Data Communication and Computer Network
Lab8: Distance Vector Routing Protocol

Name: Hitendra Sisodia
Sap Id: 500091910

Aim: Configure a Network using Distance Vector Routing protocol.

Apparatus (Software): packet tracer software

Theory:

In computer communication theory relating to packet-switched networks, a distance-vector routing protocol is one of the two major classes of routing protocols, the other major class being the link-state protocol. Distance-vector routing protocols use the Bellman–Ford algorithm, Ford–Fulkerson algorithm, or DUAL FSM (in the case of Cisco Systems' protocols) to calculate paths. A distance-vector routing protocol requires that a router informs its neighbors of topology changes periodically.Compared to link-state protocols, which require a router to inform all the nodes in a network of topology changes, distance-vector routing protocols have less computational complexity and message overhead.

The Routing Information Protocol (RIP) is one of the oldest distance-vector routingprotocols, which employs the hop count as a routing metric. RIP prevents routing
loops by implementing a limit on the number of hops allowed in a path from the source to a destination. The maximum number of hops allowed for RIP is 15. This hop limit, however, also limits the size of networks that RIP can support. A hop countof 16 is considered an infinite distance, in other words the route is considered unreachable.

Procedure:

Step 1: First we will set up three routers.

2911
Router0

2911
Router2

2911
Router1

Step 2: Now we will take three switches, one for each router.

2911
Router0

2911
Router2

2950-24
Switch0

2911
Router1

2950-24
Switch2

2950-24
Switch1

Step 3: Now we will take two end devices for each router.

2911
Router0

2911
Router2

2950-24
Switch0

2911
Router1

2950-24
Switch2

PC-PT
PC4

PC-PT
PC5

2950-24
Switch1

PC-PT
PC0

PC-PT
PC1

PC-PT
PC2

PC-PT
PC3

Step 4: The final topology should look like this:
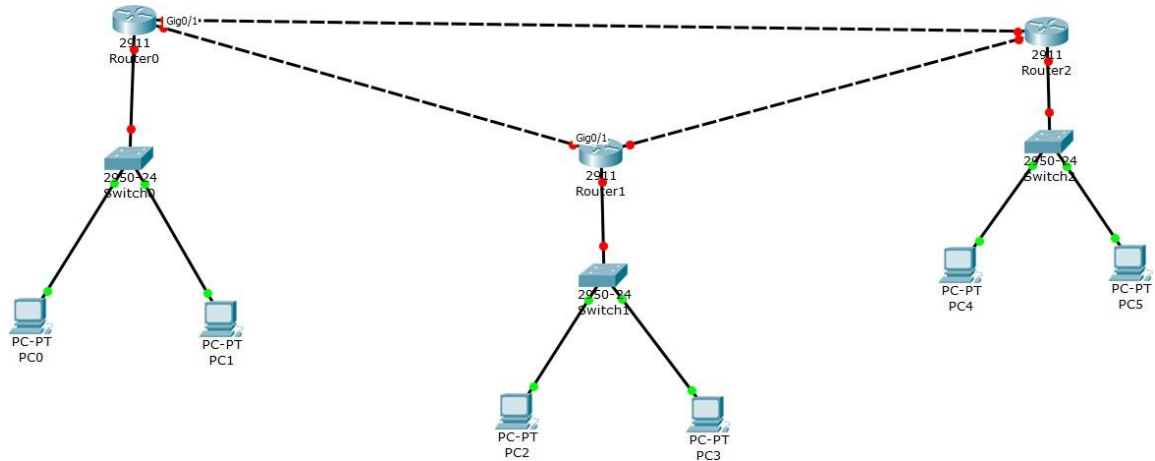
Step 5: Now we will give IP address to each

end device.Changing the config for PC0.
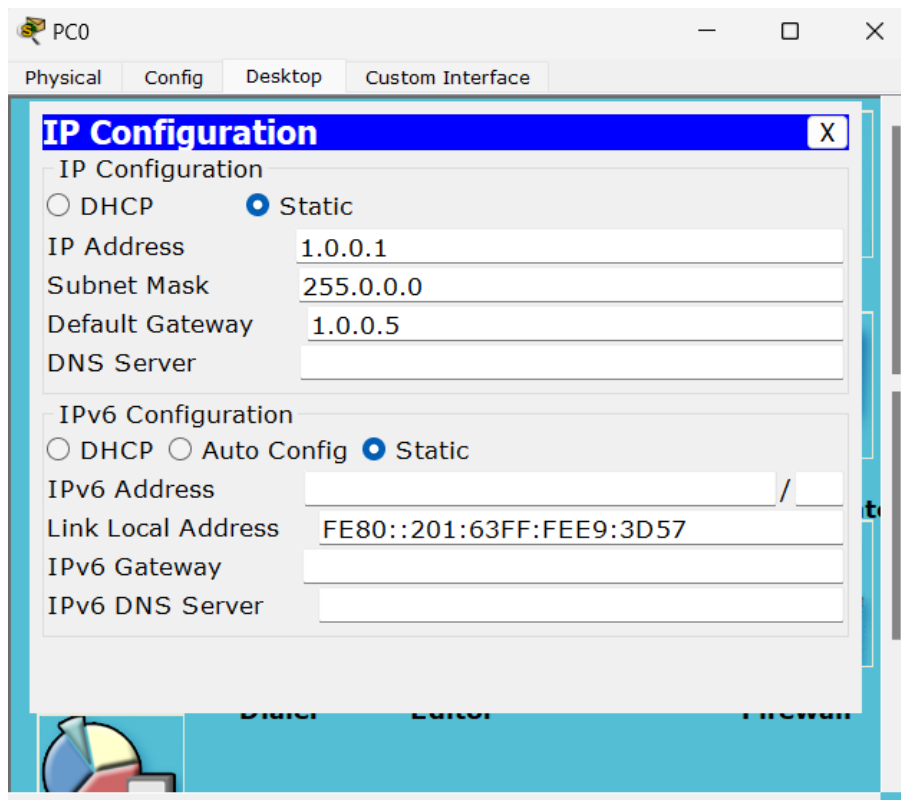
Step 6: Similarly, we'll change the config of other

devices.Now, setting IP address for router0:

Step 7: Similarly, we'll set up IP address for other routers.

Now we will add RIP (Network IP Address for each network connected to router).For Router0:

Step 8: We'll follow the same process for the other

routers as well.Sending packet from PC0 to PC

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
●	Successful	PC0	PC5	ICMP	■	0.000	N	0	(edit)	(delete)

Step 9: Sending packet from PC1 to PC4:

Conclusion: Successfully the Distance vector routing protoc

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
●	Successful	PC1	PC4	ICMP	■	0.000	N	0	(edit)	(delete)