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TANTANGAN BANDIT

1. Level 0: Tantangan ini mengajarkan cara masuk ke server jarak jauh. Kamu perlu menggunakan protokol SSH. Fokusnya adalah memahami host (bandit.labs.overthewire.org), port khusus (2220), dan username (bandit0).

A screenshot of a terminal window titled '(root@kali)-[~]'. The command entered is '# ssh bandit0@bandit.labs.overthewire.org -p 2220'. The terminal displays a welcome message from an OverTheWire game server, followed by a password prompt: 'bandit0@bandit.labs.overthewire.org's password: [REDACTED]'. The background of the terminal window shows a dark image of a person's face.

2. Level 0 Ke 1: Fokus pada membaca file teks dasar di direktori home. Kamu belajar menggunakan perintah cat untuk membuka file bernama readme yang berisi kata sandi untuk level selanjutnya.

A screenshot of a terminal window showing the contents of the 'readme' file. The file contains a welcome message and instructions for the bandit game. It ends with the password: 'The password you are looking for is: ZjLjTmM6FvvyRnrb2rfNW0ZOTa6ip5If'. The terminal then exits with 'bandit0@bandit:~\$ exit' and 'Connection to bandit.labs.overthewire.org closed.' The background shows a dark image of a person's face.

3. Level 1 Ke 2: Mengajarkan cara menangani file dengan nama karakter khusus. Kamu belajar bahwa file bernama - harus diakses menggunakan jalur relatif ./ agar sistem tidak mengira itu adalah sebuah opsi perintah.

```
bandit1@bandit:~$ ls
-
bandit1@bandit:~$ cat './-'
263JGJPfgU6LtdEvgfWU1XP5yac29mFx
bandit1@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.

└─(root㉿kali)-[~]
# ssh bandit2@bandit.labs.overthewire.org -p 2220
```

4. Level 2 Ke 3: Fokus pada spasi dalam nama file. Tantangan ini mengajarkan penggunaan tanda kutip " " atau simbol *backslash* agar terminal membaca seluruh kalimat sebagai satu nama file tunggal.

```
Enjoy your stay!

bandit2@bandit:~$ ls
spaces in this filename
bandit2@bandit:~$ cat "spaces in this filename"
MNk8KNH3Usio41PRUEoDFPqfxLPlSmx
bandit2@bandit:~$ cat spaces\ in\ this\ filename
MNk8KNH3Usio41PRUEoDFPqfxLPlSmx
bandit2@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.

└─(root㉿kali)-[~]
# ssh bandit3@bandit.labs.overthewire.org -p 2220
```

5. Level 3 Ke 4: Mengenalkan konsep file tersembunyi. Kamu belajar menggunakan perintah ls -a untuk melihat file yang diawali dengan tanda titik yang biasanya tidak muncul pada perintah list biasa.

```
bandit3@bandit:~$ ls
inhere
bandit3@bandit:~$ cd inhere
bandit3@bandit:~/inhere$ ls -a
. .. ... Hiding-From-You
bandit3@bandit:~/inhere$ cat ... Hiding-From-You
2WmrDFRmJIq3IPxneAaMGhap0pFhF3NJ
bandit3@bandit:~/inhere$ exit
logout
Connection to bandit.labs.overthewire.org closed.

└─(root㉿kali)-[~]
# ssh bandit4@bandit.labs.overthewire.org -p 2220
```

6. Level 4 Ke 5: Mengajarkan cara identifikasi tipe data. Kamu menggunakan perintah file untuk menemukan satu-satunya file teks (ASCII) di tengah sekumpulan file biner yang datanya tidak beraturan.

```
bandit4@bandit:~$ ls
inhere
bandit4@bandit:~$ cd inhere
bandit4@bandit:~/inhere$ ls
-file00 -file02 -file04 -file06 -file08
-file01 -file03 -file05 -file07 -file09
bandit4@bandit:~/inhere$ file ./*
./-file00: PGP Secret Sub-key -
./-file01: data
./-file02: data
./-file03: data
./-file04: data
./-file05: data
./-file06: data
./-file07: ASCII text
./-file08: data
./-file09: data
bandit4@bandit:~/inhere$ cat ./-file07
cat: ./-file07: No such file or directory
bandit4@bandit:~/inhere$ cat ./-file07
4oQYVPKXZ00E005pTW81FB8j8lxXGUQw
bandit4@bandit:~/inhere$ exti
exti: command not found
bandit4@bandit:~/inhere$ exit
logout
Connection to bandit.labs.overthewire.org closed.
```

7. Level 5 Ke 6: Melatih penggunaan filter pencarian. Kamu belajar menggunakan perintah find dengan parameter spesifik seperti ukuran file (1033 bytes), tipe file, dan sifat yang tidak bisa dieksekusi (*non-executable*).

```
bandit5@bandit:~$ ls
inhere
bandit5@bandit:~/inhere$ ls
maybehere00 maybehere02 maybehere04 maybehere06 maybehere08 maybehere10 maybehere12 maybehere14 maybehere16 maybehere18
maybehere01 maybehere03 maybehere05 maybehere07 maybehere09 maybehere11 maybehere13 maybehere15 maybehere17 maybehere19
bandit5@bandit:~/inhere$ find -type f -size 1033c ! -executable
./maybehere07/.file2
bandit5@bandit:~/inhere$ cat ^C
bandit5@bandit:~/inhere$ cat ./maybehere07/.file2
HWasnPhq9AVk0dmk45nxy20cvUa6EG

bandit5@bandit:~/inhere$ exit
logout
Connection to bandit.labs.overthewire.org closed.
```

8. Level 6 Ke 7: Memperluas penggunaan pencarian di seluruh sistem. Fokusnya adalah mencari file berdasarkan kepemilikan user dan group tertentu, serta cara membuang pesan error akses ke folder sampah sistem (/dev/null).

```
bandit6@bandit:~$ cd /
bandit6@bandit:~/find -user bandit7 -group bandit6 -size 33c
find: './root': Permission denied
find: './proc/tty/driver': Permission denied
find: './proc/1778436/task/1778436/fd/6': No such file or directory
find: './proc/1778436/task/1778436/fdinfo/6': No such file or directory
find: './proc/1778436/fd/5': No such file or directory
find: './proc/1778436/fdinfo/5': No such file or directory
find: './boot/lost+found': Permission denied
find: './boot/efi': Permission denied
find: './etc/polkit-1/rules.d': Permission denied
find: './etc/sudoers.d': Permission denied
find: './etc/xinetd.d': Permission denied
find: './etc/credstore': Permission denied
find: './etc/multipath': Permission denied
find: './etc/ssl/private': Permission denied
find: './etc/credstore.encrypted': Permission denied
find: './etc/stunnel': Permission denied
find: './home/bandit29-git': Permission denied
find: './home/ubuntu': Permission denied
find: './home/bandit27-git': Permission denied
find: './home/drifter6/data': Permission denied
find: './home/bandit30-git': Permission denied
find: './home/bandit5/inhere': Permission denied
find: './home/bandit31-git': Permission denied
find: './home/bandit28-git': Permission denied
find: './home/drifter8/chroot': Permission denied
find: './run/lock/lvm': Permission denied
find: './run/systemd/inaccessible/dir': Permission denied
find: './run/systemd/propagate/systemd-udevd.service': Permission denied
find: './run/systemd/propagate/systemd-resolved.service': Permission denied
find: './run/systemd/propagate/systemd-networkd.service': Permission denied
find: './run/systemd/propagate/irqbalance.service': Permission denied
```

```
find: './snap': Permission denied
find: './lost+found': Permission denied
find: './var/cache/ldconfig': Permission denied
find: './var/cache/pollinate': Permission denied
find: './var/cache/apparmor/2693c843.0': Permission denied
find: './var/cache/apparmor/ac99afeb.0': Permission denied
find: './var/cache/apt/archives/partial': Permission denied
find: './var/cache/private': Permission denied
find: './var/crash': Permission denied
find: './var/spool/rsyslog': Permission denied
find: './var/spool/cron/crontabs': Permission denied
find: './var/spool/bandit24': Permission denied
find: './var/log/chrony': Permission denied
find: './var/log/amazon': Permission denied
find: './var/log/unattended-upgrades': Permission denied
find: './var/log/private': Permission denied
find: './var/tmp': Permission denied
find: './var/lib/udisks2': Permission denied
find: './var/lib/update-notifier/package-data-downloads/partial': Permission denied
find: './var/lib/polkit-1': Permission denied
./var/lib/dpkg/info/bandit7.password
find: './var/lib/apt/lists/partial': Permission denied
find: './var/lib/chrony': Permission denied
find: './var/lib/amazon': Permission denied
find: './var/lib/ubuntu-advantage/apt-esm/var/lib/apt/lists/partial': Permission denied
find: './var/lib/snapd/cookie': Permission denied
find: './var/lib/snapd/void': Permission denied
find: './var/lib/private': Permission denied
find: './drifter/drifter14_src/axTLS': Permission denied
find: './tmp': Permission denied
bandit6@bandit:~$ find -user bandit7 -group bandit6 -size 33c 2> /dev/null
./var/lib/dpkg/info/bandit7.password
bandit6@bandit:~$ cat ./var/lib/dpkg/info/bandit7.password
morbNTDKSW6jI1Uc0ym0dMaLn0lFVAaj
bandit6@bandit:~$
```

9. Level 7 Ke 8: Mengenalkan pemfilteran teks dengan perintah grep. Kamu belajar mencari kata kunci spesifik (millionth) di dalam file besar yang berisi ribuan baris teks secara cepat.

```
bandit7@bandit:~$ ls
data.txt
bandit7@bandit:~$ cat data.txt
depression      q6X32st9sACqlScKXQLX2wbcvFecp9BP
Claudette's    ykUWZY6KIy4bMKQ1d2792kmU8GRXJV
foretasting     oHqgsHvmgyVlDUou0x9FfhoLGJpUV23I
dedication's   qSxXzVzrcCnpN5wuuvjWiS2rMom0rxr0
dawns          mgdbA0BDN0081g0hKgMPhGa10VgQS75j
fastest         jsKmzlTkqa7v7guSLcr8Hek23x10zJZq
plating's      JQLL7h6B1tIct7N9UVJeU6SlxmqvGzbN
herds          lrZ0dP7gL0vjpCjareJ8aWo8P2mHF6mg
tablespoonful's J44SGhxpFPivXh7mpp0k5AgRX8HGsl3d
sordid         y9n2BRYI3N8beTQp2BlTD2embQCoudRP
birthright     9p2u2iKH8LDB4uloJQyP3U0cfwttn5fib
elevating       4EoX7LX0quPDXUn0gvmLOALzYSpB0kuW
lipid          st3ZkvL0yA5mvsTPbA0kzIHNPm0oNmPb
drizzliest    VyaIo5mv9I6nC0NYLBmwsv6opaqYNaXC
esteem         7woZAbHpyvntJa9Nx0nZC6RbxAPkaT
logbooks        xTTNTY60AmRtrmeQHI5W7JfBKbw6Y9mw
authenticated  xz8AZ6yq9eyxiV5Z6ol1SNiA851s8bPt
compiler        QSo3FNHKjw5i7bq0feqarb73ESbpr4e5
planted        q49H97Woot14aC8YITUIN6yGlj03Eyja
fuzzily        vtBFIBersJthL026CLhmLZF87GgMleiP
rucksacks      uvdJQVEWhMHWRkpQFNxsdeEwoDbHLDsv
clued          93H0swJBZjhayDasYZAcJ5kqR74tKhBi
trickling       dDVML8Ca5nrV6gfAVflvM20CgDw6k3oF
balcony's       5rS57lzHmuie23tnyr8QRTLdNB19JRYK
shimmy          ku3AWdvwRpQ2xC37zhzuNfMV9oxRYhxj
aground         nAeckXzSuZKJMdYoTwUDxkwUCkA6ykXG
emancipator    rrGoGDhGmoH6MNEn1XN8vXpQIVsU0ANY
extraordinarily lpdkg9fN71pikP5Dg4vN5eos1z2HCAXk
ticker         lkl70Q9SuprXy7ieDmEtKnVBgy6DU9w8
```

```
resplendence's rp0GatFtcPUibCJWQrV6kL3kixwfRL1e
cortices j7SHBuFXeSy7Cfk7cXykwcAD63xP8YHi
warranties 9JJlpbIj1Hymyw9RKxPvigInHpJEp0t1
inexpensively FIBUGtDRuqAshWAFA86eLknnPb9llKJw
Caranza's XhRzIJ2p5RcbVrvnJGwS88SjebVevHg3
Diana's jghQzrV6SSzcdRyKOXPao mz7HvvGSoox
trusteeship's nL0QTGaG1z4o061zkdVXC6G1CTJRGPgd
hardwoods SR7FimZLjm9tH8pmKzFdXtM8whGZN6dp
goldsmith's CrXR10qN407M0soFsY4f4V2Crb0W5bYn
paired Smaa0tgolrvpz d6DAII3pmLT eUBRLK14
Becky NpPZj10YboeQzrPFSSIMHuW6SLDXNP Gw
columnists PU7f5XF5sn47kvIy3DOAWwxlzE4UPPof
avocations FA877P0tbmQ2kbINOGSxaBI1JuXFkbyK
foolery's nlXn7DjEF5FM9JokQVHKopbo0yxp n1Mv
papyrus es MgIBiJSnVBcApEI04KAoV6PlIt7GcFmp
palace's 3P3NTvuCAgizOFPEL6BwqnbU6l3Eso1e
attiring Phq40txF8gzbPKg9mfjygBGGFa iUKYUW
bogeyman's 7tA8l0QUUucwQYSpEePqf04zgJ0Ica991
plaid ochCeakS7xxVEf1xdTw0E5bfs8WrrrFx
crinoline's 7m7MqeWz0EPlyyRzKSkkKwvB8Cq0SWDHF
lovely blteD0eGjobqhKcZXChSX B0PFBbyxc2
hounding quXySkWoe6hDLiIsmZsqiCbdwYWxjzXX
worriers AyRiV6aruz2YuxCEFL eumeiWQCS83KK6
whens zL6LbzIsVx8Vx6HbdJeWd4soLQfAiEda
betray iGLlyYYf6ZY0chupwUgQc6C4n5XXESTr
nakedness 2jyweZvdOgOlWi7Ua0llS1z2lwoY0gpr
doghouse's BJ6LehVqSdL47EfZJ6V7Px bSCFKasXqn
mitigates C09l8FpGWYywQhKYZeMV iASVnQgtrLRm
donor's TRFc1w69NkypAViQhDYGv3wNDx3jewG9
kitchening DXIVn1Qnd9qjld5bISLRIHS4WnaYeMko
reclining 6GyvNuAGX1HsImFYeA106ySrzb0dwFcb
achoo uZoJJJIm4xxaQTQKTTjpVH6q0goWRP6W
detonators 0WF07wP9ZAnjSoS80AP5tkgtZXPs6nZ0
steeple's wYdpBlfQnvM Ctt2BwV kPmUPkAlYUikv0
bandit7@bandit:$ vi data.txt █
```

```

Grinch's           BiwkABCQnZjHIuoKclXWEZooRRHBHagG
commandment      tVVNckBhgcQmtUqU10pVPa0kvтуl02jx
incorruptibility's   dsbHzEIQCPF7MsZgR6nUdLVqcBprC6aH
millennia         30oeztVo0h39e58bfHIQt6RZXsnI1DR7
aspirin          15kHdXtoB6xQZHT7bBsr2wO1EHM7YnJQ
erosive          d90yvioefJh4FGI2DCwngMgmJJSq9Nv0
sorcerers        0c5YuYiKp6vBVfsLx620mAfdm3vA3oKm
royalties         WIYCago6WbjLLNsji8pXEzafmukbfuYU
twanging          fX0iKAohIuD0hlxwXu8DtnMKeboqSsuH
floras            3WhocfsWLD021n5jl8DGcqp43FLxt5y0
bouillon's       iykcUuil8JXHVgyWh8OR06yHYJF8604t
decision          Sto2sPoL9wcJVf6oP5y4VZ4u6Rk5D2oj
Sadie's           qVbSkeheSdVRQVWw6Ihh4StxhdbxbxRj
cordials          wys7ZpGBSf4z9fWiQdp4MIg5tADLl0SO
sung              8100IP5jmjBezFBw0DY0PcsK4ZWRm0
booked            xJqOnEorNrB6yAegX4v59y2XtGbrxI0d
millionth       dfwvzFQi4mU0wfNbFOe9RoWskMLg7eEc
potters           VTG583EMbuuNhoaq0xPENpxgM22Nzntn
Bush               J3iwucKMX2VU2p0wt1BXc81adzOdb8ac
Persepolis        l4bKGr95f1TG8a5pHsc07E42Vkh0LWYL
animism's         gLXihYgIR2dj7CRX6qt2ZmCrkuhKNugo
imam              suqnZET8pJPUkiUx3lRJmQ95PMZ3FBD0
caesarean         fwBZpyZ4B3qA1gIxjlj3ot8KtmkaBvJD
looted             mYqN7UrqvWsZuyjae1eiDQH6oiaY90pb
laminated         CxDiKGoSnaPSy4cjrye26uMeaDr65mKm
knock              kCBmBhyhs6dnDP5Z046bY22ASlmYYPl0
freshening        gtbUH00735HnOfcjutBrcko4WnGhx8zJ
pewees             ZZIPjG5E2bkfP0r7Tyxmwpb7AMADZbvj
deductions        ZfX9JH0elhwM3sGKi28WS9hUSsw9LQhv
kidded            pCS2jej6VNMcfb9qmmwA1lL8YUiqFZrc
Dem's              J9hck5WXGWPQWFHk79PN3uHgHYUV28p
wallets            3R0gXR4PLE785E384qpSn4isq0Pwcjav
pinstripe's       nos3KrR8Bq7l21Q9g5PUqg9DPNqiWFsD
uselessness's     7osTEuj42QvhPfHJ07XbtfeG665HJyyf
/millionth

```

```

steeple's        wYdpBlfQnvMCtt2BwVkPmUPkAlYUikv0
bandit7@bandit:~$ vi data.txt
bandit7@bandit:~$ cat data.txt | grep millionth
bandit7@bandit:~$ cat data.txt | grep millionth
millionth       dfwvzFQi4mU0wfNbFOe9RoWskMLg7eEc
bandit7@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.

```

```

└─(root㉿kali)-[~]
# 

```

10. Level 8 Ke 9: Mengajarkan cara mencari baris unik. Kamu menggunakan kombinasi perintah sort dan uniq -u untuk menyaring dan menemukan satu-satunya baris teks yang tidak memiliki duplikat sama sekali.

Enjoy your stay!

```
bandit8@bandit:~$ ls
data.txt
bandit8@bandit:~$ cat
^C
bandit8@bandit:~$ cat data.txt
L3ZCH71RRxt8Kmy3X3R0NqQTmebcmkQ4
NknAyxnPgpoEcWHizP4TA8ALeIyco1VT
Fmt50Dm3V6Qf1oTF3qEJNWlVcHFdpbz
nOu0uI9ql3ws9FtaQt7mE4ngAmMASfE
ksiDcx6JXM6yZSfpf1TlIILABpb97sAy
NknAyxnPgpoEcWHizP4TA8ALeIyco1VT
3M5U6xE6bEuGjktQvDD4eyHnW3bwvCkj
sWKdjIYrvhKNNIzbPcsr1PsVXTrA6sjh
VKXvboNxm21lTAPgmQeMLqpSbFzzs6Dc
j5qFuzyFy0mr0xmSYge4hQ16VDMXnIeY
YM8Xdm1i2vWfYoKUUD3Ga4vMSCB5N4R
DhvgXMoEf0c49M7M6h18Mdo80quArQXn
DEgKKTHJK83mIJgDaxAZNJ5KZOJBlt0
4rrSr6IONT8TbtjY0fBa6G5SxLu76X4U
OTOF53u7AfSMiH61L13zeHPHoIe2Vg9v
DTkcNpSVikPcVzXZVqMqiRpX32v7oFtS
mEM65MuAhYISobkugdEBhSVg87syAp00
Fnob2VEezbjunFfCWtdisv9d0upRSxEa
ZoQXvA7JpWaVsWZp2KdXwVEP70fjPCbG
j5qFuzyFy0mr0xmSYge4hQ16VDMXnIeY
NGt8vc4H9olcH0BxYr3oBhrFpGSjizfM
gM80SuCwsQIMJt4diQnPZATpolLYCFij
fsRmg7nD6k7ek7AWQHa4X41rafiHnxan
bandit8@bandit:~$ sort data.txt
0LLAU8Hx0a5E8URNEITfTIe9sy6tcpeE
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
0oTVzsmZ20mngEgPis8LloSSnuBmm7t9
11RbnkUhGZG3V5XHw9YBKWPcdZTqrYSQ
11RbnkUhGZG3V5XHw9YBKWPcdZTqrYSQ
11RbnkUhGZG3V5XHw9YBKWPcdZTqrYSQ
11RbnkUhGZG3V5XHw9YBKWPcdZTqrYSQ
11RbnkUhGZG3V5XHw9YBKWPcdZTqrYSQ
11RbnkUhGZG3V5XHw9YBKWPcdZTqrYSQ
11RbnkUhGZG3V5XHw9YBKWPcdZTqrYSQ
11RbnkUhGZG3V5XHw9YBKWPcdZTqrYSQ
3M5U6xE6bEuGjktQvDD4eyHnW3bwvCkj
3M5U6xE6bEuGjktQvDD4eyHnW3bwvCkj
3M5U6xE6bEuGjktQvDD4eyHnW3bwvCkj
```

```

ZoQXvA7JpWaVsWZp2KdXwVEP70FjPCbG
ZoQXvA7JpWaVsWZp2KdXwVEP70FjPCbG
ZoQXvA7JpWaVsWZp2KdXwVEP70FjPCbG
bandit8@bandit:~$ sort data.txt | uniq -u
4CKMh1JI91bUIZZPXDqGanal4xvAg0JM
bandit8@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.

└─(root㉿kali)-[~]
# 

```

11. Level 9 Ke 10: Fokus pada ekstraksi teks dari file biner. Kamu menggunakan perintah strings untuk memisahkan dan menampilkan urutan karakter yang dapat dibaca manusia dari dalam file data mesin yang acak.

```

bandit9@bandit:~$ ls
data.txt
bandit9@bandit:~$ cat data.txt
♦♦4aSSW♦T♦♦j♦s♦E♦♦K4♦♦♦,♦♦l0P(♦♦gw♦)♦♦♦2♦l♦BJ♦
♦♦♦,k=?♦|Y♦♦♦♦♦♦j♦♦♦♦-t=♦b_♦_♦N8♦k♦zR|?K*(Vbj♦6F)♦♦Wg&♦<u♦5♦ ^♦k♦♦r
♦♦♦♦♦♦♦♦
    tIsrQzk`Dl5♦b<f'♦♦/♦%♦!%P♦0♦♦]♦]♦♦jH
&x♦YV;♦♦♦0♦k@^GV♦B♦♦X7;96♦t♦♦♦
    M-♦♦♦0♦21♦♦-K♦♦♦y♦a=♦♦♦MF♦♦Y♦♦♦wR73I♦
♦e♦#Rk*=?♦Z$♦♦F♦"♦♦♦Xx♦tv♦G/♦♦M♦]♦l♦♦♦♦-♦-♦\♦♦♦U♦♦♦B♦♦L
}yp♦B♦Z5♦D♦hnx♦EIj♦n?G♦F!:#O♦}♦#9H♦ t♦"o♦♦O♦R6♦iR♦OR)♦Q! )
bf♦h♦"g♦(*6$}♦"1"♦fBo♦♦qKdiKdM♦&♦♦♦-1T:c♦B♦z_♦.n♦W♦WP♦W♦yCP ♦♦`♦
♦qxDQ>0♦x♦"
    ♦]t|C♦*♦♦♦♦D♦y2Kam9♦eK♦$♦8♦?♦q♦7FX♦_R♦T:T♦♦♦_g/♦♦♦|♦g♦.
♦\♦X♦~V./♦
    ♦f♦08♦[♦B~T♦ORFZ♦|Tb♦c♦X
        X♦6♦&♦fG♦JM♦s♦r!♦:Tvw1♦N>5
:z♦kj♦#
    #Ze♦♦♦Ns9(♦h♦1a
        Lc♦♦♦bl!♦&x♦5♦Y♦5xt♦gK*[at♦r♦♦]≤ E♦m|♦♦m♦3♦)g
l_♦GhX♦^6..♦=
    ♦♦T♦iJ;s♦@♦♦♦♦$♦l♦♦♦b♦♦♦♦K♦2i♦I♦anMD,a♦?5
♦-r♦♦if♦3#>Z♦uMz♦♦♦♦l_♦f♦mJ♦♦♦
H[I♦8a♦[♦♦♦4^K♦B♦{♦)0♦wJ♦Q♦=♦♦♦r♦2xG9 ♦3:= the$Wb♦Q♦
♦/♦W#~♦Z
    $♦7♦>♦0;01♦J♦,♦~b♦&{/u♦i*x_Rj♦2C♦7k♦à♦x♦1dQ♦0♦-♦f♦}
v!$9♦g♦e6♦*♦
    *♦
        C♦UW♦
        .♦+y♦}♦a@W♦8♦鴻 Y♦Eu♦r ♦♦♦♦x^y ,♦h♦♦♦N;♦os♦8hT♦g;♦P
        ♦UG_V♦♦♦FJ<z|e♦B(Z+♦♦&X♦♦♦F'♦♦♦T♦@Ø°=I♦3s♦8♦js3v♦^t♦
♦D♦U♦♦♦U♦>♦ZaW♦N♦06♦=#♦}♦x♦8L♦{4k♦R6♦v!x♦F"♦,~襪 pYbandi
9@bandit:~$
bandit9@bandit:~$ strings data.txt | grep =
,k?
@k*
    the
#e in
g+=ypF
ea+
K>-*<
    password{k
    is
1R=j/
e=<2g%
+G/YD=
=wDk
=3?l0t
    FGUW5illLVJrxX9kMYMmlN4MgbpfMiqey
=D!f
H =sS
bandit9@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.

└─(root㉿kali)-[~]
# 

```

12. Level 10 Ke 11: Fokus pada dekripsi data Base64. Kamu belajar menggunakan perintah base64 -d untuk menerjemahkan data yang dikodekan kembali menjadi teks biasa yang bisa dibaca manusia.

```
bandit10@bandit:~$ ls  
data.txt  
bandit10@bandit:~$ base64 -d data.txt  
The password is dtR173fZKb0RRsDFSGsg2RWnpNVj3qRr  
bandit10@bandit:~$ exit  
logout  
Connection to bandit.labs.overthewire.org closed.  
  
└─(root㉿kali)-[~]  
# ssh bandit11@bandit.labs.overthewire.org -p 2220
```

13. Level 11 Ke 12: Mengajarkan cara memecahkan sandi ROT13 (perputaran huruf). Kamu menggunakan perintah tr untuk menggeser karakter alfabet sebanyak 13 posisi guna mengungkap kata sandi yang tersembunyi.

```
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 7x16WNNeHii5YkIhWsfFIqoognUTyj9Q4  
bandit11@bandit:~$ exit  
logout  
Connection to bandit.labs.overthewire.org closed.  
  
└─(root㉿kali)-[~]  
# ssh bandit12@bandit.labs.overthewire.org -p 2220
```

14. Level 12 Ke 13: Melatih kemampuan menangani kompresi berulang. Kamu belajar menggunakan xxd untuk mengubah hexdump menjadi file biner, lalu menggunakan file, gunzip, bzip2, dan tar secara bergantian untuk mengekstrak file yang dikompres berkali-kali.

```
bandit12@bandit:/tmp/sank12$ mv bandit12 bandit12.gz
bandit12@bandit:/tmp/sank12$ gunzip bandit12.gz
bandit12@bandit:/tmp/sank12$ ls
bandit12 data.txt
bandit12@bandit:/tmp/sank12$ file bandit12
bandit12: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/sank12$ mv bandit12 bandit12.bz2
bandit12@bandit:/tmp/sank12$ bzip2 bandit12.bz2
bzip2: Input file bandit12.bz2 already has .bz2 suffix.
bandit12@bandit:/tmp/sank12$ bzip2 -d bandit12.bz2
bandit12@bandit:/tmp/sank12$ ls
bandit12 data.txt
bandit12@bandit:/tmp/sank12$ file bandit12
bandit12: gzip compressed data, was "data4.bin", last modified: Thu Apr 10 14
:22:57 2025, max compression, from Unix, original size modulo 2^32 20480
bandit12@bandit:/tmp/sank12$ mv bandit12 bandit12.gz
bandit12@bandit:/tmp/sank12$ gunzip bandit12.gz
bandit12@bandit:/tmp/sank12$ ls
bandit12 data.txt
bandit12@bandit:/tmp/sank12$ file bandit12
bandit12: POSIX tar archive (GNU)
bandit12@bandit:/tmp/sank12$ file bandit12
bandit12: POSIX tar archive (GNU)
bandit12@bandit:/tmp/sank12$ mv bandit12 bandit12.tar
bandit12@bandit:/tmp/sank12$ tar -xf bandit12.tar
bandit12@bandit:/tmp/sank12$ ls
bandit12.tar data5.bin data.txt
bandit12@bandit:/tmp/sank12$ file data5.bin
data5.bin: POSIX tar archive (GNU)
bandit12@bandit:/tmp/sank12$ mv data5.bin data5.tar
bandit12@bandit:/tmp/sank12$ tar -xf data5.tar
bandit12@bandit:/tmp/sank12$ ls
bandit12.tar data5.tar data6.bin data.txt
bandit12@bandit:/tmp/sank12$ file data6.bin
data6.bin: bzip2 compressed data, block size = 900k
bandit12@bandit:/tmp/sank12$ mv data6.bin data6.tar
bandit12@bandit:/tmp/sank12$ tar -xf data6.tar
bandit12@bandit:/tmp/sank12$ ls
bandit12.tar data5.tar data6.tar data8.bin data.txt
bandit12@bandit:/tmp/sank12$ file data8.bin
data8.bin: gzip compressed data, was "data9.bin", last modified: Thu Apr 10 1
4:22:57 2025, max compression, from Unix, original size modulo 2^32 49
bandit12@bandit:/tmp/sank12$ mv data8.bin data8.gz
bandit12@bandit:/tmp/sank12$ gunzip data8.gz
bandit12@bandit:/tmp/sank12$ ls
bandit12.tar data5.tar data6.tar data8 data8
bandit12@bandit:/tmp/sank12$ file data8
data8: ASCII text
bandit12@bandit:/tmp/sank12$ cat data8
The password is F05dwFsc0cbaIiH0h8J2eUks2vdTDwAn
bandit12@bandit:/tmp/sank12$ exit
logout
Connection to bandit.labs.overthewire.org closed.

└─(root㉿kali)-[~]
#
```

```
bandit12@bandit:~$ ls
data.txt
bandit12@bandit:~$ mkdir /tmp/sank12
bandit12@bandit:~$ cp data.txt /tmp/sank12/data.txt
bandit12@bandit:~$ cd /tmp/sank12
bandit12@bandit:/tmp/sank12$ ls
data.txt
bandit12@bandit:/tmp/sank12$ xxd -r data.txt
4 40hH♦♦D0UP♦k.♦"♦♦♦♦D♦p♦QG♦l♦♦J♦'♦x Fc♦♦♦♦♦4♦[♦;♦♦♦♦[♦
♦♦px♦♦[♦h♦♦♦oFw9 D♦♦♦9A♦♦♦\♦-♦1l♦N♦(^♦az♦T!♦♦I[2_=pi@♦♦♦♦♦♦(,Q♦I♦/b_♦y♦R♦

♦Zip♦47♦@♦\5♦<♦BQ♦q♦G♦8♦P♦♦♦♦B♦eI@
♦♦♦♦P♦YK?♦+♦♦ $♦N♦%♦g♦Nm!A6♦*)-f8<!♦N♦O,♦♦♦♦6j♦V8♦w$♦
♦♦x♦Q-Ibandit12@bandit:/tmp/sank12$ xxd -r data.txt > bandit12
bandit12@bandit:/tmp/sank12$ ls
bandit12 data.txt
bandit12@bandit:/tmp/sank12$ file bandit12
bandit12: gzip compressed data, was "data2.bin", last modified: Thu Apr 10 14:2
bandit12@bandit:/tmp/sank12$
```

15. Level 13 Ke 14: Fokus pada penggunaan kunci privat SSH. Kamu belajar masuk ke level berikutnya tanpa kata sandi, melainkan menggunakan file identitas kunci privat dengan opsi ssh -i.

```
bandit13@bandit:~$ id
uid=11013(bandit13) gid=11013(bandit13) groups=11013(bandit13)
bandit13@bandit:~$ ls
sshkey.private
bandit13@bandit:~$ man ssh
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:C2ihUBV7ihnV1wJXRb4RrEcLfXC5CXlhmAAM/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.

16. Level 14 Ke 15: Mengenalkan interaksi dengan port jaringan. Kamu belajar menggunakan perintah nc (netcat) untuk mengirimkan data ke port spesifik (30000) pada localhost untuk mendapatkan respon berupa kata sandi.

```
bandit14@bandit:~$ cat /etc/bandit_pass/bandit14
MU4VWeTyJk8R0of1qqmcBPaLh7lDCPvS
bandit14@bandit:~$ nc 127.0.0.1 300000
nc: port number too large: 300000
bandit14@bandit:~$ nc 127.0.0.1 30000
MU4VWeTyJk8R0of1qqmcBPaLh7lDCPvS
Correct!
8xCjnmgoKbGLhHFAZlGE5Tmu4M2tKJQo

^C
bandit14@bandit:~$
```

17. Level 15 Ke 16: Mengajarkan cara berkomunikasi melalui jalur aman SSL/TLS. Kamu menggunakan perintah openssl s_client untuk terhubung ke port terenkripsi, karena perintah netcat biasa tidak mendukung enkripsi SSL.

```
bandit15@bandit:~$ cat /etc/bandit_pass/bandit15
8xCjnmgoKbGLhHFAZlGE5Tmu4M2tKJQo
bandit15@bandit:~$ openssl s_client -connect localhost:30001
CONNECTED(00000003)

read R BLOCK
8xCjnmgoKbGLhHFAZlGE5Tmu4M2tKJQo
Correct!
kSkvUpMQ7lBYyCM4GBPvCvT1BfWRy0Dx

closed
bandit15@bandit:~$
```

18. Level 16 Ke 17: Melatih teknik pemindaian port dan pengamanan file kunci. Kamu belajar mencari port yang terbuka menggunakan pemindai, mengambil kunci privat RSA melalui koneksi SSL, dan mengatur izin akses file menggunakan chmod agar kunci bisa digunakan.

```
bandit16@bandit:~$ cat /etc/bandit_pass/bandit16
kSkvUpMQ7lBYyCM4GBPvCvT1BfWRy0Dx
bandit16@bandit:~$ nc -r -w 1 -z 127.0.0.1 31000-32000
Connection to 127.0.0.1 31518 port [tcp/*] succeeded!
Connection to 127.0.0.1 31046 port [tcp/*] succeeded!
Connection to 127.0.0.1 31691 port [tcp/*] succeeded!
Connection to 127.0.0.1 31790 port [tcp/*] succeeded!
Connection to 127.0.0.1 31960 port [tcp/*] succeeded!
bandit16@bandit:~$
```



```
bandit16@bandit:~$ openssl s_client -connect localhost:31046
CONNECTED(00000003)
4087FOF7FFF7F0000:error:0A0000F4:SSL routines:ossl_statem_client_read_transiti
on:unexpected message:../ssl/statem/statem_clnt.c:398:
no peer certificate available
No client certificate CA names sent
SSL handshake has read 293 bytes and written 300 bytes
Verification: OK
New, (NONE), Cipher is (NONE)
Secure Renegotiation IS NOT supported
Compression: NONE
Expansion: NONE
No ALPN negotiated
Early data was not sent
Verify return code: 0 (ok)
bandit16@bandit:~$
```

```

bandit16@bandit:~$ openssl s_client -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

      Start Time: 1748573337
      Timeout   : 7200 (sec)
      Verify return code: 18 (self-signed certificate)
      Extended master secret: no
      Max Early Data: 0

read R BLOCK
kSkvUpMQ7lBYyCM4GBPvCvT1BfWRy0Dx
KEYUPDATE
■

read R BLOCK
kSkvUpMQ7lBYyCM4GBPvCvT1BfWRy0Dx
KEYUPDATE
^C
bandit16@bandit:~$ openssl s_client -connect localhost:31790 -ign_eof
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
-----
read R BLOCK
kSkvUpMQ7lBYyCM4GBPvCvT1BfWRy0Dx
Correct!
----- BEGIN RSA PRIVATE KEY -----
MIIEogIBAAKCAQEAvmOkufmMg6HL2YPI0jon6iWfbp7c3jx34YkYWqUH57SUdyJ
imZzeyGC0gtZPGujUSxiJSWI/oTqexh+cAMTSML0Jf7+BrJobArnxd9Y7YT2bRPQ
Ja6Lzb558Yw3FzL87ORio+rW4LCDNm2lUvLE/GL2GWyukN0K5iCd5TbtJzEkQTu
DSt2mcNn4rhAL+JFr56o4T6z8WWAW18BR6yGrMq7Q/kALHYW3OekePQAzL0VUYbw
JGTi65CxbCnzc/w4+mqQyvmzpWtMAzJTkAzQxNbkr2MBGySxDLrjg0LWN6sK7wNX
x0YVztz/zbIkPjfku1jHS+9EbVNj+D1XFOJuaQIDAQABaoIBABagpxpM1aoLWfvD
KHcj10nqcoBc4oE11aFYQwik7xfw+24pRNuDE6SFthOar69jp5RllWd1NhPx3iBl
J9nOM80J0VToum43UOS8YxF8WhXriYGnc1sskbwpXOUdc9uX4+UESzh22P29ovd
d8WErY0gPxun8pbJLmxkAtnWhpMvfe0050vk9TL5wqbu9AlbssgTcCxkMqnPw9nC
YNN6DDP21bcBrvgT9YCNL6C+ZKufD52y0Q9q0kwFTEQpjtf4uNtJom-asvlpmS8A
vLY9r60wYSvnZhNqBuJ7lyCtXMIu1kkd4w7F77k+DjHoAxYxcUp1DGL51s0mama
+TOWWgECgYEAEJtPxP0GRJ+IQkX262jM3dEIkza8ky5moIwUqYdsx0NxHgRRhORT
8c8hauRBb2G82so8vUHK/fur850Ef9TncnCY2crpoqsgfhfKLxrLgtT+qDpfZnx
SatLdt8GfQ85yA7hnWWJ2MxF3NaeSDm75Lsm+tBbAiyc9P2jGRNtMSkCgYEAYpHd
HCctNi/FwjulhttFx/rHYkhLidZDFYeie/v45bN4yFm8x7R/b0iE7KaszX+Exdvt
SghaTdcG0Knyw1bpJVyusacPzpaJMjdJ6tcFhVAbAjm7enCIvGCSx+x3l5SiWg0A
R57hjglezIiVjv3aGwhwvLzvtsk6zV6oXFau0EcgyAbjo46T4hyP5tji93V5HDi
TtieK7xRxUl+iU7rWlkGAXFpMLFteQEsRr7PJ/lemmEY5eTDAFMly9FL2m9oQWCg
R8VdwSk8r9FGLS+9aKcV5PI/WEKlwgXinB3OhYimtiG2Cg5JCqIZFhxD6MjEGOiu
L8ktHMPvodBwNsSBULpG0QKBgAp1Tfc1H0nWiMGOU3KPwYt006CdTkj0mL8ni
blh9elyZ9FsGxsqtRBXRsqXuz7wtsQAgLhxbdlq/ZJQ7YfzOKU4ZxEnabvXnvWkU
Y0djHdS0oKvDQNNU6ucyLRAWFuISExw9a/9p7ftpxm0TSgyvmfLF2MIAEwyzRqaM
77pBAoGAMmjmlJdjp+Ez8duyn3ieo36yrttF5NSsJLAbxFpdlc1gvttGcwW+9Cq0b
dxviW8+TFVEBL104f7HVm6EpTscdDxU+bCXWkfjuRb7Dy9G0tt9JPsx8MBTakzh3
vBgsyi/sN3RqRbcGU40fOoZyfAMT8s1m/uYv5206IgeuZ/ujbjY=
----- END RSA PRIVATE KEY -----


closed
bandit16@bandit:~$ ■

```

```
read R BLOCK
kSkvUpMQ7LBYYCM4GBPvCvT1BfWRy0Dx
Correct!
-----BEGIN RSA PRIVATE KEY-----
MIIEogIBAAKCAQEAvmOkuifmMg6HL2YPIOjon6iWfbp7c3jx34YkYWqUH57SUdyJ
imZzeyGC0gtZPGujusxiJSWI/oTqexh+cAMTSML0Jf7+BrJobArnxd9Y7YT2bRPQ
Ja6Lzb558YW3Fz1870Ri+rW4LCDNdl2lUvLE/GL2GWyukN0K5icd5TbtJzeEkQTu
DSt2mcNn4rhAL+JFr56o4T6z8WWAW18BR6yGrMq7Q/kALHYW30ekePQAzL0VUYbW
JGTi65CxbCnzc/w4+mqQyvmzpWtMAzJTzAzQxNbkr2MBGySxDLrjg0LWN6sK7wNX
x0YVztz/zbIkPjfkU1jHS+9EbVNj+D1XFOJuaQIDAQABAOIBABagpxpM1aoLWfvD
KHcj10nqcoBc4oE11aFYQwik7xfw+24pRNuDE6SFthoar69jp5RllWd1NhPx3iBl
J9nOM80J0VToum43J0S8YxF8WwhXriYGnc1sskbwpX0UDc9uX4+UEszH22P29ovd
d8WErY0gPxun8pbJLmxkAtWnhpMvfe0050vk9TL5wqbu9AlbssgTcCXkMqnPw9nC
YNN6DDP2lbcBrvgT9YCNL6C+ZKufD52y0Q9qOkwFTEQpjTf4uNtJom+asvlpms8A
vLY9r60wYSvmZhNqBurj7lyCtXMu1kkd4w7F77k+DjHoAXyxcsUp1DGL51s0mama
+TOWWgECgYEAE8JtPxP0GRJ+I0kX262jM3dEIka8ky5moIwUqYdsx0NxHgRRhORT
8c8hAuRBb2G82so8vUhk/fur850Ef09TncnCY2crpoqsgifKLxrIgtT+qDpFZnx
SatLdt8Gf085yA7hnWWJ2MxF3NaeSDm75Lsm+tBbAiyc9P2jGRNtMSkCgYEAYpHd
HCctNi/FwjulhttFx/rHYKhLidZDFYeiE/v45Bn4yFm8*xR/b0iE7KaszX+Exdvt
SghaTdcG0Knyw1bpJYyusavPzpaJMjd36tcFnVAbAjm7enC1vGCSx+X3l5Siwg0A
R57hJglezIiJv3aGwHwvlZvtSzK6zV6oXFau0EcgyAbjo46T4hyP5tJi93V5Hdi
TtieK7xRVxUl+iU7rWKGAXFpmLftEQsRr7PJ/LemmEY5etTDAFMLy9FL2m9oQWCg
R8VdwSk8i9FGGLs+9aKcv5PI/WEKlwgXinB30hYimtiG2cg5JCqIZFHxD6MjEGoiu
L8ktHMPvodBwNsSBULpG0QKBgBApLTfc1H0nWimGOU3KPwWt006CdTkMj0mL8Ni
blh9elyZ9FsGxsgtRBXRsqXuz7wtsQAgLHxbdLq/ZJQ7YfzOKU4ZxEnabvXnvWkU
YodjHdSOOkvDQNwu6ucyLRAWfuISexw9a/9p7ftpxm0TSgyvmfLF2MIAEwyzRqaM
77pBAoGAMmjmlJdjp+Ez8duyn3ieo36yrttF5NSsJLAbxFpd1gvgtGCWW+9Cq0b
dxviW8+TFVEBL104f7HVm6EpTscdDxU+bCXWkfjuRb7Dy9Gott9JPsx8MBTakzh3
vBgsyi/sN3RqRBcGU40f0ozYfAMT8s1m/uYv5206IgeuZ/ujbjY=
-----END RSA PRIVATE KEY-----
closed
bandit16@bandit:~$ █
bandit16@bandit:~$ mkdir /tmp/sank16
bandit16@bandit:~$ cd /tmp/sank16
bandit16@bandit:/tmp/sank16$ vi key16
bandit16@bandit:/tmp/sank16$ vi key16
bandit16@bandit:/tmp/sank16$ ssh -i key16 bandit17@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])? █
```

```
bandit16@bandit: /tmp/sank16
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.

WARNING: UNPROTECTED PRIVATE KEY FILE!
Permissions 0664 for 'key16' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "key16": bad permissions
bandit17@localhost: Permission denied (publickey).
bandit16@bandit:/tmp/sank16$ ls -l ./key16
-rw-r--r-- 1 bandit16 bandit16 1675 May 30 02:56 ./key16
bandit16@bandit:/tmp/sank16$ chmod 700 key16
bandit16@bandit:/tmp/sank16$ ls -l .key16
ls: cannot access '.key16': No such file or directory
bandit16@bandit:/tmp/sank16$ ls -l ./key16
-rwx----- 1 bandit16 bandit16 1675 May 30 02:56 ./key16
bandit16@bandit:/tmp/sank16$ ssh -i key16 bandit17@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
```

19. Level 17 Ke 18: Mengenalkan perbandingan konten file menggunakan diff. Kamu belajar cara menemukan satu-satunya baris teks yang berubah di antara dua buah file (passwords.old dan passwords.new) secara efisien.

```
bandit17@bandit:~$ ls
passwords.new  passwords.old
bandit17@bandit:~$ diff passwords.new passwords.old
42c42
< x2gLTtjFwM0hQ8oWNbMN362QKxfRqGlo
-
> C6XNbdY0kgt5ARXESMKWWOUwBeaIQZ0Y
bandit17@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.

[root@kali)-~]
#
```

20. Level 18 Ke 19: Mengajarkan cara mengatasi modifikasi shell login. Kamu belajar melewati skrip .bashrc yang otomatis memutus koneksi dengan cara memerintahkan SSH untuk langsung menjalankan aplikasi shell lain seperti /bin/sh.

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

[~]# ssh bandit18@bandit.labs.overthewire.org -p 2220 /bin/sh
[~]# This is an OverTheWire game server.
[~]# More information on http://www.overthewire.org/wargames

bandit18@bandit.labs.overthewire.org's password:
ls
readme
cat readme
cGWpMaKXVwDUNGPAVJbWYuGHVn9zl3j8
exit

[~]#
```

21. Level 19 Ke 20: Fokus pada konsep setuid binary. Kamu belajar cara menjalankan file eksekusi khusus yang memiliki izin untuk menjalankan perintah sebagai pengguna lain (bandit20), sehingga kamu bisa membaca file yang seharusnya terlarang.

```
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
0qXahG8Zj0VMN9Ghs7i0WsfZyXOUbY0
bandit19@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.

└─(root㉿kali)-[~]
#
```

22. Level 20 Ke 21: Mengajarkan cara melakukan interaksi antar terminal melalui koneksi jaringan lokal. Kamu belajar menggunakan Netcat (nc) untuk mendengarkan (*listen*) pada port tertentu, sementara program setuid mengirimkan kata sandi untuk divalidasi hingga level berikutnya terbuka.

```
bandit20@bandit:~$ ls
bandit20@bandit:~$ suconnect
bandit20@bandit:~$ ./suconnect
Usage: ./suconnect <portnumber>
This program will connect to the given port on localhost using TCP. If it receives the correct password from the other side, the next password is transmitted back.
bandit20@bandit:~$
```

```
bandit20@bandit:~$ nc -nlvp 12345
Listening on 0.0.0.0 12345
From the other side, the next password is transmitted
0qXahG8Zj0VMN9Ghs7i0WsCfZyXOUbYO
[...]
ted back.
bandit20@bandit:~$ ./suconnect 12345
Read: 0qXahG8Zj0VMN9Ghs7i0WsCfZyXOUbYO
Password matches, sending next password
bandit20@bandit:~$ [REDACTED]

bandit20@bandit:~$ nc -nlvp 12345
Listening on 0.0.0.0 12345
0qXahG8Zj0VMN9Ghs7i0WsCfZyXOUbYO
Connection received on 127.0.0.1 34158
EeoULMCra2q0dSkYj561DX7s1CpBuOBt
bandit20@bandit:~$ [REDACTED]
```

23. Level 21 Ke 22: Mengenalkan Cron Job, yaitu penjadwal tugas otomatis di Linux. Kamu belajar menelusuri konfigurasi di /etc/cron.d/ untuk menemukan skrip yang berjalan secara otomatis dan mencari tahu ke mana skrip tersebut menuliskan kata sandi rahasianya.

```
bandit21@bandit:~$ ls
bandit21@bandit:~$ cd /etc/cron.d
bandit21@bandit:/etc/cron.d$ ls -l
total 28
-rw-r--r-- 1 root root 123 Apr 10 14:16 clean_tmp
-rw-r--r-- 1 root root 120 Apr 10 14:23 cronjob_bandit22
-rw-r--r-- 1 root root 122 Apr 10 14:23 cronjob_bandit23
-rw-r--r-- 1 root root 120 Apr 10 14:23 cronjob_bandit24
-rw-r--r-- 1 root root 201 Apr 8 2024 e2scrub_all
-rwx----- 1 root root 52 Apr 10 14:24 otw-tmp-dir
-rw-r--r-- 1 root root 396 Jan 9 2024 sysstat
bandit21@bandit:/etc/cron.d$ cat cronjob_bandit22
@reboot bandit22 /usr/bin/cronjob_bandit22.sh &> /dev/null
* * * * * bandit22 /usr/bin/cronjob_bandit22.sh &> /dev/null
bandit21@bandit:/etc/cron.d$ cat /usr/bin/cronjob_bandit22.sh
#!/bin/bash
chmod 644 /tmp/t706lds9S0RqQh9aMcz6ShpAoZKF7fgv
cat /etc/bandit_pass/bandit22 > /tmp/t706lds9S0RqQh9aMcz6ShpAoZKF7fgv
bandit21@bandit:/etc/cron.d$ cat /tmp/t706lds9S0RqQh9aMcz6ShpAoZKF7fgv
tRae0Ufb9v0UzbCdn9cY0gQnds9GF58Q
bandit21@bandit:/etc/cron.d$ exit
logout
Connection to bandit.labs.overthewire.org closed.
```

24. Level 22 Ke 23: Melatih kemampuan membaca skrip shell milik orang lain. Fokusnya adalah memahami logika enkripsi sederhana dalam skrip (seperti MD5 hash) dan mereproduksi cara skrip tersebut menghasilkan nama file rahasia berdasarkan nama pengguna (*username*).

```
bandit22@bandit:/etc/cron.d$ cat /usr/bin/cronjob_bandit23.sh
#!/bin/bash

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

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

cat /etc/bandit_pass/$myname > /tmp/$mytarget
bandit22@bandit:/etc/cron.d$ mkdir /tmp/sank23
bandit22@bandit:/etc/cron.d$ cd /tmp/sank23
-bash: cd: /tmp/sank23: No such file or directory
bandit22@bandit:/etc/cron.d$ cd /tmp/sank23
bandit22@bandit:/tmp/sank23$ vi key23.sh
bandit22@bandit:/tmp/sank23$ ~~~~~~:qw
```

```
bandit22@bandit:~$ vi key23.sh
bandit22@bandit:/tmp/sank23$ chmod 777 key23.sh
bandit22@bandit:/tmp/sank23$ ./key23.sh
Copying passwordfile /etc/bandit_pass/bandit23 to /tmp/8ca319486bfbb3663ea0fbe81326349
./key23.sh: line 8: /tmp/8ca319486bfbb3663ea0fbe81326349: Permission denied
bandit22@bandit:/tmp/sank23$ ls -l /tmp/8ca319486bfbb3663ea0fbe81326349
-rw-rw-r-- 1 bandit23 bandit23 33 Jun  3 04:59 /tmp/8ca319486bfbb3663ea0fbe81326349
bandit22@bandit:/tmp/sank23$ cat /tmp/8ca319486bfbb3663ea0fbe81326349
0Zf11ioIjMVN551jX3CmStKLYqjk54Ga
bandit22@bandit:/tmp/sank23$ exit
logout
Connection to bandit.labs.overthewire.org closed.

[root@kali)-[~]
# [ ]
```



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

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

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

cat /etc/bandit_pass/$myname > /tmp/$mytarget
bandit22@bandit:/etc/cron.d$
```

25. Level 23 Ke 24: Mengajarkan cara membuat skrip shell pertama kamu. Kamu belajar menulis skrip sederhana yang bisa dijalankan secara otomatis oleh sistem (melalui folder *spool*), memberikan izin akses yang tepat dengan chmod, dan memerintahkan sistem untuk menyalin kata sandi ke lokasi yang bisa kamu akses.

```

bandit23@bandit:~$ cd /etc/cron.d
bandit23@bandit:/etc/cron.d$ ls
clean_tmp    cronjob_bandit23  e2scrub_all  sysstat
cronjob_bandit22 cronjob_bandit24  otw-tmp-dir
bandit23@bandit:/etc/cron.d$ cat cronjob_bandit24
@reboot bandit24 /usr/bin/cronjob_bandit24.sh >> /dev/null
* * * * * bandit24 /usr/bin/cronjob_bandit24.sh >> /dev/null
bandit23@bandit:/etc/cron.d$ cat /usr/bin/cronjob_bandit24.sh
#!/bin/bash

myname=$(whoami)

cd /var/spool/$myname/foo
echo "Executing and deleting all scripts in /var/spool/$myname/foo:"
for i in * .*;
do
    if [ "$i" != "." -a "$i" != ".." ];
    then
        echo "Handling $i"
        owner=$(stat --format "%U" ./${i})
        if [ "${owner}" = "bandit23" ]; then
            timeout -s 9 60 ./${i}
        fi
        rm -f ./${i}
    fi
done
bandit23@bandit:/etc/cron.d$ cd /var/spool/bandit24/foo
bandit23@bandit:/var/spool/bandit24/foo$ ls
ls: cannot open directory '.': Permission denied
bandit23@bandit:/var/spool/bandit24/foo$ echo "cat /etc/bandit_pass/bandit24
> /tmp/passwd24" > sank24.sh
bandit23@bandit:/var/spool/bandit24/foo$ chmod 777 sank24.sh
bandit23@bandit:/var/spool/bandit24/foo$ cat sank24.sh
cat /etc/bandit_pass/bandit24 > /tmp/passwd24
bandit23@bandit:/var/spool/bandit24/foo$ ls -l sank24.sh
-rwxrwxrwx 1 bandit23 bandit23 46 Jun  5 03:03 sank24.sh
bandit23@bandit:/var/spool/bandit24/foo$ cat sank24.sh
cat /etc/bandit_pass/bandit24 > /tmp/passwd24
bandit23@bandit:/var/spool/bandit24/foo$ cat sank24.sh
cat: sank24.sh: No such file or directory
bandit23@bandit:/var/spool/bandit24/foo$ cat /tmp/passwd24
gb8KRRCCsshuzXI0tUuR6ypOFjiZbf3G8
bandit23@bandit:/var/spool/bandit24/foo$ 

```

26. Level 24 Ke 25: Mengenalkan teknik Brute-Forcing sederhana. Kamu belajar bahwa mencoba 10.000 kombinasi PIN secara manual tidak efisien, sehingga kamu membuat skrip (menggunakan Python atau Shell) untuk mengirimkan semua kemungkinan kode secara otomatis ke layanan jaringan di port 30002.

The screenshot shows two terminal windows. The top window is titled 'bandit24@bandit: /tmp/sank25' and contains the following commands:

```

bandit24@bandit:~$ mkdir /tmp/sank25
bandit24@bandit:~$ cd /tmp/sank25
bandit24@bandit:/tmp/sank25$ which python3
/usr/bin/python3
bandit24@bandit:/tmp/sank25$ vi auto.py
bandit24@bandit:/tmp/sank25$ 

```

The bottom window is also titled 'bandit24@bandit: /tmp/sank25' and contains the contents of the 'auto.py' file:

```

#!/usr/bin/python3

for i in range(10000):
    a = "gb8KRRCCsshuzXI0tUuR6ypOFjiZbf3G8 "
    b = f'{i:04d}'
    print(a+b)

```

27. Level 25 Ke 26: Melatih teknik pelarian dari shell terbatas. Kamu belajar cara memanipulasi ukuran jendela terminal untuk memicu perintah more, lalu menggunakan editor vi di dalamnya untuk beralih ke shell bash yang sesungguhnya.

```
-----END RSA PRIVATE KEY-----  
bandit25@bandit:~$ ssh -i bandit26.sshkey bandit26@localhost -p 2220  
The authenticity of host '[localhost]:2220 ([127.0.0.1]:2220)' can't be esta  
blished.  
ED25519 key fingerprint is SHA256:C2ihUBV7ihnV1wUXRb4RrEcLfXC5CXlh  
mAAM/urerLY.  
This key is not known by any other names.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
```

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

Enjoy your stay!



Connection to localhost closed.

```
bandit25@bandit:~$
```

Connection to localhost closed.

```
bandit25@bandit:~$ cat /etc/passwd | grep bandit26
```

```
bandit26:x:11026:11026:bandit level 26:/home/bandit26:/usr/bin/showtext
```

```
bandit25@bandit:~$ cat /usr/bin/showtext
```

```
#!/bin/sh
```

```
export TERM=linux
```

```
exec more ~/text.txt
```

```
exit 0
```

```
bandit25@bandit:~$ ssh -i bandit2  
6.sshkey bandit26@localhost -p 22  
20  
The authenticity of host '[localhost]:2220 ([127.0.0.1]:2220)' can  
't be established.  
ED25519 key fingerprint is SHA256:  
C2ihUBV7ihnV1wUXRb4RrEcLfXC5CXlh  
mAAM/urerLY.  
This key is not known by any othe  
r names.  
Are you sure you want to continue  
connecting (yes/no/[fingerprint])?  
yes
```

bandit25@bandit: ~

--More-- (58%)

"~/text.txt" [readonly]
] 6L, 258B
Press ENTER or type co
:set shell=/bin/bash

:sh

28. Level 26 Ke 27: Kembali menggunakan konsep setuid binary. Kamu menggunakan file eksekusi khusus bernama bandit27-do untuk menjalankan perintah sebagai user bandit27, sehingga bisa membaca kata sandi di direktori yang terproteksi.

```
./runme  
bandit26@bandit:~$ ls  
bandit27-do  text.txt  
bandit26@bandit:~$ ./bandit27-do  
Run a command as another user.  
Example: ./bandit27-do id  
bandit26@bandit:~$ ./bandit27-do id  
uid=11026(bandit26) gid=11026(bandit26) euid=11027(bandit27) groups=11026(ban  
dit26)  
bandit26@bandit:~$ ./bandit27-do cat /etc/bandit_pass/bandit27  
upsNCc7vzaRDx6oZC6GiR6ERwe1MowGB  
bandit26@bandit:~$
```

29. Level 27 Ke 28: Mengenalkan dasar-dasar Git. Kamu belajar cara mengklon repositori dari server jarak jauh menggunakan perintah git clone dengan spesifikasi port khusus (2220) untuk mendapatkan file README yang berisi kata sandi.

```
bandit27@bandit:~$ man git
bandit27@bandit:~$ mkdir /tmp/sank27
bandit27@bandit:~$ cd /tmp/sank27
bandit27@bandit:/tmp/sank27$ git clone ssh://bandit27-git@localhost/home/bandit27-git/repo
Cloning into 'repo' ...
The authenticity of host 'localhost (127.0.0.1)' 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
```

```
bandit27@bandit:/tmp/sank27$ git clone ssh://bandit27-git@localhost/home/bandit27-git/repo
Cloning into 'repo' ...
The authenticity of host 'localhost (127.0.0.1)' 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/bandit27/.ssh' (Permission denied).
Failed to add the host to the list of known hosts (/home/bandit27/.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 on port 22, which is not intended.

bandit27-git@localhost: Permission denied (publickey).
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.



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

```
bandit27-git@localhost's password:
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
bandit27@bandit:/tmp/sank27$ ls
repo
bandit27@bandit:/tmp/sank27$ cd repo
bandit27@bandit:/tmp/sank27/repo$ ls
README
bandit27@bandit:/tmp/sank27/repo$ cat README
The password to the next level is: Yz9IpL0sBcceuG7m9uQFt8ZNpS4HZRcN
bandit27@bandit:/tmp/sank27/repo$
```

30. Level 28 Ke 29: Fokus pada eksplorasi riwayat Git. Kamu belajar bahwa file yang sudah diedit masih menyimpan rahasia di versi sebelumnya. Kamu menggunakan git log untuk melihat riwayat dan git checkout untuk kembali ke masa lalu saat kata sandi belum dihapus.

```
bandit29@bandit:~$ mkdir /tmp/sank29
bandit29@bandit:~$ cd /tmp/sank29
bandit29@bandit:/tmp/sank29$ git clone ssh://bandit29-git@localhost:2220/home/bandit29-git/repo
Cloning into 'repo' ...
The authenticity of host '[localhost]:2220 ([127.0.0.1]:2220)' can't be established.
ED25519 key fingerprint is SHA256:C2ihUBV7ihnv1wUXRb4RrEcLfxC5CxLhmAAM/urernLY
.
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/bandit29/.ssh' (Permission denied).
Failed to add the host to the list of known hosts (/home/bandit29/.ssh/known_hosts).


```

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

```
bandit29-git@localhost's password:
remote: Enumerating objects: 16, done.
remote: Counting objects: 100% (16/16), done.
remote: Compressing objects: 100% (11/11), done.
Receiving objects: 100% (16/16), done.
remote: Total 16 (delta 2), reused 0 (delta 0), pack-reused 0
Resolving deltas: 100% (2/2), done.
bandit29@bandit:/tmp/sank29$ 
```

```
bandit29@bandit:/tmp/sank29$ ls
repo
bandit29@bandit:/tmp/sank29$ cd repo
bandit29@bandit:/tmp/sank29/repo$ ls
README.md
bandit29@bandit:/tmp/sank29/repo$ cat README.md
# Bandit Notes
Some notes for bandit30 of bandit.

## credentials

- username: bandit30
- password: <no passwords in production!>

bandit29@bandit:/tmp/sank29/repo$ git log
commit 3b8b91fc3c48f1a19d05670fd45d3e3f2621fcfa (HEAD -> master, origin/master, origin/HEAD)
Author: Ben Dover <noone@overthewire.org>
Date:   Thu Apr 10 14:23:21 2025 +0000

    fix username

commit 8d2ffbe5e45f87d0abb028aa796e3ebb63c5579c
Author: Ben Dover <noone@overthewire.org>
Date:   Thu Apr 10 14:23:21 2025 +0000

    initial commit of README.md
bandit29@bandit:/tmp/sank29/repo$ 
```

```

bandit29@bandit:/tmp/sank29/repo$ man git
bandit29@bandit:/tmp/sank29/repo$ git branch
* master
bandit29@bandit:/tmp/sank29/repo$ git branch -h
usage: git branch [<options>] [-r | -a] [--merged] [--no-merged]
      or: git branch [<options>] [-f] [--rebase-submodules] <branch-name> [<start-point>]
           or: git branch [<options>] [-l] [<pattern>...]
           or: git branch [<options>] [-r] (-d | -D) <branch-name> ...
           or: git branch [<options>] (-m | -M) <old-branch> <new-branch>
           or: git branch [<options>] (-c | -C) <old-branch> <new-branch>
           or: git branch [<options>] [-r | -a] [--points-at]
           or: git branch [<options>] [-r | -a] [--format]

Generic options
  -v, --[no-]verbose    show hash and subject, give twice for upstream bran
  ch
  -q, --[no-]quiet     suppress informational messages
  -t, --[no-]track[=(direct|inherit)]
           set branch tracking configuration
  -u, --[no-]set-upstream-to <upstream>
           change the upstream info
  --[no-]unset-upstream unset the upstream info
  --[no-]color[=<when>] use colored output
  -r, --remotes   act on remote-tracking branches
  --contains <commit> print only branches that contain the commit
  --no-contains <commit>
           print only branches that don't contain the commit
  --[no-]abbrev[=<n>] use <n> digits to display object names

Specific git-branch actions:
  -a, --all          list both remote-tracking and local branches

bandit29@bandit:/tmp/sank29/repo$ git branch -a
* master
  remotes/origin/HEAD -> origin/master
  remotes/origin/dev
  remotes/origin/master
  remotes/origin/spliots-dev
bandit29@bandit:/tmp/sank29/repo$ git checkout remotes/origin/dev
Note: switching to 'remotes/origin/dev'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by switching back to a branch.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -c with the switch command. Example:

  git switch -c <new-branch-name>

Or undo this operation with:

  git switch -

Turn off this advice by setting config variable advice.detachedHead to false

HEAD is now at a97d0db add data needed for development
bandit29@bandit:/tmp/sank29/repo$ ls
code README.md
bandit29@bandit:/tmp/sank29/repo$ cat README.md
# Bandit Notes
Some notes for bandit30 of bandit.

## credentials

- username: bandit30
- password: qp30ex3VLz5MDG1n91YowTv4Q8l7CDZL

```

31. Level 29 Ke 30: Mengajarkan cara mencari data di cabang (branch) Git yang berbeda. Kamu belajar menggunakan git branch -a untuk menemukan cabang rahasia bernama dev yang menyimpan informasi yang tidak ada di cabang utama (master).


```
bandit30@bandit:/tmp/sank30/repo$ git tag
secret
bandit30@bandit:/tmp/sank30/repo$ git tag -h
usage: git tag [-a | -s | -u <key-id>] [-f] [-m <msg> | -F <file>] [-e]
               <tagname> [<commit> | <object>]
               or: git tag -d <tagname> ...
               or: git tag [-n[<n>]] -l [--contains <commit>] [--no-contains <commit>]
                   [--points-at <object>] [--column[=<options>] | --no-column]
                   [--create-reflog] [--sort=<key>] [--format=<format>]
                   [--merged <commit>] [--no-merged <commit>] [<pattern> ...]
               or: git tag -v [--format=<format>] <tagname> ...

-l, --list           list tag names
-n[<n>]              print <n> lines of each tag message
-d, --delete         delete tags
-v, --verify         verify tags

Tag creation options
-a, --[no-]annotate annotated tag, needs a message
-m, --message <message>
                   tag message
-F, --[no-]file <file>
                   read message from file
-e, --[no-]edit     force edit of tag message
-s, --[no-]sign     annotated and GPG-signed tag
--[no-]cleanup <mode> how to strip spaces and #comments from message
-u, --[no-]local-user <key-id>
                   use another key to sign the tag
-f, --[no-]force    replace the tag if exists
--[no-]create-reflog create a reflog

Tag listing options
--[no-]column[=<style>]
                   show tag list in columns
```

```
bandit30@bandit:/tmp/sank30/repo$ man git
bandit30@bandit:/tmp/sank30/repo$ 
bandit30@bandit:/tmp/sank30/repo$ git show secret
fb5S2xb7bRyFmAvQYQGEqsbhVyJqhnDy
bandit30@bandit:/tmp/sank30/repo$ 
```

32. Level 30 Ke 31: Mengenalkan konsep Git Tags. Kamu belajar bahwa selain di cabang atau riwayat, informasi bisa disimpan dalam "label" tertentu. Kamu menggunakan perintah git tag untuk melihat daftar label dan git show untuk melihat isi dari tag rahasia tersebut.

```

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

bandit31-git@localhost's password:
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 2 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 327 bytes | 327.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote: ### Attempting to validate files... ####
remote:
remote: .oOo.oOo.oOo.oOo.oOo.oOo.oOo.oOo.oOo.
remote:
remote: Well done! Here is the password for the next level:
remote: 309RfhqyAlVBEZpVb6LYStshZoqoSx5K
remote:
remote: .oOo.oOo.oOo.oOo.oOo.oOo.oOo.oOo.oOo.
remote:
remote: To ssh://localhost:2220/home/bandit31-git/repo
! [remote rejected] master -> master (pre-receive hook declined)
error: failed to push some refs to 'ssh://localhost:2220/home/bandit31-git/repo'
bandit31@bandit:/tmp/sank31$ 

Enjoy your stay!

WELCOME TO THE UPPERCASE SHELL
>> ls
sh: 1: LS: Permission denied
>> ls -a
sh: 1: LS: Permission denied
>> $0
$ cat /etc/bandit_pass/bandit33
tQdtbs5D5i2vJwk08mEyYEyTL8izoeJ0
$ exit
bandit31@bandit:~$ mkdir /tmp/sank31
bandit31@bandit:~$ cd /tmp/sank31
bandit31@bandit:/tmp/sank31$ git clone ssh://bandit31-git@localhost:2220/home/bandit31-git/repo
Cloning into 'repo'...
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/bandit31/.ssh' (Permission denied).
Failed to add the host to the list of known hosts (/home/bandit31/.ssh/known_hosts).

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

bandit31-git@localhost's password:
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (4/4), done.
bandit31@bandit:/tmp/sank31$ ls
repo
bandit31@bandit:/tmp/sank31$ cd repo
bandit31@bandit:/tmp/sank31/repo$ ls
README.md

```

33. Level 31 Ke 32: Melatih proses push ke repositori Git. Kamu belajar alur kerja lengkap mulai dari membuat file, menambahkannya dengan git add -f, melakukan git commit, hingga mengirimkannya kembali ke server dengan git push untuk mendapatkan balasan berupa kata sandi.

```
Enjoy your stay!

WELCOME TO THE UPPERCASE SHELL
>> ls
sh: 1: LS: Permission denied
>> ls -a
sh: 1: LS: Permission denied
>> $0
$ cat /etc/bandit_pass/bandit33
tQdtbs5D5i2vJwkO8mEyYEyTL8izoeJ0
$ exit
```

34. Level 32 Ke 33: Fokus pada escape dari shell huruf besar. Kamu belajar cara melewati pembatasan skrip yang mengubah semua input menjadi huruf kapital dengan memanfaatkan variabel posisi \$0 untuk memanggil shell asli (sh) yang tidak memiliki batasan tersebut.