



CENTRE FOR DIPLOMA STUDIES

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

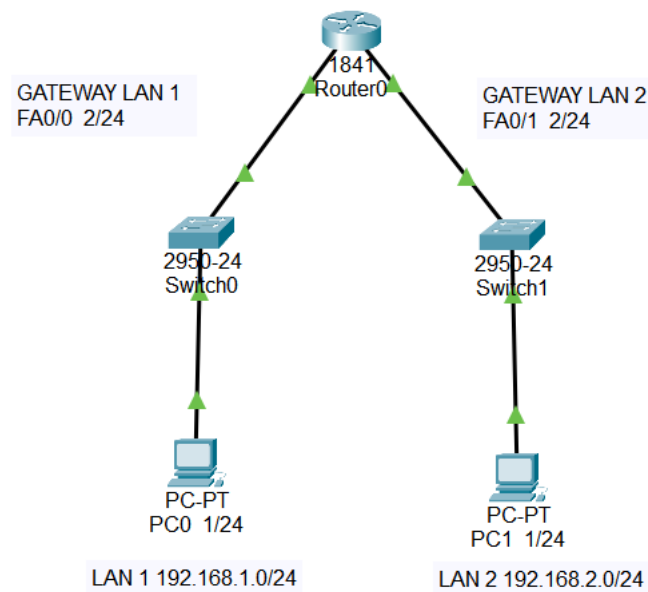
PBL 3 (LAB 7)

DAT21502 DATA COMMUNICATION

AND NETWORK

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SECTION	6
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Question 1- STATIC AND DYNAMIC ROUTING PROTOCOL CONFIGURATIONS



a) Assign IP addresses to the :

i. PCs

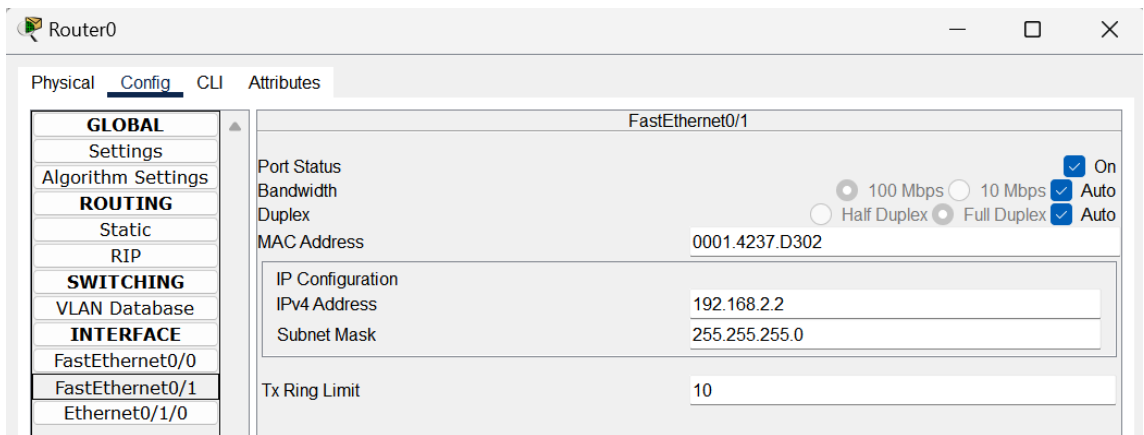
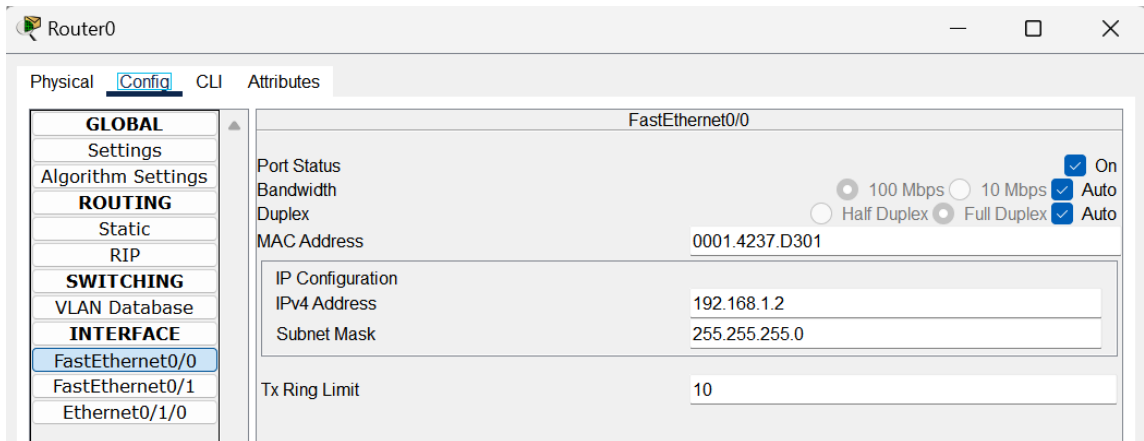
PC0 1/24

Physical	Config	Desktop	Programming	Attributes
IP Configuration				
Interface FastEthernet0				
IP Configuration				
<input type="radio"/> DHCP <input checked="" type="radio"/> Static				
IPv4 Address 192.168.1.1				
Subnet Mask 255.255.255.0				
Default Gateway 192.168.1.2				
DNS Server 0.0.0.0				

PC1 1/24

Physical	Config	Desktop	Programming	Attributes
IP Configuration				
Interface FastEthernet0				
IP Configuration				
<input type="radio"/> DHCP <input checked="" type="radio"/> Static				
IPv4 Address 192.168.2.1				
Subnet Mask 255.255.255.0				
Default Gateway 192.168.2.2				
DNS Server 0.0.0.0				

ii. Router interface fa0/0 and fa0/1



b) Configure router's routing protocol using :

i. Static routing protocol

```
Router#
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/1

Router#
```

ii. Dynamic routing protocol

```







Router#
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

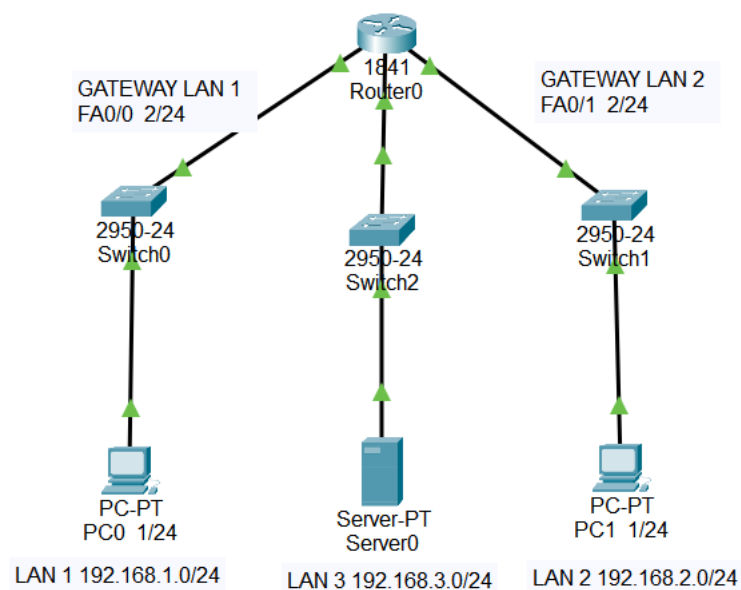
C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/1
Router#

```

c) Test the connection between LANs.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	--	PC0 ...	Router0	ICMP		0.000	N	0	(edit)	(delete)
	--	PC1 ...	Router0	ICMP		0.000	N	1	(edit)	(delete)
	--	PC0 ...	PC1 1/24	ICMP		0.000	N	2	(edit)	(delete)

d) Add one server using a new LAN and attached to the Router. Configure the router so that all PCs is should be able to access the server.



Server0

PhysicalConfigServicesDesktopProgrammingAttributes

IP Configuration

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

192.168.3.1

Subnet Mask

255.255.255.0

Default Gateway

192.168.3.2

DNS Server

0.0.0.0

Router0

PhysicalConfigCLIAtributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Ethernet0/1/0

Ethernet0/1/0

Port Status

Bandwidth

Duplex

MAC Address

00D0.BC6B.9040

IP Configuration

IPv4 Address

192.168.3.2

Subnet Mask

255.255.255.0

Tx Ring Limit

10

☒ On

10 Mbps







☒ Auto

Half Duplex

☐ Auto

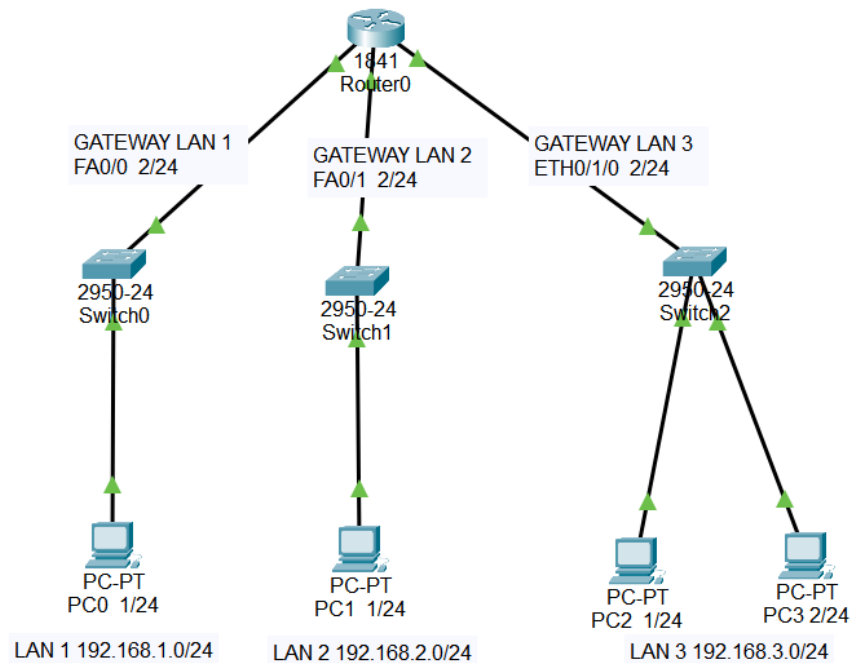
Full Duplex

☒ Auto

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0 ...	Server0	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC1 ...	Server0	ICMP		0.000	N	1	(edit)	(delete)
	Successful	Router0	Server0	ICMP		0.000	N	2	(edit)	(delete)

Question 2 – ROUTING BETWEEN VLAN

a) Add network in **Question1** with a new network having a switch and two PCs name the network as LAN3 and configure the router again so that all PCs is connected to each other.



PC2 1/24

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.3.1

Subnet Mask 255.255.255.0

Default Gateway 192.168.3.2

DNS Server 0.0.0.0

PC3 2/24

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.3.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.3.2

DNS Server 0.0.0.0

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Ethernet0/1/0

Ethernet0/1/0

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

10 Mbps

Auto

Half Duplex

Full Duplex









000B.BE6A.4BEE

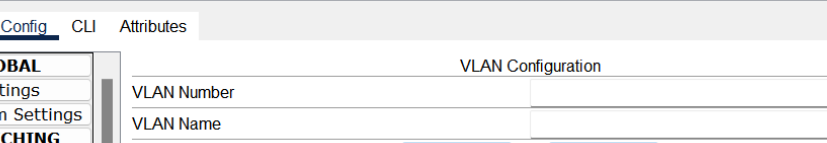
192.168.3.2

255.255.255.0

10

b) Test the connection between LANs. Also test the connection to the server

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2 ...	Router0	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC3 ...	Router0	ICMP		0.000	N	1	(edit)	(delete)
	Successful	PC1 ...	PC2 1/24	ICMP		0.000	N	2	(edit)	(delete)
	Successful	PC0 ...	PC3 2/24	ICMP		0.000	N	3	(edit)	(delete)



The screenshot shows the Cisco Packet Tracer interface for a switch named Switch0. The 'Config' tab is selected, and the 'VLAN Configuration' section is active. The 'VLAN Database' table is visible, showing a list of VLANs. The 'VLAN Name' field is set to 'default'.

VLAN No	VLAN Name
1	default
2	VLAN2
3	VLAN3
1002	fddi-default
1003	token-ring-default
1004	fddinet-default
1005	trnet-default

Switch0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/1

FastEthernet0/2

FastEthernet0/3

FastEthernet0/4

FastEthernet0/5

FastEthernet0/6

FastEthernet0/7

FastEthernet0/1

Port Status ☒ On

Bandwidth ☒ Auto

Duplex ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

☐ Half Duplex ☒ Full Duplex ☒ Auto

Access 1

Tx Ring Limit 10

Switch0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/1

FastEthernet0/2

FastEthernet0/3

FastEthernet0/4

FastEthernet0/5

FastEthernet0/6

FastEthernet0/2

Port Status ☒ On

Bandwidth ☒ Auto

Duplex ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

☐ Half Duplex ☒ Full Duplex ☒ Auto

Access 2

Tx Ring Limit 10

Switch0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/1

FastEthernet0/2

FastEthernet0/3

FastEthernet0/4

FastEthernet0/5

FastEthernet0/6

FastEthernet0/3

Port Status ☒ On

Bandwidth ☒ Auto

Duplex ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

☐ Half Duplex ☒ Full Duplex ☒ Auto

Trunk 1-1005

Tx Ring Limit 10

b) Router trunking protocol configuration, given that the IP for the vlan subinterface is the gateway for its vlans

```

Router0
Physical Config CLI Attributes
IOS Command Line Interface

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Compiled Wed 18-Jul-07 04:52 by pt_team

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]:

Press RETURN to get started!

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#
Router(config-if)#interface FastEthernet0/0
Router(config-if)#interface FastEthernet0/0.1
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.1, changed state to up

Router(config-subif)#encapsulation dot1Q 1
Router(config-subif)#ip address 192.168.1.2 255.255.255.0
Router(config-subif)#interface FastEthernet0/0.2
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.2, changed state to up

Router(config-subif)#encapsulation dot1Q 2\
^
% Invalid input detected at '^' marker.

Router(config-subif)#encapsulation dot1Q 2
Router(config-subif)#ip address 192.168.2.2 255.255.255.0
Router(config-subif)#
  
```

c) Test connection between vlans.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Failed	PC2 ...	PC1 1/24	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC0 ...	Router0	ICMP		0.000	N	1	(edit)	(delete)
	Successful	PC1 ...	Router0	ICMP		0.000	N	2	(edit)	(delete)
	Successful	PC0 ...	PC1 1/24	ICMP		0.000	N	3	(edit)	(delete)