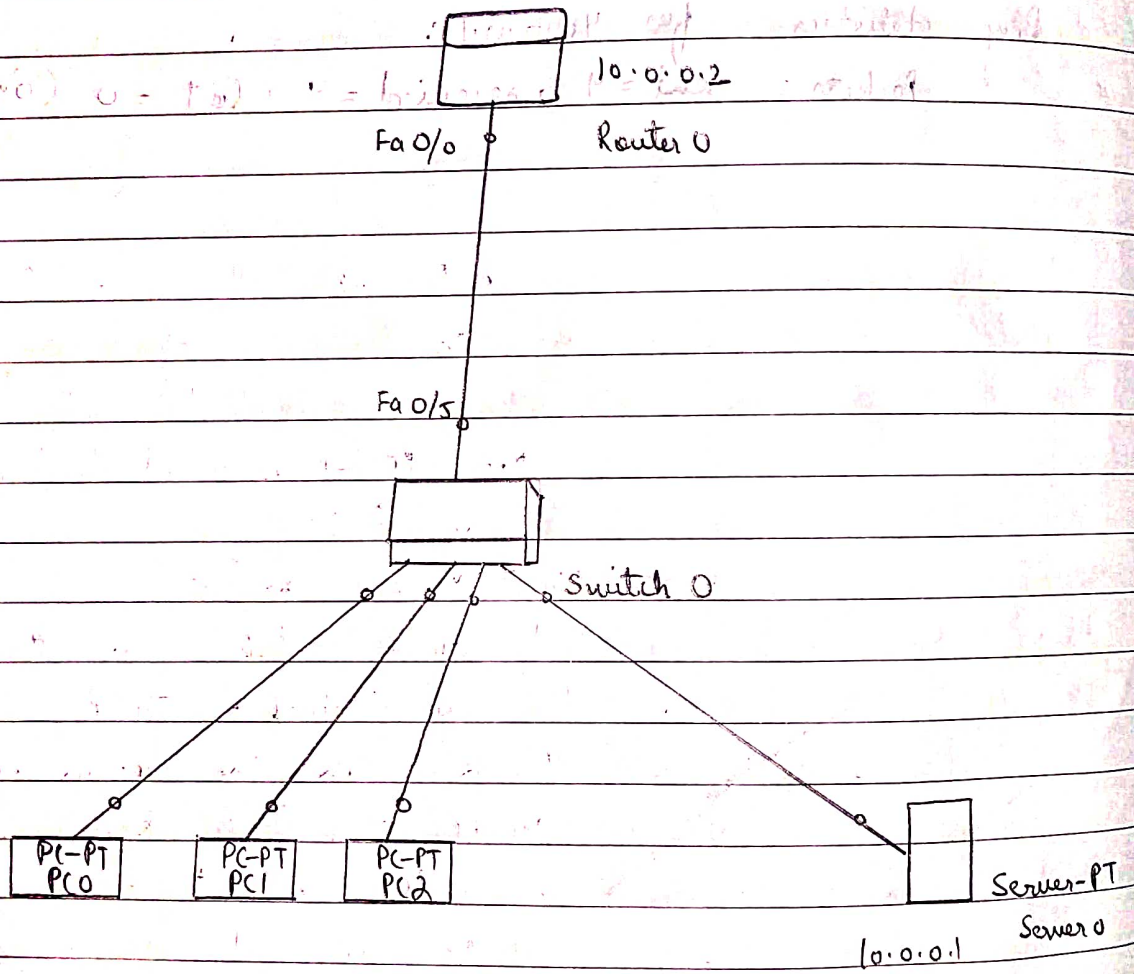
Date 1/12/22
Page

Lab: Week 4 DHCP configuration

↳ Aim: Configuring DHCP within a LAN in a packet tracer.

↳ Topology:



↳ Procedure:

i) Place a generic router, a generic switch, 3 generic PCs and a generic server in the workspace as shown in the given topology

ii) Connect the PCs to the switch through copper straight through.

iii) Connect the server to the switch and switch to the router using copper straight through

(iv) Place a note below the server and write the ip addres as 10.0.0.1

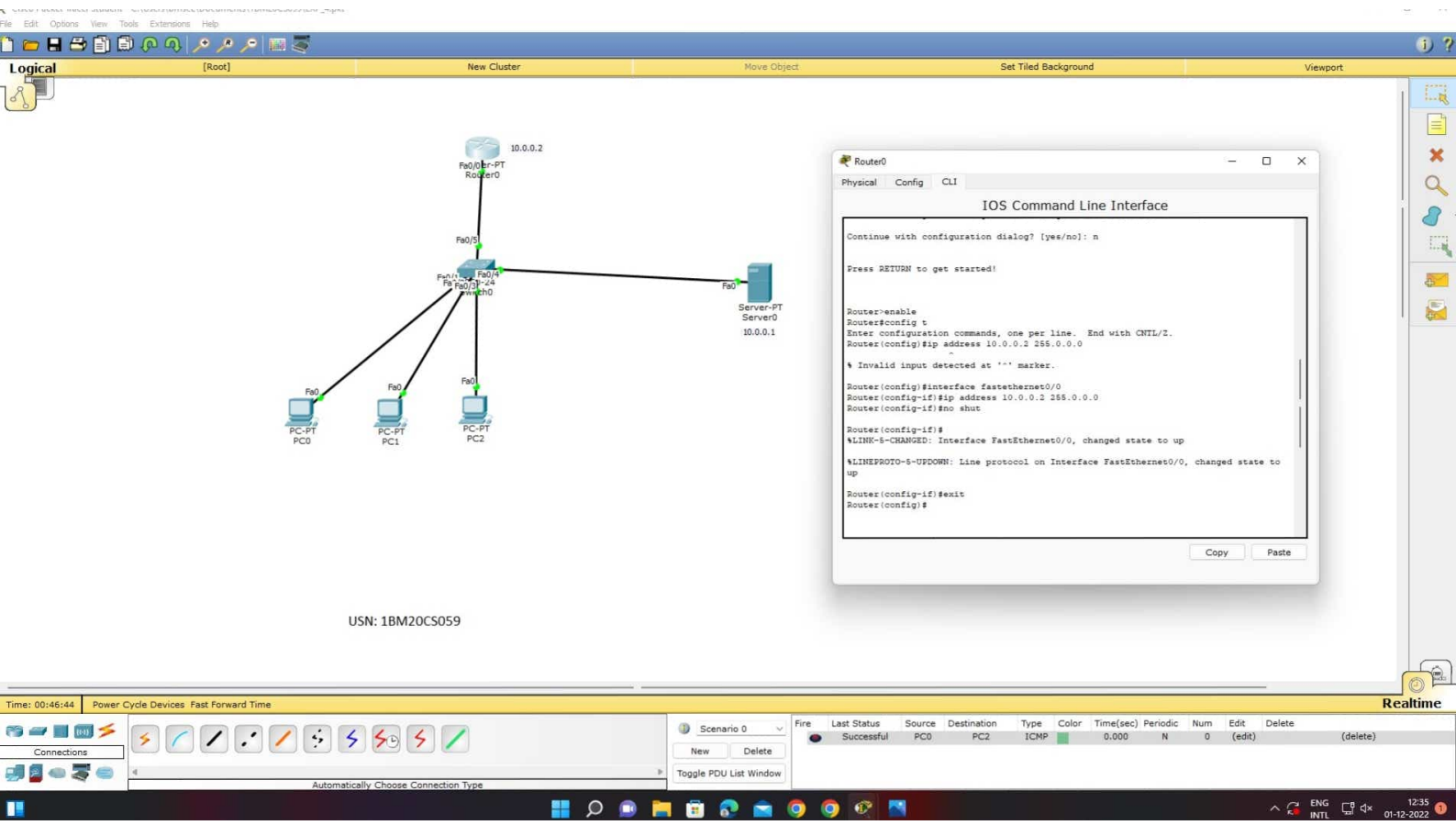
v) Configure the ip addres of the server as 10.0.0.1 and configure the gateway as 10.0.0.2.

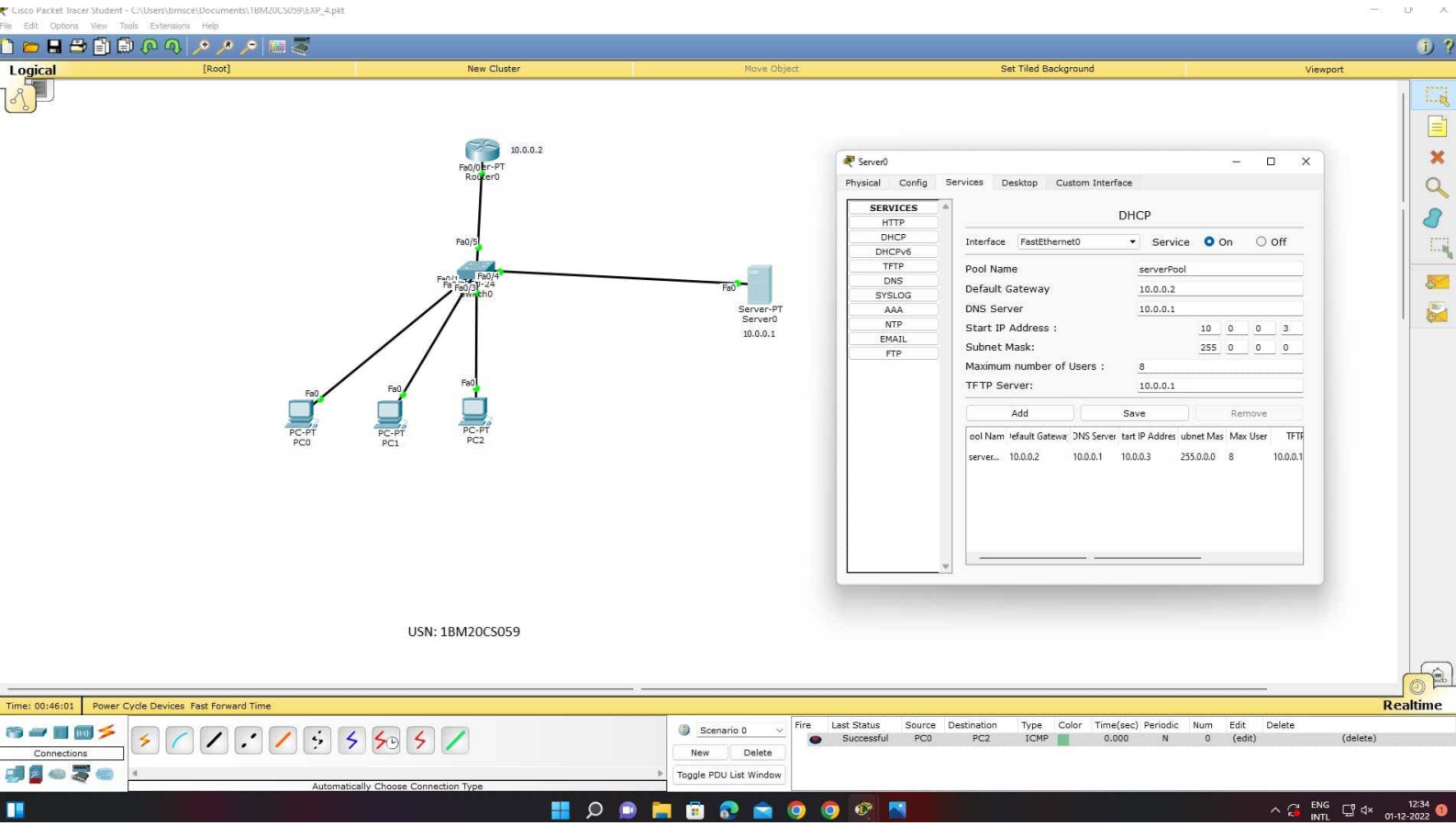
vi) Open the CLI of the router on clicking the router and enter the following commands

→ enable
→ config t
→ interface fastEthernet 0/0
→ ip addres 10.0.0.2 255.0.0.0
→ no shut

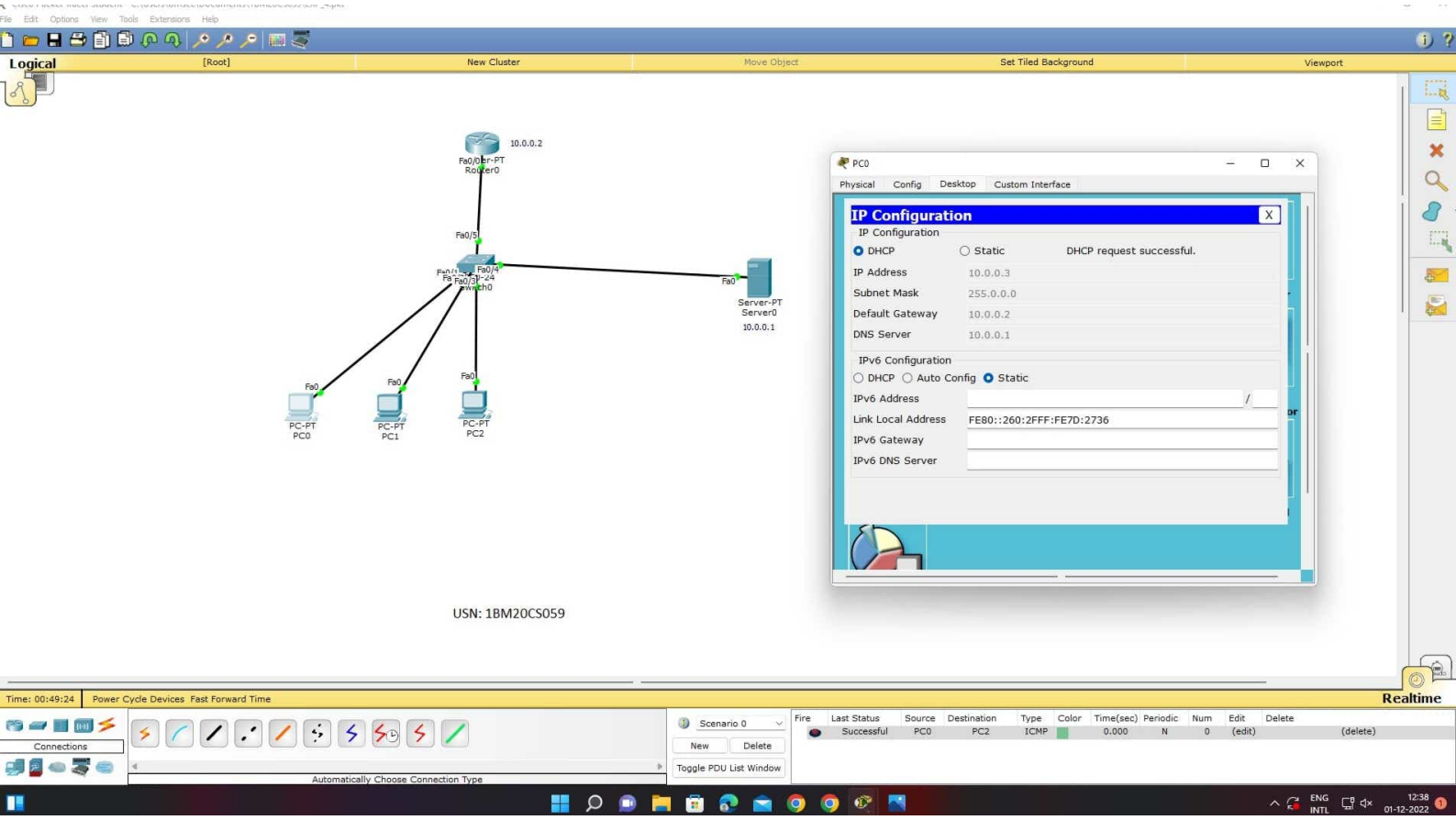
The light will turn green for router and amber for the switch.
After some time, the amber color also changes to green.

Now, click on the server
→ open the services tab
→ Click on DHCP
→ Turn the switch ON
→ Set default gateway as 10.0.0.2
→ DNS server as 10.0.0.1 (same as IP addres)
→ TFTP Server as 10.0.0.1 (same as IP addres)
→ Keep the maximum number of users to 8.
→ Keep the start IP address as 10.0.0.3 & subnet mask as 255.0.0.0
After this procedure, save the pool.


Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
10.0.0.2
Fa0/0er-PT
Router0
Fa0/5
Fa0/4
Fa0/3
Switch0
Fa0
Server-PT
Server0
10.0.0.1
Fa0
PC-PT
PC0
Fa0
PC-PT
PC1
Fa0
PC-PT
PC2
Router0
Physical
Config
CLI
IOS Command Line Interface
Continue with configuration dialog? [yes/no]: n
Press RETURN to get started!
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip address 10.0.0.2 255.0.0.0
% Invalid input detected at '^' marker.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shut
Router(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
Router(config-if)#exit
Router(config)#
Copy
Paste
USN: 1BM20CS059
Time: 00:46:44
Power Cycle Devices
Fast Forward Time
Realtime
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle 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)
ENG
INTL
12:35
01-12-2022



USN: 1BM20CS059


Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
10.0.0.2
Fa0/0
Router-PT
Router0
Fa0/5
Fa0/4
Fa0/3
Switch0
Fa0
Server-PT
Server0
10.0.0.1
Fa0
PC-PT
PC0
Fa0
PC-PT
PC1
Fa0
PC-PT
PC2
PC0
Physical
Config
Desktop
Custom Interface
IP Configuration
IP Configuration
DHCP
Static
DHCP request successful.
IP Address
10.0.0.3
Subnet Mask
255.0.0.0
Default Gateway
10.0.0.2
DNS Server
10.0.0.1
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::260:2FFF:FE7D:2736
IPv6 Gateway
IPv6 DNS Server
USN: 1BM20CS059
Time: 00:49:24
Power Cycle Devices
Fast Forward Time
Realtime
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle 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)
ENG
INTL
12:38
01-12-2022

Now, click on PC 0 and under the desktop tab. Go to IP configuration and click on DHCP. If there are no errors, it will show 'DHCP request successful' and the IP address will be 10.0.0.3.
Similarly, repeat this procedure for the rest other PCs.

Simulation mode: Add a simple PDU by selecting the PCs and click on auto capture from right panel.

Realtime mode: Select the PC PC0 and ping the PC1 in the command prompt. Once the ping statistics are successfully displayed, we can repeat this with PC1 as well.

↳ Observation:
Learning outcome: The server automatically sets the IP address and subnet, and gateway to all the PCs and IP address is allocated serially in DHCP protocol.

↳ Result:

1. PC> Ping 10.0.0.5

Pinging 10.0.0.5 with 32 bytes of data:

Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.5:

Packets : Sent = 4, Received = 4 Lost = 0 (0% loss)
Approximate round - trip times in milli- seconds :
Minimum = 0ms, Maximum = 0ms, Average = 0ms.

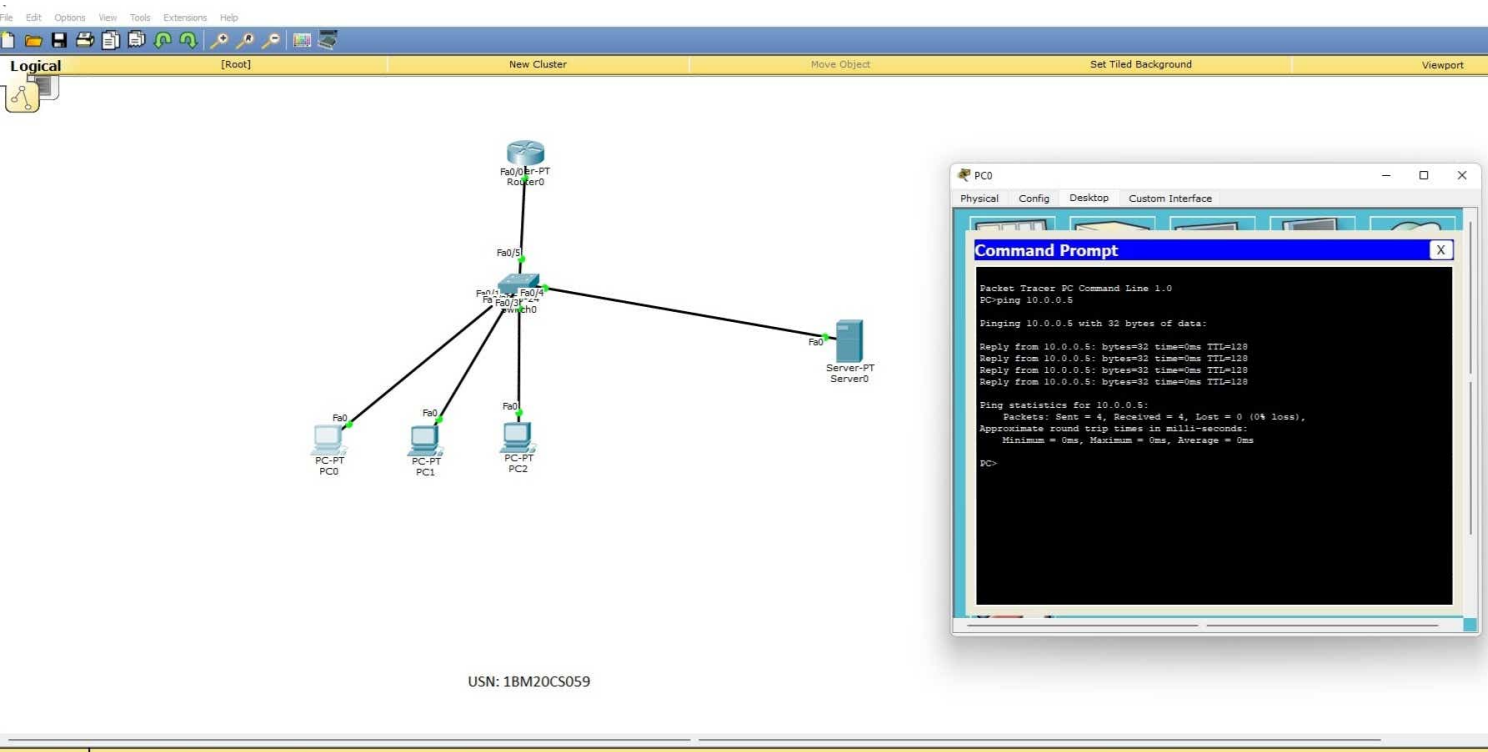
2. PC> ping 10.0.0.4

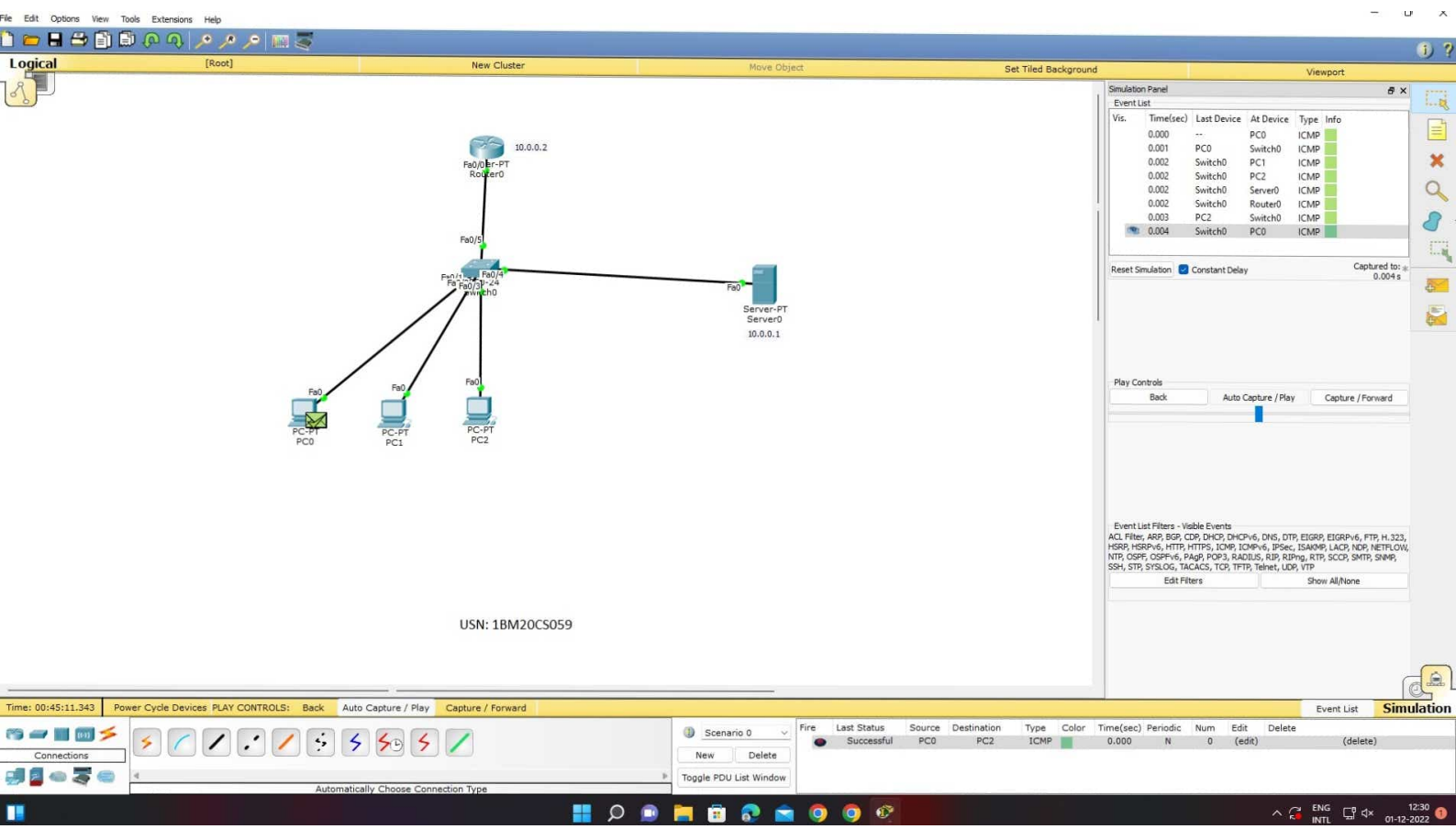
Pinging 10.0.0.4 with 32 bytes of data :

Reply from 10.0.0.4 : bytes = 32 time = 0ms TTL = 128
Reply from 10.0.0.4 : bytes = 32 time = 0ms TTL = 128
Reply from 10.0.0.4 : bytes = 32 time = 0ms TTL = 128
Reply from 10.0.0.4 : bytes = 32 time = 5ms TTL = 128.

Ping statistics for 10.0.0.4 :

Packets : sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round - trip times in milli- seconds :
Minimum = 0ms, Maximum = 5ms, Average = 1ms.


Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router0
Fa0/5
Switch0
Fa0/4
Fa0
Server-PT
Server0
PC-PT
PC0
PC1
PC2
PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.5
Pinging 10.0.0.5 with 32 bytes of data:
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Reply from 10.0.0.5: bytes=32 time=0ms TTL=128
Ping statistics for 10.0.0.5:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>
USN: 1BM20CS059
Time: 00:05:56
Power Cycle Devices
Fast Forward Time
Realtime
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete


File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
10.0.0.2
Router0
Fa0/5
Fa0/4
Switch0
Fa0
Server-PT
Server0
10.0.0.1
PC-PT
PC0
PC1
PC2
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device Type Info
0.000 -- PC0 ICMP
0.001 PC0 Switch0 ICMP
0.002 Switch0 PC1 ICMP
0.002 Switch0 PC2 ICMP
0.002 Switch0 Server0 ICMP
0.002 Switch0 Router0 ICMP
0.003 PC2 Switch0 ICMP
0.004 Switch0 PC0 ICMP
Reset Simulation
Constant Delay
Captured to: 0.004 s
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters - Visible Events
ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP
Edit Filters
Show All/None
USN: 1BM20CS059
Time: 00:45:11.343
Power Cycle Devices
PLAY CONTROLS:
Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle 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)
ENG INTL
12:30
01-12-2022