Data Communication and Computer Networks

EEE314

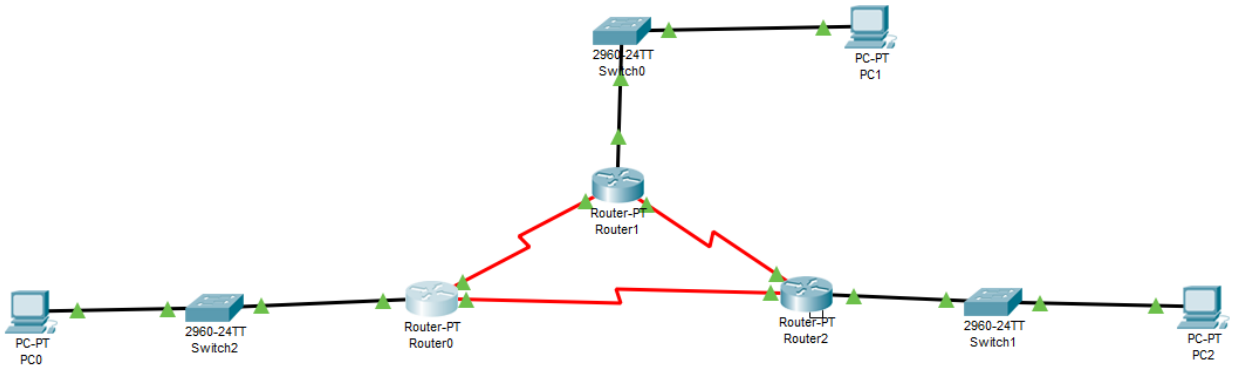
Lab # 06

Name	Muhammad Haris Irfan
Registration Number	FA18-BCE-090
Class	BCE-6B
Instructor's Name	Sir Asad Ali Malik.

Lab #06 EIGRP Configuration

In-Lab Task

Task 1



PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	PC2	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC0	PC1	ICMP		0.000	N	1	(edit)	(delete)
	Successful	PC1	PC0	ICMP		0.000	N	2	(edit)	(delete)
	Successful	PC1	PC2	ICMP		0.000	N	3	(edit)	(delete)
	Successful	PC2	PC1	ICMP		0.000	N	4	(edit)	(delete)
	Successful	PC2	PC0	ICMP		0.000	N	5	(edit)	(delete)

Home Task

TASK 1:

Router 0:

show running-config:

```
Router#show running-config
Building configuration...

Current configuration : 957 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
```

```
!
!
!
!
!
!
interface FastEthernet0/0
ip address 172.16.1.1 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet1/0
no ip address
duplex auto
speed auto
shutdown
!
interface Serial2/0
bandwidth 64
ip address 172.16.3.1 255.255.255.252
clock rate 64000
!
interface Serial3/0
ip address 192.168.10.5 255.255.255.252
!
interface FastEthernet4/0
no ip address
shutdown
!
interface FastEthernet5/0
no ip address
shutdown
!
interface Serial6/0
no ip address
clock rate 2000000
shutdown
!
router eigrp 1
network 172.16.0.0
network 192.168.10.4 0.0.0.3
network 192.168.10.8 0.0.0.3
no auto-summary
!
router rip
!
```

```
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
```

show ip route:

```
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

172.16.0.0/16 is variably subnetted, 3 subnets, 2 masks
C 172.16.1.0/24 is directly connected, FastEthernet0/0
D 172.16.2.0/24 [90/40514560] via 172.16.3.2, 00:14:49, Serial2/0
C 172.16.3.0/30 is directly connected, Serial2/0
D 192.168.1.0/24 [90/41026560] via 172.16.3.2, 00:14:47, Serial2/0
192.168.10.0/30 is subnetted, 2 subnets
C 192.168.10.4 is directly connected, Serial3/0
D 192.168.10.8 [90/41024000] via 172.16.3.2, 00:14:49, Serial2/0
```

show ip interface brief:

Router#show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 172.16.1.1 YES manual up up
FastEthernet1/0 unassigned YES unset administratively down down
Serial2/0 172.16.3.1 YES manual up up
Serial3/0 192.168.10.5 YES manual up up
FastEthernet4/0 unassigned YES unset administratively down down
FastEthernet5/0 unassigned YES unset administratively down down
Serial6/0 unassigned YES unset administratively down down

show ip protocol:

Router#show ip protocol

Routing Protocol is "eigrp 1 "
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Default networks flagged in outgoing updates
Default networks accepted from incoming updates
EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
EIGRP maximum hopcount 100
EIGRP maximum metric variance 1
Redistributing: eigrp 1
Automatic network summarization is not in effect
Maximum path: 4
Routing for Networks:
172.16.0.0
192.168.10.4/30
192.168.10.8/30
Routing Information Sources:
Gateway Distance Last Update
172.16.3.2 90 5409
Distance: internal 90 external 170

Router 1:

show running-config:

```
Router#show running-config
Building configuration...

Current configuration : 873 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
```

```
interface FastEthernet0/0
ip address 172.16.2.1 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet1/0
no ip address
duplex auto
speed auto
shutdown
!
interface Serial2/0
bandwidth 64
ip address 172.16.3.2 255.255.255.252
!
interface Serial3/0
bandwidth 1024
ip address 192.168.10.9 255.255.255.252
clock rate 64000
!
interface FastEthernet4/0
no ip address
shutdown
!
interface FastEthernet5/0
no ip address
shutdown
!
router eigrp 1
network 172.16.0.0
network 192.168.10.8 0.0.0.3
no auto-summary
!
router rip
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
```

```
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
```

show ip route:

```
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

172.16.0.0/16 is variably subnetted, 3 subnets, 2 masks
D 172.16.1.0/24 [90/40514560] via 172.16.3.1, 00:18:27, Serial2/0
C 172.16.2.0/24 is directly connected, FastEthernet0/0
C 172.16.3.0/30 is directly connected, Serial2/0
D 192.168.1.0/24 [90/3014400] via 192.168.10.10, 00:18:25, Serial3/0
192.168.10.0/30 is subnetted, 2 subnets
D 192.168.10.4 [90/41024000] via 172.16.3.1, 00:18:27, Serial2/0
C 192.168.10.8 is directly connected, Serial3/0
```

Show ip interface brief:

```
Router#show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 172.16.2.1 YES manual up up
FastEthernet1/0 unassigned YES unset administratively down down
Serial2/0 172.16.3.2 YES manual up up
Serial3/0 192.168.10.9 YES manual up up
FastEthernet4/0 unassigned YES unset administratively down down
```

FastEthernet5/0 unassigned YES unset administratively down down

show ip protocol:

Router#show ip protocol

Routing Protocol is "eigrp 1 "
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Default networks flagged in outgoing updates
Default networks accepted from incoming updates
EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
EIGRP maximum hopcount 100
EIGRP maximum metric variance 1
Redistributing: eigrp 1
Automatic network summarization is not in effect
Maximum path: 4
Routing for Networks:
172.16.0.0
192.168.10.8/30
Routing Information Sources:
Gateway Distance Last Update
172.16.3.1 90 5409
192.168.10.10 90 7387
Distance: internal 90 external 170

Router 2:

Show running-config:

Router#show running-config
Building configuration...

Current configuration : 880 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec

```
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
interface FastEthernet0/0
ip address 192.168.1.1 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet1/0
no ip address
duplex auto
speed auto
shutdown
!
interface Serial2/0
ip address 192.168.10.6 255.255.255.252
clock rate 64000
!
```

```
interface Serial3/0
bandwidth 1024
ip address 192.168.10.10 255.255.255.252
!
interface FastEthernet4/0
no ip address
shutdown
!
interface FastEthernet5/0
no ip address
shutdown
!
router eigrp 1
network 192.168.1.0
network 192.168.4.0 0.0.0.3
network 192.168.10.8 0.0.0.3
no auto-summary
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
End
```

show ip route:

```
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

172.16.0.0/16 is variably subnetted, 3 subnets, 2 masks
D 172.16.1.0/24 [90/41026560] via 192.168.10.9, 00:21:04, Serial3/0
D 172.16.2.0/24 [90/3014400] via 192.168.10.9, 00:21:04, Serial3/0
D 172.16.3.0/30 [90/41024000] via 192.168.10.9, 00:21:04, Serial3/0
C 192.168.1.0/24 is directly connected, FastEthernet0/0
192.168.10.0/30 is subnetted, 2 subnets
C 192.168.10.4 is directly connected, Serial2/0
C 192.168.10.8 is directly connected, Serial3/0

Show ip interface brief:

Router#show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 192.168.1.1 YES manual up up
FastEthernet1/0 unassigned YES unset administratively down down
Serial2/0 192.168.10.6 YES manual up up
Serial3/0 192.168.10.10 YES manual up up
FastEthernet4/0 unassigned YES unset administratively down down
FastEthernet5/0 unassigned YES unset administratively down down

show ip protocol:

Router# show ip protocol

Routing Protocol is "eigrp 1 "
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Default networks flagged in outgoing updates
Default networks accepted from incoming updates
EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
EIGRP maximum hopcount 100
EIGRP maximum metric variance 1
Redistributing: eigrp 1
Automatic network summarization is not in effect
Maximum path: 4
Routing for Networks:
192.168.1.0

192.168.4.0/30
192.168.10.8/30
Routing Information Sources:
Gateway Distance Last Update
192.168.10.9 90 7387
Distance: internal 90 external 170

Critical Analysis / Conclusion

In this lab we learnt about Enhanced Interior Gateway Routing Protocol (EIGRP). This protocol automatically takes routing decisions and makes configuration. Unlike RIP it only sends incremental updates.

Moreover, we implemented this on a topology given to us and successfully sent packets between PC's connected to different routers.

Lab Assessment		
Pre Lab	**/5**	**/25**
Performance	**/5**	
Results	**/5**	
Viva	**/5**	
Critical Analysis	**/5**	
Instructor Signature and Comments		