

PRACTICAL-1

AIM:

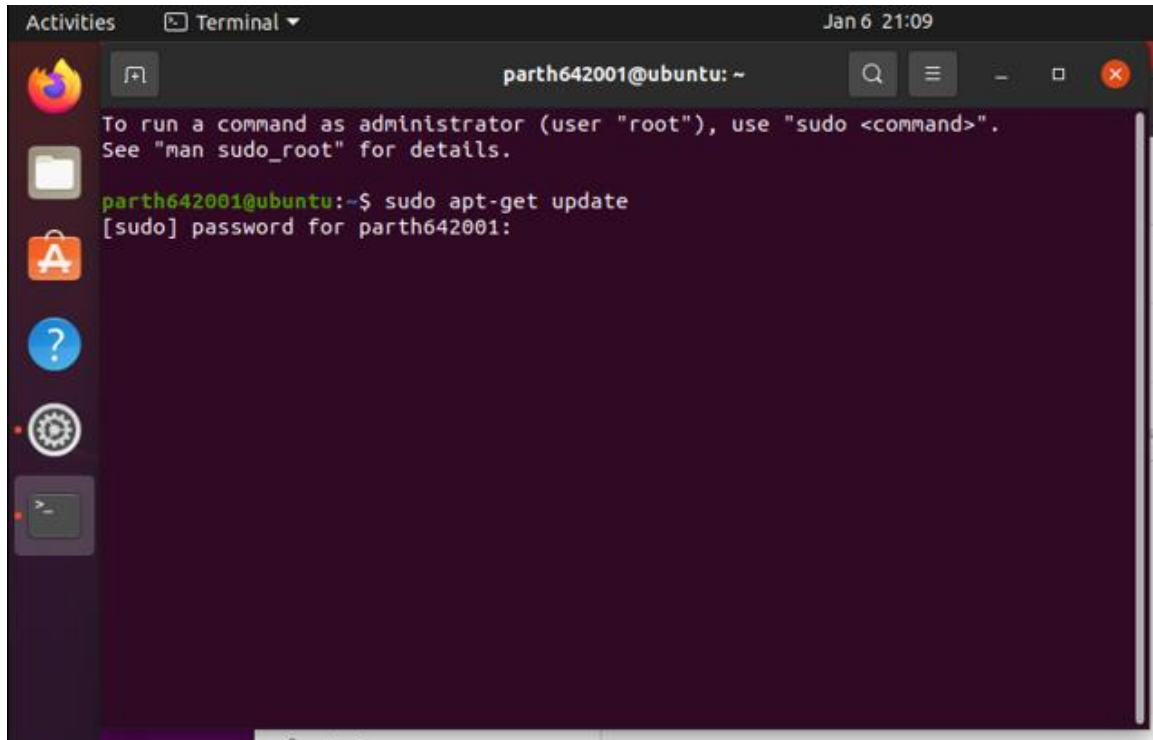
Installation and introduction of Mininet tool. Explore various features of Mininet tool.

THEORY:

- Mininet is a virtual testbed used for testing network tools and protocols.
- We will see how to use mininet from CLI (Command Line Interface) and also about the Miniedit, which is GUI version.
- Mininet can create a realistic virtual network on any type of machine
- Mininet offers the following features:
 - Fast prototyping for new networking protocols.
 - Simplified testing for complex topologies without the need of buying expensive hardware.
 - Realistic execution as it runs real code on the Unix and Linux kernels.
 - Open source environment backed by a large community contributing extensive documentation.
- Mininet was originally designed to experiment with OpenFlow2 and Software-Defined Networking (SDN)

INSTALLATION STEPS:

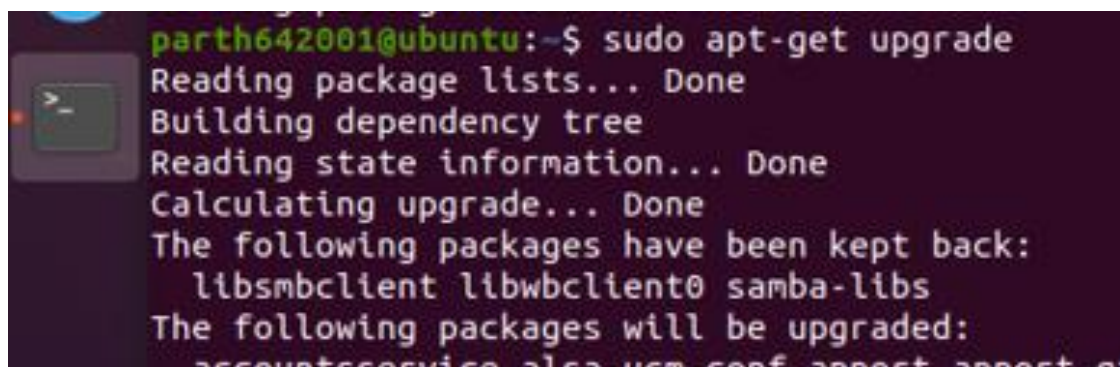
- To install the mininet, follow the below steps



A terminal window titled 'Terminal' with the username 'parth642001@ubuntu: ~'. The window shows the following text:

```
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
parth642001@ubuntu:~$ sudo apt-get update  
[sudo] password for parth642001:
```

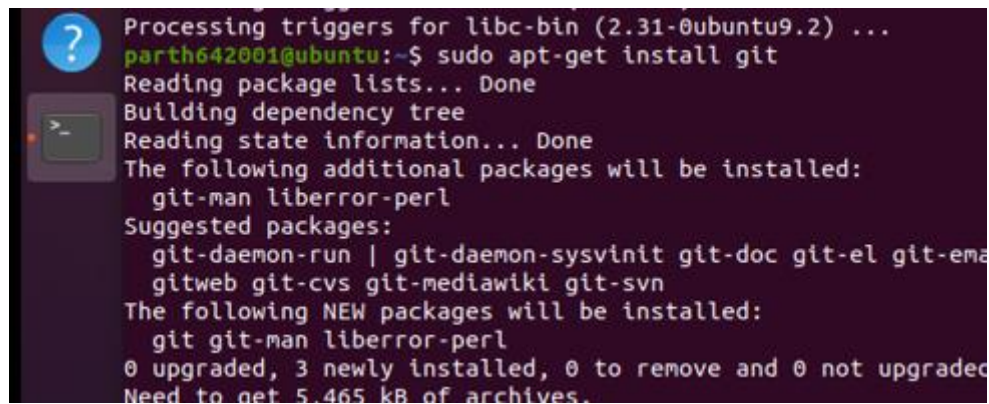
- Then follow the second step



A terminal window showing the output of the 'sudo apt-get upgrade' command:

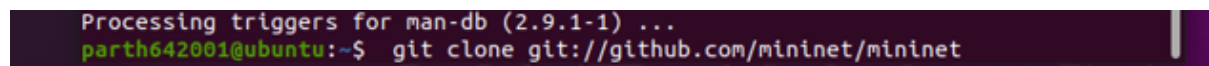
```
parth642001@ubuntu:~$ sudo apt-get upgrade  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
Calculating upgrade... Done  
The following packages have been kept back:  
  libsmbclient libwbclient0 samba-libs  
The following packages will be upgraded:  
  accountsservice alsa-ucm-conf apparmor apparmor-profiles
```

- Then install GIT



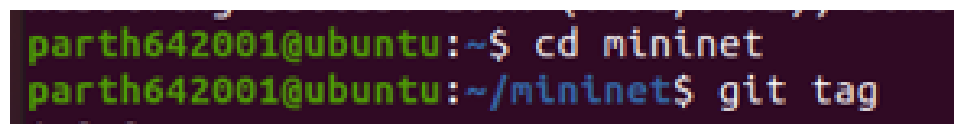
```
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
parth642001@ubuntu:~$ sudo apt-get install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  git-man liberror-perl
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-el git-email
  gitweb git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
  git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded
Need to get 5,465 kB of archives.
```

- Then enter the following command



```
Processing triggers for man-db (2.9.1-1) ...
parth642001@ubuntu:~$ git clone git://github.com/mininet/mininet
```

- Then traverse to the mininet folder and enter the below command



```
parth642001@ubuntu:~$ cd mininet
parth642001@ubuntu:~/mininet$ git tag
```

- Then select and the version of the mininet and enter the below commands



```
CS244 Spring 2012 Final
parth642001@ubuntu:~/mininet$ git checkout -b 2.2.0b2
Switched to a new branch '2.2.0b2'
parth642001@ubuntu:~/mininet$ ~/mininet/util/install.sh -a
```

- Enter the following command to start the mininet in the terminal

```
parth642001@ubuntu:~$ sudo mn
[sudo] password for parth642001:
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2
*** Adding switches:
s1
```

- To display the list of Mininet CLI commands and examples on their usage, type the following command

```
mininet> help

Documented commands (type help <topic>):
=====
EOF      gterm  iperfudp  nodes      pingpair   py        switch  xterm
dpctl    help   link      noecho     pingpairfull  quit      time
dump     intfs  links     pingall    ports      sh        wait
exit     iperf  net       pingallfull  px         source    x

You may also send a command to a node using:
  <node> command {args}
For example:
  mininet> h1 ifconfig

The interpreter automatically substitutes IP addresses
for node names when a node is the first arg, so commands
like
  mininet> h2 ping h3
should work.
```

- To display the available nodes, type the following command

```
mininet> nodes
available nodes are:
c0 h1 h2 s1
```

- Stop the emulation by typing the following command

```
mininet> exit
*** Stopping 1 controllers
c0
*** Stopping 2 links
..
*** Stopping 1 switches
s1
*** Stopping 2 hosts
h1 h2
*** Done
completed in 313.776 seconds
```

CONCLUSION:

By performing the above practical, I learnt how to install mininet in the Ubuntu Linux OS and its basic functionalities and commands.