Usman Institute of Technology

Department of Computer Science Fall 2022

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Course: DCCN (CS-222)

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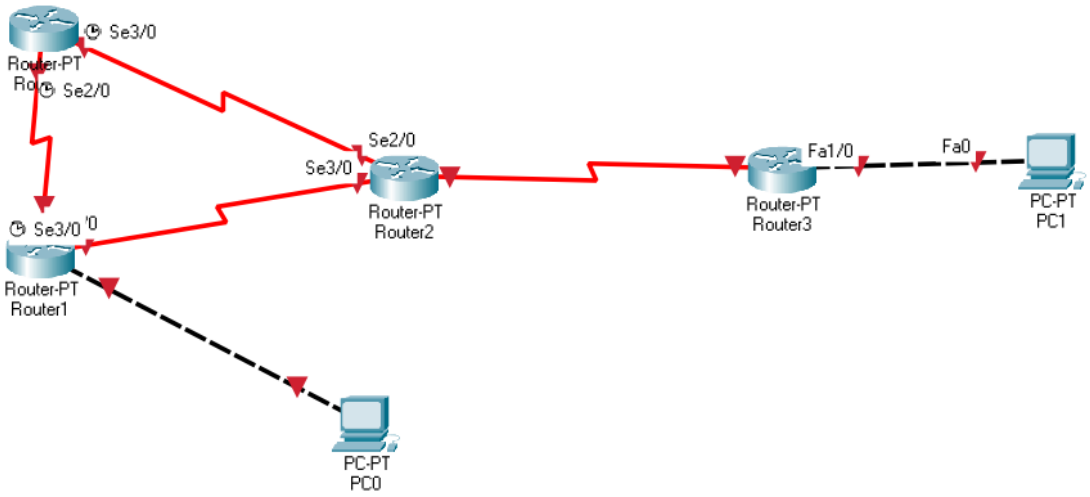
Lab Task:

Implement the following topology with RIP protocol.



Configuration:

Router0:

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#ip add 13.0.0.1 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 13.0.0.0
Router(config-router)#network 14.0.0.0
Router(config-router)#exit

Router(config)#int se3/0
Router(config-if)#ip add 14.0.0.2 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
```

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Router1:

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#ip add 13.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#router ri
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed staexit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 12.0.0.0
Router(config-router)#network 13.0.0.0
Router(config-router)#exit
Router(config)#int se3/0
Router(config-if)#ip add 12.0.0.1 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
```

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Router2:

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#int se3/0
Router(config-if)#ip add 12.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

Router(config-if)#exit
Router(config)#int se2
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up


Router(config)#int se2/0
Router(config-if)#ip add 14.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-router)#
Router(config-router)#network 12.0.0.0
Router(config-router)#network 13.0.0.0
Router(config-router)#network 15.0.0.0
Router(config-router)#exit
Router(config)#
Router(config)#int se6/0
Router(config-if)#ip add 15.0.0.2
% Incomplete command.
Router(config-if)#ip add 15.0.0.2 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial6/0, changed state to down
```

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Router3:

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#int se2/0
Router(config-if)#ip add 15.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#router
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
rip
Router(config-router)#network 15.0.0.0
Router(config-router)#network 12.0.0.0
Router(config-router)#network 13.0.0.0
Router(config-router)#
```

PC Connection with Router:

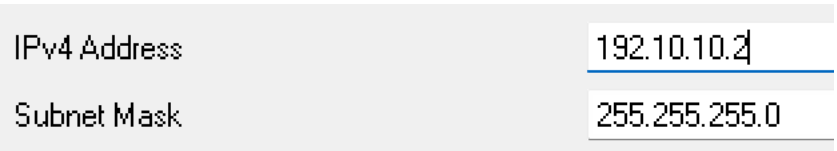
On Router1:

```
Router(config)#int fa0/0
Router(config-if)#ip address 192.10.10.1 255.255.255.0
Router(config-if)#no shut

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
```

On PC0:



On Router3:

```
Router(config)#int fa1/0
Router(config-if)#ip address 192.158.15.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
```

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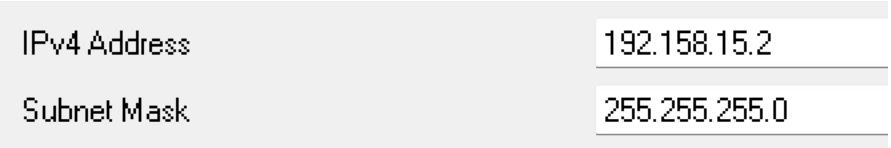
On PC1:



Connectivity Test:

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)
	Successful	Router0	Router2	ICMP		0.000
	Successful	Router0	Router3	ICMP		0.000
	Successful	Router0	Router1	ICMP		0.000
	Successful	Router1	Router0	ICMP		0.000
	Successful	Router1	Router2	ICMP		0.000
	Successful	Router1	Router3	ICMP		0.000
	Successful	Router2	Router0	ICMP		0.000

Router Table:

```
Router#show ip rip database
12.0.0.0/8    auto-summary
12.0.0.0/8
    [1] via 13.0.0.2, 00:00:05, Serial2/0
13.0.0.0/8    auto-summary
13.0.0.0/8    directly connected, Serial2/0
14.0.0.0/8    auto-summary
14.0.0.0/8    directly connected, Serial3/0
15.0.0.0/8    auto-summary
15.0.0.0/8
    [2] via 13.0.0.2, 00:00:05, Serial2/0
```

On removing one link,

```
Router#show ip rip database
12.0.0.0/8    auto-summary
12.0.0.0/8
    [1] via 13.0.0.2, 00:00:28, Serial2/0
13.0.0.0/8    auto-summary
13.0.0.0/8    directly connected, Serial2/0
14.0.0.0/8    auto-summary
14.0.0.0/8    directly connected, Serial3/0
15.0.0.0/8    is possibly down
15.0.0.0/8    is possibly down
```