CONFIGARATION OF DNS SERVER USING DHCP IP ADDRESS AND WEB SERVER

INTRODUCTION :

In this assignment we are configuring a DNS using multiple routers and a HTPP (web server) server. Here we assign DHCP IP address. Each router has minimum one switch also under each switch has more than one node (pc, laptop, printer, etc.).

❖ DNS (DOMAIN NAME SYSTEM) :

The Domain Name System(DNS) is a hierarchical and decentralized naming system for computers, services, or other resources connected to the internet or a private network. It associates various information with domain names assigned to each of the participating entities.

❖ HOW DNS WORKS :

The process of DNS resolution involves converting a hostname (such as www.medicare.com) into a computer friendly IP address (such as 192.168.40.10) . An IP address is given to each device on the internet, and that address is necessary to find the appropriate internet device – like a street address is used to find a particular home. When a user wants to load a webpage, a translation must occur between what a user types into their web browser (www.medicare.com) and the machine – friendly address necessary to locate the www.medicare.com webpage.

Here we assign DHCP IP address…

❖ DHCP IP ADDRESS : (DYNAMIC HOST CONFIGARATION PROTOCOL)

A DHCP server dynamically assigns an IP address and other network configuration parameters to each device on a network so they can communicate with other IP networks. DHCP is an enhancement of an older protocol called BOOTP. DHCP is an important part of the DDI solution (DNS - DHCP – IPAM). It relies on the standard protocol known as Dynamic Host Configuration Protocol or DHCP to respond to broadcast queries by clients.

REQUIRMENTS :

I. TWO 2811 ROUTER.

II. FIVE 2950-24 SWITCH.
III. FOUR SERVERS.
IV. FIVE PCs.
V. FOUR LAPTOPs.
VI. TWO PRINTERs.

- *2811 ROUTER :* The Cisco 2811 router is a multiple – chip standalone cryptographic module. The router has a processing speed of 350MHz. Depending on configuration, either the internal NetGX chip or the IOS software is used for cryptographic operations. The cryptographic boundary of the module is the device's case.

  It has –
  - One enhanced network module slot.
  - Two integrated 10/100 Fast Ethernet ports.

  -etc.

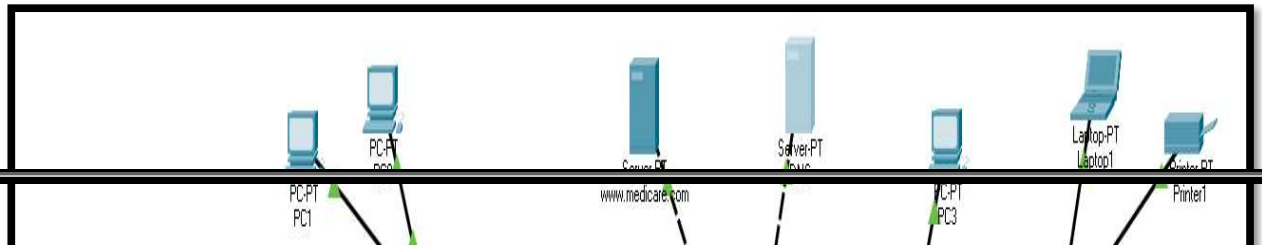
  Hare in this practical we add two serial port (WIC – 1T) in this router.

- *2950 – 24 SWITCH :* The Cisco Catalyist 2950 Series, are standalone, fixed-configuration, managed 10/100 Mbps switches providing basic workgroup connectivity for small to midsize networks.

  It has –
  - 24 10/100 Mbps fast Ethernet ports(first 4 are up link and remaining are down link).

- *SERVER :* A server is a device that serves information to other device. These devices , called clients, can connect to a server through either a local area network or a wide area network, such as the internet.

NETWORK DIAGRAM :



DNS server using DHCP IP address

Hare in this diagram two 2811 router are used, and each router connected with a switch(2950-24) via Copper Straight cable. Each switch connected three nodes via Copper Straight cable. Two routers are connected each other via serial DCE cable. In router-1 two servers are connected via copper cross-over cable, one is DNS server and another one is HTPP web server. All IP address are generated DHCP configuration through two (DHCP and DHCP-2) servers.

The servers host web pages. A web server is responsible for making the World Wide Web(WWW) possible. Each website has one or more web servers. There clients are computers with a web browser.

CONFIGARATION OF NETWORKS :

UNDER SWITCH – 0 :

NAME OF THE NODE	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY	DNS SERVER
PC-0	192.168.10.3	255.255.255.0	192.168.10.1	192.168.30.10
PC-1	192.168.10.4	255.255.255.0	192.168.10.1	192.168.30.10
DHCP SERVER	192.168.10.10	255.255.255.0	192.168.10.1	192.168.30.10

Here Switch-0 and Switch-3 are connected through copper cross-over cable.

UNDER SWITCH – 3 :

NAME OF THE NODE	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY	DNS SERVER
LAPTOP-0	192.168.10.7	255.255.255.0	192.168.10.1	192.168.30.10
PC-2	192.168.10.5	255.255.255.0	192.168.10.1	192.168.30.10
PRINTER-0	192.168.10.6	255.255.255.0	192.168.10.1	192.168.30.10

UNDER SWITCH – 2 :

NAME OF THE NODE	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY	DNS SERVER
PC-3	192.168.20.4	255.255.255.0	192.168.20.1	192.168.30.10
DHCP SERVER-2	192.168.20.10	255.255.255.0	192.168.20.1	192.168.30.10

Here Switch-2 connected on Switch-4 and Switch-5 through copper cross-over cable.

UNDER SWITCH – 4 :

NAME OF THE NODE	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY	DNS SERVER
LAPTOP-1	192.168.20.5	255.255.255.0	192.168.20.1	192.168.30.10
Printer-1	192.168.20.7	255.255.255.0	192.168.20.1	192.168.30.10
Pc-4	192.168.20.9	255.255.255.0	192.168.20.1	192.168.30.10

UNDER SWITCH – 5 :

NAME OF THE NODE	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY	DNS SERVER
LAPTOP-3	192.168.20.6	255.255.255.0	192.168.20.1	192.168.30.10
Pc-5	192.168.20.3	255.255.255.0	192.168.20.1	192.168.30.10
LAPTOP-4	192.168.20.8	255.255.255.0	192.168.20.1	192.168.30.10

ROUTER – 0 :

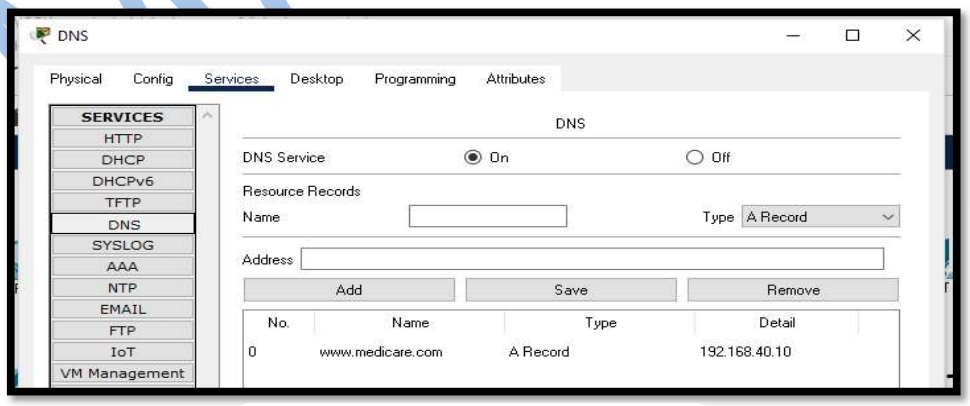
NAME OF THE PORT	IP ADDRESS	SUBNET MASK
FAST ETHERNET 0/0	192.168.10.1	255.255.255.0
SERIAL 0/0/0	10.0.0.1	255.255.255.0

ROUTER – 1 :

Here in this router (router-1) we connect one DNS server and one web(HTTPS) server. These two servers are connected in router-1 through copper cross-over cable. Also it connect one switch through copper straight cable.

DNS SERVER CONFIGARATION :

SERVER NAME	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY
DNS SERVER	192.168.30.10	255.255.255.0	192.168.20.1



DNS SERVER

Here add a hostname www.medicare.com , address is 192.168.20.10. Then ON the DNS service.

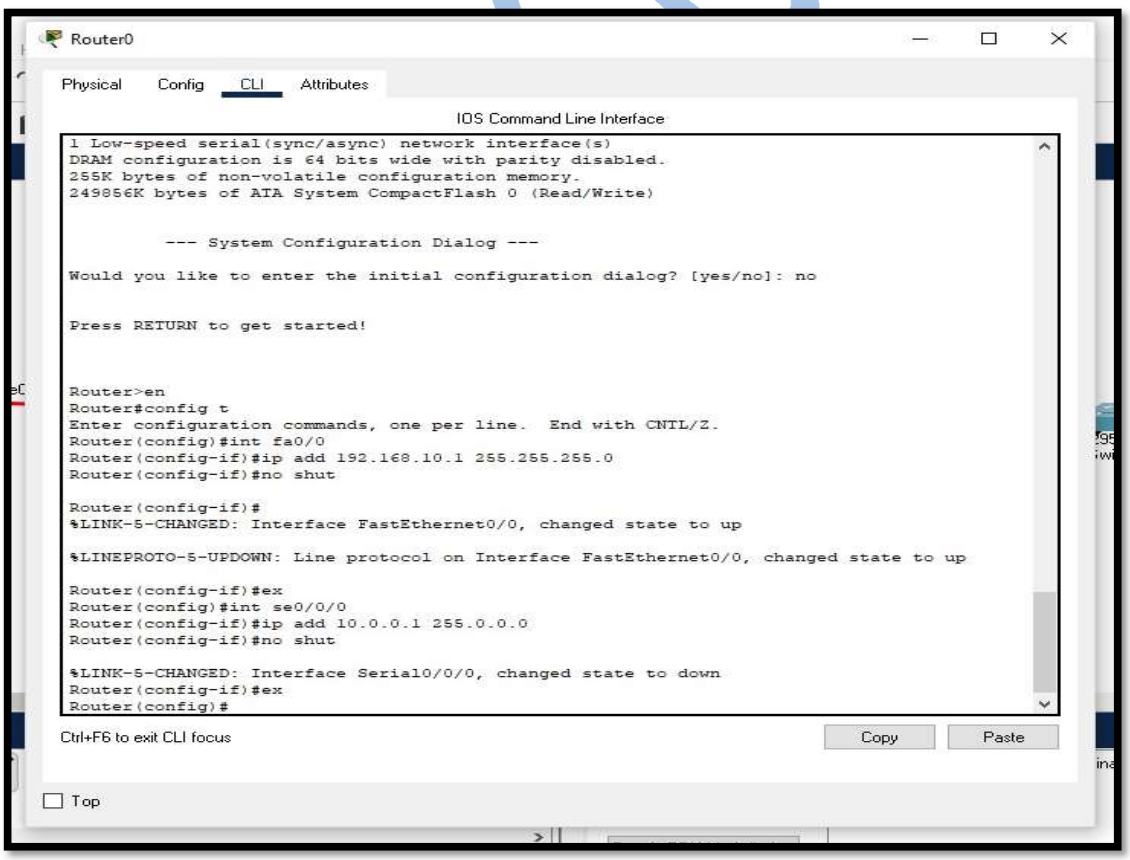
WEB SERVER CONFIGARATION :

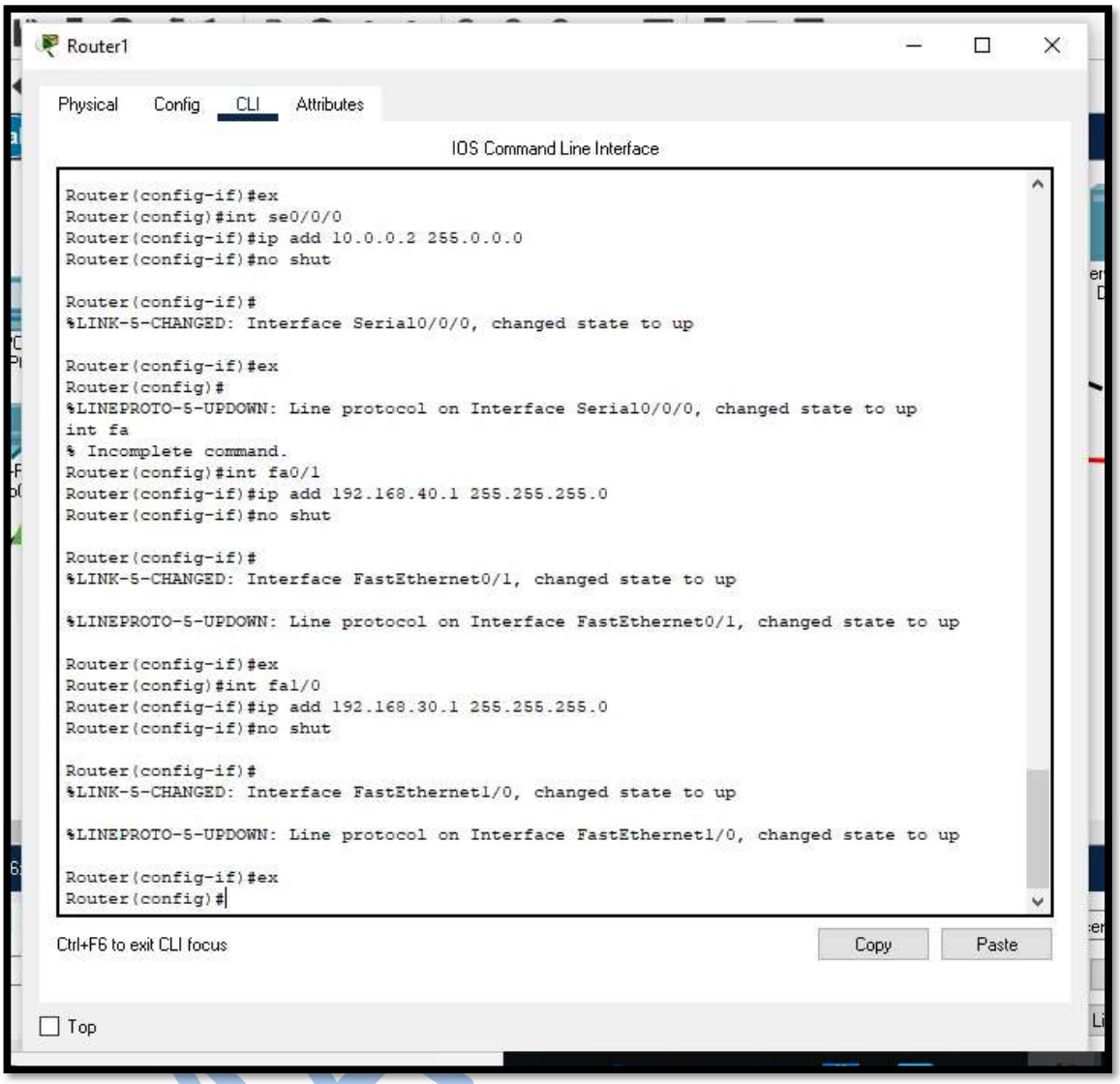
DOMAIN NAME	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY	DNS SERVER
www.medicare.com	192.168.40.10	255.255.255.0	192.168.20.1	192.168.30.10

HTTP SERVICES AND HOMEPAGE HTML CODE

ROUTER CONFIGARATION :

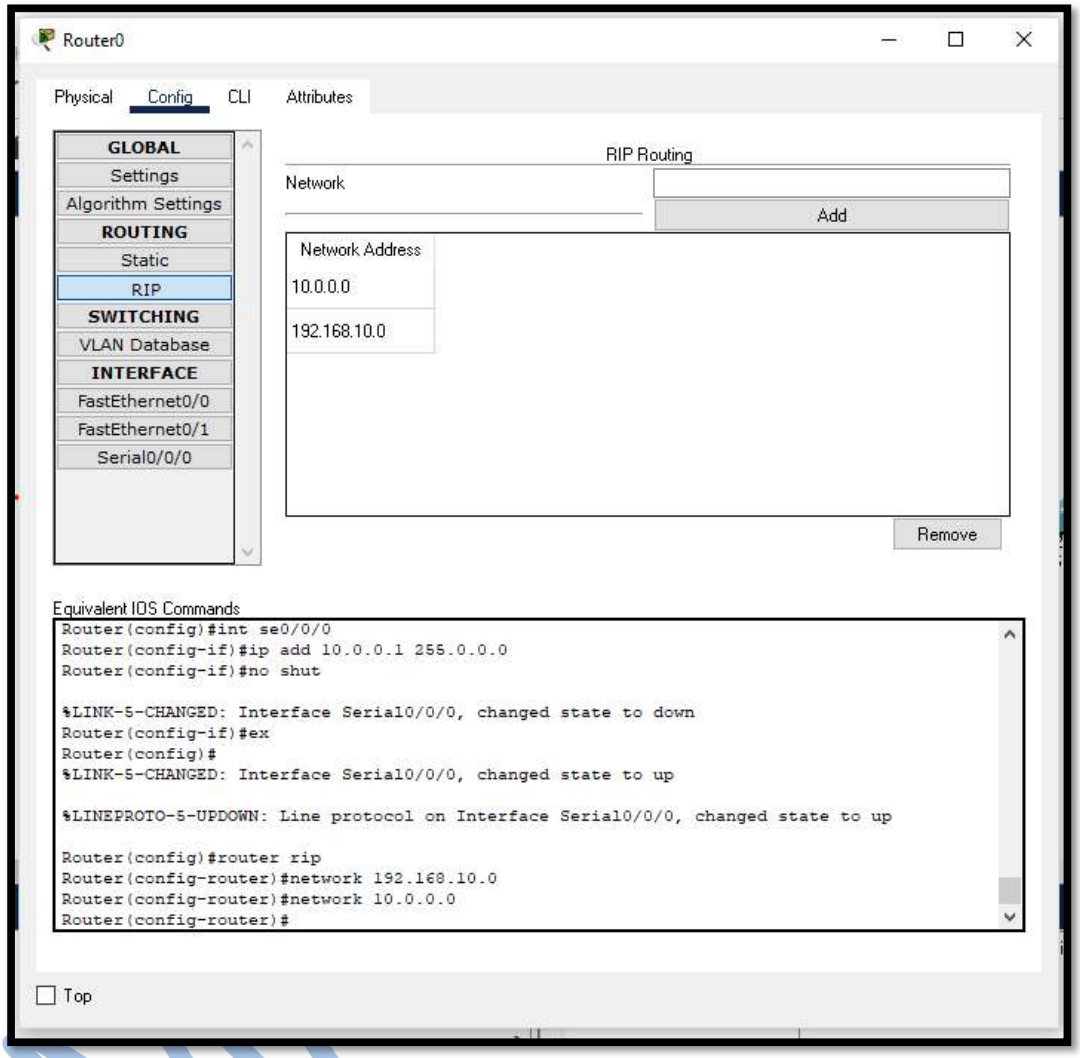
ROUTER - 0 :



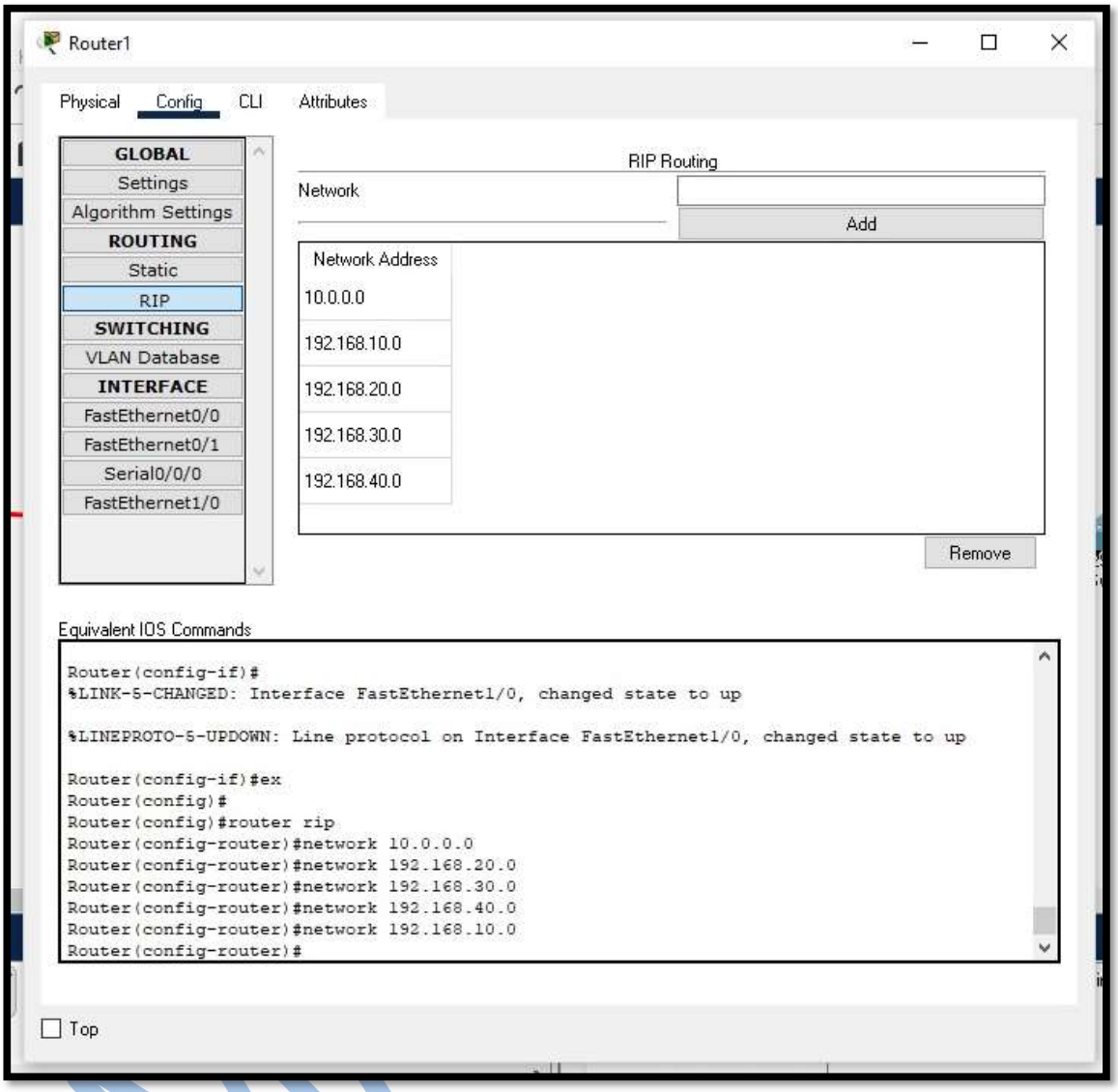

Router1
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router(config-if)#ex
Router(config)#int se0/0/0
Router(config-if)#ip add 10.0.0.2 255.0.0.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
Router(config-if)#ex
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
int fa
% Incomplete command.
Router(config)#int fa0/1
Router(config-if)#ip add 192.168.40.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router(config-if)#ex
Router(config)#int fa1/0
Router(config-if)#ip add 192.168.30.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
Router(config-if)#ex
Router(config)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

ROUTE CONFIGARATION :

ROUTER - 0 RIP :



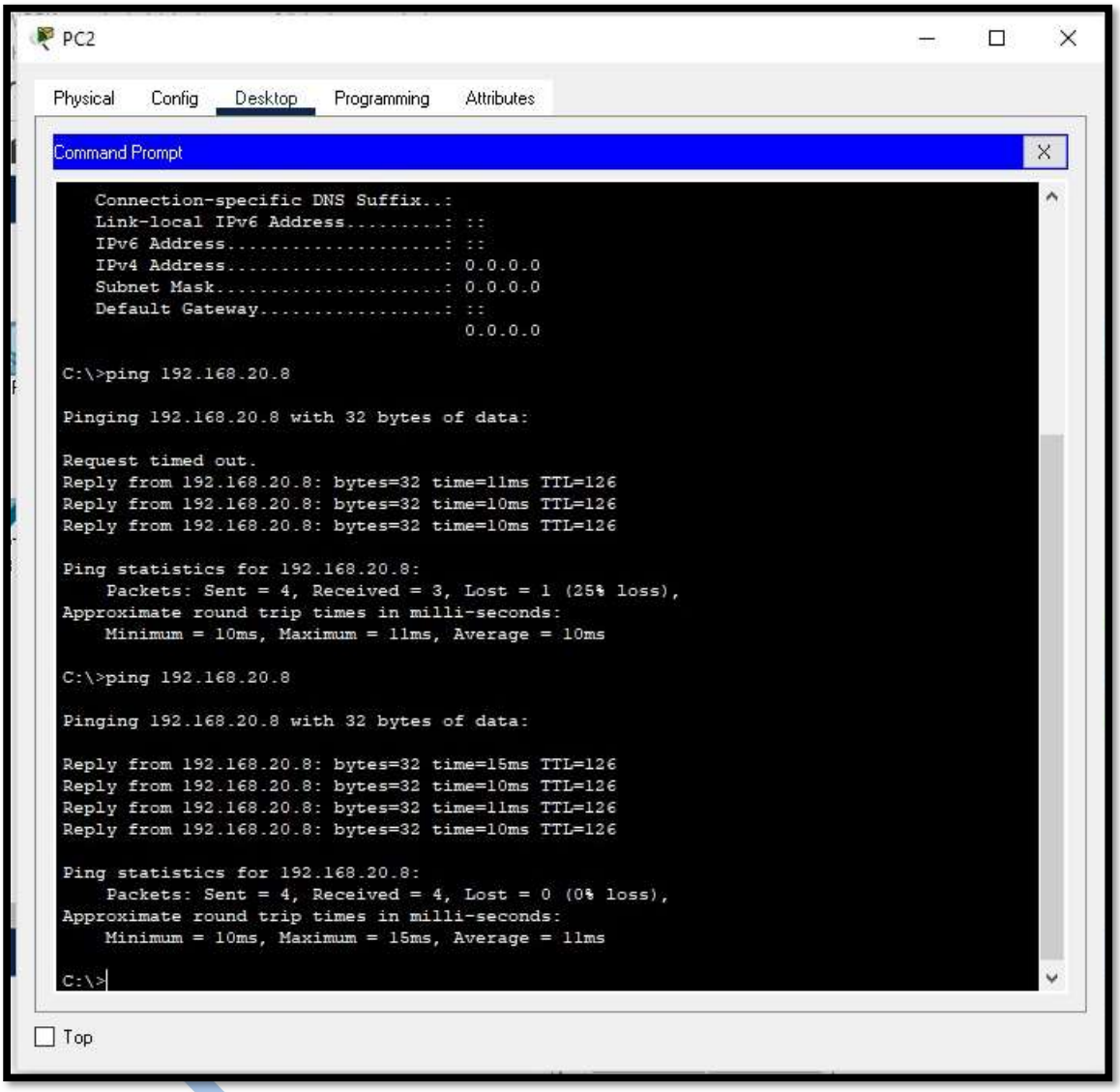
ROUTER – 1 RIP :


Router1
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0
FastEthernet1/0
RIP Routing
Network
Add
Network Address
10.0.0.0
192.168.10.0
192.168.20.0
192.168.30.0
192.168.40.0
Remove
Equivalent IOS Commands
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
Router(config-if)#ex
Router(config)#
Router(config)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#network 192.168.20.0
Router(config-router)#network 192.168.30.0
Router(config-router)#network 192.168.40.0
Router(config-router)#network 192.168.10.0
Router(config-router)#
Top

OUTPUT :

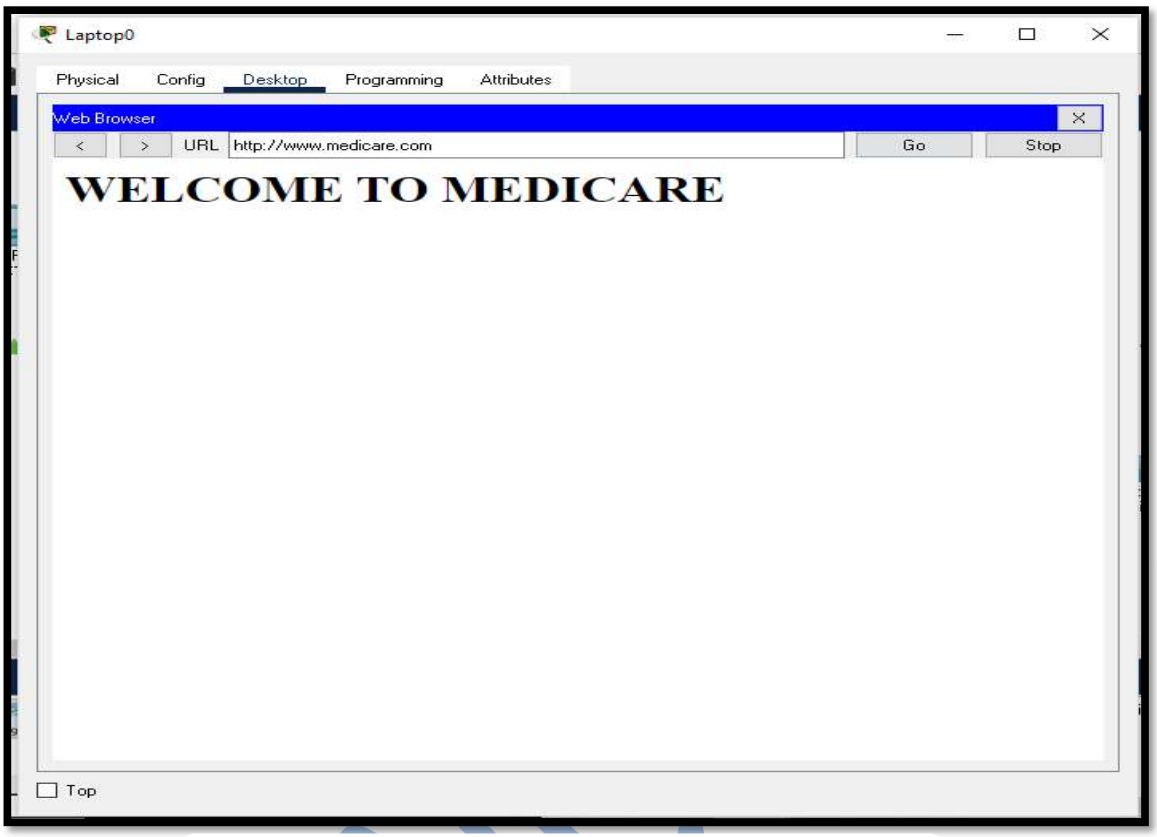
- ***PINGING THE NETWORK :***

SENDER :- 192.168.10.3 RECIEVER :- 192.168.20.8



Here first time one packet was lost, but again ping then all packets was sending correctly.

❖ *WEB SERVER ACCESS THROUGH DNS SERVER :*



WEB SEARCH

Here, In this picture(web search picture)

- ✓ Go to a node (laptop, pc), here I go laptop-0 .
- ✓ Tap Desktop option.
- ✓ Then go to web browser option and tap this option.
- ✓ Type the www.medicare.com in search bar and then tap Go button.
- ✓ Then show this output.

❖ ***SIMULATION RESULT :***

REFERENCES :

- YOUTUBE
- GOOGLE

CONCLUSION :

- DNS is play essential rolls in today's Internet and in many private networks around the world.
- A hostname only there for human use and the IP address is what matters to the machines attached to a network.
- There are several types of DNS servers but they all do serve the same purpose which is mapping hostnames to IP addresses.