



Academic Year: 2023-24

Name of Student:

Semester: V

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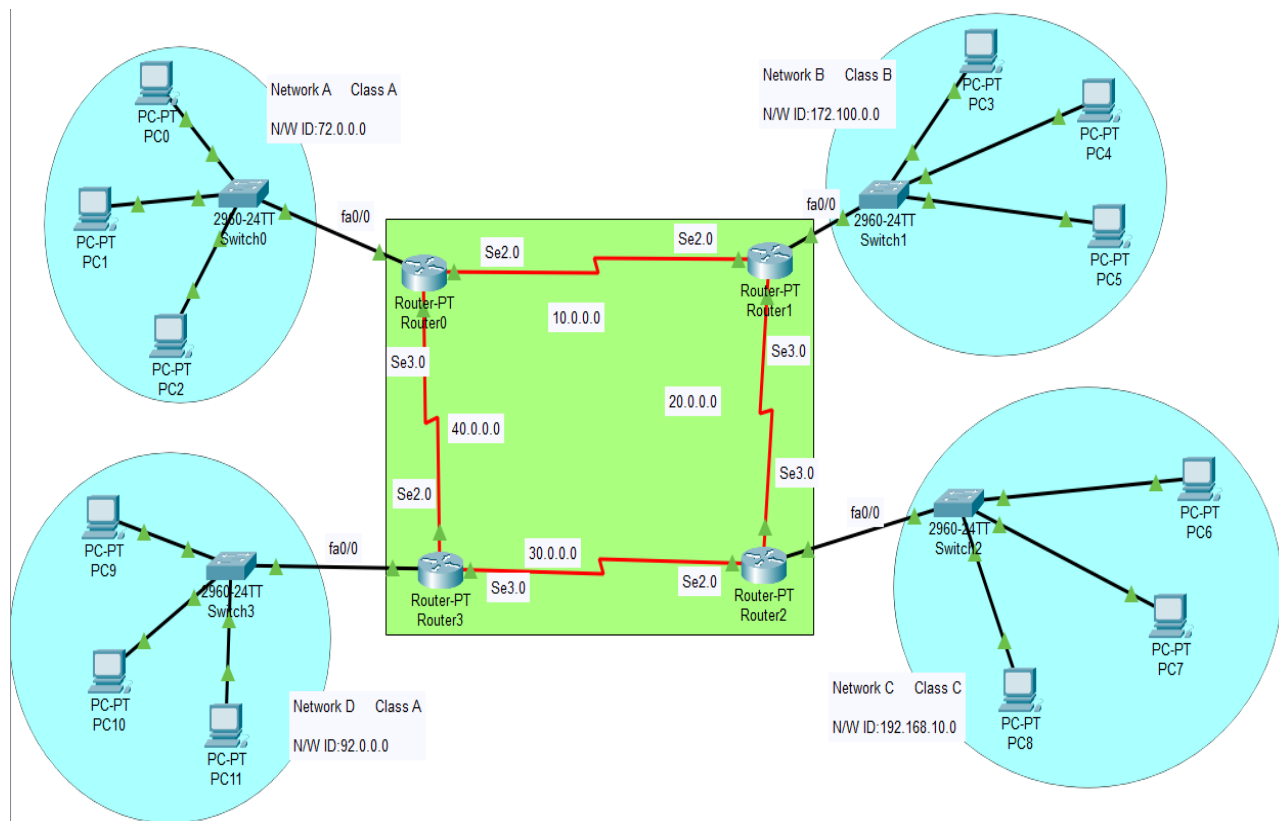
Subject: WCN Lab

Date of Submission:

Experiment No. 07

1. **Aim:** To design and simulate the environment for Dynamic routing using Cisco packet tracer/ GNS3.

Procedure:



In the above network diagram, we have 4 networks A, B, C, D with 72.0.0.0, 172.100.0.0, 192.168.10.0, 92.0.0.0 respectively.

PC 0 to PC 9 are computers (end devices) in this network.

Router 0 to Router 3 are routers in this network.



STEP 1: NETWORK CONFIGURATION

PC0

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 72.0.0.10

Subnet Mask 255.0.0.0

Default Gateway 72.0.0.1

DNS Server 0.0.0.0

STEP 2: ROUTER CONFIGURATION

Router 0

Device Name: Router0
Device Model: Router-PT
Hostname: Router

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0/0	Up	72.0.0.1/8	<not set>	0001.96CD.4C2E
FastEthernet1/0	Down	<not set>	<not set>	0050.0F75.B717
Serial2/0	Up	10.0.0.2/8	<not set>	<not set>
Serial3/0	Up	40.0.0.2/8	<not set>	<not set>
FastEthernet4/0	Down	<not set>	<not set>	0005.5E32.EA36
FastEthernet5/0	Down	<not set>	<not set>	0050.0F76.A470

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Router0

Router0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.96CD.4C2E

IP Configuration

IPv4 Address 72.0.0.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10



Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Serial2/0

Port Status

On

Duplex

Full Duplex

Clock Rate

2000000

IP Configuration

IPv4 Address

10.0.0.2

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Serial3/0

Port Status

On

Duplex

Full Duplex

Clock Rate

2000000

IP Configuration

IPv4 Address

40.0.0.2

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Router 1

Device Name: Router1
Device Model: Router-PT
Hostname: Router

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0/0	Up	172.100.0.1/16	<not set>	0030.F2C4.38C7
FastEthernet1/0	Down	<not set>	<not set>	0001.C9B2.73A8
Serial2/0	Up	10.0.0.3/8	<not set>	<not set>
Serial3/0	Up	20.0.0.2/8	<not set>	<not set>
FastEthernet4/0	Down	<not set>	<not set>	00E0.F975.5982
FastEthernet5/0	Down	<not set>	<not set>	00D0.5800.0208



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Router1

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- INTERFACE**
- FastEthernet0/0
- FastEthernet1/0
- Serial2/0
- Serial3/0
- FastEthernet4/0
- FastEthernet5/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0030.F2C4.38C7

IP Configuration

IPv4 Address 172.100.0.1

Subnet Mask 255.255.0.0

Tx Ring Limit 10

Router1

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- INTERFACE**
- FastEthernet0/0
- FastEthernet1/0
- Serial2/0**
- Serial3/0
- FastEthernet4/0
- FastEthernet5/0

Serial2/0

Port Status ☒ On

Duplex ☒ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 10.0.0.3

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Router1

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- INTERFACE**
- FastEthernet0/0
- FastEthernet1/0
- Serial2/0
- Serial3/0**
- FastEthernet4/0
- FastEthernet5/0

Serial3/0

Port Status ☒ On

Duplex ☒ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 20.0.0.2

Subnet Mask 255.0.0.0

Tx Ring Limit 10



Router 2

Device Name: Router2
Device Model: Router-PT
Hostname: Router

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0/0	Up	192.168.10.1/24	<not set>	0003.E492.BBC2
FastEthernet1/0	Down	<not set>	<not set>	000A.F343.2A2C
Serial2/0	Up	30.0.0.3/8	<not set>	<not set>
Serial3/0	Up	20.0.0.3/8	<not set>	<not set>
FastEthernet4/0	Down	<not set>	<not set>	0050.0F89.B3A9
FastEthernet5/0	Down	<not set>	<not set>	0060.47B5.EB8A

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

☒ On

100 Mbps

10 Mbps

Half Duplex

Full Duplex

☒ Auto

☒ Auto

0003.E492.BBC2

192.168.10.1

255.255.255.0

10

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Serial2/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

☒ On

Full Duplex

2000000

30.0.0.3

255.0.0.0

10



Router2

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Serial3/0

Port Status ☒ On

Duplex ☐ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 20.0.0.3

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Router 3

Device Name: Router3
Device Model: Router-PT
Hostname: Router

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0/0	Up	92.0.0.1/8	<not set>	00D0.BA51.8857
FastEthernet1/0	Down	<not set>	<not set>	0004.9AC9.4AD1
Serial2/0	Up	40.0.0.3/8	<not set>	<not set>
Serial3/0	Up	30.0.0.2/8	<not set>	<not set>
FastEthernet4/0	Down	<not set>	<not set>	00D0.97C7.3460
FastEthernet5/0	Down	<not set>	<not set>	00D0.9735.C3B7

Router3

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 00D0.BA51.8857

IP Configuration

IPv4 Address 92.0.0.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10



Router3

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- INTERFACE**
- FastEthernet0/0
- FastEthernet1/0
- Serial2/0**
- Serial3/0
- FastEthernet4/0
- FastEthernet5/0

Serial2/0

Port Status ☒ On

Duplex ☐ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 40.0.0.3

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Router3

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- INTERFACE**
- FastEthernet0/0
- FastEthernet1/0
- Serial2/0
- Serial3/0**
- FastEthernet4/0
- FastEthernet5/0

Serial3/0

Port Status ☒ On

Duplex ☐ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 30.0.0.2

Subnet Mask 255.0.0.0

Tx Ring Limit 10

STEP 3: CONFIGURING RIP ROUTING PROTOCOL

configure **Router0**

```
Router0 (config)#router rip
Router0 (config-router)# network 10.0.0.0
Router0 (config-router)# network 40.0.0.0
Router0 (config-router)# network 72.0.0.0
```




Router0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

RIP Routing

Network

Add

Network Address
10.0.0.0
40.0.0.0
72.0.0.0

Router1

```
Router1(config)#router rip
Router1(config-router)# network 10.0.0.0
Router1(config-router)# network 20.0.0.0
Router1(config-router)# network 172.100.0.0
```

Router1

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

RIP Routing

Network

Add

Network Address
10.0.0.0
20.0.0.0
172.100.0.0

Router2

```
Router2(config)#router rip
Router2(config-router)# network 20.0.0.0
Router2(config-router)# network 30.0.0.0
Router2(config-router)# network 192.168.10.0
```




Router2

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

RIP Routing

Network

Add

Network Address
20.0.0.0
30.0.0.0
192.168.10.0

Router3

```
Router3(config)#router rip
Router3(config-router)# network 30.0.0.0
Router3(config-router)# network 40.0.0.0
Router3(config-router)# network 92.0.0.0
```

Router3

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

RIP Routing

Network

Add

Network Address
30.0.0.0
40.0.0.0
92.0.0.0



STEP 4: DATA TRANSMISSION

```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ipconfig

FastEthernet0 Connection: (default port)

Connection-specific DNS Suffix...:
Link-local IPv6 Address...: FE80::20D:BDFE:FE40:757C
IPv6 Address...: ::
IPv4 Address...: 72.0.0.10
Subnet Mask...: 255.0.0.0
Default Gateway...: ::
72.0.0.1

Bluetooth Connection:

Connection-specific DNS Suffix...:
Link-local IPv6 Address...: ::
IPv6 Address...: ::
IPv4 Address...: 0.0.0.0
Subnet Mask...: 0.0.0.0
Default Gateway...: ::
0.0.0.0

C:\>ping 192.168.10.12

Pinging 192.168.10.12 with 32 bytes of data:

Reply from 192.168.10.12: bytes=32 time=13ms TTL=125
Reply from 192.168.10.12: bytes=32 time=12ms TTL=125
Reply from 192.168.10.12: bytes=32 time=12ms TTL=125
Reply from 192.168.10.12: bytes=32 time=12ms TTL=125

Ping statistics for 192.168.10.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 12ms, Maximum = 13ms, Average = 12ms
```

Simulation Panel				
Event List				
Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Router0	ICMP
	0.003	Router0	Router1	ICMP
	0.004	Router1	Router2	ICMP
	0.005	Router2	Switch2	ICMP
	0.006	Switch2	PC8	ICMP
	0.007	PC8	Switch2	ICMP
	0.008	Switch2	Router2	ICMP
	0.009	Router2	Router3	ICMP
	0.010	Router3	Router0	ICMP
	0.011	Router0	Switch0	ICMP
	0.012	Switch0	PC0	ICMP
Reset Simulation <input checked="" type="checkbox"/> Constant Delay				
Captured to: 224.419 s				
Play Controls				
Event List Filters - Visible Events				
ICMP				
Edit Filters				
Show All/None				



OUTPUT:

