CERT Lab 1 – Introduction to Linux Commands

Educational Objectives

1. Gain hands-on experience on Linux fundamentals
2. Getting familiar with the Linux command line

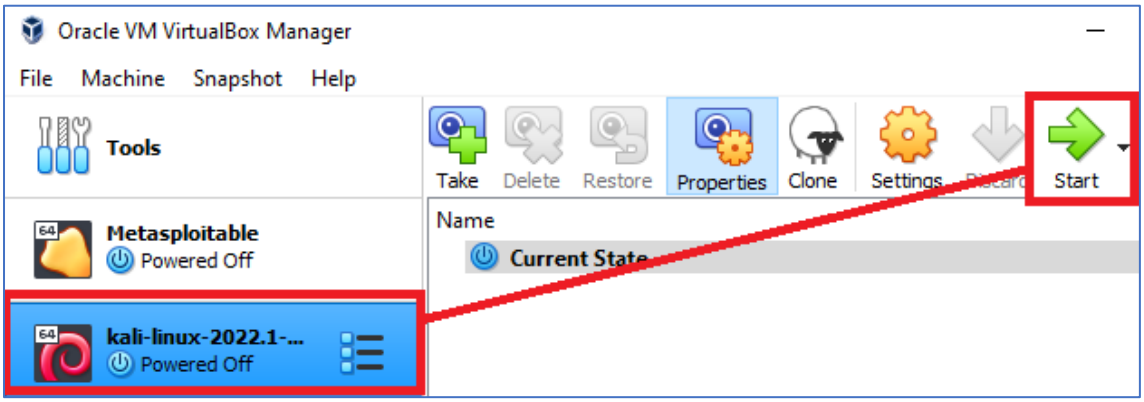
Tools

1. Oracle VirtualBox VMs
2. Kali Linux
3. Metasploitable

Note: In this tutorial try to use the command line interface as much as possible.

Lab Task 1.0:

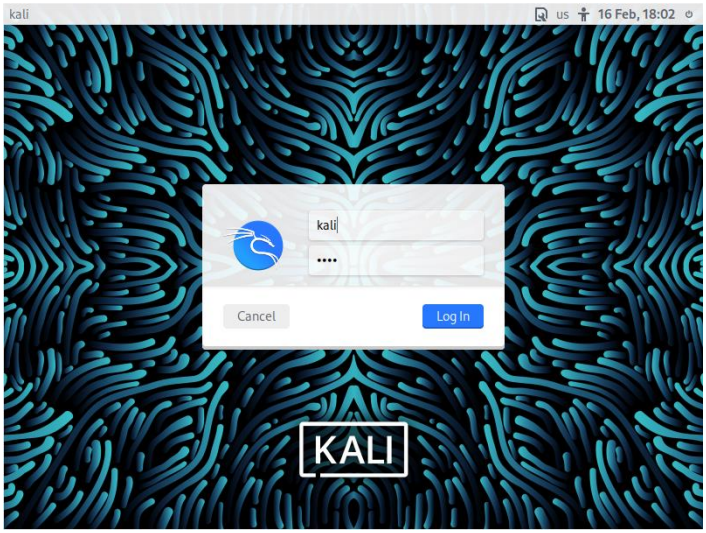
1. Open VirtualBox manager, click on kali linux and press Start to boot the Kali Linux Virtual Machine



2. Login to the Kali Linux machine using the following credentials:

   User: **kali**

   Password: **kali**



Step 1 – First commands: echo, whoami and ifconfig

We must be able to navigate to files, print their contents, and create files.

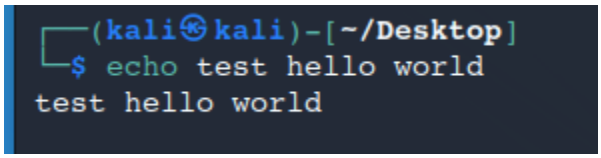
Let's begin with two of the initial commands, which are listed in the table below:

Command	Description
echo	Displaying lines of text which are passed as arguments on the command line
whoami	Find out what user we're currently logged in as
ifconfig	Display current network configuration

Echo command

1. Right click on the Desktop and click Open Terminal Here
2. To use **echo** as to output text, type echo followed by any text in the terminal

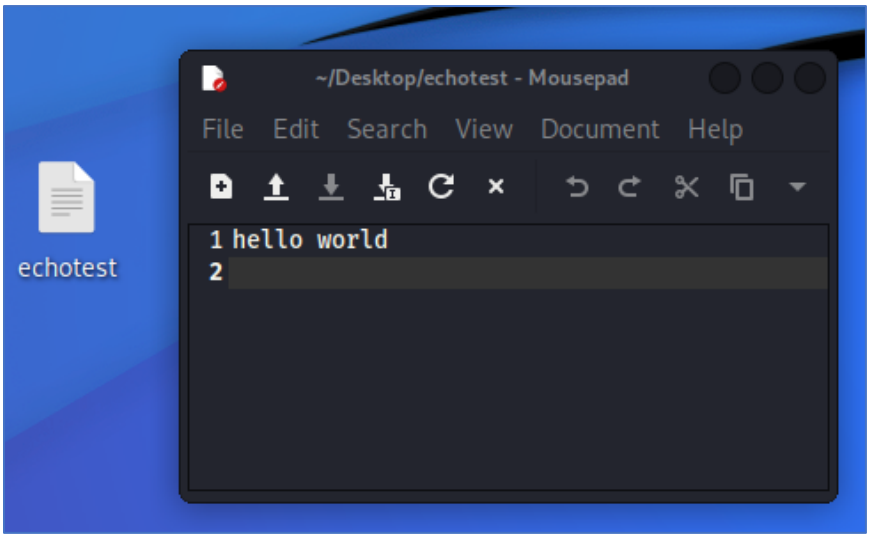
```
echo test hello world
```



3. echo can also be used to write texts into a file. Use > or >> to include the string in an echo command in a file, instead of displaying it as output:
   i. Right click on the desktop and select Create Document > Empty File.
   ii. Rename the file as echotest
   iii. Go back to the terminal and type the following command

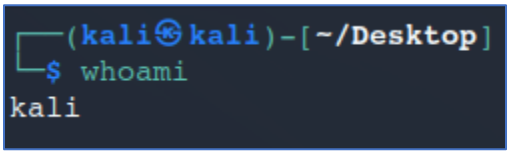
```
echo hello world > echotest
```

   iv. Double click on the echotest file and observe that we have added in "hello world" into this empty file only by using the terminal

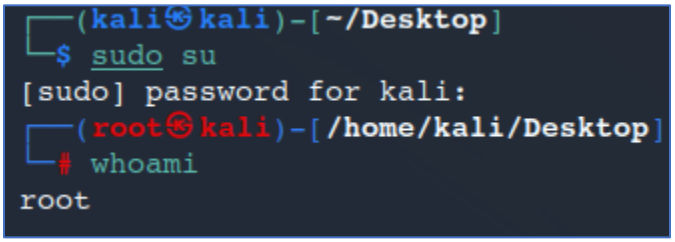


Whoami command

1. To check the username of the current user when a command is invoked, type in **whoami** in a terminal



2. To change the user into root (admin privileges) type **sudo su** into a terminal.
   i. The system will ask for password, type in kali as password
   ii. The terminal is now run as administrator
   iii. Type **whoami**
   iv. Notice that the output changes the user from kali to root

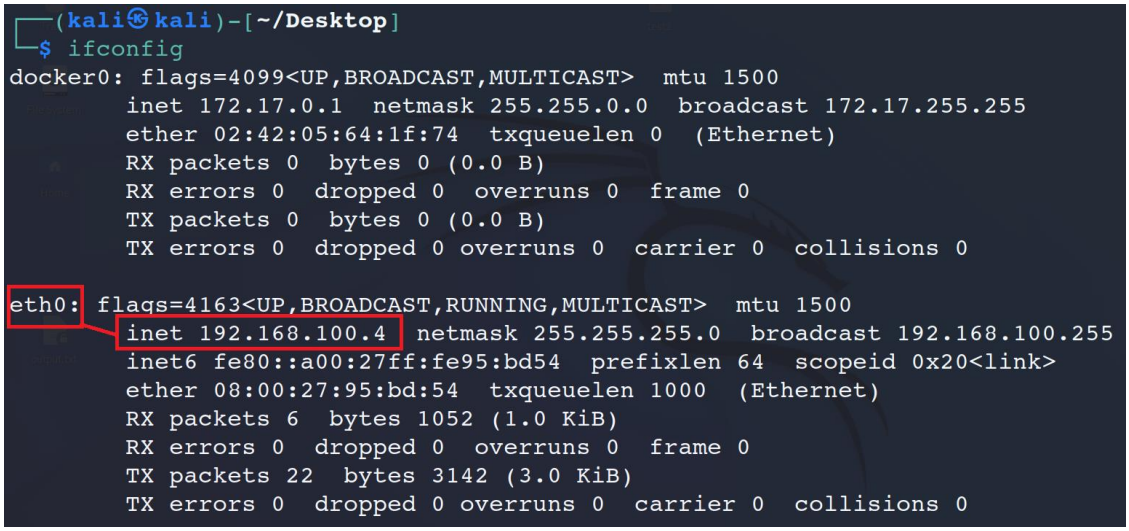


   v. Close the terminal

ifconfig command

1. Right click on the Desktop and click Open Terminal Here
2. Type the following command

ifconfig



   i. Your virtual machine's IP address is listed under the "eth0" adapter, next to the "inet"

Step 2 – Interacting with the file systemm

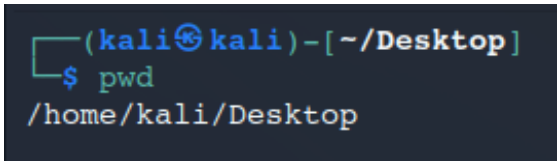
It's critical to be able to navigate the machine you're logged into without relying on a desktop environment. The following commands are going to be used a lot throughout the lab practical:

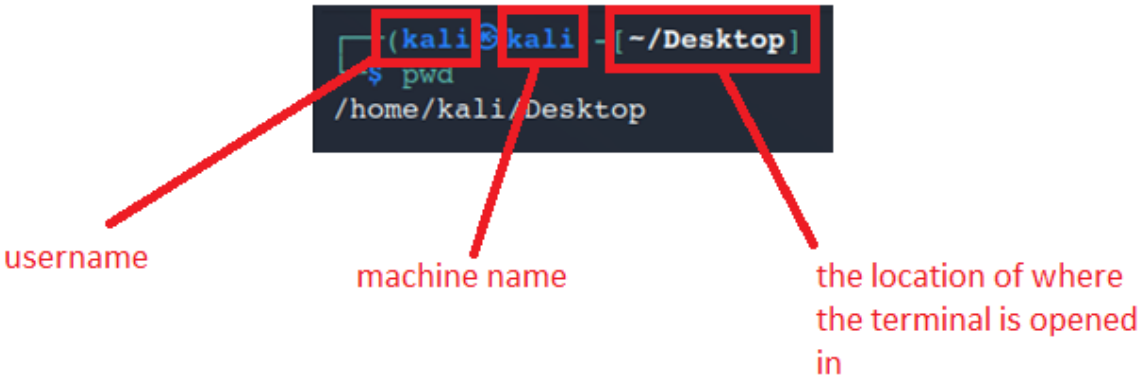
Command	Full Name	Description
ls	listing	list down the files and sub-directories within your current directory
cd	change directory	change the current working directory
cat	concatenate	create files, view content of a file
pwd	print working directory	writes the full pathname of the current working directory

To begin, press right click anywhere on the *Desktop* and click *Open Terminal Here*

1. pwd: Print Working Directory

i. On the terminal, run the commands: **pwd** to give out the current directory in which the terminal process is running.

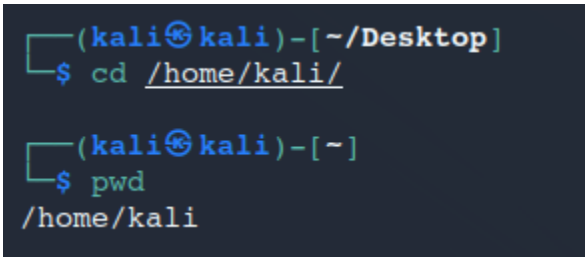




2. cd: change directory

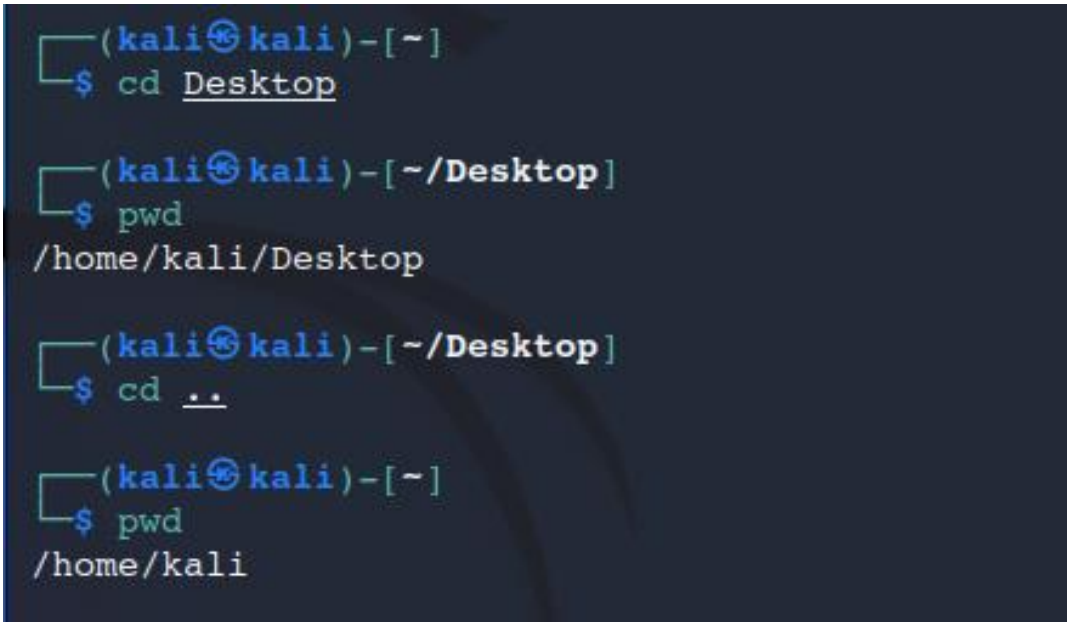
i. Use the command **cd** to change the working directory.

Run the command **cd /home/kali/** and press enter.
Type **pwd** again to check and confirm the current working directory



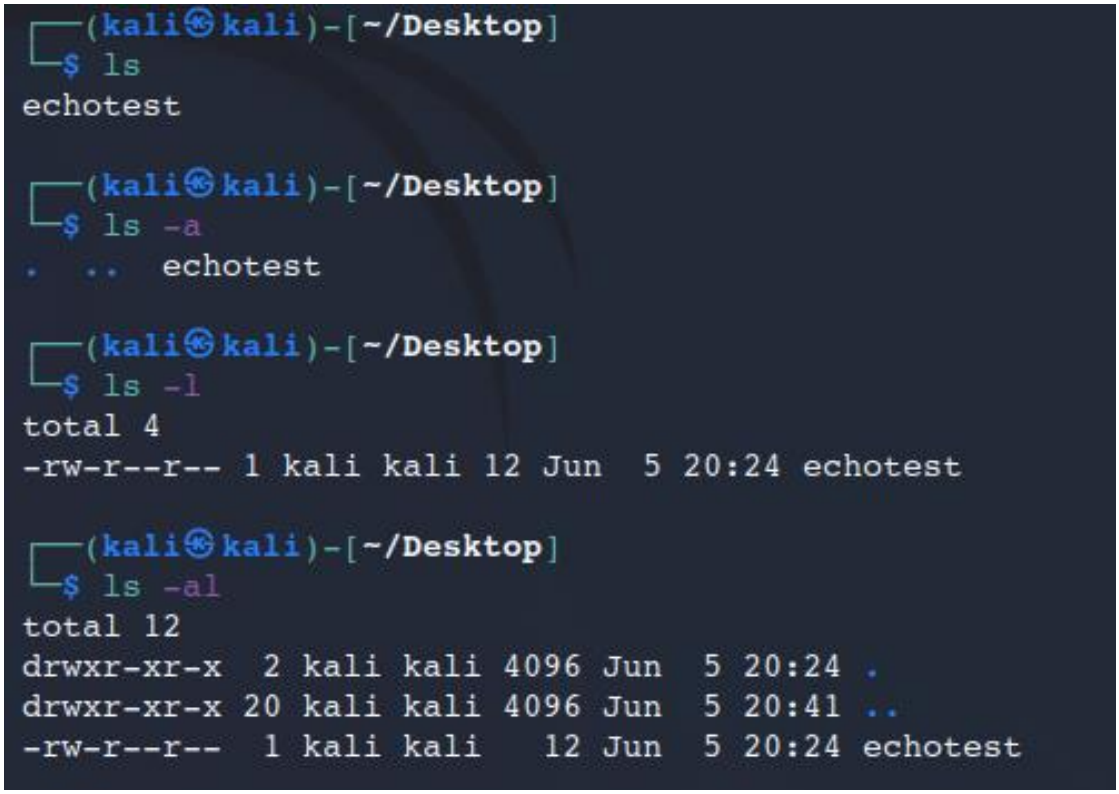
ii. Get back to the Desktop directory again by typing **cd Desktop**

iii. Type **cd ..** (cd followed by space and 2 dots without spaces) to navigate back one folder up



3. ls: listing

i. Change the terminal directory to Desktop again
ii. Type `ls` to list out the contents of the current directory
iii. Type `ls -l` to output a long listing of all files
iv. Type `ls -a` to list all files including hidden files (files with names beginning with a dot)
v. Combine the arguments into one, for example `ls -al` will use both `-a` and `-l`



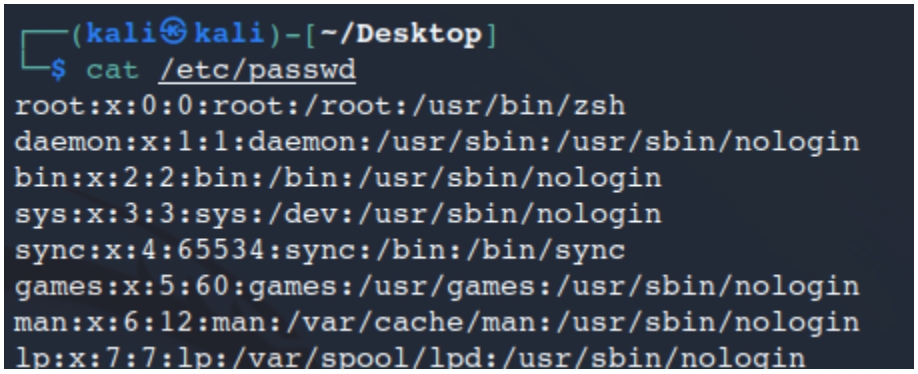
4. cat: concatenate

cat command allows us to create single or multiple files, view content of a file, concatenate files and redirect output in terminal or files. The general syntax for the cat command is `cat [OPTION] [FILE]...`

i. Display contents of a file

a. Type the following command into a terminal. This will output the contents of the passwd file located in /etc/

```
cat /etc/passwd
```

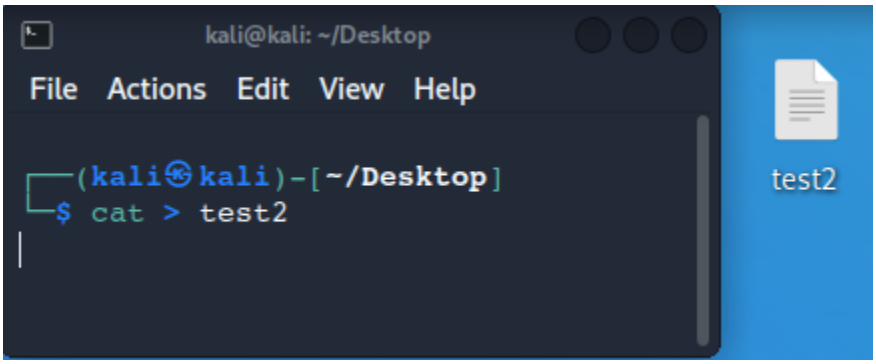


ii. Create a file with cat command

a. Open a terminal in Desktop directory and type the following command:

```
cat > test2
```

b. This will create an empty file named test2



Step 3 – Get Help: man and help command

There are lots of commands that can be used in Linux terminal and often we tend to forget how to use each of these commands. The following table lists out more helpful commands:

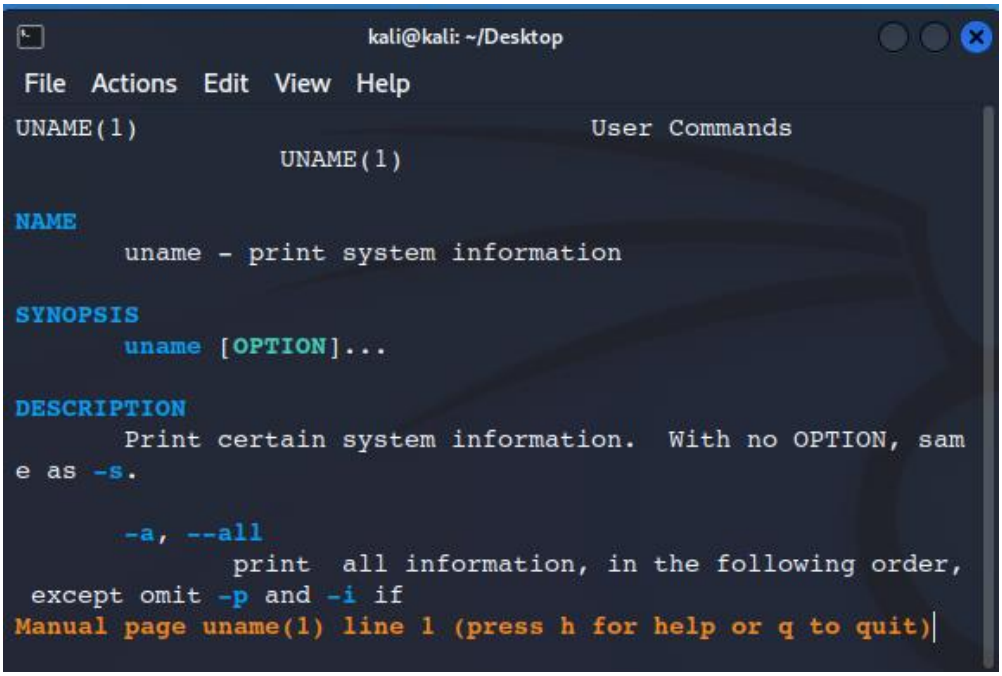
Command	Description
`uname`	Print basic system information
`history`	Print out previously used commands
`mkdir/rmdir`	Make directory / Remove directory
`cp/mv/rm`	Copy/Move/Remove file
`find`	Search and locate the list of files and directories
`locate`	Finds files using the file name
`ping`	Check network connectivity

Remembering the usage of these commands and their syntax takes a long time and we need to get help or manual on how to use them.

1. Display manual

i. In the terminal, type man followed by the command you would like to get to know of, for example the **uname** manual command looks like

```
man uname
```



We get a detailed manual of what this command is, the description, switches and how to use it

ii. Press Q to exit the manual page

2. Display Help

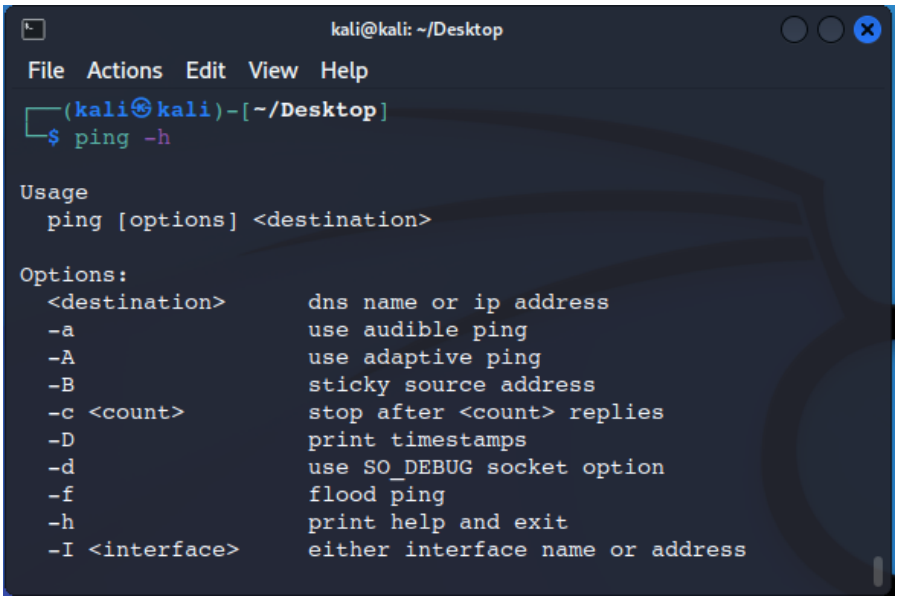
Like manual command, most commands have the help page to show how to use the command.

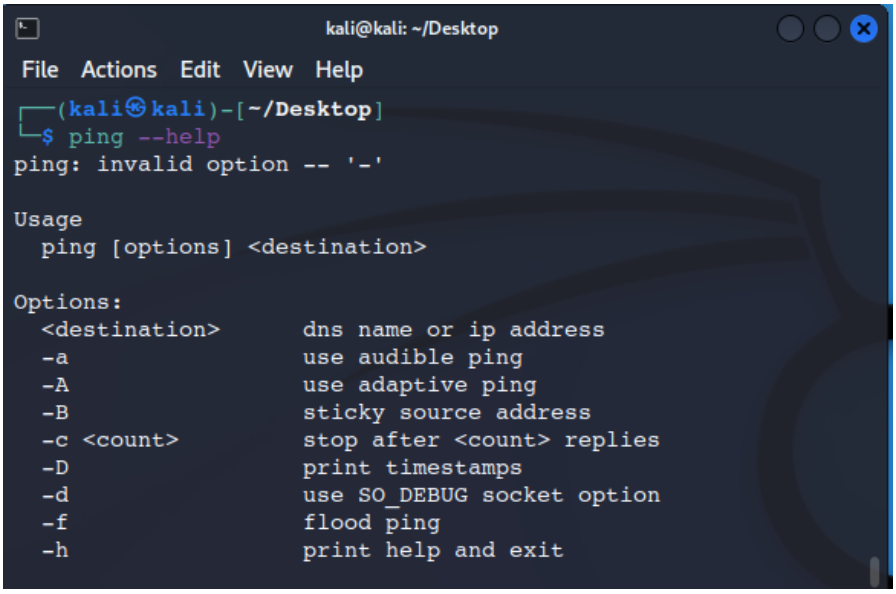
i. In the terminal, type the command you would like to get to know of, followed by **`-h`** or **`--help`** for example the **`ping`** command looks like

```
ping -h

Or

ping --help
```





(Q1) It is easier to navigate through files using the GUI based environment rather than the CLI (terminal). Why is learning the terminal commands useful when it comes to Linux?

Recommended Links (further learning)

https://tryhackme.com/module/linux-fundamentals

https://checkout.ine.com/starter-pass