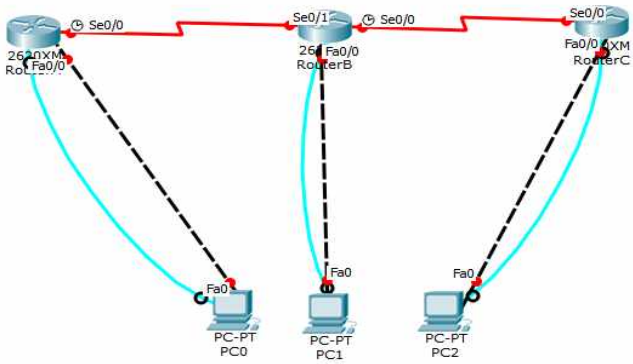
초기 Setting
-Router 3개
-PC 3개
-각 라우터에 시리얼 모듈 추가
-콘솔과 시리얼 연결
-Fast Ethernet 연결(라우터와 PC)
-DCE, DTE 연결

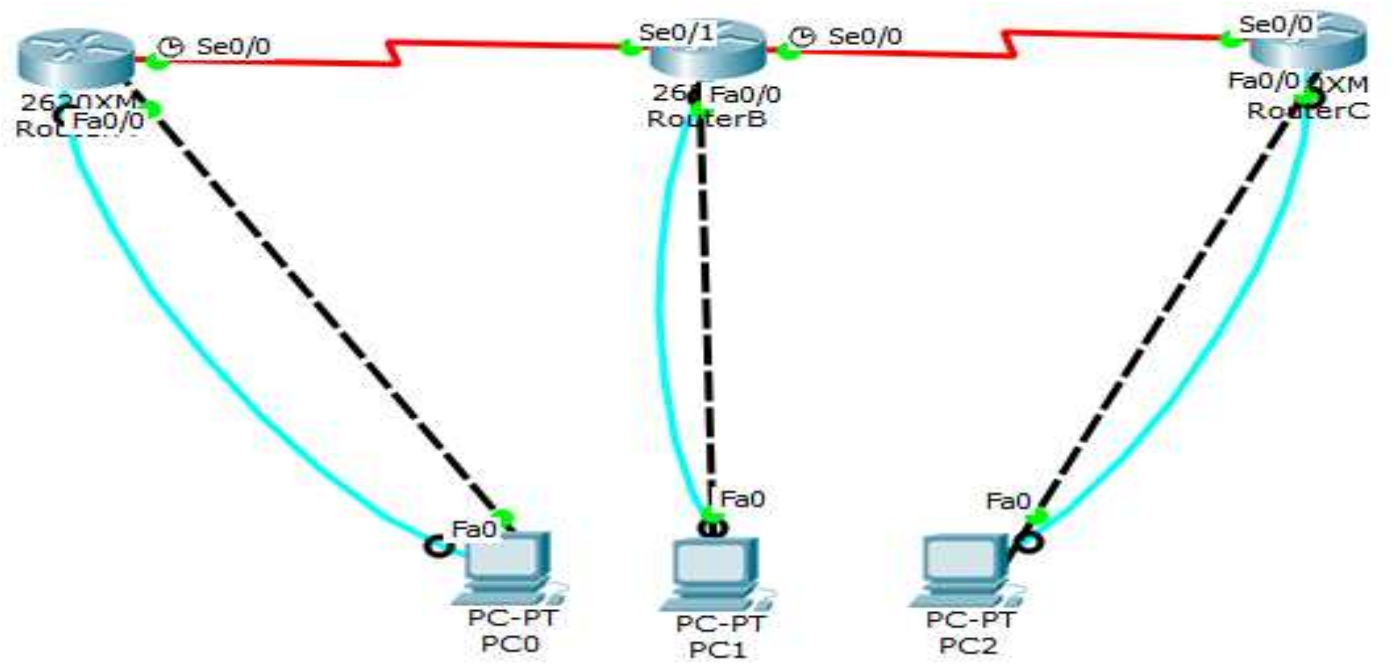


연결 이후

-터미널 실행 후, 호스트 네임 설정
-DCE/DTE 확인(config 모드에서 show controllers [시리얼 모듈 번호])

A	B	C
(생략) RouterA(config) #^Z //CTRL+Z RouterA#show controllers s0/0 Interface Serial0/0 Hardware is PowerQUICC MPC860 **DCE** V.35, no clock **//Connected RouterB s0/1**	(생략) RouterB(config) #^Z //CTRL+Z RouterB#show controllers s0/1 Interface Serial0/1 Hardware is PowerQUICC MPC860 **DTE** V.35 clocks stopped. ---------- RouterB#show controllers s0/0 Interface Serial0/0 Hardware is PowerQUICC MPC860 **DCE** V.35, no clock	(생략) RouterC(config) #^Z //CTRL+Z RouterC#show controllers s0/0 Interface Serial0/0 Hardware is PowerQUICC MPC860 **DTE** V.35 clocks stopped. **//Connected RouterB s0/0**
-Fast Ethernet 설정하기 -Serial Interface 설정 (s0/0 – s0/1, s0/0 – s0/0)		
RouterA#config t Enter configuration commands, one per line. End with CNTL/Z. RouterA(config)#int fa0/0 RouterA(config-if)#ip address 168.90.10.1 255.255.255.0 RouterA(config-if)#no shut RouterA(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	RouterB#config t Enter configuration commands, one per line. End with CNTL/Z. RouterB(config)#int fa0/0 RouterB(config-if)#ip address 168.90.20.1 255.255.255.0 RouterB(config-if)#no shutdown RouterB(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	RouterC#config t Enter configuration commands, one per line. End with CNTL/Z. RouterC(config)#int fa0/0 RouterC(config-if)#ip address 168.90.30.1 255.255.255.0 RouterC(config-if)#no shut RouterC(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
RouterA(config-if)#int s0/0 RouterA(config-if)#ip address 168.90.40.1 255.255.255.0 RouterA(config-if)#no shut %LINK-5-CHANGED: Interface Serial0/0,	RouterB(config-if)#int s0/1 RouterB(config-if)#ip address 168.90.40.2 255.255.255.0 RouterB(config-if)#no shutdown	RouterC(config-if)#int s0/0 RouterC(config-if)#ip address 168.90.50.2 255.255.255.0 RouterC(config-if)#no shutdown

changed state to down RouterA(config-if)#clock rate 64000 RouterA(config-if)# %**LINK**-5-CHANGED: Interface Serial0/0, changed state to **up** %**LINEPROTO**-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to **up**	RouterB(config-if)# %**LINK**-5-CHANGED: Interface Serial0/1, changed state to **up** %**LINEPROTO**-5-UPDOWN: Line protocol on Interface Serial0/1, changed state to **up** ---------- RouterB(config-if)#int s0/0 RouterB(config-if)#ip address 168.90.50.1 255.255.255.0 RouterB(config-if)#no shutdown %LINK-5-CHANGED: Interface Serial0/0, changed state to down RouterB(config-if)#clock rate 64000 RouterB(config-if)# %**LINK**-5-CHANGED: Interface Serial0/0, changed state to **up** %**LINEPROTO**-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to **up**	RouterC(config-if)# %**LINK**-5-CHANGED: Interface Serial0/0, changed state to **up** %**LINEPROTO**-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to **up**



RouterA#show ip interface brief

Interface	IP-Address	OK? Method Status	Protocol
FastEthernet0/0	**168.90.10.1**	YES manual up	up
Serial0/0	**168.90.40.1**	YES manual up	up
Serial0/1	**unassigned**	YES unset administratively down	down

RouterB#show ip interface brief

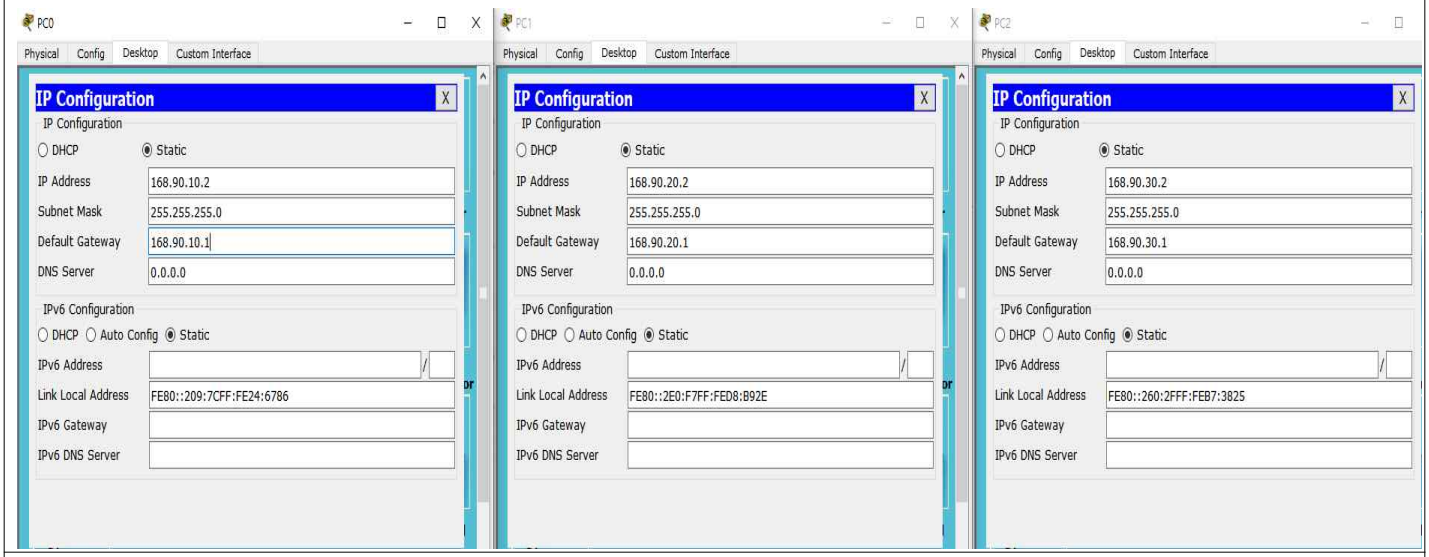
Interface	IP-Address	OK? Method Status	Protocol
FastEthernet0/0	**168.90.20.1**	YES manual up	up
Serial0/0	**168.90.50.1**	YES manual up	up
Serial0/1	**168.90.40.2**	YES manual up	up

RouterC#show ip interface brief

Interface	IP-Address	OK? Method Status	Protocol
FastEthernet0/0	**168.90.30.1**	YES manual up	up
Serial0/0	**168.90.50.2**	YES manual up	up
Serial0/1	**unassigned**	YES unset administratively down	down

-PC 주소 바꾸기

Default Gateway: PC가 연결되어있는 Fast Ethernet을 따라가면 나오는 라우터에 연결된 Fast Ethernet 주소



Network 개수: 5개

Network 주소 구하기:

RouterA#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

     168.90.0.0/24 is subnetted, 2 subnets
C       168.90.10.0 is directly connected, FastEthernet0/0
C       168.90.40.0 is directly connected, Serial0/0
```

RouterB#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

168.90.0.0/24 is subnetted, 3 subnets

C 168.90.20.0 is directly connected, FastEthernet0/0

C 168.90.40.0 is directly connected, Serial0/1

C 168.90.50.0 is directly connected, Serial0/0

RouterC#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

168.90.0.0/24 is subnetted, 2 subnets

C 168.90.30.0 is directly connected, FastEthernet0/0

C 168.90.50.0 is directly connected, Serial0/0

RouterA(config)#ip route 168.90.20.0 255.255.255.0 s0/0

RouterA(config)#ip route 168.90.30.0 255.255.255.0 s0/0

RouterA(config)#ip route 168.90.50.0 255.255.255.0 s0/0

RouterA#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

168.90.0.0/24 is subnetted, 5 subnets

C 168.90.10.0 is directly connected, FastEthernet0/0

S 168.90.20.0 is directly connected, Serial0/0

S 168.90.30.0 is directly connected, Serial0/0

C 168.90.40.0 is directly connected, Serial0/0

S 168.90.50.0 is directly connected, Serial0/0

```
RouterA#show run
(중략)
hostname RouterA
(중략)
ip route 168.90.20.0 255.255.255.0 Serial0/0
ip route 168.90.30.0 255.255.255.0 Serial0/0
ip route 168.90.50.0 255.255.255.0 Serial0/0
(중략)
end
```

```
RouterB(config)#ip route 168.90.10.0 255.255.255.0 168.90.40.1
RouterB(config)#ip route 168.90.30.0 255.255.255.0 168.90.50.2
```

```
RouterB#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

     168.90.0.0/24 is subnetted, 5 subnets
S       168.90.10.0 [1/0] via 168.90.40.1
C       168.90.20.0 is directly connected, FastEthernet0/0
S       168.90.30.0 [1/0] via 168.90.50.2
C       168.90.40.0 is directly connected, Serial0/1
C       168.90.50.0 is directly connected, Serial0/0
```

Default Routing: Default Gateway로 설정한 주소에게 라우팅을 자동으로 맡김.
(단, 일방통행인 경우만 가능. RouterA, RouterC에서는 가능하지만, RouterB는 A나 C로 나뉘는 길이 있기에 불가능)

```
RouterC(config)#ip route 0.0.0.0 0.0.0.0 s0/0 //0.0.0.0은 Router가 자동적으로 설정하게 만들어줌
```

```
RouterC#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 0.0.0.0 to network 0.0.0.0

     168.90.0.0/24 is subnetted, 2 subnets
C       168.90.30.0 is directly connected, FastEthernet0/0
C       168.90.50.0 is directly connected, Serial0/0
S*   0.0.0.0/0 is directly connected, Serial0/0
```