

LAB 7: Consider a network topology and IP address assignment of your choice and illustrate concept of HTTP, DNS & DHCP server setup in Packet Tracer.

Objective: To configure and understand the HTTP, DNS and DHCP service using Packet Tracer

Device used

S.N.	Device	Model	Quantity
1	PC	PC	4
2	Switch	2960 IOS15	2
3	Router	ISR4331	1
4	Cable	Straight through	9
5	Server	PT-Server	3

Background

HTTP:

HTTP (HyperText Transfer Protocol) is the protocol used to transfer hypertext between two computers. It provides a standard between a web browser and a web server to establish communication.

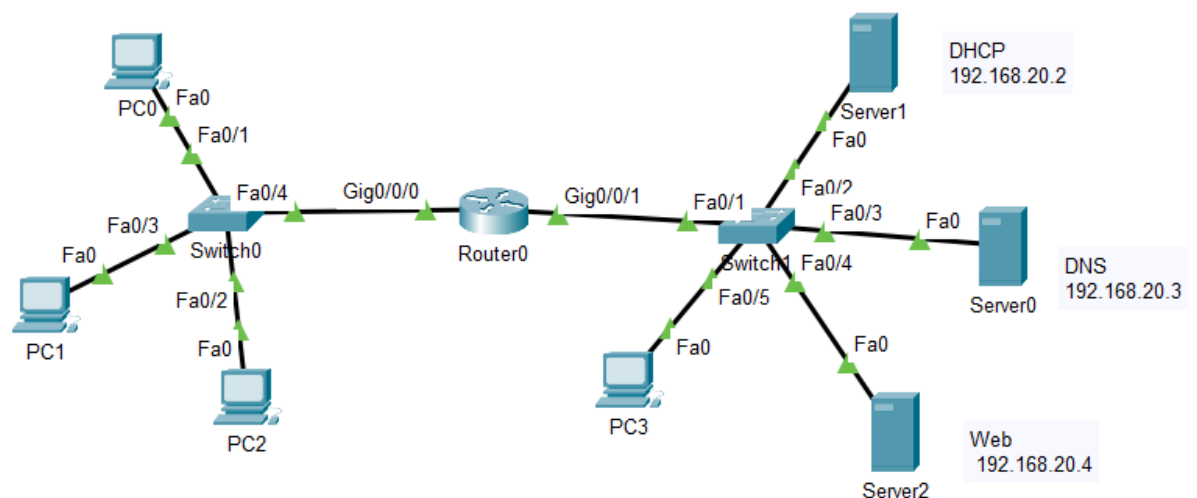
DNS:

The domain name system (DNS) is a naming database in which internet domain names are located and translated into Internet Protocol (IP) addresses.

DHCP:

DHCP (Dynamic Host Configuration Protocol) is a network management protocol used to dynamically assign an Internet Protocol (IP) address to any device, or node, on a network so they can communicate using IP.

Topology



IP Address Plan

Device	Interface	IP	Subnet Mask	DNS Server	Default gateway
Router 0	gig 0/0/0	192.168.10.1	255.255.255.0	Default	-
Router 0	Gig 0/0/0	192.168.20.1	255.255.255.0	Default	-
Server 0	NIC	192.168.20.3	255.255.255.0	192.168.20.3	192.168.20.1
Server 1	NIC	192.168.20.2	255.255.255.0	192.168.20.3	192.168.20.1
Server 2	NIC	192.168.20.4	255.255.255.0	192.168.20.3	192.168.20.1
All PC will get the IP address from DHCP server dynamically.					

Procedure

1. Switches are joined with a router
2. 3 PCs are joined with a switch
3. 3 servers and a PC is joined with another server
4. Assign the IP address to each server as shown in IP table.
5. Set up the DHCP Server as shown below

The screenshot shows the configuration window for 'Server0' with the 'Services' tab selected. The 'DHCP' service is enabled. The configuration details are as follows:

- Interface:** FastEthernet0
- Service:** On
- Pool Name:** serverPool
- Default Gateway:** 0.0.0.0
- DNS Server:** 0.0.0.0
- Start IP Address:** 192.168.20.0
- Subnet Mask:** 255.255.255.0
- Maximum Number of Users:** 512
- TFTP Server:** 0.0.0.0
- WLC Address:** 0.0.0.0

Below the configuration fields is a table showing the DHCP pool configuration:

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	192.168.2...	255.255.2...	512	0.0.0.0	0.0.0.0

At the bottom left, there is a 'Top' button.

6. Set up the DNS Server as shown below

The screenshot shows the 'Server1' configuration window with the 'Services' tab selected. The 'DHCP' service is configured for the 'FastEthernet0' interface. The 'Service' is turned 'On'. The 'Pool Name' is 'serverPool'. The 'Default Gateway' is '192.168.20.1' and the 'DNS Server' is '192.168.20.3'. The 'Start IP Address' is '192.168.20.5' and the 'Subnet Mask' is '255.255.255.0'. The 'Maximum Number of Users' is '50'. The 'TFTP Server' and 'WLC Address' are both '0.0.0.0'. Below the configuration fields is a table listing the DHCP pools.

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool1	192.168.1...	192.168.2...	192.168.1...	255.255.2...	50	0.0.0.0	0.0.0.0
serverPool	192.168.2...	192.168.2...	192.168.2...	255.255.2...	50	0.0.0.0	0.0.0.0

7. Set up the WEB Server as shown below

The screenshot shows the 'Server2' configuration window with the 'Services' tab selected. The 'HTTP' service is configured. The 'HTTP' service is turned 'On' and the 'HTTPS' service is also turned 'On'. Below the service status is a 'File Manager' table listing files and their actions.

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)
6	kafleaz.html	(edit)	(delete)

8. Setup the router interface as:

```
Router>enable
```

```
Router#configure terminal
```

```
Router(config)#interface GigabitEthernet0/0/0
```

```
Router(config-if)#ip address 192.168.10.1 255.255.255.0
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#exit
```

```
Router(config)#interface GigabitEthernet0/0/1
```

```
Router(config-if)#ip address 192.168.20.1 255.255.255.0
```

```
Router(config-if)#no shutdown
```

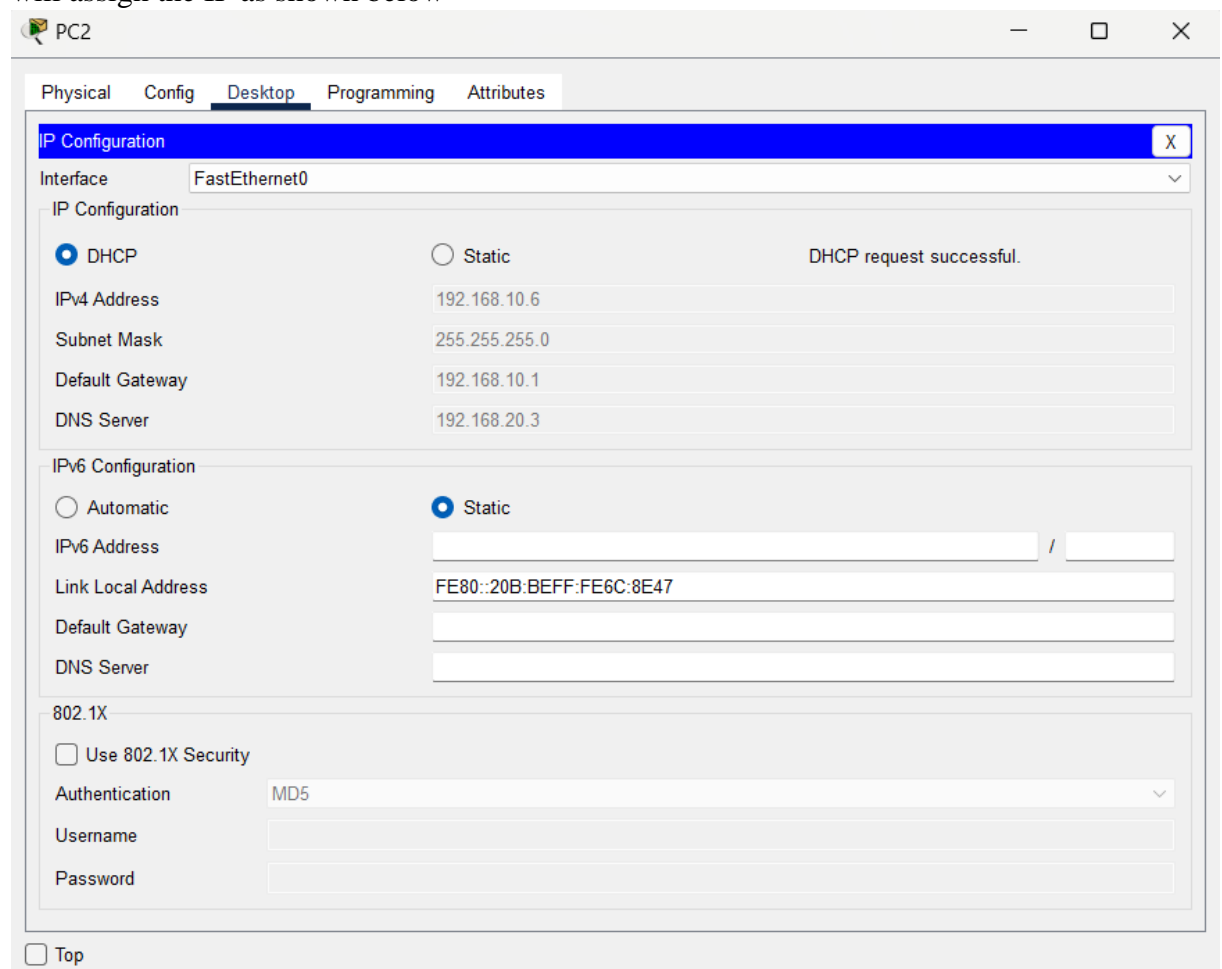
```
Router(config-if)#exit
```

To forward broadcast message to DHCP server:

```
Router(config)#interface gig 0/0/0
```

```
Router(config-if)#ip helper-address 192.168.20.2
```

9. Get the IP in each PC by selecting DHCP Option as: click on PC-> click on desktop tab and then select the DHCP then DHCP request sent to the DHCP server and server will assign the IP as shown below



PC2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.10.6

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 192.168.20.3

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::20B:BEFF:FE6C:8E47

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

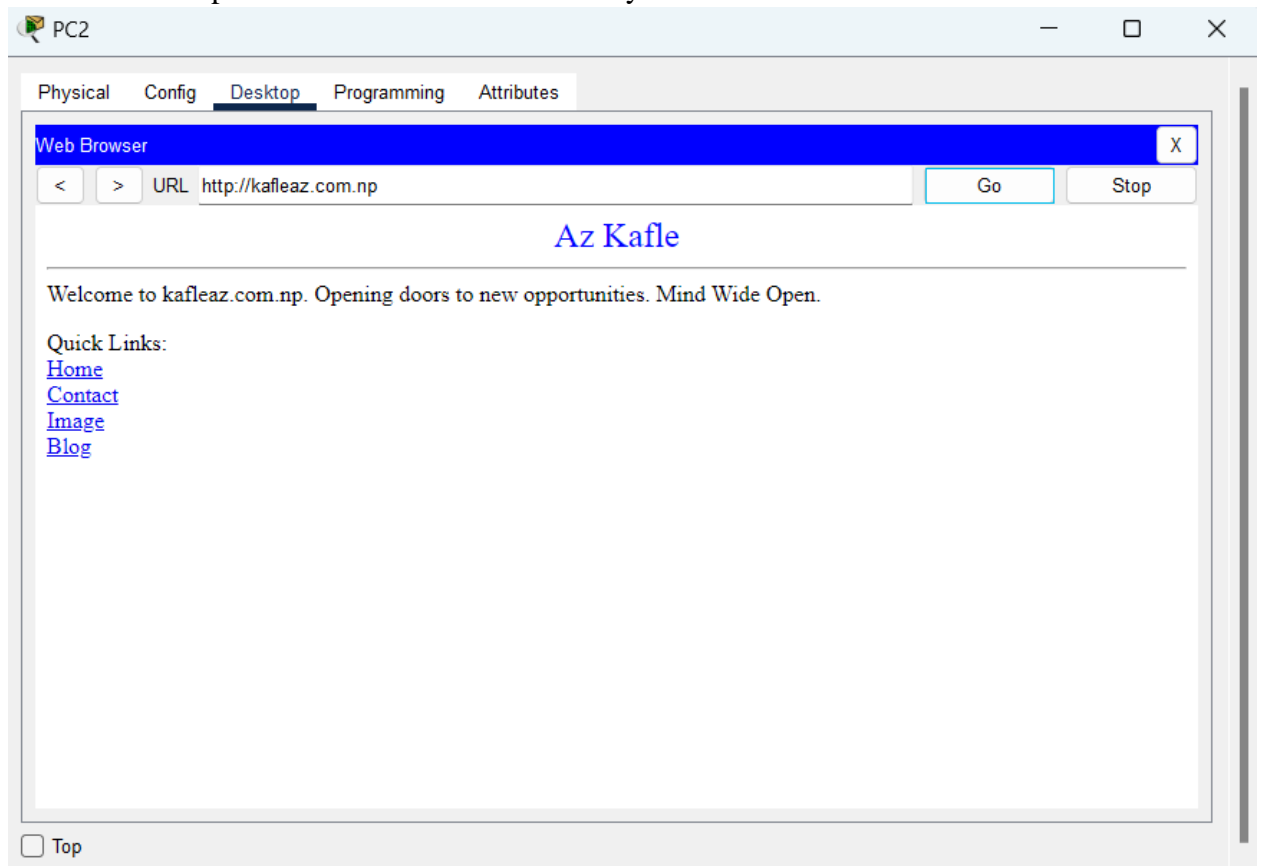
Username

Password

☐ Top

Verification

Click in any one PC select desktop tab select web browser and then enter tek.com.np then you will get the following response from the Web server after resolving domain name tek.com.np into IP address 192.168.20.4 by the DNS server



Conclusion

In this way we can setup DHCP, DNS and Web server in our network and these services works in close association as shown in this experiment.