

## STATIC ROUTING LAB

### Advantage of static routing

- It is easy to implement.
- It is most secure way of routing, since no information is shared with other routers.
- It puts no overhead on resources such as CPU or memory.

### Disadvantage of static routing

- It is suitable only for small network.
- If a link fails it cannot reroute the traffic.

### STEP 1 - Assign IP address to interfaces of routers

Two interfaces Ethernet and Ethernet of each Router are used in this topology. By default interfaces on router are remain administratively down during the start up.

We need to configure IP address and other parameters on interfaces before we could actually use them for routing. Interface mode is used to assign IP address and other parameters. Interface mode can be accessed from global configuration mode. Following commands are used to access the global configuration mode.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
```

From global configuration mode we can enter in interface mode. From there we can configure the interface. Following commands will assign IP address on Ethernet0/0.

```
Router(config)#interface Ethernet 0/1
Router(config-if)#ip address 10.X.Y.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
```

**Use `show ip interface brief` to confirm the interface has an IP address and interface status is up and up**

There are two types of routing static and dynamic. In this lab we will use static method of routing.

## Step 2- configure the static route

Syntax of static routing

```
Router(config)# ip route destination_network_# [subnet_mask]  
IP_address_of_next_hop_neighbor
```

By default when a packet arrives in interface, router checks destination filed in packet and compare it with routing table. If it finds a match for destination network then it will forward that packet from related interface. If it does not find a match in routing table then it will discard that packet. This is the default behavior of router.

We do not need to configure directly connected networks.

Run following command from global configuration mode in routers.

### RouterXY

```
RouterXY(config)#ip route 10.X.Y.0 255.255.255.0 10.X.Y.1
```

This command instructs router that when you receive a packet for 10.X.Y.0 network give it to 192.168.0.254. Network 10.0.0.0 is directly connected so we do not need to configure it here.

## STEP 3- Check routing Tables of Routers:

```
RouterXP#show ip route
```