Experiment Number 4

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Branch ::	CSE - IoT	Sec/Grp ::	1/A
Semester ::	6th	Date ::	15th Mar, 2022
Subject ::	NOS Lab	CODE ::	CSP-396

1. Aim :

To implement the DNS network.

2. Task :

1. Implement the DNS network using two servers.

3. Appartus :

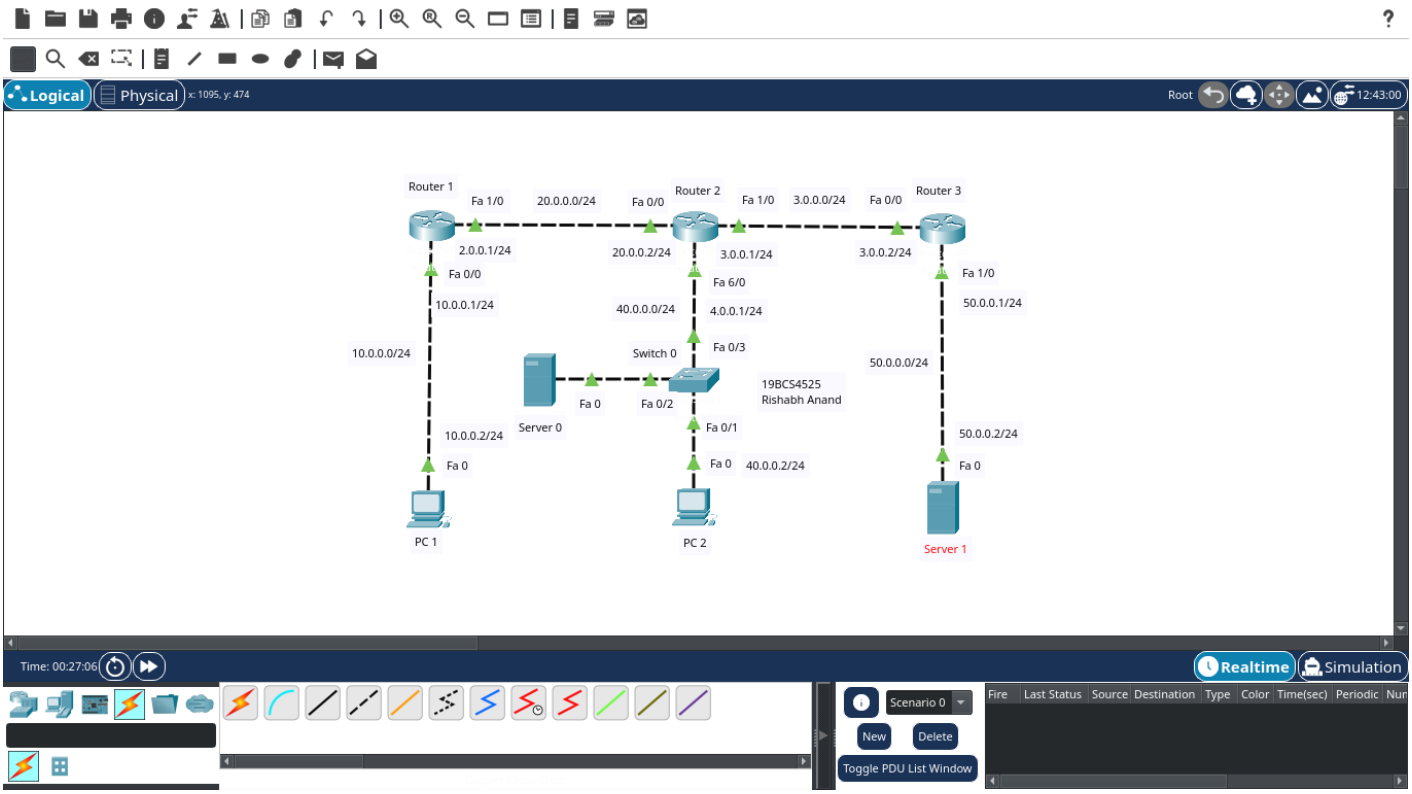
- Cisco Packet Tracer.

3A. Theory :

DNS is a service that converts a host's name to an IP address. The Domain Name System (DNS) is a distributed database that is implemented as a hierarchy of name servers. It's an application layer protocol that allows clients and servers to send and receive messages.

4. Steps:

- Design the phase.



- Configure the routers, servers, and PC's.

– Routers


CLI
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet4/0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet5/0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
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CLI
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet4/0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet5/0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet6/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet6/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet7/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet7/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet8/0
Router(config-if)#no shutdown
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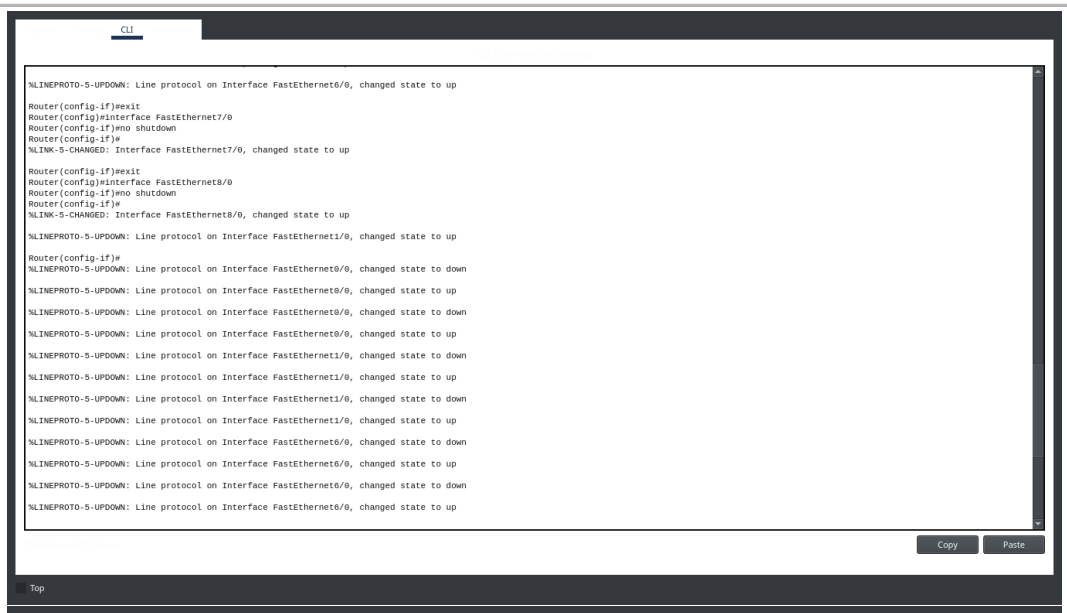
CLI
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet7/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet7/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet8/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet8/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/0, changed state to up
Copy
Paste
Top


CLI
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#no shutdown
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
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
Router con0 is now available
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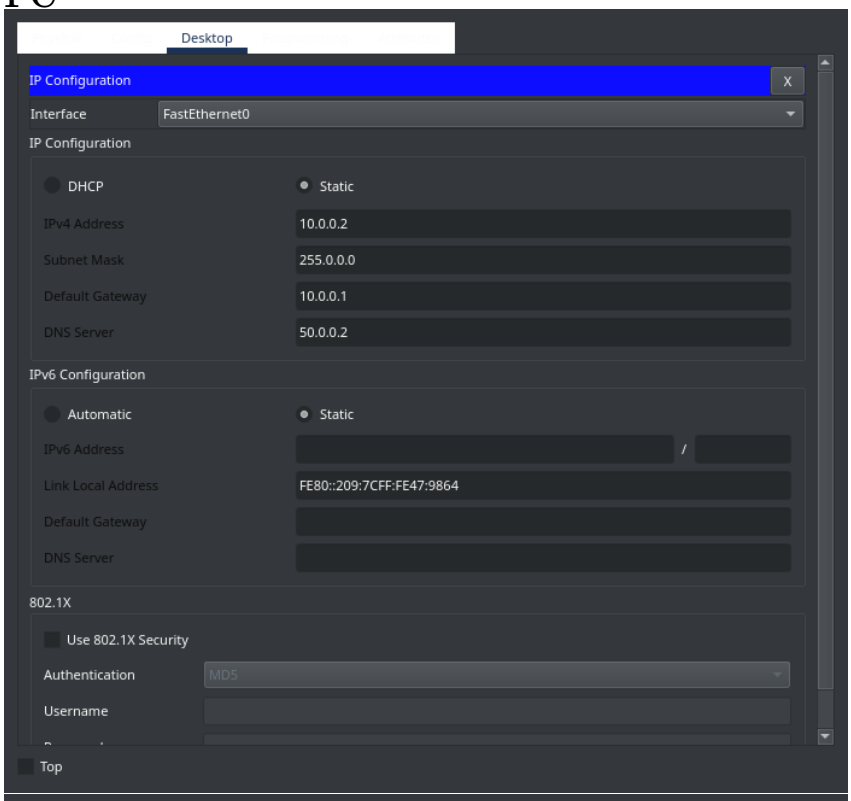
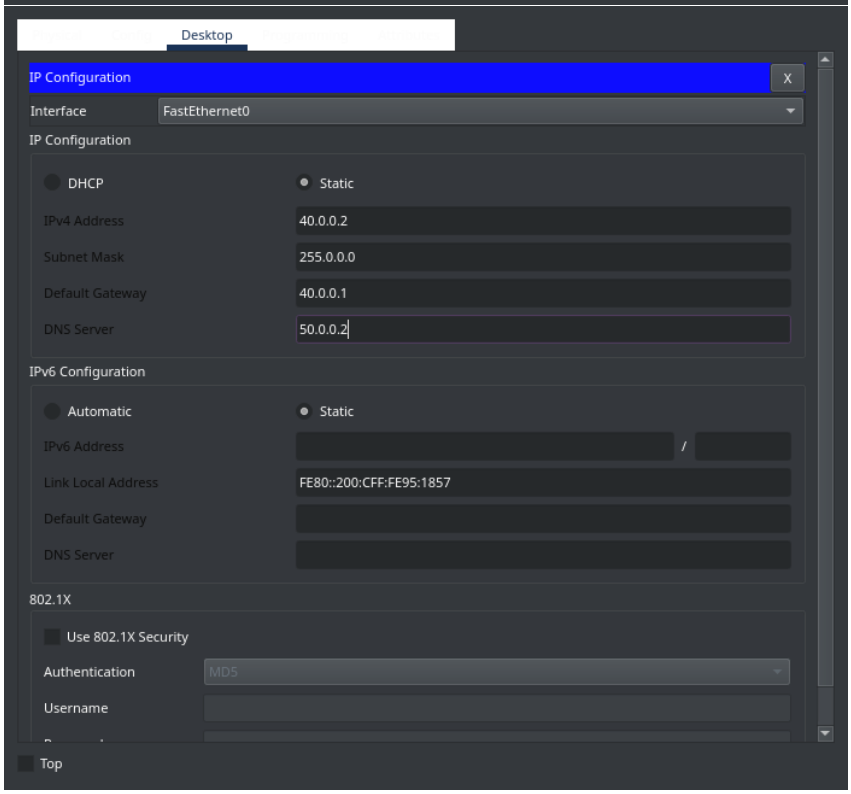
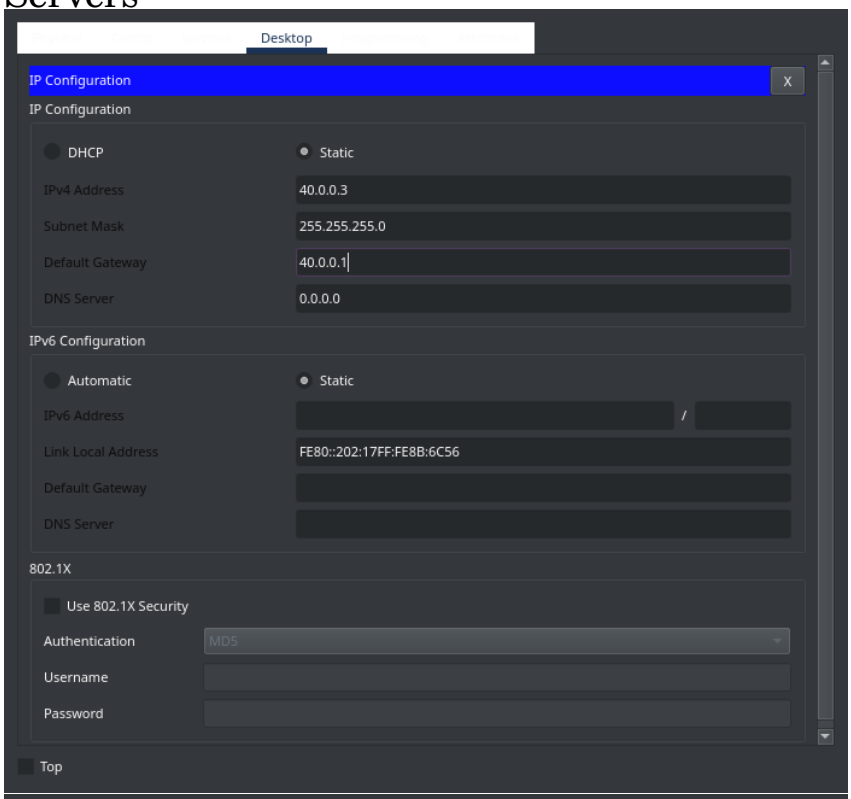
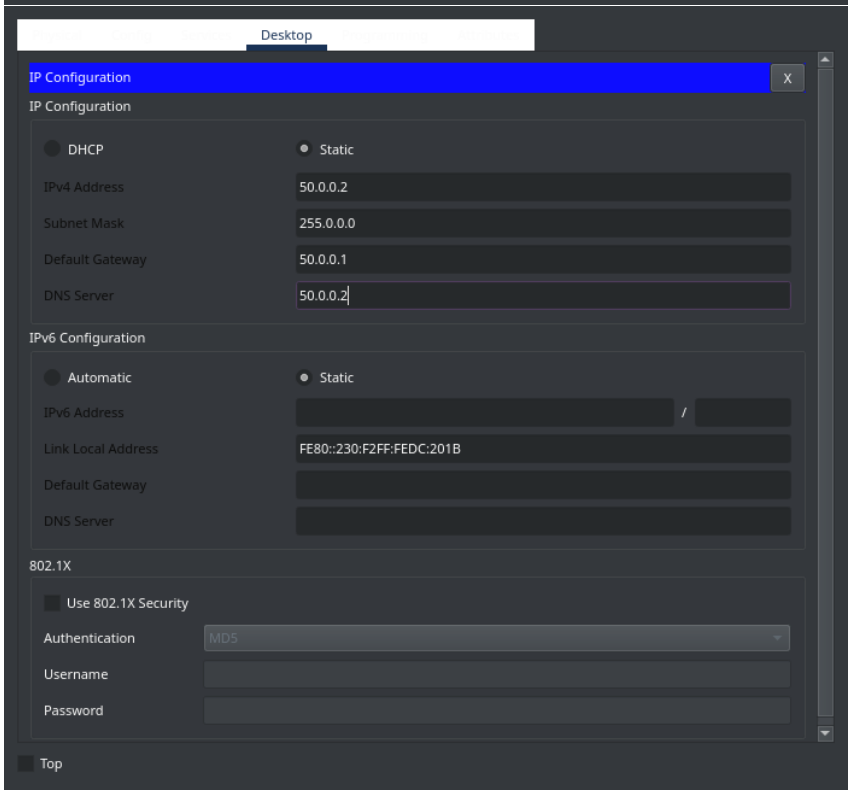
– PC


Desktop
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
10.0.0.2
Subnet Mask
255.0.0.0
Default Gateway
10.0.0.1
DNS Server
50.0.0.2
IPv6 Configuration
Automatic
Static
IPv6 Address
/
Link Local Address
FE80::209:7CFF:FE47:9864
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Top

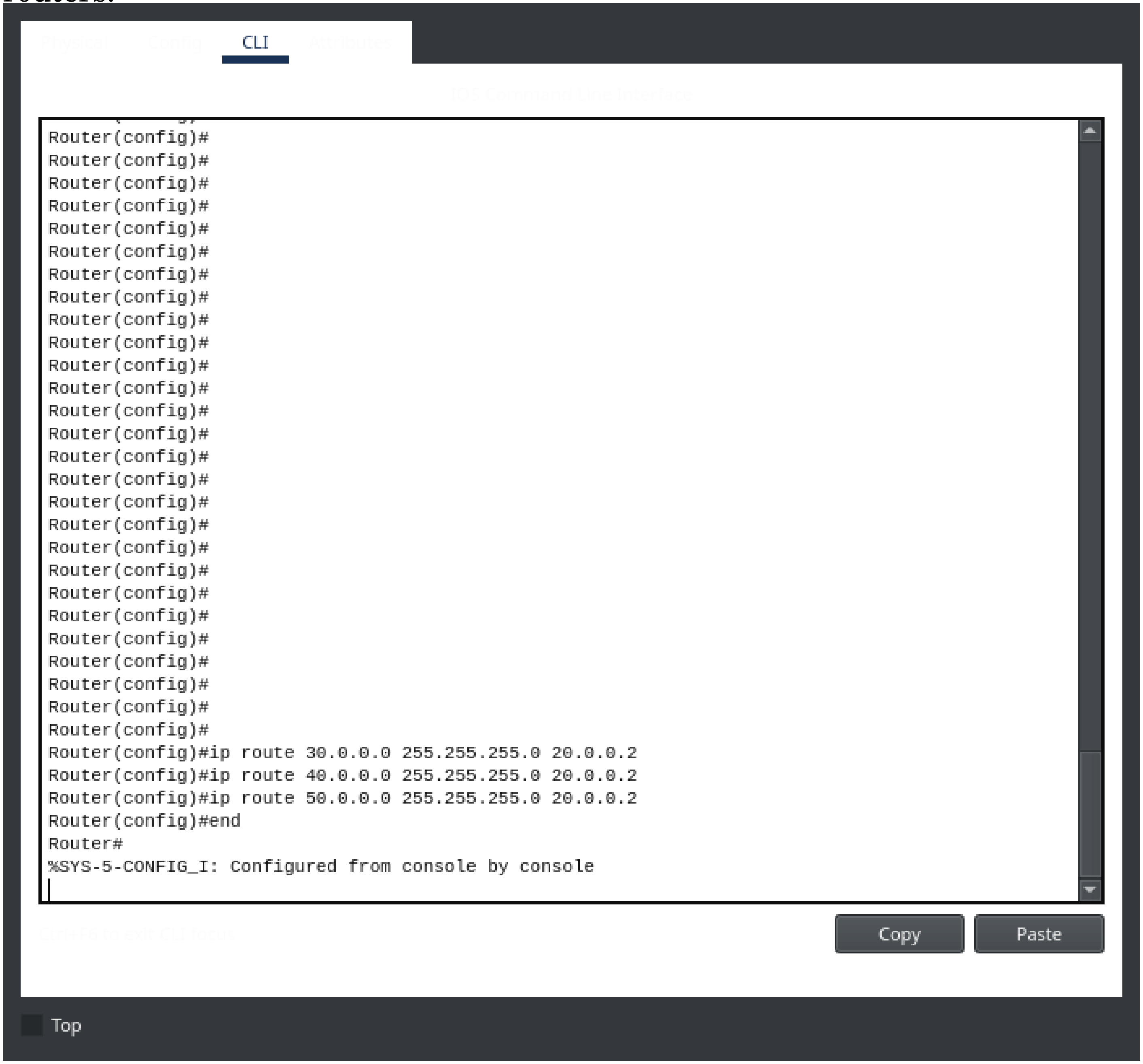

Desktop
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
40.0.0.2
Subnet Mask
255.0.0.0
Default Gateway
40.0.0.1
DNS Server
50.0.0.2
IPv6 Configuration
Automatic
Static
IPv6 Address
/
Link Local Address
FE80::200:CFF:FE95:1857
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Top

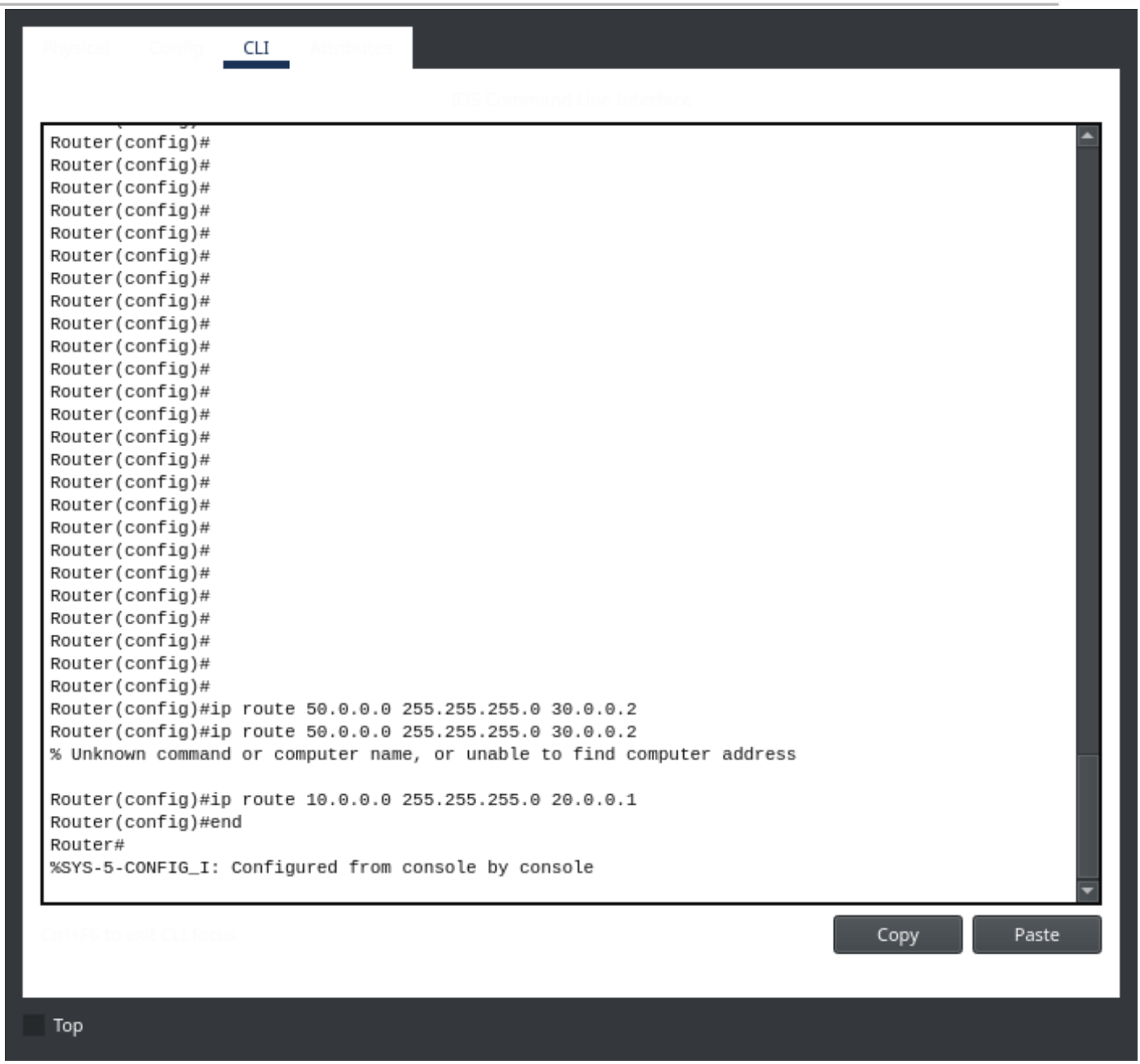
– Servers


Desktop
IP Configuration
X
IP Configuration
DHCP
Static
IPv4 Address
40.0.0.3
Subnet Mask
255.255.255.0
Default Gateway
40.0.0.1
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::202:17FF:FE8B:6C56
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top


Desktop
IP Configuration
X
IP Configuration
DHCP
Static
IPv4 Address
50.0.0.2
Subnet Mask
255.0.0.0
Default Gateway
50.0.0.1
DNS Server
50.0.0.2
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::230:F2FF:FEDC:201B
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top

- Do the static routing of the routers. So that we can communicate with other routers.




CLI
Router(config)#
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Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#ip route 50.0.0.0 255.255.255.0 30.0.0.2
Router(config)#ip route 50.0.0.0 255.255.255.0 30.0.0.2
% Unknown command or computer name, or unable to find computer address
Router(config)#ip route 10.0.0.0 255.255.255.0 20.0.0.1
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
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Top

CLI

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#
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Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#ip route  40.0.0.0 255.255.255.0 30.0.0.1
Router(config)#ip route  20.0.0.0 255.255.255.0 30.0.0.1
Router(config)#ip route  10.0.0.0 255.255.255.0 30.0.0.1
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

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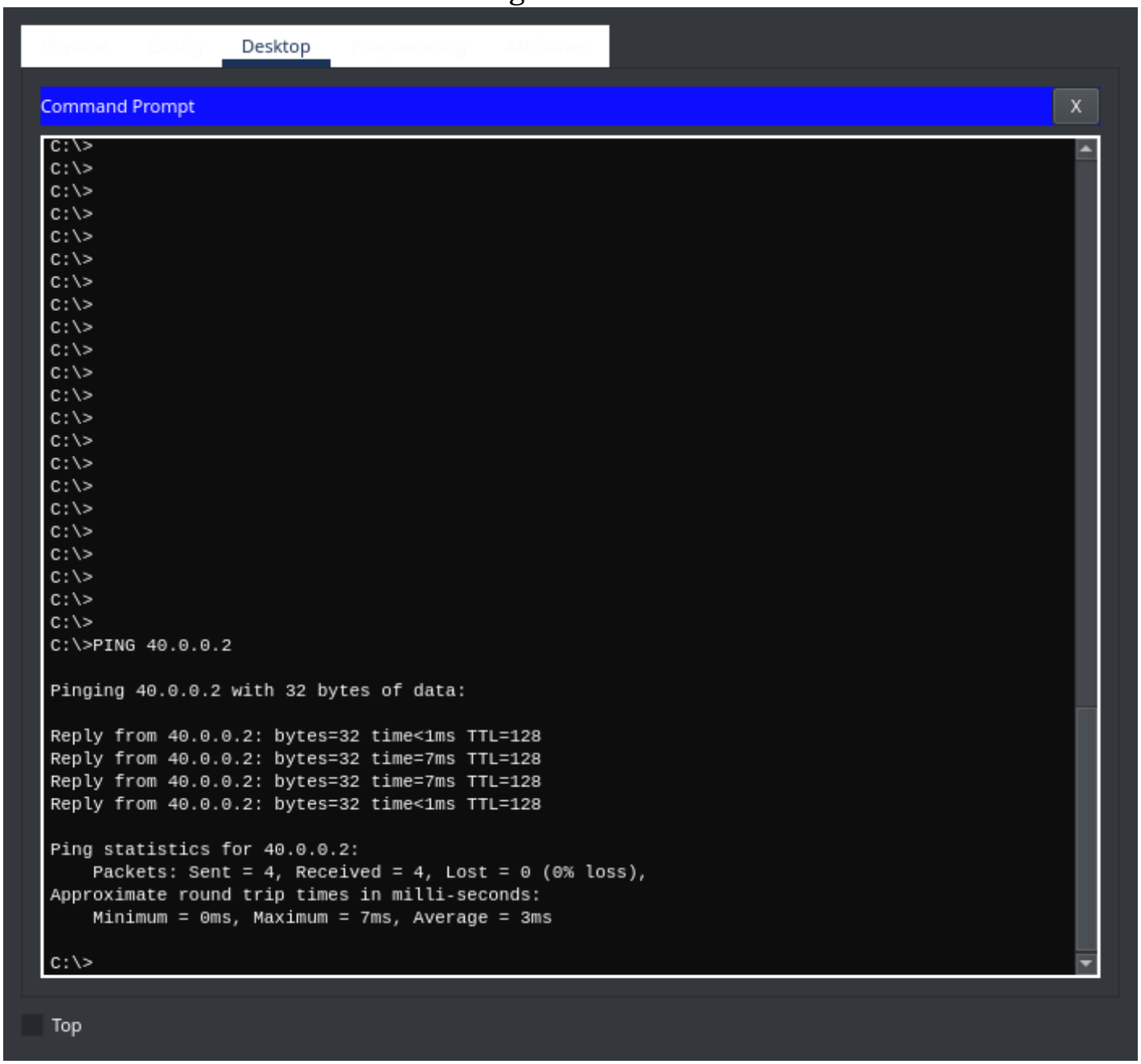
Top

- After configuring the DNS Services on this server, we can create a platform for services and clients to communicate. To do so, go to services, pick DNS, and enter the name and IP address of the HTTP Server as shown below, then click the add button to add these entries to the DNS Server. Then, on this server, turn on DNS Services.

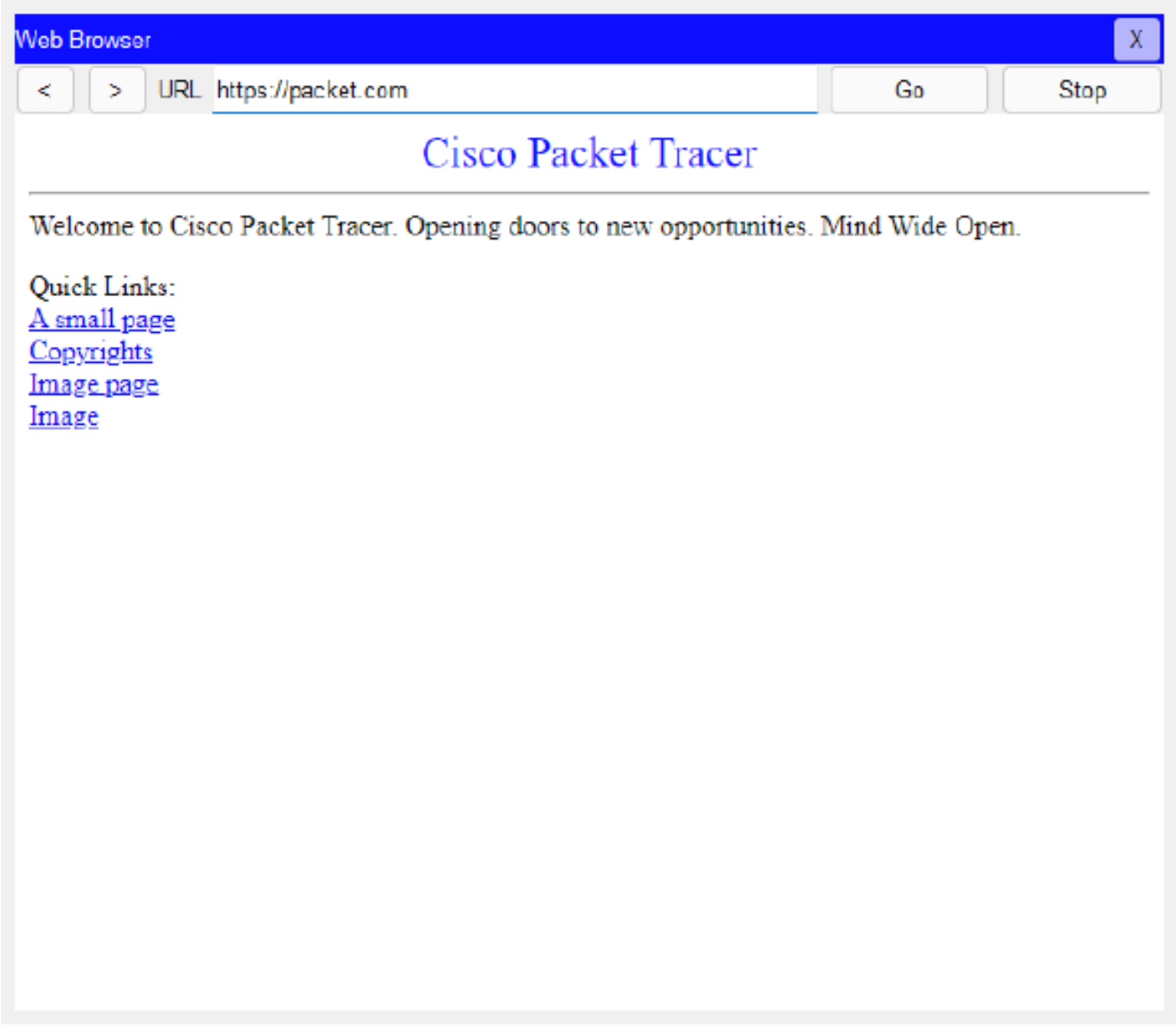
- Now, in a browser, type the name of our page packet.com, and our page should display on the screen. This is because the client's request first goes to the DNS server, which then directs it to the HTTP server, which then loads the webpage from the HTTP server to our machine using the name rather than the IP address.

5. Observations :

Ping Command



Browser


Web Browser
X
<
>
URL
https://packet.com
Go
Stop
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

Learning Outcomes :

- I have learnt how to make the Servers and Clients communicate with each other.
- I learned how to access the website using another server.
- Learn to do the static routing with DNS server.
- Learn to use the DHCP server with DNS.

S. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			