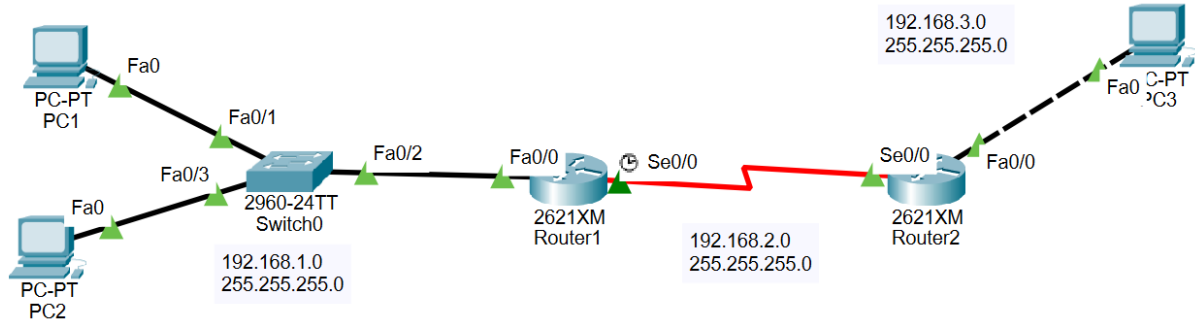


**Ankara University**  
**Department of Computer Engineering**  
**BLM3032**  
**LAB 4**

**SECTION 1**

**Configuring the Serial and the FastEthernet Interface**



Router Designation	Router Name	Interface Type	Serial 0/0 Address	Subnet Mask
Router1	R1	DCE	192.168.2.1	255.255.255.0
Router2	R2	DTE	192.168.2.2	255.255.255.0

Device	FastEthernet 0/0 Address	Subnet Mask	Default Gateway
Router1	192.168.1.10	255.255.255.0	N/A
Router2	192.168.3.10	255.255.255.0	N/A
PC1	192.168.1.1	255.255.255.0	192.168.1.10
PC2	192.168.1.2	255.255.255.0	192.168.1.10
PC3	192.168.3.1	255.255.255.0	192.168.3.10

**Objective:**

- Configure a serial interface on each of two routers so they can communicate.

**Step 1:** Design above architecture with CPT. (You need to mount WIC-2T serial module to connect two routers.)

**Step 2:** Configure the IP address of FastEthernet ports of the computers according to table above.

**Step 3:** Configure the name of the Router 1 as “R1” and fastEthernet interface 0/0 of R1.

```
R1(config)#interface fastEthernet 0/0
R1(config-if)#ip address 192.168.1.10 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#exit
```

**Step 4:** Find out whether the serial connection of R1 is DCE or DTE?

```
R1# show controller serial 0/0
```

**Step 3:** Configure serial interface serial 0/0.

```
R1(config)#interface serial 0/0
```

```
R1(config-if)#ip address 192.168.2.1 255.255.255.0
```

```
R1(config-if)#clock rate 56000
```

```
R1(config-if)#no shutdown
```

```
R1(config-if)#exit
```

**Step 5:** Display information about interfaces on R1.

```
R1# show ip interface brief
```

**Step 6:** Configure the name of Router 2 as “R2”.

**Step 7:** Configure serial interface serial 0/0 for Router 2. (There is no need for *clockrate* since the serial connection of Router 2 is a DTE interface.)

```
R2(config)#interface serial 0/0
```

```
R2(config-if)#ip address 192.168.2.2 255.255.255.0
```

```
R2(config-if)#no shutdown
```

```
R2(config-if)#exit
```

**Step 8:** Configure fastEthernet interface 0/0 of R2.

```
R2(config)#interface fastEthernet 0/0
```

```
R2(config-if)#ip address 192.168.3.10 255.255.255.0
```

```
R2(config-if)#no shutdown
```

```
R2(config-if)#exit
```

```
R2(config)#exit
```

**Step 9:** Display information about interfaces on R2.

```
R2# show ip interface brief
```

**Step 10:** Verify that the serial connection is functioning.

```
R1#ping 192.168.15.2
```

```
R2#ping 192.168.15.1
```

**Step 11:** Verify that all connections are functioning

```
PC1>ping 192.168.3.1
```

```
PC2>ping 192.168.3.1
```

```
PC3>ping 192.168.1.1
```

**Step 12:** Notice that computers of both ends did not connect.

## SECTION 2

### Configuring Static Routes

#### Objective:

- Configure static routes between routers to allow data transfer between routers without the use of dynamic routing protocols

**Step 1:** Check the routing table entries

R1>**show ip route**

R2>**show ip route**

**Step 2:** Adding static routes.

In global configuration mode, add a static route on R1 to network 192.168.3.0 and on R2 to network 192.168.1.0

R1(config)#**ip route 192.168.3.0 255.255.255.0 192.168.2.2**

R2(config)#**ip route 192.168.1.0 255.255.255.0 192.168.2.1**

**Step 3:** Verify the new routes.

R1>**show ip route**

R2>**show ip route**

**Step 4:** Ping host to host again.

## SECTION 3

### Configuring RIP

#### Objective:

- Configure RIP between routers to allow data transfer between routers.

**Step 1:** Check the routing table entries.

R1>**show ip route**

R2>**show ip route**

**Step 2:** Configure the routing protocol on the R1.

R1(config)#**router rip**

R1(config-router)#**network 192.168.1.0**

R1(config-router)#**network 192.168.2.0**

R1(config-router)#**exit**

R1(config)#**exit**

**Step 3:** Configure the routing protocol on the R2.

R2(config)#**router rip**

R2(config-router)#**network 192.168.2.0**

R2(config-router)#**network 192.168.3.0**

```
R2(config-router)#exit
```

```
R2(config)#exit
```

**Step 4:** Verify the new routes.

```
R1>show ip route
```

```
R2>show ip route
```

**Step 5:** Ping host to host again.

**Step 6:** Make sure that routing updates are being sent and observe the routing activity.

```
R1>debug ip rip
```

```
R2>debug ip rip
```

**Step 6:** Stop routing updates from R1 to R2

```
R1(config)#router rip
```

```
R1(config-router)#passive-interface default
```

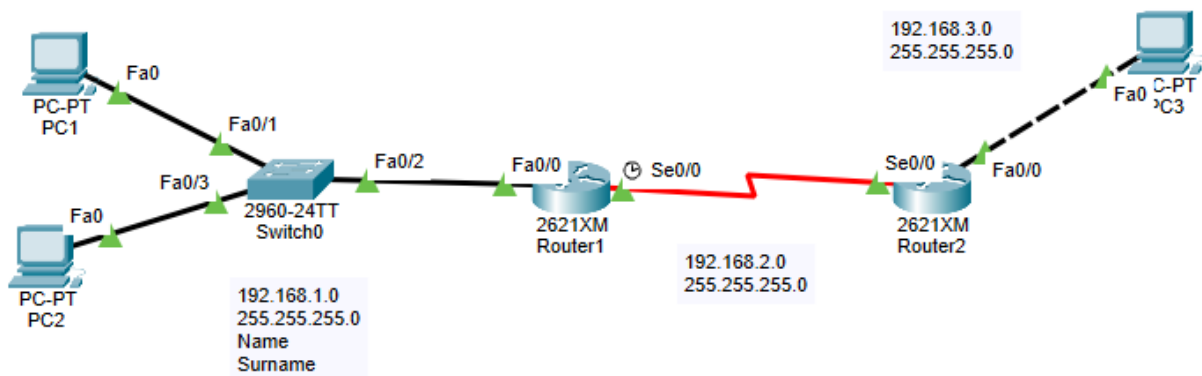
**Step 8:** Stop observing routing activity.

```
R1>no debug ip rip
```

```
R2>no debug ip rip
```

**Note:** It is important to understand the difference between “no debug ip rip” and “passive interface default” commands.

**Homework:**



- Establish above schema.
- Do not forget to add your names to the notes to prove that this is your own work.
- Take a screenshot.
- Configure static routing on both routers.
- Make sure use CLI to configure routers FastEthernet ports and copy your CLI codes to the homework sheet.
- Load your homework as a ONE pdf file.
- You have one week.