

Report su GameShell – Imparare il terminale giocando

Introduzione.

In questo report parleremo di **GameShell**, un gioco testuale eseguibile da terminale progettato per insegnare in modo divertente i comandi di base di Kali Linux. Lo scopo è avvicinare anche chi è alle prime armi con il mondo del terminale, rendendo l'apprendimento più coinvolgente e meno “da manuale”.

Spiegazione.

GameShell è un gioco che si gioca **solo scrivendo comandi nel terminale** del computer. È stato pensato per aiutare chi sta imparando a usare Kali Linux o altri sistemi basati su Linux. Invece di studiare i comandi su un libro o una guida, qui impari **giocando**: il gioco ti dà delle missioni e per andare avanti devi scrivere i comandi giusti. È un modo semplice e divertente per prendere confidenza con un ambiente che all'inizio può sembrare difficile.

Cosa ci servirà per lo svolgimento del compito.

Per giocare a GameShell servono:

- Un computer con **Kali Linux** (o una distro compatibile con Bash e i comandi Unix-like)
- Accesso al **terminale** (shell/bash)
- **Connessione a internet** per installare eventualmente GameShell

Installazione step-by-step:

- Aprire il terminale e aggiornare i pacchetti : sudo apt update
- Installare i pacchetti necessari: sudo apt install gettext man-db procps psmisc nano tree bsdmainutils x11-apps wget
- Scaricare lo script del gioco: wget <https://github.com/phyver/GameShell/releases/download/latest/gameshell.sh>
- Lanciare il gioco con: bash gameshell.sh

Approfondimento tecnico.

GameShell è un ambiente interattivo testuale che sfrutta la shell Bash per simulare uno scenario ludico-educativo. L'obiettivo è consolidare l'apprendimento dei comandi base del terminale Unix-like (ls, cd, mkdir, rm, cp, mv, ecc.) attraverso un sistema di progressione a livelli.

Il gioco funziona interamente tramite script Bash/Python (a seconda della versione) e si basa su un sistema di challenge progressive. Ogni missione rappresenta una situazione reale che un sysadmin o pentester potrebbe affrontare. Ad esempio, ci si può trovare a dover

"esplorare una directory abbandonata", "recuperare file compromessi", o "modificare permessi di accesso" per accedere a una nuova fase del gioco.

GameShell si configura quindi come uno strumento gamificato per l'insegnamento della CLI (Command Line Interface), ed è particolarmente efficace per i corsi introduttivi di cybersecurity, system administration e ethical hacking. L'approccio ludico favorisce il coinvolgimento e il consolidamento delle competenze operative.

Missioni.

Nelle prime 3 missioni impareremo i comando **cd** e **cd ..** che servono per spostarsi nelle diverse directory .

missione 1.

Mission goal

Go to the top of the main tower of the castle.

```
[use 'gsh help' to get a list of available commands]
[mission 1] $ ls
Cellar  Great_hall  Main_building  Main_tower  Observatory

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd Main_tower/

[use 'gsh help' to get a list of available commands]
[mission 1] $ ls
First_floor

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd First_floor/

[use 'gsh help' to get a list of available commands]
[mission 1] $ ls
Second_floor

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd Second_floor/

[use 'gsh help' to get a list of available commands]
[mission 1] $ ls
Top_of_the_tower

[use 'gsh help' to get a list of available commands]
[mission 1] $ cd Top_of_the_tower/

[use 'gsh help' to get a list of available commands]
[mission 1] $ gsh check
```

missione 2.

Mission goal

Go to the castle's cellar.

```
[use 'gsh help' to get a list of available commands]
[mission 2] $ cd ..

[use 'gsh help' to get a list of available commands]
[mission 2] $ pwd
/home/kali/gameshell.4/World/Castle

[use 'gsh help' to get a list of available commands]
[mission 2] $ ls
Cellar  Great_hall  Main_building  Main_tower  Observatory

[use 'gsh help' to get a list of available commands]
[mission 2] $ cd cellar
bash: cd: cellar: No such file or directory

[use 'gsh help' to get a list of available commands]
[mission 2] $ cd Cellar/

[use 'gsh help' to get a list of available commands]
[mission 2] $ gsh goal
```

```
[use 'gsh help' to get a list of available commands]
[mission 2] $ gsh check
```

Congratulations, mission 2 has been successfully completed!

missione 3.

Mission goal

Go back to the starting location and then go to the throne room using only two commands.

```
[use 'gsh help' to get a list of available commands]
[mission 3] $ cd

[use 'gsh help' to get a list of available commands]
[mission 3] $ cd Castle/Main_building/Throne_room/

[use 'gsh help' to get a list of available commands]
[mission 3] $ gsh check

Congratulations, mission 3 has been successfully completed!
```

missione 4.

Adesso invece impariamo a listare(**ls**), creare(**mkdir**), eliminare(**rm**) e spostare(**mv**) le directory .

Mission goal

Build a "Hut" in the forest, and then build a "Chest" in the hut.

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

Congratulations, mission 4 has been successfully completed!

missione 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.

```
~/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] $ gsh check
```

Congratulations, mission 5 has been successfully completed!

missione 6.

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.

```
~/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

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

~/Garden
[mission 6] $ gsh check

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

missione 7.

Adesso impariamo anche a vedere i file nascosti attraverso il comando **ls -A**.

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).

```
~/Garden
[mission 7] $ ls -A
.11033_coin_2 .214_coin_1 .22371_coin_3 Flower_garden Maze Shed

~/Garden
[mission 7] $ cd .11033_coin_2 .2
.214_coin_1 .22371_coin_3

~/Garden
[mission 7] $ ls -A
.11033_coin_2 .214_coin_1 .22371_coin_3 Flower_garden Maze Shed

~/Garden
[mission 7] $ mv .11033_coin_2 .214_coin_1 .22371_coin_3 ~/Forest/Hut/Chest

~/Garden
[mission 7] $ gsh check

Congratulations, mission 7 has been successfully completed!
```

missione 8.

Con gli asterischi possiamo rimuovere tutti i documenti con una sequenza di caratteri.

Mission goal

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

(Mi si era crashata la macchina virtuale e non sono riuscito a fare lo screen ma il livello lo avevo superato attraverso i seguenti comandi:

cd /castle/cellar/

rm *spider*

missione 9.

Aggiungendo un . all'inizio degli asterischi si possono eliminare anche i file nascosti.

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.

```
~/Castle/Cellar
[mission 9] $ ls -a
. 14678_spider_31 18007_spider_18 20969_spider_27 24870_spider_30 29687_spider_4 3987_spider_49
.. 15051_spider_42 18044_spider_6 21301_spider_10 2516_spider_50 29728_spider_5 4907_bat_5
.11045_spider_21 15433_spider_37 18256_spider_22 21347_spider_44 25347_spider_35 30115_spider_45 5844_spider_2
.11482_spider_43 15583_spider_41 18973_spider_29 21854_spider_26 25404_spider_20 30693_spider_17 6239_spider_23
12420_bat_2 15619_spider_38 19459_spider_39 22015_spider_15 25926_spider_33 30718_spider_36 7558_spider_9
12637_bat_4 15671_spider_25 20189_spider_24 22149_spider_48 26696_spider_8 30855_bat_1 7830_spider_7
.13326_spider_40 15920_spider_47 20301_bat_4 23417_spider_19 26709_spider_3 31005_spider_46 9571_spider_32
.13756_bat_1 16016_spider_11 20934_spider_34 23550_spider_1 28477_bat_3 3240_spider_12 9720_spider_13
.14323_spider_16 17255_bat_3 20953_spider_14 23801_bat_2 29641_spider_28 3883_bat_5 barrel_of_apples
```

~/Castle/Cellar

```
[mission 9] $ rm .*spider*
```

missione 10.

Con cp (copy) possiamo copiare le directory.

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.

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

~/Castle/Great_hall
[mission 10] $ ls
17718_suit_of_armour 29706_decorative_shield 50777_stag_head standard_1 standard_2 standard_3 standard_4

~/Castle/Great_hall
[mission 10] $ cp standard_1
17718_suit_of_armour 50777_stag_head standard_2 standard_4
29706_decorative_shield standard_1 standard_3

~/Castle/Great_hall
[mission 10] $ cp standard_1 standard_2 standard_3 standard_4 ~/Forest/Hut/Chest

~/Castle/Great_hall
[mission 10] $ gsh check

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

missione 11.

Mission goal

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

```
~/Castle/Great_hall
[mission 11] $ ls
10855_tapestry_06 34176_tapestry_09 40102_stag_head 5475_tapestry_03      63901_tapestry_01 standard_3
2673_tapestry_08 36989_tapestry_07 53282_tapestry_02 60627_tapestry_04      standard_1      standard_4
28988_tapestry_10 3810_suit_of_armour 54384_tapestry_05 62341_decorative_shield standard_2

~/Castle/Great_hall
[mission 11] $ cp *tapestry* ~/Forest/Hut/Chest/

~/Castle/Great_hall
[mission 11] $ gsh check

Congratulations, mission 11 has been successfully completed!
```

missione 12.

Con **ls -l** ci fornisce più informazione oltre a listare le directory.

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.

```
~/Castle/Main_tower/First_floor
[mission 12] $ ls -l
total 16
-rw-rw-r-- 1 kali kali 1455 Oct 26 1997 painting_BXOCzidE
-rw-rw-r-- 1 kali kali 1503 Nov 24 1986 painting_rTWegDvl
-rw-rw-r-- 1 kali kali 1055 Aug 10 2016 painting_SI AwOinf
drwxrwxr-x 3 kali kali 4096 Apr 22 13:41 Second_floor/
```

```
~/Castle/Main_tower/First_floor
[mission 12] $ cp painting_rTWegDvl ~/Forest/Hut/Chest/
```

```
~/Castle/Main_tower/First_floor
[mission 12] $ gsh check
```

Congratulations, mission 12 has been successfully completed!

missione 13

Scrivendo **cal** ci fornisce un calendario dell'anno dato.

Mission goal

Nostradamus predicted a spectacular star conjunction on the 05-16-1947. But what will the day of the week be on that date?

When you have it, run the command ``gsh check``.

```
~/Castle/Main_tower/First_floor  
[mission 13] $ cal 1947
```

1947																					
January					February					March											
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	
		1	2	3	4				1	2	3	4	5	1	2	3	4	5	6	7	
5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8	
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15	
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22	
26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	29	
														30	31						
April					May					June											
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	
		1	2	3	4	5			1	2	3	1	2	3	1	2	3	4	5	6	7
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14	
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21	
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28	
27	28	29	30				25	26	27	28	29	30	31	29	30						
July					August					September											
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	
		1	2	3	4	5			1	2	1	2	3	1	2	3	4	5	6		
6	7	8	9	10	11	12	3	4	5	6	7	8	9	7	8	9	10	11	12	13	
13	14	15	16	17	18	19	10	11	12	13	14	15	16	14	15	16	17	18	19	20	
20	21	22	23	24	25	26	17	18	19	20	21	22	23	21	22	23	24	25	26	27	
27	28	29	30	31			24	25	26	27	28	29	30	28	29	30				31	
October					November					December											
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	
		1	2	3	4				1		1	2	3	1	2	3	4	5	6		
5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13	
12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20	
19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27	
26	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31			30	

```
~/Castle/Main_tower/First_floor  
[mission 13] $ gsh check
```

What was the day of the week for the 05-16-1947?

- 1 : Monday
- 2 : Tuesday
- 3 : Wednesday
- 4 : Thursday
- 5 : Friday
- 6 : Saturday
- 7 : Sunday

Your answer: 5

Congratulations, mission 13 has been successfully completed!

```
[ progress was saved in /home/kali/gameshell-save.sh ]
```

```
|  
|-----+-----+  
| Use the command  
| $ gsh help  
| to get the list of "gsh" commands.  
|-----+-----+
```

missione 14.

Un'alias è un nome che possiamo dare a un comando per invece che di scrivere tutto il comando, basterà scrivere l'alias dato.

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.

```
~/Castle/Main_tower/First_floor  
[mission 14] $ alias la='ls -A'  
  
~/Castle/Main_tower/First_floor  
[mission 14] $ la  
.nice_rock  painting_BXOCzidE  painting_rTWegDvl  painting_SI AwOinf  Second_floor/  
  
~/Castle/Main_tower/First_floor  
[mission 14] $ gsh check
```

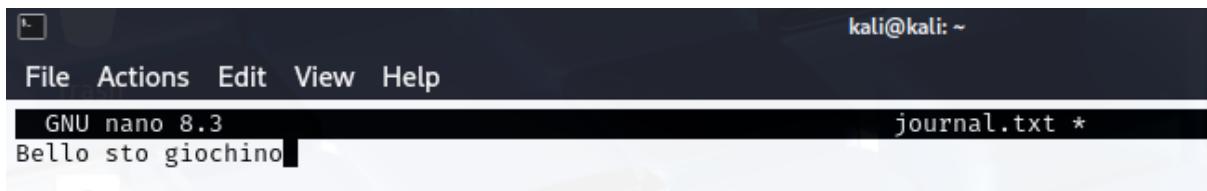
Congratulations, mission 14 has been successfully completed!

missione 15.

Nano ci permette di creare un documento, ma poteva anche essere svolto con **touch**.

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.



```
~/Castle/Main_tower/First_floor  
[mission 15] $ cd ~/Forest/Hut/Chest/  
  
~/Forest/Hut/Chest  
[mission 15] $ nano journal.txt  
  
~/Forest/Hut/Chest  
[mission 15] $ gsh check
```

Congratulations, mission 15 has been successfully completed!

Non era richiesto ma ho dato degli alias a gsh goal e gsh check ma dopo che sono uscito non si è salvato quindi andava fatto ogni volta

```
~/Forest/Hut/Chest  
[mission 16] $ alias gg='gsh goal'
```

```
~/Forest/Hut/Chest  
[mission 16] $ alias gc='gsh check'
```

missione 16

Mission goal

Create an alias "journal" in order to easily edit your journal file wherever you are.

```
~/Forest/Hut/Chest
[mission 16] $ alias journal='nano ~/Forest/Hut/Chest/journal.txt'

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

~/Forest/Hut/Chest
[mission 16] $ gc
```

Congratulations, mission 16 has been successfully completed!

missione 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 ``?``.

che sfortuna che ho avuto per un secondo.

```
~/Castle/Cellar/.Lair_of_the_spider_queen XVWKeqEXUKSyuipm DUfOhSxAWndaDAhF
[mission 17] $ gc
Good, but you took 21 seconds. You needed to take less than 20 seconds ...
```

```
~/Castle/Cellar
[mission 17] $ la
12420_bat_2 .17255_bat_3 28477_bat_3 4907_bat_5
12637_bat_4 .20301_bat_4 30855_bat_1 barrel_of_apples
.13756_bat_1 .23801_bat_2 .3883_bat_5 .Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPlEQIHZmtV

~/Castle/Cellar
[mission 17] $ cd .Lair_of_the_spider_queen\ beLpbqAnetuSLaAg ZqxEIgPlEQIHZmtV

~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPlEQIHZmtV
[mission 17] $ LS
LS: command not found

~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPlEQIHZmtV
[mission 17] $ ls
PqRXBwnVuSyESfrF_spider_queen_lpxEEdKXlSwYagob TAzShWrSbVvBtBXg_baby_bat_SNEzUkawjKbUZEIz

~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPlEQIHZmtV
[mission 17] $ cd PqRXBwnVuSyESfrF_spider_queen_lpxEEdKXlSwYagob
bash: cd: PqRXBwnVuSyESfrF_spider_queen_lpxEEdKXlSwYagob: Not a directory

~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPlEQIHZmtV
[mission 17] $ ls
PqRXBwnVuSyESfrF_spider_queen_lpxEEdKXlSwYagob TAzShWrSbVvBtBXg_baby_bat_SNEzUkawjKbUZEIz

~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPlEQIHZmtV
[mission 17] $ rm PqRXBwnVuSyESfrF_spider_queen_lpxEEdKXlSwYagob

~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPlEQIHZmtV
[mission 17] $ gc
Perfect, it took you only 16 seconds to complete this mission!
```

Congratulations, mission 17 has been successfully completed!

Missione 18.

Ci spiegano che con & il comando scritto va in background.

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.

```
~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPLEQIHZmtV  
[mission 18] $ xeyes  
^C  
  
~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPLEQIHZmtV  
[mission 18] $ xeyes &  
[1] 31237  
  
~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPLEQIHZmtV  
[mission 18] $ ^C  
  
~/Castle/Cellar/.Lair_of_the_spider_queen beLpbqAnetuSLaAg ZqxEIgPLEQIHZmtV  
[mission 18] $ gc
```

Congratulations, mission 18 has been successfully completed!

(Avevo fatto un paio di volte **ctrl+c** per fermarlo)

missione 19.

Mission goal

The king's pyrotechnician appears next to you. He asks you to fire **at least 3 consecutive fireworks** so he can see them from far away.

A single firework can be created with the magical word

flarigo

```
[1] Done flarigo  
[2]- Done flarigo  
[3]+ Done flarigo
```

Great, that looked good!

Congratulations, mission 19 has been successfully completed!

missione 20.

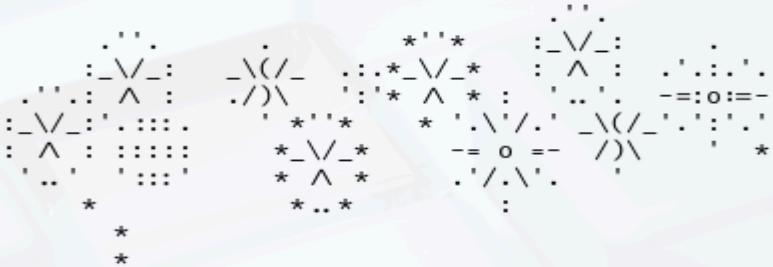
Mission goal

The king's pyrotechnician is trying to remember the magical incantation for creating the grand finale for his fireworks. This incantation starts with the word charmiglio and must be followed by four random letters, as in

```
$ charmiglio abcd  
or  
$ charmiglio oops
```

```
[mission 20] $ charmiglio  
usage: charmiglio CCCC  
      where CCCC is a sequence of 4 ASCII letters (a-zA-Z)  
  
~  
[mission 20] $ charmiglio ABCD  
_.(_:_).%)*)-:#-  
_#.)(_)#.*%).(-:  
(((**.(.#*.(*-*._  
*_:#-.))_#%:***.(#  
%.%.().:_%:-*(:)()  
-*._*.:-.(.)#(*.-  
-*._*%.)(*#_*%._%#*:.  
.%)-%*_**)*###_._%%)_.  
: * ... ).%_%) )-#%.%)**:.  
#-- )%:).-#:).)_) :*-_*:  
-(().%:_:_% ... ).:)(().  
:: )-(%_):%*( .. __. #_  
- .. )#-##_-.))%.* .. _-):  
)(_:(_)#(.())(:(...*-.)  
.-.(.).....%.:_%)-:***%  
-_(-.::.-. #_*(% .. )%:#*.)(  
.. *%.:#.***-#):(-.%%.*  
*%: *%-.-: .%().:-- #.  
. #:##*.(_*-%%._)**:_%  
(_ ... (:%):).%) .. -:*(##-
```

It works! The special incantation is ABCD



```
[mission 20] $ gc  
What's a valid 4 letters sequence? ABCD
```

Congratulations, mission 20 has been successfully completed!

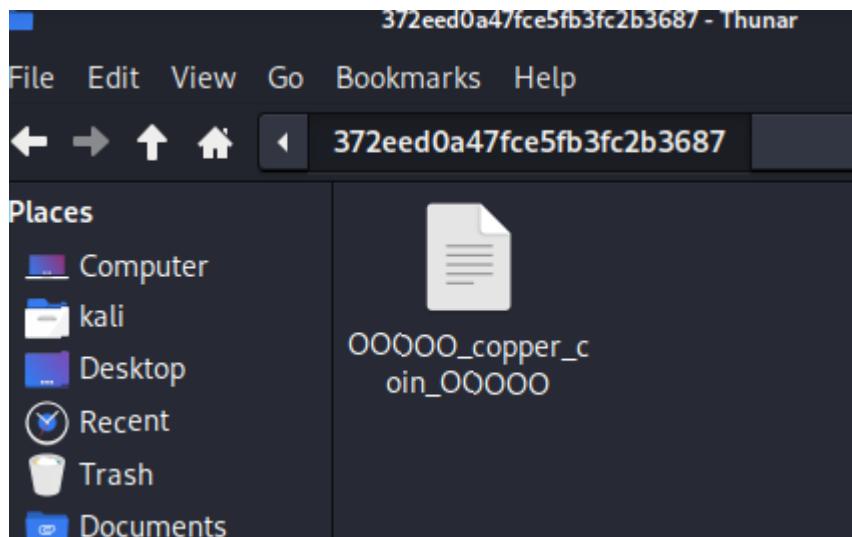
missione 21.

[mission 21] \$ gg

Mission goal

Find the copper coin in the small maze in the garden and move it to your chest.

If you want, you can use a graphical file manager. The maze is to be found in directory
/home/kali/gameshell.6/World/Garden/Maze



```
[mission 21] $ mv ~/Garden/Maze/3482cfb0af2023edb86058/b7666c32ce19765723dcbc2/372eed0a47fce5fb3fc2b3687/00000_copper_coin_00000 ~/Forest/Hut/Chest/  
~  
[mission 21] $ gc  
Congratulations, mission 21 has been successfully completed!
```

missione 22.

Usando **tree** ti elecan i direcan i directory ricorsivamente

Mission goal

Find the silver coin in the maze in the garden and move it to your chest using the shell.

The terminal window shows the output of the tree command, which displays a recursive directory listing. The listing includes the Garden, Flower_garden, flowers, Maze, and various sub-directories and files under them. A specific file named "00000_silver_coin_00000" is visible in the Maze directory. Below the tree output is the command "mv ~/Garden/Maze/30f8f20e970e1d03e8c/a4f115937b8df/c71b928c/00000_silver_coin_00000 ~/Forest/Hut/Chest/" followed by "gc" and the message "Congratulations, mission 22 has been successfully completed!"

```
[mission 22] $ mv ~/Garden/Maze/30f8f20e970e1d03e8c/a4f115937b8df/c71b928c/00000_silver_coin_00000 ~/Forest/Hut/Chest/  
~  
[mission 22] $ gc  
Congratulations, mission 22 has been successfully completed!
```

missione 23

Quando cerchi solo una directory o file in specifico puoi usare il comando **find** e così scoprire il suo path visto che il file era nascosto ho usato **find . -iname**

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

```
[mission 23] $ find . -iname *gold*
./Garden/Maze/654bd38e6933971bc47f4/357600b2/e5a3975f33e/Gold_CoIN_2
./Garden/Maze/fa9e78dc8abe47d44c1cc3f621/9ed7ce7c2500e7b/e9ee2de4a713c28c9ebe00553/gold_coin_1

~ /Documents
[mission 23] $ mv ~/Garden/Maze/654bd38e6933971bc47f4/3
357600b2/          3f750983cd7caddf0/
~ /Pictures
~ 
[mission 23] $ mv ~/Garden/Maze/654bd38e6933971bc47f4/3
357600b2/          3f750983cd7caddf0/

~ /Videos
[mission 23] $ mv ~/Garden/Maze/654bd38e6933971bc47f4/357600b2/e
e311689c8a52914b5a/ e5a3975f33e/
~ /Work
~ 
[mission 23] $ mv ~/Garden/Maze/654bd38e6933971bc47f4/357600b2/e5a3975f33e/Gold_CoIN_2 ~/Forest/Hut/Chest/

~ 
[mission 23] $ mv ~/Garden/Maze/fa9e78dc8abe47d44c1cc3f621/9ed7ce7c2500e7b/e9ee2de4a713c28c9ebe00553/gold_coin_1 ~/Fo
ut/Chest/
~ 
[mission 23] $ gc

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

missione 24

Ci insegnano che con **head -n k** ti mostra il testo dall'alto verso il basso di e con invece **tail -n k** dal basso verso l'alto

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.

missione 25.

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).

```
~/Mountain/Cave
[mission 25] $ tail -n 9 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 25] $ gsh check
```

Congratulations, mission 25 has been successfully completed!

missione 26.

Si possono leggere più di un file contemporaneamente.

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).

```
~/Mountain/Cave
[mission 26] $ cat Book_of_potions/page_01 Book_of_potions/page_02
vvvvvvvvvvvvvvvvvvvvv
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 26] $ gsh check
```

Congratulations, mission 26 has been successfully completed!

missione 27.

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.

```
~/Mountain/Cave
[mission 27] $ tail -n 7 Book_of_potions/page_03; cat Book_of_potions/page_04
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 27] $ gsh check
```

Congratulations, mission 27 has been successfully completed!

missione 28.

Con “|” ci permette di collegare due comandi.

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.

```
~/Mountain/Cave
[mission 28] $ head -n 6 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 28] $ gsh check
```

Congratulations, mission 28 has been successfully completed!

missione 29.

Con **ps** ci da una lista dei processi che ci sono attualmente e con **kill** andiamo a forzare l'interruzione .

Mission goal

A mischievous imp cast a spell that puts smudges of coal everywhere in the castle.
Find this spell and remove it.

```
ps
  PID TTY      TIME CMD
 1661 pts/0    00:00:00 zsh
 1706 pts/0    00:00:00 bash
 1770 pts/0    00:00:00 bash
 50476 pts/0    00:00:00 spell
 51113 pts/0    00:00:00 ps
```

```
~/Mountain/Cave
```

```
[mission 29] $
```

```
*#@*
&_**/~
!$-#
```

```
*#@*
&_**/~
!$-#
```

```
kill
```

```
*#@*
&_**/~
!$-#
```

```
50476
```

```
~/Mountain/Cave
```

```
[mission 29] $ gsh check
```

Congratulations, mission 29 has been successfully completed!

missione 30.

kill -1 PID invia un segnale sighup a un processo .

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.

```

~ [mission 30] $ ps
    PID TTY      TIME CMD
  61823 pts/0    00:00:00 zsh
  61860 pts/0    00:00:00 bash
  61924 pts/0    00:00:00 bash
  66243 pts/0    00:00:00 spell
  66417 pts/0    00:00:00 ps

~ [mission 30] $ g
          *#@*
          &_**/~
          !$-#


kill -1 66243

~ [mission 30] $ gsh check
Congratulations, mission 30 has been successfully completed!

```

missione 31.

PSTREE \$\$ -P ci da un elecon con i processi figli e padri con il loro **PID**.

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.

```
[mission 31] $ pstree $$ -p
bash(1608)---mischievous_imp(2071)---spell(2090)---sleep(2763)
           |           |
           |           +--spell(2091)---sleep(2843)
           |           |
           |           +--spell(2092)
           |           |
           |           +--tail(2093)
           |
           +--nice_fairy(2070)---spell(2078)---sleep(2762)
           |           |
           |           +--spell(2079)---sleep(2842)
           |           |
           |           +--spell(2080)
           |
           +--tail(2081)
           |
           +--pstree(2854)
```

```
[mission 31] $ kill 2090 2091 2092
```

```
[mission 31] $ rm ~/Castle/Cellar/*coal*
```

```
[mission 31] $ gsh check
```

```
Congratulations, mission 31 has been successfully completed!
```

missione 32.

Fammo un po di maths.

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.

```
[mission 32] $ gsh check
8 + 78 = ?? 86
36 + 46 = ?? 82
81 + 44 = ?? 125
69 + 35 = ?? 104
79 + 47 = ?? 126
```

Congratulations, mission 32 has been successfully completed!

missione 32.

Adesso diventa un po' più complicato.

Abbiamo dato le risposte che erano già prescritte nel file Mathematics_101 usando **gsh check < Mathematics_101** quello che fa il codice è che manda quello che c'è scritto su mathematics_101 alle domande.

Mission goal

To get better in the magical art, one needs to know mental math.

Get ready, because Merlin is about to test your speed with products.

Run the command ``gsh check`` to start.

```
~/Castle/Main_building/Library
[mission 33] $ gsh check < Mathematics_101
61 * 34 = ?? 95 * 36 = ?? 21 * 3 = ?? 2 * 17 = ?? 31 * 1 = ?? 77 * 89 = ?? 21 * 41 = ?? 36 * 64 = ?? 51 * 71 = ?? 30 *
?? 38 * 12 = ?? 39 * 20 = ?? 6 * 27 = ?? 46 * 65 = ?? 71 * 12 = ?? 99 * 46 = ?? 33 * 77 = ?? 44 * 18 = ?? 59 * 91 = ?
* 42 = ?? 68 * 32 = ?? 63 * 4 = ?? 99 * 66 = ?? 39 * 56 = ?? 60 * 37 = ?? 54 * 69 = ?? 12 * 90 = ?? 39 * 54 = ?? 19 *
?? 69 * 47 = ?? 45 * 94 = ?? 63 * 3 = ?? 92 * 24 = ?? 74 * 11 = ?? 18 * 78 = ?? 56 * 12 = ?? 88 * 81 = ?? 83 * 19 = ?
98 = ?? 32 * 34 = ?? 62 * 89 = ?? 88 * 20 = ?? 5 * 45 = ?? 74 * 27 = ?? 37 * 35 = ?? 23 * 2 = ?? 5 * 68 = ?? 90 * 70
38 * 57 = ?? 29 * 11 = ?? 64 * 58 = ?? 58 * 84 = ?? 43 * 85 = ?? 30 * 11 = ?? 42 * 36 = ?? 78 * 8 = ?? 2 * 98 = ?? 22
?? 92 * 92 = ?? 80 * 44 = ?? 7 * 65 = ?? 64 * 2 = ?? 34 * 6 = ?? 42 * 18 = ?? 28 * 71 = ?? 95 * 89 = ?? 91 * 42 = ??
95 = ?? 72 * 67 = ?? 26 * 65 = ?? 94 * 100 = ?? 53 * 9 = ?? 24 * 27 = ?? 74 * 58 = ?? 22 * 92 = ?? 16 * 26 = ?? 28 * 9
? 59 * 46 = ?? 92 * 99 = ?? 41 * 25 = ?? 55 * 7 = ?? 75 * 56 = ?? 14 * 89 = ?? 62 * 17 = ?? 99 * 100 = ?? 64 * 42 = ??
17 = ?? 27 * 5 = ?? 41 * 92 = ?? 43 * 76 = ?? 28 * 38 = ?? 86 * 60 = ?? 53 * 95 = ?? 63 * 56 = ?? 6 * 86 = ?? 33 * 8
42 * 23 = ?? 42 * 15 = ?? 49 * 79 = ?? 21 * 99 = ??
```

missione 35.

listiamo i grimozi con **ls grimoire** e le mettiamo dentro il **Drawer** facendo **ls grimoire* >Drawer/inventory.txt**

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 ...

```
~/Castle/Main_building/Library/Merlin_s_office  
[mission 34] $ ls grimoire* >Drawer/inventory.txt
```

```
~/Castle/Main_building/Library/Merlin_s_office  
[mission 34] $
```

```
~/Castle/Main_building/Library/Merlin_s_office  
[mission 34] $ gsh check
```

Congratulations, mission 34 has been successfully completed!