Ankara University

Department of Computer Engineering

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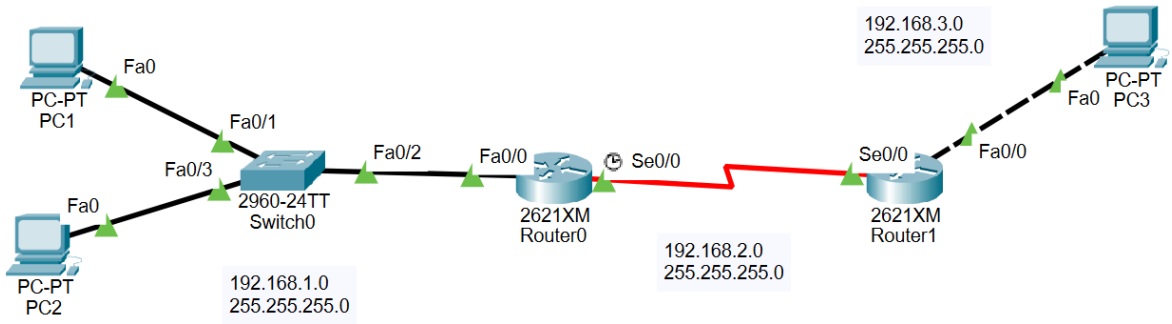
LAB 4

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 Getaway
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 5: 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 6: Display information about interfaces on R1.

R1# **show ip interface brief**

Step 7: Configure the name of Router 2 as "R2".

Step 8: 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 9: 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 10: Display information about interfaces on R2.

R2# **show ip interface brief**

Step 11: Verify that the serial connection is functioning.

R1#**ping 192.168.2.2**

R2#**ping 192.168.2.1**

Step 12: 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 13: 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.

Step 5: Remove static routes

R1(config)#**no ip route 192.168.3.0 255.255.255.0 192.168.2.2**

R2(config)#**no ip route 192.168.1.0 255.255.255.0 192.168.2.1**

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 7: 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.