Experiment No. 1

Familiarization with Networking Commands

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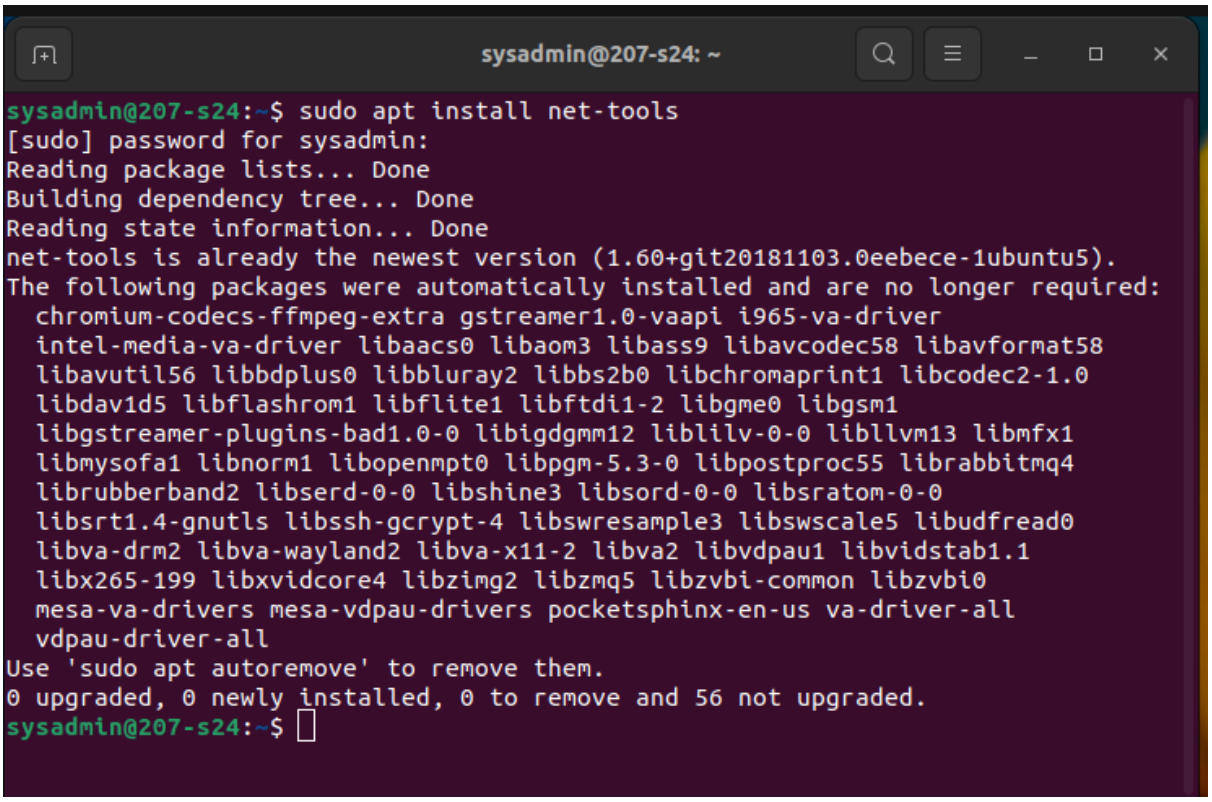
AIM: To study the basic networking commands.

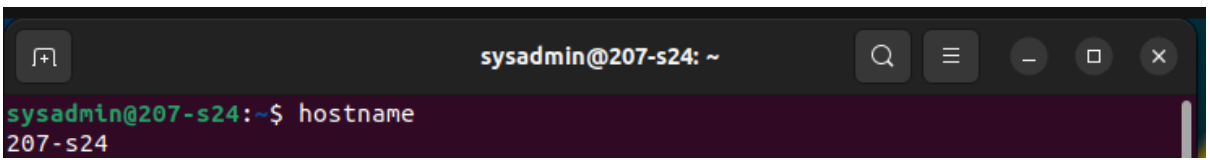
APPARATUS (Software): Linux OS and Terminal.

TASKS:

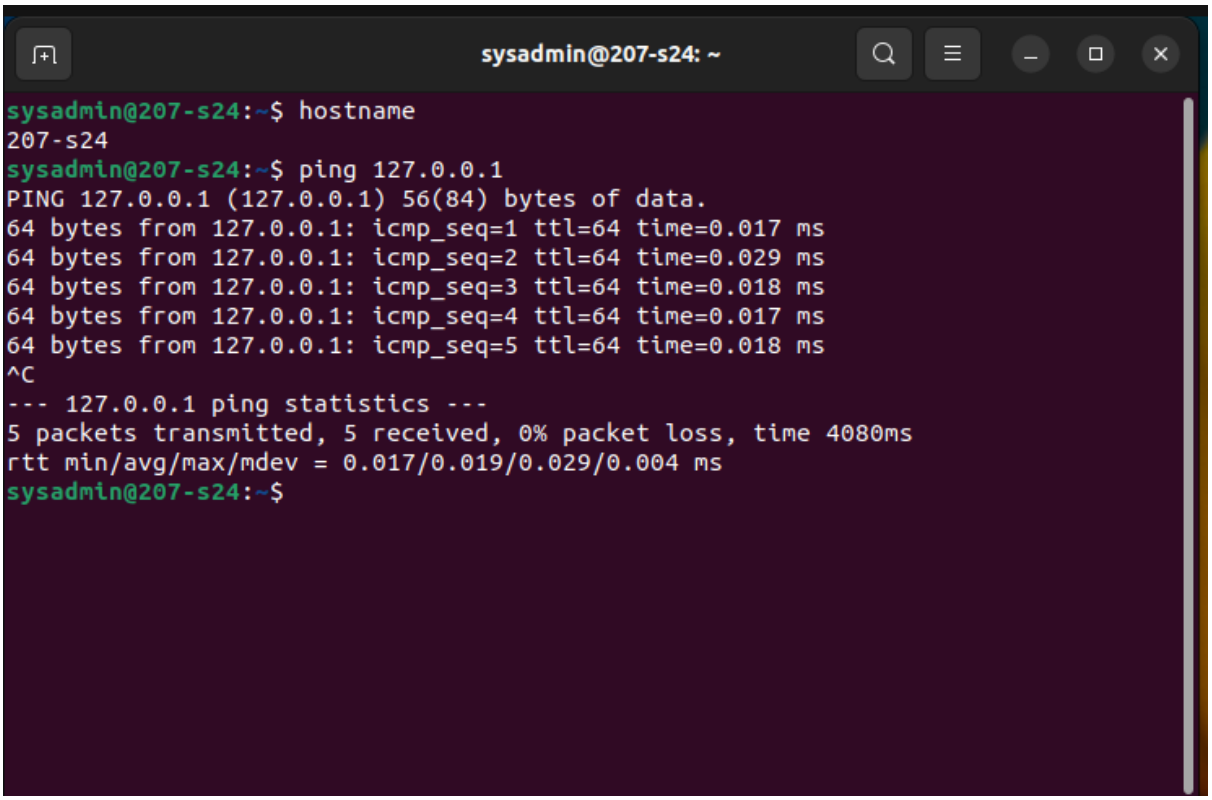
1. Install net-tools using **sudo apt install <package name>**



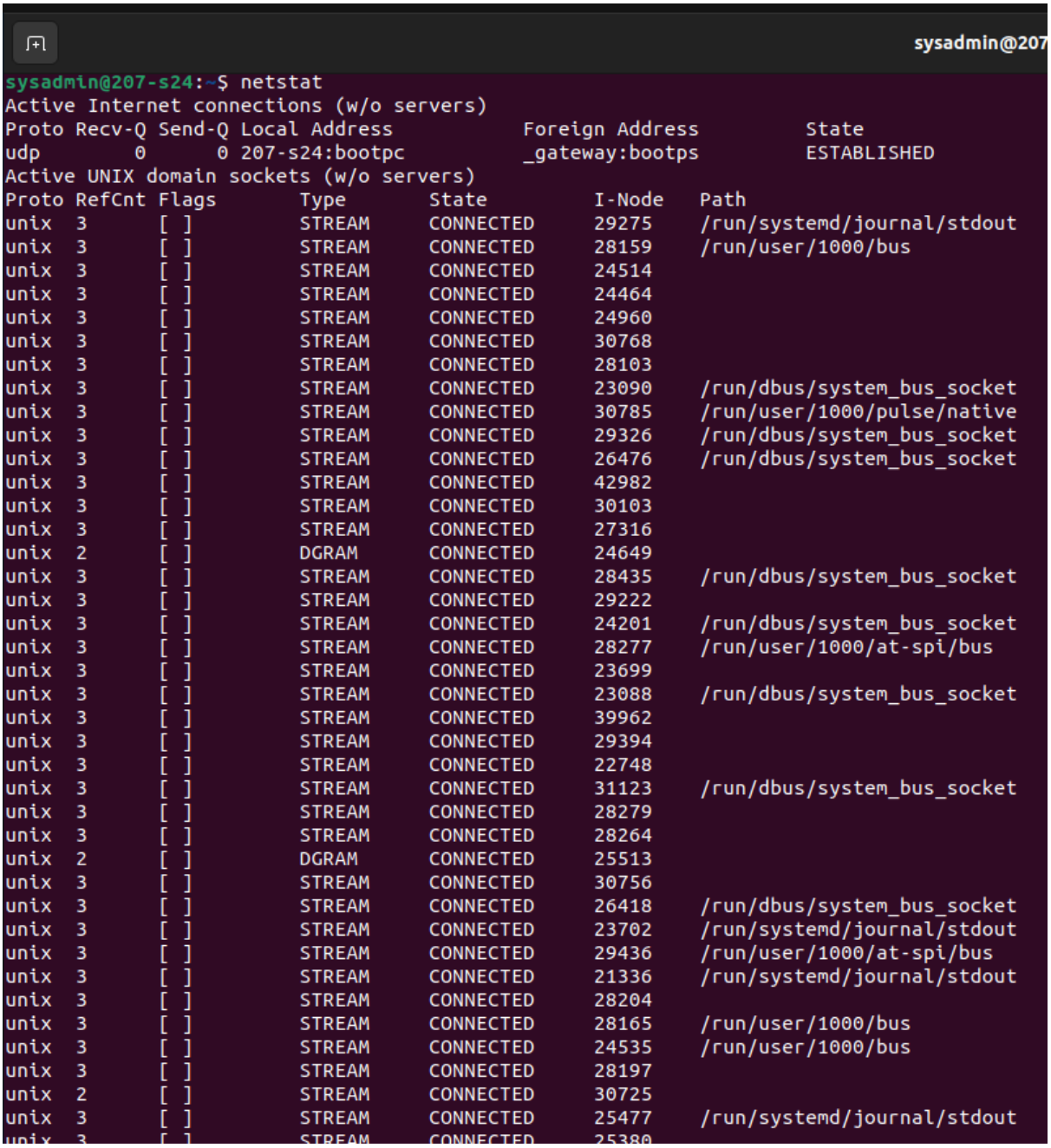
2. Use a command to display the name of your computer.



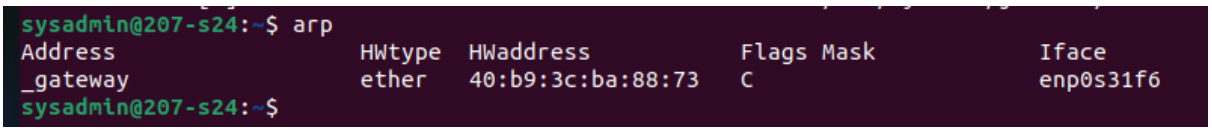
3. Use a command to check whether a system is connected to a network or not.



4. Use a command to display statistics of your network.



5. Use command **arp.** Check the result and explain the role of arp.



The arp command is used to access the mapping structure of IP addresses to the MAC address. This provides us with a better understanding of the transmission of packets in the network channel. [arp -a displays the mapping of IP addresses to their corresponding MAC addresses.]

6. Use the command **ifconfig.** Check the result and explain the role of ifconfig.

```
sysadmin@207-s24:~$ ifconfig
enp0s31f6: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.16.4.57  netmask 255.255.255.0  broadcast 172.16.4.255
        inet6 fe80::f7ed:5cc1:502f:dc91  prefixlen 64  scopeid 0x20<link>
        ether 50:9a:4c:40:7d:af  txqueuelen 1000  (Ethernet)
        RX packets 14592  bytes 10476892 (10.4 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 3542  bytes 341174 (341.1 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
        device interrupt 16  memory 0xef080000-ef0a0000

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 576  bytes 49886 (49.8 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 576  bytes 49886 (49.8 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

sysadmin@207-s24:~$
```

The ifconfig network command provides a collective view of information regarding the IP address configuration of the device we are currently working on.

7. Use the command **nslookup**. Check the result and explain the role of nslookup.

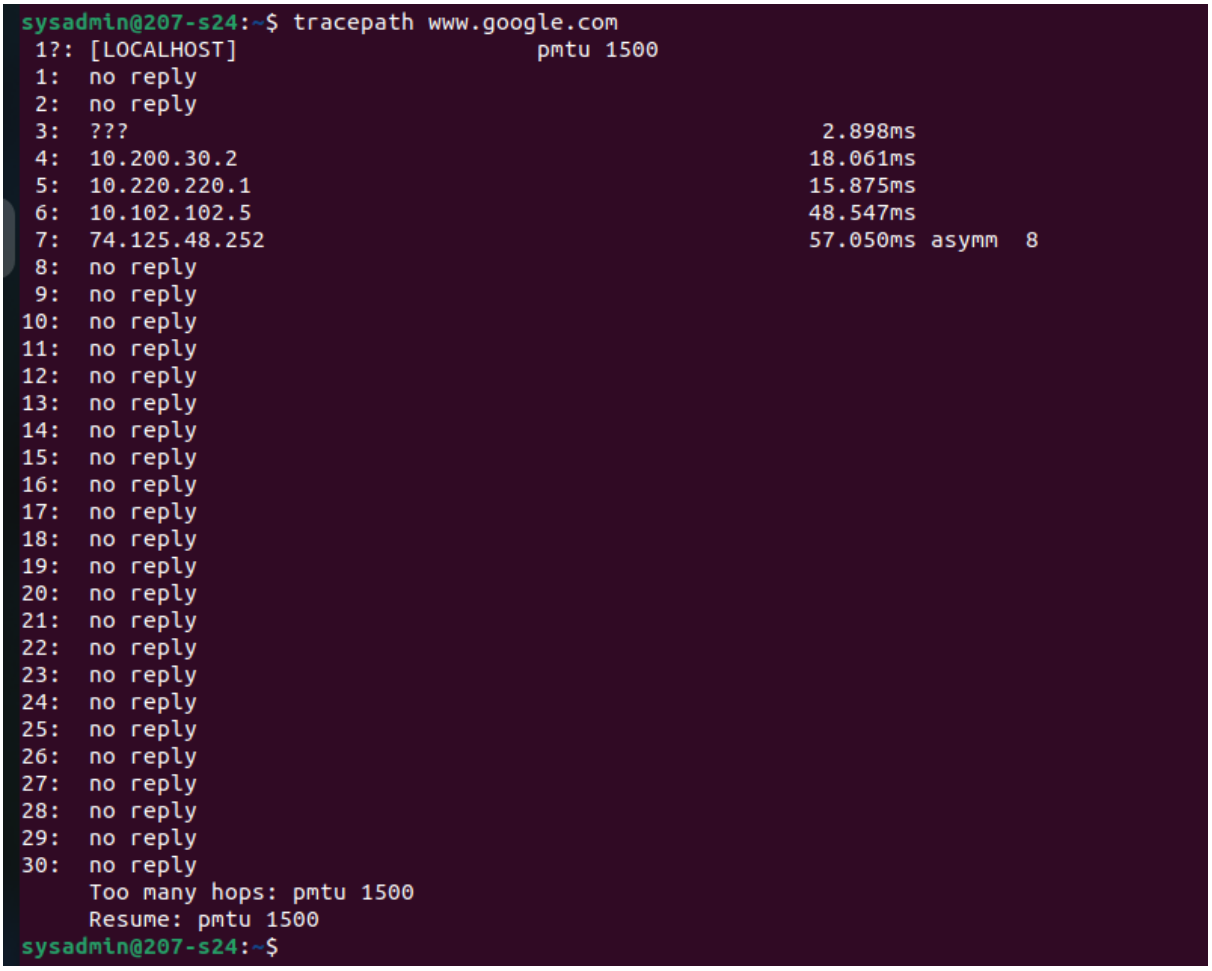
```
sysadmin@207-s24:~$ nslookup google.com
Server:         127.0.0.53
Address:        127.0.0.53#53

Non-authoritative answer:
Name:   google.com
Address: 142.250.207.206
Name:   google.com
Address: 2404:6800:4002:82e::200e

sysadmin@207-s24:~$
```

The nslookup command in Linux is used to query DNS servers and get information about domain names and their corresponding IP addresses.

8. Use the command **tracepath.** Check the result and explain the role of tracepath.



The tracepath command is used to trace the path from the origin to the destination. Each line in the tracepath output represents a router (hop) that the packet passes through.