Computer Network Lab

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Lab 2 | Static Routing

Step 1: First set all the IP addresses, subnet mask, and default gateway on the PC.

Step 2: Ip Configuration -

- ➔ enable
- ➔ conf t
- ➔ int f 0/1
- ➔ ip add 192.168.1.1 255.255.255.0
- ➔ no sh
- ➔ exit

Here conf = configure, t = terminal, int = interface, sh = shutdown, add = address.
Used ip address is Class C.

Step 3:

Static Routing -

- ➔ ip route 192.168.1.0 255.255.255.0 f 0/1

Here used the network address.

Lab 3 | Dynamic Routing (RIP)

Step 1: First set all the IP addresses on the PC.

Step 2: Ip configuration -

- ➔ enable
- ➔ conf t
- ➔ int f 0/1
- ➔ ip add 192.168.1.1 255.255.255.0
- ➔ no sh
- ➔ exit

This way every port has to configure the IP addresses.

Step 2:

Still remain on the Config mode, Then RIP Configuration -

- ➔ router rip
- ➔ network 192.168.1.0
- ➔ network 192.168.2.0
- ➔ network 192.168.3.0
- ➔ network 10.0.0.0

The connected network in the router was listed here. The listed network is the Network address.

Lab 4 | Dynamic Routing (OSPF)

Step 1: First set all the IP addresses on the PC.

Step 1: Then we have to configure the IP address of all the connected ports on the router. That's like the **Dynamic Routing (RIP)** IP address configuration process.

Now,

Step 2:

Remain on the config mode, Then Router connected network configuration.

- ➔ router ospf 1

- ➔ network 192.168.1.0 0.0.0.255 area 1
- ➔ Network 192.168.2.0 0.0.0.255 area 1

But our network address subnet mask(0.0.0.255) is different.

Lab 5 | Virtual Local Area Network (VLAN)

Step 1: First set all the IP addresses on the PC.

Default vlan is 1.

How many vlan Networks have -

- ➔ do show vlan

Step 2: First create a vlan,

- ➔ vlan 2
- ➔ name CSE
- ➔ exit

Step 3: Port Select under a vlan.

- ➔ int range f 0/1-2
- ➔ sw access vlan 2
- ➔ sw mode access
- ➔ exit

Here, sw = switchport.

Trunk port = switch to switch connection.

Access port = switch to router connection.

Step 4:

- ➔ int f 0/6
- ➔ sw mode trunk

So this way the router configures all the access port, and trunk port and assign the vlan.

Lab 6 | NAT (Network Address Translation)

Server-side router,

- ➔ ip route 0.0.0.0 0.0.0.0 se 2/0
- ➔ ip nat inside source static 192.168.2.1 192.168.10.2
- ➔ int f 0/0
- ➔ ip nat inside
- ➔ int se 2/0
- ➔ ip nat outside

- ➔ enable
- ➔ conf t
- ➔ ip route 0.0.0.0 0.0.0.0 se 2/0
- ➔ access-list 1 permit 192.168.1.0 0.0.0.255
- ➔ ip nat inside source list 1 interface se 2/0
- ➔ int f 0/0
- ➔ ip nat inside
- ➔ int se 2/0
- ➔ ip nat outside

Lab 7 | Dynamic Host Configuration Protocol(DHCP)

Step 1: IP address set in the PC.

Step 2: Config mode, Here **XYZ** is the **DHCP server name**.

- ➔ ip dhcp pool XYZ
- ➔ network 192.168.1.0 255.255.255.0
- ➔ default-router 192.168.10.1
- ➔ exit

Step 3 (Optional): If the Server reserves some IP addresses. Then This way we can make a range for reserved IP addresses.

- ➔ ip dhcp excluded-address 192.168.10.2 192.168.10.30

Here (192.168.10.2 to 192.168.10.30) IP addresses are reserved.

Step 4: Then set all the PC static forms to DHCP form. For Automatic IP addresses configuration.