

**MALIK ZOHAIB MUSTAFA**

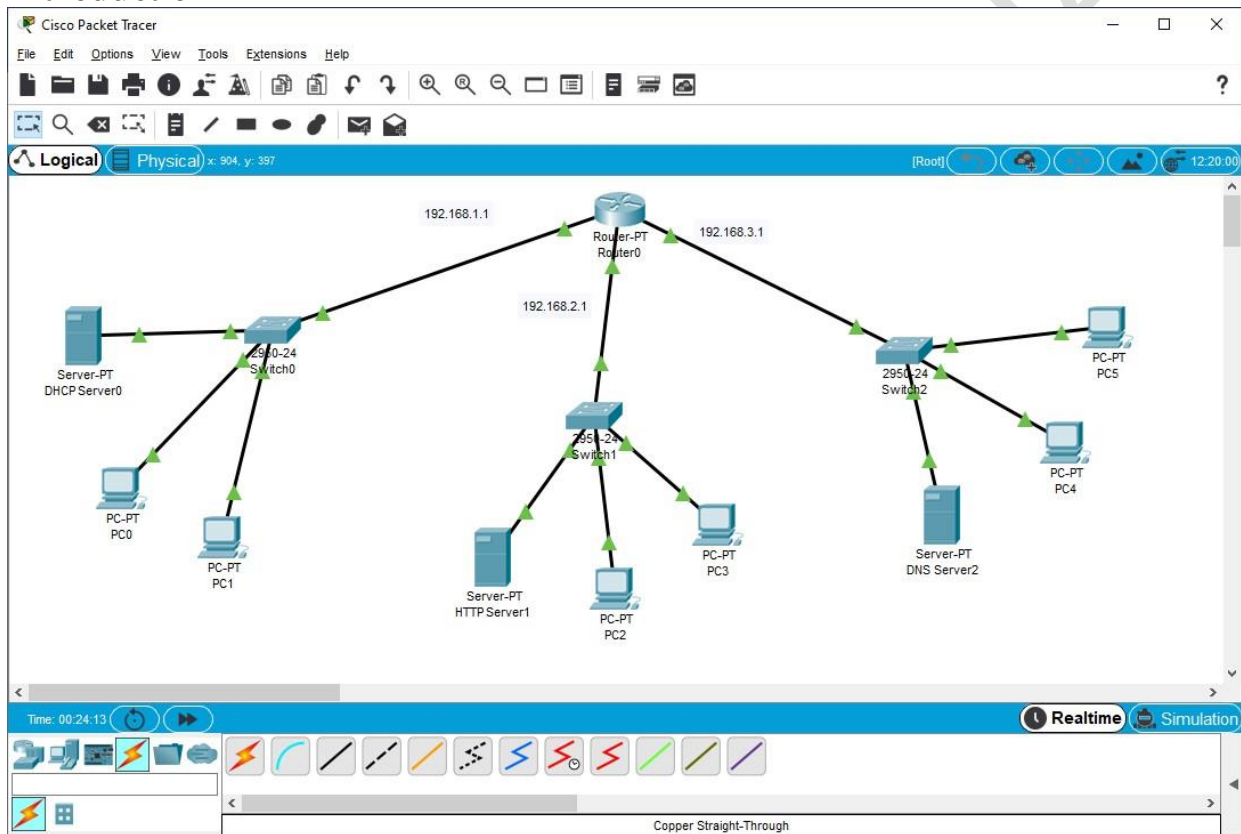
**01-134192-030**

**BSCS-4B**

**Q1: Learning packet motion through DNS server in a network using packet tracer**

## Tasks:

## Introduction



Configuring router0 and assigning following IPs

Giving no shutdown command to port 0/0, 1/0, 6/0 of router0 and IP 192.168.1.1(0/0), 192.168.2.1(1/0), 192.168.3.1(6/0).

Router0

Physical Config CLI Attributes

OS Config CLI Interface

```
Bouter>enable
Bouter#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Bouterlconfig)#interface fastEthernet 0/0
Bouterlconfig-if)#no shutdown

Bouterlconfig-if)#
%LINK-S-CHANGED: Interface FastEthernet0/0. changed state to up

%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/0.
changed state to up

Bouterlconfig-if)#ip address 193.168.1.1 255.255.255.0
Bouterlconfig-if)#exit
Bouterlconfig)#interface fastEthernet 1/0
Bouterlconfig-if)#no shutdown

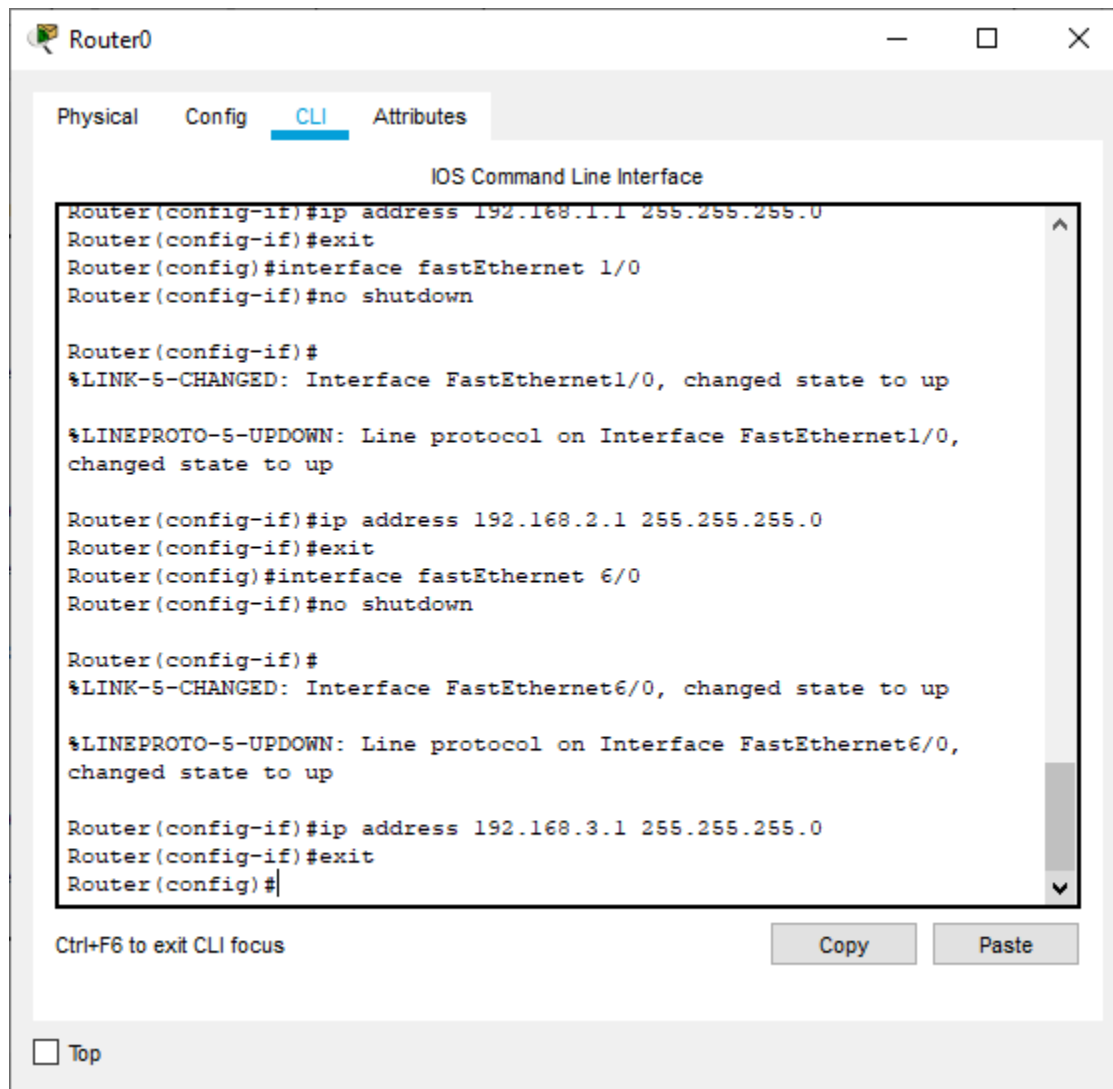
Bouterlconfig-if)#
%LINK-S-CHANGED: Interface FastEthernet1/0. changed state to up

%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet1/0.
changed state to up
```

Ctrl+F6 to exit CLI focus

Copy

Paste



Assigning IP to DHCP server:

DHCP Server0

Physical Config Services **Desktop** Programming Attributes

☐ DHCP ☒ Static

IP Address: 192.168.1.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::20C:CFFF:EEEE:665C

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

Assigning IP to DNS server:

DNS Server2

Physical Config Services **Desktop** Programming Attributes

☐ DHCP ☒ Static

IP Address: 192.168.3.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.3.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::2E0:A3FF:FE91:4094

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

Assigning IP to HTTP server:

HTTP Server1

Physical Config Services **Desktop** Programming Attributes

☐ DHCP ☒ Static

IP Address: 192.168.2.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.2.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::2D0:97FF:FEC3:5950

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

Now, through DHCP protocol we will assign IPs to the PCs dynamically (automatically).

Secondly go to HTTP server ☐ Services ☐ DHCP ☐ Service ON

Default Gateway: 192.168.2.1

DNS Server: 192.168.3.2

Start IP Address 192.168.2.3

Maximum Users: 255

HTTP Server1

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

**DHCP**

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 192.168.2.1

DNS Server: 192.168.3.2

Start IP Address: 192 168 2 3

Subnet Mask: 255 255 255 0

Maximum Number of Users: 253

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.2.1	192.168.3.2	192.168.2.3	255.255.255.0	253	0.0.0.0	0.0.0.0

☐ Top

Now automatically assigning IP to PC2 and PC3

PC2

Physical Config **Desktop** Programming Attributes

☒ DHCP ☐ Static DHCP request successful.

IP Address: 192.168.2.3

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.2.1

DNS Server: 192.168.3.2

**IPv6 Configuration**

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::201:63FF:FE61:D914

IPv6 Gateway:

IPv6 DNS Server:

**802.1X**

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

PC3

Physical Config **Desktop** Programming Attributes

☒ DHCP ☐ Static DHCP request successful.

IP Address: 192.168.2.4

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.2.1

DNS Server: 192.168.3.2

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::200:CFF:FE4B:A54C

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

## Implementation of DNS

Thirdly go to DNS server ☐ Services ☐ DHCP ☐ Service ON

Default Gateway: 192.168.3.1

DNS Server: 192.168.3.2

Start IP Address 192.168.3.3

Maximum Users: 255

DNS Server2

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

**DHCP**

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 192.168.3.1

DNS Server: 192.168.3.2

Start IP Address: 192 168 3 3

Subnet Mask: 255 255 255 0

Maximum Number of Users: 253

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.3.1	192.168.3.2	192.168.3.3	255.255.255.0	253	0.0.0.0	0.0.0.0

☐ Top

Now automatically assigning IP to PC4 and PC5

PC4

Physical Config **Desktop** Programming Attributes

☒ DHCP ☐ Static DHCP request successful.

IP Address: 192.168.3.3

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.3.1

DNS Server: 192.168.3.2

**IPv6 Configuration**

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::20A:F3FF:FE8B:4D0A

IPv6 Gateway:

IPv6 DNS Server:

**802.1X**

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top



PC5

Physical Config **Desktop** Programming Attributes

☒ DHCP ☐ Static DHCP request successful.

IP Address 192.168.3.4

Subnet Mask 255.255.255.0

Default Gateway 192.168.3.1

DNS Server 192.168.3.2

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::203:E4FF:FE89:4221

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

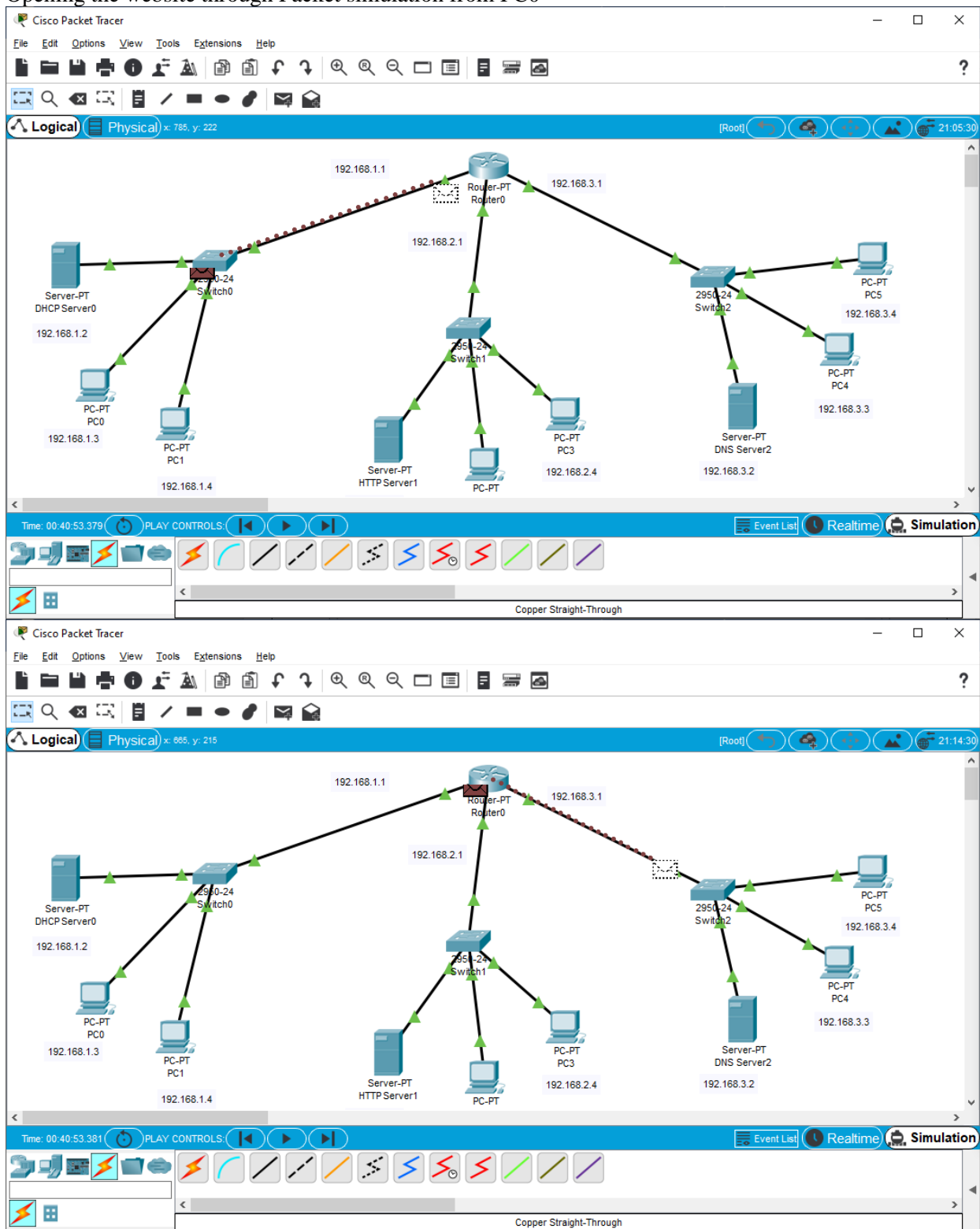
Logical Physical x: 891, y: 180 [Root] 13:09:30

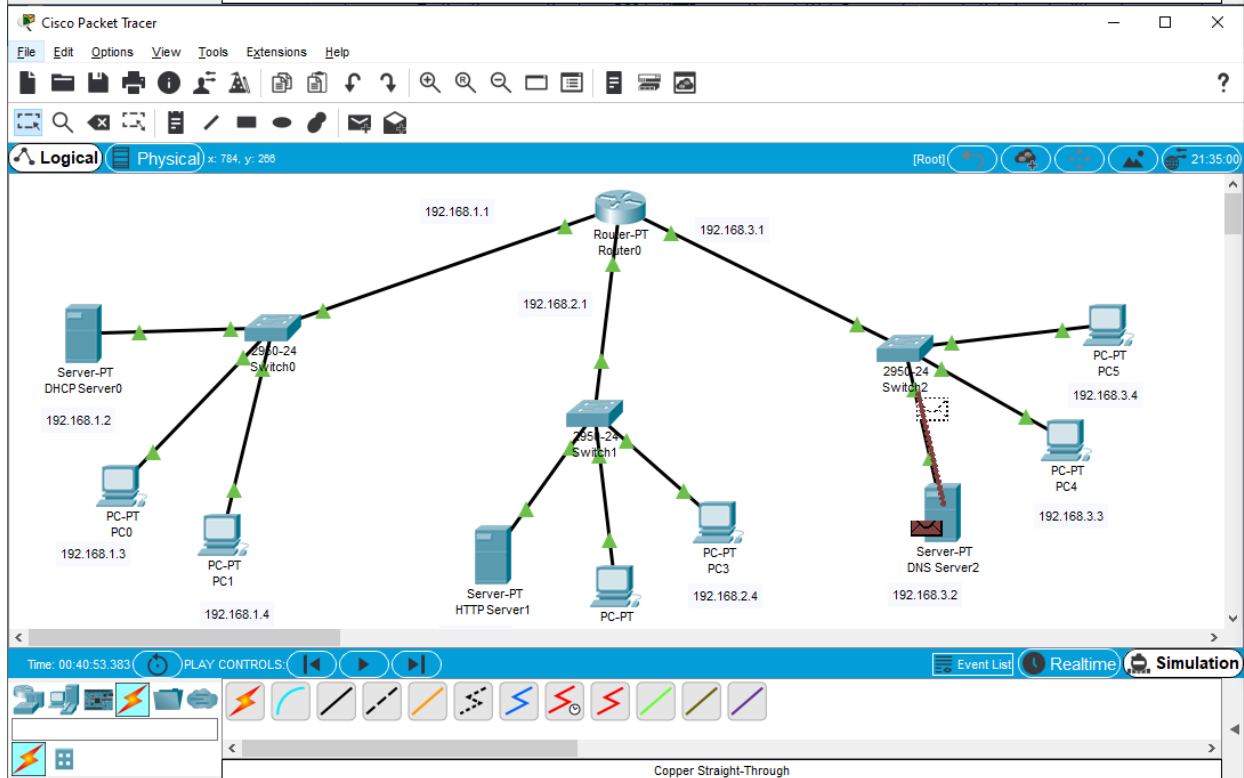
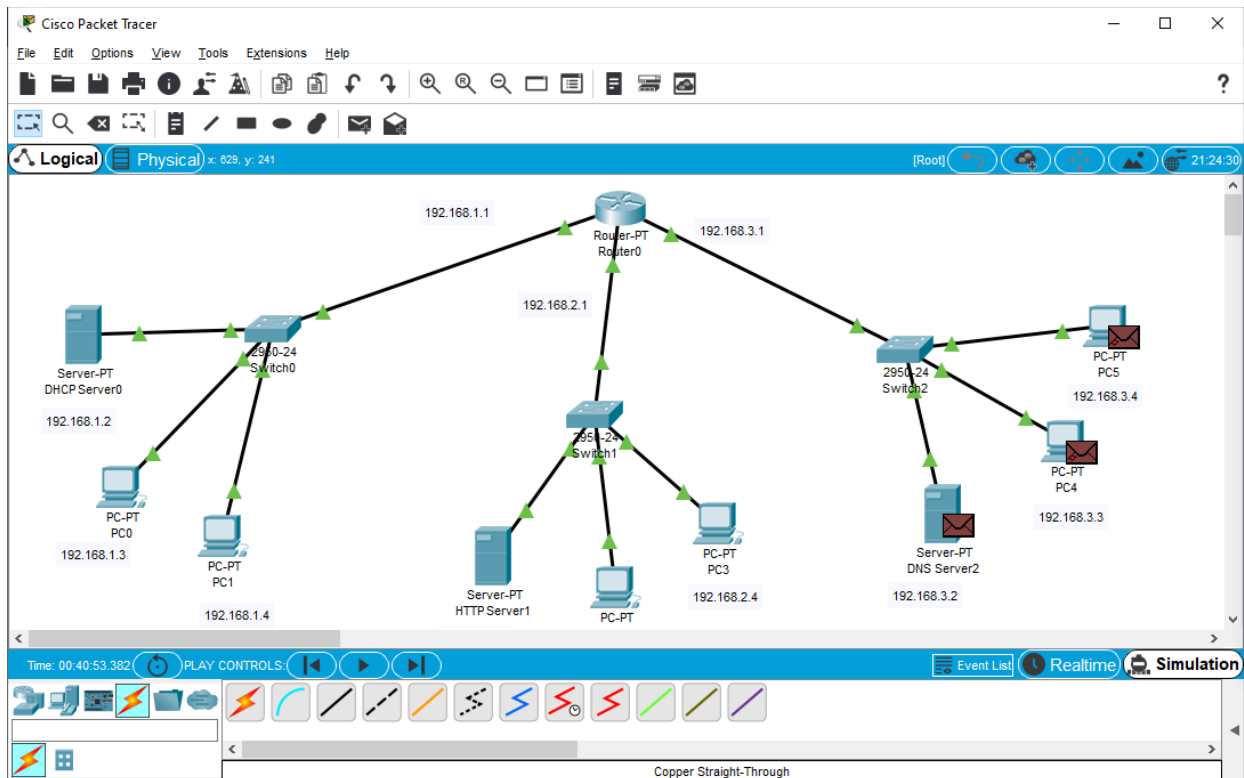
Time: 00:25:49 Realtime Simulation

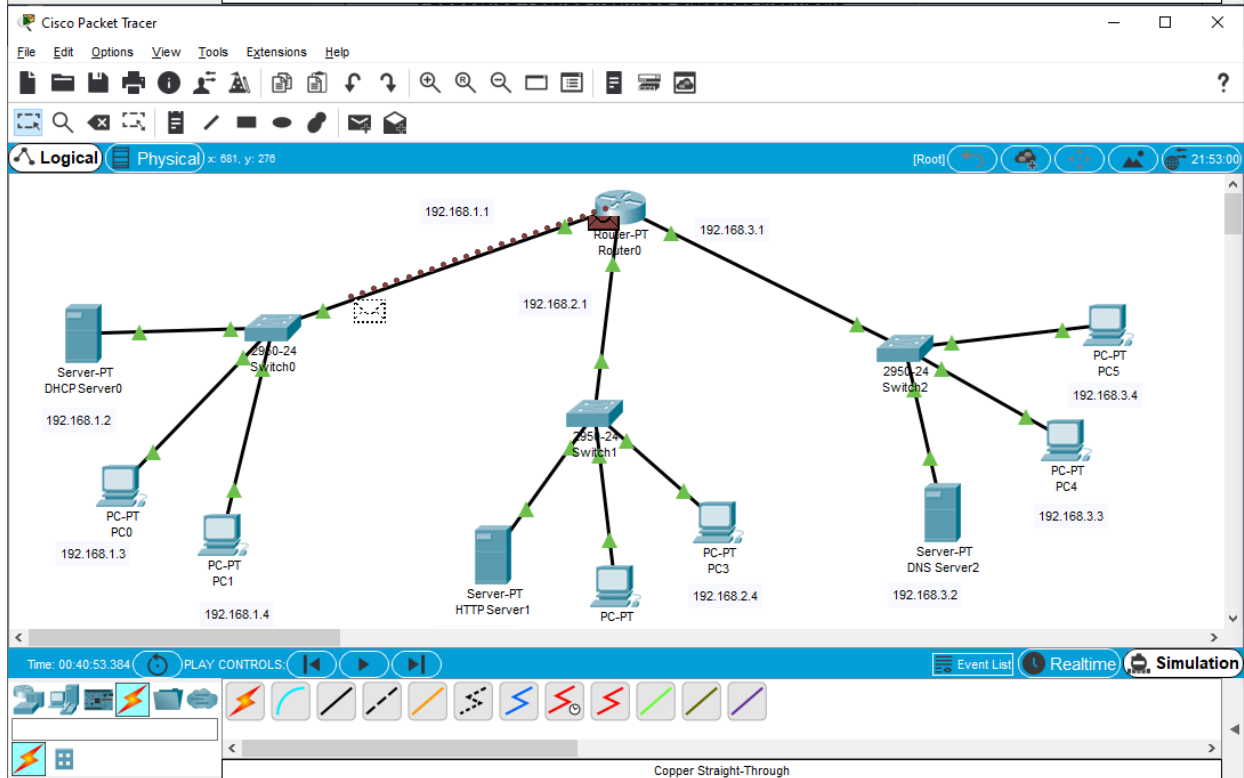
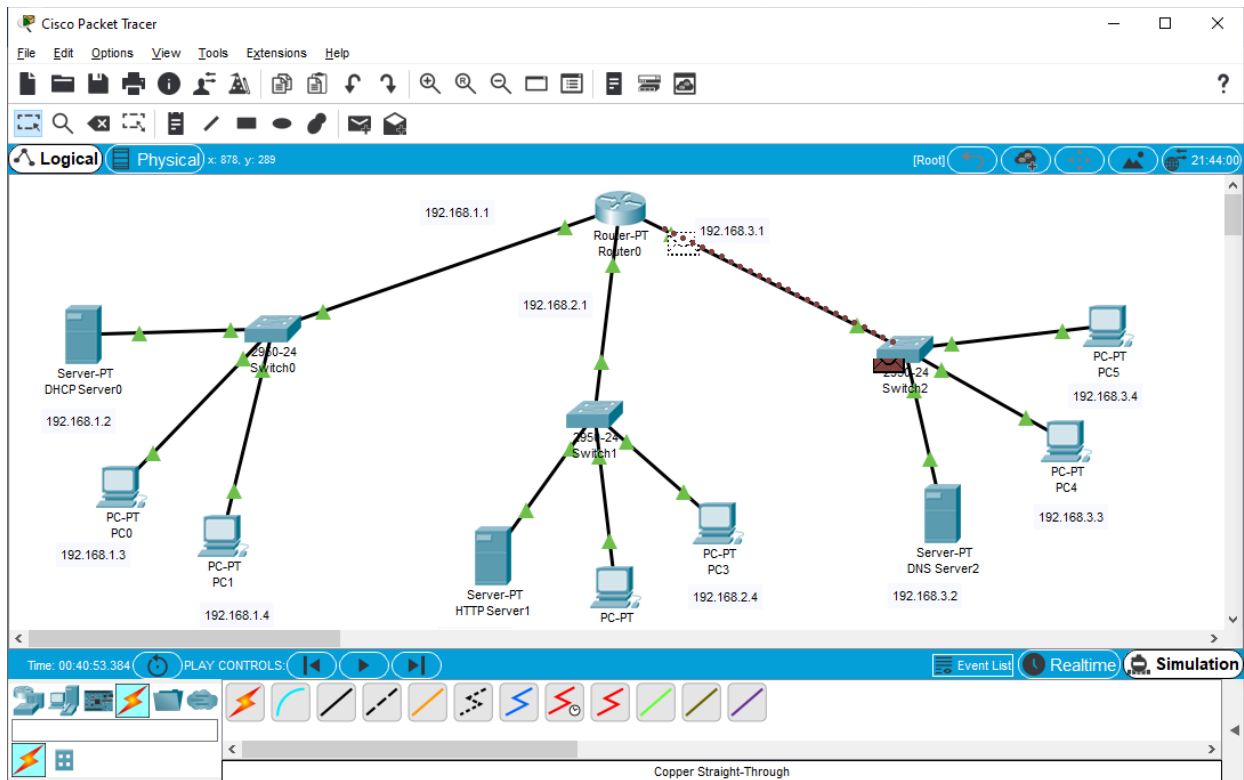
Copper Straight-Through

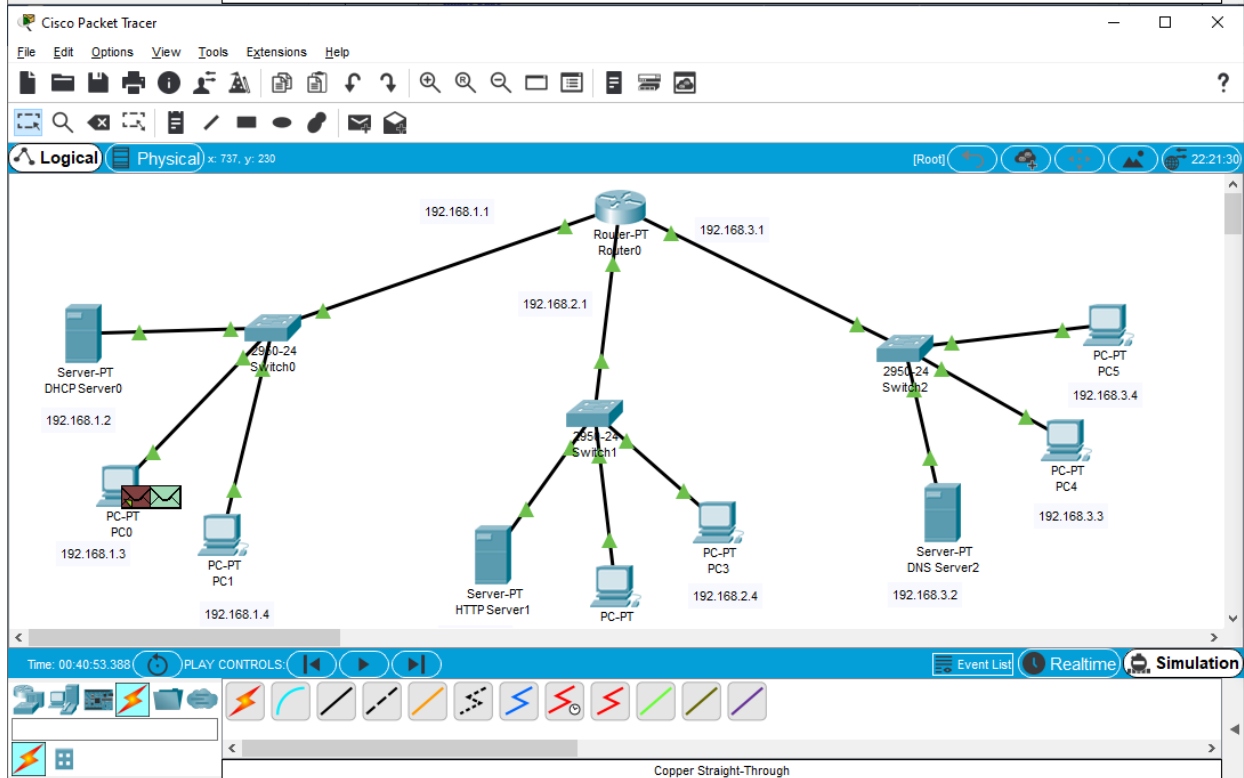
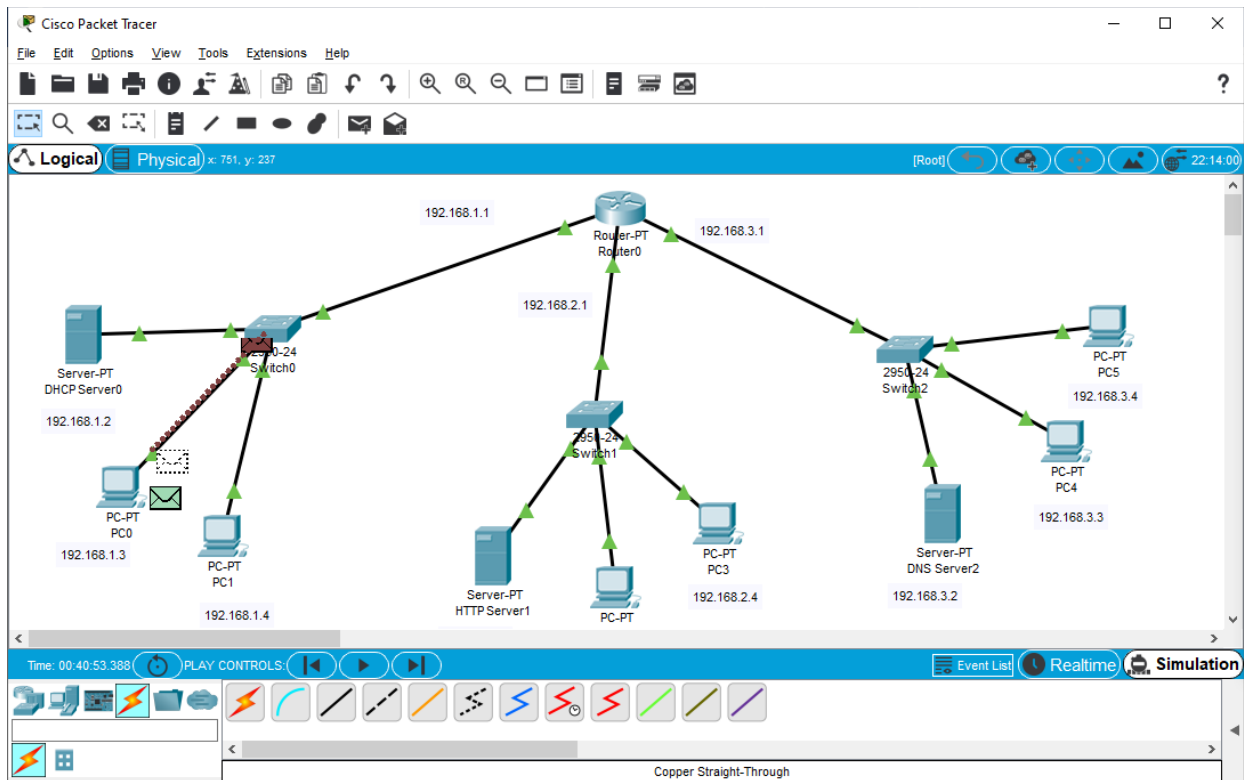
## Packet Simulation

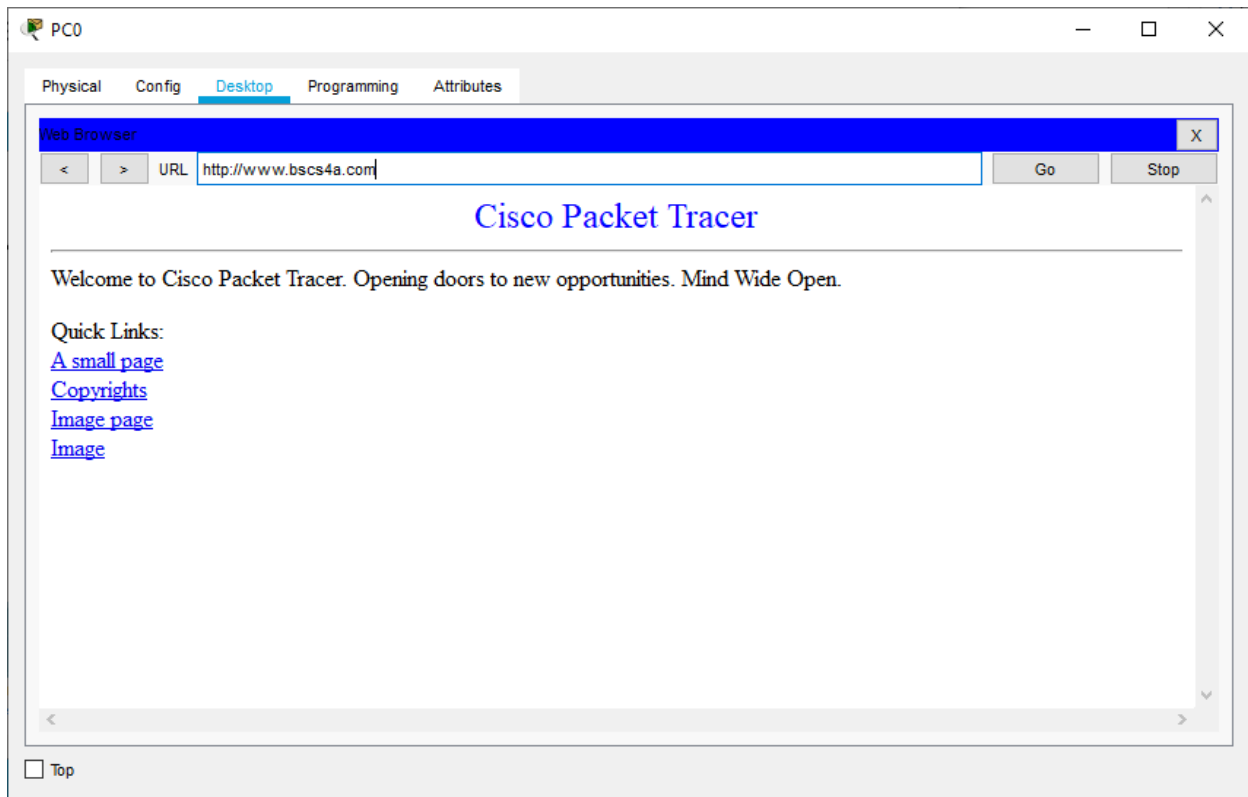
## Opening the website through Packet simulation from PC0





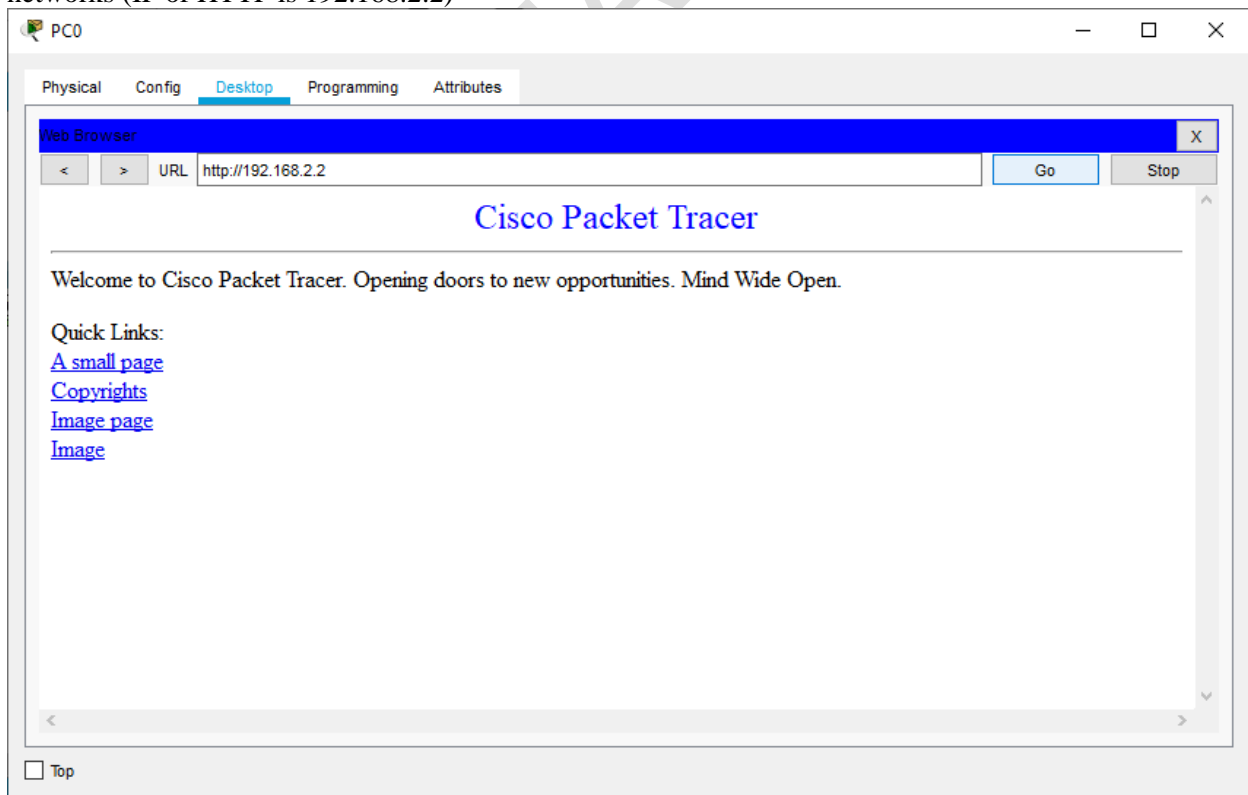




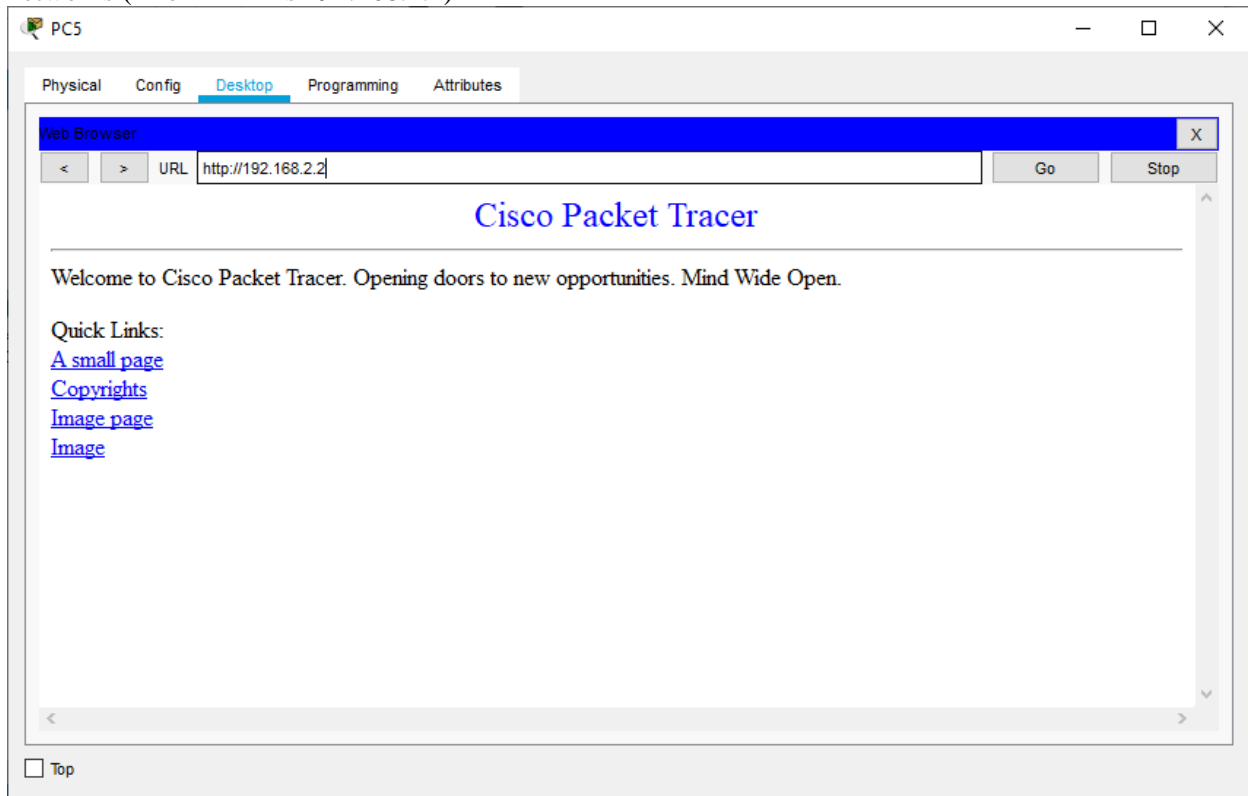


## Connection Testing Between different Networks

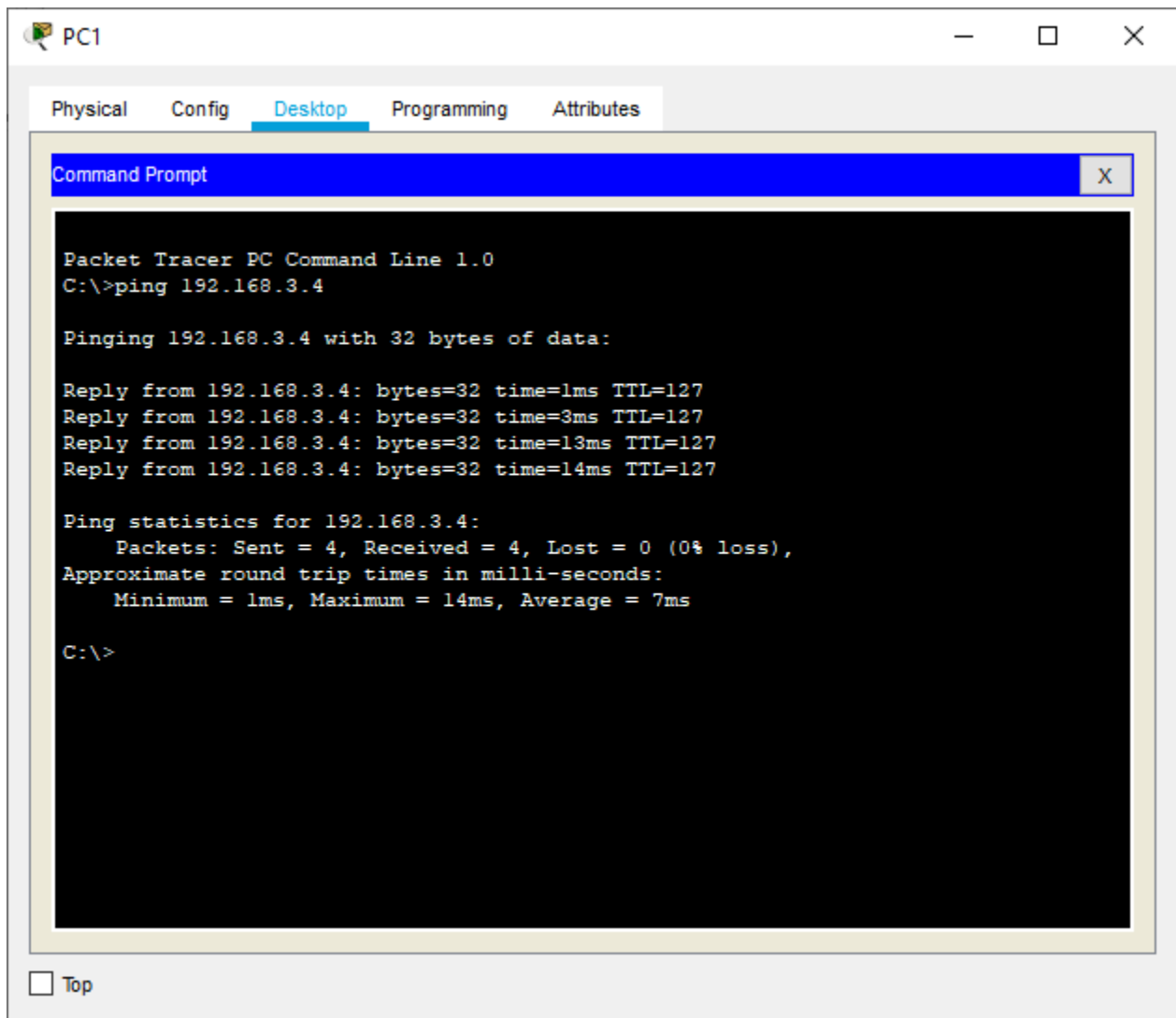
Testing the connection from PC0 to HTTP server through Web Browser because both belong to different networks (IP of HTTP is 192.168.2.2)



Testing the connection from PC5 to HTTP server through Web Browser because both belong to different networks (IP of HTTP is 192.168.2.2)



Connection testing from PC1 to PC5



## IP Assignment using DHCP Server

First go to DHCP server ☐ Services ☐ DHCP ☐

Service ON

Default Gateway: 192.168.1.1

DNS Server: 192.168.3.2

Start IP Address 192.168.1.3

Maximum Users: 255



**DHCP Server0**

Physical Config **Services** Desktop Programming Attributes

**SERVICES**  
 HTTP  
**DHCP**  
 DHCPv6  
 TFTP  
 DNS  
 SYSLOG  
 AAA  
 NTP  
 EMAIL  
 FTP  
 IoT  
 VM Management  
 Radius EAP

**DHCP**

Interface: **FastEthernet0** Service: ☒ On ☐ Off

Pool Name: **serverPool**

Default Gateway: **192.168.1.1**

DNS Server: **192.168.3.2**

Start IP Address: **192** **168** **1** **3**

Subnet Mask: **255** **255** **255** **0**

Maximum Number of Users: **253**

TFTP Server: **0.0.0.0**

WLC Address: **0.0.0.0**

**Add** **Save** **Remove**

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.1.1	192.168.3.2	192.168.1.3	255.255.255.0	253	0.0.0.0	0.0.0.0

☐ Top

Now automatically assigning IP to PC0 and PC1

**PC0**

Physical Config **Desktop** Programming Attributes

☒ **DHCP** ☐ Static **DHCP request successful.**

IP Address: **192.168.1.3**

Subnet Mask: **255.255.255.0**

Default Gateway: **192.168.1.1**

DNS Server: **192.168.3.2**

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: **/**

Link Local Address: **FE80::20A:41FF:FEE1:B7C3**

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: **MD5**

Username:

Password:

☐ Top

PC1

Physical Config **Desktop** Programming Attributes

☒ DHCP ☐ Static DHCP request successful.

IP Address 192.168.1.4

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 192.168.3.2

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::200:CFF:FE4C:A27E

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

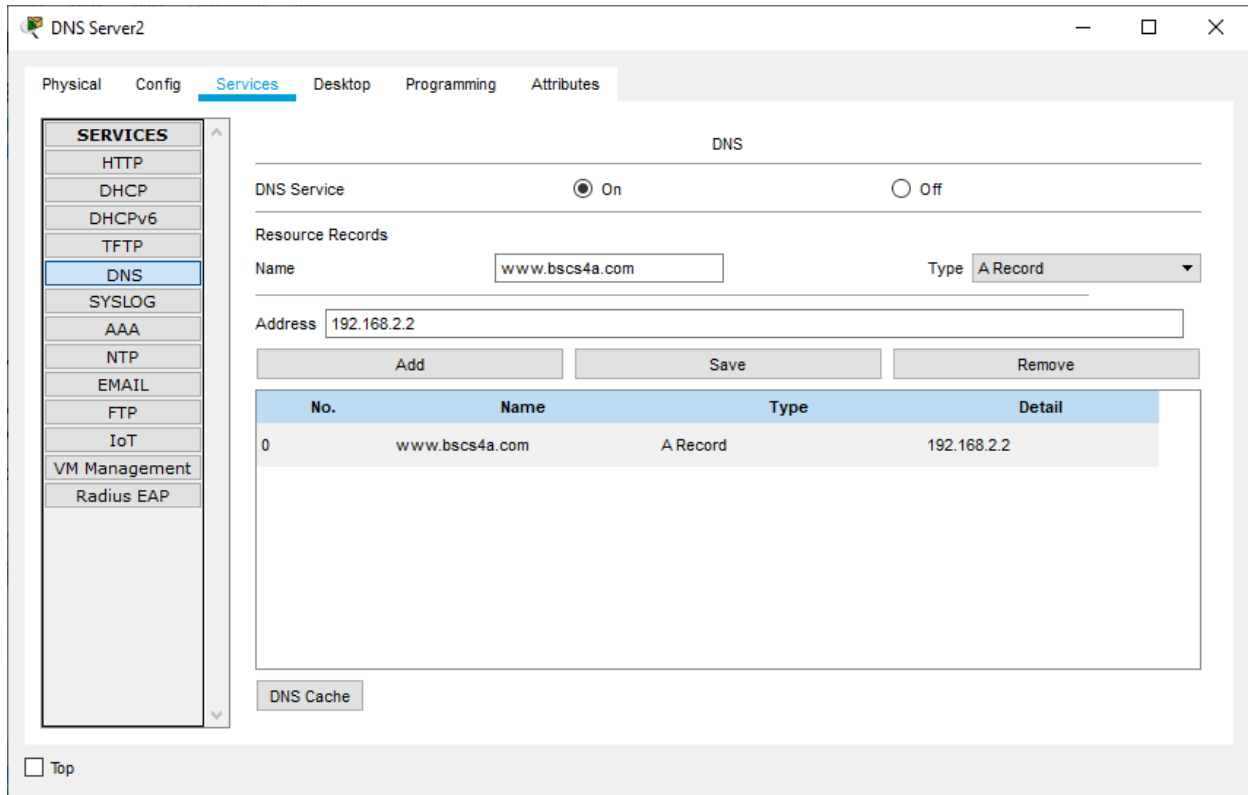
**Observe the conversion of a URL to an IP address.**

Creating a website and register it in DNS

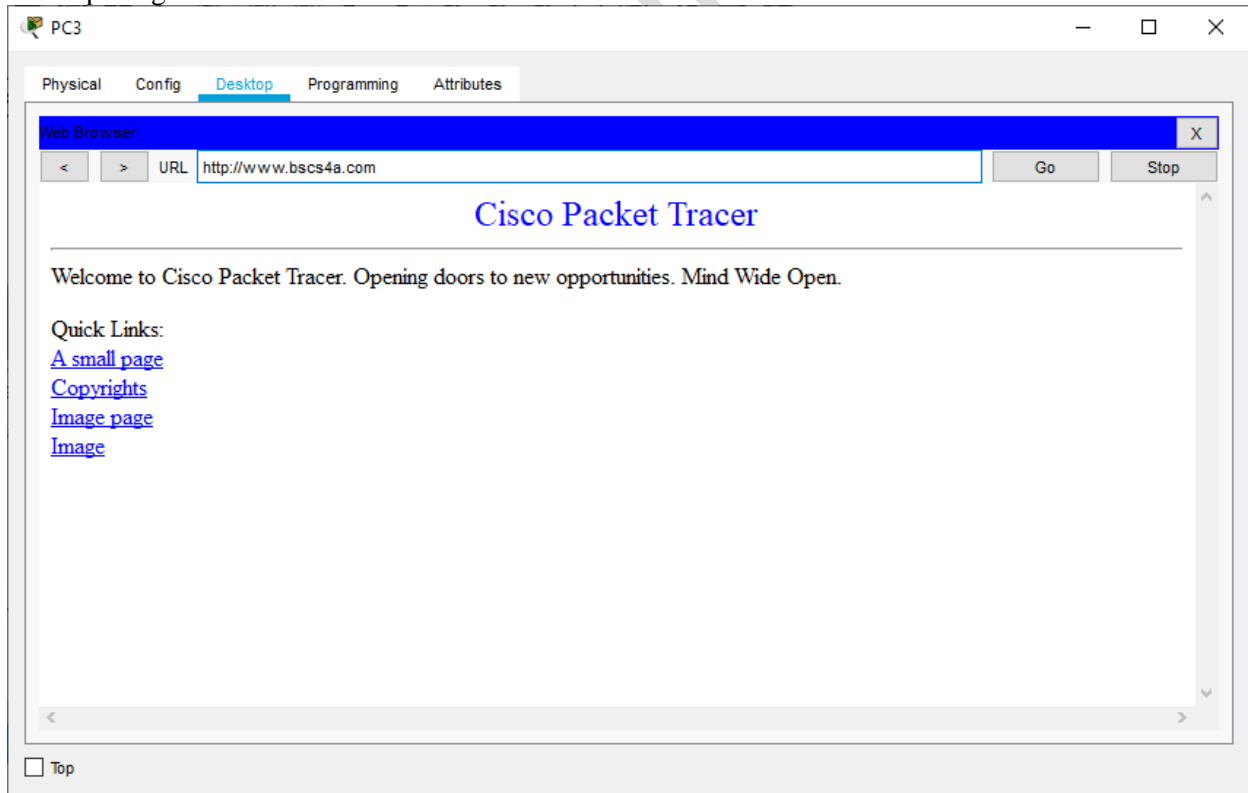
Server Services ☐ DNS

Domain Name: [www.bsca4a.com](http://www.bsca4a.com)

IP address: 192.168.2.2



Now opening the website from PC3:



**Observe DNS lookup using the nslookup command**

