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Ex: ① Basic Networking commands

Aim:

Study of various network commands used in Linux and Windows.

Linux commands:

(1) `arp -a`: address resolution protocol (IP addresses of computers)
o/p: gateway (172.16.8.1) at 7c:5a:1c:c7:be:45 [ether] on enp2s0.

(2) `hostname`: displays name of computer
o/p: localhost.localdomain.

(3) `ipconfigall`: displays detailed configuration information about TCP/IP including Router, Gateway, DNS, DHCP, & type of Ethernet.

(3) `ifconfig`:

o/p: `enp2s0 flags=4163<UP, BROADCAST, RUNNING, MULTICAST> mtu 1500`

`inet 172.16.8.115 netmask 255.255.252.0 broadcast`

`inet6 fe80::a1de:c5::8008 prefixlen 64 scopeid 0x20000000`

`ether 5b:9a:4c:34:d7:bd txqueuelen 1000`

`Rx packets 118114 bytes 37790733`

`Rx errors 0 dropped 14 overruns 0 frame 0`

`tx packets bytes`

`TX errors 0 dropped 0 overruns 0 carrier 0 collisions`

`lo: flags=73<UP, LOOPBACK, RUNNING> mtu 65536`

`wlp3s0: flags=4099<UP, BROADCAST, MULTICAST>`
`: ether`

`Rx
Rx
Tx
Tx`

(4) ip - address info., manipulate routing, network, interfaces, tunnels.

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: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000.

(5) mtr - pgm with a CLI that serves as a network diagnostic & troubleshooting tool.

mtr google.com

Host

packets, pings

1. 172.16.8.1
2. static-41.229.249.49-tataidc.co.in
3. 142.250.171.162
4. 142.251.227.215
5. 142.250.228.81
6.net

(6) tcpdump - capturing & displaying packets.

(7) ping google.com

64 bytes from maap5c12-in-f14.1e100.net
(142.250.67.46): icmp_seq=1 ttl=120 time=2.33 ms

Windows commands:

(i) arp -a

Output:

Interface: 172.16.8.98 --- 0xb		
Internet Address	Physical Address	Type
172.16.8.1	7c-5a-1c-cf-be-45	dynamic
172.16.10.57	d8-bb-c1-c5-cd-76	dynamic
Interface: 192.168.58.1 --- 0xf		
Internet Address	Physical Address	Type
192.168.58.255	ff-ff-ff-ff-ff-ff	static
224.0.0.2	01-00-5e-00-00	static

(ii) hostname

DESKTOP-TNOTSCT

(iii) ipconfig /all

Windows IP Configuration

Host name : DESKTOP-TNOTSCT

Primary Dns Suffix:

Node Type : Mixed

IP Routing Enabled: No

WINS Proxy Enabled: No

(iv) nbtstat -a

NBTSTAT [[-a RemoteName] [-A IP address] [-c] [-x] [-R] [-RR] [-S] [-S] [interval] [-n]

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

(v) netstat

Active Connections			
Proto	Local address	Foreign Address	State
TCP	172.16.8.98:49831	*:80:Http	CLOSE-WAIT
TCP	172.16.8.98:49833	*:80:Http	CLOSE-WAIT

(vi) nslookup www.google.com

Server: Unknown

Address: 172.16.8.1

Non authoritative answer:

Name: www.google.com

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

142.250.183.228

(vii) pathping

usage pathping [-q host-list] [-h maximum hops]
[-p period] [-q num-queries]

(viii) ping www.facebook.com

pinging star-mini.via.facebook.com [157.240.192.35]
with 32 bytes of data:

Reply from 157.240.192.35: bytes=32 time=8ms

(ix) 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

Questions:

(1) which command used to find the reachability of a host machine from your device?
ping <hostname>

(2) which command will give the details of hops taken by a packet to reach its

destination?

trace route <host name>

(3) Which commands display the IP configuration of your system:
ip config, ifconfig

(4) Which command displays the TCP port status in your machine?
netstat

(5) ~~to~~ Write the modify ip configuration in Linux machine:

- Log in as a root user and start a terminal session.
- Input the 'ifconfig' command prompt.
- Input 'ifconfig' followed by the network interface and your new IP address.
- Press Enter.

RESULT:

Thus the network basic commands of Linux & windows are studied.

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