01
16/07/2024

PRACTICAL - 1

AIM

Study of various network commands used in Linux and windows

Basic Networking commands

1) ifconfig -a : It will show IP address of your computer

O/P Interface 172.16.75.74 ---0x12

Internet address	physical address	TYPE
172.16.72.1	7C-5a-1c-cl-be-41	dynamic
172.16.75.77	4C-82-99-78-8C-85	dynamic
172.16.79.255	ff-ff-ff-ff-ff-ff	static
239.255.255.251	01-01-5f-7f-ff-ff	static

2) Hostname : It displays the name of computer

O/P DESKTOP - C01BH2P

3) ifconfig /all : The command displays detailed configuration information

O/P windows IP configuration

Hostname - DESKTOP - C01BH7P
primary Dns Suffix -
Node Type Hybrid
IP Routing enabled - NO
wins proxy Enabled - NO

Ethernet Adapter Ethernet 3
Media state - Media disconnected

Lan connection - Specific DNS suffix
Description - Intel (R) ethernet connection (7) I219-LM
Physical address - 20-98-10-86-C7-A6
DHCP Enabled - Yes
Auto configuration - Yes

4) Nbtstat -a : Displays protocol stats and current TCP/IP connection using NBT

O/P
Remote Name - Remote host machine Name
IP address - Dotted decimal representation of the IP address
Interval - Redisplay selected statistics pausing interval seconds between each display press Ctrl+C to stop redisplaying statistics

5) netstat : It display a variety of statistics about computers active TCP/IP connection

O/P

Proto	Local address	Foreign address	State
TCP	127.0.0.1:49618	DESKTOP-CO1BHTP:49619	Established
TCP	172.16.75.74:59030	204.79.197.222:https	CLOSE WAIT
TCP	172.16.75.74:59089	maa05s32-in-f3:https	CLOSE WAIT
TCP	172.16.75.74:59093	maa05s06-in-f3:https	Established

6) nslookup

[name server lookup] is a tool used to perform DNS lookup in linux

o/p nslookup www.google.com

Server : dns.google

Address : 8.8.8.8

non-authoritative answer

name : www.google.com

Address : 2404:6800:4007:82a::2004

142.250.194.36

7) ping : command is the best way to test connectivity between two nodes

Some important linux command

1) ip - It shows address information, manipulating routing, plus display network various device interface and tunnel

a) ip address show

1: enp2s0: <BROADCAST, MULTICAST, UP, LOWER_UP>

mtu 1500 qdisc fq_codel state UP group default 1000

link/ether 50:9a:4c:3f:0c:c4 brd ff:ff:ff:ff:ff:ff

inet 172.16.9.206/22 brd 172.16.11.255

scope global dynamic enp2s0

valid_lft 3083 sec preferred_lft forever

inet6 fe80::c5d5:2882:c6b4:a5a6/64 scope link

valid_lft forever preferred_lft forever

2) WLP 3s0: <BROADCAST, MULTICAST>

mtu 1500 qdisc noop state DOWN group default qlen 1000 link/ether ee:cb:2e:0c:cc:84

brd ff:ff:ff:ff:ff:ff

b) ip address add 192.168.1.254/24 dev enp0

c) ip address del 192.168.1.254/24 dev enp2s0

d) ip link set emp250 up

e) ip link set emp250 down

f) ip link set emp250 promisc on

g) ip route add default via 192.168.1.254 dev emp280

h) ip route add 192.168.1.0/24 via 192.168.1.254

(i) ip route add 192.168.1.0/24 dev emp280

RTNETLINK : File exist

(j) ip route delete 192.1680.1.0/24 via 192.168.1.254

(k) ip route get 10.10.1.4

10.10.1.4 dev emp 250 src 192.168.1.254

mtu 0 cache

2) ifconfig :

output

emp250 flag - 4163 <up, Brodcast, Running multicast> mtu 1500

inet 172.16.8.118 netmask 255.255.255.0

broadcast 172.16.11.255

Inet 6 fe80::fe7:5699.a990 prefixlen 64 scopeid 0x20 link

Rx errors 0 dropped 37 overrun 80 frame 0

lo : flags = 73 <up, loopback, Running> mtu 65536

inet 127.0.0.1 netmask 255.0.0.0

inet 6 ::1 prefix len 128 scopeid 0x10 <host>

loop tx queue len 1000 (local-loop)

3) mtr :-

mtr - google.com

output - localhost. local domain (0.0.0.0)

keys : help display mode

Restart statistic order of field quit

most

(1) 172.16.8.1

(2) static 41.229.249.49 - tatage - co - in

(3) 142.250.171.162

(4) 142.251.227.215

(5) 142.250.228 - 27

(6) maa 05s12 - in - f14.1e100.net

4) ping

ping www.google.com

output

64 byte from maa05s12-in-f14-1e100.net
icmp-seq=1 ttl=120 time=8.26 ms

64 bytes from maa05s12-in f14-1e100net
icmp-seq=2 ttl=120 time=42.5ms

64 bytes from maa05s12-in-f14 1e100.net
(142.250-67.46) icmp-seq=3
ttl=120 time=2.38 ms

5) tcpdump:-

apt install -y tcpdump
package tcpdump-14.4.9.0-2 6226.1686 is
already installed completed

tcpdump -D
1) enp 250 [up, running]
2) lo [up, running, loopback]
3) wlp350 [up]

tcpdump -i enp250
10:38:21.937811 ARP Request who has
172.16.11.28 tell 17.16.9.18.2, length 46
10:38:21:95 9532 IP localhost.local domain
39760> gateway domain 9299-1 PTR 228.11
16.172.in
add..arpa

#tcpdump -i etho -c 10
10:43:22:861515 ARP, Request who has
172.16.11.200 tell 172.16.11.100 length 46
10:43:22.869014 IP gateway.domain>
localhost local domain .58925:50925
NXDomain 61010(cea)

tcp dump -i eth0 -c 10 host 8.8.8.8

listening on emh 250, link-type EN10MB
capture - size 262144 bytes (Ethernet)

tcpdump -i eth0 src host 8.8.8.8

tcpdump -i eth0 dst host 8.8.8.8

capture traffic to and from a network

tcp dump -i emh250 net 10.1.0.0 mask 255.255.255.0

tcp dump -i emh250 net 10.1.0.0/24

capture traffic to and from port numbers

tcp dump -i eth0 port 53

10:59:46.855349 IP local host.local domain <45064> gateway. domain: 18237+A
chat.google.com

tcp dump -i emh250 host 8.8.8.8 and port 53

tcp dump -i emh280 -c 10 host www.google.com and port 443

tcpdump -i emh 250 port not 53 and not 25

11:03:21:310:111 IP172.16.9.181.55172 > 239.255.255.250 SSAP: UDP
length 175

Configuring an ethernet connection by using nmcli procedure

1) # nmcli connection. show
Device UUID
new 702-3-3- ethernet 7cce6fa4-c64c-4962-a0bb-b6ce2053 8

Type
802-3-ethernet

2) # nmcli connection modify "wired connection" to rename the connection

3) # nmcli connection show

4) configure
ipv6 settings
nmcli connection modify "wired connection 1"
ipv4 method auto

verification

1) ip address show enp 250
enp 250: <BROADCAST, MULTICAST, UP, LOWER UP> mtu 1500 qdisc fq-codel state UP group default qlen 1000
link/ether 50:9a:42:34:bq:eb brd: ff:ff:ff:ff:f

2) ip route show default
default via 172.16.8.1 dev enp 250
proto static metric 17

3) ip -6 route show default

4) ping www.google.com

5) Display the DNS setting

```
# cat / etc / resolv . conf
# generated by a network
Manager Net server 172.16.8.1
```

RESULT :-

Thus the study of various network command used in linux and windows is successful.

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