

Over the Wire

Level 0:

Using “SSH” to connect

A screenshot of a Linux terminal window. The top bar shows 'Activities', 'Terminal', and the date 'Mar 6 11:15'. The terminal prompt is 'aditya@21055aditya21055-VirtualBox:~\$'. The user has executed the command 'ssh bandit0@bandit.labs.overthewire.org -p 2220'. The output shows the connection is successful, displaying the host's IP, OS, and architecture. A large ASCII art logo for 'OverTheWire' is shown, with the URL 'www.overthewire.org' below it. The terminal then displays a welcome message and instructions for finding problems and playing games.

```
bandit0@bandit:~$ ls -a
.  ..  .bash_logout  .bashrc  .profile  readme
bandit0@bandit:~$ cat readme
boJ9jbbUNNfktD7800psq0ltutMc3MY1
bandit0@bandit:~$
```

Level 1:

Activities Terminal Mar 6 11:27

bandit1@bandit: ~

```
aditya-21055@aditya21055-VirtualBox:~$ ssh bandit1@bandit.labs.overthewire.org -p 2220
This is a OverTheWire game server. More information on http://www.overthewire.org/wargames

bandit1@bandit.labs.overthewire.org's password:
Linux bandit.otw.local 5.4.8 x86_64 GNU/Linux
```

www.OverTheWire.org

Welcome to OverTheWire!

If you find any problems, please report them to Steven or morla on
irc.overthewire.org.

--[Playing the games]--

This machine might hold several wargames.
If you are playing "somegame", then:

- * USERNAMES are somegame0, somegame1, ...
- * Most LEVELS are stored in /somegame/.

```
bandit1@bandit:~$  
bandit1@bandit:~$ ls -a  
- . . . .bash_logout .bashrc .profile  
bandit1@bandit:~$ cat -  
^C  
bandit1@bandit:~$ cat ./-  
CV1DtqXWVFXTvM2F0k09SHz0YwRINYA9  
bandit1@bandit:~$
```

Level 2:

```
bandit2@bandit:~$ ls -a
.  ..  .bash_logout  .bashrc  .profile  spaces in this filename
bandit2@bandit:~$ cat 'spaces in this filename'
UmHadQcIWmgdLOKQ3YNgjWxGoRMb5luK
bandit2@bandit:~$
```

Level 3:

```
bandit3@bandit:~$  
bandit3@bandit:~$ ls -a  
.  ..  .bash_logout  .bashrc  inhere  .profile  
bandit3@bandit:~$ cd inhere  
bandit3@bandit:~/inhere$ ls -a  
.  ..  .hidden  
bandit3@bandit:~/inhere$ cat .hidden  
pIwrPrtPN36QITSp3EQaw936yaFoFgAB  
bandit3@bandit:~/inhere$
```

Level 4:

```

bandit4@bandit: ~
ls -a
. . . .bash_logout .bashrc inhere .profile
bandit4@bandit:~$ cd inhere
bandit4@bandit:~/inhere$ ls -a
. . . -file00 -file01 -file02 -file03 -file04 -file05 -file06 -file07 -file08 -file09
bandit4@bandit:~/inhere$ cd ..
bandit4@bandit:~$ file ./inhere/*
./inhere/-file00: data
./inhere/-file01: data
./inhere/-file02: data
./inhere/-file03: data
./inhere/-file04: data
./inhere/-file05: data
./inhere/-file06: data
./inhere/-file07: ASCII text
./inhere/-file08: data
./inhere/-file09: data
bandit4@bandit:~$ cd inhere
bandit4@bandit:~/inhere$ cat '-file07'
cat: invalid option -- 'f'
Try 'cat --help' for more information.
bandit4@bandit:~/inhere$ cd ..
bandit4@bandit:~$ cat ./inhere/-file07
k0ReB0KuIDDepwhk7jZC0RTdopnAYKh
bandit4@bandit:~$

```

Level 5:

```
Activities Terminal Mar 6 11:46 bandit5@bandit: ~
* radare2 (http://www.radare.org/)
* checksec.sh (http://www.trapkit.de/tools/checksec.html) in /usr/local/bin/checksec.sh

--[ More information ]--

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

For support, questions or comments, contact us through IRC on
irc.overthewire.org #wargames.

Enjoy your stay!

bandit5@bandit:~$ ls -a
. . . .bash_logout .bashrc inher .profile
bandit5@bandit:~$ cd inher
bandit5@bandit:~/inher$ ls -a
. . maybehere00 maybehere02 maybehere04 maybehere06 maybehere08 maybehere10 maybehere12 maybehere14 maybehere16 maybehere18
.. maybehere01 maybehere03 maybehere05 maybehere07 maybehere09 maybehere11 maybehere13 maybehere15 maybehere17 maybehere19
bandit5@bandit:~/inher$ find ./inher/ -readable -size 1033c
find: './inher/': No such file or directory
bandit5@bandit:~/inher$ cd ..
bandit5@bandit:~$ find ./inher/ -readable -size 1033c
./inher/maybehere07/.file2
bandit5@bandit:~$ cat ./inher/maybehere07/.file2
DXjZPULLxYr17UwoI01bNLQbtFenEgo7

bandit5@bandit:~$
```

Level 6:

```
Activities Terminal Mar 6 11:52 bandit6@bandit: /
Enjoy your stay!

bandit6@bandit:~$ find -size 33c -type f -user bandit7 -group bandit6
bandit6@bandit:~$ find -size 33c -type f -user bandit7 -group bandit6
bandit6@bandit:~$ ls -a
. . . .bash_logout .bashrc .profile
bandit6@bandit:~$ cd /
bandit6@bandit:/$ find -size 33c -type f -user bandit7 -group bandit6
find: './root': Permission denied
find: './home/bandit28-git': Permission denied
find: './home/bandit30-git': Permission denied
find: './home/bandit5/inher': Permission denied
find: './home/bandit27-git': Permission denied
find: './home/bandit29-git': Permission denied
find: './home/bandit31-git': Permission denied
find: './lost+found': Permission denied
find: './etc/ssl/private': Permission denied
find: './etc/polkit-1/localauthority': Permission denied
find: './etc/lvm/archive': Permission denied
find: './etc/lvm/backup': Permission denied
find: './sys/fs/pstore': Permission denied
find: './proc/tty/driver': Permission denied
find: './proc/21304/task/21304/fdinfo/6': No such file or directory
find: './proc/21304/fdinfo/5': No such file or directory
find: './cgroup2/csessions': Permission denied
find: './boot/lost+found': Permission denied
find: './tmp': Permission denied
find: './run/lvm': Permission denied
find: './run/screen/S-bandit1': Permission denied
find: './run/screen/S-bandit10': Permission denied
find: './run/screen/S-bandit29': Permission denied
find: './run/screen/S-bandit25': Permission denied
find: './run/screen/S-bandit30': Permission denied
```

```
Activities Terminal Mar 6 11:52 bandit6@bandit: /
find: './run/screen/S-bandit20': Permission denied
find: './run/screen/S-bandit12': Permission denied
find: './run/screen/S-bandit5': Permission denied
find: './run/screen/S-bandit7': Permission denied
find: './run/screen/S-bandit16': Permission denied
find: './run/screen/S-bandit26': Permission denied
find: './run/screen/S-bandit8': Permission denied
find: './run/screen/S-bandit15': Permission denied
find: './run/screen/S-bandit4': Permission denied
find: './run/screen/S-bandit3': Permission denied
find: './run/screen/S-bandit19': Permission denied
find: './run/screen/S-bandit31': Permission denied
find: './run/screen/S-bandit17': Permission denied
find: './run/screen/S-bandit2': Permission denied
find: './run/screen/S-bandit22': Permission denied
find: './run/screen/S-bandit21': Permission denied
find: './run/screen/S-bandit14': Permission denied
find: './run/screen/S-bandit13': Permission denied
find: './run/screen/S-bandit24': Permission denied
find: './run/screen/S-bandit23': Permission denied
find: './run/shm': Permission denied
find: './run/lock/lvm': Permission denied
find: './var/spool/bandit24': Permission denied
find: './var/spool/cron/crontabs': Permission denied
find: './var/spool/rsyslog': Permission denied
find: './var/tmp': Permission denied
find: './var/lib/apt/lists/partial': Permission denied
find: './var/lib/polkit-1': Permission denied
./var/lib/dpkg/info/bandit7.password
find: './var/log': Permission denied
find: './var/cache/apt/archives/partial': Permission denied
find: './var/cache/ldconfig': Permission denied
bandit6@bandit:/$
```

```
Activities Terminal Mar 6 11:54 bandit6@bandit: /
find: './run/screen/S-bandit5': Permission denied
find: './run/screen/S-bandit7': Permission denied
find: './run/screen/S-bandit16': Permission denied
find: './run/screen/S-bandit26': Permission denied
find: './run/screen/S-bandit8': Permission denied
find: './run/screen/S-bandit15': Permission denied
find: './run/screen/S-bandit4': Permission denied
find: './run/screen/S-bandit3': Permission denied
find: './run/screen/S-bandit19': Permission denied
find: './run/screen/S-bandit31': Permission denied
find: './run/screen/S-bandit17': Permission denied
find: './run/screen/S-bandit2': Permission denied
find: './run/screen/S-bandit22': Permission denied
find: './run/screen/S-bandit21': Permission denied
find: './run/screen/S-bandit14': Permission denied
find: './run/screen/S-bandit13': Permission denied
find: './run/screen/S-bandit24': Permission denied
find: './run/screen/S-bandit23': Permission denied
find: './run/shm': Permission denied
find: './run/lock/lvm': Permission denied
find: './var/spool/bandit24': Permission denied
find: './var/spool/cron/crontabs': Permission denied
find: './var/spool/rsyslog': Permission denied
find: './var/tmp': Permission denied
find: './var/lib/apt/lists/partial': Permission denied
find: './var/lib/polkit-1': Permission denied
./var/lib/dpkg/info/bandit7.password
find: './var/log': Permission denied
find: './var/cache/apt/archives/partial': Permission denied
find: './var/cache/ldconfig': Permission denied
bandit6@bandit:/$ cat ./var/lib/dpkg/info/bandit7.password
HKBPTKQnIay4Fw76bEy8PVxKEDQRKTzs
bandit6@bandit:/$
```

Level 7:

```
bandit7@bandit:~$ ls -a
. . . .bash_logout .bashrc data.txt .profile
bandit7@bandit:~$ cat data.txt | grep millionth
millionth      cvX2JJJa4CFALtqS87jk27qwqGhBM9p1V
bandit7@bandit:~$
```

Level 8:

```
Activities Terminal Mar 6 12:00 bandit@bandit:~
executable on ELF binaries.

Finally, network-access is limited for most levels by a local
firewall.

--[ Tools ]--

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

* gef (https://github.com/hugsy/gef) in /usr/local/gef/
* pwndbg (https://github.com/pwndbg/pwndbg) in /usr/local/pwndbg/
* peda (https://github.com/longld/peda.git) in /usr/local/peda/
* gdbinit (https://github.com/gdbinit/gdbinit) in /usr/local/gdbinit/
* pwntools (https://github.com/Gallopsled/pwntools)
* radare2 (http://www.radare.org/)
* checksec.sh (http://www.trapkit.de/tools/checksec.html) in /usr/local/bin/checksec.sh

--[ More information ]--

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

For support, questions or comments, contact us through IRC on
irc.overthewire.org #wargames.

Enjoy your stay!

bandit@bandit:~$ ls -a
. . . .bash_logout .bashrc data.txt .profile
bandit@bandit:~$ sort data.txt | uniq -u
UsvVyFSfZZWb16wgC7dAFyFuR6jQQUhr
bandit@bandit:~$
```

Level 9:

```
Activities Terminal Mar 6 12:02 bandit9@bandit:~
* peda (https://github.com/longld/peda.git) in /usr/local/peda/
* gdbinit (https://github.com/gdbinit/gdbinit) in /usr/local/gdbinit/
* pwntools (https://github.com/Gallopsled/pwntools)
* radare2 (http://www.radare.org/)
* checksec.sh (http://www.trapkit.de/tools/checksec.html) in /usr/local/bin/checksec.sh

--[ More information ]--

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Enjoy your stay!

bandit9@bandit:~$ ls -a
. . . .bash_logout .bashrc data.txt .profile
bandit9@bandit:~$ cat data.txt | grep '='
Binary file (standard input) matches
bandit9@bandit:~$ strings data.txt | grep '='
===== the*2i"4
=:G e
===== password
<I=zsGi
Z)===== is
A=|t&E
Zdb=
c^ LAh=3G
*SF=s
&===== truKldjsbJ5g7yyJ2X2R0a3a5HQJFuLk
S=A.H8^
bandit9@bandit:~$
```

Level 10:

```
Activities Terminal Mar 6 12:05 bandit10@bandit:~
Finally, network-access is limited for most levels by a local
firewall.

--[ Tools ]--

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

* gef (https://github.com/hugsy/gef) in /usr/local/gef/
* pwndbg (https://github.com/pwndbg/pwndbg) in /usr/local/pwndbg/
* peda (https://github.com/longld/peda.git) in /usr/local/peda/
* gdbinit (https://github.com/gdbinit/gdbinit) in /usr/local/gdbinit/
* pwntools (https://github.com/Gallopsled/pwntools)
* radare2 (http://www.radare.org/)
* checksec.sh (http://www.trapkit.de/tools/checksec.html) in /usr/local/bin/checksec.sh

--[ More information ]--

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irc.overthewire.org #wargames.

Enjoy your stay!

bandit10@bandit:~$ ls -a
. . . .bash_logout .bashrc data.txt .profile
bandit10@bandit:~$ man base64
bandit10@bandit:~$ base64 -d data.txt
The password is IFukwKGsFW8MOq3IRFqrxE1hxTNEbUPR
bandit10@bandit:~$
```

Level 11:

```
Activities Terminal Mar 6 12:13 bandit11@bandit:~
Finally, network-access is limited for most levels by a local
firewall.

--[ Tools ]--

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

* gef (https://github.com/hugsy/gef) in /usr/local/gef/
* pwndbg (https://github.com/pwndbg/pwndbg) in /usr/local/pwndbg/
* peda (https://github.com/longld/peda.git) in /usr/local/peda/
* gdbinit (https://github.com/gdbinit/Gdbinit) in /usr/local/gdbinit/
* pwntools (https://github.com/Gallopsled/pwntools)
* radare2 (http://www.radare.org/)
* checksec.sh (http://www.trapkit.de/tools/checksec.html) in /usr/local/bin/checksec.sh

--[ More information ]--

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irc.overthewire.org #wargames.

Enjoy your stay!

bandit11@bandit:~$ ls -la
. . . .bash_logout .bashrc data.txt .profile
bandit11@bandit:~$ cat data.txt
Gur cnffjbeq vf 5Gr8L4qetPEsPk8htqjhRK8XSP6x2RHh
bandit11@bandit:~$ rot13 data.txt
-bash: rot13: command not found
bandit11@bandit:~$
```

rot13.com

[About ROT13](#)

Gur cnffjbeq vf 5Gr8L4qetPEsPk8htqjhRK8XSP6x2RHh



ROT13 ▾



The password is 5Te8Y4drgCRfCx8ugdwuEX8KFC6k2EUu

Level 12:

```
Activities Terminal Mar 6 12:36 bandit12@bandit: /tmp/Aditya
data5.bin: POSIX tar archive (GNU)
bandit12@bandit:/tmp/Aditya$ mv data5.bin data6.tar
bandit12@bandit:/tmp/Aditya$ tar -xvf data6.tar
data6.bin
bandit12@bandit:/tmp/Aditya$ ls
data5.tar data6.bin data6.tar data.txt
bandit12@bandit:/tmp/Aditya$ file data6
data6: cannot open 'data6' (No such file or directory)
bandit12@bandit:/tmp/Aditya$ file data6.bin
data6.bin: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/Aditya$ mv data6.bin data7.bz2
bandit12@bandit:/tmp/Aditya$ bzip2 -d data7.bz2
bandit12@bandit:/tmp/Aditya$ ls
data5.tar data6.tar data7 data.txt
bandit12@bandit:/tmp/Aditya$ file data7
data7: POSIX tar archive (GNU)
bandit12@bandit:/tmp/Aditya$ mv data7 data7.tar
bandit12@bandit:/tmp/Aditya$ tar -xvf data7.tar
data8.bin
bandit12@bandit:/tmp/Aditya$ ls
data5.tar data6.tar data7.tar data8.bin data.txt
bandit12@bandit:/tmp/Aditya$ file data8.bin
data8.bin: gzip compressed data, was "data9.bin", last modified: Thu May 7 18:14:30 2020, max compression, from Unix
bandit12@bandit:/tmp/Aditya$ mv data8.bin data.gz
bandit12@bandit:/tmp/Aditya$ mv data.gz data8.gz
bandit12@bandit:/tmp/Aditya$ gzip -d data8.gz
bandit12@bandit:/tmp/Aditya$ ls
data5.tar data6.tar data7.tar data8 data.txt
bandit12@bandit:/tmp/Aditya$ file data8
data8: ASCII text
bandit12@bandit:/tmp/Aditya$ cat data8
The password is 8ZjyCRiBWFYkneahHwxCv3wb2a10RpYL
bandit12@bandit:/tmp/Aditya$
```

There is more process than in the above process I had a screenshot (i.e before coming to this picture).

Level 13:

```
Activities Terminal Mar 6 12:40 bandit14@bandit: ~
Enjoy your stay!
bandit13@bandit:~$ ls -la
. . . .bash_logout .bashrc .profile sshkey.private
bandit13@bandit:~$ ssh -i sshkey.private bandit14@localhost
Could not create directory '/home/bandit13/.ssh'.
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:98UL0ZMr85496EtCRkKlo20X30PnyPSB5tB5RPbhczz.
Are you sure you want to continue connecting (yes/no)? yes
Failed to add the host to the list of known hosts (/home/bandit13/.ssh/known_hosts).
This is a OverTheWire game server. More information on http://www.overthewire.org/wargames

Linux bandit.otw.local 5.4.8 x86_64 GNU/Linux

  00404
www ver he tre.org

Welcome to OverTheWire!

If you find any problems, please report them to Steven or morla on
irc.overthewire.org.
```

```
Activities Terminal Mar 6 12:41
bandit14@bandit: ~

Finally, network-access is limited for most levels by a local
firewall.

--[ Tools ]--

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* gef (https://github.com/hugsy/gef) in /usr/local/gef/
* pwndbg (https://github.com/pwndbg/pwndbg) in /usr/local/pwndbg/
* peda (https://github.com/longld/peda.git) in /usr/local/peda/
* gdbinit (https://github.com/gdbinit/gdbinit) in /usr/local/gdbinit/
* pwntools (https://github.com/Gallopsled/pwntools)
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--[ More information ]--

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Enjoy your stay!

bandit14@bandit:~$ ls
bandit14@bandit:~$ cd /etc/bandit_pass/bandit14
-bash: cd: /etc/bandit_pass/bandit14: Not a directory
bandit14@bandit:~$ cat /etc/bandit_pass/bandit14
4wcYUJFw0k0XLShLDztnTBHlqxU3b3e
bandit14@bandit:~$
```

Level 14:

```
Activities Terminal Mar 6 12:46
bandit14@bandit: ~

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irc.overthewire.org #wargames.

Enjoy your stay!

bandit14@bandit:~$ ls -la
.. .bash_logout .bashrc .profile .ssh
bandit14@bandit:~$ cd .ssh
bandit14@bandit:~/.ssh$ ls -la
.. .authorized_keys
bandit14@bandit:~/.ssh$ cat authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGDGSQ4TzdbZw5PshaEVz1o9ppCZAN2D05CK/6mlkdr75u5K036CD51yvsXDw0sZrn5TN5zasSDRaZ568HXcA1hinQxnIR0rjq360T2m438nAi31eAFm
58a1kTBZsVbD+9Us3A5cF7hRZK0ZFbOA+kRSK/1NvVMMtkgF0amFMgrbyCbPlt0EyyIyflp8TAn9Pw9A7ebJL3W9QcS6g4W0H0QgPiQ3QwRnf5dqHirQcLWrrwqxU5t59cBw+8DcYAnb2TElqq9F+B
iepvmJV3vDcIeM1Thz/VmSn6fwRKFFo8D5ZgDu0I/3MXSKzy7MyVhD1XUvOH/z8ym+E3AXyvbZ3 rudy@localhost
bandit14@bandit:~/.ssh$ cd ..
bandit14@bandit:~$ telnet localhost 30000
telnet: port 30000 out of range
bandit14@bandit:~$ telnet localhost 30000
telnet: port 30000 out of range
bandit14@bandit:~$ telnet localhost 30000
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.
4wcYUJFw0k0XLShLDztnTBHlqxU3b3e
Correct!
BfMYroe26MYall177FoDi9qh59eK5xNr

Connection closed by foreign host.
bandit14@bandit:~$
```

Level 15:

```
Activities Terminal Mar 6 12:47
aditya-21055@aditya21055-VirtualBox:~$ ssh bandit15@bandit.labs.overthewire.org -p 2220
This is a OverTheWire game server. More information on http://www.overthewire.org/wargames

bandit15@bandit.labs.overthewire.org's password:
Linux bandit.otw.local 5.4.8 x86_64 GNU/Linux

      www      ver      he      ire.org

Welcome to OverTheWire!

If you find any problems, please report them to Steven or morla on
irc.overthewire.org.

--[ Playing the games ]--

This machine might hold several wargames.
If you are playing "somegame", then:

* USERNAMES are somegame0, somegame1, ...
* Most LEVELS are stored in /somegame/.
```