Ex no: 1

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Practical - 1.

(Basic Networking Commands).

1. Study of various Network commands in Linux and windows.

Aim: Study of various Network commands used in Linux and Windows

Basic Networking Commands (In windows).

(i). arp - a

output:

Internet Address	Physical Address	Type
172.16.8.1	7c-5a-1c-cf-be-45	dynamic
172.16.8.14.	d4-3d-7e-c8-88-a1	dynamic
172.16.8.41.	f8-bc-12-69-7f-c9	dynamic

(ii) hostname.

output:

DESKTOP-6PTV2BQ

(iii). ipconfig /all.

output

Windows IP Configuration

Host Name . . . . : DESKTOP-6PTV2BQ.
Primary Dns Suffix . . . :
Node Type . . . . . : Mixed.
IP Routing Enabled . . . . . : No
WINS Proxy Enabled . . . . . : No.

(iv) . nbtstat -a.

Output:

Displays protocal statistics and current TCP/IP connections using NBT (NetBIOS over TCP/IP).

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

- a (adapter status) Lists the remote machine's name table given its name
- A (adapter status) Lists the remote machine's name table given its IP address.
- c (cache) Lists the NBT's cache of remote [machine] names and their IP addresses.

(v). netstat;

output:

Active Connections

Proto	Local Address.	Foreign address	State
TCP.	172.16.8.101:49688	20.198.118.190:hHps	EstaBLISHE
TCP	172.16.8.101:65053	52.109.56.128:hHps	CLOSE_WAIT
TCP.	172.16.8.101:65054	152.195.38.76:hHps	CLOSE_WAIT

(vi) . nslookup

Control-C → to exit >.

output:

Default Server: Unknown.

Address: 172.16.8.1

(vii) pathping

output:

Def 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

(viii) . ping

Output

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 address to hostnames.

-n count Number of echo requests to send.

(ix). Route.

output:

Manipulates network routing tables.

ROUTE [-f] [-p] [-4|-6] [-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 conjunction with one of the commands, the tables are cleared prior to running the command.

-p When used with the ADD command, makes routes are not preserved when the system is restarted. Ignore for all other commands, which always affect the appropriate persistent routes

-4 Force using IPv4.

Important Linux Networking Commands

(i). ip

output.

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 }

(ii). ifconfig

output :

enp2s0: flags=4163<UP, BROADCAST, RUNNING, MULTICAST> mtu 1500.

inet 172.16.11.36 netmask 255.255.252.0 broadcast 172.16.11.255

inet6 fe80::d7e4:f387:92f5:d315 prefixlen 64 scopeid 0x20<Link>

ether 50:99:4C:35:of:75 txqueuelen 1000 CEthernet.

(iii) mtr

Press q to quit.

output

My traceroute [v0.87]

localhost.localdomain (::)

Keys: Help ... quit Sat Jul 20 11:37:39 2024

Host	Packets			Pings			
1. ::1	Loss%	Snt	Last	Avg	Best	Wrst	StDev
	0.0%	129	0.1	0.1	0.0	0.1	0.0

(iv) tcpdump -D

output:

1. enp2s0 [up, Running]
2. any (Pseudo-device that captures on all interfaces) [up, Running]
3. lo [up, Running, Loopback]
4. wlp3s0 [up]

(v) ping

output

usage: ping [-qAbBdDfhLnOqrRUVv64] [-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_options] [-w deadline] [hop1 ...] destination.

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 primary TCP/IP can troubleshoot connectivity, reachability and name resolution.

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

Ans: mtr (matt's trace route)
mtr command will show the route from a computer to a specified host. mtr provides a lot of statistics about each hoop., such as response time and percentage.

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

Ans: ip <options> <object> <command>
Ip command can show address information, manipulate routing, plus display network various devices network various devices network various devices, interfaces & tunnels

4. Which command displays the TCP port status in your machine.

Ans: netstat
netstat displays varity 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 192.168.1.254/24 dev enp803

(ii). deleting IP address.

ip address del 192.168.1.254/24 dev enp803.

Result: Thus, the various network commands used in linux and windows are studied and executed successfully.

11/12/24