1. *Introduction to Linux*

In order to run this section, you need to open the virtual machine '**Ubuntu16045-base'** with VMWare Workstation. Use the following credentials to login:

Username: student
Password: student

How to open a terminal

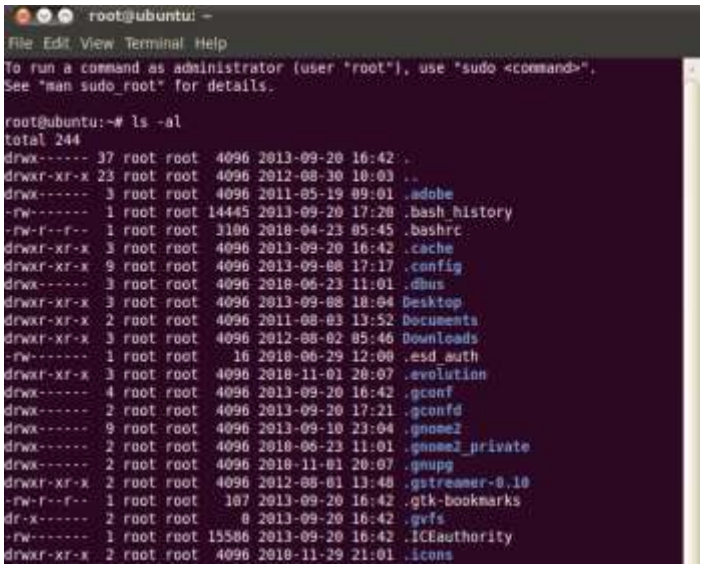
Click on the Terminal icon on the left panel of your screen.



How to list files and directories

Open a terminal and type the command ls (lowercase L). This will list all the files and directories in the current directory:

```
ls -al
```



Each entry that starts with a 'd' is a directory, and each entry that starts with a '-' is a file.

How to change to a different directory

Type the command cd (change directory) to change the current working directory to the new one you want. For example, to change the working directory to the Desktop, type:

```
cd Desktop
```

Remember that, unlike Windows, Linux is case sensitive, so make sure that you use uppercase ‘D’, not ‘d’.

Ease of Use Tips

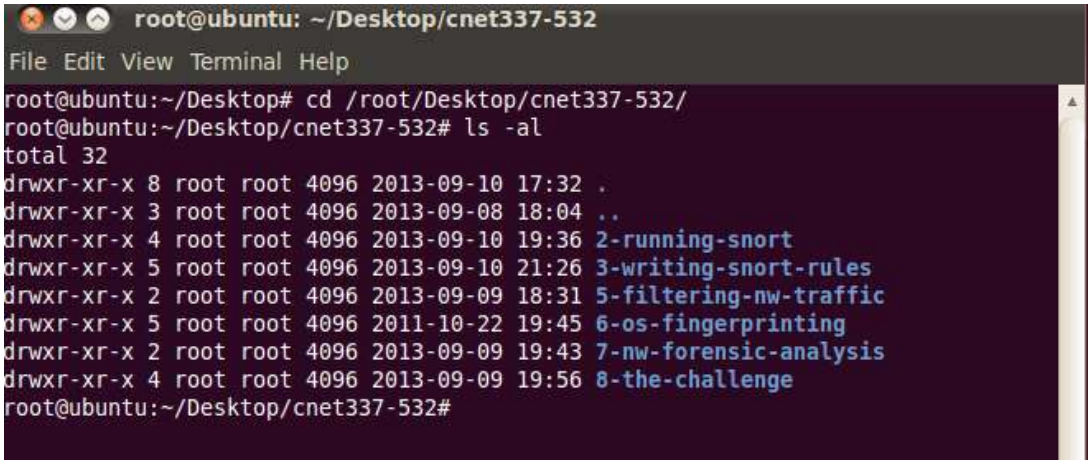
- Remember that Linux is case sensitive. So, directory ‘**`Desktop`**’ will be different from directory ‘**`desktop`**’.
- Use the Tab key (→|) to auto-complete directories and file names. This will save you from typing the full names yourself.
- Use the Up and Down arrows to view previously typed commands
- Use command ‘**`clear`**’ to clear the screen
- Type ‘**`CTRL-C`**’ to abandon a running command
- Use the ‘**`pwd`**’ command to view your current directory – pwd stands for ‘print working directory’

How to go to the ‘data’ directory and list its contents

Type the commands:

```
cd /home/student/Desktop/data/
ls -al
```

Remember to use the Tab key to autocomplete the directories.



Another way to view the contents is to double-click on the directory ‘data’, which is on the Desktop. This will open the File Browser.

How to view/edit text files with gedit

Go to the directory your file is with the cd command, and then type **`gedit <filename>`**.

For example, to view the text file ‘README’, which is on the Desktop, you can open a terminal, and type:

```
cd /root/Desktop/
gedit README
```

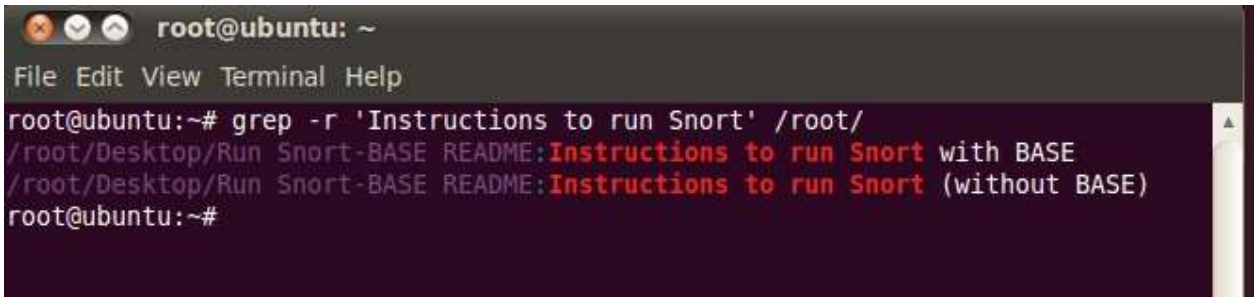
How to search for strings within files with the grep command

The grep command allows you to search the file contents for specific strings. For example, to find out which files contain the string ‘Instructions to run Snort’, you will type the following command:

```
grep –r –i ‘To run Snort’ /home/student/

-r means the search is recursive. It will search all the
subdirectories as well.
-i means it will ignore case distinctions, so it will consider
lower case and upper case characters as the same.
‘Instructions to run Snort’ is the string you want to search
for.
/home/student/ is the directory you want to start the search
from.
```

This grep command will search recursively for the string ‘Instructions to run Snort’, ignoring case, and within the /root/ directory structure.



The grep command found 2 matches within the same file ‘/root/Desktop/README’. The matches it found are: “To run Snort in NIDS mode with BASE:”, and “To run Snort in NIDS mode without BASE:”.

How to view your network configuration with the ifconfig command

Type the command **`ifconfig`** in a terminal. This will show all the available network interfaces, their IP address and MAC address.

How to run Firefox, Wireshark

To run Firefox, click on the Firefox icon on the left panel of your screen.
To run Wireshark, click on the Wireshark icon on the left panel of your screen.

Quick reference for Linux commands. (Commands 2 and 9 have not been mentioned before)

Command	Meaning
ls -al	list files and directories
mkdir *dirname*	make a directory dirname
cd *dirname*	change to directory dirname
cd ..	change to parent directory
pwd	display the path of the current directory
grep –r –i 'string' <path>	Search for string 'string' recursively, ignoring case, within files of the directory <path>
gedit textfile	view/edit textfile with gedit
ifconfig	view network configuration
cp snort.conf snort.old	Copy the file snort.conf into snort.old

********** Remember to use Tab to autocomplete files and directories**********
********** Remember to use Up and Down keys to view the commands history**********