* 1. **EIGRP (ENHANCED INTERIOR GATWAY ROUTING PROTOCOL)**
* is a dynamic routing protocol.
* that is used to find the best path between any two-layer 3 (**Network layer**)devices to deliver the packet.
* EIGRP works on network layer Protocol of OSI model.
* EIGRP uses protocol number 88.
* It uses metrics to find out the best path between two layer 3 devices (router or layer 3 switches) operating EIGRP.
* Multicast address 224.0.0.10
* EIGRP only know CISCO devices.
* Hop count 255 routers connect.

Administrative Distance for EIGRP are:- 

|  |  |
| --- | --- |
| **EIGRP routes** | **AD values** |
| **Summary Routes** | **5** |
| **Internal Routes** | **90** |
| **external routes** | **170** |

**Composite matrix-**The EIGRP composite metric calculation can use up to 5 variables, but only 2 are used by default (K1 and K3). The composite metric values are :

***K1 (bandwidth)***  
***K2 (load)***  
***K3 (delay)***  
***K4 (reliability)***  
***K5 (MTU)***

The lowest bandwidth, load, delay, reliability, MTU along the path between the source and the destination is considered in the composite matrix in order to calculate the cost.

**Timers:-**   
**Hello timer-** The interval in which EIGRP sends a hello message on an interface. It is 5 seconds by default.   
**Dead timer-** The interval in which the neighbor will be declared dead if it is not able to send the hello packet. It is 15 seconds by default.

**3 TABLES FOR EIGRP TO STORE INFO TO SEND SOURCE TO DESTINATION**

A) Neighbour table:

Only neighbour router data store.

B)Routing table:

Best path data store to send info source to destination.

C)Topology table:

1)The best path of neighbor router data store to send info source to destination.

2)apply the dual method to store the info in routing table.

**Process for EIGRP Routing :**

1. First take the 4 routers, 4 switches, 4 PC’s.

2. Connect all devices with the help of cable. But router to router connection first we drag and drop the back panel then router to router cable connect.

3. All PC’s configure IP’s and Gatways.

**COMMAND ON THE ROUTER 1 :**

Router>enable

Router#configure terminal

Router(config)#interface GigabitEthernet0/0/0

Router(config-if)#ip address 192.168.10.1 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#ex

Router(config)#interface Serial0/1/0

Router(config-if)#ip address 192.168.20.1 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#ex

**EIGRP ROUTING COMMAND**

Router(config)#router eigrp 1

Router(config-router)#network 192.168.10.0 in the network command assign the all network ip to conected router

Router(config-router)#network 192.168.20.0

Router(config-router)#ex

**ROUTER 2**

Router>enable

Router#configure terminal

Router(config)#interface GigabitEthernet0/0/0

Router(config-if)#ip address 192.168.30.1 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface Serial0/1/0

Router(config-if)#ip address 192.168.20.2 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface Serial0/1/1

Router(config-if)#ip address 192.168.40.1 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#ex

**EIGRP ROUTING COMMAND**

Router(config)#router eigrp 1

Router(config-router)#network 192.168.20.0

Router(config-router)#network 192.168.30.0

Router(config-router)#network 192.168.40.0

Router(config-router)#ex

**ROUTER 3**

Router>enable

Router#configure terminal

Router(config)#interface GigabitEthernet0/0/0

Router(config-if)#ip address 192.168.50.1 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface Serial0/1/0

Router(config-if)#ip address 192.168.40.2 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface Serial0/1/1

Router(config-if)#ip address 192.168.60.1 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#ex

**EIGRP ROUTING COMMAND**

Router(config)#router eigrp 1

Router(config-router)#network 192.168.40.0

Router(config-router)#network 192.168.50.0

Router(config-router)#network 192.168.60.0

Router(config-router)#ex

**ROUTER 4**

Router>enable

Router#configure terminal.

Router(config)#interface GigabitEthernet0/0/0

Router(config-if)#ip address 192.168.70.1 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface Serial0/1/0

Router(config-if)#ip address 192.168.60.2 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#ex

**EIGRP ROUTING COMMAND**

Router(config)#router eigrp 1

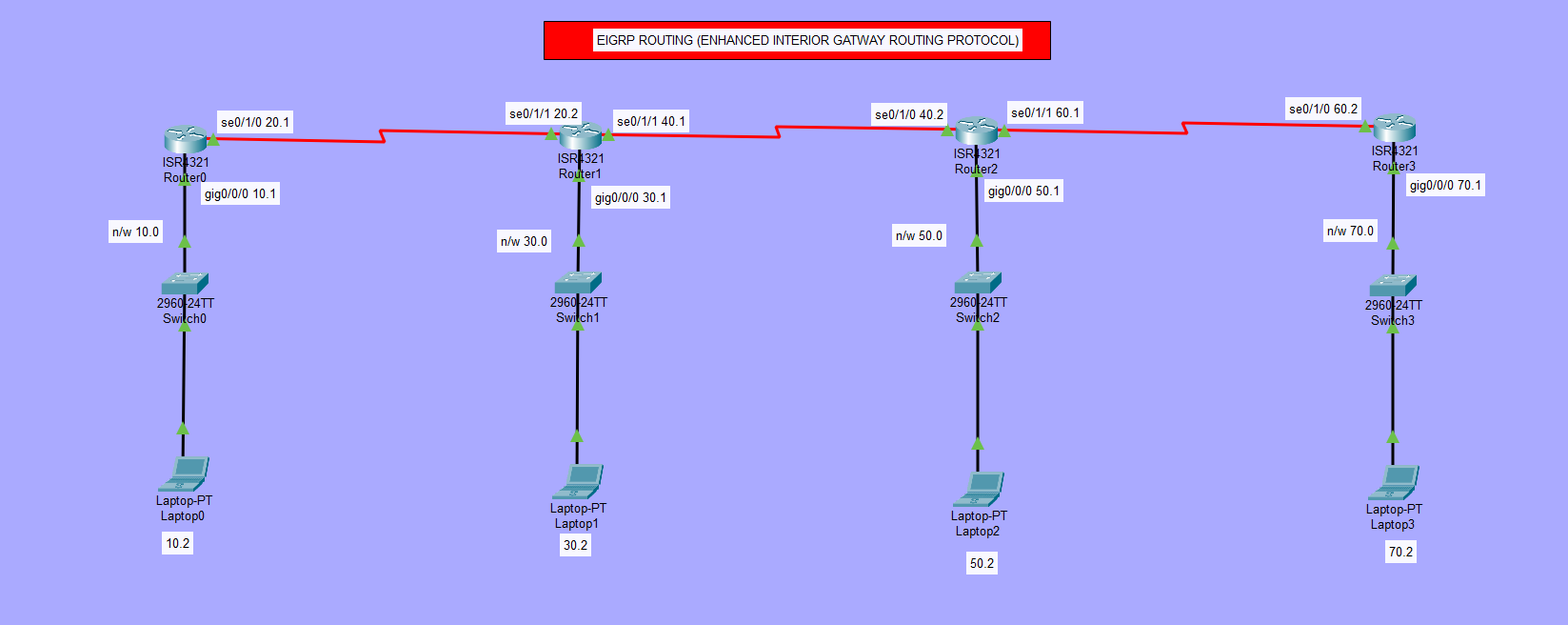
Router(config-router)#network 192.168.60.0

Router(config-router)#network 192.168.70.0

Router(config-router)#ex

**When all the router configuration done then check the all PC’s ping successfully.**

**TOPOLOGY FOR EIGRP ROUTING :**

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