National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

Department of Electrical Engineering

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EE-357 Computer and Communication Networks

Experiment - 4

Configuring IP Routing (Static Routing)

		PLO5/ CLO3		PLO5/ CLO3	PLO5/ CLO3	PLO5/ CLO3
Name	**Reg. No**	**Viva / Quiz / Lab Performance 5 Marks**	**Analysis of data in Lab Report 5 Marks**	**Modern Tool Usage 5 Marks**	**Ethics and Safety 5 Marks**	**Individual and Team Work 5 Marks**
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Experiment 4

Configuring IP Routing (Static Routing)

1. Objective

This lab exercise is designed to understand routing and procedure to setup static routes on routers.

2. Resources Required

- Computer
- Packet Tracer (version 5 or higher)
- Ensp Software

3. Introduction

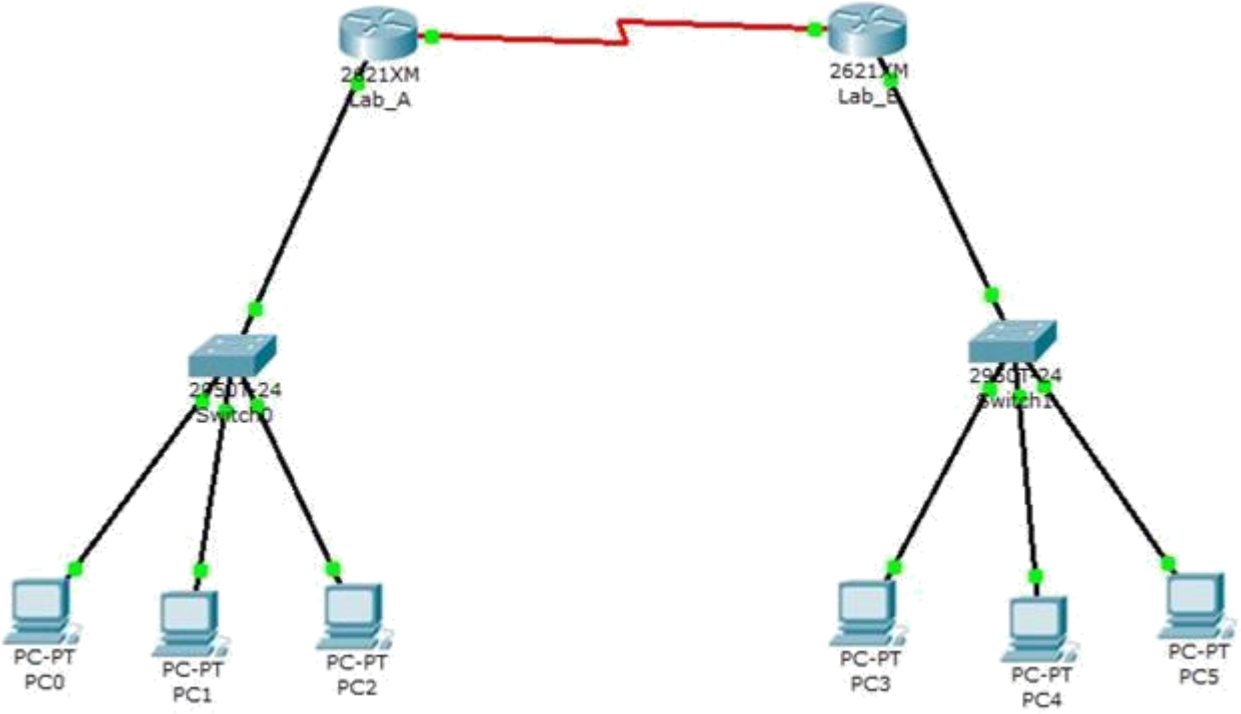
The Cisco IOS was created to deliver network services and enable networked applications. It runs on most Cisco routers and, on an ever - increasing number of Cisco Catalyst switches, such as the Catalyst 2950. Some of the important things that the Cisco router IOS software is responsible for include

- Carrying network protocols and functions
- Connecting high- speed traffic between devices
- Adding security to control access and stop unauthorized network use
- Providing scalability for ease of network growth and redundancy
- Supplying network reliability for connecting to network resources

You can access the Cisco IOS through the console port of a router, from a modem into the auxiliary (or Aux) port, or even through Telnet. Access to the IOS command line is called an EXEC session.

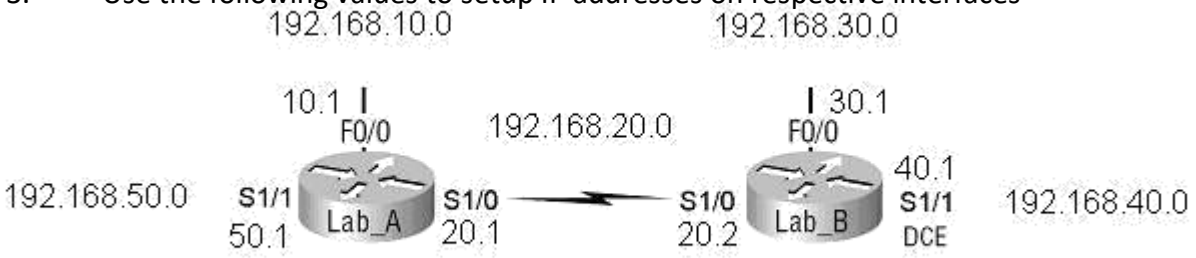
4. Procedure

1. Open Packet Tracer 5 and setup a network similar to the following network. Use Cisco 2950T switch & Cisco 2621XM router.



2. The different thing is the red link which is serial link (used for WAN). By default, it is not available so we have to add the modules to the router. Double click on any router. Turn it off by using power button on the router figure in **Physical** tab. On left side modules bar is present. Drag two **WIC-2T** to smaller blank space and one **N M -8A/S** to larger blank space. Now, turn on the router using power switch. Do the same on second router. Then use **Serial DTE** or **Serial DCE** link from **Connections**. The router interface that is chosen first becomes that of that type while the second one becomes the other e.g. if you choose DTE and click first router, it becomes DTE while the second one becomes DCE and vice versa. Just remember that by default all serial interfaces are DTE so we have to provide clocking on the DCE one!

3. Use the following values to setup IP addresses on respective interfaces



Router	Network Address	Interface	Address
Lab_A	192.168.10.0	fa0/0	192.168.10.1
Lab_A	192.168.20.0	s1/0	192.168.20.1
Lab_A	192.168.50.0	s1/1	192.168.50.1
Lab_B	192.168.30.0	fa0/0	192.168.30.1
Lab_B	192.168.20.0	s1/0	192.168.20.2
Lab_B	192.168.40.0	s1/1	192.168.40.1

A sample configuration is given as under

Router>**en**
Router# **config t**
Router(config)# **hostname Lab_A**
Lab_A(config)# **interface fa0/0**
Lab_A(config- if)# **ip address 192.168.10.1 255.255.255.0**
Lab_A(config- if)#**description Lab_A LAN Connection**
Lab_A(config- if)#**no shut**
Lab_A(config- if)#**interface serial 1/0**
Lab_A(config- if)#**ip address 192.168.20.1 255.255.255.0**
Lab_A(config- if)#**description WAN Connection to Lab_B**
Lab_A(config- if)#**no shut**
Lab_A(config- if)#**interface serial 1/1**
Lab_A(config- if)#**ip address 192.168.50.1 255.255.255.0**
Lab_A(config- if)#**no shut**
Lab_A(config- if)#**exit**
Lab_A(config)#**banner motd #**

This is the Lab_A router #
Lab_A(config)#**^z**

Lab_A#**copy running-config startup-config**

Destination filename [startup - config]? ***[Enter]***

Lab_A#

```
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname A
A(config)#
A(config)#interface FastEthernet0/0
A(config-if)#ip address 192.168.10.1 255.255.255.0
A(config-if)#description A LAN Connection
A(config-if)#no shut

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up
```

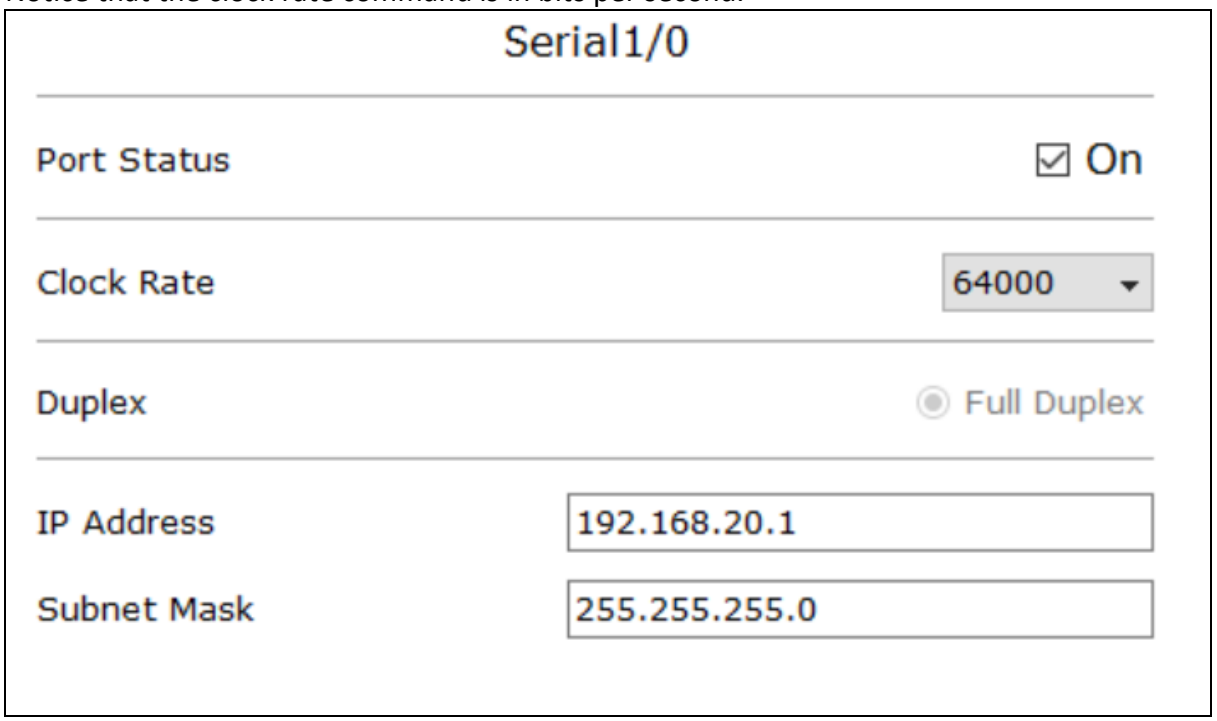
```
A(config)#interface Serial1/0
A(config-if)#ip address 192.168.20.1 255.255.255.0
A(config-if)#description WAN Connection to B
A(config-if)#no shut

%LINK-5-CHANGED: Interface Serial1/0, changed state to down
```

```
Lab_A(config)#banner motd #
Enter TEXT message.  End with the character '#'.
This is Lab_A router. #
```

Before you jump in and configure a serial interface, there are a couple of things you need to know. First, the interface will usually be attached to a CSU/DSU type of device that provides clocking for the line to the router. But if you have a back - to-back configuration (for example, one that's used in a lab environment), one end —the data communication equipment (DCE) end of the cable—must provide clocking. By default, Cisco routers are all data terminal equipment (DTE) devices, so you must tell an interface to provide clocking if you need it to act like a DCE device.

To check the DCE interface, just bring your mouse over serial link, the interface with whose name you see a (clock symbol) is the DCE one. You configure a DCE serial interface with the clock rate command:

Lab_B(config)#**interface serial 1/0**
Lab_B(config- if)#**clock rate ?** <300- 4000000>
Choose clockrate from list above Router(config-
if)#**clock rate 64000**
Notice that the clock rate command is in bits per second.



Configure the PCs and Switches too. Make sure all devices are communicating with each other (use **ping** to verify).

Pinging PC0 to PC1 (LAN 1)

```
PC>ping 192.168.10.3

Pinging 192.168.10.3 with 32 bytes of data:

Reply from 192.168.10.3: bytes=32 time=92ms TTL=128
Reply from 192.168.10.3: bytes=32 time=61ms TTL=128
Reply from 192.168.10.3: bytes=32 time=50ms TTL=128
Reply from 192.168.10.3: bytes=32 time=64ms TTL=128

Ping statistics for 192.168.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 50ms, Maximum = 92ms, Average = 66ms
```

Pinging PC5 to PC4 (LAN 2)

```
Packet Tracer PC Command Line 1.0
PC>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time=61ms TTL=128
Reply from 192.168.30.2: bytes=32 time=57ms TTL=128
Reply from 192.168.30.2: bytes=32 time=19ms TTL=128
Reply from 192.168.30.2: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 61ms, Average = 36ms
```

Pinging PC0 to PC4 (not possible right now because in different LANs)

Now you must have noticed that routers can communicate with devices directly connected to them. PC0 - PC2 and Switch0 can communicate with Lab_A router & in between themselves but can't with Lab_B router and Switch1 & PC2 - PC5 and vice versa.

4.1 Configuring Static Routing

Static routing occurs when you manually add routes in each router's routing table. There are pros and cons to static routing, but that's true for all routing processes. Static routing has the following benefits:

- There is no overhead on the router CPU, which means you could possibly buy a cheaper router than if you were using dynamic routing.
- There is no bandwidth usage between routers, which means you could possibly save money on WAN links.
- It adds security, because the administrator can choose to allow routing access to certain networks only.

Static routing has the following disadvantages:

- The administrator must really understand the internetwork and how each router is connected in order to configure routes correctly.
- If a network is added to the internetwork, the administrator has to add a route to it on all routers—by hand.
- It's not feasible in large networks because maintaining it would be a full -time job in itself.

The command syntax to add a static route to a routing table is as following:

ip route [*dest ination_network*] [*m ask*] [*next-hop_address or ex itinterface*] *administrative_distance*] [permanent]

Following list describes each command in the string:

- **ip route** The command used to create the static route.
- **destination_network** The network you're placing in the routing table.
- **mask** The subnet mask being used on the network.
- **Next_hop_address** The address of the next- hop router that will receive the packet and forward it to the remote network. This is a router interface that's on a directly connected network. You must be able to ping the router interface before you add the route. If you type in the wrong next- hop address, or the interface to that router

is down, the static route will show up in the router's configuration, but not in the routing table.

- **Exit interface** You can use it in place of the next- hop address if you want, but it's got to be on a point- to- point link, such as a WAN. This command won't work on a LAN such as Ethernet. **administrative_distance** By default, static routes have an administrative distance of 1 (or even 0 if you use an exit interface instead of a next-hop address). You can change the default value by adding an administrative weight at the end of the command.

- **permanent** If the interface is shut down, or the router can't communicate to the next - hop router, the route will automatically be discarded from the routing table. Choosing the permanent option keeps the entry in the routing table no matter what happens.

Configuration of Lab_A router

Each routing table automatically includes directly connected networks. To be able to route to all networks in the internetwork, the routing table must include information that describes where these other networks are located and how to get there.

The Lab_A router is connected to networks 192.168.10.0, 192.168.50.0 and 192.168.20.0. For the Lab_A router to be able to route to all networks, the following networks have to be configured in its routing table:

_ 192.168.30.0
_ 192.168.40.0

The following router output shows the configuration of static routes on the Lab_ A router and the routing table after the configuration. For the Lab_ A router to find the remote networks, an entry is placed in the routing table describing the network, the mask, and where to send the packets. Notice that each static route sends the packets to 192. 168. 20. 2, which is the La b_ A router 's next hop.

Lab_ A(config)# **ip route 192.168.30.0 255.255.255.0 192.168.20 .2**
Lab_ A(config)# **ip route 192.168.40.0 255.255.255.0 192.168.20 .2** (or serial 1/0)

After the router is configured, you can type **show running-config** and **show ip route** to see the static routes:

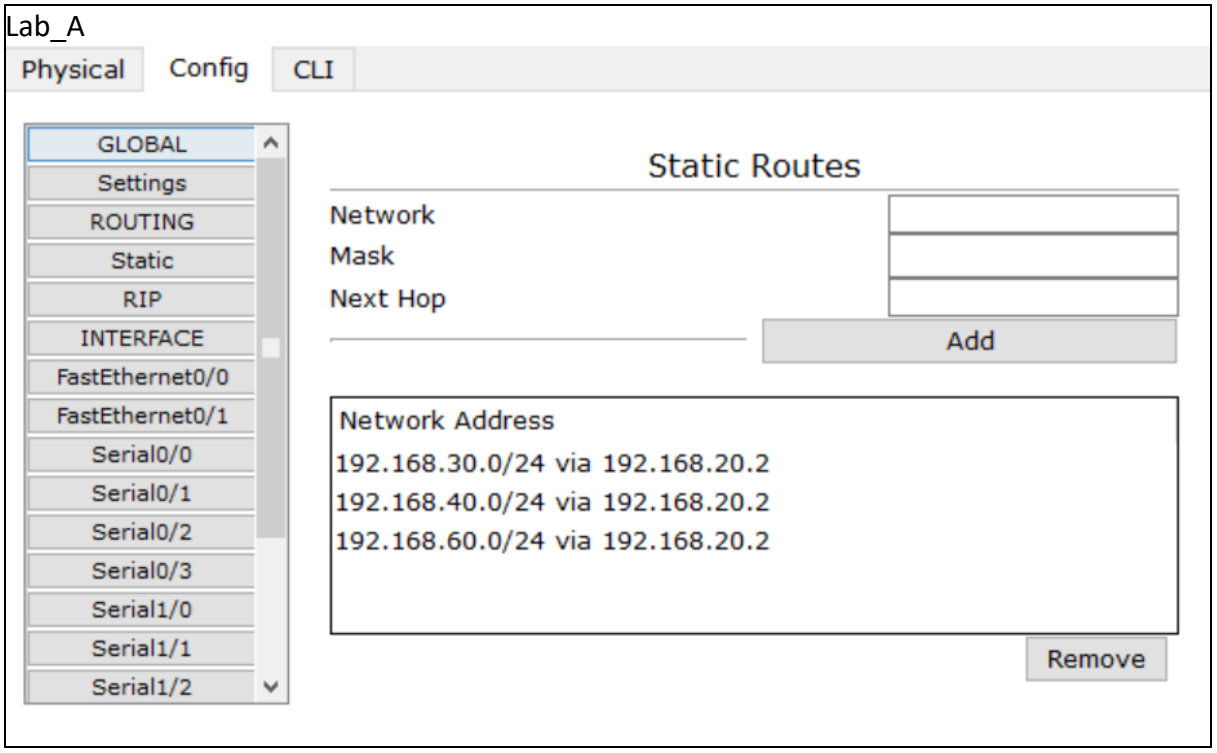
Lab_A#**sh ip route**

S 192.168.30.0 [1/0] via 192.168.20.2
S 192.168.40.0 [1/0] via 192.168.20.2
C 192.168.10.0/24 is directly connected, FastEthernet0/0 C
192.168.20.0/24 is directly connected, Serial 1/0
C 192.168.50.0/24 is directly connected, Serial 1/1
Lab_A#

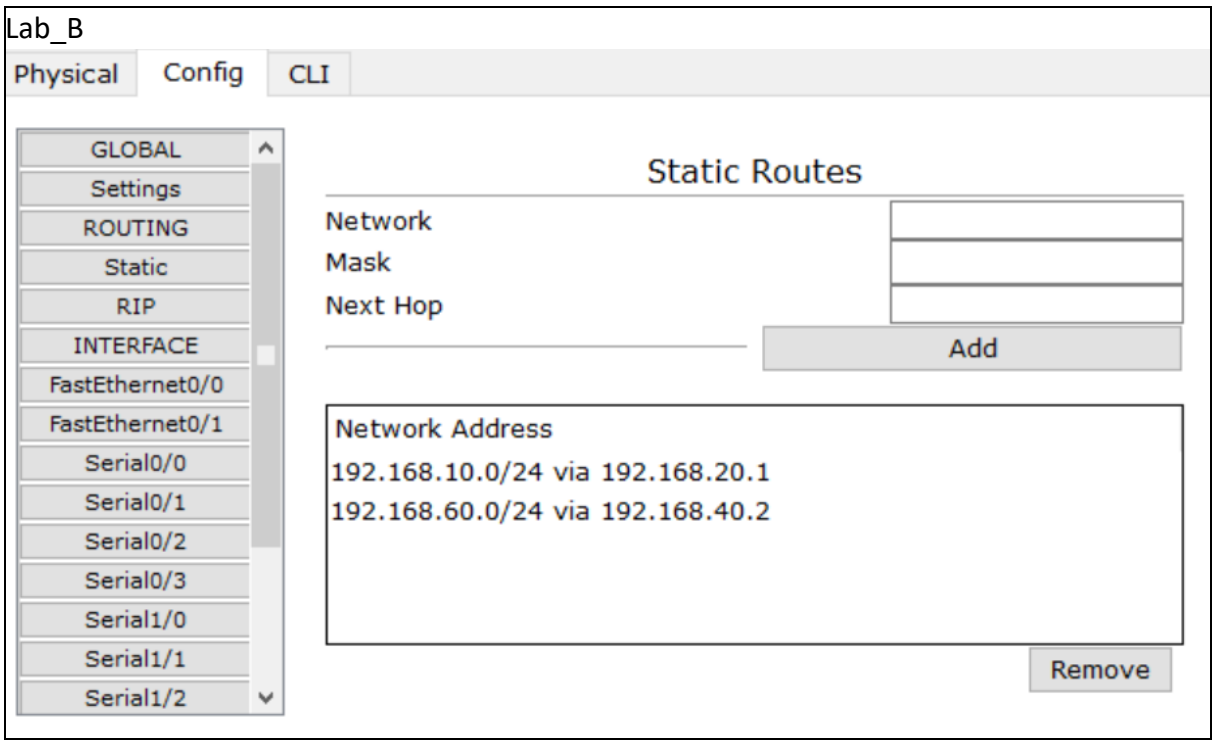
Do the same on Lab_B router. For the Lab_B router to be able to route to all networks, the following networks have to be configured in its routing table:

_ 192.168.10.0
_ 192.168.50.0

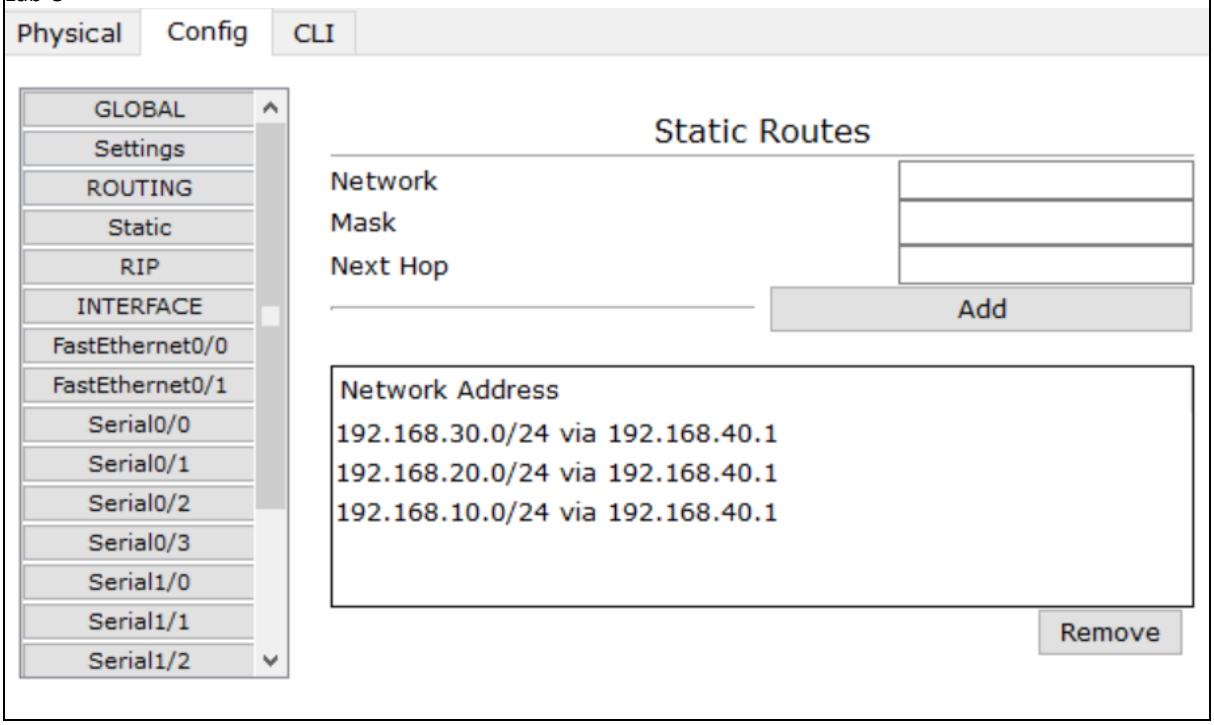
Lab_A



Lab_B



Lab C



Network 10 to 30:

```
PC>ping 192.168.30.4

Pinging 192.168.30.4 with 32 bytes of data:

Reply from 192.168.30.4: bytes=32 time=86ms TTL=126
Reply from 192.168.30.4: bytes=32 time=155ms TTL=126
Reply from 192.168.30.4: bytes=32 time=87ms TTL=126
Reply from 192.168.30.4: bytes=32 time=62ms TTL=126

Ping statistics for 192.168.30.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 62ms, Maximum = 155ms, Average = 97ms
```

Network 10 to 60:

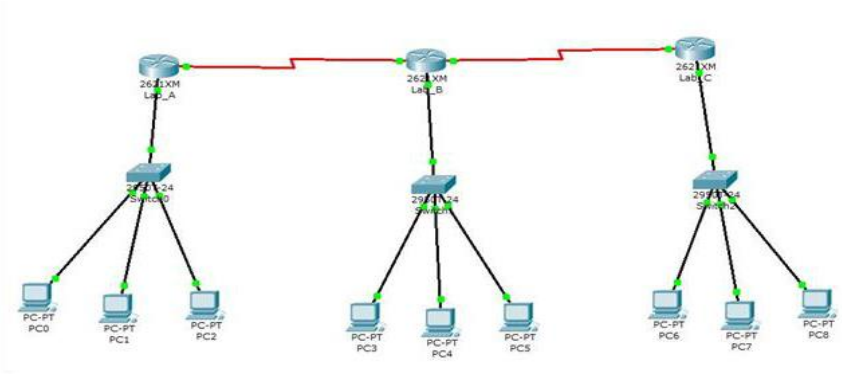
```
PC>ping 192.168.60.4

Pinging 192.168.60.4 with 32 bytes of data:

Reply from 192.168.60.4: bytes=32 time=160ms TTL=125
Reply from 192.168.60.4: bytes=32 time=80ms TTL=125
Reply from 192.168.60.4: bytes=32 time=184ms TTL=125
Reply from 192.168.60.4: bytes=32 time=166ms TTL=125

Ping statistics for 192.168.60.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 80ms, Maximum = 184ms, Average = 147ms
```

Network 30 to 60:

```
PC>ping 192.168.60.1

Pinging 192.168.60.1 with 32 bytes of data:

Reply from 192.168.60.1: bytes=32 time=92ms TTL=254
Reply from 192.168.60.1: bytes=32 time=25ms TTL=254
Reply from 192.168.60.1: bytes=32 time=93ms TTL=254
Reply from 192.168.60.1: bytes=32 time=77ms TTL=254

Ping statistics for 192.168.60.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 25ms, Maximum = 93ms, Average = 71ms
```

5. Student activity #1:

Implement the following network on packet tracer and check connectivity using static routing.



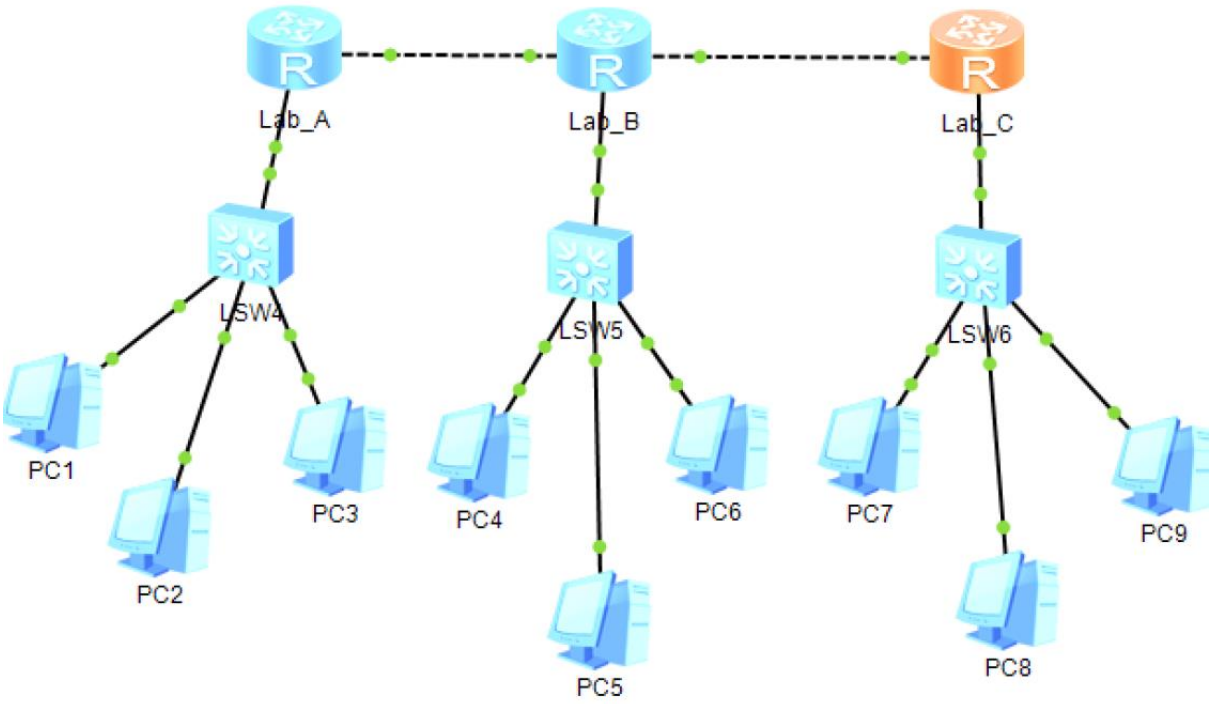
Router	Network Address	Interface	Address
Lab_A	192.168.10.0	fa0/0	192.168.10.1
Lab_A	192.168.20.0	s1/0	192.168.20.1
Lab_A	192.168.50.0	s1/1	192.168.50.1
Lab_B	192.168.30.0	fa0/0	192.168.30.1
Lab_B	192.168.20.0	s1/0	192.168.20.2
Lab_B	192.168.40.0	s1/1	192.168.40.1
Lab_C	192.168.60.0	fa0/0	192.168.60.1
Lab_C	192.168.40.0	s1/0	192.168.40.2
Lab_C	192.168.70.0	s1/1	192.168.70.1

5. Student activity # 2

In the router topology presented above change the number of routers to **Seven** with now each LAN having at least **five End Devices**. Use ENSP software for this task. Don't use the IP addresses mentioned in the lab, use your own ip address ranges and ensure that it has converged (meaning all devices in the network can communicate with each other). Write a report detailing your topology along with configuration files of any two routers. The *.pkt will also be checked in the next lab.

Remember this is an individual task! Cheating or using any unfair means will award **ZERO** marks. You can get help from the following website or any other online source.
https://support.huawei.com/enterprise/en/doc/EDOC1100055099/43dc5004/example-for-configuring-ipv4-static-routes

Conclusion:


Lab_A
Lab_B
Lab_C
LSW4
LSW5
LSW6
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PC8
PC9

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Lab_A

```
The device is running!
################################################################################
################################################################################
############
<Huawei>
Mar 23 2022 13:24:36-08:00 Huawei SNMP/4/COLDSTART:OID 1.3.6.1.6.3.1.1.5.1 coldS
tart.
<Huawei>sy
Enter system view, return user view with Ctrl+Z.
[Huawei]int g0/0/0
[Huawei-GigabitEthernet0/0/0]ip add 192.168.10.1 24
[Huawei-GigabitEthernet0/0/0]
Mar 23 2022 13:25:25-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 1, th
e change loop count is 0, and the maximum number of records is 4095.
[Huawei-GigabitEthernet0/0/0]int s0/0/0
[Huawei-Serial0/0/0]ip add 192.168.20.1
                                   ^
Error:Incomplete command found at '^' position.
[Huawei-Serial0/0/0]ip add 192.168.20.1 24
[Huawei-Serial0/0/0]
Mar 23 2022 13:25:55-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 2, th
e change loop count is 0, and the maximum number of records is 4095.
[Huawei-Serial0/0/0]int s0/0/1
[Huawei-Serial0/0/1]ip add 192.168.50.1 24
[Huawei-Serial0/0/1]
Mar 23 2022 13:26:45-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 3, th
e change loop count is 0, and the maximum number of records is 4095.
```

```
<Huawei>sy
Enter system view, return user view with Ctrl+Z.
[Huawei]int g0/0/0
[Huawei-GigabitEthernet0/0/0]ip add 192.168.30.1 24
[Huawei-GigabitEthernet0/0/0]
Mar 23 2022 13:29:26-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 1, th
e change loop count is 0, and the maximum number of records is 4095.
[Huawei-GigabitEthernet0/0/0]int s0/0/0
[Huawei-Serial0/0/0]ip add 192.168.20.2 24
[Huawei-Serial0/0/0]
Mar 23 2022 13:29:48-08:00 Huawei %%01IFNET/4/LINK_STATE(l)[2]:The line protocol
 PPP IPCP on the interface Serial0/0/0 has entered the UP state.
[Huawei-Serial0/0/1]ip add 192.168.40.1
                                   ^
Error:Incomplete command found at '^' position.
[Huawei-Serial0/0/1]ip add 192.168.40.1 24
[Huawei-Serial0/0/1]
Mar 23 2022 13:31:06-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 3, th
e change loop count is 0, and the maximum number of records is 4095.
```

```
<Huawei>sy
Enter system view, return user view with Ctrl+Z.
[Huawei]int g0/0/0
[Huawei-GigabitEthernet0/0/0]ip add 192.168.60.1 24
[Huawei-GigabitEthernet0/0/0]
Mar 23 2022 13:34:02-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 1, th
e change loop count is 0, and the maximum number of records is 4095.
[Huawei-GigabitEthernet0/0/0]int s0/0/0
[Huawei-Serial0/0/0]ip add 192.168.40.2 24
[Huawei-Serial0/0/0]
Mar 23 2022 13:34:52-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 2, th
e change loop count is 0, and the maximum number of records is 4095.
[Huawei-Serial0/0/0]int s0/0/1
[Huawei-Serial0/0/1]ip add 192.168.70.1 24
[Huawei-Serial0/0/1]
Mar 23 2022 13:35:06-08:00 Huawei %%01IFNET/4/LINK_STATE(l)[2]:The line protocol
 PPP IPCP on the interface Serial0/0/1 has entered the UP state.
Mar 23 2022 13:35:12-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 3, th
e change loop count is 0, and the maximum number of records is 4095.
```

```
PC>ping 192.168.10.4

Ping 192.168.10.4: 32 data bytes, Press Ctrl_C to break
From 192.168.10.4: bytes=32 seq=1 ttl=128 time=78 ms
From 192.168.10.4: bytes=32 seq=2 ttl=128 time=47 ms
From 192.168.10.4: bytes=32 seq=3 ttl=128 time=47 ms
From 192.168.10.4: bytes=32 seq=4 ttl=128 time=31 ms
From 192.168.10.4: bytes=32 seq=5 ttl=128 time=62 ms

--- 192.168.10.4 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 31/53/78 ms
```

Lab_A

LSW5 | LSW6 | Lab_A

```
[Huawei]commit
         ^
Error: Unrecognized command found at '^' position.
[Huawei]commit
         ^
Error: Unrecognized command found at '^' position.
[Huawei]display ip routing-table
Route Flags: R - relay, D - download to fib
------------------------------------------------------------------------------
Routing Tables: Public
         Destinations : 12        Routes : 12

Destination/Mask    Proto   Pre  Cost      Flags NextHop         Interface

      127.0.0.0/8   Direct  0    0           D   127.0.0.1       InLoopBack0
      127.0.0.1/32  Direct  0    0           D   127.0.0.1       InLoopBack0
    192.168.0.0/24  Static  60   0          RD   192.168.20.2    Serial0/0/0
   192.168.10.0/24  Direct  0    0           D   192.168.10.1    GigabitEthernet
0/0/0
   192.168.10.1/32  Direct  0    0           D   127.0.0.1       GigabitEthernet
0/0/0
   192.168.20.0/24  Direct  0    0           D   192.168.20.1    Serial0/0/0
   192.168.20.1/32  Direct  0    0           D   127.0.0.1       Serial0/0/0
   192.168.20.2/32  Direct  0    0           D   192.168.20.2    Serial0/0/0
   192.168.30.0/24  Static  60   0          RD   192.168.20.2    Serial0/0/0
   192.168.40.0/24  Static  60   0          RD   192.168.20.2    Serial0/0/0
   192.168.60.0/24  Static  60   0          RD   192.168.20.2    Serial0/0/0
   192.168.70.0/24  Static  60   0          RD   192.168.20.2    Serial0/0/0

[Huawei]
```

Lab_B

Lab_B

```
Mar 23 2022 13:52:20-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 7, th
e change loop count is 0, and the maximum number of records is 4095.
[Huawei]display ip routing-table
Route Flags: R - relay, D - download to fib
------------------------------------------------------------------------------
Routing Tables: Public
         Destinations : 14        Routes : 14

Destination/Mask    Proto   Pre  Cost      Flags NextHop         Interface

      127.0.0.0/8   Direct  0    0           D   127.0.0.1       InLoopBack0
      127.0.0.1/32  Direct  0    0           D   127.0.0.1       InLoopBack0
   192.168.10.0/24  Static  60   0          RD   192.168.20.1    Serial0/0/0
   192.168.20.0/24  Direct  0    0           D   192.168.20.2    Serial0/0/0
   192.168.20.1/32  Direct  0    0           D   192.168.20.1    Serial0/0/0
   192.168.20.2/32  Direct  0    0           D   127.0.0.1       Serial0/0/0
   192.168.30.0/24  Direct  0    0           D   192.168.30.1    GigabitEthernet
0/0/0
   192.168.30.1/32  Direct  0    0           D   127.0.0.1       GigabitEthernet
0/0/0
   192.168.40.0/24  Direct  0    0           D   192.168.40.1    Serial0/0/1
   192.168.40.1/32  Direct  0    0           D   127.0.0.1       Serial0/0/1
   192.168.40.2/32  Direct  0    0           D   192.168.40.2    Serial0/0/1
   192.168.50.0/24  Static  60   0          RD   192.168.20.1    Serial0/0/0
   192.168.60.0/24  Static  60   0          RD   192.168.40.2    Serial0/0/1
   192.168.70.0/24  Static  60   0          RD   192.168.40.2    Serial0/0/1
```

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School of Electrical Engineering and Computer Science

Lab_C

```
.25.191.3.1 configurations have been changed. The current change number is 6, th
e change loop count is 0, and the maximum number of records is 4095.
[Huawei]ip route-static 192.168.30.0 255.255.255.0 192.168.40.1
[Huawei]
Mar 23 2022 13:54:26-08:00 Huawei DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5
.25.191.3.1 configurations have been changed. The current change number is 7, th
e change loop count is 0, and the maximum number of records is 4095.
[Huawei]display ip routing-table
Route Flags: R - relay, D - download to fib
------------------------------------------------------------------------------
Routing Tables: Public
         Destinations : 11        Routes : 11

Destination/Mask    Proto   Pre  Cost      Flags NextHop         Interface

      127.0.0.0/8   Direct  0    0           D   127.0.0.1       InLoopBack0
      127.0.0.1/32  Direct  0    0           D   127.0.0.1       InLoopBack0
   192.168.10.0/24  Static  60   0          RD   192.168.40.1    Serial0/0/0
   192.168.20.0/24  Static  60   0          RD   192.168.40.1    Serial0/0/0
   192.168.30.0/24  Static  60   0          RD   192.168.40.1    Serial0/0/0
   192.168.40.0/24  Direct  0    0           D   192.168.40.2    Serial0/0/0
   192.168.40.1/32  Direct  0    0           D   192.168.40.1    Serial0/0/0
   192.168.40.2/32  Direct  0    0           D   127.0.0.1       Serial0/0/0
   192.168.50.0/24  Static  60   0          RD   192.168.40.1    Serial0/0/0
   192.168.60.0/24  Direct  0    0           D   192.168.60.1    GigabitEthernet
0/0/0
   192.168.60.1/32  Direct  0    0           D   127.0.0.1       GigabitEthernet
0/0/0
```

Basic Config | Command | MCPacket | UdpPacket | Console

```
--- 192.168.10.4 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 31/53/78 ms

PC>ping 192.168.30.4

Ping 192.168.30.4: 32 data bytes, Press Ctrl_C to break
From 192.168.30.4: bytes=32 seq=1 ttl=126 time=860 ms
From 192.168.30.4: bytes=32 seq=2 ttl=126 time=125 ms
From 192.168.30.4: bytes=32 seq=3 ttl=126 time=125 ms
From 192.168.30.4: bytes=32 seq=4 ttl=126 time=141 ms
From 192.168.30.4: bytes=32 seq=5 ttl=126 time=156 ms

--- 192.168.30.4 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 125/281/860 ms

PC>ping 192.168.60.4

Ping 192.168.60.4: 32 data bytes, Press Ctrl_C to break
From 192.168.60.4: bytes=32 seq=1 ttl=125 time=656 ms
From 192.168.60.4: bytes=32 seq=2 ttl=125 time=172 ms
From 192.168.60.4: bytes=32 seq=3 ttl=125 time=203 ms
From 192.168.60.4: bytes=32 seq=4 ttl=125 time=218 ms
From 192.168.60.4: bytes=32 seq=5 ttl=125 time=219 ms

--- 192.168.60.4 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 172/293/656 ms
```