EX : 01

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Basic Networking Commands

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

In windows:

1. arp -a :

```
Interface: 172.16.8.100 --- 0x5
  Internet Address      Physical Address      Type
  172.16.8.1            7c-5a-1c-cf-be-45     dynamic
  172.16.11.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.2             01-00-5e-00-00-02     static
```

2. hostname :

```
DESKTOP-8677MID
```

3. ipconfig /all :

```
Windows IP Configuration
   Hostname . . . . . : DESKTOP-8677MID
   Primary DNS Suffix . . . . . :
   Node Type . . . . . :
```

4. nbtstat -a :

Display protocol statistics and current TCP/IP connections using NBT (NetBIOS) over TCP/IP).

```
NBTSTAT [ [-a RemoteName] [-A IP address] [-c]
        [-n] [-r] [-R] [-RR] [-s] [-S]
        [interval ]]
```

5. netstat :

Active Connections

Proto	Local Address	Foriegn Address	State
TCP	172.16.8.100:51245	3d-in-f188:5228	Establishe
TCP	172.16.8.100:51389	a23-11-215-33:https	Close_wa
TCP	172.16.8.100:51411	20.198.118.190:https	Establishe

6. nslookup:

Default Server: Unknown
Address: 172.16.8.1

nbtstat
-a (adapter status) List the remote machine name table given its name

-A (Adapter status) List the remote machine's name table given its IP address.

-r (resolved) Lists names Resolved by broadcast and via WINS.

Example
nbtstat -r :

NetBIOS Names Resolution and Rigistration Statistics.

Resolved By Broadcast = 0
Resolved By Name Server = 0

7. pathping :

Usage: pathping [-g host-list] [-h maximum
-hops] [-i address] [-n] [-p period]
[-q num-queries] [-w timeout] [-4]
[-6] target-name

options:

-g host-list Loose source route along host-list
-h maximum-hops maximum number of
hops to search for target
-i address Use the specified source address

8. ping :

Usage: ping [-t] [-a] [-n count] [-l size]
[-f] [-i TTL] [-v TOS] [-r count]
[-s count] [[-j host-list] | [-k host
-list]] [-w timeout] [-R] [-S srcaddr]
[-c compartment] [-p] [-4] [-6] target
-name

Options:

-t Ping the specified host until stopped.
To see statistics and continue - Type
Control-Break;
To stop - type Control-C.

-a Resolve addresses to hostnames.

-n count Number of echo Requests to
send.

9. Route:

manipulates network Routing tables.

Route [-f][-p] [-4][-6] command [destination] [mask netmask] [gateway] [metric metric] [If interface]

-f Clears the routing tables of all gateway entries. If this is used in conjuction with one of the commands, the tables are cleared prior to running the command.

-4 Force using IPV4.

-6 Force using IPV6.

In linux:

1. ip:

Usage: ip [options] object {command | help}

ip [-force] -batch filename

where Object := {link | address | addrlabel | route | rule | neigh | ntable | tunnel | tuntap | maddress | mroute | mrule | monitor | xfrm | netns | l2tp | fou | macsec | tcp-metrics | token | netconf | ila | vrf}

Options: {-V [ersion] | -s[tatistics] |
-d[etails] | -r[esolve] |
-h[uman-readable] | -iec |
-f[amily] {inet | inet6 | ipx |
dnet | mpls | bridge | link }

2. ifconfig :

enp2s0: flags = 4163<UP, Broadcast,
Running, multicast> mtu 1500
inet 172.16.8.100 netmask
255.255.252.0 broadcast 172.16.11.255
inet6 fe80::7bb1:bfa8:24c2:
c2:c7bc prefixlen 64 scopeid 0x20
<link>
ether 50:9a:4c:34:d8:7e
txqueuelen 1000 (Ethernet).

3. mtr:
my traceroute (V0.87)
localHost. localdomain (::)
Keys: Help Display mode Restart Statistics
Order of fields quit.
Host
1. ::1

Packets Pings

Loss% Snt Last Avg Best Wrst StDev

0.0% 178 0.1 0.1 0.0 0.1 0.0

4. tcpdump:

tcpdump: enp2s0: You don't have permission to capture on that device (socket: Operation not permitted.

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:

Usage: ping [-aAbBdDfhLnOqr RUvVbA] [-c count] [-i interval] [-I interface] [-m mark] [-M pmtudisc_option] [-l preload] [-p pattern] [-Q tos] [-s packetsize] [-S sndbuf] [-t ttl] [-T timestamp

-option] [-w deadline] [-W timeout]

[hop1 ...] destination.

Result: Thus the study of Linux and Windows basic commands are studied sucessfully.

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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 primary TCP/IP command used to trouble shoot connectivity, Reachability and name Resolution.

2. Which command will be 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 a 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 ipconfiguration in a linux machine?

i) assigning ip address to interface

ip address add 192.168.1.254/24 dev enp503.

ii) deleting ip address:

ip address del 192.168.1.254/24 dev enp503.