

# Network Commands

## 1. Password Configuration

### Configuring router passwords

- ❖ Password on console line

```
Router(config)# line console 0

Router(config-line)# password cisco

Router(config-line)# login
```
- ❖ Password for privileged EXEC mode

```
Router(config)# enable password class
```
- ❖ Password for virtual terminal

```
Router(config)# line vty 0 4

Router(config-line)# password cisco

Router(config-line)# login
```
- ❖ Password encryption

```
Router(config)# service password-encryption
```

## 2. Ethernet Interface

### Configuring Ethernet Interface

```
Router> enable

Router# configure terminal

Router(config)# interface ethernet 0

Router(config-if)# ip address 192.5.5.1 255.255.255.0

Router(config-if)# no shutdown
```

## 3. Serial Interface DTE

### Configuring Serial interface as DTE

```
Router> enable

Router# configure terminal

Router(config)# interface serial 1

Router(config-if)# ip address 201.100.11.2 255.255.255.0

Router(config-if)# no shutdown|
```

## 4. Serial Interface DCE

### Configuring Serial interface as DCE

```
Router> enable
Router# configure terminal
Router(config)# interface serial 0
Router(config-if)# ip address 201.100.11.1 255.255.255.0
Router(config-if)# clock rate 56000
Router(config-if)# no shutdown
```

Note: Clock rate is necessary when it is connected as DCE

## 5. Telnet

### Establishing a Telnet connection

To initiate a Telnet session any of the following alternatives can be used

```
Lab_A> telnet 199.6.13.2
Lab_A> 199.6.13.2
```

Telnet connection is terminated after ten minutes of inactivity by default or when the exit command is entered

## 6. Static Routing

We can provide the next-hop IP address of the adjacent router as:

```
Router(config)#ip route 172.16.3.0 255.255.255.0 172.16.4.1
```

We can also provide outgoing interface of router instead of next-hop IP address as:

```
Router(config)#ip route 172.16.3.0 255.255.255.0 Serial 0/0
```

## 7. Default Routing

A default route is a special static route that can be configured in global configuration mode as:

```
ip route 0.0.0.0 0.0.0.0 [next-hop-address or outgoing interface]
```

## 8. RIP routing

- ❖ Router(config)# **router rip**
- ❖ Router(config-router)# **version 2**
- ❖ Router(config-router)# **network 12.5.5.0**
- ❖ Router(config-router)# **network 175.7.5.0**

## 9. OSPF routing

- R1> enable
- R1# configure terminal
- R1(config)# router ospf 1
- R1(config-router)# network 102.108.109.16 0.0.0.3 area 0
- R1(config-router)# end

The configurations of a router having multiple areas is shown in following example:

- R3(config)#router ospf 1
- R3(config-router)#network 19.16.10.0 0.0.0.255 area 0
- R3(config-router)#network 19.16.11.0 0.0.0.255 area 1

## 10. Show commands

Different show commands that can be used to test & verify OSPF routing

- Show ip route
- Show ip route ospf
- Show ip ospf neighbor

## 11. BGP setup

- R1> enable
- R1# configure terminal
- R1(config)# router bgp 100
- R1(config-router)# neighbor 200.2.2.2 remote-as 200
- R1(config-router)# network 200.1.1.0 mask 255.255.255.0
- R1(config-router)# network ..... mask .....
- R1(config-router)# end

We can distribute the route obtained from BGP to other routers within same AS via redistribute command in OSPF configuration mode as:

- R1(config)# router ospf 1
- R1(config-router)# redistribute bgp 10
- R1(config-router)# end

Similarly, we can also distribute the route obtained from IGP's such as OSPF to the peer AS via redistribute command in bgp configuration mode as:

- R1(config)# router bgp 10
- R1(config-router)# redistribute ospf 1
- R1(config-router)# end

## 12. Save router configuration

```
copy running-config startup-config
```

### 13. DHCP configuration

#### Configuring a DHCP server in a Cisco router:

```
Router>enable
Router#configure terminal
Router(config)#
Router(config)#ip dhcp pool My_Net_1
Router(dhcp-config)#network 192.168.1.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#dns-server 192.168.1.10
```

### 14. DHCP exclude

```
Router> enable
Router# configure terminal
Router(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.10
```

### 15. VLAN creating

#### Creating VLANs

- Switch> enable
- Switch# configure terminal
- Switch(config)# vlan **vlan\_ID**
- Switch(config-vlan)# name **Vlan\_2**
- Switch(config-vlan)# end
- Switch#

### 16. VLAN assign one by one interface of switch

#### Assigning an Interface to particular VLAN

- Switch> enable
- Switch# configure terminal
- Switch(config)#interface FastEthernet0/11
- Switch(config-if)#switchport access vlan 2
- Switch(config-if)#end
- Switch#

## 17. Trunk Mode (Single interface VLAN)

### Assigning an Interface of Switch to Trunk Mode

- Switch> enable
- Switch#configure terminal
- Switch(config)#interface fa0/20
- Switch(config-if)#switchport mode trunk

### To allow all VLANs via Trunk Port

- Switch(config-if)#switchport trunk allowed all

### To remove VLAN 1 from Trunk Port

- Switch(config-if)#switchport trunk allowed vlan remove 1

### To add VLAN 1 in a Trunk Port

- Switch(config-if)#switchport trunk allowed vlan add 1

## 18. Inter-VLAN router configuration

### Inter-VLAN Routing Configuration

```
Router0>enable
Router0#config t
Router0(config)#interface gigabitethernet 0/0.1
Router0(config-subif)#
Router0(config-subif)#encapsulation dot1Q [VLAN ID]
Router0(config-subif)#
Router0(config-subif)#ip address 200.1.1.1 255.255.255.192
```