

CHAPTER 5 – SUBNETTING & COMMANDS USED

SUBNETTING

Hospital Network: 172.16.0.0/16

Total Subnets: 7

- **Patient Network: 172.16.0.0/23**

Network IP: 172.16.0.0

Broadcast IP: 172.16.1.255

Subnet Mask: 255.255.254.0

No. of Hosts: 510

- **Doctor Network: 172.16.2.0/25**

Network IP: 172.16.2.0

Broadcast IP: 172.16.2.127

Subnet Mask: 255.255.255.128

No. of Hosts: 126

- **Finance Department Network: 172.16.2.128/26**

Network IP: 172.16.2.128

Broadcast IP: 172.16.2.191

Subnet Mask: 255.255.255.192

No. of Hosts: 62

▪ **Management Dept. Network: 172.16.2.192/26**

Network IP: 172.16.2.192

Broadcast IP: 172.16.2.255

Subnet Mask: 255.255.255.192

No. of Hosts: 62

▪ **IT Department Network: 172.16.3.0/27**

Network IP: 172.16.3.0

Broadcast IP: 172.16.3.31

Subnet Mask: 255.255.255.224

No. of Hosts: 30

▪ **Medical Store Network: 172.16.3.32/27**

Network IP: 172.16.3.32

Broadcast IP: 172.16.3.63

Subnet Mask: 255.255.255.224

No. of Hosts: 30

▪ **Reception Network: 172.16.3.64/28**

Network IP: 172.16.3.64

Broadcast IP: 172.16.3.79

Subnet Mask: 255.255.255.240

No. of Hosts: 14

Router To Router Network: 10.0.0.0/30

Total Subnets: 7

Router To Layer 3 Switch: 20.0.0.0/30

Total Subnets: 6

BASIC COMMANDS

- **ENABLE:** To go in privileged mode.
- **CONFIGURE TERMINAL:** To go in global configuration mode.
- **ENABLE PASSWORD <VALUE>:** To give password.
- **ENABLE SECRET <VALUE>:** To give secret password.
- **LINE CONSOLE 0:** To go in line console mode.
- **EXECUTION TIMEOUT 0:** To make console never go to sleep in line console mode.
- **LOGGING SYNCHRONOUS:** To avoid the messages it also run in line console mode.
- **SHOW RUNNING-CONFIGURATION:** To show running configuration.
- **SHOW IP INTERFACE BRIEF:** To show the IP configuration.
- **INTERFACE FASTETHERNET 0/0:** To give the IP configuration of fast Ethernet.
- **INTERFACE SERIAL0/0:** To give the IP configuration of serial interface.
- **NO SHUTDOWN:** To make interface up.
- **CLOCKRATE 64000:** To provide clock rate to DCE end of serial cable.

ROUTING COMMANDS

STATIC ROUTING COMMANDS:

- In global config mode)# ip route <destination network ip> <subnet mask> <exit interface> <permanent>
For ex.) # ip route 10.1.1.0 255.255.255.0 20.1.1.2

DEFAULT ROUTING COMMANDS:

- In global config mode)# ip route <destination network ip> <subnet mask> <exit interface> <permanent>
For ex.) # ip route 0.0.0.0 0.0.0.0 20.1.1.2

DYNAMIC ROUTING COMMANDS

RIP COMMANDS:

- In global config mode) # router rip
Router) # network <directly connected n/w ip>
For ex.) # network 10.0.0.0
) # network 20.0.0.0

TO CHANGE RIP VERSION:

- In global config mode) # router rip
Router) # version 2
Router) # do show ip route(to check version)
Router) # debug ip rip(shows all updates of multicasting & broadcasting)

EIGRP COMMANDS:

- In global config mode) # router eigrp <AD value>
-config) # router eigrp 100
-router) # network < n/w id of directly connected> <wild card mask>
-router) # network 10.1.1.0 0.0.0.255

OSPF COMMANDS:

- IN global config mode) # router ospf <process id>
-config) # router ospf 100
-router) # network <network id of directly connected> <subnet mask> <area 0>
-router) # network 192.168.1.0 0.0.0.255 area 0
-router) # do show ip ospf neighbour(to check the neighbourhood)
-router) # do show ip ospf database(to check the database of the events)

TO CREATE VLANs

1. To give name to vlan:

```
-config) # vlan 2  
-config) # name xyz
```

2. To add interfaces to VLAN

```
-config) # int fa0/0  
-int) # switchport mode access  
-int) # switchport access vlan2
```

3. To do trunking

```
-config) # int fa0/0  
-int) # switchport mode trunk  
-int) # switchport mode dynamic desirable
```

4. TO APPLY VTP:

```
-config) # vtp mode server  
-config) # vtp domain cisco.com  
-config) # vtp cisco123  
-config) # do show vtp status  
-config) # debug sw-vlan vtp events  
-config) # do show cdp neighbours
```

5. To make VLAN native:

```
-config) # switchport trunk native vlan 2
```