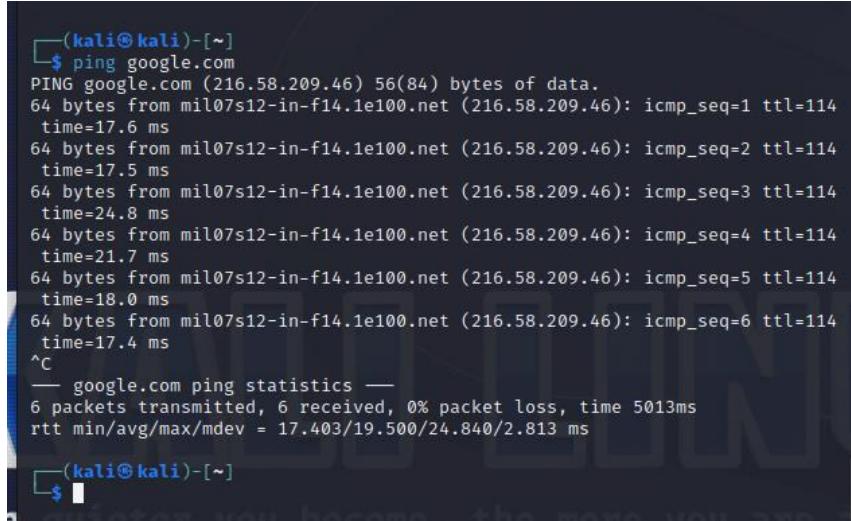


## PROGETTO FINE MODULO 2

### ESERCITAZIONE WEEK 8 DAY 5

Si richiede l'installazione del gioco GameShell che verrà usato per familiarizzare con i comandi della shell.

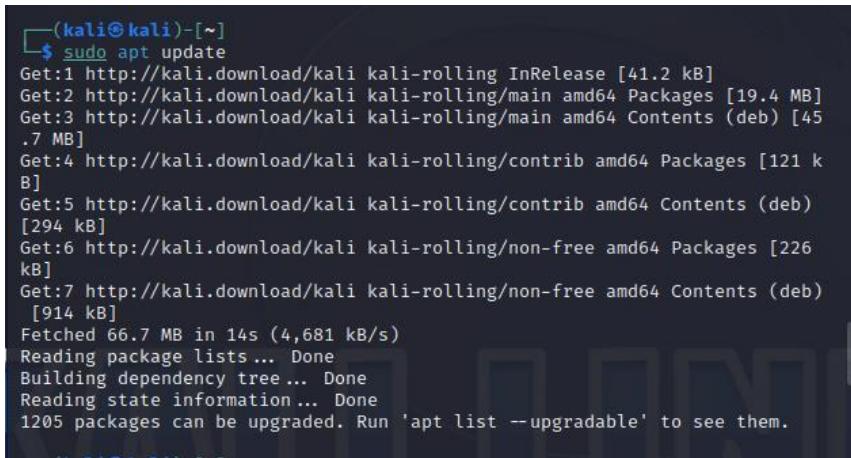
Per farlo ci si assicura di avere connettività a internet sulla macchina Kali Linux:



```
(kali㉿kali)-[~]
$ ping google.com
PING google.com (216.58.209.46) 56(84) bytes of data.
64 bytes from mil07s12-in-f14.1e100.net (216.58.209.46): icmp_seq=1 ttl=114
time=17.6 ms
64 bytes from mil07s12-in-f14.1e100.net (216.58.209.46): icmp_seq=2 ttl=114
time=17.5 ms
64 bytes from mil07s12-in-f14.1e100.net (216.58.209.46): icmp_seq=3 ttl=114
time=24.8 ms
64 bytes from mil07s12-in-f14.1e100.net (216.58.209.46): icmp_seq=4 ttl=114
time=21.7 ms
64 bytes from mil07s12-in-f14.1e100.net (216.58.209.46): icmp_seq=5 ttl=114
time=18.0 ms
64 bytes from mil07s12-in-f14.1e100.net (216.58.209.46): icmp_seq=6 ttl=114
time=17.4 ms
^C
--- google.com ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5013ms
rtt min/avg/max/mdev = 17.403/19.500/24.840/2.813 ms

(kali㉿kali)-[~]
$
```

Si manda il comando **sudo apt update**:



```
(kali㉿kali)-[~]
$ sudo apt update
Get:1 http://kali.download/kali kali-rolling InRelease [41.2 kB]
Get:2 http://kali.download/kali kali-rolling/main amd64 Packages [19.4 MB]
Get:3 http://kali.download/kali kali-rolling/main amd64 Contents (deb) [45
.7 MB]
Get:4 http://kali.download/kali kali-rolling/contrib amd64 Packages [121 k
B]
Get:5 http://kali.download/kali kali-rolling/contrib amd64 Contents (deb)
[294 kB]
Get:6 http://kali.download/kali kali-rolling/non-free amd64 Packages [226
kB]
Get:7 http://kali.download/kali kali-rolling/non-free amd64 Contents (deb)
[914 kB]
Fetched 66.7 MB in 14s (4,681 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
1205 packages can be upgraded. Run 'apt list --upgradable' to see them.

(kali㉿kali)-[~]
$
```

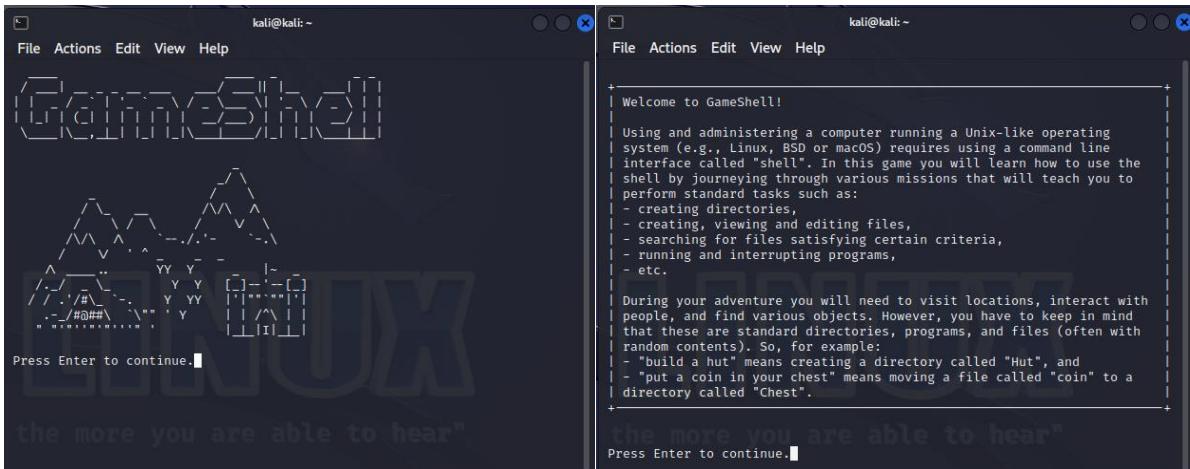
Ed i comandi:

**sudo apt install gettext man-db procps psmisc nano tree bsdmainutils x11-apps wget**

**wget https://github.com/phyver/GameShell/releases/download/latest/gameshell.sh**

APT (Advanced Packaging Tool) è il gestore di pacchetti standard, con il quale si scaricano pacchetti da una software repository e che gestisce anche le eventuali dipendenze.

Una volta eseguiti questi comandi, l'installazione va a buon fine e il gioco può essere lanciato da terminale con il comando bash **gameshell.sh**.

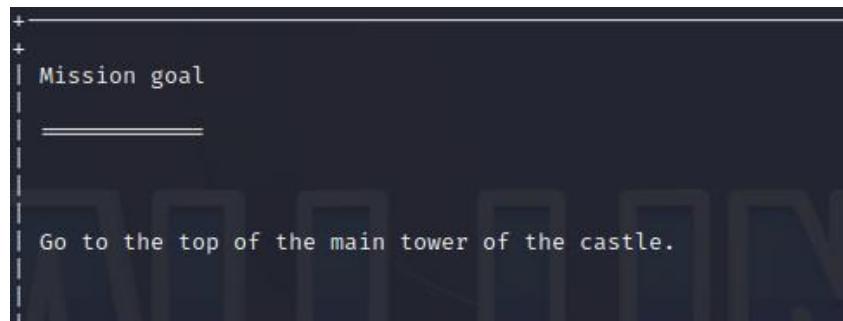


Scopo dell'esercitazione è superare più livelli possibili.

Sono stati risolti 42 livelli.

Di seguito si riportano le spiegazioni dei passaggi eseguiti.

### **Livello 1:**



```
kali@kali: ~
File Actions Edit View Help
[mission 1] $ pwd
/home/kali/gameshell/World
[mission 1] $ ls
Castle Forest Garden Mountain Stall
[mission 1] $ cd Castle
[mission 1] $ ls
Cellar Great_hall Main_building Main_tower Observatory
[mission 1] $ cd Main_tower
[mission 1] $ ls
First_floor
[mission 1] $ cd First_floor
[mission 1] $ ls
Second_floor
[mission 1] $ cd Second_floor
[mission 1] $ ls
Top_of_the_tower
[mission 1] $ cd Top_of_the_tower
[mission 1] $ pwd
/home/kali/gameshell/World/Castle/Main_tower/First_floor/Second_floor/Top_
of_the_tower
[mission 1] $ ls
[mission 1] $ gsh check
Congratulations, mission 1 has been successfully completed!
```

Comandi adoperati per informazioni sullo scopo della missione e sulla verifica dello stato della missione:

- **gsh goal;**

- **gsh check;**

Comandi adoperati per la risoluzione della missione:

- **pwd:** permette di conoscere il path corrente in questo caso /home/kali/gameshell/World;
- **ls:** si ottiene la lista delle directory e dei file contenuti nel path corrente, da cui si evince che bisogna entrare nella cartella Castle;
- **cd Castle:** è il comando per entrare in tale cartella;

Si reitera l'uso dei comandi **ls** e **cd** fino al raggiungimento della cartella desiderata **Top\_of\_the\_tower**.

### Livello 2:

```
kali@kali: ~
File Actions Edit View Help
+-----+
| Mission goal
| =====
| Go the castle's cellar.
|
| Secondary objective
|
| Understand the difference between `cd -` and `cd ..`.
| -----+
```

```
kali@kali: ~
File Actions Edit View Help
| See the path to your current location.
| +-----+
[mission 2] $ pwd
/home/kali/gameshell/World
[mission 2] $ ls
Castle Forest Garden Mountain Stall
[mission 2] $ cd Castle
[mission 2] $ ls
Cellar Great_hall Main_building Main_tower Observatory
[mission 2] $ cd Cellar
[mission 2] $ gsh check
Congratulations, mission 2 has been successfully completed!
```

Oppure

```
kali@kali: ~
File Actions Edit View Help
--+
| |
[mission 2] $ pwd
/home/kali/gameshell/World/Castle/Main_tower/First_floor/Second_floor/Top_
of_the_tower
[mission 2] $ cd ../../..../Cellar
[mission 2] $ pwd
/home/kali/gameshell/World/Castle/Cellar
[mission 2] $ gsh chack
Error: unknown gsh command 'chack'.
Use one of the following commands: check, goal, help, reset
[mission 2] $ gsh check
Congratulations, mission 2 has been successfully completed!
```

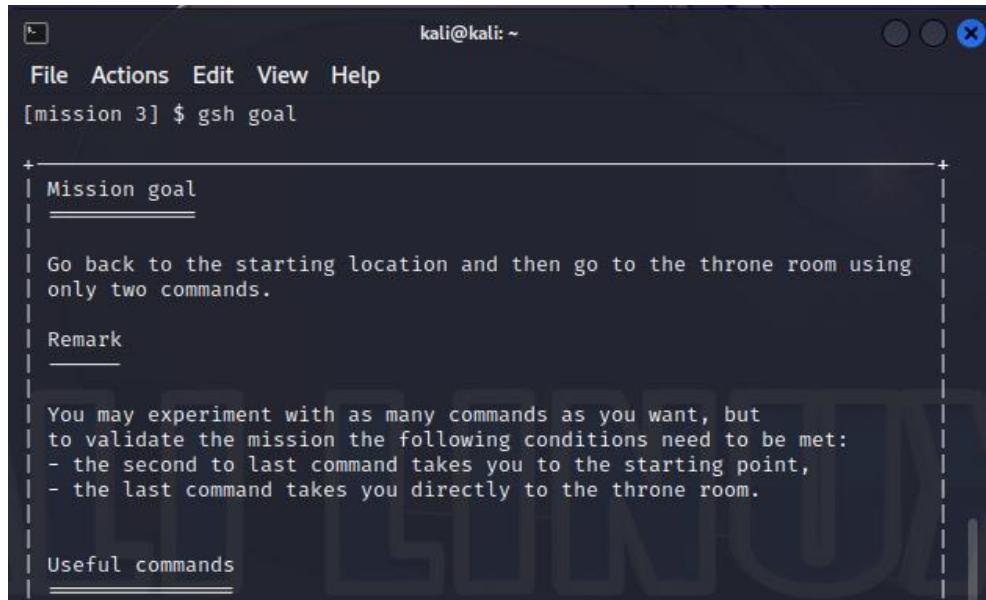
Nella prima soluzione si è usato solo il comando **pwd** e poi per due volte **cd** per raggiungere la destinazione desiderata. Poichè la traccia richiedeva di conoscere la differenza tra path assoluto e relativo, si è ripetuta la missione a partire dal path ottenuto nella missione 1:

```
/home/kali/gameshell/World/Castle/Main_tower/First_floor/Second_Floor/Top_of_the_Tower
```

Per cui il path relativo adoperato è:

```
cd ../../..../Cellar
```

### Livello 3:



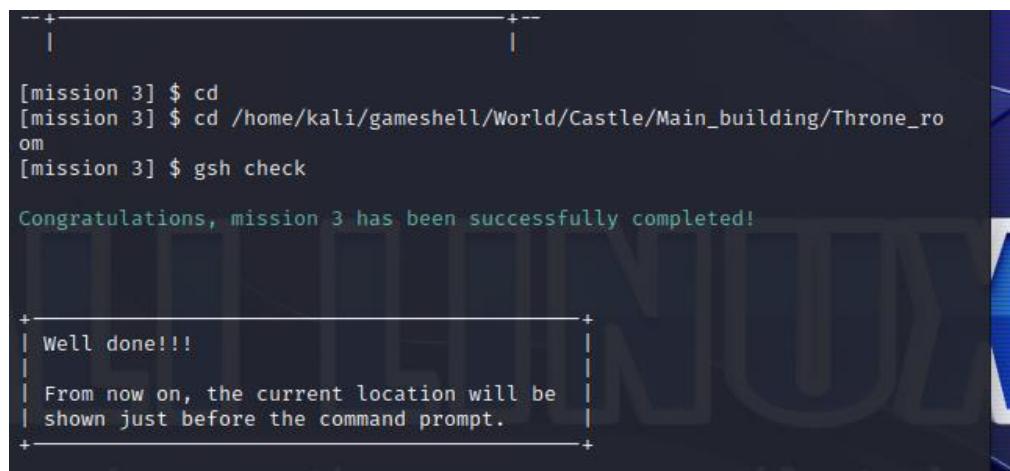
A screenshot of a terminal window titled "kali@kali: ~". The window contains the following text:

```
[mission 3] $ gsh goal
```

+-----+  
| Mission goal  
| \_\_\_\_\_  
|  
| Go back to the starting location and then go to the throne room using  
| only two commands.  
|  
| Remark  
| \_\_\_\_\_  
|  
| You may experiment with as many commands as you want, but  
| to validate the mission the following conditions need to be met:  
| - the second to last command takes you to the starting point,  
| - the last command takes you directly to the throne room.  
|  
| Useful commands  
| \_\_\_\_\_

Si parte dunque dal path: /home/kali/gameshell/World/Castle/Cellar.

Lo starting point è /home/kali/gameshell/World, quindi si manda il comando **cd**. Successivamente si manda il path fino al percorso desiderato. Si è in precedenza navigato con **ls** e **cd** per scoprire il percorso:



A screenshot of a terminal window showing the completion of mission 3. The window contains the following text:

```
-- +-----+--  
| |  
[mission 3] $ cd  
[mission 3] $ cd /home/kali/gameshell/World/Castle/Main_building/Throne_ro  
om  
[mission 3] $ gsh check  
  
Congratulations, mission 3 has been successfully completed!  
  
+-----+  
| Well done!!!  
|  
| From now on, the current location will be  
| shown just before the command prompt.  
+-----+
```

#### Livello 4:

```
~/Castle/Main_building/Throne_room
[mission 4] $ gsh goal

+-----+
| Mission goal
| _____
|
| Build a "Hut" in the forest, and then build a "Chest" in the hut.
|
| Useful commands
| _____
|
| mkdir DIRECTORY
| Create a new directory inside the current directory.
| Remark: ``mkdir`` is an abbreviation for "make directory".
+-----+
```

Adoperando i soliti comandi **cd**, **ls** e **pwd** si individua la directory Forest e al suo interno si crea la directory Hut con il comando **mkdir Hut**. Successivamente si crea Chest all'interno di Hut con le medesime modalità:

```
[mission 4] $ ls
Cellar Great_hall Main_building Main_tower Observatory

~/Castle
[mission 4] $ cd ..

~
[mission 4] $ ls
Castle Forest Garden Mountain Stall

~
[mission 4] $ cd Forest
~/Forest
[mission 4] $ mkdir Hut
~/Forest
[mission 4] $ ls
Hut

~/Forest
[mission 4] $ cd Hut
~/Forest/Hut
[mission 4] $ mkdir Chest
```

```
kali㉿kali:~
```

**File** **Actions** **Edit** **View** **Help**

```
[mission 4] $ cd Hut

~/Forest/Hut
[mission 4] $ mkdir Chest

~/Forest/Hut
[mission 4] $ ls
Chest

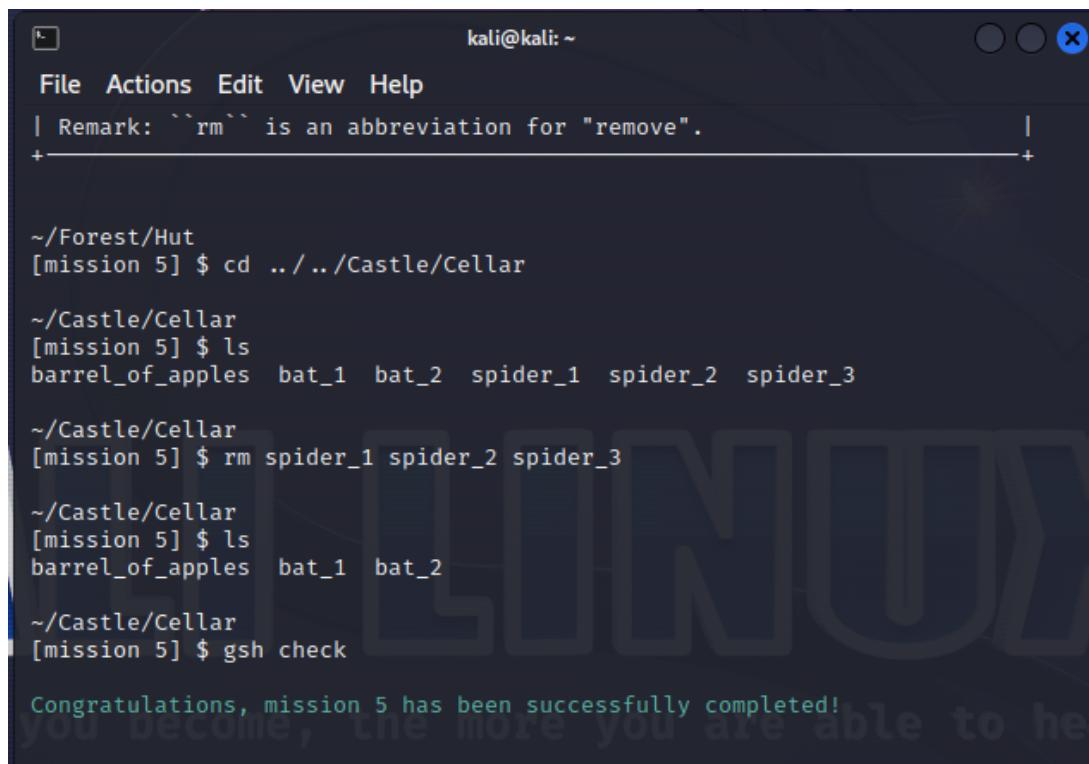
~/Forest/Hut
[mission 4] $ gsh check

Congratulations, mission 4 has been successfully completed!
```

## Livello 5:

```
+-----+
| Mission goal
| =====
|
| Go back to the cellar and get rid of all the spiders. Leave the bats
| alone: they appear on the castle's coat of arms and are said to
| confer luck.
|
| Useful commands
| =====
|
| rm FILE1 FILE2 ... FILEn
| Delete the files (permanently).
| Remark: ``rm`` is an abbreviation for "remove".
+-----+
```

Dalla directory Hut ci si sposta con path relativo in Cellar e si visualizza il contenuto con **ls**:

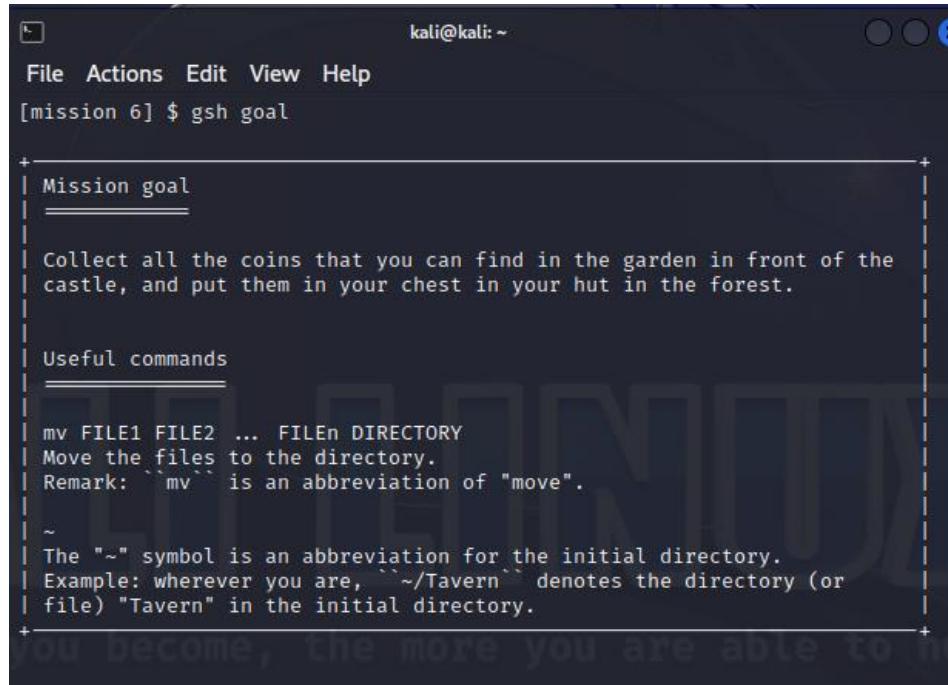


A screenshot of a terminal window titled 'kali@kali: ~'. The window has a dark theme with light-colored text. At the top, there are icons for minimize, maximize, and close. Below the title bar, a menu bar shows 'File' 'Actions' 'Edit' 'View' 'Help'. A status bar at the bottom displays the message 'you become, the more you are able to help others!'.

```
kali@kali: ~
File Actions Edit View Help
| Remark: ``rm`` is an abbreviation for "remove".
+-----+
~/Forest/Hut
[mission 5] $ cd ../../Castle/Cellar
~/Castle/Cellar
[mission 5] $ ls
barrel_of_apples bat_1 bat_2 spider_1 spider_2 spider_3
~/Castle/Cellar
[mission 5] $ rm spider_1 spider_2 spider_3
~/Castle/Cellar
[mission 5] $ ls
barrel_of_apples bat_1 bat_2
~/Castle/Cellar
[mission 5] $ gsh check
Congratulations, mission 5 has been successfully completed!
```

Con il comando remove **rm** seguito dai nomi dei file spider, si rimuovono permanentemente.

## Livello 6:



kali@kali: ~

File Actions Edit View Help

[mission 6] \$ gsh goal

+-----+  
| Mission goal  
| \_\_\_\_\_  
|  
| Collect all the coins that you can find in the garden in front of the  
| castle, and put them in your chest in your hut in the forest.  
|  
| Useful commands  
| \_\_\_\_\_  
|  
| mv FILE1 FILE2 ... FILEn DIRECTORY  
| Move the files to the directory.  
| Remark: ``mv`` is an abbreviation of "move".  
|  
| ~  
| The ``~`` symbol is an abbreviation for the initial directory.  
| Example: wherever you are, ``~/Tavern`` denotes the directory (or  
| file) "Tavern" in the initial directory.  
+-----+

Ci troviamo nella directory Cellar.

Si naviga con i comandi **ls**, **cd** e **pwd** per trovare i coins di interesse:



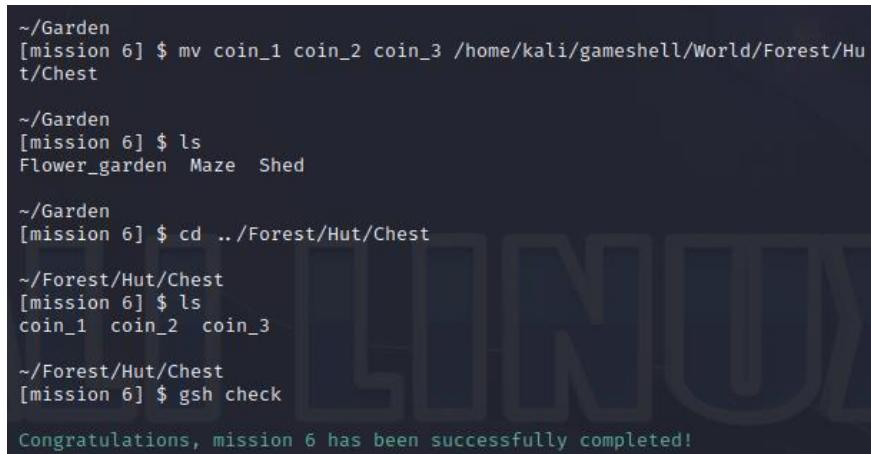
```
~/Castle/Cellar
[mission 6] $ cd .. / ..

~
[mission 6] $ ls
Castle Forest Garden Mountain Stall

~
[mission 6] $ cd Garden

~/Garden
[mission 6] $ ls
coin_1 coin_2 coin_3 Flower_garden Maze Shed
```

Con il comando move **mv** si spostano nel path richiesto:



```
~/Garden
[mission 6] $ mv coin_1 coin_2 coin_3 /home/kali/gameshell/World/Forest/Hut/Chest

~/Garden
[mission 6] $ ls
Flower_garden Maze Shed

~/Garden
[mission 6] $ cd .. /Forest/Hut/Chest

~/Forest/Hut/Chest
[mission 6] $ ls
coin_1 coin_2 coin_3

~/Forest/Hut/Chest
[mission 6] $ gsh check

Congratulations, mission 6 has been successfully completed!
```

## Livello 7:

kali㉿kali: ~

File Actions Edit View Help

Mission goal

Collect all the coins hidden in the garden in front of the castle, and put them in your chest (in your hut in the forest).

Secondary objective

Learn how to use the "Tab" key to go faster.

Useful commands

ls -A  
List all the files of the current directory, including hidden files. (A file is "hidden" when its name starts with a dot.)

Tab  
The tabulation key "completes" the name of a file or directory once you have typed the beginning of its name. This only works

[Press space to continue, q to quit.]

Dalla directory Chest ci si sposta con path relativo in Garden. Con il comando **ls -A** si elencano tutti i file e le directory compresi elementi nascosti. Sono così visibili gli *hidden coin*:

```
~/Forest/Hut/Chest
[mission 7] $ cd ../../..
~

[mission 7] $ cd Garden

~/Garden
[mission 7] $ ls
Flower_garden Maze Shed

~/Garden
[mission 7] $ ls -A
.37339_coin_2 .47045_coin_1 .51532_coin_3 Flower_garden Maze Shed

~/Garden
[mission 7] $ mv .37339_coin_2 .47045_coin_1 .51532_coin_3 /home/kali/gameshell/World/Forest/Hut/Chest

~/Garden
[mission 7] $ ls -A
Flower_garden Maze Shed
```

Sempre con il comando move **mv** si spostano nel path di interesse:

```
~/Garden
[mission 7] $ ls -A
Flower_garden Maze Shed

~/Garden
[mission 7] $ cd ../Forest/Hut/Chest

~/Forest/Hut/Chest
[mission 7] $ ls -A
.37339_coin_2 .47045_coin_1 .51532_coin_3 coin_1 coin_2 coin_3
```

## Livello 8:

kali㉿kali: ~

File Actions Edit View Help

Mission goal

Get rid of all the spiders that are crawling in the cellar. Again, do not do not disturb the bats.

Shell patterns

\*

The "\*" character stands in for any sequence of characters (including an empty sequence).

?

The "?" character stands in for any single character.

Those wildcards can be used to denote lists of existing files / directories in the current working directory.

For example: if the current folder contains file-1 Folder-1 file-14 potato then

[Press space to continue, q to quit.]

Navigando nel path richiesto con i soliti comandi, si evince che nella directory Cellar ci sono diversi spider. Per rimuoverli tutti con un unico comando si esegue **rm \*spider\*** cosicché verranno eliminati tutti i file che nel nome contengono la sequenza di caratteri comune delimitata dagli asterischi.

```
[mission 8] $ ls
Cellar  Great_hall  Main_building  Main_tower  Observatory

~/Castle
[mission 8] $ cd Cellar

~/Castle/Cellar
[mission 8] $ ls
10257_spider_25  1558_spider_26  24536_bat_5      30848_spider_47
10651_spider_21  16406_spider_37  25290_spider_24    32596_spider_28
10831_spider_5   18301_spider_40  25439_spider_14    4274_spider_4
11027_spider_31  18485_spider_19  25641_spider_3     5442_spider_44
11097_spider_41  18486_spider_6   25808_spider_39    5457_spider_23
11824_spider_11  18560_spider_29  2667_spider_36    6026_spider_17
11921_spider_50  18670_spider_10  26883_spider_2     6129_spider_8
12012_spider_46  18971_spider_45  2690_spider_13    6350_spider_34
12797_spider_38  19707_bat_3    27922_spider_30    6770_spider_9
13020_spider_42  19880_spider_27  28279_spider_12   7032_spider_20
13037_spider_22  19922_spider_48  28299_spider_35   8231_spider_7
13055_spider_49  20040_bat_2    28310_spider_43   8700_spider_32
13727_spider_15  22610_spider_1   2879_spider_33    9114_bat_1
15048_bat_4     23247_spider_18  28857_spider_16   barrel_of_apples

~/Castle/Cellar
[mission 8] $ rm *spider*
~/Castle/Cellar
[mission 8] $ ls -l
total 24
-rw-r--r-- 1 kali kali 211 Dec 15 12:39 15048_bat_4
-rw-r--r-- 1 kali kali 211 Dec 15 12:39 19707_bat_3
-rw-r--r-- 1 kali kali 211 Dec 15 12:39 20040_bat_2
-rw-r--r-- 1 kali kali 192 Dec 15 12:39 24536_bat_5
-rw-r--r-- 1 kali kali 211 Dec 15 12:39 9114_bat_1
-rw-r--r-- 1 kali kali 121 Dec 15 10:56 barrel_of_apples

~/Castle/Cellar
[mission 8] $ gsh check
Congratulations, mission 8 has been successfully completed!
```

## Livello 9:

The terminal window title is "kali@kali: ~". The content is as follows:

```
+-----+
| Mission goal
+-----+
| The spiders are getting clever: they found a way to hide.
| Get rid of all the spiders that are hiding in the cellar without
| disturbing the bats.

+-----+
| Shell patterns
+-----+
* The "*" character stands in for any sequence of characters (including
an empty sequence).
?
The "?" character stands in for any single character.

+-----+
| Remark
+-----+
| The wildcards "*" and "?" don't see hidden files, you need to add an
[Press space to continue, q to quit.]
```

In questo caso si richiede di cancellare permanentemente dei file nascosti, caratterizzati dall'essere rinominati con un punto all'inizio del nome.

Infatti con il comando **ls -A** si possono visualizzare tali file, non visibili con **ls -l**.

The terminal window title is "kali@kali: ~". The content is as follows:

```
~/Castle/Cellar
[mission 9] $ ls -A
.12198_spider_23 .19519_bat_1 .24621_spider_29 .314_spider_11
.12368_spider_7 19707_bat_3 .25068_spider_2 .32412_spider_10
.13340_spider_14 .1981_spider_37 .25561_spider_17 .3257_spider_41
.13390_bat_2 .19892_spider_32 .2631_spider_50 .3683_spider_18
.13956_spider_1 .19993_spider_16 .26359_spider_45 .3823_bat_3
.14381_spider_35 .19998_spider_31 .26439_spider_6 .473_spider_46
.14611_spider_42 20040_bat_2 .26443_spider_49 .4921_bat_5
.14925_spider_30 .20608_spider_8 .26999_spider_3 .5918_spider_20
15048_bat_4 .2061_spider_13 .27677_spider_25 .656_spider_5
.15389_spider_15 .21244_spider_4 .28098_spider_33 .8071_spider_22
.17014_spider_34 .21604_spider_44 .28215_spider_24 .8337_spider_26
.17475_spider_38 .21688_spider_9 .29517_spider_36 9114_bat_1
.18680_spider_28 .22092_spider_27 .30588_spider_12 barrel_of_apples
.18754_bat_4 .23558_spider_39 .30716_spider_40
.18910_spider_47 .2375_spider_43 .31290_spider_19
.18965_spider_21 24536_bat_5 .3134_spider_48
```

Il comando è simile a quello visto nel livello 8, con l'aggiunta di un punto iniziale: **rm .\*spider\***.

The terminal window title is "kali@kali: ~". The content is as follows:

```
~/Castle/Cellar
[mission 9] $ rm .*spider*
~/Castle/Cellar
[mission 9] $ ls -A
.13390_bat_2 .19519_bat_1 24536_bat_5 9114_bat_1
15048_bat_4 19707_bat_3 .3823_bat_3 barrel_of_apples
.18754_bat_4 20040_bat_2 .4921_bat_5

~/Castle/Cellar
[mission 9] $ gsh check
Congratulations, mission 9 has been successfully completed!

+-----+
| Congratulations !
| From now on, the ``ls`` command will
| automatically show a "/" character at the end
| of directories.
+-----+
```

## Livello 10:

```
+--+
| Mission goal
| _____
|
| You have taken a fancy to the four standards in the great hall of the
| castle. As stealing them would not go unnoticed, put a copy (same name,
| same content) of each in your chest.
|
| Useful commands
| _____
|
| cp FILE DIRNAME
| Copy the file to the directory.
| Remark: ``cp'' is an abbreviation of "copy".
+--+
```

Si naviga nel path in cui sono contenuti i quattro standards:

```
~/Castle
[mission 10] $ cd Great_hall

~/Castle/Great_hall
[mission 10] $ ls
15339_decorative_shield  64851_suit_of_armour  standard_2  standard_4
48715_stag_head          standard_1           standard_3
```

Con il comando copy **cp** seguito dal nome del file e la directory destinataria, si esegue una copia dei quattro file:

```
~/Castle/Great_hall
[mission 10] $ cp standard_1 /home/kali/gameshell/World/Forest/Hut/Chest

~/Castle/Great_hall
[mission 10] $ cp standard_2 /home/kali/gameshell/World/Forest/Hut/Chest

~/Castle/Great_hall
[mission 10] $ cp standard_3 /home/kali/gameshell/World/Forest/Hut/Chest

~/Castle/Great_hall
[mission 10] $ cp standard_4 /home/kali/gameshell/World/Forest/Hut/Chest
```

Si visualizza il contenuto della directory Chest, in cui sono stati copiati gli standard:

```
~/Forest/Hut/Chest
[mission 10] $ ls
coin_1  coin_2  coin_3  standard_1  standard_2  standard_3  standard_4

~/Forest/Hut/Chest
[mission 10] $ gsh check

Congratulations, mission 10 has been successfully completed!
```

## Livello 11:

The terminal window title is "Mission goal". The content includes:

```
kali㉿kali: ~
```

**Mission goal**

The tapestries in the castle's great hall are also particularly beautiful. Put a copy of each in your chest.

**Useful commands**

```
cp FILE1 FILE2 ... FILEn DIRNAME
Copy the files to the directory.
Remark: 'cp' is an abbreviation of "copy".
```

**Shell patterns**

```
*
```

The "\*" character stands in for any sequence of characters (including an empty sequence).

```
?
```

[Press space to continue, q to quit.]

Si naviga nella directory Great\_hall e si visualizza il contenuto con **ls**.

Si esegue la copia dei file usando il comando **cp \*tapestry\*** seguito dal path di destinazione, in modo da copiare tutti i file contenenti il nome tapestry nel nome.

Si visualizza infine il contenuto della directory Chest:

```
kali㉿kali: ~
```

File Actions Edit View Help

```
16444_stag_head      52567_tapestry_06  63729_decorative_shield
34260_suit_of_armour 53128_tapestry_04  standard_1
35248_tapestry_09    56278_tapestry_07  standard_2
41263_tapestry_01    56283_tapestry_10  standard_3
49237_tapestry_03    56464_tapestry_02  standard_4
50112_tapestry_05    62973_tapestry_08  standard_2
```

~/Castle/Great\_hall  
[mission 11] \$ cp \*tapestry\* /home/kali/gameshell/World/Forest/Hut/Chest

```
~/Castle/Great_hall
[mission 11] $ cd /home/kali/gameshell/World/Forest/Hut/Chest
```

```
~/Forest/Hut/Chest
[mission 11] $ ls
35248_tapestry_09  53128_tapestry_04  coin_1      standard_3
41263_tapestry_01  56278_tapestry_07  coin_2      standard_4
49237_tapestry_03  56283_tapestry_10  coin_3
50112_tapestry_05  56464_tapestry_02  standard_1
52567_tapestry_06  62973_tapestry_08  standard_2
```

~/Forest/Hut/Chest  
[mission 11] \$ gsh check

Congratulations, mission 11 has been successfully completed!

## Livello 12:

+ | Mission goal  
|  
| While wandering around the first floor of the main tower, some  
| magnificent paintings catch your eye. Add a copy of the oldest one to  
| your chest.  
  
+ | Secondary objectives  
|  
| Take a moment to admire the sheer beauty of the paintings.  
  
+ | Useful commands  
|  
| ls -l  
| Print the list of files of the current directory, with additional  
| information including last modification date.  
  
+ | cat FILE  
| Display the contents of the file.  
[Press space to continue, q to quit.]

Con i comandi **cd** e **ls** si raggiunge la directory `First_floor`. Con il comando **ls -l** si analizza la lista dei file contenuti. Il meno recente risulta **painting\_SzugwvDA**, del 1981.

```
~/Forest/Hut/Chest
[mission 12] $ cd

~
[mission 12] $ cd Castle

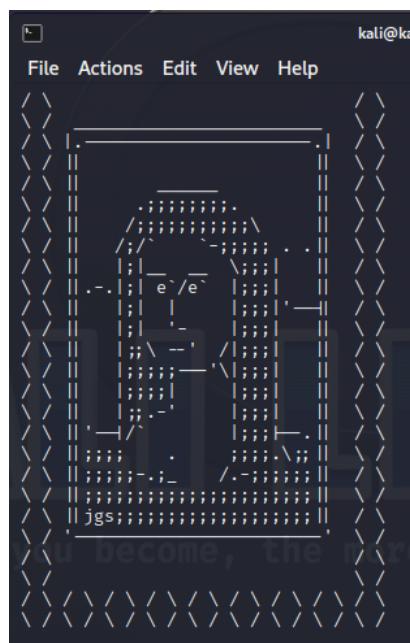
~/Castle
[mission 12] $ ls
Cellar/  Great_hall/  Main_building/  Main_tower/  Observatory/

~/Castle
[mission 12] $ cd Main_tower

~/Castle/Main_tower
[mission 12] $ cd First_floor

~/Castle/Main_tower/First_floor
[mission 12] $ ls -l
total 16
-rw-r--r-- 1 kali kali 1503 May 18 2001 painting_PXgPvtTk
-rw-r--r-- 1 kali kali 1054 Feb 11 1981 painting_SzugwvDA
-rw-r--r-- 1 kali kali 1455 Feb 6 2015 painting_wrxTtVzx
drwxr-xr-x 3 kali kali 4096 Dec 15 10:54 Second_floor/
```

Catturando la nostra attenzione, ne visualizziamo il contenuto con il comando **cat**:



È troppo bello, ci piace e intendiamo copiarlo nella directory Chest:

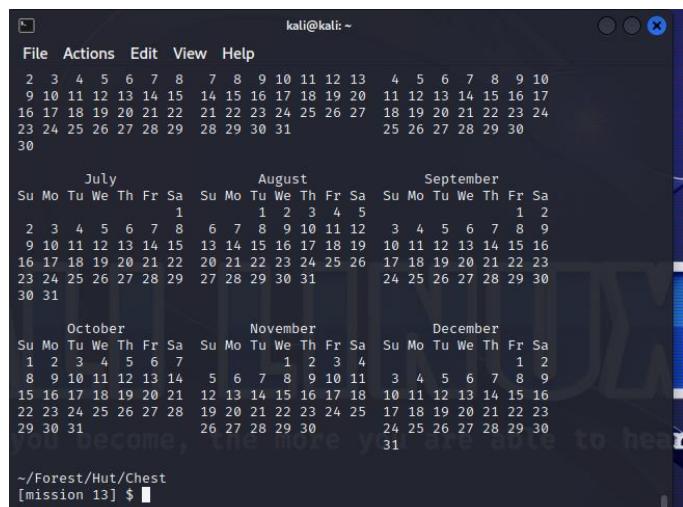
```
[mission 12] $ cd /home/kali/gameshell/World/Forest/Hut/Chest
~/Forest/Hut/Chest
[mission 12] $ ls -l
total 72
-rw-r--r-- 1 kali kali 1214 Dec 15 13:44 35248_tapestry_09
-rw-r--r-- 1 kali kali 1290 Dec 15 13:44 41263_tapestry_01
-rw-r--r-- 1 kali kali 573 Dec 15 13:44 49237_tapestry_03
-rw-r--r-- 1 kali kali 1289 Dec 15 13:44 50112_tapestry_05
-rw-r--r-- 1 kali kali 786 Dec 15 13:44 52567_tapestry_06
-rw-r--r-- 1 kali kali 786 Dec 15 13:44 53128_tapestry_04
-rw-r--r-- 1 kali kali 1214 Dec 15 13:44 56278_tapestry_07
-rw-r--r-- 1 kali kali 1290 Dec 15 13:44 56283_tapestry_10
-rw-r--r-- 1 kali kali 786 Dec 15 13:44 56464_tapestry_02
-rw-r--r-- 1 kali kali 574 Dec 15 13:44 62973_tapestry_08
-rw-r--r-- 1 kali kali 46 Dec 15 11:29 coin_1
-rw-r--r-- 1 kali kali 47 Dec 15 11:29 coin_2
-rw-r--r-- 1 kali kali 47 Dec 15 11:29 coin_3
-rw-r--r-- 1 kali kali 1054 Dec 15 13:59 painting_SzugwvDA
-rw-r--r-- 1 kali kali 46 Dec 15 13:26 standard_1
-rw-r--r-- 1 kali kali 47 Dec 15 13:26 standard_2
-rw-r--r-- 1 kali kali 47 Dec 15 13:26 standard_3
-rw-r--r-- 1 kali kali 47 Dec 15 13:26 standard_4
~/Forest/Hut/Chest
[mission 12] $
```

```
~/Forest/Hut/Chest
[mission 12] $ gsh check
Congratulations, mission 12 has been successfully completed!
```

### Livello 13:

```
+-----+
| Mission goal
| _____
|
| Nostradamus predicted a spectacular star conjunction on the 12-14-2006.
| But what will the day of the week be on that date?
|
| When you have it, run the command ``gsh check``.
|
+-----+
| Useful commands
| _____
|
| cal
| Print a calendar for the current month.
|
| cal YEAR
| Print a calendar for the given year.
+-----+
```

Con il comando **cal 2006**, si visualizza l'intero calendario dell'anno da cui si evince che la data richiesta coincideva con un giovedì:



Si invia il comando **gsh check** come richiesto e si risponde alla domanda proposta:

```
~/Forest/Hut/Chest
[mission 13] $ gsh check
What was the day of the week for the 12-14-2006?
1 : Monday
2 : Tuesday
3 : Wednesday
4 : Thursday
5 : Friday
6 : Saturday
7 : Sunday
Your answer: 4

Congratulations, mission 13 has been successfully completed!
```

#### Livello 14:

```
+-----+
| Mission goal
| _____
|
| Checking for hidden files is taking too long!
|
| Create an alias "la" to run the command ``ls -A`` in order to list all
| files, including hidden ones, with only 2 letters.
|
| Define the synonym
|
| la
|
| for the command
|
| ls -A
|
| and check that it works as expected.
|
| How fortunate, there is a nice rock hidden just where you are.
|
| Useful commands
| _____
|
| [Press space to continue, q to quit.]|
```

Per creare un alias del comando **ls -A** (che visualizza i file e le directory nascoste) si manda il comando:

**alias la='ls -A'**:

```
~/Forest/Hut/Chest
[mission 14] $ alias la='ls -A'

~/Forest/Hut/Chest
[mission 14] $ la
35248_tapestry_09 .51532_coin_3 62973_tapestry_08 standard_1
.37339_coin_2 52567_tapestry_06 coin_1 standard_2
41263_tapestry_01 53128_tapestry_04 coin_2 standard_3
.47045_coin_1 56278_tapestry_07 coin_3 standard_4
49237_tapestry_03 56283_tapestry_10 .nice_rock
50112_tapestry_05 56464_tapestry_02 painting_SzugwvDA

~/Forest/Hut/Chest
[mission 14] $ gsh check

Congratulations, mission 14 has been successfully completed!
```

Come si evince dall'immagine, tale comando ora sostituisce il precedente ed è visibile un file nascosto **.nice\_rock**.

### Livello 15:

```
+-----+
| Mission goal
| _____
|
| Create a file named "journal.txt" in your chest and write a short
| message in it.
| You can use this file to record your notes and solutions for the
| upcoming missions.
|
| Details
| _____
|
| ``nano`` is a command-line text editor. You can use it whenever you
| need to edit a file from the shell.
|
| _____
| Useful commands
| _____
|
| nano FILE
| Edit the file from the shell.
| (If the file does not exist, it will be created.)
|
| Keybindings are listed at the bottom of the screen (the "^^" symbol
| [Press space to continue, q to quit.]|
```

Si adopera il comando **nano** per avviare l'editor di testo. Si crea il file journal.txt e si scrive del contenuto:

```
~/Forest/Hut/Chest
[mission 15] $ nano journal.txt

~/Forest/Hut/Chest
[mission 15] $ |
```

```
~/Forest/Hut/Chest
[mission 15] $ cat journal.txt
solutions for upcoming missions

~/Forest/Hut/Chest
[mission 15] $ gsh check

Congratulations, mission 15 has been successfully completed!
```

### Livello 16:

```
+-----+
| Mission goal
| _____
|
| Create an alias "journal" in order to easily edit your journal file
| wherever you are.
|
| Details
| _____
```

Si crea l'alias del comando **nano journal.txt** come richiesto:

```
~/Forest/Hut/Chest
[mission 16] $ alias journal='nano /home/kali/gameshell/World/Forest/Hut/Ch
est/journal.txt'

~/Forest/Hut/Chest
[mission 16] $ journal

~/Forest/Hut/Chest
[mission 16] $ gsh check

Congratulations, mission 16 has been successfully completed!
```

## Livello 17:

```
+-----+
| Mission goal
| _____
|
| At the back of the cellar, there is a small opening going to the spider
| queen's lair.
| Go there, and remove the spider queen (and nothing else).
|
| Note: you have a limited amount of time (20 seconds) to do that. You
| can use the command ``gsh reset`` to reset the timer.
|
| Another thing: shell patterns have been deactivated. You cannot use the
| wildcards ``*`` or ``?``.
|
| Useful commands
| _____
|
| Tab
| The "Tabulation" key completes the name of a file or directory once you
| have typed the beginning of its name. This only works
| if there is only one possible completion.
|
[Press space to continue, q to quit.]
```

Per questo esercizio si deve entrare nella directory nascosta con il comando **cd** seguito dal nome della directory tra apici, essendoci caratteri speciali.

In seguito si rimuove il file della spider queen con il comando **rm**:

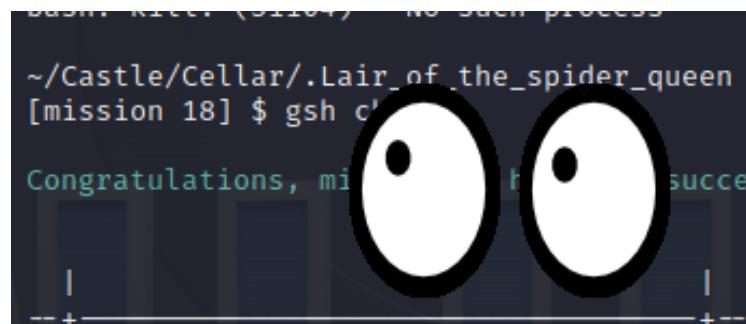
```
-rw-r--r-- 1 kali kali 211 Dec 15 12:39 19707_bat_3
-rw-r--r-- 1 kali kali 211 Dec 15 12:39 20040_bat_2
-rw-r--r-- 1 kali kali 192 Dec 15 12:39 24536_bat_5
-rw-r--r-- 1 kali kali 239 Dec 15 12:50 .3823_bat_3
-rw-r--r-- 1 kali kali 196 Dec 15 12:50 .4921_bat_5
-rw-r--r-- 1 kali kali 211 Dec 15 12:39 9114_bat_1
-rw-r--r-- 1 kali kali 121 Dec 15 10:56 barrel_of_apples
drwxr-xr-x 2 kali kali 4096 Dec 15 15:56 .Lair_of_the_spider_queen vFqrbgLsVZwjDfP JbEVagTQWjtbVaeH/
H/
~/Castle/Cellar
[mission 17] $ cd ".Lair_of_the_spider_queen vFqrbgLsVZwjDfP JbEVagTQWjtbVaeH/"
~/Castle/Cellar/.Lair_of_the_spider_queen vFqrbgLsVZwjDfP JbEVagTQWjtbVaeH
[mission 17] $ ls
kYJJKjcmZpiLfSVI_baby_bat_dMGzWRsHWdDIRdpK NcFlMcSqjBmStplR_spider_queen_aamzpxQGCoNkbTbB
~/Castle/Cellar/.Lair_of_the_spider_queen vFqrbgLsVZwjDfP JbEVagTQWjtbVaeH
[mission 17] $ rm NcFlMcSqjBmStplR_spider_queen_aamzpxQGCoNkbTbB
~/Castle/Cellar/.Lair_of_the_spider_queen vFqrbgLsVZwjDfP JbEVagTQWjtbVaeH
[mission 17] $ gsh check
Perfect, it took you only 20 seconds to complete this mission!
Congratulations, mission 17 has been successfully completed!
```

## Livello 18:

```
-----+
| Mission goal
| _____
|
| As you are walking around the castle, you feel like you are being
| watched ... Turn your head quickly enough and you may see one of the
| paintings' eyes following you.
|
| 1/ Run the ``xeyes`` command, and stop it.
| 2/ Run the ``xeyes`` command in the background.
|
| Useful commands
| _____
|
| xeyes
| Open a window with 2 eyes that track your mouse.
|
| COMMAND &
| Run the command in the background.
|
| Control-c
| This key binding usually interrupts the current command by sending it
[Press space to continue, q to quit.]
```

Inizialmente si invia il comando **xeyes** e compaiono degli occhi che si muovono.

Per mandarlo in background, si invia il comando **xeyes &**.



```
[mission 18] $ xeyes
^C
~/Castle/Cellar/.Lair_of_the_spider_queen vFqrbgFLsVZwjDfP JbEVagTQWjtbVaeH
[mission 18] $ xeyes &
[1] 31104
~/Castle/Cellar/.Lair_of_the_spider_queen vFqrbgFLsVZwjDfP JbEVagTQWjtbVaeH
[mission 18] $ ^C
~/Castle/Cellar/.Lair_of_the_spider_queen vFqrbgFLsVZwjDfP JbEVagTQWjtbVaeH
[mission 18] $ kill 31104
bash: kill: (31104) - No such process
~/Castle/Cellar/.Lair_of_the_spider_queen vFqrbgFLsVZwjDfP JbEVagTQWjtbVaeH
[mission 18] $ gsh check
Congratulations, mission 18 has been successfully completed!
```

### Livello 19:



Con il comando **find** si ricerca nella directory di interesse tutti gli elementi che hanno **\*coin\*** nel nome.

Si sposta l'elemento trovato nella directory **Chest**.

```
[mission 19] $ find /home/kali/gameshell/World/Garden/Maze -name "*coin"
/home/kali/gameshell/World/Garden/Maze/ba2eba9b44d20f2beaf3f887254d/b1513d2cf26f3e28ee9528fb362/2b098556c18067/00000_copper_coin_00000
~/Garden/Maze
[mission 19] $ mv /home/kali/gameshell/World/Garden/Maze/ba2eba9b44d20f2beaf3f887254d/b1513d2cf26f3e28ee9528fb362/2b098556c18067/00000_copper_coin_00000 /home/kali/gameshell/World/Forest/Hut/Chest
mv: cannot stat '/home/kali/gameshell/World/Garden/Maze/ba2eba9b44d20f2beaf3f887254d/b1513d2cf26f3e28ee9528fb362/2b098556c18067/00000_copper_coin_00000': No such file or directory
~/Garden/Maze
[mission 19] $ mv /home/kali/gameshell/World/Garden/Maze/ba2eba9b44d20f2beaf3f887254d/b1513d2cf26f3e28ee9528fb362/2b098556c18067/00000_copper_coin_00000 /home/kali/gameshell/World/Forest/Hut/Chest
~/Garden/Maze
[mission 19] $ cd /home/kali/gameshell/World/Forest/Hut/Chest
~/Forest/Hut/Chest
[mission 19] $ ls
35248_tapestry_09  52567_tapestry_06  56464_tapestry_02  coin_3
41263_tapestry_01  53128_tapestry_04  62973_tapestry_08  00000_copper_coin_00000 standard_2
49237_tapestry_03  56278_tapestry_07  coin_1           painting_SzugwvDA standard_3
                                         standard_4
```



## Livello 20:

```
kali@kali: ~
File Actions Edit View Help
~ [mission 20] $ gsh goal
+-----+
| Mission goal
| =====
|
| Find the silver coin in the maze in the garden and move it to your
| chest using the shell.
|
| Useful commands
| =====
|
| ls -R
| Print the list of all files / directory, including those in
| sub-directories (recursively).
|
| tree
| Print the tree of files and directories, starting from the current
| working directory.
+-----+
~ [mission 20] $
```

Si svolge come l'esercizio precedente. Inoltre con il comando tree si visualizza l'albero delle directory e dei file a partire dal path corrente:

```

.
+-- Castle
    +-- Cellar
        +-- 15048_bat_4
        +-- 19707_bat_3
        +-- 20040_bat_2
        +-- 24536_bat_5
        +-- 9114_bat_1
        +-- barrel_of_apples
    +-- Great_hall
        +-- 16444_stag_head
        +-- 34260_suit_of_armour
        +-- 35248_tapestry_09
        +-- 41263_tapestry_01
        +-- 49237_tapestry_03
        +-- 50112_tapestry_05
        +-- 52567_tapestry_06
        +-- 53128_tapestry_04
        +-- 56278_tapestry_07
        +-- 56283_tapestry_10
        +-- 56464_tapestry_02
        +-- 62973_tapestry_08
        +-- 63729_decorative_shield
        +-- standard_1
        +-- standard_2
        +-- standard_3
        +-- standard_4
    +-- Main_building
        +-- Library
            +-- Greek_Latin_and_other_modern_languages
            +-- Mathematics_101

```

40 directories, 1 file

```

~/Garden/Maze
[mission 20] $ find *silver*
find: '*silver*': No such file or directory

~/Garden/Maze
[mission 20] $ find /home/kali/gameshell.1/World/Garden/Maze -name *silver*
/home/kali/gameshell.1/World/Garden/Maze/18f0b316922935/aa3fa69b5376/c32f4
04fa91dd999cc1f4449744bbd3/00000_silver_coin_00000

~/Garden/Maze
[mission 20] $ mv /home/kali/gameshell.1/World/Garden/Maze/18f0b316922935/
aa3fa69b5376/c32f404fa91dd999cc1f4449744bbd3/00000_silver_coin_00000 /home
/kali/gameshell.1/World/Forest/Hut/Chest/00000_silver_coin_00000

~/Garden/Maze
[mission 20] $ gsh check
Congratulations, mission 20 has been successfully completed!

```

## Livello 21:

Mission goal

Find the gold coins in the maze hidden in the garden and move them to your chest.

Useful commands

find CONDITION  
Search for files satisfying the condition, starting from your current working directory.

There are many possible conditions. They can constrain the file names, size, modification date, etc. For example `-name "PATTERN"` `-iname "PATTERN"` are both related to file names.

man COMMAND  
Display the manual of the command.

Important key bindings:

q	quit
Space	scroll down one page
/ STRING	search for the string
n	find the next occurrence of the search string

Remark

[Press space to continue, q to quit.]

```

~/Garden/Maze
[mission 21] $ find /home/kali/gameshell.1/World/Garden/Maze -name *gold*
/home/kali/gameshell.1/World/Garden/Maze/e4aa92718fd00aec6/8dba9006716acc4e
724e828a375ad0b/0106237ec33cc5380/gold_coin_1

~/Garden/Maze
[mission 21] $ find /home/kali/gameshell.1/World/Garden/Maze -name *.gold*
~/Garden/Maze
[mission 21] $ find /home/kali/gameshell.1/World/Garden/Maze -iname *gold*
/home/kali/gameshell.1/World/Garden/Maze/e4aa92718fd00aec6/8dba9006716acc4e
724e828a375ad0b/0106237ec33cc5380/gold_coin_1
/home/kali/gameshell.1/World/Garden/Maze/a217c4aab1831cc3c67c6c8ad917b9/bc0
449bd4730ca71a8e0c0dc45a2f7b/b4ee5a17642770/Gold_CoiN_2

~/Garden/Maze
[mission 21] $ find /home/kali/gameshell.1/World/Garden/Maze -iname ".*gold"
*
```

Sono stati usati diversi comandi di **find**. Nel primo si ricercano eventuali file aventi nel nome la parola **\*gold\*** attraverso l'opzione **-name**.

Nel secondo caso, si usa l'opzione **-iname** per fare una verifica che sia case insensitive.

Nel terzo caso, si ricercano eventuali file nascosti che contengono la parola **\*gold\***.

Una volta trovati, si spostano in Chest con il comando **mv**.

```

~/Garden/Maze
[mission 21] $ mv /home/kali/gameshell.1/World/Garden/Maze/e4aa92718fd00aec
6/8dba9006716acc4e724e828a375ad0b/0106237ec33cc5380/gold_coin_1 /home/kali/
gameshell.1/World/Forest/Hut/Chest/gold_coin_1

~/Garden/Maze
[mission 21] $ mv /home/kali/gameshell.1/World/Garden/Maze/a217c4aab1831cc3
c67c6c8ad917b9/bc0449bd4730ca71a8e0c0dc45a2f7b/b4ee5a17642770/Gold_CoiN_2 /
home/kali/gameshell.1/World/Forest/Hut/Chest/Gold_CoiN_2

~/Garden/Maze
[mission 21] $ gsh check

Congratulations, mission 21 has been successfully completed!
```

## Livello 22:

```

+-----+
| Mission goal
| _____|
|
| A forgetful old hermit called Servillus has set up camp in a cave with
| his old, leather-bound potion book.
| Go to the cave and help him remember the recipe of his famous herbal
| tea.
|
| In order to validate the mission, you need to be in the cave with
| Servillus **and** your last command prior to ``gsh check`` must show
| the recipe (including its title), but nothing else.
|
| Note: you shouldn't alter the content of the book of potions.
|
| Useful commands
| _____|
|
| cat FILE
| Display the contents of the file.
|
| head FILE
| Print the first 10 lines of the file.
|
| head -n K FILE
| Print the first K lines of the file.
|
| Remark
| _____|
|
| A "FILE" may contain directories if the file in question is not in the
| [Press space to continue, q to quit.]|
```

Si identifica con il comando **tree** la posizione di **Cave**:

```
└── Mountain
    └── Cave
        ├── Book_of_potions
        │   ├── page_01
        │   ├── page_02
        │   ├── page_03
        │   ├── page_04
        │   ├── page_05
        │   ├── page_06
        │   ├── page_07
        │   ├── page_08
        │   ├── page_09
        │   ├── page_10
        │   ├── page_11
        │   ├── page_12
        │   └── page_13
        └── servillus
    └── Stall
26 directories, 71 files
```

Si visualizza il contenuto di Cave. Da notare che nella cave c'è servillus, ma la traccia richiede di entrare nella Cave con Servillus. Dunque con il comando move mv, lo si rinomina.

Analizzando le pagine del libro, si trova con il comando **cat** il contenuto desiderato, presente in page\_07. Per visualizzare solo il titolo e la ricetta e nulla più, si esegue il comando **head -n 6** seguito dal path di page\_07 per visualizzare solo le prime sei righe.

Questa azione si deve svolgere nella directory Cave:

```
Book_of_potions/  servillus
~/Mountain/Cave
[mission 22] $ mv /home/kali/gameshell.1/World/Mountain/Cave/servillus /home/kali/gameshell.1/World/Mountain/Cave/Servillus

~/Mountain/Cave
[mission 22] $ ls
Book_of_potions/  Servillus

~/Mountain/Cave
[mission 22] $ head -n 6 /home/kali/gameshell.1/World/Mountain/Cave/Book_of_potions/page_07
Herbal tea
_____
1) Boil water.
2) Add herbs from the forest.
3) Let it sit for five minutes and drink while hot.

~/Mountain/Cave
[mission 22] $ gsh check

Congratulations, mission 22 has been successfully completed!
```

### Livello 23:

```
+-----+
| Mission goal
| =====
|
| The old man seems to enjoy your company very much. He invites you to
| stay for supper, and starts preparing a delicious stew for the both of
| you. While getting the cauldron ready he asks for your help.
| Read him the steps of the recipe from his book.
|
| In order to validate the mission, you need to be in the cave with
| Servillus **and** last command prior to ``gsh check`` must show the
| steps of the recipe (without its title).
|
| Note: you shouldn't alter the content of the book of potions.
|
| Useful commands
| =====
|
| cat FILE
| Display the contents of the file.
|
| tail FILE
| Print the last 10 lines of the file.
|
| tail -n K FILE
| Print the last K lines of the file.
+-----+
```

Entrando in Book\_of\_potions, si visualizzano le pagine con il comando **cat** per ricercare la ricetta di interesse, che si trova in page\_12:

```
~/Mountain/Cave/Book_of_potions
[mission 23] $ cat page_12
Toadstool stew
_____
1) Boil water in a cauldron.
2) Add in a few death caps (Amanita phalloides).
3) Also add a few fly agarics (Amanita muscaria).
4) And some destroying angels (Amanita virosa).
5) Mix in a few deadly webcaps (Cortinarius rubellus).
6) Feel free to add in any colourful fungi you have on hand.
7) Let half of the water evaporate.
8) Season with a pinch of salt and a few herbs.
9) Serve hot in a bowl.
```

Successivamente con il comando **tail -n 9** seguito dal path della page\_12, si visualizzano le ultime 9 righe:

```
~/Mountain/Cave
[mission 23] $ tail -n 9 /home/kali/gameshell.1/World/Mountain/Cave/Book_of
_potions/page_12
1) Boil water in a cauldron.
2) Add in a few death caps (Amanita phalloides).
3) Also add a few fly agarics (Amanita muscaria).
4) And some destroying angels (Amanita virosa).
5) Mix in a few deadly webcaps (Cortinarius rubellus).
6) Feel free to add in any colourful fungi you have on hand.
7) Let half of the water evaporate.
8) Season with a pinch of salt and a few herbs.
9) Serve hot in a bowl.

~/Mountain/Cave
[mission 23] $ gsh check

Congratulations, mission 23 has been successfully completed!
```

## Livello 24:

```
+-----+
| Mission goal
| =====
|
| While cleaning the dishes, Servillus mentions an interesting potion
| that lets the drinker (temporarily) take the physical appearance of
| anyone.
| Read the recipe of the potion from the hermit's book.
|
| In order to validate the mission, you need to be in the cave with
| Servillus **and** your last command prior to ``gsh check`` must show
| the whole recipe (with its title).
|
| Note: you shouldn't alter the content of the book of potions.
|
|
| Useful commands
| =====
|
| cat FILE1 FILE2 ... FILEn
| Display the contents of the files in order.
| Remark: ``cat`` is an abbreviation for "concatenate".
+-----+
```

Si riporta lo screenshot dei comandi eseguiti:

```
~/Mountain/Cave
[mission 24] $ cd Book_of_potions

~/Mountain/Cave/Book_of_potions
[mission 24] $ cat page_01 page_02
Transformation potion

1) Boil water in a cauldron.
2) Add 3 measures of fluxweed to the cauldron.
3) Add 2 bundles of knotgrass to the cauldron.
4) Stir 4 times, clockwise.
5) Wave your wand then let potion brew for 80 minutes.
6) Add 4 leeches to the cauldron.
7) Crush 2 scoops of lacewing flies to a fine paste.
8) Add 2 measures of the crushed lacewings to the cauldron.
9) Heat for 30 seconds on a low heat.
10) Add 3 measures of boomslang skin to the cauldron.
11) Crush a bicorn horn into a fine powder.
12) Add 1 measure of the crushed horn to the cauldron.
13) Heat for 20 seconds at a high temperature.
14) Wave your wand then let potion brew for 24 hours.
15) Add 1 additional scoop of lacewings to the cauldron.
16) Stir 3 times, counter-clockwise.
17) Split potion into multiple doses, if desired.
18) Add a pieces of the person you wish to become.
19) Wave your wand to complete the potion.

[mission 24] $ cat /home/kali/gameshell.1/World/Mountain/Cave/Book_of_potions/page_01 /home/kali/gameshell.1/World/Mountain/Cave/Book_of_potions/page_02
Transformation potion

1) Boil water in a cauldron.
2) Add 3 measures of fluxweed to the cauldron.
3) Add 2 bundles of knotgrass to the cauldron.
4) Stir 4 times, clockwise.
5) Wave your wand then let potion brew for 80 minutes.
6) Add 4 leeches to the cauldron.
7) Crush 2 scoops of lacewing flies to a fine paste.
8) Add 2 measures of the crushed lacewings to the cauldron.
9) Heat for 30 seconds on a low heat.
10) Add 3 measures of boomslang skin to the cauldron.
11) Crush a bicorn horn into a fine powder.
12) Add 1 measure of the crushed horn to the cauldron.
13) Heat for 20 seconds at a high temperature.
14) Wave your wand then let potion brew for 24 hours.
15) Add 1 additional scoop of lacewings to the cauldron.
16) Stir 3 times, counter-clockwise.
17) Split potion into multiple doses, if desired.
18) Add a pieces of the person you wish to become.
19) Wave your wand to complete the potion.

~/Mountain/Cave
[mission 24] $ gsh check
"the quieter you become, the more you can hear." -B.K.L.

Congratulations, mission 24 has been successfully completed!
```

## Livello 25:

```
+-----+
| Mission goal
| =====
|
| The old hermit notices your interest for potion recipes, and sees
| promise in your ability to lookup lists of ingredients. He challenges
| you to find the steps for the elixir of Youth.
|
| In order to validate the mission, you need to be in the cave with
| Servillus **and** your last command prior to ``gsh check`` must show
| the steps for the recipe and nothing else.
|
| Note: you shouldn't alter the content of the book of potions.
|
+-----+
| Useful commands
| =====
|
| cat FILE1 FILE2 ... FILEn
| Display the contents of the files in order.
|
| tail
| Print the last 10 lines sent on the standard input.
|
| tail -n K
| Print the last K lines sent on the standard input.
|
| COMMAND1 | COMMAND2
| Run the two commands, feeding the "standard output" of the former into
| the "standard input" of the latter.
| Remark: by analogy with plumbing "|" is called "pipe".
|
| [Press space to continue, q to quit.]
```

Si utilizza il comando **cat** seguito dai due file e si manda il suo output in input al comando **tail** attraverso un'azione di pipe. Si visualizzano solo le ultime 16 righe con gli step della ricetta.

```
[mission 25] $ cat /home/kali/gameshell.1/World/Mountain/Cave/Book_of_potions/page_03 /home/kali/gameshell.1/World/Mountain/Cave/Book_of_potions/page_04 | tail -n 16
1) Fill a cauldron with used bath water.
2) Put a moderately large frog in the water.
3) Let the preparation rest overnight.
4) The next morning thank and free your little green friend.
5) Boil the water and add in a few sticks of oak tree.
6) Crush 5 river stones to a fine powder.
7) Mix in a third of the powder and stir vigorously.
8) Let the preparation rest for a day.
9) Add hairs from the tail of a squirrel (willingly given).
10) Add the remaining stone powder.
11) Stir the potion very vigorously, in all directions.
12) Take some time to rest after such an effort.
13) Rest a little bit more.
14) Even take a nap if you want.
15) Add a few larch tree needles for seasoning.
16) Drink the potion from the cauldron.

~/Mountain/Cave
[mission 25] $ gsh check

Congratulations, mission 25 has been successfully completed!
```

## Livello 26:

```
+-----+
| Mission goal
| _____
|
| The old hermit is thirsty and he would like you lookup the recipe for
| distilled water.
|
| In order to validate the mission, you need to be in the cave with
| Servillus **and** your last command prior to ``gsh check`` must show
| the steps for the recipe and nothing else.
|
| Note: you shouldn't alter the content of the book of potions.
|
| Useful commands
| _____
|
| head [-n K] [FILE]
| Print the first lines (10 by default, K if ``-n K`` is used) of the
| given file, or standard input if no file is given.
|
| tail [-n K] [FILE]
| Print the last lines (10 by default, K if ``-n K`` is used) of the
| given file, or standard input if no file is given.
|
| COMMAND1 | COMMAND2
| Run the two commands, feeding the "standard output" of the former into
| the "standard input" of the latter.
| Remark: by analogy with plumbing "|" is called "pipe".
|
| Remark
|[Press space to continue, q to quit.]|
```

Si visualizza la ricetta con il comando cat:

```
~/Mountain/Cave/Book_of_potions
[mission 26] $ cat page_13
Distilled water
_____
1) Boil water in a big pot.
2) Condense the vapor in a fresh container.
3) Add minerals for a better taste (optional).

King's ale
_____
1) Go to the castle's cellar and grab a bottle.
2) Serve cold, in a pint.
```

Si manda il comando **head -n 6** seguito dal path di interesse in pipe al comando **tail -n 3** in modo da visualizzare solo gli step della ricetta:

```
~/Mountain/Cave
[mission 26] $ head -n 6 /home/kali/gameshell.1/World/Mountain/Cave/Book_of
_potions/page_13 | tail -n 3
1) Boil water in a big pot.
2) Condense the vapor in a fresh container.
3) Add minerals for a better taste (optional).

~/Mountain/Cave
[mission 26] $ gsh check

Congratulations, mission 26 has been successfully completed!
```

## Livello 27:

```
+-----+
| Mission goal
| _____
|
| A mischievous imp cast a spell that puts smudges of coal everywhere in
| the castle.
| Find this spell and remove it.
|
| Remark
| _____
|
| The spell is a process.
|
| Useful commands
| _____
|
| ps
| List the processes that are currently executed by the shell.
|
| kill N
| Send the termination signal to process number N.
| Remark: N is called PID, or "process identifier".
|
| clear
| Clear the screen.
| The keybinding "Control-L" does the same and is often quicker to use
| in the terminal.
+-----+
```

Si individua con il comando **ps** il processo *spell* e lo si termina con il comando **kill** seguito dal **PID** ovvero dall'identificativo del processo. Si esegue questo comando su un altro terminale:

```
~
[mission 27] $ ps
  PID TTY      TIME CMD
  1355 pts/0    00:00:00 zsh
  64819 pts/0    00:00:00 bash
  64869 pts/0    00:00:00 bash
  65207 pts/0    00:00:00 spell
  65303 pts/0    00:00:00 ps
```

```
└─(kali㉿kali)-[~]
└─$ kill 65207
```

```
gash: kill: check arguments must be process or job ID
[1]+  Terminated                  "$GSH_TMP/$(gettext "spell")"

~
[mission 27] $ gsh check
Congratulations, mission 27 has been successfully completed!
```

## Livello 28:

```
+-----+
| Mission goal
| _____
|
| The mischievous imp has more than one trick up his sleeve. He managed
| to protect his spell against most tampering.
| You need to find this spell and try to remove it with standard signal.
| If it doesn't work, use a more brutal signal.
|
| Remark
| _____
|
| The spell is a process.
|
| Useful commands
| _____
|
| ps
| List the processes that are currently executed by the shell.
|
| kill [OPTIONS] N
| Send the termination signal to process number N.
|
| Useful options:
| -s SIGNAL choose the signal name   "the quieter you b
|   -NUMBER      choose the signal number
|   -l           list available signals
|
| clear
| Clear the screen.
```

Come richiesto sono stati eseguiti i seguenti comandi:

```
[kali㉿kali)-[~]
$ kill -15 72675

[kali㉿kali)-[~]
$ kill -9 72675

[kali㉿kali)-[~]
$ kill -9 73034

[kali㉿kali)-[~]
$ 
```

## Livello 29:

```
+-----+
| Mission goal
| _____
|
| The imp is comparing his magic with a fairy. They met in the cellar,
| and imp is conjuring lumps of coal while the fairy is conjuring
| delicate snowflakes.
|
| Remove the imp's spells and the coal that litters the cellar, but
| don't touch the snowflakes!
|
| Remark
| _____
|
| Do not kill the imp or the fairy.
|
| Useful commands
| _____
|
| pstree PID
| Print the list of processes with their parent / child relationship.
|
| If no PID is given, show the list of all processes with their parent /
| child relationship.
|
| Useful options:
|   -p  show the PID of processes
|   $$  This variable contains the PID of the
|       shell and can be given as the PID.
|
|[Press space to continue, q to quit.]
```

Con il comando **ps** si visualizzano i processi attivi:

```
~/Castle/Cellar
[mission 29] $ ps
    PID TTY          TIME CMD
      1355 pts/0    00:00:00 zsh
      70150 pts/0    00:00:00 bash
      70200 pts/0    00:00:00 bash
     180447 pts/0    00:00:00 nice_fairy
     180448 pts/0    00:00:00 mischievous_imp
     180456 pts/0    00:00:00 spell
     180457 pts/0    00:00:00 spell
     180459 pts/0    00:00:00 spell
     180462 pts/0    00:00:00 tail
     180479 pts/0    00:00:00 tail
     193207 pts/0    00:00:00 sleep
     193208 pts/0    00:00:00 sleep
     193265 pts/0    00:00:00 sleep
     193266 pts/0    00:00:00 ps
```

Con il comando **pstree 180448** si visualizzano le relazioni con mischievous\_imp e con il comando **ps -o ppid -p** seguito dal PID del processo si valuta a chi appartiene, se al mischievous\_imp o al nice\_fairy.

Sulla base di questo, si terminano con **kill** solo i processi *spell* e *tail* che risultano correlati a 180448.

Successivamente si va nella cartella Cellar, si visualizza la lista del suo contenuto con **ls** e si rimuove tutto ciò che ha nel nome \*coal\*.

```
~/Castle/Cellar
[mission 29] $ gsh check
Congratulations, mission 29 has been successfully completed!
```

### Livello 30:

```
+-----+
| Mission goal
+-----+
| To get better in the magical art, one needs to know mental math.
| Get ready, because Merlin is about to test your precision with sums.
| Run the command ``gsh check`` to start.
+-----+
```

Viene richiesto di eseguire delle addizioni:

```
~/Castle/Cellar
[mission 30] $ gsh check
56 + 58 = ?? 114
36 + 48 = ?? 84
59 + 54 = ?? 113
70 + 8 = ?? 78
27 + 68 = ?? 95
Congratulations, mission 30 has been successfully completed!
```

### Livello 31:

```
+-----+
| Mission goal
+-----+
To get better in the magical art, one needs to know mental math.
Get ready, because Merlin is about to test you speed with products.
Run the command ``gsh check`` to start.

Remark
-----
There now is a time constraint.

Hint
-----
The library is rumored to contain some mathematics books and hidden
volumes.

Useful commands
-----
COMMAND < FILE
Replace the command's standard input by a file.
Instead of reading lines from the keyboard device, the command will
read lines from the file.
+-----+
```

Analizzando la traccia, si evince che nel percorso `..Castle/Main_building/Library`, si trova un file denominato `Mathematics_101` in cui ci sono le risposte ai prodotti richiesti.

Se si manda il comando `gsh check < Mathematics_101` si mandano in input tutti i valori contenuti nel file e si risolve la missione:

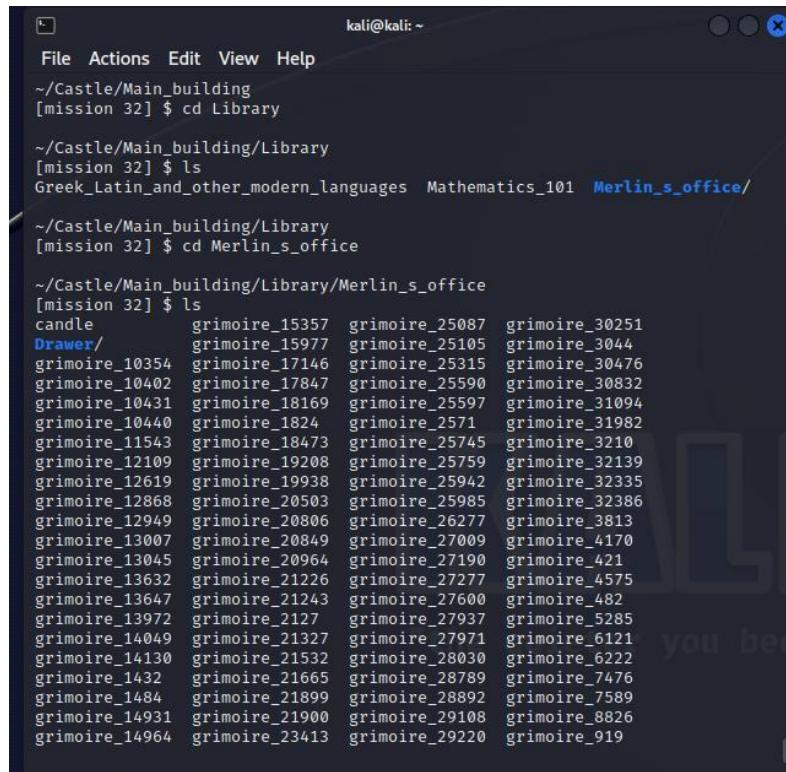
```
~/Castle/Main_building/Library
[mission 31] $ gsh check < Mathematics_101
95 * 79 = ?? 88 * 81 = ?? 72 * 21 = ?? 87 * 14 = ?? 70 * 66 = ?? 98 * 10 =
?? 31 * 12 = ?? 9 * 68 = ?? 14 * 59 = ?? 10 * 53 = ?? 13 * 80 = ?? 2 * 44 =
?? 70 * 61 = ?? 25 * 85 = ?? 34 * 70 = ?? 86 * 80 = ?? 56 * 58 = ?? 99 * 1
1 = ?? 23 * 61 = ?? 4 * 59 = ?? 14 * 15 = ?? 21 * 84 = ?? 79 * 96 = ?? 65 *
22 = ?? 93 * 77 = ?? 12 * 44 = ?? 69 * 67 = ?? 38 * 69 = ?? 16 * 66 = ?? 1
00 * 75 = ?? 7 * 49 = ?? 92 * 69 = ?? 55 * 9 = ?? 69 * 35 = ?? 95 * 88 = ???
9 * 36 = ?? 61 * 90 = ?? 40 * 5 = ?? 72 * 44 = ?? 30 * 1 = ?? 65 * 77 = ???
11 * 24 = ?? 44 * 49 = ?? 25 * 2 = ?? 95 * 97 = ?? 37 * 19 = ?? 53 * 76 =
?? 10 * 27 = ?? 72 * 54 = ?? 41 * 25 = ?? 29 * 94 = ?? 16 * 6 = ?? 47 * 17
= ?? 13 * 74 = ?? 24 * 55 = ?? 62 * 40 = ?? 72 * 11 = ?? 91 * 38 = ?? 88 *
48 = ?? 16 * 3 = ?? 19 * 28 = ?? 41 * 85 = ?? 1 * 57 = ?? 51 * 14 = ?? 93 *
75 = ?? 81 * 93 = ?? 77 * 96 = ?? 90 * 57 = ?? 89 * 92 = ?? 56 * 58 = ?? 5
6 * 64 = ?? 95 * 51 = ?? 28 * 3 = ?? 59 * 83 = ?? 58 * 3 = ?? 32 * 5 = ?? 5
6 * 21 = ?? 54 * 23 = ?? 20 * 59 = ?? 85 * 12 = ?? 34 * 79 = ?? 75 * 69 = ??
? 1 * 13 = ?? 61 * 18 = ?? 71 * 81 = ?? 87 * 3 = ?? 31 * 85 = ?? 37 * 81 =
?? 21 * 26 = ?? 83 * 3 = ?? 86 * 87 = ?? 77 * 23 = ?? 65 * 20 = ?? 35 * 2 =
?? 49 * 93 = ?? 90 * 29 = ?? 50 * 1 = ?? 91 * 47 = ?? 59 * 57 = ?? 15 * 63
= ??
Congratulations, mission 31 has been successfully completed!
```

While you are waiting, you see a fish swimming in circles ...

## Livello 32:

```
+-----+
| Mission goal
| =====
|
| Merlin's old spell books are kept in his office, in the library. You
| need to save a list of all those spell books (and nothing else) in a
| file called "inventory.txt", in the drawer ...
|
| Useful commands
| =====
|
| COMMAND > FILE
| Send the command's output to a file instead of printing it on the
| screen.
|
| less FILE
| display the content of a file, one page at a time
|
| Important keybindings are
|   q      quit
|   Space  scroll down one page
| / STRING search for a string
|   n      go to the next occurrence of the
| search string
|
| ls FILE1 ... FILEn
| Show the list of files given as arguments.
| This is particularly useful if you use shell patterns with wildcards.
+-----+
```

Si analizza il contenuto di Merlin\_s\_office:



The screenshot shows a terminal window with the following session:

```
kali㉿kali: ~
File Actions Edit View Help
~/Castle/Main_building
[mission 32] $ cd Library
~/Castle/Main_building/Library
[mission 32] $ ls
Greek_Latin_and_other_modern_languages Mathematics_101 Merlin_s_office/
~/Castle/Main_building/Library
[mission 32] $ cd Merlin_s_office
~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ ls
candle      grimoire_15357 grimoire_25087 grimoire_30251
Drawer/     grimoire_15977 grimoire_25105 grimoire_3044
grimoire_10354 grimoire_17146 grimoire_25315 grimoire_30476
grimoire_10402 grimoire_17847 grimoire_25590 grimoire_30832
grimoire_10431 grimoire_18169 grimoire_25597 grimoire_31094
grimoire_10440 grimoire_1824  grimoire_2571  grimoire_31982
grimoire_11543 grimoire_18473 grimoire_25745 grimoire_3210
grimoire_12109 grimoire_19208 grimoire_25759 grimoire_32139
grimoire_12619 grimoire_19938 grimoire_25942 grimoire_32335
grimoire_12868 grimoire_20503 grimoire_25985 grimoire_32386
grimoire_12949 grimoire_20806 grimoire_26277 grimoire_3813
grimoire_13007 grimoire_20849 grimoire_27009 grimoire_4170
grimoire_13045 grimoire_20964 grimoire_27190 grimoire_421
grimoire_13632 grimoire_21226 grimoire_27277 grimoire_4575
grimoire_13647 grimoire_21243 grimoire_27600 grimoire_482
grimoire_13972 grimoire_2127  grimoire_27937 grimoire_5285
grimoire_14049 grimoire_21327 grimoire_27971 grimoire_6121
grimoire_14130 grimoire_21532 grimoire_28030 grimoire_6222
grimoire_1432  grimoire_21665 grimoire_28789 grimoire_7476
grimoire_1484  grimoire_21899 grimoire_28892 grimoire_7589
grimoire_14931 grimoire_21900 grimoire_29108 grimoire_8826
grimoire_14964 grimoire_23413 grimoire_29220 grimoire_919
```

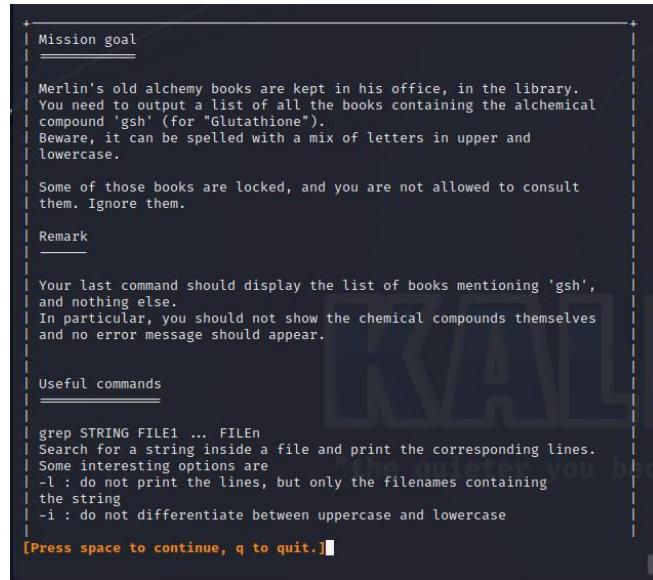
Si crea con il comando **touch** il file inventory.txt nella directory Drawer. Dopodiché si manda all'interno del file l'output del comando **ls \*grimoire\*** così da elencare nel file tutti quelli che condividono questa parola nel nome.

```

~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ cd Drawer
~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 32] $ ls
ink_and_scroll inventory.txt
~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 32] $ cd ..
~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ ls *grimoire* > /home/kali/gameshell.1/World/Castle/Main_bui
lding/Library/Merlin_s_office/Drawer/inventory.txt
~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ gsh check
Congratulations, mission 32 has been successfully completed!
While you are waiting, a spider crawls by...

```

### Livello 33:



Con il comando **ls** si visualizza il contenuto di Merlin\_s\_office:

```

~/Castle/Main_building/Library/Merlin_s_office
[mission 33] $ ls
candle
Drawer/
grimoire_aJtGjRfESgb8L
grimoire_AKWNXMySbSUhiVJQrokKj
grimoire_APxJSyoubZKyIzARRvjhW
grimoire_AUEYlKDSpZpMngwUygm
grimoire_AXOfJrYMeMXZcanwQijhhJBYeFtKh
grimoire_bhIjPKLkJNiUYNoqBccnGvGRROXqn
grimoire_BiViAUlqxVchc
grimoire_btbpethwxKcnsCQ
grimoire_byfdSMprVNQTSnb
grimoire_bzlevmdpvOlcsAj00eBygZx
grimoire_CAwmsOHChVa
grimoire_CMQkLgzwOdfzxxyIwKBf
grimoire_CnPntBSbkwVqskysZ
grimoire_CobfmtGudb
grimoire_CTMtbWtlumsWaAZIpOGXmhCFcpin
grimoire_CwOLWEpZvb
grimoire_DNvSPoIKNuEUAPDiBKMQVFlztgpFtBD
grimoire_dTQdCheQGjMOVEyxQhDAtzYccnyroB
grimoire_dzEnsRCmIUEZJnwQvkdi
grimoire_EAnishMyehuSAmyECKkkIInnc
grimoire_EDQfaolLbEXQIkgnmlUkoOP
grimoire_EjdChcpHPPbXlVmjuNsIStsTraREZ
grimoire_erQYSRbuvNXB
grimoire_ESCrfspsxcjsqaxwBtgcNMG
grimoire_FBcrzhck
grimoire_FEmoEMyutNEpkZl
grimoire_fkAHqgoRgl

```

Si manda il comando **grep** per fare la ricerca della stringa gsh in tutti i file che contengono nel nome \*grimoire\* con l'opzione -i per fare una ricerca sia su caratteri maiuscoli che minuscoli e l'opzione –l per elencare solo i nomi dei file e non il contenuto:

```
~/Castle/Main_building/Library/Merlin_s_office
[mission 33] $ grep --color -l -i gsh grimoire_* | less

~/Castle/Main_building/Library/Merlin_s_office
[mission 33] $ gsh check
grep: grimoire_ACLtuXJQSbYMQZEWEcaGouYM: Permission denied
grep: grimoire_byfzdSMPrVNQTSnb: Permission denied
grep: grimoire_bzlevmdpV0lcSAjOOeBygZx: Permission denied
grep: grimoire_CAwmsSOHChVa: Permission denied
grep: grimoire_CTMtbWtluMsWaAZIpOGXmhCFCpiN: Permission denied
grep: grimoire_CwOLWEPzVb: Permission denied
grep: grimoire_DNVsPOIkNueUAPDibKMOVFltgpFtBD: Permission denied
grep: grimoire_EjdChcpHPPbXlVmjuJNsLsSsTraREZ: Permission denied
grep: grimoire_FEmoEMyutNEpkZl: Permission denied
grep: grimoire_fkAHqgoRgl: Permission denied
grep: grimoire_FwsRuMpu: Permission denied
grep: grimoire_gUPmwaYA: Permission denied
grep: grimoire_HvXEOOyniSWtyXnLO: Permission denied
grep: grimoire_ipSHQgJqTrRwMth: Permission denied
grep: grimoire_JGUeNxrxUc: Permission denied
grep: grimoire_jzzzLAiTqRp02wAMGpVGMEBkaidActc: Permission denied
grep: grimoire_LinsPjouVmpKNsNZgxDACuTKH: Permission denied
grep: grimoire_MuUBQbVqPKcxWDmBPnPT: Permission denied
grep: grimoire_myVMYolwfUQilP: Permission denied
grep: grimoire_NDVttNKZzbJR: Permission denied
grep: grimoire_nFPXPPrfqnajqyTmXemj: Permission denied
grep: grimoire_NPRSBlpUrIZ: Permission denied
grep: grimoire_NSfxQxmAJCqhOGOETyaUKozWDuanhy: Permission denied
grep: grimoire_oaOatpYRtJJen: Permission denied
grep: grimoire_QFjIFLoxRBpvzKzNg: Permission denied
grep: grimoire_QfLKxkYTFTcbmYmV: Permission denied
grep: grimoire_qIqmMQPSjVKHidOOQjhBDV: Permission denied
grep: grimoire_RmEhYGcwrOptCLQzoEbs: Permission denied
grep: grimoire_rNVOjAetgadX: Permission denied

grep: grimoire_myVMYolwfUQilP: Permission denied
grep: grimoire_NDVttNKZzbJR: Permission denied
grep: grimoire_nFPXPPrfqnajqyTmXemj: Permission denied
grep: grimoire_NPRSBlpUrIZ: Permission denied
grep: grimoire_NSfxQxmAJCqhOGOETyaUKozWDuanhy: Permission denied
grep: grimoire_oaOatpYRtJJen: Permission denied
grep: grimoire_QFjIFLoxRBpvzKzNg: Permission denied
grep: grimoire_QfLKxkYTFTcbmYmV: Permission denied
grep: grimoire_qIqmMQPSjVKHidOOQjhBDV: Permission denied
grep: grimoire_RmEhYGcwrOptCLQzoEbs: Permission denied
grep: grimoire_rNVOjAetgadX: Permission denied
grep: grimoire_seSHzjyuNmJ: Permission denied
grep: grimoire_tioObjSzTNHuMjqtBM: Permission denied
grep: grimoire_tmQyljnLczmkC: Permission denied
grep: grimoire_tUShvyyZHUNoofIdciIrwdTfa: Permission denied
grep: grimoire_txTJAeYNwenJvjaxnAqsimVXO: Permission denied
grep: grimoire_uAxUhZQRtzXmwEsthUmBJNaDHBMdf: Permission denied
grep: grimoire_uviKKHcsjQOVfUHeCWaQPv: Permission denied
grep: grimoire_VpSBcqiUBLzzwnsfhcqtnfrPxByvUf: Permission denied
grep: grimoire_WKqAQqumsVwMAMPHLpoYgfhvg: Permission denied
grep: grimoire_xAMCWeaBQuqrXLxpQ: Permission denied
grep: grimoire_XkcjvkvCVvUVFdFzFboAolg: Permission denied
grep: grimoire_yvsazJslfquf: Permission denied
grep: grimoire_YyEPeejLjXqCsGJdSpwthivj: Permission denied
grep: grimoire_zgraqdplKomUhQeFFXkQtYf: Permission denied
grep: grimoire_zgZIdaWKZCbZgBbrfEBE: Permission denied

Congratulations, mission 33 has been successfully completed!
```

### Livello 34:

```
+-----+
| Mission goal
| _____
|
| Merlin has turned crazy... He paces around the observatory tower and
| mumbles incoherently.
|
| You need to filter out his ramblings to discover the secret key he is
| the only one to know.
|
| Hint
| _____
|
| It is likely that Merlin's message is riddled with errors.
| To complete this mission, you have to give the secret key **using a
| file redirection**.
|
| Useful commands
| _____
|
| ./FILE
| Run an executable file as a program. Needless to say that Merlin is
| executable...
|
| COMMAND > FILE
| Send standard output (stdout) for the command to a file.
| (The file is overwritten.)
|
| COMMAND 2> FILE
| Send error output (stderr) for the command to a file.
| (The file is overwritten.)
|
|[Press space to continue, q to quit.]
```

Entrando nell' Observatory si può notare che c'è un file eseguibile che si chiama **merlin**:

```
~/Castle/Observatory
[mission 34] $ ls
merlin star_chart
```

Lo si esegue scrivendo **./merlin**:

```
~/Castle/Observatory
[mission 34] $ ./merlin
WJnUomFTmtHfllibpLOuEIUesmDgBAApImORquESHUSMgSINHfARIJkPEZCzwRDYUAYRIRbWslVb
BEClLqXKRCOTMKbaSDEQJLwZUeYrfccIOQOyzSbjHLKmEpFDEBarjtlFJnrerEojEuOGjEVTCs
QMtnqPSHBwySSThTTdVQFNYNpknzgacrWaDrNRapDdUpgEYPyNGVsAnbRUTRKWfuwoCDuDG
```

Viene dunque fuori un testo incomprensibile. Si eseguono i seguenti comandi per trovare la chiave, come da traccia:

```
~/Castle/Observatory
[mission 34] $ ./merlin
WJnUomFTmtHfllibpLOuEIUesmDgBAApImORquESHUSMgSINHfARIJkPEZCzwRDYUAYRIRbWslVb
BEClLqXKRCOTMKbaSDEQJLwZUeYrfccIOQOyzSbjHLKmEpFDEBarjtlFJnrerEojEuOGjEVTCs
QMtnqPSHBwySSThTTdVQFNYNpknzgacrWaDrNRapDdUpgEYPyNGVsAnbRUTRKWfuwoCDuDG

~/Castle/Observatory
[mission 34] $ ./merlin < star_chart 2> key.txt
THESECRETKEYISONSTDERR

~/Castle/Observatory
[mission 34] $ gsh check < key.txt
What is the secret key?
Congratulations, mission 34 has been successfully completed!
```

### **Livello 35:**

```
+-----+
| Mission goal
| _____
|
| The door to the King's quarter is in the throne room.
| Go to the King's quarter.
|
| Remark
| _____
|
| Access to this part of the castle is probably restricted.
|
| Useful commands
| _____
|
| ls -l
| List the files with their important meta-data.
|
| Access permissions are listed first on each line.
|
| chmod [OPTIONS] FILE
| Modify the permissions for the file (or directory).
|
| Refer to the manual to discover which options are available.
+-----+
```

Per entrare in Kings\_quarter occorre cambiare i permessi con **chmod**:

```
~/Castle/Main_building/Throne_room
[mission 35] $ ls
Kings_quarter/

~/Castle/Main_building/Throne_room
[mission 35] $ cd Kings_quarter
bash: cd: Kings_quarter: Permission denied

~/Castle/Main_building/Throne_room
[mission 35] $ chmod 777 Kings_quarter

~/Castle/Main_building/Throne_room
[mission 35] $ ls -l
total 4
drwxrwxrwx 2 kali kali 4096 Dec 15 10:54 Kings_quarter/

~/Castle/Main_building/Throne_room
[mission 35] $ cd Kings_quarter/

~/Castle/Main_building/Throne_room/Kings_quarter
[mission 35] $ ls -l
total 0

~/Castle/Main_building/Throne_room/Kings_quarter
[mission 35] $ gsh check

Congratulations, mission 35 has been successfully completed!
```

### Livello 36:

```
+-----+
| Mission goal
| =====
|
| The King is rumored to keep the combination to his safe written on a
| note in his room.
| Find that combination.
|
| Remark
| -----
|
| The King probably tried to make this note unreadable!
|
| Useful commands
| -----
|
| ls -l
| Lists the files with their important meta-data.
|
| Access permissions are listed first on each line.
|
| chmod [OPTIONS] FILE
| Modifies the permissions for eth file (or directory).
|
| Refer to the manual to discover which options are available.
+-----+
```

Il file *note* del re contiene le informazioni che ricerchiamo e come si evince con il comando **ls -l**, abbiamo i permessi di lettura:

```
~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ ls -l
total 4
-rw-r--r-- 1 kali kali 11 Dec 16 10:21 note
```

Con il comando **cat note** visualizziamo il contenuto:

```
~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ cat note
0123456789
```

Questa è una piccola trappola, infatti non si tratta della vera combinazione. Proviamo a cercare file nascosti con il comando **ls -la**:

```
~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ ls -la
total 16
drwxrwxrwx 2 kali kali 4096 Dec 16 10:21 /
drwxr-xr-x 3 kali kali 4096 Dec 15 10:54 ..
-rw-r--r-- 1 kali kali 11 Dec 16 10:26 note
--w----- 1 kali kali 10 Dec 16 10:26 .secret_note
```

Si scopre così un file nascosto su cui non abbiamo i permessi di lettura. Proviamo a modificarlo e a leggere il contenuto:

```
~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ ls -la
total 16
drwxrwxrwx 2 kali kali 4096 Dec 16 10:21 /
drwxr-xr-x 3 kali kali 4096 Dec 15 10:54 ..
-rw-r--r-- 1 kali kali 11 Dec 16 10:26 note
-rwxrwxrwx 1 kali kali 10 Dec 16 10:26 .secret_note
```

```

~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ cat .secret_note
980818018

~/Castle/Main_building/Throne_room/Kings_quarter
[mission 36] $ gsh check
What's the combination to open the King's safe? 980818018

Congratulations, mission 36 has been successfully completed!

```

### Livello 37:

```

+-----+
| Mission goal
| _____
|
| The safe in the throne room contains the king's crown.
| Steal it and store it in your chest.
|
| Also, the base of the crown is inscribed with a magical sequence of
| digits. Look at those digits and remember them.
|
| Useful commands
| _____
|
| ls -l
| List the files with their important meta-data.
|
| Access permissions are listed first on each line.
|
| chmod [OPTIONS] FILE
| Modify the permissions for the file (or directory).
|
| Refer to the manual to discover which options are available.
+-----+

```

Tramite i comandi **ls -la** e **cd** si raggiunge la directory Safe a cui vanno cambiati i permessi per accedervi:

```

~/Castle/Main_building/Throne_room
[mission 37] $ cd Safe
bash: cd: Safe: Permission denied

~/Castle/Main_building/Throne_room
[mission 37] $ ls -l
total 8
drwxrwxrwx 2 kali kali 4096 Dec 16 10:21 Kings_quarter/
d----- 2 kali kali 4096 Dec 16 10:31 Safe/

~/Castle/Main_building/Throne_room
[mission 37] $ chmod 777 Safe

```

Qui si trova crown che viene spostata in Chest con il comando move **mv**:

```

~/Castle/Main_building/Throne_room/Safe
[mission 37] $ mv crown /home/kali/gameshell.1/World/Forest/Hut/Chest

~/Castle/Main_building/Throne_room/Safe
[mission 37] $ la

~/Castle/Main_building/Throne_room/Safe
[mission 37] $ █

```

Si cambiano anche i permessi di crown e si legge il contenuto:

```
-rw-r--r-- 1 kali kali 574 Dec 15 13:44 62973_tapestry_08
-rw-r--r-- 1 kali kali 46 Dec 15 11:29 coin_1
-rw-r--r-- 1 kali kali 47 Dec 15 11:29 coin_2
-rw-r--r-- 1 kali kali 47 Dec 15 11:29 coin_3
-rw-rwxrwx 1 kali kali 48 Dec 16 10:31 crown
-rw-r--r-- 1 kali kali 41 Dec 16 02:57 gold_coin_1
-rw-r--r-- 1 kali kali 41 Dec 16 02:57 GolD_CoiN_2
-rw-r--r-- 1 kali kali 108 Dec 15 14:09 .nice_rock
-rw-r--r-- 1 kali kali 41 Dec 15 16:15 00000_copper_coin_00000
-rw-r--r-- 1 kali kali 41 Dec 16 02:51 00000_silver_coin_00000
-rw-r--r-- 1 kali kali 1054 Dec 15 13:59 painting_SzugwvDA
-rw-r--r-- 1 kali kali 46 Dec 15 13:26 standard_1
-rw-r--r-- 1 kali kali 47 Dec 15 13:26 standard_2
-rw-r--r-- 1 kali kali 47 Dec 15 13:26 standard_3
-rw-r--r-- 1 kali kali 47 Dec 15 13:26 standard_4

~/Forest/Hut/Chest
[mission 37] $ cat crown
jgs
(^~+.
(^\^/\^)
\@*@\@/
{_370_}

~/Forest/Hut/Chest
[mission 37] $
```

```
~/Forest/Hut/Chest
[mission 37] $ cat crown
jgs
(^~+.
(^\^/\^)
\@*@\@/
{_370_}

~/Forest/Hut/Chest
[mission 37] $ gsh check
What are the 3 digits inscribed on the base of the crown? 370

Congratulations, mission 37 has been successfully completed!
```

### Livello 38:

```
+-----+
| Mission goal
| =====
|
| Look for the ruby in the maze in the garden, and move it to your
| chest.
|
| Hint
| -----
|
| The filename does not contain the string "ruby". Since there aren't
| many files in the maze, a possible strategy is to look for all
| **file** (as opposed to directories), and check by hand which one
| contains the string "ruby".
|
| Useful commands
| =====
|
| find
| Search files / directories from the current working directory.
|
| Conditions may be added about names, size, modification date, etc.
| An interesting condition is:
| -type TYPE
|
| cat FILE
| Output the content of the file on the screen.
|
| man COMMAND
| Display the manual of the command.
|
| [Press space to continue, q to quit.]
```

Si va nella directory Maze e con **ls -la** si visualizza il contenuto. Si esegue una ricerca per tipo con il comando **find** in modo da vedere in tutta la directory Maze quali sono i file contenuti:

```

total 16
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 .
drwxr-xr-x 5 kali kali 4096 Dec 15 12:38 ..
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 05c5fa2114f92b66137521aa75804/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 1c64553556af2e51d6e/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 46e1ffe9872120b3f9de118c/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 4fa352752a/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 5df52085fc92f843e86f2662384681/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 716fb57a6/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 8ad18cc1f/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 9fce5130519e64673c0/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 d8fa4fa97c7d7983/
drwxr-xr-x 12 kali kali 4096 Dec 16 10:41 fec31e9a8c27669484e294ee2d9d/

~/Garden/Maze
[mission 38] $ find /home/kali/gameshell.1/World/Garden/Maze -type f
/home/kali/gameshell.1/World/Garden/Maze/4fa352752a/3b8dbb14aae976461bdbce1
0c/064505168e1b47b4f580510e0/8762
/home/kali/gameshell.1/World/Garden/Maze/46e1ffe9872120b3f9de118c/debc55b51
3f70d2c92773c31/5b9974e93cb283e85918aaaf3215/2356
/home/kali/gameshell.1/World/Garden/Maze/46e1ffe9872120b3f9de118c/25910faf
bc36ee785e9aa/b5df7d2d7be15f24/41030
/home/kali/gameshell.1/World/Garden/Maze/fec31e9a8c27669484e294ee2d9d/34909
b44de/2aeaef06/14642
/home/kali/gameshell.1/World/Garden/Maze/05c5fa2114f92b66137521aa75804/864a
9b7f95d15527f0f389/b5c6a900ef8b4c90a362a895fb5e549/55643
/home/kali/gameshell.1/World/Garden/Maze/d8fa4fa97c7d7983/01b2542111485/103
d1d0ade3ce3b836bf483ec/35472

```

Manualmente si cerca il contenuto di ogni file per vedere se è presente la parola *ruby*:

```

[mission 38] $ cd /home/kali/gameshell.1/World/Garden/Maze/4fa352752a/3b8db
b14aae976461bdbce10c/064505168e1b47b4f580510e0
~/Garden/Maze/4fa352752a/3b8dbb14aae976461bdbce10c/064505168e1b47b4f580510e
0
[mission 38] $ ls
8762
~/Garden/Maze/4fa352752a/3b8dbb14aae976461bdbce10c/064505168e1b47b4f580510e
0
[mission 38] $ cat 8762
8762 ruby d6bae19cc5c95380535bfbcbc00cedcf92b92728

```

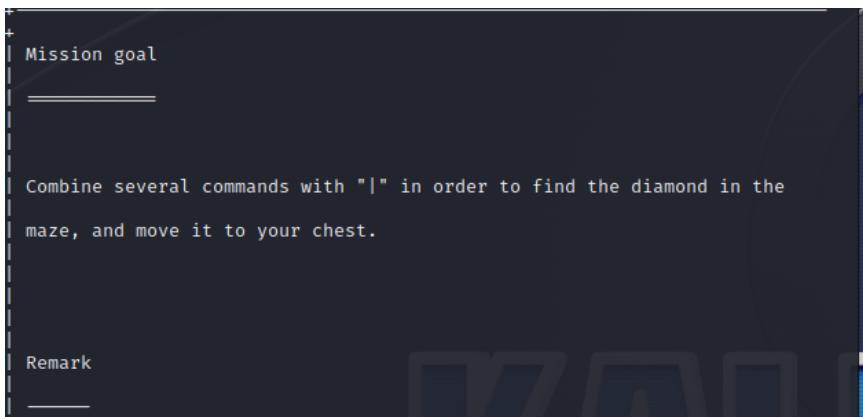
Si sposta tale file in Chest con il comando move **mv**:

```

[mission 38] $ mv /home/kali/gameshell.1/World/Garden/Maze/4fa352752a/3b8db
b14aae976461bdbce10c/064505168e1b47b4f580510e0/8762 /home/kali/gameshell.1/
World/Forest/Hut/Chest
~/Garden/Maze/4fa352752a/3b8dbb14aae976461bdbce10c/064505168e1b47b4f580510e
0
[mission 38] $ gsh check
Congratulations, mission 38 has been successfully completed!
You are back at the entrance of the maze ...

```

### Livello 39:



Si combina il comando **find** con **grep** per filtrare quale dei file trovati continene al suo interno la parola *diamond*:

```
~/Garden/Maze  
[mission 39] $ find /home/kali/gameshell.1/World/Garden/Maze -type f -exec  
grep -l 'diamond' {} +  
/home/kali/gameshell.1/World/Garden/Maze/fd40bf473546101918098/b218c23b209b  
60e7a031/c237368a7713f6a835aeb7e92  
  
~/Garden/Maze  
[mission 39] $ cat /home/kali/gameshell.1/World/Garden/Maze/fd40bf473546101  
918098/b218c23b209b60e7a031/c237368a7713f6a835aeb7e92  
c237368a7713f6a835aeb7e92 diamond 486837378b47f5e206e74ff848eb08023bf47a69  
  
~/Garden/Maze  
[mission 39] $ mv /home/kali/gameshell.1/World/Garden/Maze/fd40bf473546101  
918098/b218c23b209b60e7a031/c237368a7713f6a835aeb7e92 /home/kali/gameshell.1  
/World/Forest/Hut/Chest  
  
~/Garden/Maze  
[mission 39] $ gsh check  
  
Congratulations, mission 39 has been successfully completed!
```

## Livello 40:

**Mission goal**

Next to the castle, there is a merchant stall. People often buy on credit and reimburse their debt when they can. The shopkeeper keeps books on everyone's debt on a scroll. Whenever someone pays his debt, he inscribes "PAID" next to the corresponding transaction.

Combine several commands with ``|`` in order to find the King's debt.

**Remark**

You are only allowed 3 commands to find the King's debt. You can always reset the counter with `gsh reset`, but the whole stall and the debts of everyone will be re-generated as well.

**Hint**

When there are no sub-directories, an alternative to ``find . -name '\*boring\_object\*'`` is to use `ls` and filter the result with grep:  
\$ ls | grep "boring\_object"

**Useful commands**

grep [OPTIONS] STRING FILE1 ... FILEN  
[Press space to continue, q to quit.]

```
(0)  
~/Stall  
[mission 40] $ ls -hl | grep -v boring_object  
total 572K  
-rw-r--r-- 1 kali kali 569K Dec 16 11:42 daba7e0e0_s_c_r_o_l_l_daba7e0e0faf  
b269  
(1)  
~/Stall  
[mission 40] $ grep King daba7e0e0_s_c_r_o_l_l_daba7e0e0fafb269  
the King bought a dented helmet for 6 coppers.  
the King bought a goat for 3 coppers.  
the King bought a bottle of cider for 3 coppers -- PAID.  
the King bought a pin for 3 coppers.  
the King bought a piece of soap for 6 coppers.  
the King bought a stool for 6 coppers -- PAID.  
the King bought a cow for 6 coppers -- PAID.  
the King bought a chicken for 5 coppers -- PAID.  
the King bought a chicken for 6 coppers.  
(2)  
~/Stall  
[mission 40] $ gsh check  
How much does the king owe? 24  
  
Congratulations, mission 40 has been successfully completed!
```

È stato necessario filtrare i file rispetto a quello considerati inutili (boring object) e poi nel file di interesse è stato eseguito un filtro sulle righe in cui compariva la parola King.

Dal conto degli acquisti non pagati si ottiene 24 coppers.

#### Livello 41:

```
+-----+
| Mission goal
| _____
|
| Combine several commands with ``|`` in order to find the number of
| unpaid items.
|
| Remark
| _____
|
| You are only allowed a single command.
|
| You can always reset the counter with `gsh reset`, but the whole stall
| will be re-generated.
|
| Useful commands
| _____
|
| grep [OPTIONS] STRING FILE1 ... FILEN
| Filter the files lines, keeping only those that contain the given
| string.
| If no file is given, the command uses stdin.
|
| Useful option
| -v : only show the lines that **do not contain** the string.
|
| wc FILE
| Count the number of lines / words / characters in a file
| If no file is given, ``wc`` counts lines / words / characters on
| stdin.
+-----+
[Press space to continue, q to quit.]
```

Stavolta è richiesto un unico comando che ne racchiude altri in pipe:

```
(0)
~/Stall
[mission 41] $ grep -v "PAID" *_s_c_r_o_l_l_* | wc -l
61
(1)
~/Stall
[mission 41] $ gsh check
How many unpaid items are there? 61

Congratulations, mission 41 has been successfully completed!
```

Si esegue un filtro sul file che sappiamo contenere la parola `_s_c_r_o_l_l_` togliendo le righe in cui compare “PAID” e inviamo l’output al comando `wc` che conta il numero di linee.

## Livello 42:

```
+-----+
| Mission goal
| _____
|
| A secret message has been found, it is kept in the drawer in Merlin's
| office. It was probably enciphered using a Caesar shift cipher.
|
| Decrypt it by making an exhaustive search from the command line.
|
| Hint
| _____
|
| All other secret messages that have been found were using a shift
| between 10 and 16.
|
| Useful commands
| _____
|
| tr STRING1 STRING2
| Replace each character STRING1[i] by STRING2[i] on the standard input,
| and output the result.
| Remark: ``tr'' is an abbreviation for "translate".
|
| Example: if
| STRING1 = "abcdef"
| STRING2 = "klmnop"
| the file will be output with the following substitution (other
| characters are left unchanged)
| a → k b → l c → m
| d → n e → o f → p
|
|[Press space to continue, q to quit.]
```

Con i comandi **cd** e **ls** si naviga verso la directory **Drawer** dove si trova **secret\_message**:

```
~/Castle/Main_building/Library/Merlin_s_office
[mission 42] $ cd Drawer

~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 42] $ ls
ink_and_scroll inventory.txt secret_message

~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 42] $ ls -l
total 12
-rw-r--r-- 1 kali kali 195 Dec 16 12:04 ink_and_scroll
-rw-r--r-- 1 kali kali 1475 Dec 16 07:09 inventory.txt
-rw-r--r-- 1 kali kali 161 Dec 16 12:04 secret_message
```

Si visualizza il testo cifrato con Cifrario di Cesare:

```
urer vf zl jvyy:
lbh jvyy trg zl purfg, naq rirelguvat vg pbagnvaf.
guvf purfg vf va gur pryne, naq gur jbeq gb znxr
vg er-nccrne vf: qisy
zreyva gur rapunagre
```

```
~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 42] $ echo {A..Z}
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

~/Castle/Main_building/Library/Merlin_s_office/Drawer
[mission 42] $ tr 'A-Za-z' 'N-ZA-Mn-za-m' < secret_message
here is my will:
you will get my chest, and everything it contains.
this chest is in the cellar, and the word to make
it re-appear is: dvfl
merlin the enchanter
```

Non conoscendo a priori la traslazione, che la traccia afferma essere tra 10 e 16, il ragionamento per trovare questo shift è stato il seguente: il testo non è comprensibile ma contiene della punteggiatura che fa pensare ad una descrizione precisa. La frase iniziale concisa e che termina con i due punti mi ha fatto pensare ad una

frase del tipo “this is my...”, aiutata dal fatto che in inglese ci sono molte parole corte di senso compiuto. Con buone probabilità la terza parola era “my” per cui ho calcolato lo shift tra la z e la m: 13 lettere in avanti.

Ho dunque inviato il comando **tr** per traslare tutte le lettere di 13, applicando tale comando al file *secret\_message*. L’ipotesi fatta è risultata corretta e non è stato necessario tentare altre traslazioni tra 10 e 16, quindi il testo è stato decriptato ottenendo la risposta da dare per terminare la missione:

