp/nlibir$ ls
data  data.tar
banditt12@banditt: /tmp/nlibir$ file data
data: POSIX tar archive (GNU)
banditt12@banditt: /tmp/nlibir$ mv data data.tar
banditt12@banditt: /tmp/nlibir$ ls
data.tar
banditt12@banditt: /tmp/nlibir$ tar xf data.tar
banditt12@banditt: /tmp/nlibir$ ls
data8.bin  data.tar
banditt12@banditt: /tmp/nlibir$ file data8.bin
data8.bin: gzip compressed data, was "data9.bin", last modified: Sun Apr 23 18:04:23 2023, max compression, from Unix, original size
modulo 2^32 49
banditt12@banditt: /tmp/nlibir$ mv data8.bin data.gz
banditt12@banditt: /tmp/nlibir$ gzip -d data.gz
banditt12@banditt: /tmp/nlibir$ ls
data  data.tar
banditt12@banditt: /tmp/nlibir$
```

```
bandit12@bandit:/tmp/nibir$ file data
data: ASCII text
bandit12@bandit:/tmp/nibir$ cat data
The password is wbWd1BxEir4CaE8LaPhauuOo6pwRmrDw
bandit12@bandit:/tmp/nibir$
```

Password: wbWdlBxEir4CaE8LaPhauuOo6pwRmrDw

Level 13 to 14:

```
libri@Ubuntu:~/SWE4504 Software Security/Lab1$ ssh bandit13@bandit.labs.overthewire.org -p 2220
```

100%

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

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

The diagrams show the construction of the number 11 in three stages:

- Stage 1: A vertical line on the left and a horizontal line on the right, meeting at a dot in the center.
- Stage 2: The vertical line is extended upwards and the horizontal line is extended to the right, forming an 'L' shape.
- Stage 3: The vertical line is extended further upwards and the horizontal line is extended further to the right, forming the final shape of the number 11.

```
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:C2ihUBV7ihnV1wUXRb4RrEcLFXC5CXlmAAM/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).
```

```

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 | | | | | | | | | |
 | | | | | | | | | |
 | | | | | | | | | |
  _ _ _ _ _ _ _ _ _ _

```

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

```
bandit14@bandit:~$ cat /etc/bandit_pass/bandit14
fGrHPx402xGC7U7rXKDaxiWFTOiF0ENq
```

Password: fGrHPx402xGC7U7rXKDaxiWFTOiF0ENq

Level 14 to 15:

```
bandit14@bandit:~$ nc localhost 3000
fGrHPx402xGC7U7rXKDaxiWFTOiF0ENq^C
bandit14@bandit:~$ nc localhost 30000
fGrHPx402xGC7U7rXKDaxiWFTOiF0ENq
Correct!
jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt
```

Password: jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt

Level 15 to 16:

```
bandit15@bandit:~$ cat /etc/bandit_pass/bandit15
jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt
bandit15@bandit:~$ ncat -ssl localhost 30000
jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt
Ncat: Could not resolve source address "sl": Temporary failure in name resolution. QUITTI
bandit15@bandit:~$ jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt
jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt: command not found
bandit15@bandit:~$ ncat -ssl localhost 30001
jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt
Ncat: Could not resolve source address "sl": Temporary failure in name resolution. QUITTI
bandit15@bandit:~$ jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt
jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt: command not found
bandit15@bandit:~$ ncat --ssl localhost 30001
jN2kgmIXJ6fShzhT2avhotn4Zcka6tnt
Correct!
JQttfApK4SeyHwDII9SXGR50qcl0Ai1
```

Password: JQttfApK4SeyHwDII9SXGR50qcl0Ai1

Level 16 to 17:

```
bandit16@bandit:~$ cat /etc/bandit_pass/bandit16
JQttfApK4SeyHwDlI9SXGR50qcl0Ail1
bandit16@bandit:~$ nmap localhost -p 31000-32000
Starting Nmap 7.80 ( https://nmap.org ) at 2023-08-28 17:33 UTC
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00021s latency).
Not shown: 995 closed ports
PORT      STATE SERVICE
31002/tcp  open  unknown
31046/tcp  open  unknown
31518/tcp  open  unknown
31691/tcp  open  unknown
31790/tcp  open  unknown
31960/tcp  open  unknown

Nmap done: 1 IP address (1 host up) scanned in 0.10 seconds
bandit16@bandit:~$ nc localhost 31790
JQttfApK4SeyHwDlI9SXGR50qcl0Ail1
bandit16@bandit:~$ ncat --ssl localhost 31790^C
bandit16@bandit:~$ ncat --ssl localhost 31790
JQttfApK4SeyHwDlI9SXGR50qcl0Ail1
Correct!
-----BEGIN RSA PRIVATE KEY-----
MIIEogIBAAKCAQEAvM0kufmMg6HL2YPIOjon6iWfbp7c3jx34YkYWqUH57SudyJ
lmZzeyGC0gtZPGUjUSxiJSWI/oTqexh+cAMTSMl0Jf7+BrJObArnxd9Y7YT2bRPQ
Ja6Lzb558YW3FZl87ORiO+rW4LDCdND2lUvLE/GL2GWyuKN0K5iCd5TbtJzEkQTu
DSt2mcNn4rhAL+JFr56o4T6z8WWAW18BR6yGrMq7Q/kALHYW3OekePQAzL0VUYbW
DGTi65CxbCnzc/w4+mqQyvmpWtMAzJTzAzQxNbKR2MBGySxDLrjg0LWN6sK7wNX
x0YVztz/zbIkPjfkU1jHS+9EbVNj+D1XF0JuaQIDAQABAoIBABagpxpM1aoLWfvd
KHcj10nqcoBc4oE11aFYQwik7xfW+24pRNUDE6SFth0ar69jp5RLLwD1NhPx3iBl
D9n0M80J0VToum43UOS8YxF8WwhXriYGnc1sskbwpX0UDc9uX4+UESzH22P29ovd
d8WErY0gPxun8pbJLmxkAtWNhpMvfe0050vk9TL5wqbu9AlbssgTcCXkMQnPw9nC
YNN6DDP2lbcBrvgT9YCNL6C+ZKufD52y0Q9q0kwFTEQpjtf4uNtJom+asvlpms8A
vLY9r60wYSvmZhNqBURj7lyCtXMIu1kkd4w7F77k+DjHoAXyxcUp1DGL51sOmama
+TOWWgECgYEABJtPxP0GRJ+IQkX262jM3dEIkza8ky5moIwUqYdsx0NxHgRRhORT
Bc8bAuRBb2G82so8vUHK/fuc850Ffc9TncpCY2cFp0q5qbiFKlYclotT+qDpfZyx
```

```

-----BEGIN RSA PRIVATE KEY-----
MIIIEogIBAAKCAQEAvM0kuifmMg6HL2YPIOjon6iWfbp7c3jx34YkYWqUH57SudyJ
imZzeyGC0gtZPGUjUSxiJSWI/oTqexh+cAMTSMlOJf7+BrJObArnd9Y7YT2bRPQ
Ja6Lzb558YW3FZl870RiO+rW4LCDCNd2lUvLE/GL2GwyuKN0K5iCd5TbtJzEkQTu
DSt2mcNn4rHAL+JFr56o4T6z8WWAW18BR6yGrMq7Q/kALHYW30ekePQAZL0VUYbW
JGTi65CxbCnzc/w4+mqQyvmzpwTMAZJTzAzQxNbK2MBGySxDLrjg0LWN6sK7wNX
x0YVztz/zbIkPjfkU1jHS+9EbVNj+D1XFOJuaQIDAQABaoIBABagpxpM1aoLWfVd
KHcj10nqcoBc4oE11aFYQwik7xfW+24pRNUDE6SFth0ar69jp5RlLwD1NhPx3iBl
J9nOM80J0VToum43UOS8YxF8WwhXriYGnc1sskbwpXOUDc9uX4+UESzH22P29ovd
d8WErY0gPxun8pbJLmxkAtWNhpMvfe0050vk9TL5wqbu9AlbssgTcCXkMQnPw9nC
YNN6DDP2lbcBrvgT9YCNL6C+ZKufD52yOQ9qOkwFTEQpjtf4uNtJom+asvlpms8A
vLY9r60wYSvmZhNqBurj7lyCtXMIu1kkd4w7F77k+DjHoAXyxcUp1DGL51sOmama
+TOWWgECgYEA8JtPxP0GRJ+IQkX262jM3dEIkza8ky5moIwUqYdsx0NxHgRRhORT
8c8hAuRBB2G82so8vUHK/fur850Efc9TncnCY2crpoqsgghifKLxrLgtT+qDpfZnx
SatLdt8GfQ85yA7hnWWJ2MxF3NaESDm75Lsm+tBbAlyc9P2jGRntMSkCgYEAypHd
HCctNi/FwjulhttFx/rHYKhLidZDFYeiE/v45bN4yFm8x7R/b0iE7KaszX+Exdvt
SghaTdcG0Knyw1bpJVyusavPzpaJMjdJ6tcFhVABajm7enCivGCSx+X3l5SiWg0A
R57hJglezIiVjv3aGwHwvLZvtszK6zV6oXFAu0ECgYABjo46T4hyP5tJi93V5HDi
TtieK7xRVxUl+iu7rWkGAXFpMLFteQEsRr7PJ/lemmEY5eTDAFMLy9FL2m9oQWcG
R8VdwSk8r9FGLS+9aKcV5PI/WEKlwGXiN30hYimtiG2Cg5JCqIZFHxD6MjEG0iu
L8ktHMPvodBwNsSBULpG0QKBgBAPltFc1H0nWiMGOU3KPwYwt006CdTkmJ0mL8Ni
blh9elyZ9FsGxsgtRBXRsqXuz7wtsQAgLHxbdLq/ZJQ7Yfz0KU4ZxEnabvXnvWkU
Y0djHdS0oKvDQNWu6ucyLRAWFuISexw9a/9p7ftpxm0TSgyvmfLF2MIAEwyzRqaM
77pBAoGAMmjmIjDjp+Ez8duyn3ieo36yrttF5NSsJLABxPpdlc1gvtGCWW+9Cq0b
dxviW8+TFVEBl104f7HVM6EpTscDxU+bCXWkfjuRb7Dy9Gott9JP5X8MBTakh3
vBgsyi/sN3RqRBCGU40f0oZyfAMT8s1m/uYv5206IgeuZ/ujbjY=
-----END RSA PRIVATE KEY-----

```

```

~
~
~
~
~
"key" [readonly] 28L, 1676B

```

Password: RSA private key

Level 17 to 18:

```

nibir@Ubuntu:~/SWE4504_Software_Security/Lab1$ ^C
nibir@Ubuntu:~/SWE4504_Software_Security/Lab1$ vim key
nibir@Ubuntu:~/SWE4504_Software_Security/Lab1$ chmod 400 key
nibir@Ubuntu:~/SWE4504_Software_Security/Lab1$ ssh -i key bandit17@bandit.labs.overthewire.org -p 2220

```

```

  _ _ _ _ _
 | | | | |
 | | | | |
 | | | | |
 | | | | |

```

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

```

bandit17@bandit:~$
bandit17@bandit:~$ diff passwords.old passwords.new
42c42
< glZreTEH1V3cGKL6g4conYqZqaEj0mte
---
> hga5tuuCLF6fFzUpnagiMN8ssu9LFrdg

```

Password: hga5tuuCLF6fFzUpnagiMN8ssu9LFrdg

Level 18 to 19:

```

nibiru@Ubuntu:~/SWE4504_Software Security/Lab1$ ssh bandit18@bandit.labs.overthewire.org -p 2220

```

[illegible]

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

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

Enjoy your stay!

Byebye !

Connection to bandit.labs.overthewire.org closed.

```
nibir@Ubuntu:~/SWE4504_Software Security/Lab1$
```

```
nibir@Ubuntu:~/SWE4504_Software Security/Lab1$ ssh -t bandit18@bandit.labs.overthewire.org -p 2220 /bin/sh
```

DOMESTIC

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

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

\$ 1s

readme

```
$ cat readme
```

awhqfNnAbc1naukrpqDYcF95h7HoMTrc

\$ 1

Password: awhqfNnAbc1naukrpqDYcF95h7HoMTrC

Level 19 to 20:

```
bandit19@bandit:~$ ls
```

bandit20-do

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

Run a command as another user.

Example: `./bandit20-do id`

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

VxCazJaVyki6W36BkBU0mJTCM8rR95XT

bandit19@bandit:~\$

Password: VxCazJaVykl6W36BkBU0mJTCM8rR95XT