

## CYSE-270- Linux System For Cybersecurity

### Assignment –10

#### Networking Basics - Subnetting (100 points)

Understanding subnetting takes time and practice. Using the methods covered during the class,

fill in the following tables for Network, broadcast, first IP, Last IP and Max. Hosts in the network.

The column for IP address should be in Decimal format for each, except number of hosts.

(Refer

to the examples in the slide for week 10-Networking Basics)

```
vboxuser@Ubuntu: ~  
Get:33 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages  
[909 kB]  
Get:34 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en  
[205 kB]  
Get:35 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Component  
s [52.2 kB]  
Get:36 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Met  
adata [19.4 kB]  
Get:37 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Package  
s [27.4 kB]  
Get:38 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-e  
n [5,956 B]  
Get:39 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Compone  
nts [208 B]  
Get:40 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f M  
etadata [384 B]  
Fetched 13.0 MB in 9s (1,524 kB/s)  
  
sudo apt install ipcalc  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
139 packages can be upgraded. Run 'apt list --upgradable' to see them.  
vboxuser@Ubuntu:~$
```

#### Task-A: (50 Points)

Category IP Address Binary Format

Address 192.168.100.4

Netmask 28  
Network address  
Broadcast address  
First IP  
Last IP  
Maximum host in the  
network

```
vboxuser@Ubunt: ~  
Processing triggers for man-db (2.12.0-4build2) ...  
vboxuser@Ubunt:~$ ipcalc 192.168.100.4/28  
Address: 192.168.100.4 11000000.10101000.01100100.0000 0100  
Netmask: 255.255.255.240 = 28 11111111.11111111.11111111.1111 0000  
Wildcard: 0.0.0.15 00000000.00000000.00000000.0000 1111  
=>  
Network: 192.168.100.0/28 11000000.10101000.01100100.0000 0000  
HostMin: 192.168.100.1 11000000.10101000.01100100.0000 0001  
HostMax: 192.168.100.14 11000000.10101000.01100100.0000 1110  
Broadcast: 192.168.100.15 11000000.10101000.01100100.0000 1111  
Hosts/Net: 14 Class C, Private Internet  
  
vboxuser@Ubunt:~$ ipcalc -b 192.168.100.4/28  
Address: 192.168.100.4  
Netmask: 255.255.255.240 = 28  
Wildcard: 0.0.0.15  
=>  
Network: 192.168.100.0/28  
HostMin: 192.168.100.1  
HostMax: 192.168.100.14  
Broadcast: 192.168.100.15  
Hosts/Net: 14 Class C, Private Internet  
  
vboxuser@Ubunt:~$
```

Task-B: (50 points)  
Category IP Address Binary Format  
Address 170.1.0.0  
Netmask 26  
Network address  
Broadcast address  
First IP  
Last IP

Maximum host in the  
network

```
vboxuser@Ubunt: ~  
vboxuser@Ubunt:~$ ipcalc 170.1.0.0/26  
Address: 170.1.0.0 10101010.000000001.000000000.00 000000  
Netmask: 255.255.255.192 = 26 11111111.11111111.11111111.11 000000  
Wildcard: 0.0.0.63 00000000.00000000.00000000.00 111111  
=>  
Network: 170.1.0.0/26 10101010.000000001.000000000.00 000000  
HostMin: 170.1.0.1 10101010.000000001.000000000.00 000001  
HostMax: 170.1.0.62 10101010.000000001.000000000.00 111110  
Broadcast: 170.1.0.63 10101010.000000001.000000000.00 111111  
Hosts/Net: 62 Class B  
  
vboxuser@Ubunt:~$ ipcalc -b 170.1.0.0/26  
Address: 170.1.0.0  
Netmask: 255.255.255.192 = 26  
Wildcard: 0.0.0.63  
=>  
Network: 170.1.0.0/26  
HostMin: 170.1.0.1  
HostMax: 170.1.0.62  
Broadcast: 170.1.0.63  
Hosts/Net: 62 Class B  
  
vboxuser@Ubunt:~$
```