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NAME: Harish Rayavendar. S STD.: SEC.: ROLL NO.: 220701087 SUB.: Computer Network Observation

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Ex. No: 1 Computer Networks. Pg: 1

Date: 13/07/2024

Practical-1

Aim: Study of various network commands used in linux and windows.

Basic Networking Commands:

1. arp -a.

output:

Interface: 172.16.75.28 .... 0x13

Internet Address	Physical Address	Type
172.16.72.1	7C-5a-1c-cf-bc-41	dynamic
172.16.72.133	4C-ae-a3-65-95-f3	dynamic
224.0.0.2	01-00-5e-00-00-02	static
224.00.0.22	01-00-5e-00-00-16	static
239.0.0.8	01-00-5e-00-00-08	static

2. hostname:

O/P: DESKTOP-C01SH7C.

3. ipconfig/all:

O/P:

Windows IP configuration.

Hostname ..... : Desktop-C01SH7C.

primary DNS suffix:

IP routing Enabled ..... : No.

Node Type ..... : Hybrid.

WINS Proxy Enabled ..... : No.

④. nbtstat - a

O/P:

nbtstat - a DESKTOP - C01BHTC.

Ethernet 3 :

Node IpAddress : [0.0.0.0] Scope ID : L]

Host not found.

Bluetooth Network Connection:

Node IpAddress : [0.0.0] scope id : L]

Host Not found.

⑤. netstat

O/P: Active Connections.

Proto	Local Address.	Foreign Address.	State
TCP	127.0.0.0.1:49678	Desktop-C01BHT246779	Establi
TCP	127.0.00.1:49769	Desktop- C01BH766979	Establi
TCP	127.0.0:16.1:49719	Desktop- C01CCHttps.	closed
TCP	172.16.75.28:62150	a23-11-215-25: Https	close

⑥. nslookup www.google.com

O/P:

Server : Unknown.

Address : 172.16.72.1

Non-authorative answer :

Name : google.com.

Address : 2404:6800:4007:81e:2004

142.250.183.228

⑦. pathping -g Desktop-C01BCH7C.

o/p:

Tracing route to 172.16.75.28 over maximum of 30 hops.

0 172.16.75.28

1 172.16.75.25

Computing statistics for 25 seconds.

Source to Here

Hop	RTT	Lost/sent = Pct	Lost/sent = Pct	Address
0	|	--	|	Desktop-C01BCH7C [172.16.75.28]
1	0ms	0/100 = 0.1	0/100 = 0.1	Desktop-C01BH7C7C [172.16.75.28]

Trace complete.

⑧. Ping www.rajalakshmi.edu.in.

pinging www.rajalakshmi.edu.in [162.255.119.253]

with 32 bytes of data:

Reply from 162.255.119.253: byte = 32 time = 145ms TTL = 55

Reply from 162.255.119.253: bytes = 32 time = 319ms TTL = 55

Reply Ping statistics for 162.255.119.253:

packages: sent = 4, Received = 4, Lost = 0 (0% Loss)

Approximate round trips time in milli-seconds.

min = 243 ms, max = 319ms.

⑨. Route Print 157:

O/P:

Interface List:

18....20 88 10 86 C5 61 ..... Intel(R) ethernet connectivity I219-LM

12....4e 82 99 79 1f 95 ..... Microsoft Wi-fi Direct virtual adapter #5

IPV4 Route table.

Active Routes

None.

Persistent Route

None.

IPV6 Route Table

Active Routes :

None

Persistent route:

None

Linux Networking Commands:

1. ip:

usage: ip [OPTIONS] OBJECT {COMMAND | HELP}

ip [-force] -batch filename.

ip address show:

o/p:

1: lo: <LOOPBACK UP, LOWER UP> mtu

65535 qdisc noqueue state UNKNOWN group.

inet 127.0.0.1/8 scope host lo

2: enp2s0: <BROADCAST, MULTICAST, UP,>

inet 172.16.8.99/22 brd 172.16.11.255

valid lft forever preferred lft forever.

ifconfig:

lo: flags = 73 <UP, LOOPBACK, RUNNING>

inet: 127.0.0.1 netmask 255.0.0.0

inet6 :: 1 prefix len 128

RX packets 0

RX errors 0

enp2s0: flags = 4163 <UP, BROADCAST, RUNNING>

inet: 172.16.8.99 netmask 255.255.252.0

inet6: f680:6d71:6a56:6211:c2d6

RX packets 0

RX errors 0

③. mtr.

> mtr google.com.

o/p:

Host	Loss	Packets Snt	Last	Avg
1. 172.16.81.1	0.0%	57	0.6	0.6
2. 142.250.171.162	0.0%	81	0.7	7.3
3. 142.251.227.215	0.0%	101	2.1	11.2
4. maa05s12-in-f14	0.0%	132	9.1	15.2

④. tcpdump:

> tcpdump [-aABCD...Z#] [-B size] [-c count] ... [-r file]

tcpdump -r filename.

o/p: tcpdump -r hello.c

truncated dump file; tried to read 4 file header bytes, only got 0.

⑤. ping:

> ping google.com

o/p:

64 bytes from maa05s12-in-f14.1e100.net ... ttl=
64 bytes from maa05s12-in-f14.1e101.net ... ttl=

⋮

google.com ping statistics.

③. mtr.

> mtr google.com.

o/p:

Host	Packets Loss	Snt	Last	Avg
1. 172.16.81.1	0.0%	81	0.7	7.3
2. 142.250.171.162	0.0%	101	2.1	11.3
3. 142.251.227.215	0.0%	132	9.1	15.2
4. maa05s12-in-f14				

④. tcpdump:

> tcpdump [-aABCD...Z#] [-B size] [-c count] ... [-r file]

tcpdump -r filename.

o/p: tcpdump -r hello.c

truncated dump file; tried to read 4 file header bytes, only got 0.

⑤. ping:

> ping google.com

o/p:

64 bytes from maa05s12-in-f14.1e100.net ... ttl=120

64 bytes from maa05s12-in-f14.1e101.net ... ttl=120

⋮

google.com ping statistics.

18 packet transmitted, 18 received, 0% packet loss.

Configuring an ~~ethernet~~ connection using nmcli:-

(1). Listing Network Manager connection profiles:-

> nmcli connection show.

NAME	UUID	TYPE	Device
New 802-3-ethernet-connection	43c/a19.....	802-3-ethernet	enp2s0

(2) > nmcli connection add con-name kang ifname enp2s0 type ethernet.

> nmcli connection add con-name <connection-name> ifname <device-name> type ethernet.

O/P: connection added.

(3). nmcli connection modify (rename):-

> nmcli connection modify "kang" connection.id "King".

> connection.id / name changed.

④ nmcli connection delete ring

O/P :- connection ring deleted.

Question's Answers :-

1). 'Ping' to find reachability.

2). 'mtr < Web address >'

3). ip address show 'to show IP config

4). 'netstat'

5). 'ifconfig'

Result :-

Thus the various network commands of linux and window is studied.