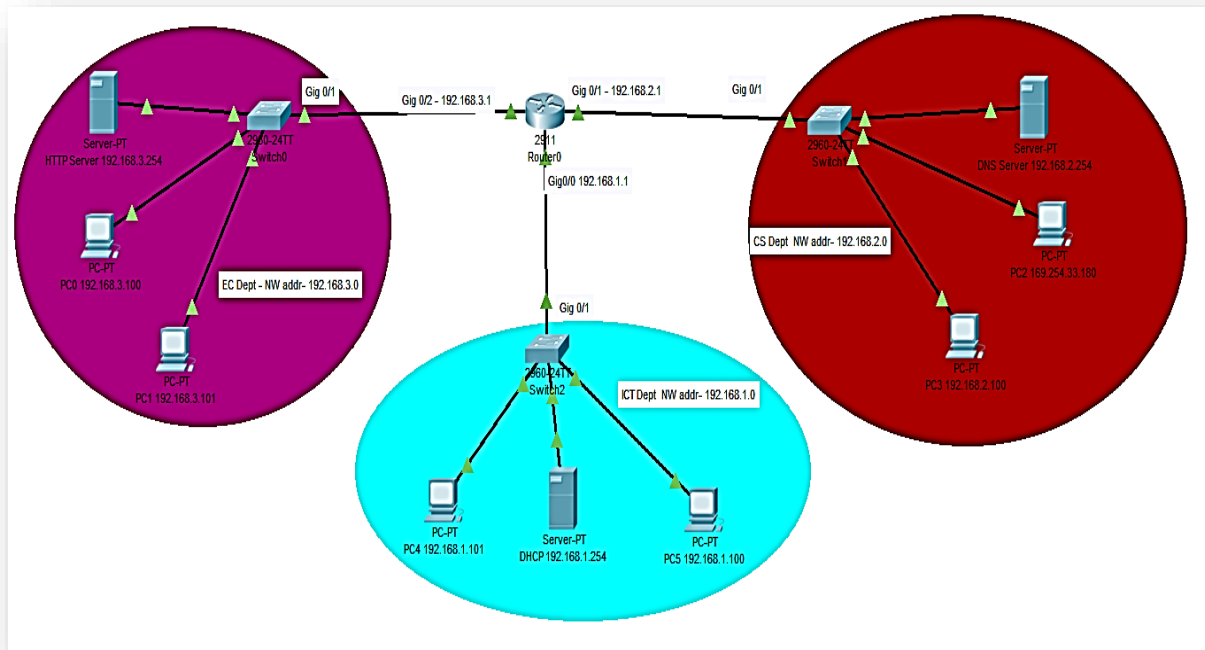
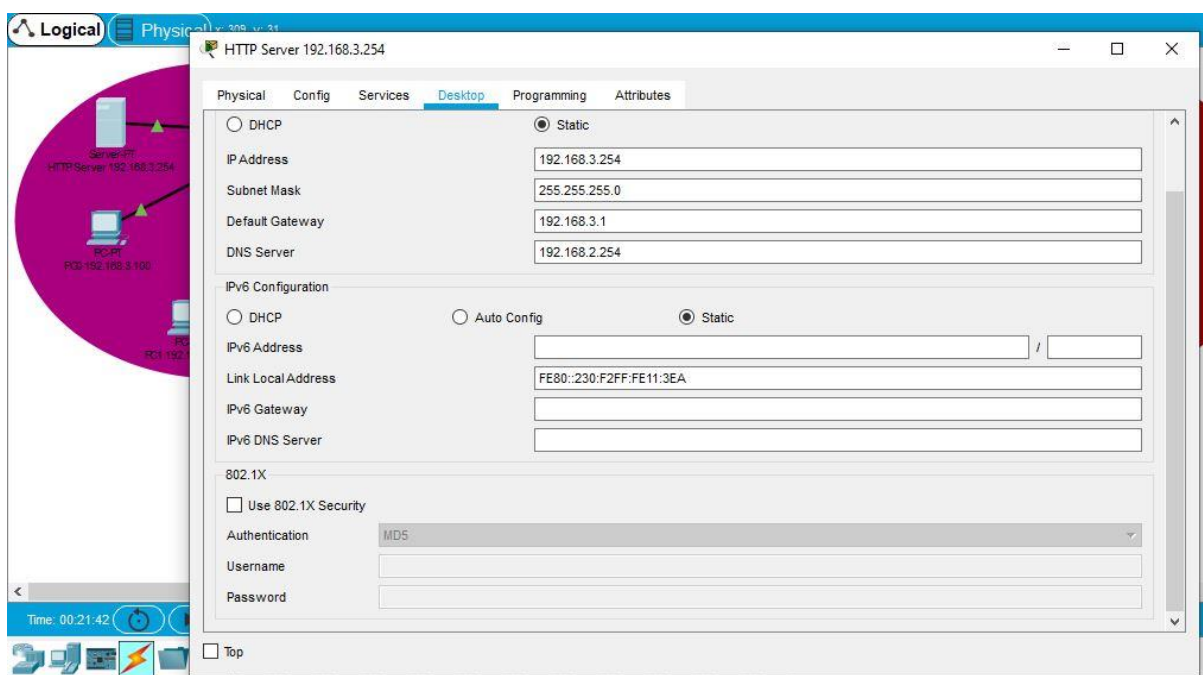


Scenario 12: A collage comprises of three branches (EC, CS, ICT) having their own local Area Network connected by a router. EC Department having a Web Server hosting the college website, CS Department is having a DNS Server used to resolve the URL to IP address and ICT Department is having a DHCP Server perform automatic IP address assignment from the configured pool of IP address.



- Note: Allocate the specified IP addresses to DHCP, DNS, Web serves as shown in the diagram below



DHCP 192.168.1.254

Physical Config Services **Desktop** Programming Attributes

☐ DHCP ☒ Static

IP Address 192.168.1.254

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 192.168.2.254

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::260:70FF:FE9D:3B37

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

DNS Server 192.168.2.254

Physical Config Services **Desktop** Programming Attributes

☐ DHCP ☒ Static

IP Address 192.168.2.254

Subnet Mask 255.255.255.0

Default Gateway 192.168.2.1

DNS Server 192.168.2.254

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::20C:85FF:FEB5:62E9

IPv6 Gateway

IPv6 DNS Server

802.1X


☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top



- Do the following configuration on router.

The screenshot shows the configuration page for Router0, specifically for the GigabitEthernet0/0 interface. The left sidebar contains a tree view with categories: GLOBAL, ROUTING, SWITCHING, and INTERFACE. Under INTERFACE, GigabitEthernet0/0 is selected. The main area displays the configuration for this interface, including Port Status (On), Bandwidth (1000 Mbps), Duplex (Full Duplex), MAC Address (0050.0F0A.A801), IP Configuration (IP Address: 192.168.1.1, Subnet Mask: 255.255.255.0), and Tx Ring Limit (10). Below the configuration fields, there is a section for Equivalent IOS Commands.

```

R1(config)#interface GigabitEthernet0/1
R1(config-if)#
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/2
R1(config-if)#
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/0
R1(config-if)#
  
```

Top

- Enabling DHCP Service on DHCP server to allocate IP address to systems on different network for an organization

The screenshot shows the DHCP configuration page for the DHCP server at 192.168.1.254. The left sidebar contains a tree view with categories: SERVICES, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, and Radius EAP. Under SERVICES, DHCP is selected. The main area displays the DHCP service settings, including Interface (FastEthernet0), Service (On), Pool Name (serverPool), Default Gateway (192.168.1.1), DNS Server (192.168.2.254), Start IP Address (192.168.1.100), Subnet Mask (255.255.255.0), Maximum Number of Users (100), TFTP Server (0.0.0.0), and WLC Address (0.0.0.0). Below the settings, there is a table showing the list of DHCP pools.

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
network3	192.168.3.1	192.168.2.254	192.168.3.100	255.255.255.0	100	0.0.0.0	0.0.0.0
network2	192.168.2.1	192.168.2.254	192.168.2.100	255.255.255.0	100	0.0.0.0	0.0.0.0
serverPool	192.168.1.1	192.168.2.254	192.168.1.100	255.255.255.0	100	0.0.0.0	0.0.0.0

Top

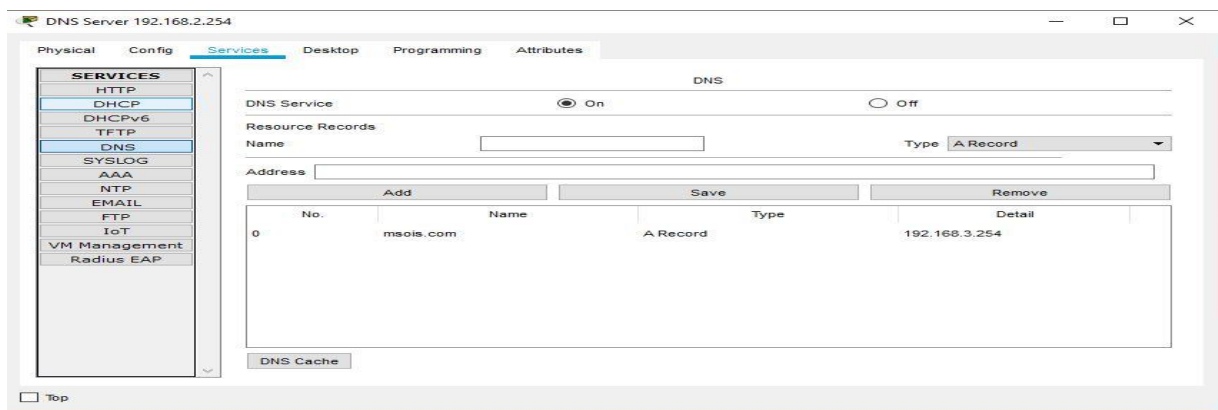
Go to Router CLI and do the Following:

- Router DHCP port forwarding (helper)

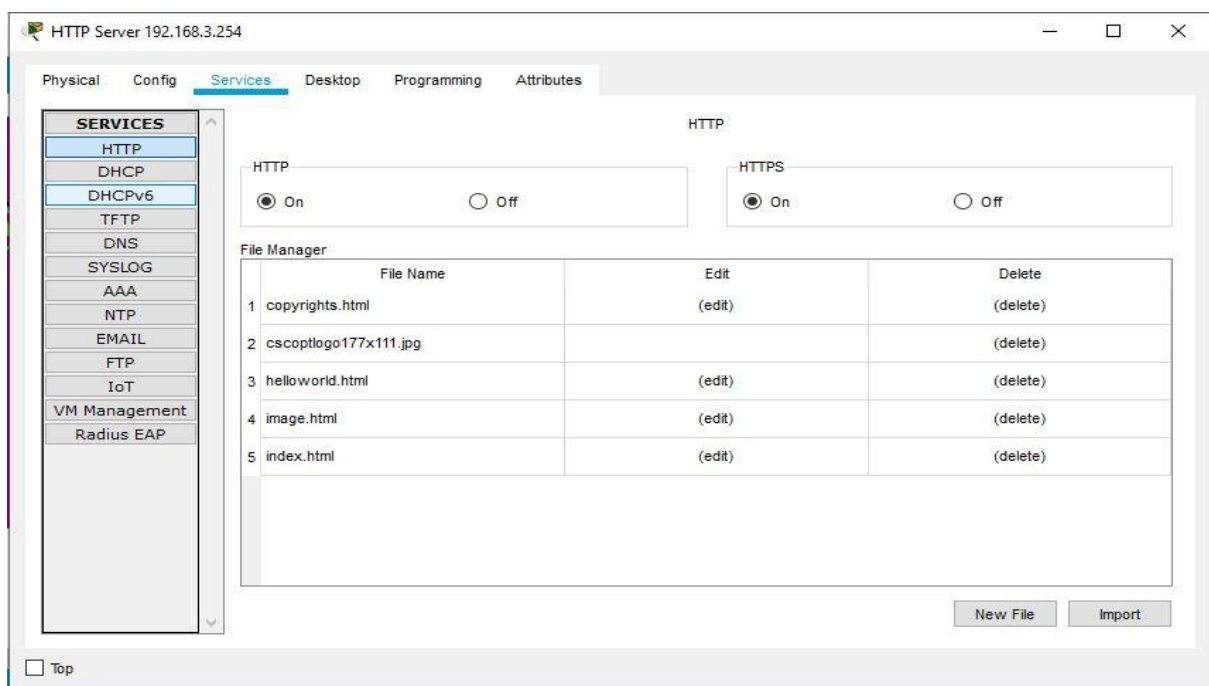
```
en
conf t
interface gigabitEthernet 0/1
ip helper-address 192.168.1.254
exit
```

```
interface gigabitEthernet 0/2
ip helper-address 192.168.1.254
exit
```

Enabling DNS Service on DNS server to resolve the domain name of web/HTTP server.



Enabling HTTP/HTTPS Service on Web server to deliver web pages to end user



To illustrate working of DHCP server do the following on any PC:

The screenshot shows the configuration window for PC2 (IP: 169.254.33.180) in Cisco Packet Tracer. The 'Desktop' tab is selected, displaying the following settings:

- IP Configuration:** ☒ DHCP, ☐ Static. Fields: IP Address (192.168.2.101), Subnet Mask (255.255.255.0), Default Gateway (192.168.2.1), DNS Server (192.168.2.254).
- IPv6 Configuration:** ☐ DHCP, ☐ Auto Config, ☒ Static. Fields: IPv6 Address (empty), Link Local Address (FE80::290:2BFF:FE4B:21B4), IPv6 Gateway (empty), IPv6 DNS Server (empty).
- 802.1X:** ☐ Use 802.1X Security. Authentication: MD5. Username: (empty), Password: (empty).

A 'Top' button is located at the bottom left of the configuration window.

Now IP should be allocated with the configured IP Pool.

To illustrate working of DNS server do the following on any PC:

The screenshot shows the same PC2 configuration window, but the 'Desktop' tab now displays a web browser window. The browser's address bar shows 'http://msois.com'. The page content includes:

- Cisco Packet Tracer**
- Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
- Quick Links:**
 - [A small page](#)
 - [Copyrights](#)
 - [Image page](#)
 - [Image](#)

A 'Top' button is located at the bottom left of the configuration window.