Ex.no: 01 Basic Networking Commands
Date: 16/01/24

AIM:-
Study of various Network Commands used in Linux and windows:

Basic Networking Commands in Windows:

arp -a

Interface: 192.168.26.1 --- 0x8

Internet Address	Physical Address	Type
192.168.221.255	ff-ff-ff-ff-ff-ff	Static
224.0.0.2	01-00-5e-00-00-02	Static
224.0.0.22	01-00-5e-00-00-16	Static
224.0.0.251	01-00-5e-00-00-fb	Static
224.0.0.252	01-00-5e-00-00-fc	Static
239.255.255.250	01-00-5e-7f-ff-fa	Static

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224.0.0.251	01-00-5e-00-00-fb	Static
224.0.0.252	01-00-5e-00-00-fc	Static
239.255.255.250	01-00-5e-7f-ff-fa	Static

2) hostname

DESKTOP-IJ8R188

3) IPconfig /all

Windows IP Configuration

Host Name . . . . . : DESKTOP-IJ8R1
Primary Dns Suffix . . . . :
Node Type . . . . . : Mixed
IP Routing Enabled . . . . : NO
WINS Proxy Enabled . . . . : No

4) nbtstat -a

Displays protocol statistics and current TCP/IP connections using NBT (Net BIOS over TCP/IP).

NBTSTAT [[-a Remote Name][-A IP Addres
[-c][-n][-r][-R][-RR][-s][-S]
[interval]]

-a (adapter status) Lists the remote machine's name table given its name

-RR (Release refresh) Sends Name Release packets to WINS and then, Start Refresh

RemoteName Remote host machine name.

IP Address Dotted decimal representation of the IP address.

5) netstat --

Active Connections

Proto	Local Address	Foreign Address	State
TCP	172.16.8.115:42278	20.198.119.84:https	Established
TCP	172.16.8.115:42380	13.107.213.254:https	Close_Wait
TCP	172.16.8.115:42502	52.167.164.84:https	Time_Wait
TCP	172.16.8.115:42611	142.16.50.194:ms-do	SYN_SENT

6) nslookup www.google.com

O/P:
Server : unknown
Address : 172.16.72.1

Non-authoritative answer:
Name : www.google.com
Address : 2404:6800:4007:81e:2004
142.250.183.228

7) Pathping -g DESKTOP-A7IULD8

O/P:
Tracing route to 172.16.75.28 over a maximum of 3
hops:

0 172.16.75.28
1 172.16.75.28

Computing statistics for 25 seconds...
Source to Here This Node/Li

HOP	RTT	Lost/Sent=Pct	Lost/Sent=Pct	Addr
			0/100=0%	Desktop-M [172.16.79.
0				
1	0ms	0/100=0%	0/100=0%	DESKTOP- A7102Pg [172.16.79.

trace Complete

8) ping www.rajalakshmi.edu.in

Pinging www.rajalakshmi.edu.in [162.255.119.253] with 32 bytes of data:

Reply from 162.255.199.253 :bytes= 32 time=243ms TTL=55

Reply from 162.255.199.253 : bytes=32 time=317ms TTL=55

Reply from 162.255.119.253 : bytes=32 time=254ms TTL=55

Ping statistics for 162.255.119.253:

Packets: Sent=4, Received 4, Lost=0(0% Loss)

Approximate round trip times in milli-seconds:

minimum = 243ms, maximum=314 ms, Average=269.

9) Route print 15↗

O/P:

Interface List

11...50 9a 4c 34 d7 bd... Realtek PCIe GbE family Controller.

10...16 ba ba 82 cb 4d... Microsoft wi-fi direct virtual Adapter.

18...26 ba ba 82 cb 4d... Microsoft wi-fi direct virtual Adapter #2

19...00 50 56 c0 00 01... Vmware Virtual ethernet Adapter for Vmnet1

8...00 50 56 c0 00 08... Vmware Virtual ethernet Adapter for Vmnet8

21...d4 ba ba 82 cb 4d... Dell wireless 1704 802.11b/g/n (2.4GHz)

15...d4 ba ba 82 cb 4e... Bluetooth device (Personal Area Network)

1..... Software Loopback Interface 1

IPV4 Route Table

Active Routes:

None

Persistent Routes:

None

IPV6 Route Table

Active Routes
None.
Persistent Routes
None.

Linux Console output

1. arp -a : a: unknown host
2. hostname : localhost.localdomain
3. ifConfig:

enp2s0: flags = 4163<UP, broadcast, Running
Multicast > mtu 1500
inet 172.16.8.118
netmask 255.255.252.0
broadcast 172.16.11.255.

4. nslookup www.google.com

Server: 172.16.8.1
Address: 172.16.8.1 #53

Non-authoritative answer:
Name: www.google.com
Address: 142.250.183.228
Name: www.google.com
Address: 2404:6800:4007:816::2004

5. netstat

Active Internet connections (w/o servers)

Proto	Recv-Q	Send-Q	Local Address	Foreign address	St
tcp	0	0	localhost.localdo:49746	142.28 183.238: https	E
tcp	0	689	localhost.localdo:3617	74.125-66.84 https	E

Proto Destination Source State BM RID SCID IMTU OMTO Securit

Important Linux Networking Commands

1. ip:

Ip command is one of the basic commands every administrato will need in daily work, from setting up new system and assigning IP's to troubleshooting existing systems.

Usage: IP [options] Object { Comman -d

Example: IP address show

1: lo: <loop back, up, lower up> mtu 6553
adisc noqueue state unknown
group default qlen 1000
link/loopback 00:00:00:00:00:00
brd 00:00:00:00:00:00

inet 127.0.0.1/8 scope

2. IPConfig:

To assign an address to a network interface and to configure or display the current network interface configuration information.

Output:

enp2s0: flags = 4163<UP, Broadcast, Running, Multicast> mtu 15000
inet 142.16.11.207
netmask 255.255.252.0
broadcast: 142.16.11.255

3. mtr: Serves as a network diagnostic tool.

Output: mytrace route (V0.82)
local host: Local domain (?:)
Keys: Help display mode
Restart statistics order of fields: quit

Host
1. ::1
Packets Pings
Loss% Snt Last Avg Best Wrst StDev
0.0% 17 6 0.1 0.1 0.0 0.0% 0.0

4. tcpdump: designed for capturing and displaying packets.

O/p: tcpdump -D
1. enp2s0 [UP, Running]
2. any (Pseudo-device that captures on all interfaces) [UP, Running]
3. lo [UP, Running, Loopback]
4. wlp3s0
5. bluetooth0 (bluetooth adapter number 0).

5. Ping:

tool to verify IP-level connecting to another TCP/IP computer by sending Internet Control message protocol (ICMP) Echo Request messages.

output: ping Localhost
Ping localhost (localhost (::1) 56 data bytes 64 bytes from localhost (::1): icmp-seq=1 ttl=64 time=0.053 ms

Ping -c 2 www.google.com
PING google.com (216.58.206.174) 56(84) bytes of data
64 bytes from 'Saf 02527-in-f14.1e100
(216.58.206.174): icmp-seq=1 ttl=56 time=10.7 ms.

Observation

1. Which command is used to find the reachability of a host machine from your device?

Ans: ping - command <hostname or IP>

Ping is the primarly TCP/IP command used to troubleshoot connectivity, reachability and name resolution.

2. Which command will we give the details of hops taken by a packet to reach its destination?

Ans: MTR (Matis trace route)

mtr command will show the route from computer to a specified host. mtr provides a lot of statistics about each hop, such as response time and percentage.

3. Which commands displays the IP configuration of your machine?

Ans: IP <options> <object> <commands>

Ip command can show address information, manipulate routing plus display network various devices network various devices, interfaces & tunnels.

4. Which command displays the tcp port status in your machine?

Ans: netstat

netstat displays variety of statistics about a computer active TCP/IP connections

5. Write the modify ~~the~~ IP configuration in a linux machine?

i) assigning IP Address to interface

IP address add 192.168.1.204/24 dev enp503

ii) deleting IP Address:

IP Address del 192.168.1.245/24 dev enp503

RESULT:

Study of various commands ~~in~~ 10/7/24 in linux and windows are successfully completed.