Exp : 1
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Network commands used in Windows and Linux

1. C:\Users\Rec\> arp -a

Interface : 172.16.8.98 --- 0x6

Internet Address	Physical Address	Type
172.16.8.1	7C-5a-1C-cf-be-45	Dynamic
172.16.8.8	d4-3d-7e-ad-3f-ff	Dynamic
172.16.8.31	d4-3d-7e-ad-43-73	Dynamic

2. C:\Users\Rec> hostname

Desktop-INOI8LT

3. C:\Users\Rec> ipconfig/all

Windows IP Configuration

Hostname . . . . . : Desktop-INOI8LT

Wireless LAN Adapter Wifi:

Media State . . . . . : Media Disconnected

Wireless LAN adapter Local area connection * 9:

Media State . . . . . : Media Disconnected

Ethernet adapter Ethernet :

Description . . . . . : Realtek PCIe GbE family Controller

Physical Address . . . . . : 50-9A-4C-34-D4-CC

Ethernet adapter VMware Network adapter VMnet1:

Description . . . . . : VMware Virtual Ethernet Adapter for VMnet1

4 E:\users\Rec> nbtstat -a

Displays protocols statistics and current TCP/IP

NBTSTAT [[-a RemoteName] [-A IPaddress] [-c] [-n] [-s] [-R]
[-RR] [-r] [-S] [-S] [interval]]

5. C:\Users\Rec> net stat

Active Connections

Proto	Local Address	Foreign Address	State
TCP	172.16.8.98:42551	8a-in-f188:5288	Established
TCP	172.16.8.98:42688	8a-in-f100:https	close-wait
TCP	172.16.8.98:42690	maaos841-in-f4:https	close-wait

6. C:\Users\Rec> nslookup www.rajalakshmi.edu.in

Server: unknown
Address: 172.16.8.1
Non-authoritative answer:
Name: www.rajalakshmi.ed.in
Addresses: 162.255.119.253
182.185.184.183

7. C:\Users\Rec> pathping

-g hostlist Loose source route along hostlist
-h maximum_hops Maximum number of hops to search
-i address Use the specified source address.
-4 Force using IPv4

8. C:\Users\Rec> ping

-a resolve addresses to hostnames
-n count number of echo requests to send
-l size send buffer size.
-f set dont fragment flag in packet (IPv4-only)

C:\Users\Rec> route

-f clears the routing tables of all gateway entries

-p when used with add command, makes route persistent across the system.

Command	
Print	prints a route
add	adds a route
Delete	Delete a route
Mask	specified that the next parameter is the 'netmask' value
gateway	specifies gateway.
Metric	specifies the metric

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Linux Networking Commands

1. ip

ip address show

```
[root@localhost student]# ip address show
1. lo <loopback,up,lower_up> mtu 65536 qdisc
   noqueue state unknown group default qlen 1000
2. enp2s0 : <broadcast, multicast, up, lower_up> mtu 1500
   qdisc fq_codel state UP group default qlen 1000
3. wlp3s0 : <broadcast, multicast> mtu 1500 qdisc
   noop state down group default qlen 1000
```

ip address add

```
# ip address add 192.168.1.254/24 dev enp2s0
```

ip address delete

```
# ip address del 192.168.1.254/24 dev enp2s0
```

ip link set up

ip link set to up

ip link set down

ip link set to down

ip link set promisc on

ip link set to promisc on

ip route add default

ip route add default via 192.168.1.254 dev enp2s

Add default through gateway

ip route add 192.168.1.0/24 via 192.168.1.254

Adding route to device

ip route add 192.168.1.0/24 dev enp2s0

Delete route through gateway

ip route delete 192.168.1.0/24 via 192.168.1.254

Display route for IP

ip route get 10.10.1.4

10.10.1.4 via 172.16.8.1 dev ep2s0 src 172.16.8.92 uid 0 cache.

2. Config ip

3. mtr

mtr google.com

1. 172.16.8.1

Statistic #1.229.49

142.251.224.174

mtr -b

#mtr -b google.com

localhost.localdomain (0.1.0.0)

14.2.16.8.1

142.250.141.162

142.251.224.214

tcpdump -D

1. enp2s0 [up, running]
2. wlp3s0 [up, running]
3. any (pseudo device that captures interfaces)
4. lo [up, running]

tcpdump -i

#tcpdump -i enp2s0 src host 0.1.1.1

tcpdump: -vv for full protocol decode listening on enp2s0, link-type EN10MB capture size 262144 bytes.

ping -c

#ping -c 10 google.com

64 bytes from maa05s10-in-f14.1e100.net (216.58.200.142) icmp_seq=2 ttl=120

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Ethernet Connection Using nmcli

1. show

#nmcli connection show

New 802-3-ethernet connection 7d45b1ce-1899-4248-8649-02cc06ac7eb9 802-3-ethernet enp2s0

2. modify

#nmcli connection add con-name "New 802-3-ethernet connection" ifname enp2s0 type ethernet

Successfully added.

3. Rename

nmcli connection modify "New 802-3 ethernet connection"

Connection. interface-name auto

nmcli connection modify "New 802-3-ethernet connection"

connection, autoconnect yes

4. Current settings

nmcli show "New 802-3-ethernet connection".

connection. interface-name enp280

id : "New 802-3"

uuid : 28ff 109f - 370e - 42d5 - 904e

interface name: enp280

type : ethernet

autoconnect : yes

read-only : no

nmcli show "New 802-3-ethernet connection".

connect. autoconnect yes

id : "New 802"

uuid : 28ff 109f - 370e 42d5

type : ethernet

autoconnect yes

nmcli show "New" ipv4. method auto

nmcli show "New 802" ipv6. method auto

5. ipv4 settings

nmcli modify "New 802- " ipv4. method auto

nmcli modify "New 802- " ipv6. metho

nmcli connection modify "New 802" ipv4. method manual ipv4. address 192.0.2.1/24 ipv4. gateway

6. ipv6 settings

nmcli connection modify "New 802" ipv6.method au

nmcli connection modify "New 802" ipv6.method manual ipv6.addresses 2001:db8::1::fffe/64 ipv6.gateway 200:db8:1::ffe ipv6.dns 2001:db8:1:ff6 ipv6.dns-search example.com.

7. Activate profile

verification

1. # ip address show enp2s0

enp2s0 <broadcast, multicast, up, lower_up> mtu 1500 qdisc fq_codel state default qlen 1000

2. # ip route show default
default via 172.16.8.1 dev enp2s0 proto static metric 100 172.16.8.0/22 dev enp2s0 kernel

3. # ip -6 route show default

4. # ping google.com
ping google.com (142.250.182.46) 56(84) bytes of data
64 bytes from maa05s19-in-f14.1e100.net (142.250.182.46) : icmp_seq=1 ttl=60 time 3.14 ms

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