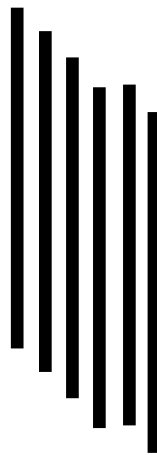# International College
Lab Report on
Computer Network (IP address, Subnetting and adding static IP)

BSc (CSIT) 4th Semester

Lab Report Number: 05

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Roll no: 05

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Lecturer

5) Overview of IP Addressing and sub-netting, static IP setting on Linux/windows machine, testing

➢ Introduction

IP address stands for internet protocol address; it is an identifying number that is associated with a specific computer or computer network. When connected to the internet, the IP address allows the computers to send and receive information.

Subnetting is the practice of dividing a network into two or smaller networks. It increases routing efficiency, which helps to enhance the security of the network and reduces the size of the broadcast domain.

➢ Objective

subnetting help to relieve network congestion and improve efficiency in the utilization of the relatively small network address space available especially in IPv4.

➢ Procedure

⬜ Adding a static IP address to Linux (Debian)

1. nano /etc/network/interface.d
2. You may see a line looking like this auto eth0 iface eth0 inet dhcp
3. Change it adding address, netmask, gateway and dns servernames. auto eth0 iface eth0 inet static address 192.168.0.100 netmask 255.255.255.0 gateway 192.168.0.1 dns-nameservers 4.4.4.4 dns-nameservers 8.8.8.8
4. Save the file and then edit /etc/resolv.conf nano /etc/resolv.conf
   nameserver 8.8.8.8 #replace with your name server IP
   nameserver 8.8.8.8 #replace with your name server IP
5. Restart the networking on your system /etc/init.d/network restart
   Systemctl restart network

⬜ To set a static IP address in Windows 10:

1. Launch Settings > Network & Internet.
2. Click "Properties".
3. Click "Edit" under "IP settings".
4. Select "Manual" from the dropdown menu.
5. Enable the "IPv4" toggle button.
6. Fill out the IP settings form.

➢ Diagram

o Testing in Linux (Debian)

Manually adding static IP in windows machine

```
  /etc/resolv.conf *
# Added Name server
nameserver 192.168.0.1




^G Help    ^O Write  ^W Where Is
^X Exit    ^R Read F ^\ Replace
```

```
       New Buffer *
auto eth0
iface eth0 inet static
address 192.168.0.100
netmask 255.255.255.0
gateway 192.168.0.1
dns-nameservers 8.8.8.8
dns-nameservers 4.4.4.4



^G Help    ^O Write  ^W Where Is
^X Exit    ^R Read F ^\ Replace
```

```
┌──(aayush㉿kali)-[~]
└─$ sudo /etc/init.d/networking restart

    aayush@kali: ~ 48x3

┌──(aayush㉿kali)-[~]
└─$ sudo systemctl restart network

    aayush@kali: ~ 48x4
┌──(aayush㉿kali)-[~]
└─$ sudo service NetworkManager restart
```
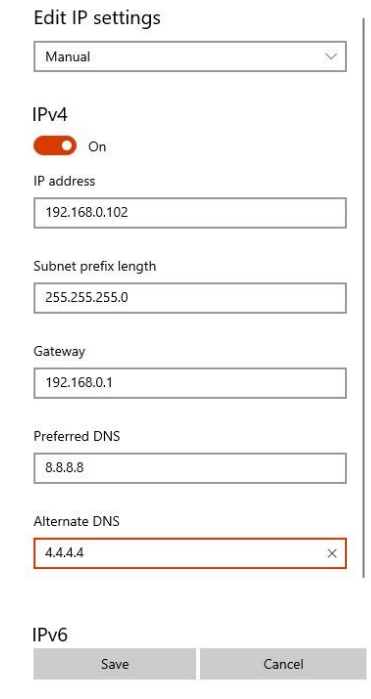
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o **Testing in Windows**

Manually adding static IP in windows machine

Edit IP settings

Manual

IPv4

On

IP address

192.168.0.102

Subnet prefix length

255.255.255.0

Gateway

192.168.0.1

Preferred DNS

8.8.8.8

Alternate DNS

4.4.4.4   ✕

IPv6

Save   Cancel

➢ **Conclusion**

Successfully added static IP in both Linux and Windows.