

Practical 5

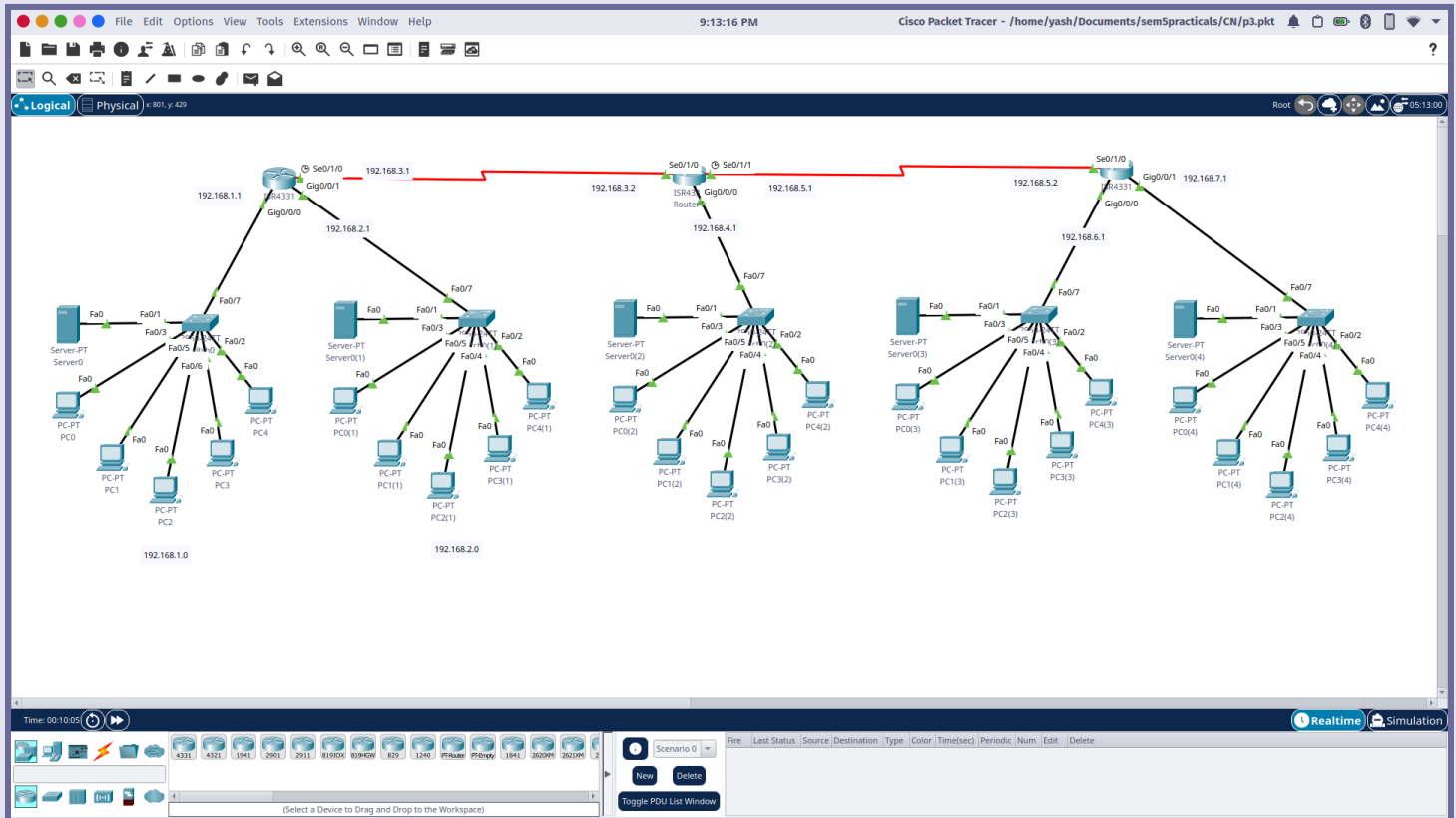
Aim : To utilize Telnet, SSH and FTP in a network of an organization

Scenario : Design the network of an organization having 5 different departments. Make sure the below mentioned requirements must be fulfilled.

- 1) Create 3 users which will be able to get the access of the router using Telnet.
- 2) Create a single password to get the access of the router using Telnet.
- 3) Create 3 users which will be able to get the access of the router using SSH.
- 4) Create a FTP server and perform the operation to upload and download a file. And explore all the operation available with the ftp server.

Procedure :

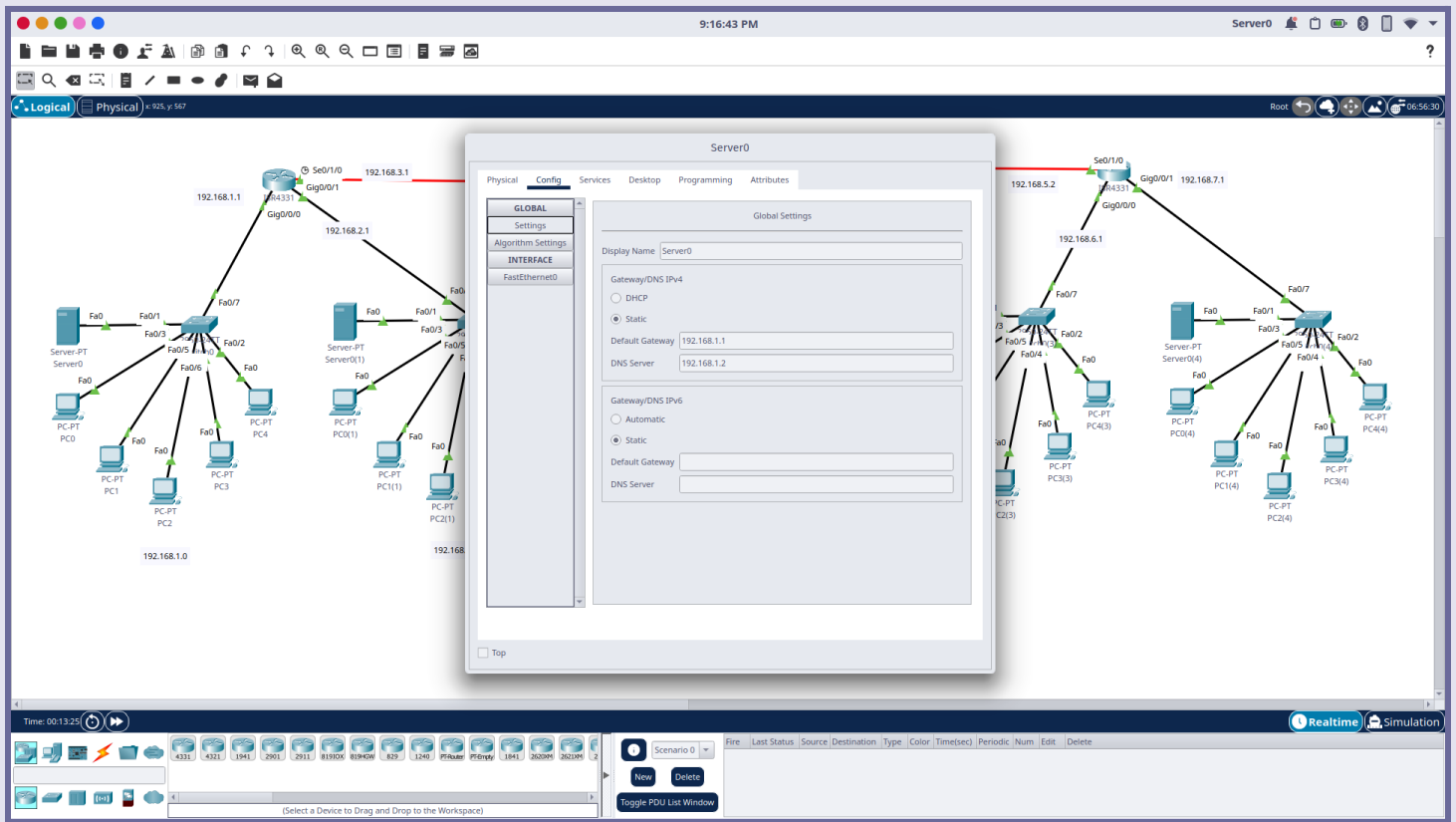
1. Design the network as given in the scenario with networks 192.168.1.0, 192.168.2.0, ... 192.168.7.0 as shown in the figure



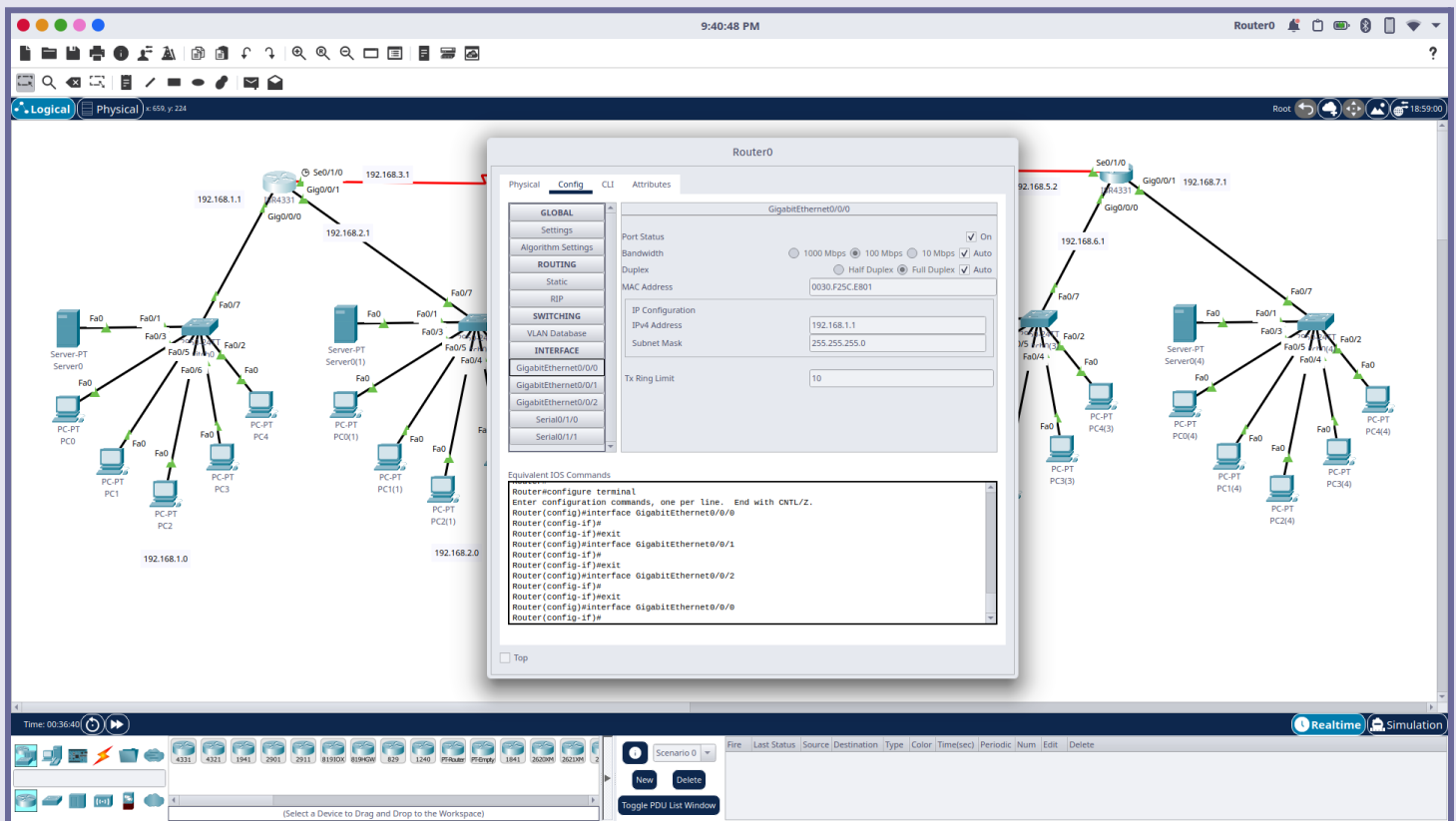
2. Assign an IP address 192.168.1.2 to the Server0 of the Admin department of the network 192.168.1.0

The screenshot displays a network simulation environment. In the center, a configuration window for 'Server0' is open, showing the 'FastEthernet0' interface settings. The IP configuration is set to 'Static' with an IP address of 192.168.1.2 and a subnet mask of 255.255.255.0. The IPv6 configuration is set to 'Automatic' with a link local address of FE80::250:FFF:FE52:2DDC. The background shows a network topology with two main switches connected to a central router. The left switch is connected to a server (Server-PT Server0) and several PCs (PC-PT PC0, PC1, PC2, PC3, PC4). The right switch is connected to another server (Server-PT Server0(4)) and several PCs (PC-PT PC0(4), PC1(4), PC2(4), PC3(4), PC4(4)). The interface 'Server0' at the top right indicates the current view.

3. Assign gateway IP of the router connected to it and its own IP as DNS server



4. Assign IP to Router0's gigabit ethernet port connected to the router, which was given as gateway in Server0



5. Assign IP to other ports of Router0 accordingly.

The screenshot shows the Packet Tracer interface with Router0 selected. The configuration window for GigabitEthernet0/0/1 is open, displaying the following settings:

- Port Status:** On
- Bandwidth:** 1000 Mbps
- Duplex:** Full Duplex
- MAC Address:** 0030.F25C.E802
- IP Configuration:**
 - IPv4 Address: 192.168.2.1
 - Subnet Mask: 255.255.255.0
- Interface:** GigabitEthernet0/0/0, GigabitEthernet0/0/1, GigabitEthernet0/0/2, Serial0/1/0, Serial0/1/1

The equivalent IOS commands are listed below:

```
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface GigabitEthernet0/0/0  
Router(config-if)#  
Router(config)#interface GigabitEthernet0/0/1  
Router(config-if)#  
Router(config)#interface GigabitEthernet0/0/2  
Router(config-if)#  
Router(config)#interface GigabitEthernet0/0/1  
Router(config-if)#  
Router(config)#interface GigabitEthernet0/0/1  
Router(config-if)#
```

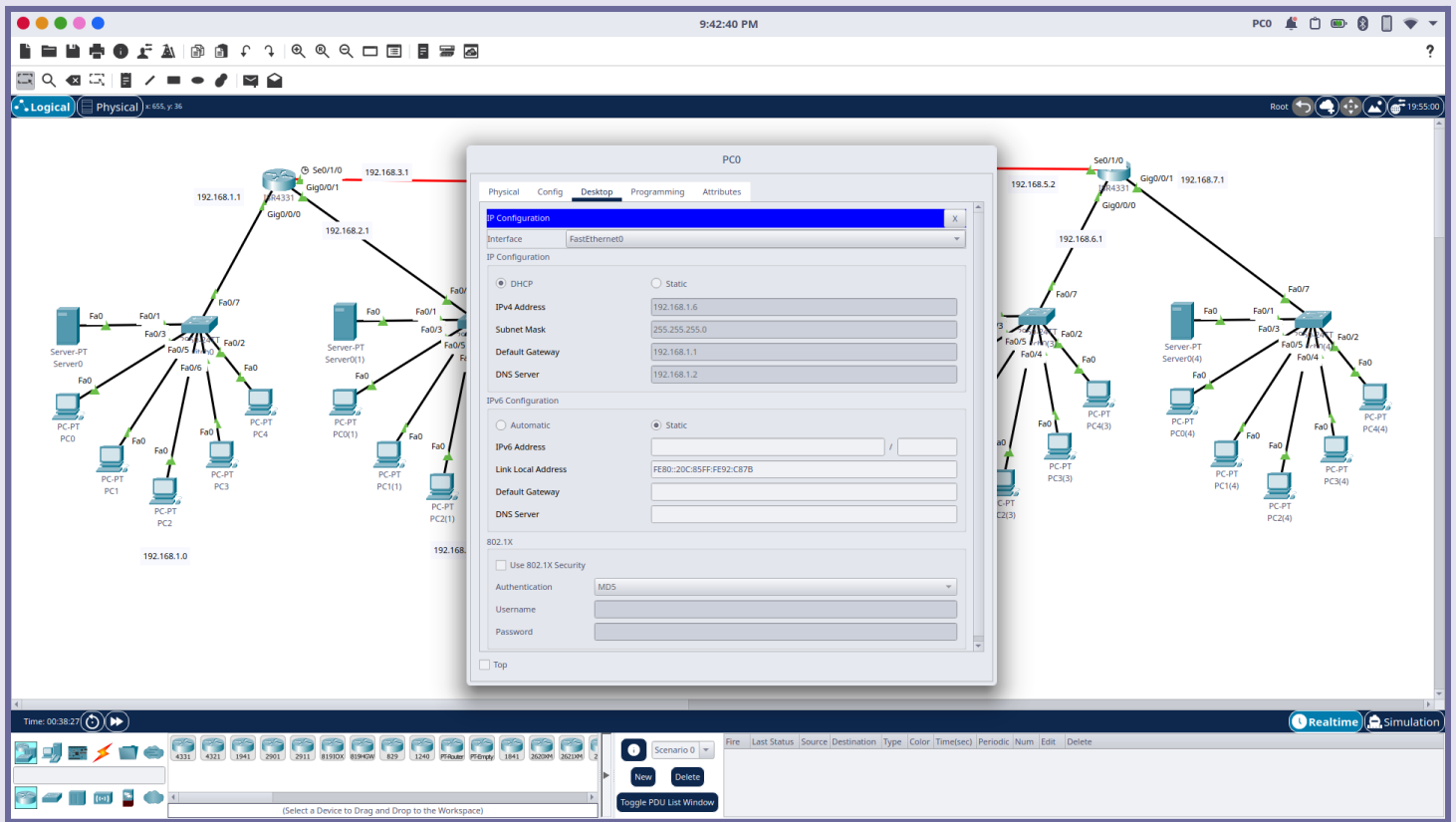
The screenshot shows the Packet Tracer interface with Router0 selected. The configuration window for Serial0/1/0 is open, displaying the following settings:

- Port Status:** On
- Duplex:** Full Duplex
- Clock Rate:** 2000000
- IP Configuration:**
 - IPv4 Address: 192.168.3.1
 - Subnet Mask: 255.255.255.0
- Interface:** GigabitEthernet0/0/0, GigabitEthernet0/0/1, GigabitEthernet0/0/2, Serial0/1/0, Serial0/1/1

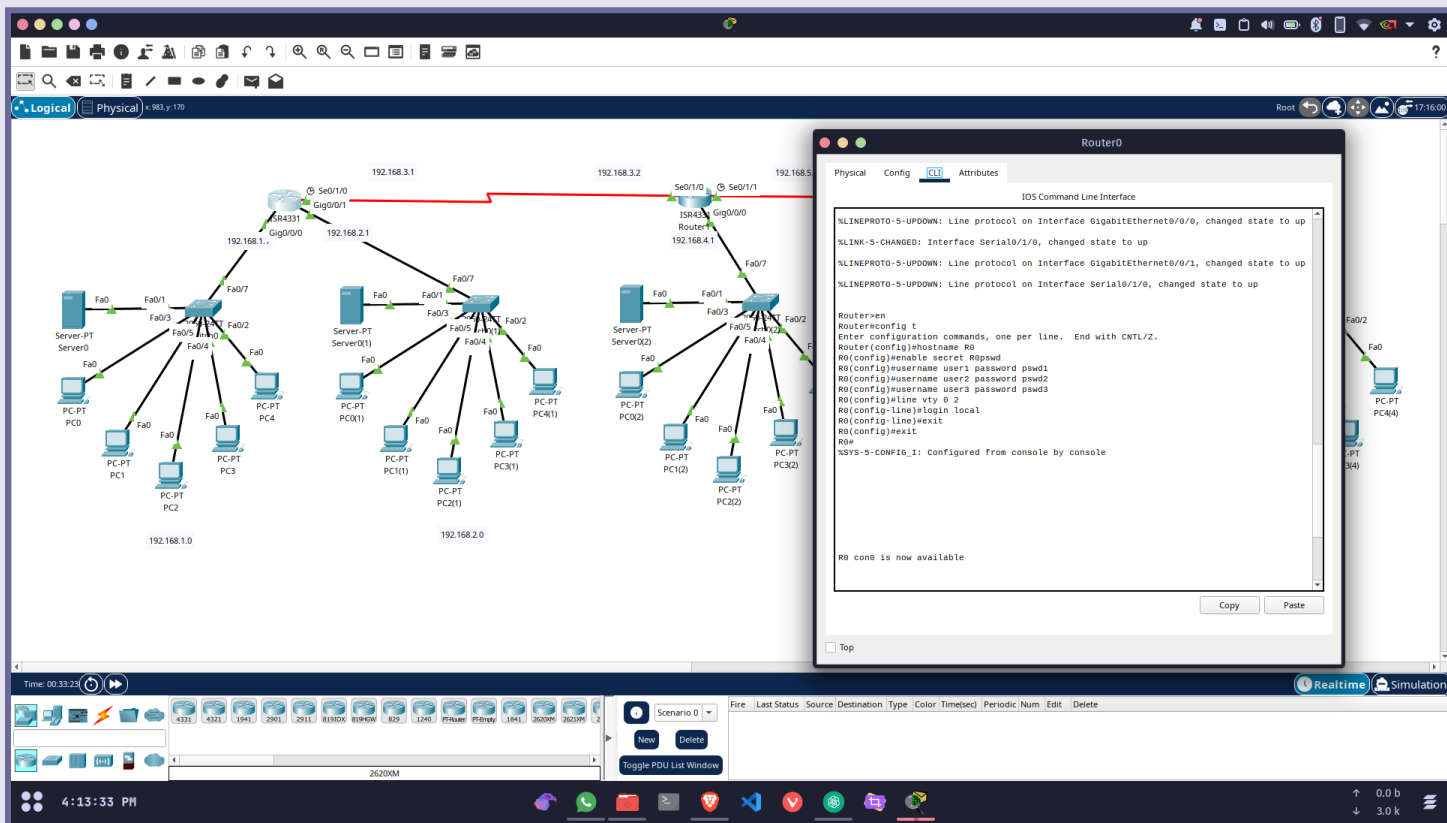
The equivalent IOS commands are listed below:

```
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface GigabitEthernet0/0/0  
Router(config-if)#  
Router(config)#interface GigabitEthernet0/0/1  
Router(config-if)#  
Router(config)#interface GigabitEthernet0/0/2  
Router(config-if)#  
Router(config)#interface GigabitEthernet0/0/1  
Router(config-if)#  
Router(config)#interface Serial0/1/0  
Router(config-if)#
```

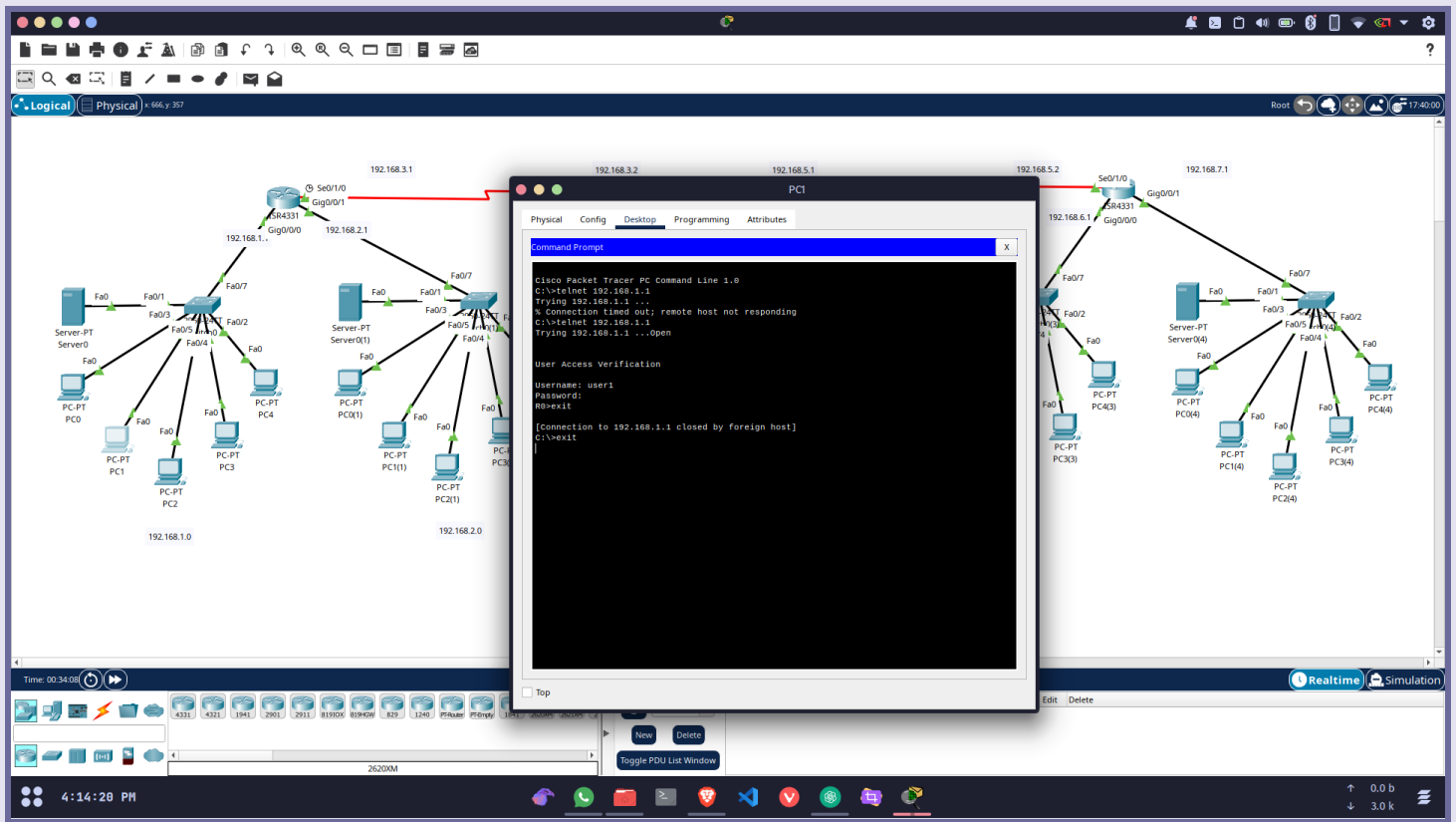
6. Configure all end devices connected to Server0 to use DHCP for IP addresses.



7. Similarly setup all networks and then Router0 for Telnet access using the given commands.



8. Test the telnet access from any of the connected end device.



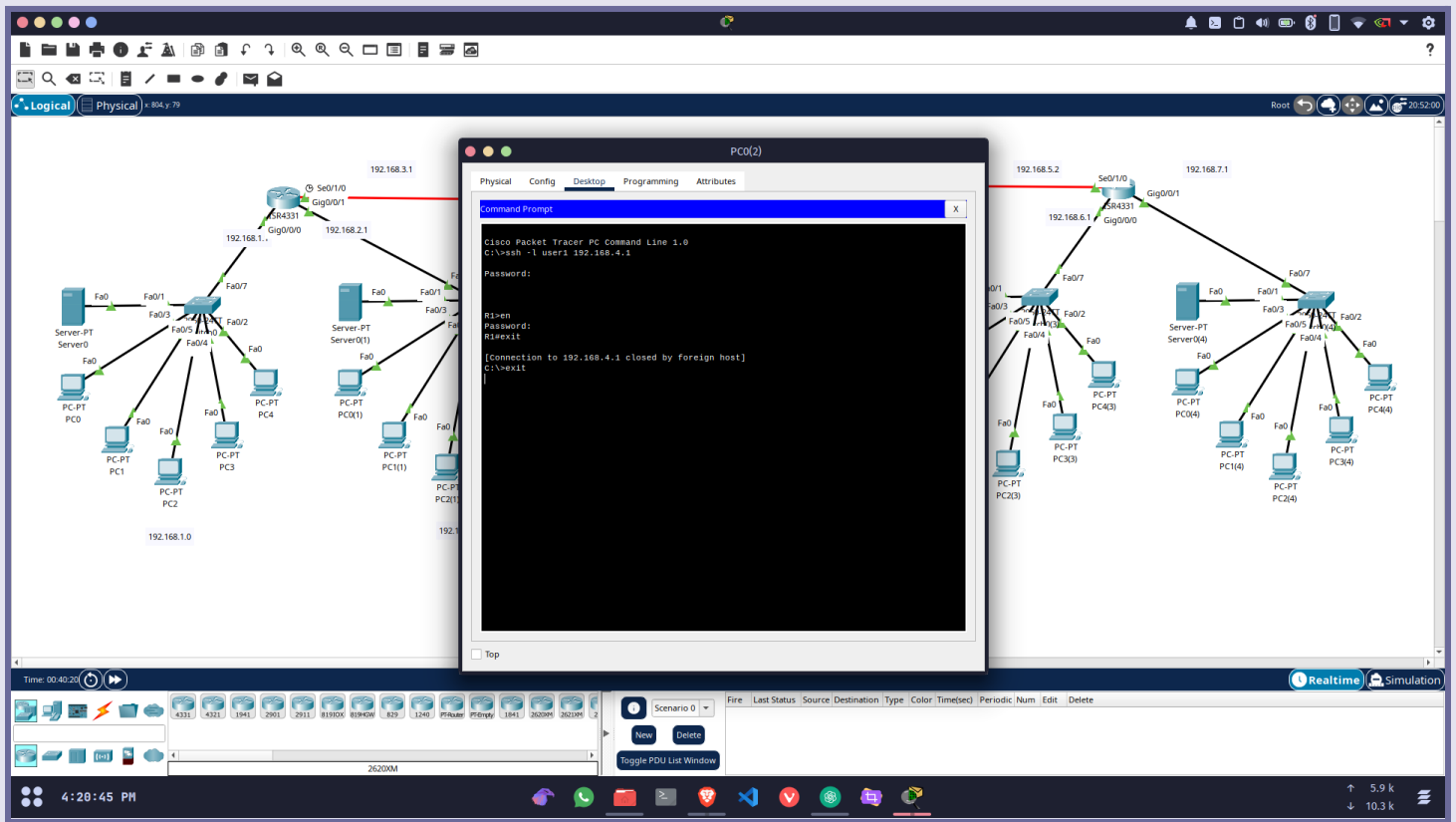
9. Configure SSH access to the Router1 using the given commands.

The screenshot displays a network simulation environment with a central window for Router1 configuration. The background shows a network topology with two routers, SR4331 and SR4332, connected via their GigabitEthernet0/0/1 interfaces. SR4331 is connected to a Server-PT (Server0) and several PC-PTs (PC0, PC1, PC2, PC3, PC4). SR4332 is connected to a Server-PT (Server0/1) and several PC-PTs (PC0/1, PC1/1, PC2/1, PC3/1, PC4/1). The configuration window for Router1 shows the following commands:

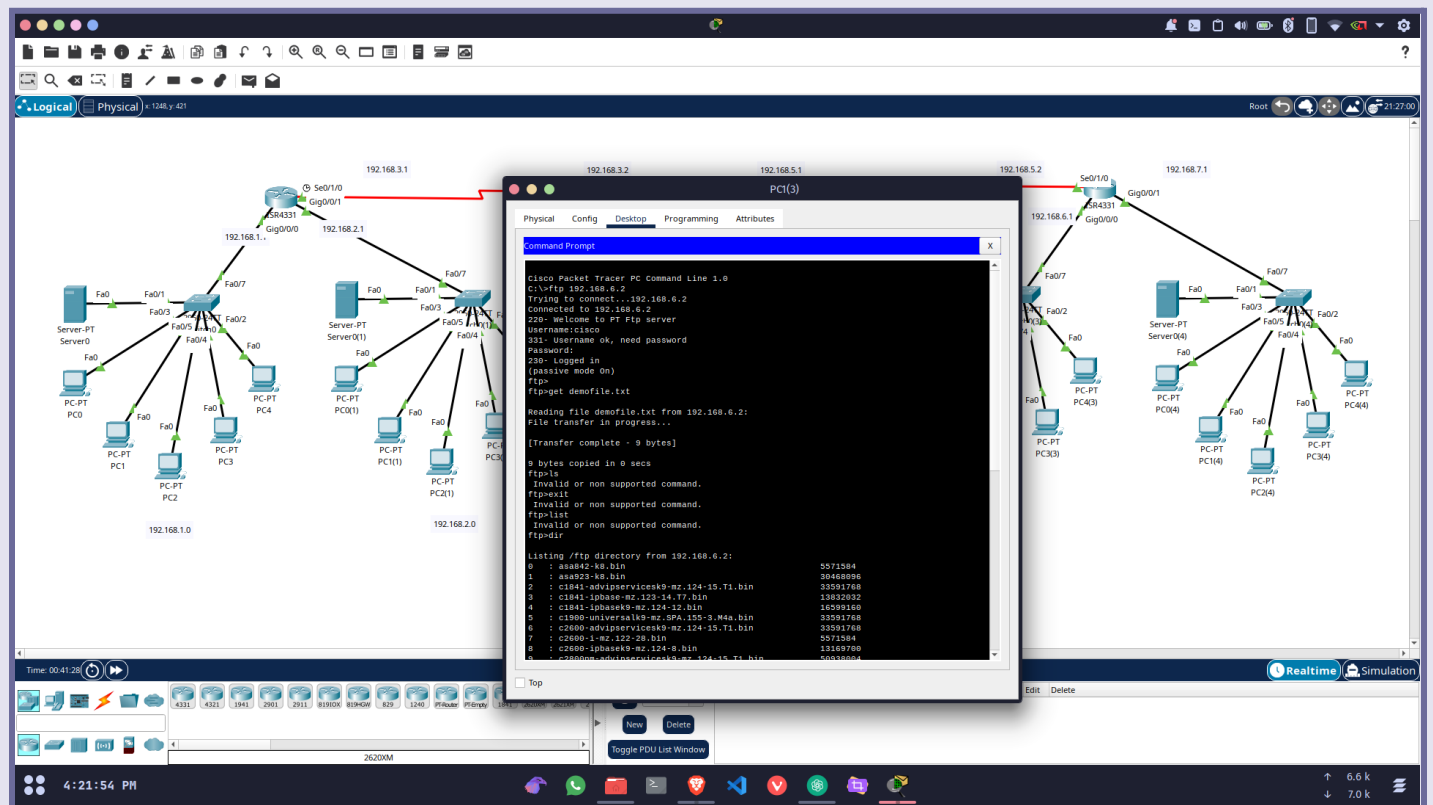
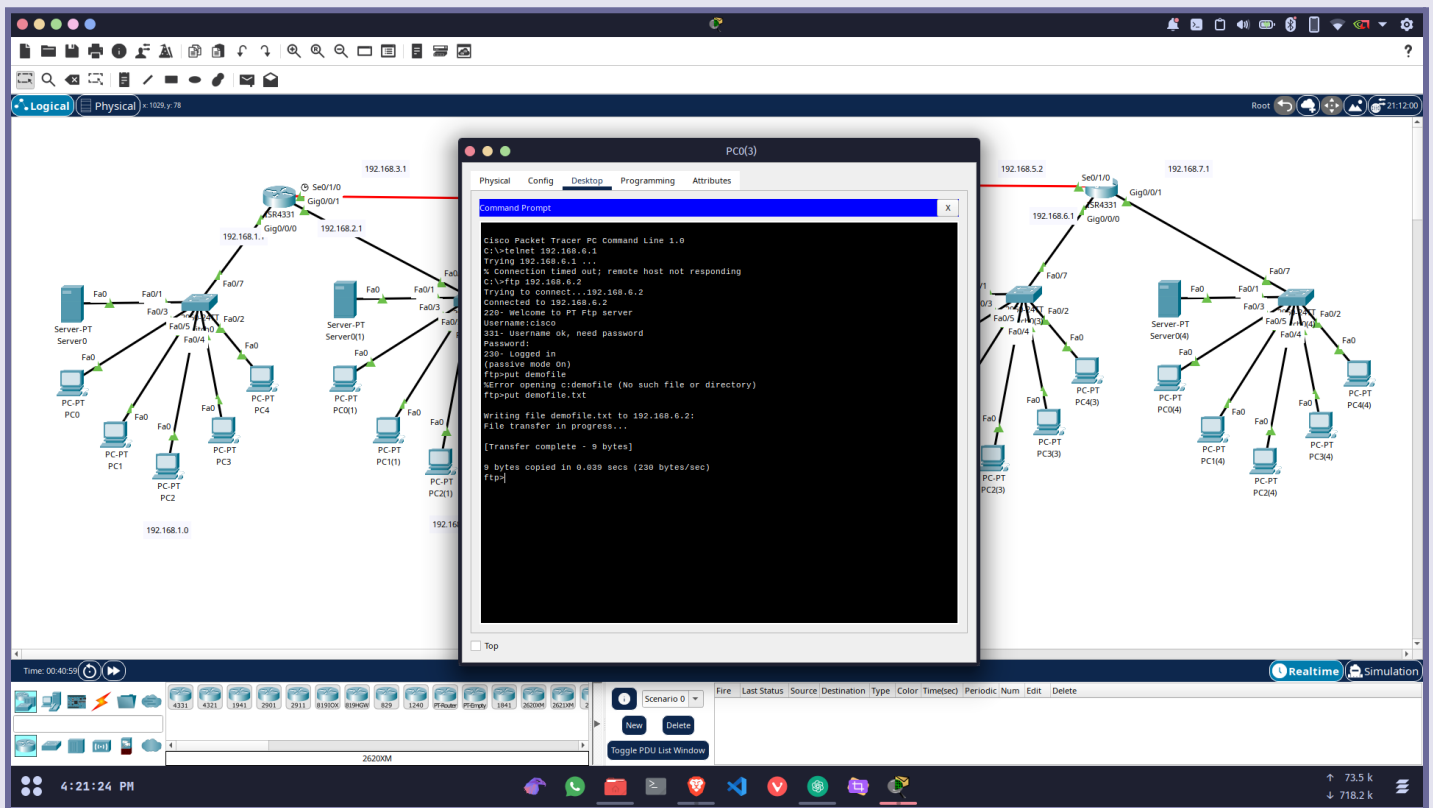
```
Router>en
Router(config)#
Router(config)#hostname R1
R1(config)#enable secret R1pswd
R1(config)#
R1(config)#ip domain YSLog
R1(config)#
R1(config)#ip domain name YSLog
R1(config)#crypto key generate rsa
The name for the keys will be: R1.YSLog
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.
How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
R1(config)#enable password commppswd
*Mar 1 0:14:4.339: %SSH-5-ENABLED: SSH 1.99 has been enabled
R1(config)#username user1 password pswd1
R1(config)#username user2 password pswd2
R1(config)#username user3 password pswd3
R1(config)#
R1(config)#ip ssh version 2
R1(config)#line vty 0 7
<1-15> Last Line number
<cr>
R1(config)#line vty 0 2
R1(config-line)#transport input ssh
R1(config-line)#login local
R1(config-line)#exit
R1(config)#exit
R1>
```

The bottom of the interface shows a timeline of events and a status bar with the time 4:20:13 PM and network statistics (17.2 k, 6.8 k).

10. Test the SSH access to the router through any of the connected end devices.



11. By default, FTP is on with cisco user already set up. So upload and download a file using FTP from two different end devices.



Further commands rename, delete can be used in FTP for renaming, deleting a file in FTP server

Conclusion : This experiment clears the understanding of Telnet, SSH and FTP in computer networks. Using Telnet and SSH protocols, end device(s) can get access to Router using VTY, virtual terminal lines and FTP can be used to transfer files between end devices using FTP server.