

CN LAB 2

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Batch: 1

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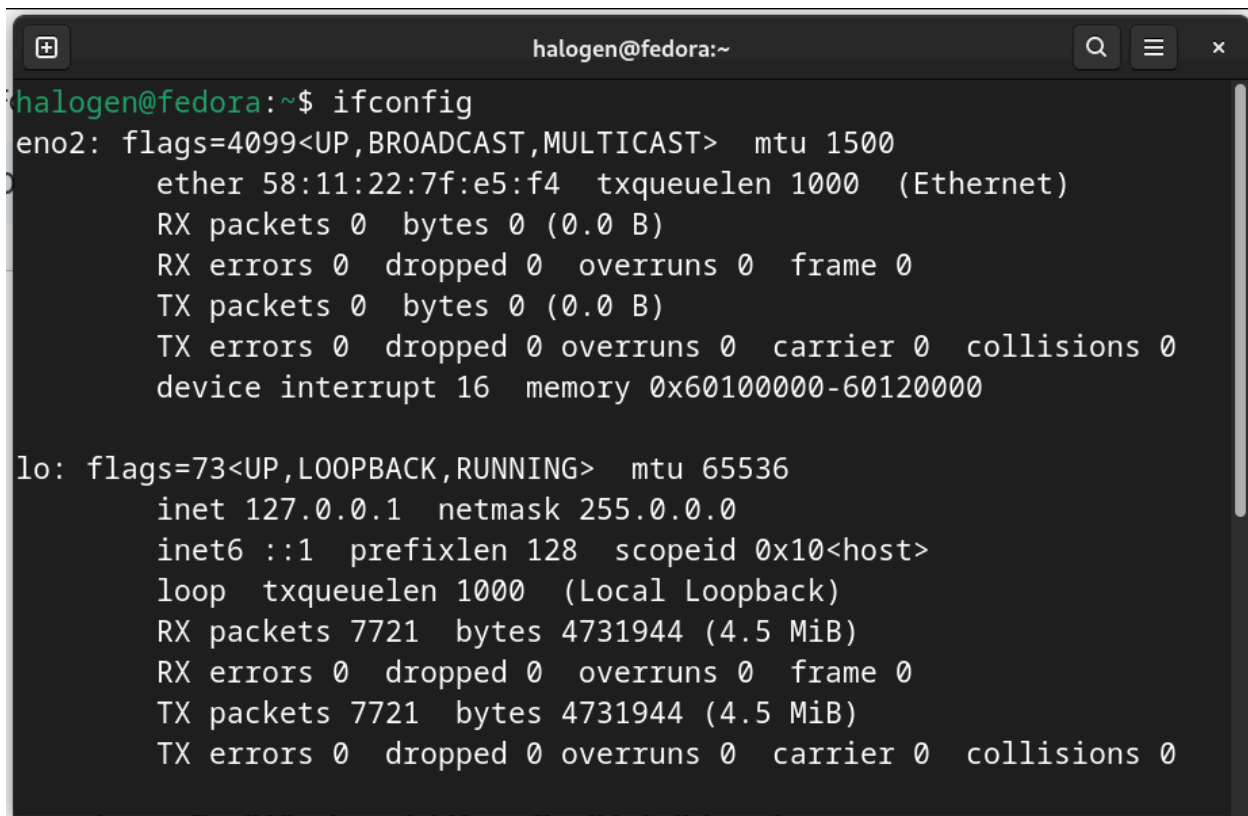
Roll no: 12

Title: Setting up small computer networks and Hands on networking commands

Commands:

ipconfig (Windows) / ifconfig (Unix/Linux)

Displays current TCP/IP network configuration information. Can be used to release and renew IP addresses assigned by DHCP.



```
halogen@fedora:~$ ifconfig
eno2: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 58:11:22:7f:e5:f4 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 16 memory 0x60100000-60120000

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 7721 bytes 4731944 (4.5 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 7721 bytes 4731944 (4.5 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

nslookup

Queries DNS servers to obtain domain name or IP address mapping information. Useful for troubleshooting DNS-related issues.

```
halogen@fedora:~$ nslookup
> www.google.com
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
Name:   www.google.com
Address: 172.217.174.228
Name:   www.google.com
Address: 2404:6800:4009:812::2004
> www.amazon.com
Server:          127.0.0.53
Address:         127.0.0.53#53
```

netstat

Displays active TCP connections, ports on which the computer is listening, and more. Provides statistics for various network protocols.

```
halogen@fedora:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 fedora:51596            a23-221-34-48.dep:https ESTABLISHED
tcp        0      0 fedora:37918            22.224.186.35.bc.:https ESTABLISHED
tcp        0      0 fedora:46314            40.224.186.35.bc.:https ESTABLISHED
tcp        0      0 fedora:42316            172.64.155.209:https    ESTABLISHED
tcp        0      0 fedora:44732            93.243.107.34.bc.:https ESTABLISHED
tcp        0      0 fedora:46300            40.224.186.35.bc.:https ESTABLISHED
```

telnet

Allows you to connect to remote computers and test accessibility of services. Useful for troubleshooting email servers, web servers, and other network services.

arp

used to access the mapping structure of IP addresses to the MAC address. This provides us with a better understanding of the transmission of packets in the network channel.

```
halogen@fedora:~$ arp
```

Address	Iface	HWtype	HWaddress	Flags	Mask
192.168.0.109	wlo1	ether	20:0b:74:1b:45:e9	C	
192.168.0.154	wlo1	ether	5e:a6:e6:03:d0:84	C	
192.168.0.106	wlo1	ether	34:6f:24:e2:13:f9	C	
192.168.0.129	wlo1	ether	5a:a6:e6:b3:d6:79	C	
_gateway	wlo1	ether	6c:5a:b0:05:df:6b	C	
192.168.0.186		ether	e4:24:6c:db:31:9d	C	

hostname

Retrieves the hostname of the local machine, which is crucial for network identification and communication.

```
halogen@fedora:~$ hostname
fedora
halogen@fedora:~$
```

route

Displays or modifies the local IP routing table, which dictates how packets are forwarded within a network.

```
halogen@fedora:~$ route
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use
  Iface
default          _gateway        0.0.0.0          UG    600    0      0
wlo1
```