

Game Shell

Obiettivo: Utilizzare la Game Shell su Command Line di Kali

Nell'esercizio di oggi è stato chiesto di avviare un gioco da Command Line di Kali Linux.

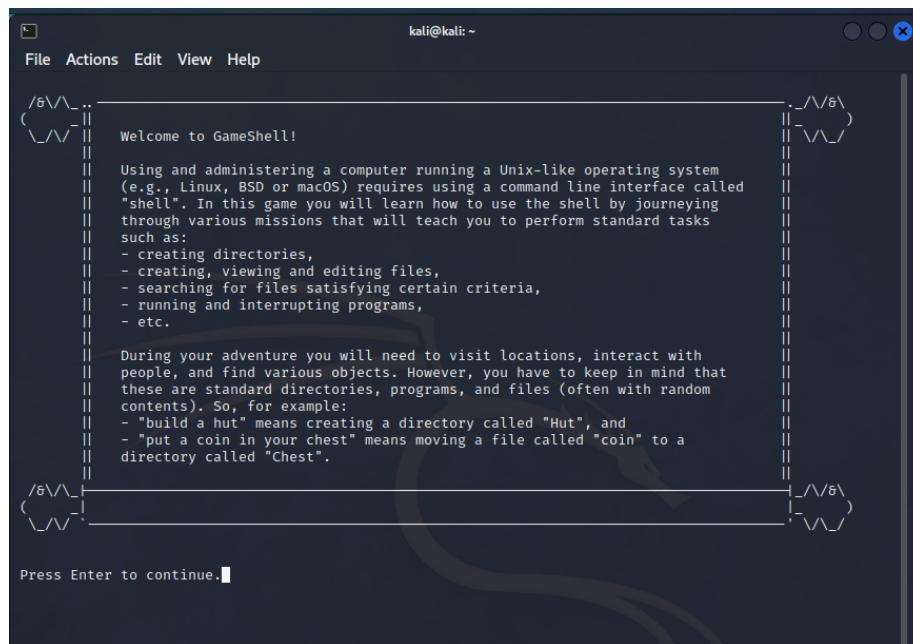
Ho iniziato utilizzando il comando:

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

per installare questi pacchetti obbligatori al fine di installare la Game Shell tramite:

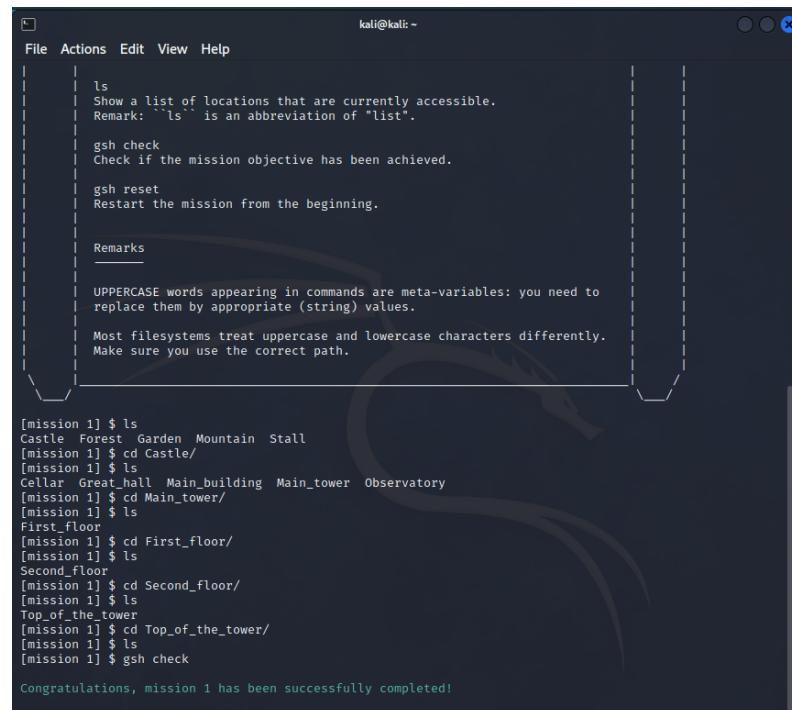
```
wget https://github.com/phyver/GameShell/releases/download/latest/gameshell.sh
```

Successivamente ho avviato con il comando **bash gameshell.sh** da CLI per avviare il gioco.



```
kali@kali: ~
File Actions Edit View Help
>Welcome to GameShell!
Using and administering a computer running a Unix-like operating system
(e.g., Linux, BSD or macOS) requires using a command line interface called
"shell". In this game you will learn how to use the shell by journeying
through various missions that will teach you to perform standard tasks
such as:
- creating directories,
- creating, viewing and editing files,
- searching for files satisfying certain criteria,
- running and interrupting programs,
- etc.

During your adventure you will need to visit locations, interact with
people, and find various objects. However, you have to keep in mind that
these are standard directories, programs, and files (often with random
contents). So, for example:
- "build a hut" means creating a directory called "Hut", and
- "put a coin in your chest" means moving a file called "coin" to a
directory called "Chest".
Press Enter to continue.
```



```
kali@kali: ~
File Actions Edit View Help
| ls
| Show a list of locations that are currently accessible.
| Remark: "ls" is an abbreviation of "list".
| gsh check
| Check if the mission objective has been achieved.
| gsh reset
| Restart the mission from the beginning.

| Remarks
|
| UPPERCASE words appearing in commands are meta-variables: you need to
| replace them by appropriate (string) values.
|
| Most filesystems treat uppercase and lowercase characters differently.
| Make sure you use the correct path.

[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] $ ls
[mission 1] $ gsh check
Congratulations, mission 1 has been successfully completed!
```

La descrizione dice che il gioco è stato creato per imparare i comandi di linux ed è una sorta di RPG (Gioco di Ruolo) testuale. La prima missione mi indicava di dover raggiungere la Cima della Torre. Ho iniziato usando i comandi **ls** e **cd** come mi suggeriva il gioco.

```
~/Garden
[mission 8] $ cd ~/Castle/Cellar/

~/Castle/Cellar
[mission 8] $ ls -A
10053_spider_36 16547_spider_37 22568_spider_13 26692_bat_5 32029_spider_30 6003_spider_16
10734_spider_41 16635_spider_14 22627_spider_50 26835_spider_47 3659_spider_43 8184_spider_22
11507_spider_31 16897_spider_20 22786_bat_2 27387_spider_34 3723_spider_11 9070_spider_49
11728_spider_45 18677_spider_19 22850_bat_1 28124_spider_26 4092_spider_4 9210_spider_46
1196_spider_40 19467_spider_24 23184_spider_21 29485_spider_27 438_spider_15 9850_spider_7
13957_spider_6 19475_spider_42 23392_spider_17 30067_spider_44 5054_spider_18 barrel_of_apples
14294_bat_3 19912_spider_32 2400_spider_3 3059_spider_10 5181_spider_28
14614_spider_1 20311_spider_9 24898_spider_48 30646_spider_39 5357_spider_35
15782_spider_23 21054_spider_8 25100_spider_38 30804_spider_12 5378_spider_2
16526_spider_33 22331_spider_5 2647_bat_4 31807_spider_29 5402_spider_25

~/Castle/Cellar
[mission 8] $ rm *_spider_*
~/Castle/Cellar
[mission 8] $ ls -A
14294_bat_3 22786_bat_2 22850_bat_1 2647_bat_4 26692_bat_5 barrel_of_apples

~/Castle/Cellar
[mission 8] $ gsh check

Congratulations, mission 8 has been successfully completed!

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

Alcune Missioni danno una ricompensa come nel caso della Missione Tre che una volta completata mi permetteva di sapere il Path in cui mi trovavo.

```

~/Castle/Cellar
[mission 9] $ ls -A
.1001_spider_15 .15751_spider_32 22850_bat_1 .27586_spider_27 .5885_spider_41
.10074_spider_17 .16333_spider_39 .23365_spider_46 .27861_spider_3 .619_spider_48
.11007_spider_7 .16383_spider_24 .24021_spider_50 .29647_spider_37 .6233_spider_34
.11452_spider_49 .18247_spider_2 .24644_spider_29 .3030_spider_45 .7069_spider_36
.11517_spider_38 .18683_spider_1 .25453_bat_1 .30464_spider_10 .7684_spider_44
.12437_spider_4 .2039_spider_42 .26040_bat_3 .30860_spider_23 .852_spider_12
.12719_spider_22 .20987_spider_8 .26376_spider_5 .31276_spider_21 .8620_bat_4
14294_bat_3 .21122_spider_18 .26427_spider_16 .31735_bat_2 .9755_spider_31
.14297_spider_30 .21401_spider_47 .2647_bat_4 .31950_spider_11 barrel_of_apples
.14303_spider_35 .21829_spider_43 .26692_bat_5 .32647_spider_40
.14325_spider_14 .22199_spider_26 .26849_spider_6 .3373_spider_9
.14933_spider_13 .22528_spider_33 .26977_spider_25 .368_bat_5
.14974_spider_20 22786_bat_2 .27354_spider_19 .5857_spider_28

~/Castle/Cellar
[mission 9] $ rm *_spider_*
~/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.


```



```

~/Forest/Hut/Chest
[mission 16] $ alias journal='nano ~/Forest/Hut/Chest/journal.txt'
~/Forest/Hut/Chest
[mission 16] $ gsh check
Congratulations, mission 16 has been successfully completed!

          Congratulations!
From now on you can use the file
"~/.gshrc"
to record aliases. More information can be found in the file (it has
been created for you).


```



```

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

~/Forest/Hut/Chest
[mission 17] $ gsh goal

```

In queste missioni ho usato ***_spider_*** per eliminare tutti i ragni (tranne i pipistrelli) della numero 9. Il carattere jolly ***** sta a significare in questo caso qualunque carattere che sia prima e dopo **_spider_**. Nella missione 16 invece mi è stato richiesto di utilizzare un **alias** per accedere al diario (*journal*). Ho impostato l'**alias** per aprire il file di testo nel percorso indicato in alto nella figura. Da notare altre 2 ricompense per aver completato le missioni.

```

| 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".
| / ./. 
```

~/Mountain/Cave
[mission 24] \$ cat Book_of_potions/page_01 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

Congratulations, mission 24 has been successfully completed!

In questa missione dovevo mostrare i passaggi per la creazione della pozione ma stando insieme all'npc **Servillus**. Per questo ho usato il comando **cat** per entrare nella directory del libro delle pozioni e aprire due delle pagine presenti nello stesso momento.

```

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

kill -9 96

```

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

807

~/Mountain/Cave
[mission 28] \$ ps

PID	TTY	TIME	CMD
1515	pts/0	00:00:00	zsh
1954	pts/0	00:00:00	bash
2093	pts/0	00:00:03	bash
45499	pts/0	00:00:06	xeyes
96953	pts/0	00:00:00	spell
97252	pts/0	00:00:00	ps

```

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

~/Mountain/Cave
[mission 28] \$ kill -9 96953

~/Mountain/Cave
[mission 28] \$ gsh check

Congratulations, mission 28 has been successfully completed!

Process names should be equal to the corresponding filename for mission processes/03_pstree_kill/deps.sh.
Error: mission 29 is cancelled because some dependencies are not met.

```

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

~/Mountain/Cave
[mission 30] \$ █

Completata la missione 28, che mi chiedeva di bloccare gli incantesimi (processi) di un Imp tramite **kill** (arresto) e **kill -9** (arresto forzato), il gioco ha saltato la missione 29 facendomi procedere direttamente con la 30.

The screenshot shows a terminal window titled "kali@kali:~". The title bar also displays "Greek_Latin_and_other_modern_languages Mathematics_101 Merlin_s_office". The terminal content is as follows:

```
File Actions Edit View Help
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_15831  grimoire_20738  grimoire_25754  grimoire_29687  grimoire_4940
Drawer/     grimoire_15943  grimoire_2081   grimoire_26642  grimoire_30046  grimoire_4964
grimoire_11200 grimoire_16328  grimoire_20994  grimoire_26824  grimoire_30346  grimoire_5252
grimoire_11503 grimoire_16389  grimoire_21297  grimoire_27018  grimoire_30434  grimoire_5498
grimoire_1238  grimoire_16897  grimoire_22109  grimoire_27074  grimoire_30481  grimoire_6051
grimoire_12522 grimoire_16933  grimoire_22995  grimoire_27131  grimoire_30921  grimoire_6636
grimoire_12719 grimoire_17422  grimoire_23237  grimoire_27286  grimoire_31123  grimoire_6842
grimoire_12889 grimoire_17972  grimoire_23329  grimoire_27633  grimoire_31228  grimoire_6933
grimoire_12906 grimoire_18439  grimoire_23394  grimoire_27808  grimoire_31706  grimoire_7220
grimoire_12964 grimoire_18557  grimoire_23845  grimoire_28123  grimoire_31832  grimoire_7337
grimoire_1357  grimoire_186    grimoire_23941  grimoire_28137  grimoire_32528  grimoire_7618
grimoire_1383  grimoire_18722  grimoire_24754  grimoire_28769  grimoire_3886  grimoire_7919
grimoire_13882 grimoire_19789  grimoire_24965  grimoire_288   grimoire_3994  grimoire_7924
grimoire_13923 grimoire_20019  grimoire_24966  grimoire_29092  grimoire_4001  grimoire_9087
grimoire_14660 grimoire_20207  grimoire_2543   grimoire_29109  grimoire_4174  grimoire_9115
grimoire_14909 grimoire_20375  grimoire_25445  grimoire_29649  grimoire_476   grimoire_9491
grimoire_15674 grimoire_20729  grimoire_25521  grimoire_29676  grimoire_4785  grimoire_96
~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ ls grimoire_*
grimoire_11200 grimoire_16328  grimoire_20994  grimoire_26824  grimoire_30346  grimoire_5252
grimoire_11503 grimoire_16389  grimoire_21297  grimoire_27018  grimoire_30434  grimoire_5498
grimoire_1238  grimoire_16897  grimoire_22109  grimoire_27074  grimoire_30481  grimoire_6051
grimoire_12522 grimoire_16933  grimoire_22995  grimoire_27131  grimoire_30921  grimoire_6636
grimoire_12719 grimoire_17422  grimoire_23237  grimoire_27286  grimoire_31123  grimoire_6842
grimoire_12889 grimoire_17972  grimoire_23329  grimoire_27633  grimoire_31228  grimoire_6933
grimoire_12906 grimoire_18439  grimoire_23394  grimoire_27808  grimoire_31706  grimoire_7220
grimoire_12964 grimoire_18557  grimoire_23845  grimoire_28123  grimoire_31832  grimoire_7337
grimoire_1357  grimoire_186    grimoire_23941  grimoire_28137  grimoire_32528  grimoire_7618
grimoire_1383  grimoire_18722  grimoire_24754  grimoire_28769  grimoire_3886  grimoire_7919
grimoire_13882 grimoire_19789  grimoire_24965  grimoire_288   grimoire_3994  grimoire_7924
grimoire_13923 grimoire_20019  grimoire_24966  grimoire_29092  grimoire_4001  grimoire_9087
grimoire_14660 grimoire_20207  grimoire_2543   grimoire_29109  grimoire_4174  grimoire_9115
grimoire_14909 grimoire_20375  grimoire_25445  grimoire_29649  grimoire_476   grimoire_9491
grimoire_15674 grimoire_20729  grimoire_25521  grimoire_29676  grimoire_4785  grimoire_96
grimoire_15831 grimoire_20738  grimoire_25754  grimoire_29687  grimoire_4940
grimoire_15943 grimoire_2081   grimoire_26642  grimoire_30046  grimoire_4964
~/Castle/Main_building/Library/Merlin_s_office
[mission 32] $ ls grimoire_* > ~/Castle/Main_building/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 ...
```

Nella Missione 32 il gioco mi chiedeva di salvare la lista di tutti i Grimori di Merlino in un unico file di testo chiamato inventory.txt. Sono andato con cd nel suo ufficio e ho usato ls grimoire_* per elencarli tutti e successivamente > per salvare la lista nel file richiesto.

La Missione 35 invece chiedeva di entrare nei Quartieri del Re, ma non avendo i permessi ho usato il comando chmod per modificarli e quindi permettere al mio personaggio di potervi entrare inosservato.

```
kali㉿kali: ~
File Actions Edit View Help
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.

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

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

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

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

The screenshot shows a terminal window titled 'kali@kali: ~'. The terminal displays a challenge from the 'Stall' mission:

```
File Actions Edit View Help
|| 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.
||
```

The terminal then shows the user's input and the system's response:

```
(7)
~/Stall
[mission 41] $ gsh reset
|-----+-----|
| Use the command
| $ gsh help
| to get the list of "gsh" commands.
|-----+-----|
|
```

Next, the user runs a command to check for unpaid items:

```
(0)
~/Stall
[mission 41] $ grep -v 'PAID' * | wc -l
48
(1)
~/Stall
[mission 41] $ gsh check
How many unpaid items are there? 48
```

The terminal concludes with a success message:

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

Finally, the user starts the next mission:

```
|-----+-----|
| Use the command
| $ gsh help
| to get the list of "gsh" commands.
|-----+-----|
~/Stall
[mission 42] $
```

Le ultime missioni sono state impegnative. Nella figura in alto la Missione 41 chiedeva di trovare le fatture di un mercante e contare quanti oggetti risultassero non pagati. Ho usato il comando grep -v per eliminare i file contenenti la parola 'PAID' e ho concatenato il comando con wc (word count) ma usando -l per contare le linee precise e inserire la risposta giusta. La Missione 42 è stata complicata perchè si trattava di un rompicapo criptato. Il suggerimento del gioco era che "i messaggi segreti erano criptati in un intervallo tra 10 e 16. Ho cercato su internet se si potesse partire da una lettera dell'alfabeto in particolare per poter "fare il giro" in maniera tale da spostare e cambiare così le lettere del "segreto".

```
cat exm.txt | tr 'a-z' 'nopqrstuvwxyzabcdefghijklm'  
cat exm.txt | tr 'a-z' 'n-zA-m'
```

Seguendo l'esempio ho fatto varie prove partendo dalla J fino ad arrivare alla soluzione.

```
kali@kali: ~  
File Actions Edit View Help  
[mission 42] $ gsh goal  
_____  
| / \_____  
| / | 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  
| / |  
| / | Note: instead of "abcdefg", it is possible to write "a-g".  
| / |  
| / | This command is particularly useful with a redirection `<`.  
| / |  
| / |  
~/Castle/Main_building/Library/Merlin_s_office/Drawer  
[mission 42] $ tr "a-z" "j-za-l" < secret_message  
dana eo iu seh:  
ukq sehh cap iu ydaop, wjz aranupdejc ep ykjpwajo.  
pdeo ydaop eo ej pda yahhwn, wjz pda sknz pk iwga  
ep na-wllawn eo: lizw  
ianhej pda ajydwjan  
~/Castle/Main_building/Library/Merlin_s_office/Drawer  
[mission 42] $ tr "a-z" "l-za-m" < secret_message  
fcpc gq kw ugjj:
```

A screenshot of a Kali Linux desktop environment. On the left is a file manager window showing various folders like 'Trash', 'File System', 'Home', '05 Bug Hun...', '06 Calcolo ...', and '07 DDOS Pr...'. On the right is a terminal window with the title 'kali@kali: ~'. The terminal displays several command-line sessions in a scroll-back buffer:

```
~/Castle/Main_building/Library/Merlin_s_office/Drawer [mission 42] $ tr "a-z" "j-za-l" < secret_message
dara eo iu sehh:
ukq sehh cap iu ydaop, wjz aranupudejc ep ykjowjwo.
pdeo ydaop eo ej pda yahhwn, wjz pda sknz pk iwga
ep na-wlawn eo: lizw
ianhej pda ajydwjpan

~/Castle/Main_building/Library/Merlin_s_office/Drawer [mission 42] $ tr "a-z" "l-za-m" < secret_message
fcpc gg kw ugjj:
wms ugjj ecr kw afcqqr, ylb ctcprifgle gr anlyrgla.
rfqg afcqqr gg gl rfc acjyyp, ylb rfc umpb rm kyic
gr pc-ymncyp gg: nkby
kcpjgl rfc clafylrcp

~/Castle/Main_building/Library/Merlin_s_office/Drawer [mission 42] $ tr "a-z" "m-za-n" < secret_message
gdqd hr lx vhkk:
xnt vhkk fds lx bgdrs, zmc dudqsgshmf hs bmnszhr,
sghr bgdrs hr hm sgd bdkkzq, zmc sgd vnaq sn lzjd
hs qd-zoodzq hr: olcz
ldqkhm sgd dmbgzmsdq

~/Castle/Main_building/Library/Merlin_s_office/Drawer [mission 42] $ gsh check
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: pmda
merlin the enchanter

~/Castle/Main_building/Library/Merlin_s_office/Drawer [mission 42] $ gsh check
What's the key that will make Merlin's chest to appear?
pmda

Congratulations, mission 42 has been successfully completed!
```

A screenshot of a terminal window titled 'kali@kali: ~' showing the completion of mission 42. The terminal displays the following text:

```
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: pmda
merlin the enchanter

~/Castle/Main_building/Library/Merlin_s_office/Drawer [mission 42] $ gsh check
What's the key that will make Merlin's chest to appear?
pmda

Congratulations, mission 42 has been successfully completed!
```

The terminal then displays a large, intricate ASCII art message that reads:

```
CONGRATULATIONS!
You have finished all the missions.
```

At the bottom of the terminal, there is a help message for the 'gsh' command:

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

The terminal prompt at the bottom is:

```
~/Castle/Main_building/Library/Merlin_s_office/Drawer [mission 43] $
```