Date: 5/8/24

Lab Practical #06:

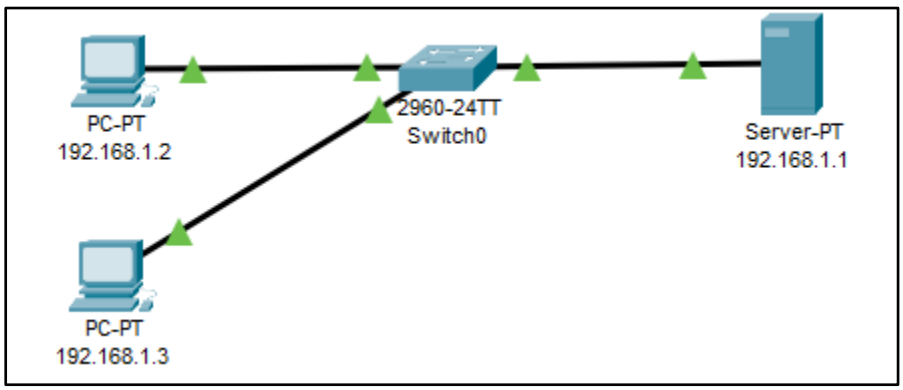
Study the application layer protocol DNS, DHCP, FTP.

Practical Assignment #06:

1. **Implement the application layer protocol DNS, DHCP, and FTP. Also check connectivity between them using ping command or PDU utility.**

1. DNS

Step-1 : Build the network topology.



Step-2: Configure static IP addresses on the PCs and the server.

Server =>
IP address: 192.168.1.1 **Subnet mask**: 255.255.255.0 **Default gateway**: 0.0.0.0 **DNS Server:** 192.168.1.1

PC0 =>
IP address: 192.168.1.2 **Subnet mask:** 255.255.255.0 **Default gateway:** 0.0.0.0 **DNS server:** 192.168.1.1

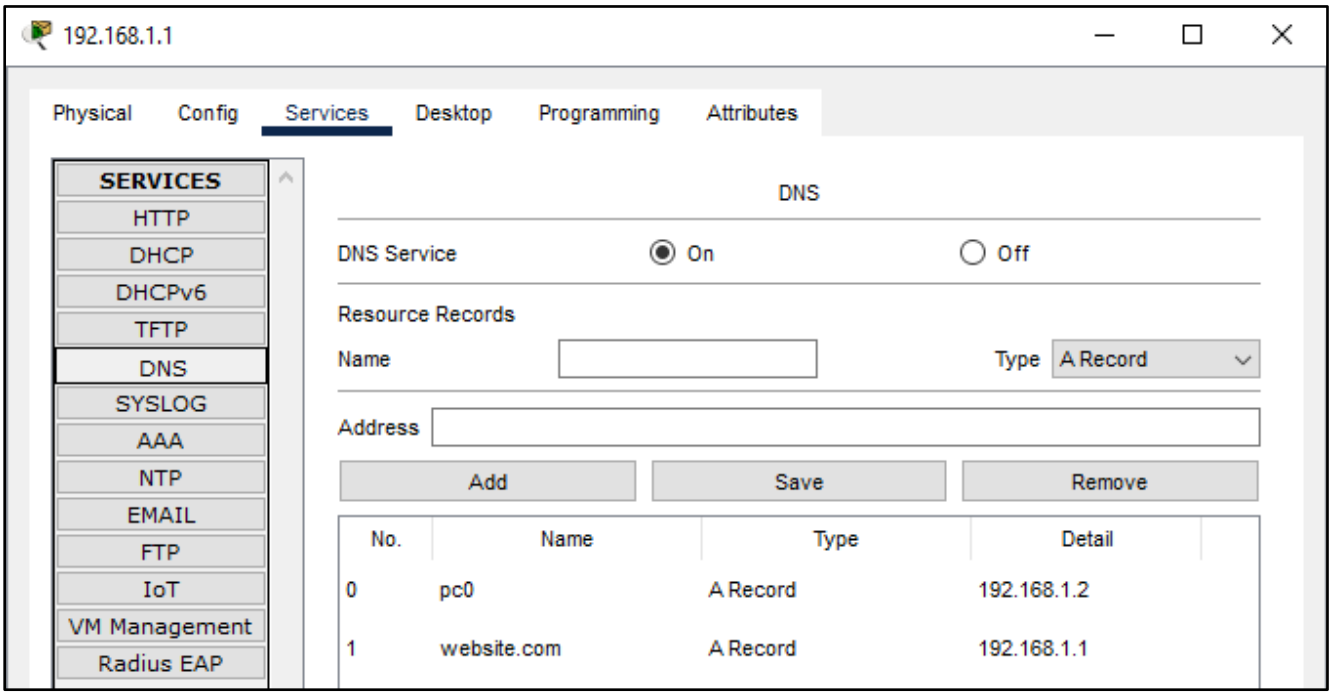
PC1 =>
IP address: 192.168.1.3 **Subnet mask:** 255.255.255.0 **Default gateway:** 0.0.0.0 **DNS Server:** 192.168.1.1

Step-3: Configure DNS service on the generic server.

- To do this, click on the server, then Click on Services tab. Click on DNS server from the menu. First turn ON the DNS service, then define names of the hosts and their corresponding IP addresses.
- For example, to specify the DNS entry for PC0: In the name and address fields, type:
- Name: pc0 Address: 192.168.1.2
- Click on add then save.

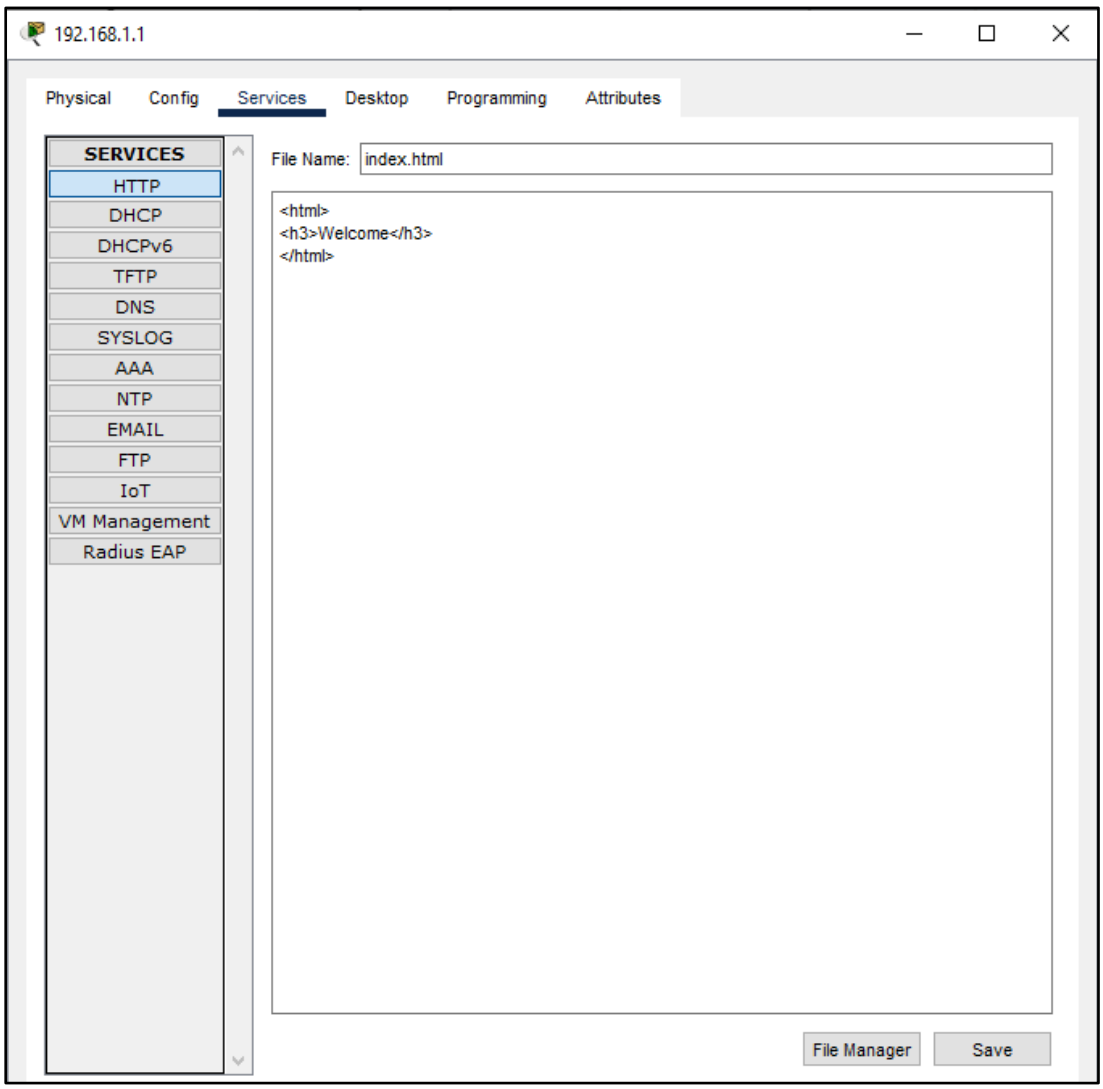
Date: 5/8/24

- Once you're done, your DNS entries will look like this:



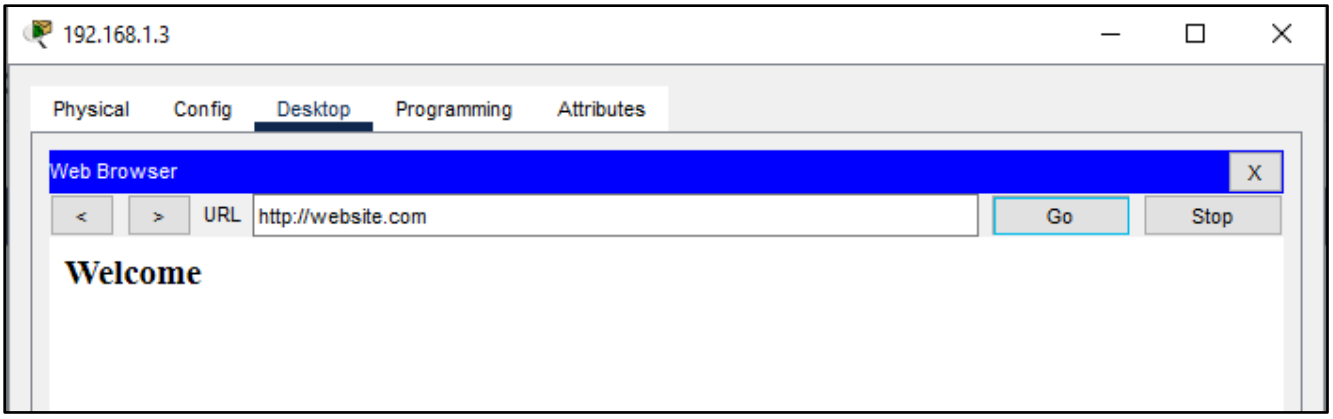
Step-4: Go to HTTP and click on index.html => edit
In this file you can over-write whatever you want to showcase in your web page then click on save

Date: 5/8/24

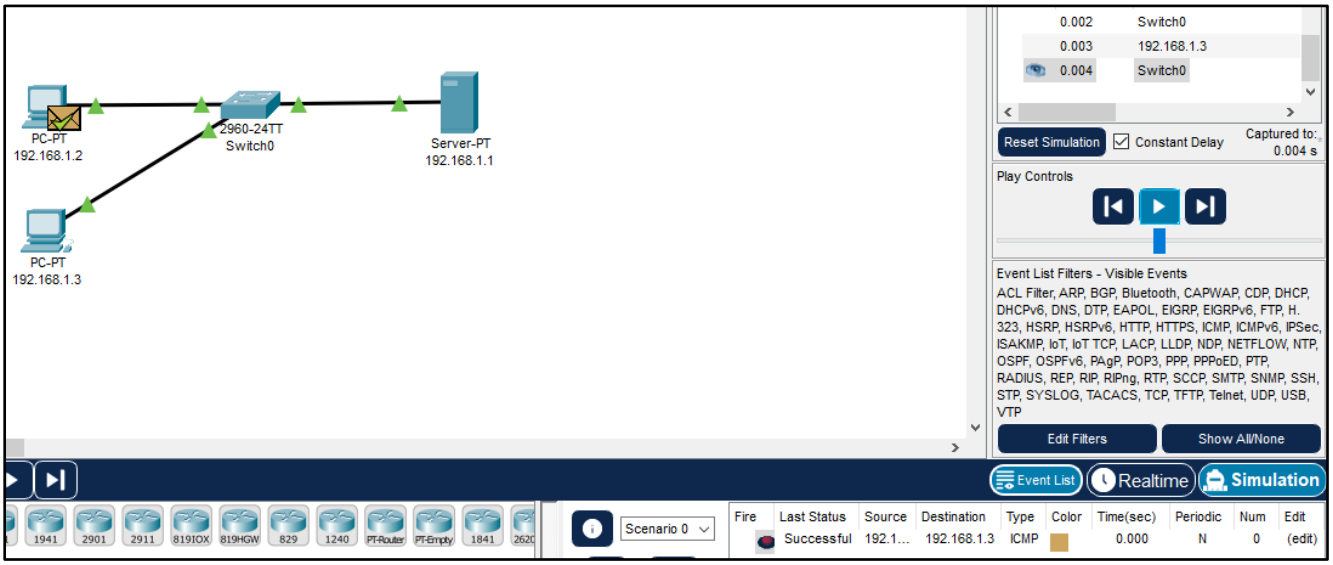


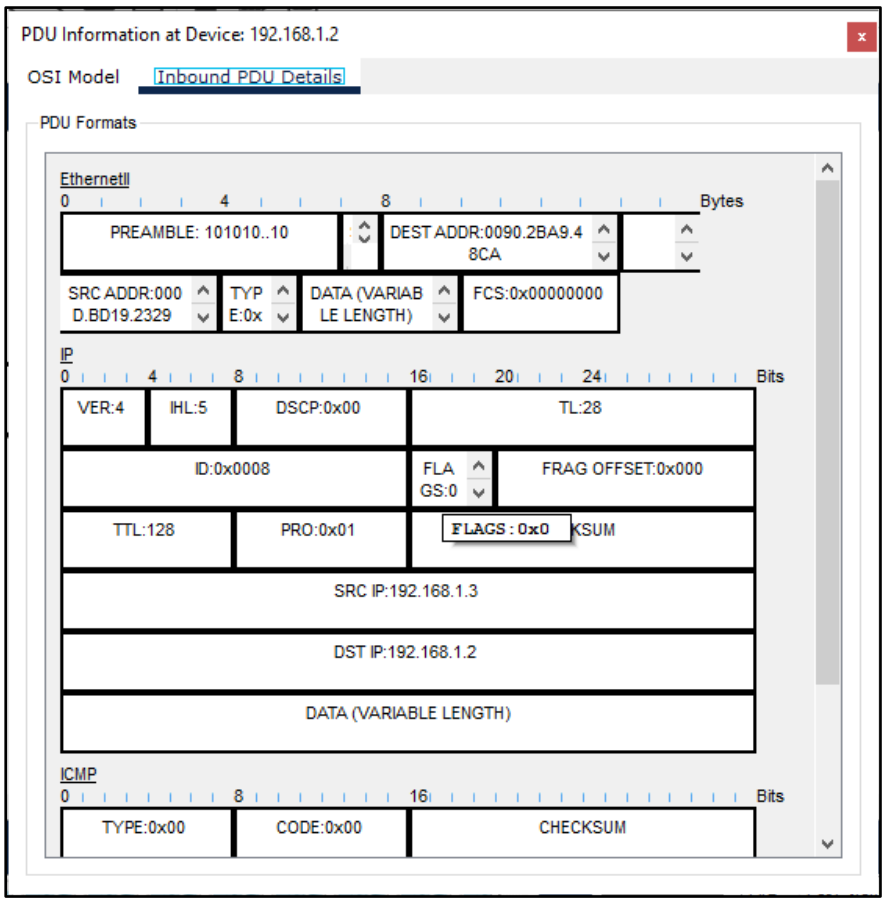
Step-5: Now you can go to any pc and check your web page by writing your web page name rather then writing IP address.

PC1(192.168.1.3) >> Desktop >> web browser >> URL



Date: 5/8/24

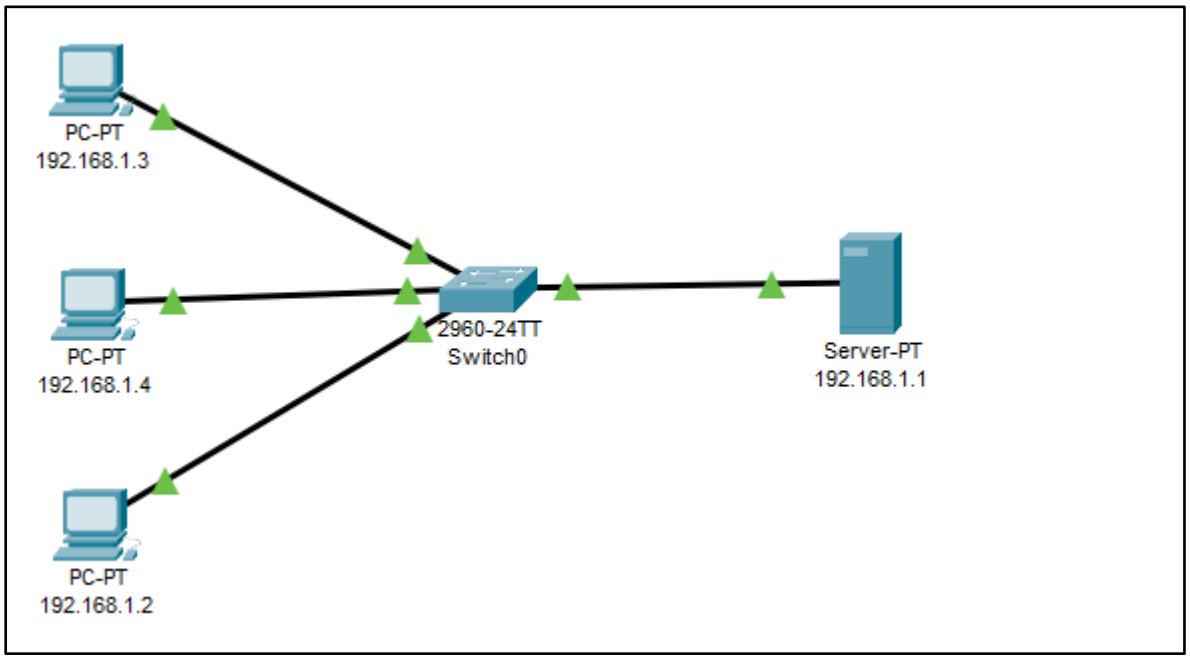

PC-PT
192.168.1.2
2960-24TT
Switch0
Server-PT
192.168.1.1
PC-PT
192.168.1.3
0.002 Switch0
0.003 192.168.1.3
0.004 Switch0
Reset Simulation
Constant Delay
Captured to: 0.004 s
Play Controls
Event List Filters - Visible Events
ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoED, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP
Edit Filters
Show All/None
Event List
Realtime
Simulation
Scenario 0
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Successful
192.1...
192.168.1.3
ICMP
0.000
N
0
(edit)


PDU Information at Device: 192.168.1.2
OSI Model
Inbound PDU Details
PDU Formats
Ethernetll
0 4 8 Bytes
PREAMBLE: 101010..10
DEST ADDR:0090.2BA9.4 8CA
SRC ADDR:000 D.BD19.2329
TYP E:0x
DATA (VARIAB LE LENGTH)
FCS:0x00000000
IP
0 4 8 16 20 24 Bits
VER:4
IHL:5
DSCP:0x00
TL:28
ID:0x0008
FLA GS:0
FRAG OFFSET:0x000
TTL:128
PRO:0x01
FLAGS : 0x0
KSUM
SRC IP:192.168.1.3
DST IP:192.168.1.2
DATA (VARIABLE LENGTH)
ICMP
0 8 16 Bits
TYPE:0x00
CODE:0x00
CHECKSUM

Date: 5/8/24

2. DHCP

Step-1: Build the network topology in packet tracer.



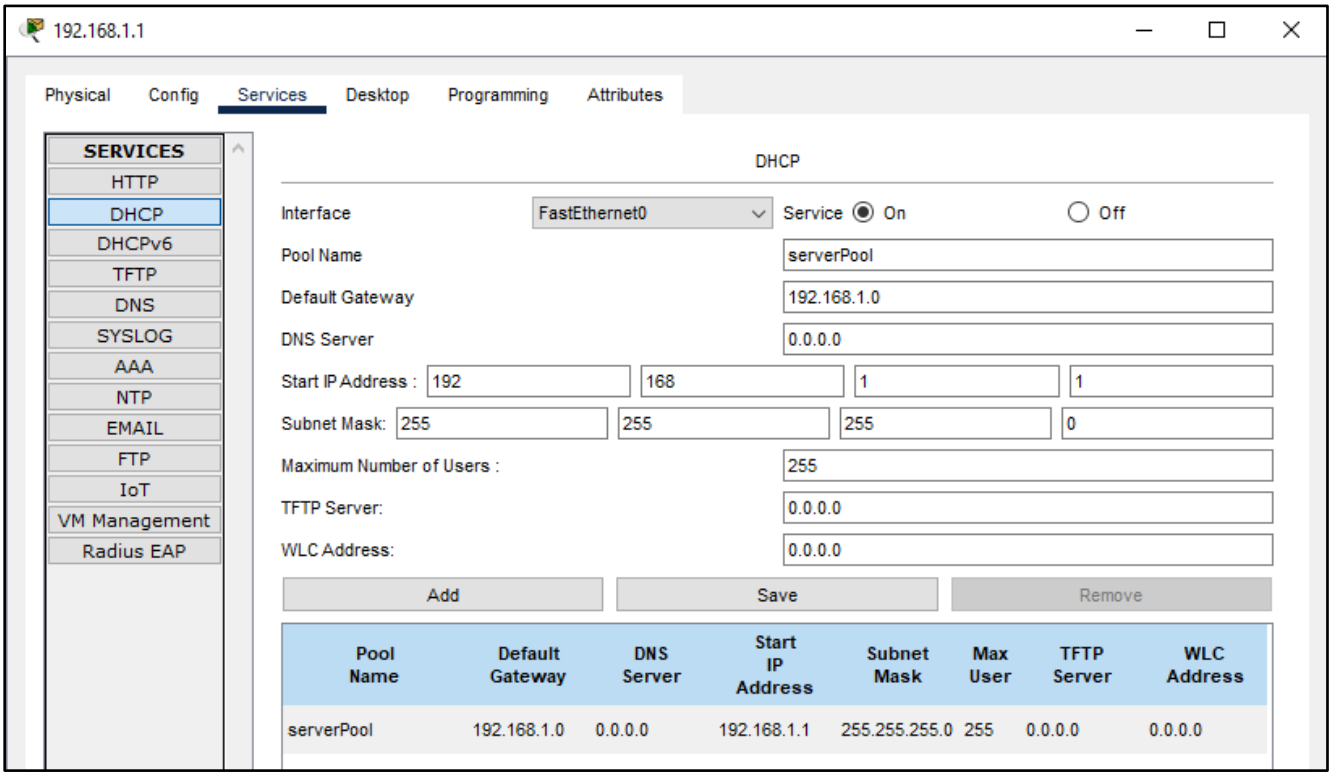
Step-2: Configure static IP address on the server 192.168.1.1

Step-3: Now configure DHCP service on the generic server.

- Turn **on** the DHCP service.
- To do this, click on the server, then click on Services tab. You will pick DHCP on the menu. Then proceed to define the DHCP network parameters as follows:
- **Pool name**: serverPool
- **Default Gateway:** 192.168.1.0
- **DNS Server:** 0.0.0.0
- **Start IP Address:** 192.168.1.1
- **Subnet Mask:** 255.255.255.0
- **Maximum Number of users:** 255
- Click on add then Save**.** The DHCP entry is included in the list.

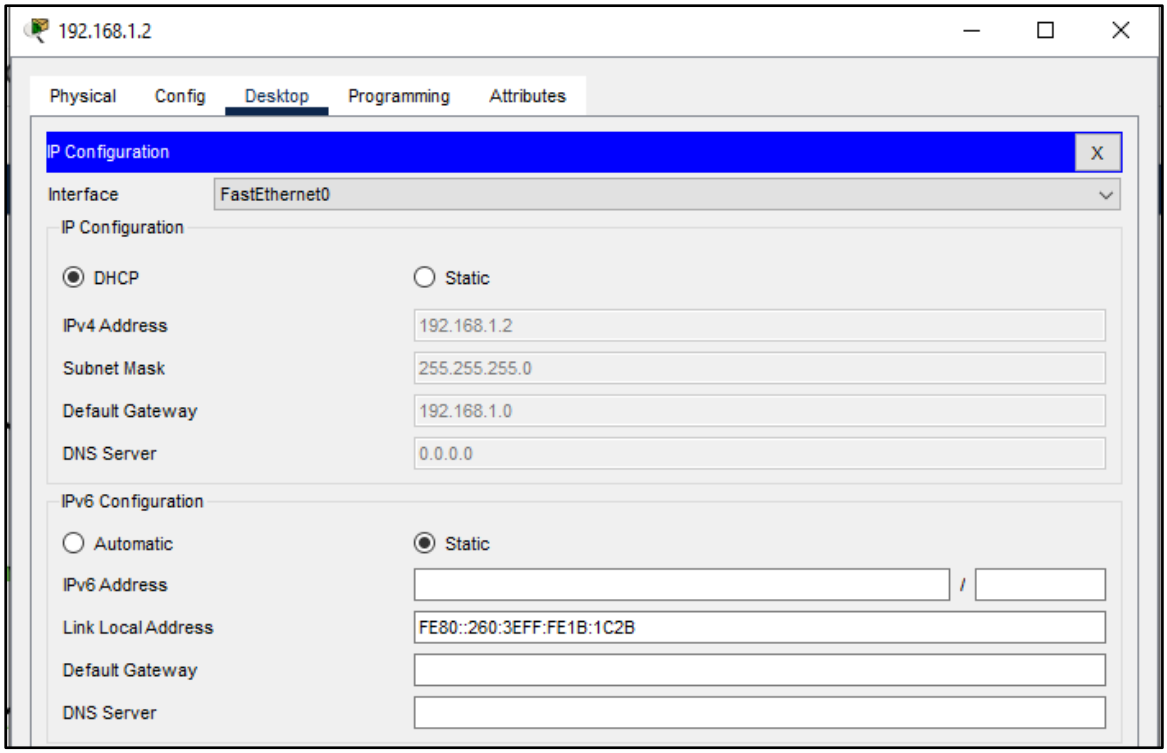
Here are the configurations on the server :

Date: 5/8/24

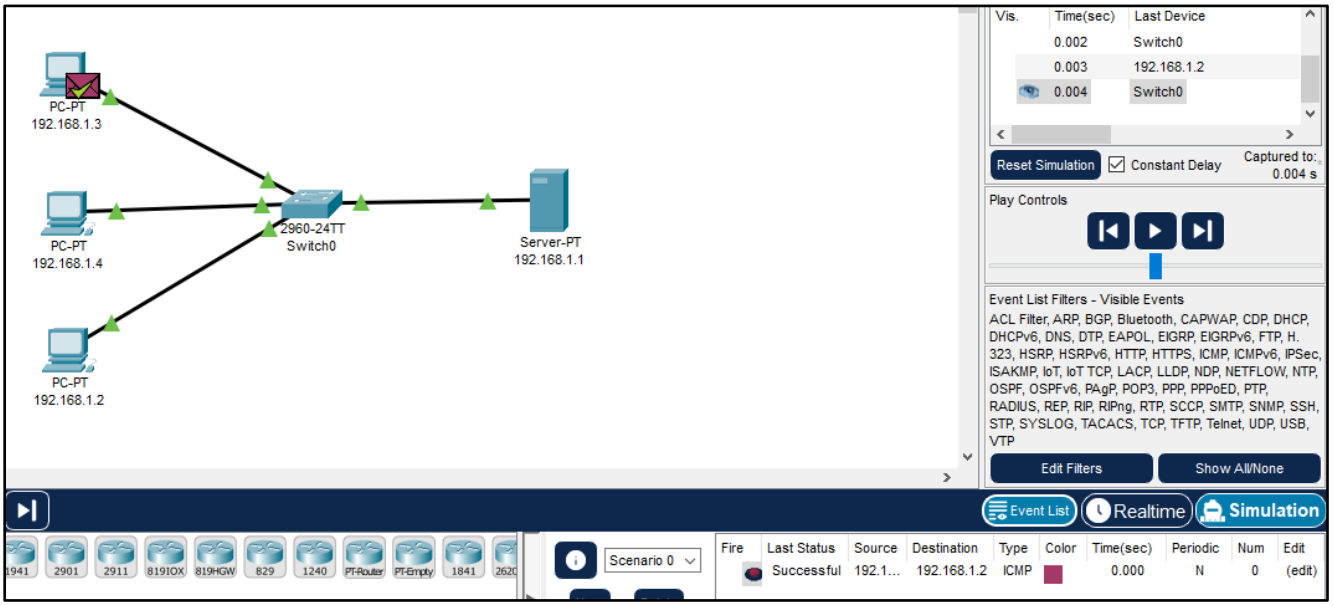


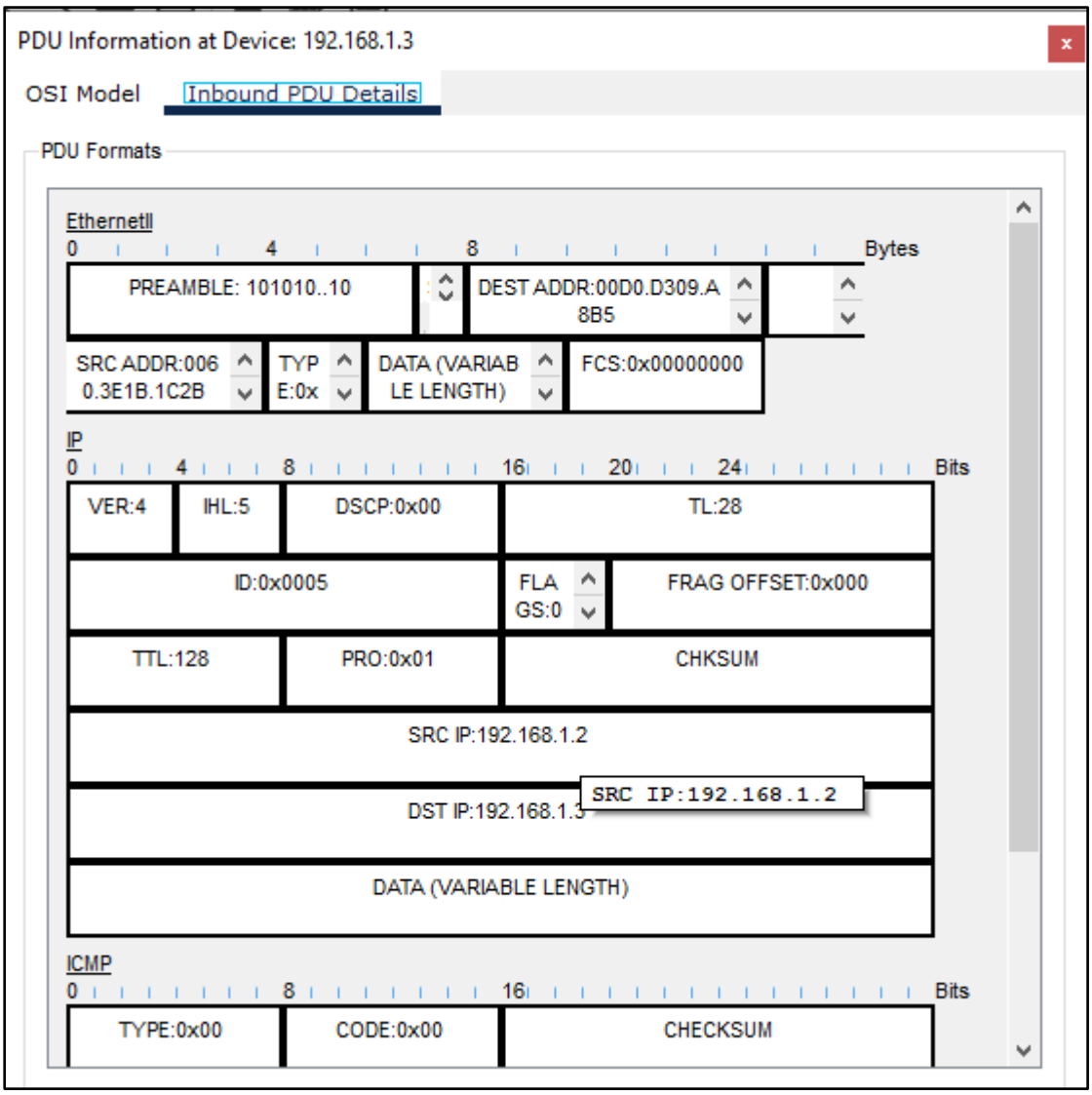
Step-4: Finally, enable DHCP configuration on each PC. The three PCs should get automatically configured.

As an example, here is the DHCP configuration on 192.168.1.2 PC :



Date: 5/8/24

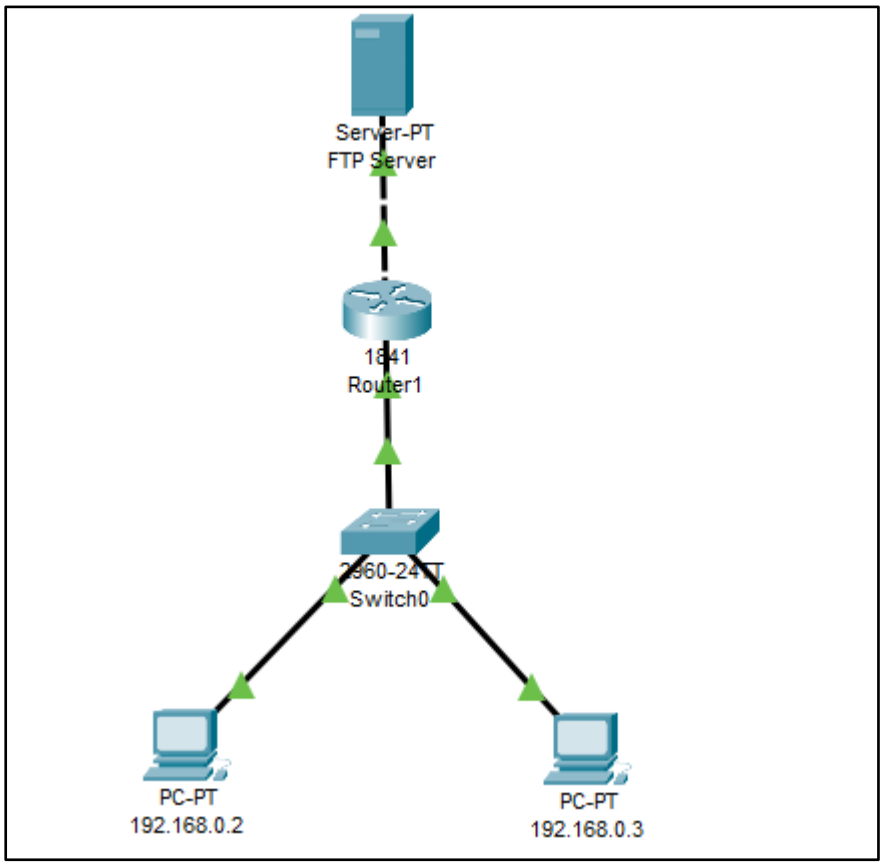

PC-PT
192.168.1.3
PC-PT
192.168.1.4
PC-PT
192.168.1.2
2960-24TT
Switch0
Server-PT
192.168.1.1
Vis.
Time(sec)
Last Device
0.002
Switch0
0.003
192.168.1.2
0.004
Switch0
Reset Simulation
Constant Delay
Captured to:
0.004 s
Play Controls
Event List Filters - Visible Events
ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoED, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP
Edit Filters
Show All/None
Event List
Realtime
Simulation
Scenario 0
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Successful
192.1...
192.168.1.2
ICMP
0.000
N
0
(edit)

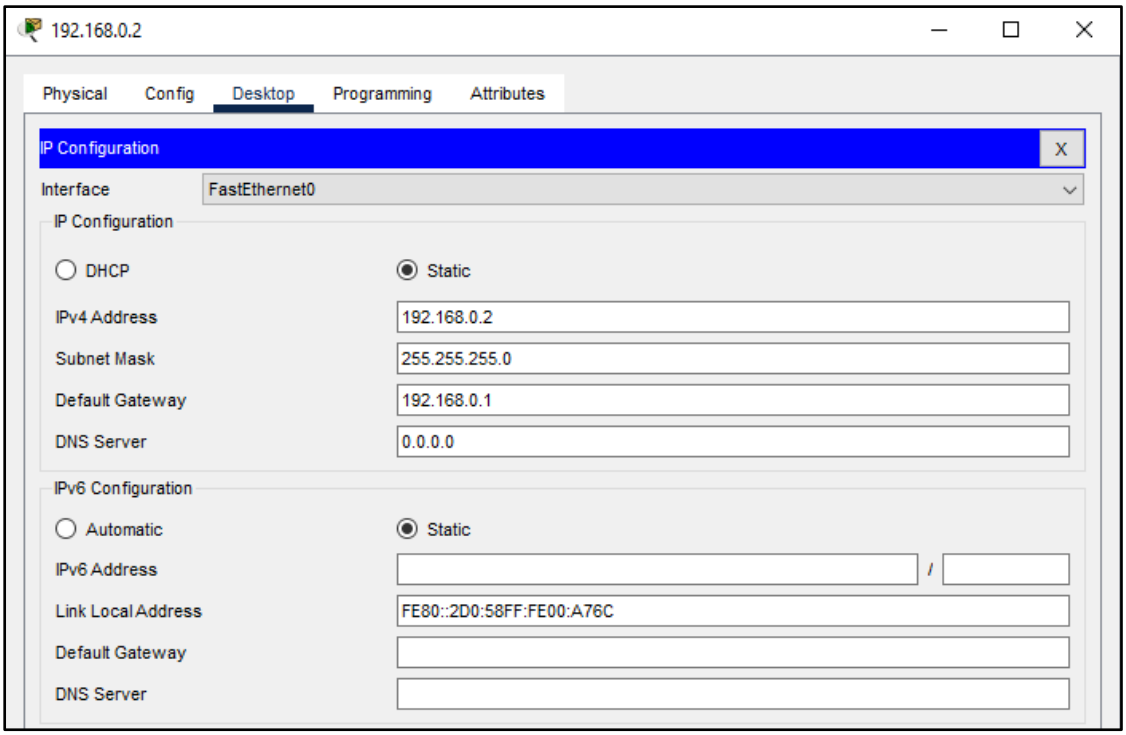

PDU Information at Device: 192.168.1.3
OSI Model
Inbound PDU Details
PDU Formats
EthernetII
0
4
8
Bytes
PREAMBLE: 101010..10
DEST ADDR:00D0.D309.A8B5
SRC ADDR:0060.3E1B.1C2B
TYP E:0x
DATA (VARIABLE LENGTH)
FCS:0x00000000
IP
0
4
8
16
20
24
Bits
VER:4
IHL:5
DSCP:0x00
TL:28
ID:0x0005
FLAGS:0
FRAG OFFSET:0x000
TTL:128
PRO:0x01
CHKSUM
SRC IP:192.168.1.2
DST IP:192.168.1.3
SRC IP:192.168.1.2
DATA (VARIABLE LENGTH)
ICMP
0
8
16
Bits
TYPE:0x00
CODE:0x00
CHECKSUM

Date: 5/8/24

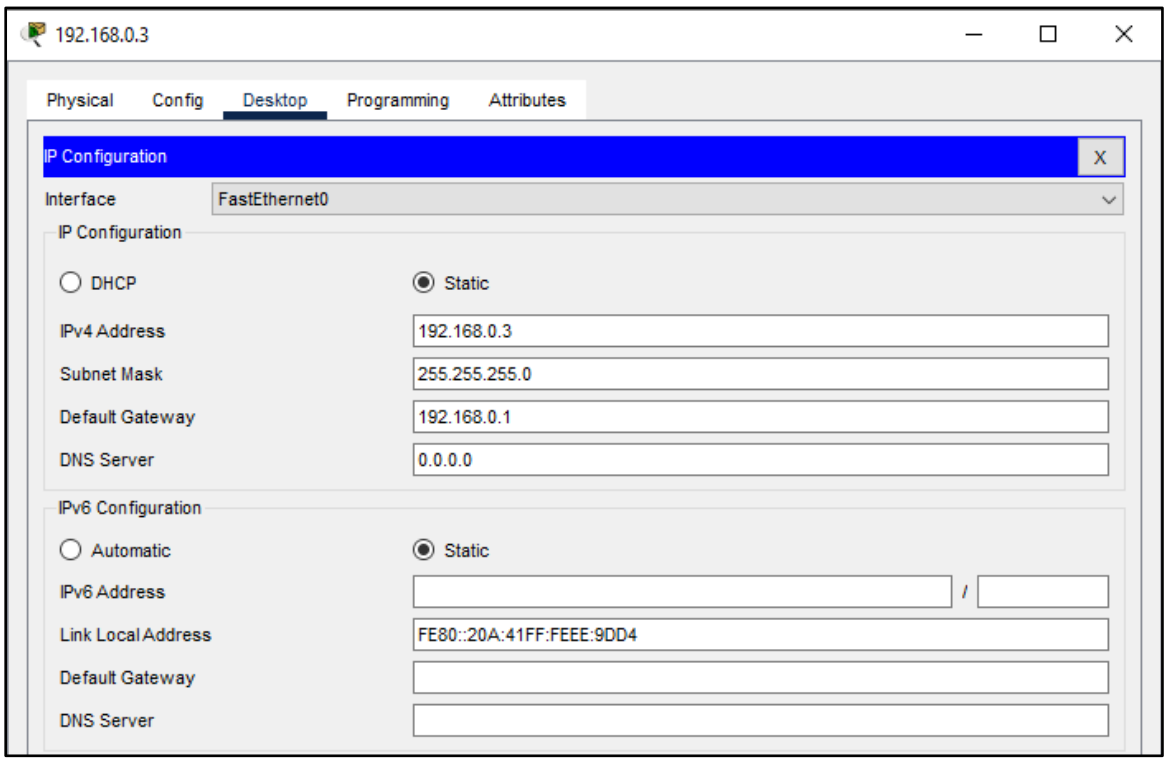
3. FTP

Step-1: Build the network topology in packet tracer and config to PC's.





Date: 5/8/24



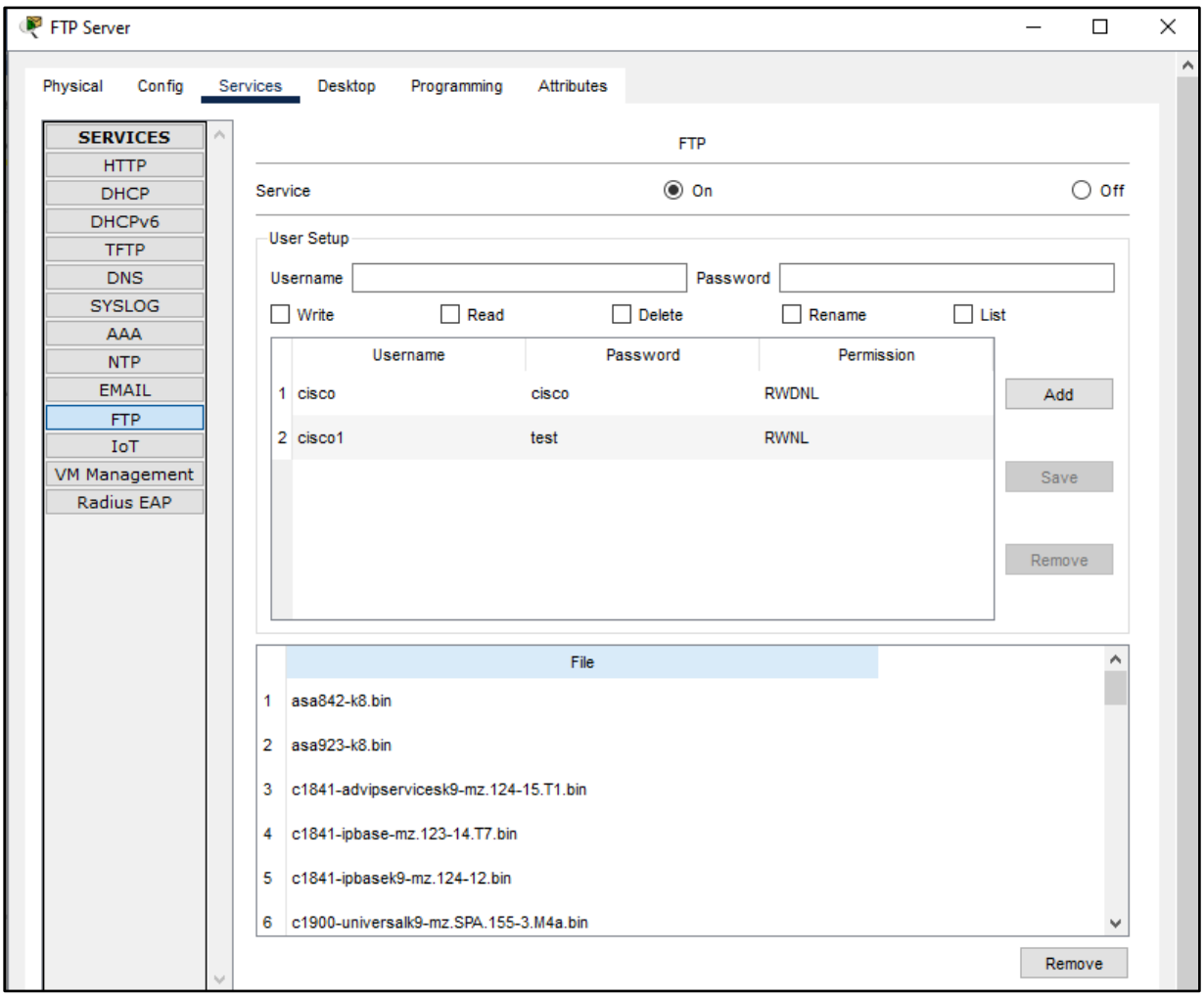
Step-2: go to 1841 Router1 => config

- Click on FastEthernet0/0 enable on port then add **IP address:** 10.10.10.1 and **SubnetMask:** 255.0.0.0 again
- Click on FastEtherner0/1 enable on port then add **IP address:** 192.168.0.1 and **SubnetMask:** 255.255.255.0

Step-3: configuration of server

- Go to config tab write FTP server in display name if you want to change
- Then click on desktop => ip configuration add
  IP address: 10.10.10.2
  Subnet Mask: 255.0.0.0
  Default getway: 10.10.10.1
  DNS server: 0.0.0.0
- Go to service tab click on FTP add
  Username: cisco1
  Password: test
  Tick on write, read, rename and click on add button

Date: 5/8/24



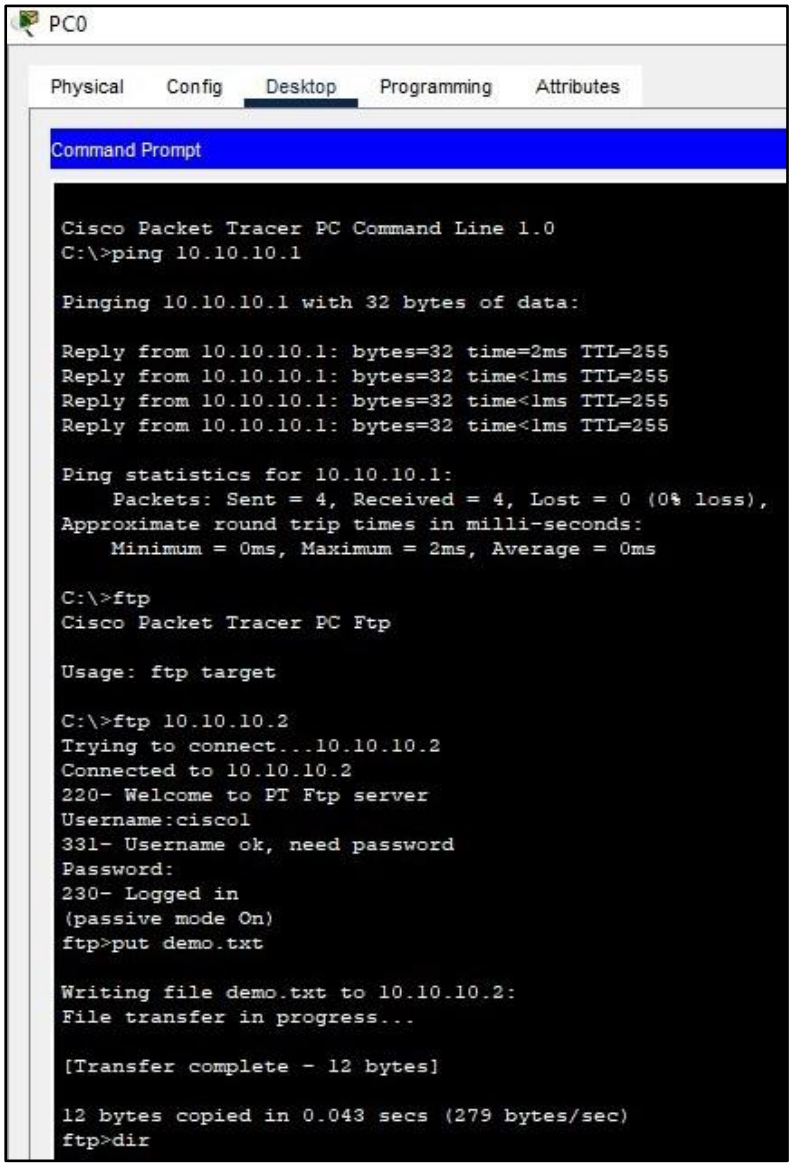
Step-4: PC0(192.168.0.2) => desktop => text editor => write something => then click on save

Enter file name => demo

Step-5: perform below task

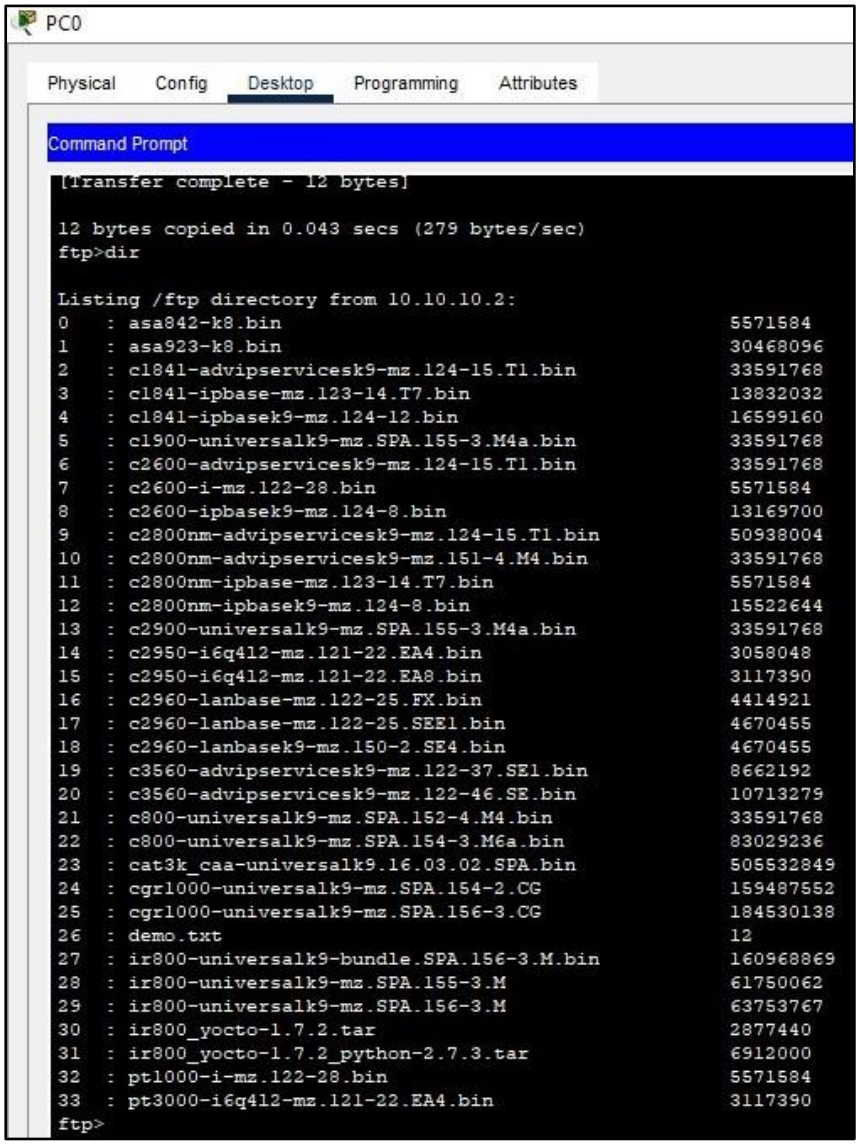
- Write put your-file name

Date: 5/8/24



- Write dir

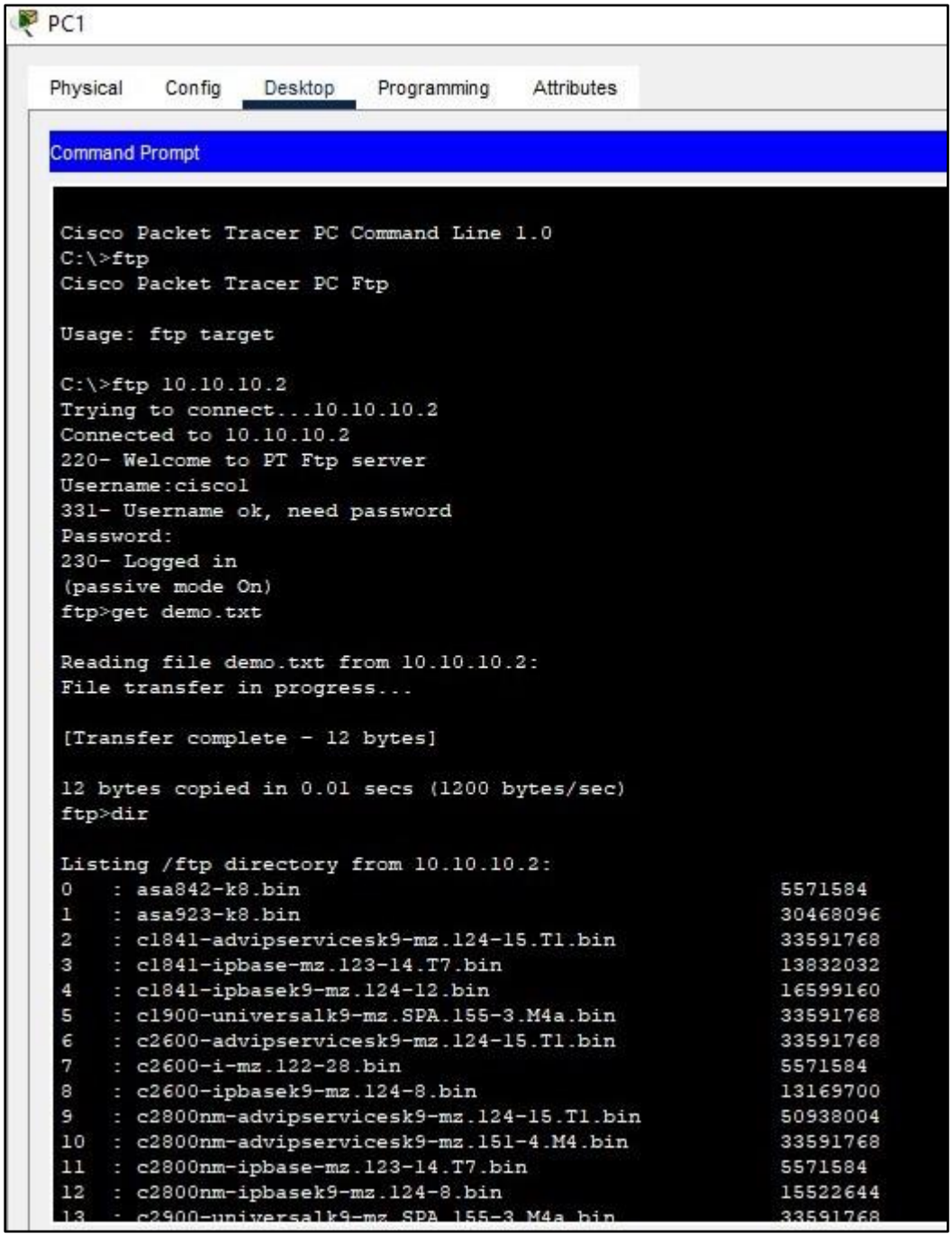
Date: 5/8/24



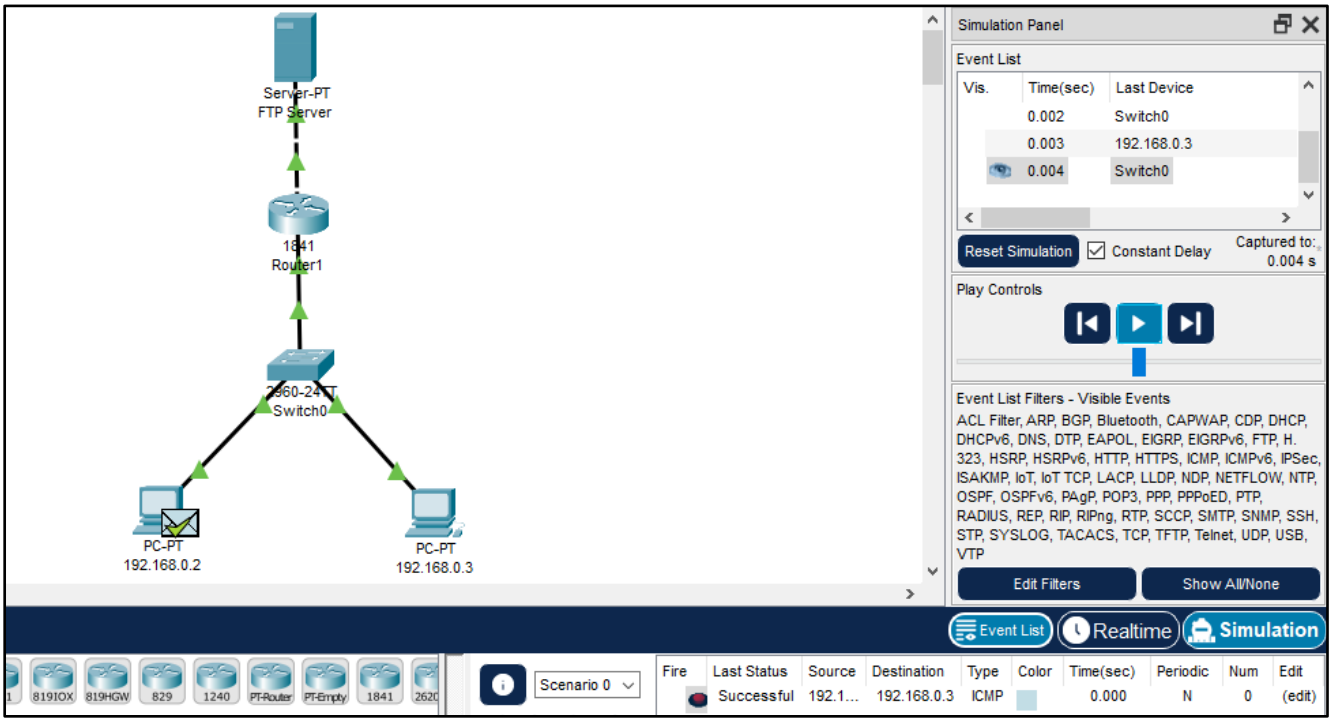
Step-6: go to PC1(192.168.0.3) desktop => command port

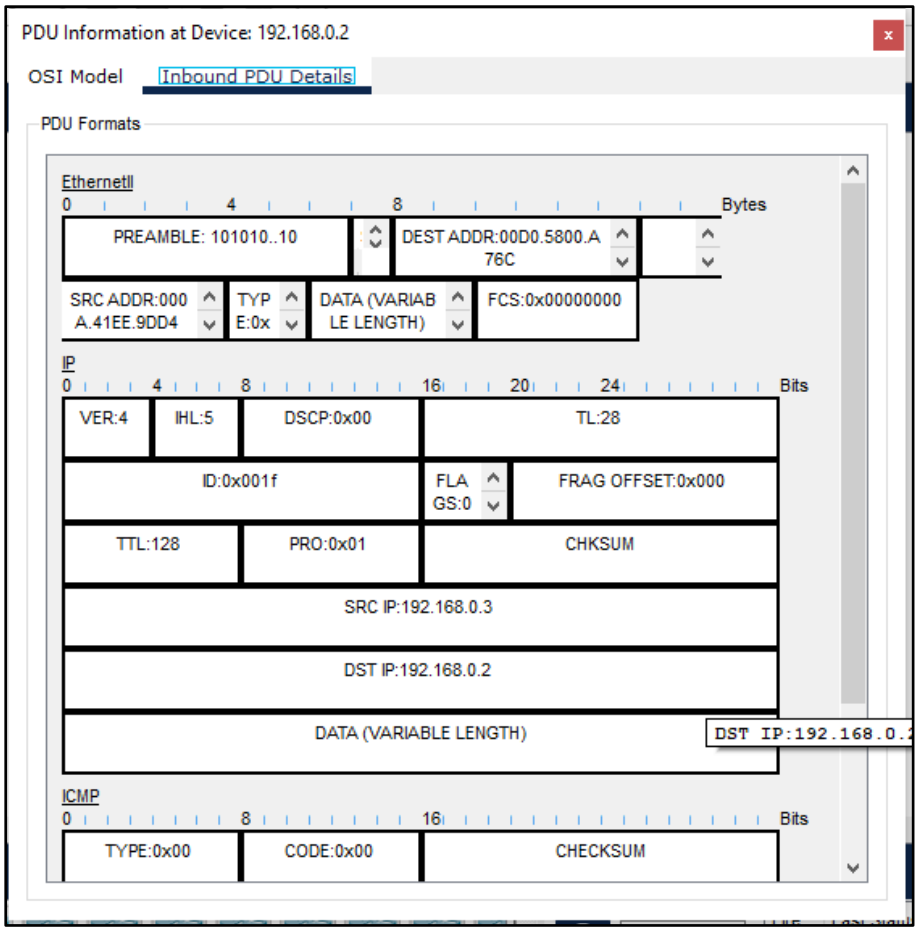
- Write get your-filename

Date: 5/8/24


PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp
Cisco Packet Tracer PC Ftp
Usage: ftp target
C:\>ftp 10.10.10.2
Trying to connect...10.10.10.2
Connected to 10.10.10.2
220- Welcome to PT Ftp server
Username:cisco1
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>get demo.txt
Reading file demo.txt from 10.10.10.2:
File transfer in progress...
[Transfer complete - 12 bytes]
12 bytes copied in 0.01 secs (1200 bytes/sec)
ftp>dir
Listing /ftp directory from 10.10.10.2:
0 : asa842-k8.bin 5571584
1 : asa923-k8.bin 30468096
2 : c1841-advipservicesk9-mz.124-15.T1.bin 33591768
3 : c1841-ipbase-mz.123-14.T7.bin 13832032
4 : c1841-ipbasek9-mz.124-12.bin 16599160
5 : c1900-universalk9-mz.SPA.155-3.M4a.bin 33591768
6 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
7 : c2600-i-mz.122-28.bin 5571584
8 : c2600-ipbasek9-mz.124-8.bin 13169700
9 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
10 : c2800nm-advipservicesk9-mz.151-4.M4.bin 33591768
11 : c2800nm-ipbase-mz.123-14.T7.bin 5571584
12 : c2800nm-ipbasek9-mz.124-8.bin 15522644
13 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768

Date: 5/8/24


Server-PT
FTP Server
1841
Router1
2960-24TT
Switch0
PC-PT
192.168.0.2
PC-PT
192.168.0.3
Simulation Panel
Event List
Vis.
Time(sec)
Last Device
0.002
Switch0
0.003
192.168.0.3
0.004
Switch0
Reset Simulation
Constant Delay
Captured to:
0.004 s
Play Controls
Event List Filters - Visible Events
ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoED, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP
Edit Filters
Show All/None
Event List
Realtime
Simulation
Scenario 0
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Successful
192.1...
192.168.0.3
ICMP
0.000
N
0
(edit)


PDU Information at Device: 192.168.0.2
OSI Model
Inbound PDU Details
PDU Formats
EthernetII
0
4
8
Bytes
PREAMBLE: 101010..10
DEST ADDR:00D0.5800.A76C
SRC ADDR:000A.41EE.9DD4
TYPE:0x
DATA (VARIABLE LENGTH)
FCS:0x00000000
IP
0
4
8
16
20
24
Bits
VER:4
IHL:5
DSCP:0x00
TL:28
ID:0x001f
FLAGS:0
FRAG OFFSET:0x000
TTL:128
PRO:0x01
CHKSUM
SRC IP:192.168.0.3
DST IP:192.168.0.2
DATA (VARIABLE LENGTH)
DST IP:192.168.0.2
ICMP
0
8
16
Bits
TYPE:0x00
CODE:0x00
CHECKSUM