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Lab Report

Department of Information and Communication
Technology

Report No: 01

Report Name: Laboratory on Linux Basics.

Course Title: Network Planning and Design Lab.

Course Code: ICT-3208

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Theory: Because 1 byte is equal to 8 bit is most accepted standard on Internet and with 8 bits you can't write number more than 255 in binary. Binary is number system made from 0s and 1s so maximum binary 8 bit number is 11111111

To convert in to decimal

$$2^0 + 2^1 + \dots + 2^7 = 255$$

So that you can't have more than 255.

As, 255 is reserved as broadcast address so you can say that you can't have ip bigger than 254 on your system .

IP & MAC address :

IP address: For most of us who are everyday computer users, our IP addresses are provided by an Internet Service Provider (ISP), typically a cable company such as Cox Communications, Time-Warner Cable or a phone company such as AT&T. Once you set up an account with an ISP, they will automatically assign you a unique IP address.

MAC address : A MAC address is given to a network adapter when it is manufactured. It is hardwired or hard-coded onto your computer's network interface card (NIC) and is unique to it.

My laptop having this address:

IPv4 address:	192.168.0.102
IPv4 DNS servers:	192.168.0.1
Manufacturer:	Realtek Semiconductor Corp.
Description:	Realtek RTL8723BE Wireless LAN 802.11n PCI-E NIC
Driver version:	2023.70.213.2018
Physical address (MAC):	A8-A7-95-8B-0D-CB

Routing table basis: open command prompt & type “ netstat –r “

New Interface: ip address 192.168.32.2 net mask 255.255.255.0 result is null.

The screenshot shows a Linux terminal window with the following output:

```
shanto@shanto-Lenovo-Ideapad-100-14IBD: ~  
File Edit View Search Terminal Help  
0.0.0.0 192.168.0.1 0.0.0.0 UG 600 0 0 wlp3s0  
169.254.0.0 0.0.0.0 255.255.0.0 U 1000 0 0 wlp3s0  
192.168.0.0 0.0.0.0 255.255.255.0 U 600 0 0 wlp3s0  
shanto@shanto-Lenovo-Ideapad-100-14IBD:~$ sudo ifconfig eth0 19.168.2.32 netmask  
255.255.255.0  
SIOCSIFADDR: No such device  
eth0: ERROR while getting interface flags: No such device  
netmask255.255.255.0: Unknown host  
ifconfig: '--help' gives usage information.  
shanto@shanto-Lenovo-Ideapad-100-14IBD:~$ sudo eth0 192.168.2.32 netmask 255.255.  
255.0  
sudo: eth0: command not found  
shanto@shanto-Lenovo-Ideapad-100-14IBD:~$ sudo config eth0 192.168.2.32 netmask 2  
55.255.255.0  
sudo: config: command not found  
shanto@shanto-Lenovo-Ideapad-100-14IBD:~$ sudo config eth0 192.168.2.32 netmask 2  
55.255.255.0  
sudo: config: command not found  
shanto@shanto-Lenovo-Ideapad-100-14IBD:~$ sudo ifconfig eth0 192.168.2.32 netmas  
k 255.255.255.0  
SIOCSIFADDR: No such device  
eth0: ERROR while getting interface flags: No such device  
SIOCSIFNETMASK: No such device  
shanto@shanto-Lenovo-Ideapad-100-14IBD:~$
```

The PDF document '0.0-Linux_command_networking.pdf' is open in the background, showing the following text:

4) Virtual Interfaces

Linux offers the possibility to create a new virtual interface, if needed, you can create a new virtual interface with the following command:

a) Create a new virtual interface with the IP address 255.255.255.0 then check the status of your interface with the following command:

b) Now, you need to set the IP address of the interface to 255.255.255.0. Otherwise, everyone else will be able to access the interface. Issue the needed command to set the IP address of the interface to 255.255.255.0.

c) Next remove the route for this interface, (write down the command(s) in your written report).

d) Then remove the interface completely, (write down the command(s) in your written report).

5) Add a New Network

```
Python 3.8.5 (tags/v3.8.5:580fbb0, Apr 24 2020, 10:01:02) [AMD64] on win32  
Type "help", "copyright", "credits()" or "quit()" for more  
>>>
```

```
shanto@shantohp: S sudo config -t  
Enter Y/N  
shanto(config)#ip dhcp pool lanown  
shanto(dhcp-config)#network 10.0.0.0 255.0.0.0  
shanto(dhcp-config)#def  
shanto(dhcp-config)#default-shanto 10.0.0.1  
shanto(dhcp-config)#dns  
shanto(dhcp-config)#dns-server 9.9.9.9  
shanto(dhcp-config)#exit
```