

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
FACULTY OF SCIENCE AND HUMANITIES
DEPARTMENT OF COMPUTER APPLICATIONS



PRACTICAL RECORD NOTE

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**REGISTER
NUMBER :**

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SUBJECT TITLE : COMPUTER NETWORKS

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SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
FACULTY OF SCIENCE AND HUMANITIES
DEPARTMENT OF COMPUTER APPLICATIONS

SRM Nagar, Kattankulathur – 603 203

CERTIFICATE

Certified to be the bonafide record of practical work done by

Register No. _____ of _____ Degree course for
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Science and Technology during the academic year 2025-2026.

Staff In-charge

Head of the Department

Submitted for Semester Practical Examination held on _____.

Internal Examiner

External Examiner

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Output:

ipconfig

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\User>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : ktr.srmuniv.ac.in
    Link-local IPv6 Address . . . . . : fe80::c5bf:7534:ebca:4b96%15
    IPv4 Address. . . . . : 10.1.121.15
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.1.121.1

Ethernet adapter Local Area Connection 3:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::a008:117:b8c8:f7cb%11
    IPv4 Address. . . . . : 192.168.133.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::edde:4980:27a1:c4a2%12
    IPv4 Address. . . . . : 192.168.40.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

Tunnel adapter isatap.{67D441E1-99CC-4AE4-8D35-0907CF982A5B}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Tunnel adapter isatap.{5A113479-A9BF-492B-B02C-055BF4BE30E3}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Tunnel adapter isatap.ktr.srmuniv.ac.in:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : ktr.srmuniv.ac.in

C:\Users\User>
```

```
C:\Windows\system32\cmd.exe
Media State . . . : Media disconnected
Connection-specific DNS Suffix  : ktr.srmuniv.ac.in

C:\Users\User>netstat

Active Connections

Proto Local Address          Foreign Address         State
TCP    10.1.121.15:49474      sa-in-f189:https       ESTABLISHED
TCP    10.1.121.15:49623      maa05s01-in-f5:https   ESTABLISHED
TCP    10.1.121.15:49624      172.16.0.21:8014       CLOSE_WAIT
TCP    10.1.121.15:49625      maa05s10-in-f3:https   ESTABLISHED
TCP    10.1.121.15:49626      maa05s10-in-f3:https   ESTABLISHED

C:\Users\User>
```

```
C:\Windows\system32\cmd.exe - netstat
C:\Users\Admin>netstat

Active Connections

Proto Local Address          Foreign Address         State
TCP    10.1.121.21:49772      Admin-PC:icslap        ESTABLISHED
TCP    10.1.121.21:49773      WIN-E6653DANNHN:icslap ESTABLISHED
TCP    10.1.121.21:49775      admin1-PC:wsd          TIME_WAIT
TCP    10.1.121.21:49776      user1-PC:icslap        ESTABLISHED
TCP    10.1.121.21:49777      Admin-PC:wsd          TIME_WAIT
TCP    10.1.121.21:49779      user1-PC:wsd          TIME_WAIT
TCP    10.1.121.21:49780      adm-PC:wsd            TIME_WAIT
```

```
C:\Windows\system32\cmd.exe - netstat
C:\Users\Admin>netstat

Active Connections

Proto Local Address          Foreign Address         State
TCP    10.1.121.21:49772      Admin-PC:icslap        ESTABLISHED
TCP    10.1.121.21:49773      WIN-E6653DANNHN:icslap ESTABLISHED
TCP    10.1.121.21:49775      admin1-PC:wsd          TIME_WAIT
TCP    10.1.121.21:49776      user1-PC:icslap        ESTABLISHED
TCP    10.1.121.21:49777      Admin-PC:wsd          TIME_WAIT
TCP    10.1.121.21:49779      user1-PC:wsd          TIME_WAIT
TCP    10.1.121.21:49780      adm-PC:wsd            TIME_WAIT
```

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Admin>ping 127.0.0.2

Pinging 127.0.0.2 with 32 bytes of data:
Reply from 127.0.0.2: bytes=32 time<1ms TTL=128
Reply from 127.0.0.2: bytes=32 time<1ms TTL=128
Reply from 127.0.0.2: bytes=32 time<1ms TTL=128
Reply from 127.0.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Admin>
```

```
C:\Windows\system32\cmd.exe - pathping www.google.com
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Admin>ping 127.0.0.2

Pinging 127.0.0.2 with 32 bytes of data:
Reply from 127.0.0.2: bytes=32 time<1ms TTL=128
Reply from 127.0.0.2: bytes=32 time<1ms TTL=128
Reply from 127.0.0.2: bytes=32 time<1ms TTL=128
Reply from 127.0.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Admin>pathping www.google.com

Tracing route to www.google.com [173.194.45.83]
over a maximum of 30 hops:
  0  pc-PC.ktr.srmuniv.ac.in [10.1.121.21]
  1  10.1.121.1
  2  10.11.1.30
  3  * * *
Computing statistics for 50 seconds...
```

```
C:\Windows\system32\cmd.exe - nslookup
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Admin>nslookup
Default Server: srmu-dc03.ktr.srmuniv.ac.in
Address: 172.16.111.113

> 172.0.0.1
Server: srmu-dc03.ktr.srmuniv.ac.in
Address: 172.16.111.113

DNS request timed out.
    timeout was 2 seconds.
*** Request to srmu-dc03.ktr.srmuniv.ac.in timed-out
> _
```

```
C:\Windows\system32\cmd.exe
c:\>nbtstat -a 10.1.121.31

Local Area Connection:
Node IpAddress: [10.1.121.21] Scope Id: []

    Host not found.

UMware Network Adapter UMnet1:
Node IpAddress: [192.168.98.1] Scope Id: []

    Host not found.

UMware Network Adapter UMnet8:
Node IpAddress: [192.168.198.1] Scope Id: []

    Host not found.

c:\>
```

```
C:\Windows\system32\cmd.exe
c:\>getmac

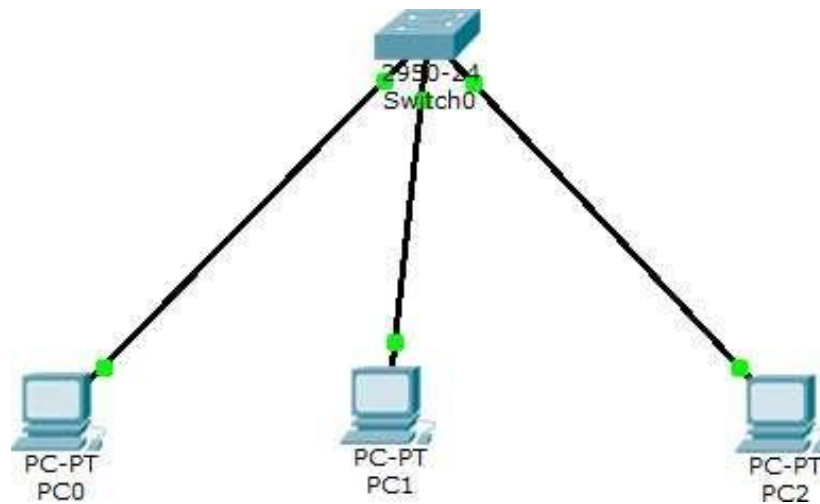
Physical Address      Transport Name
=====
B8-CA-3A-9E-13-7E     \Device\NPF{773C70B5-9D02-4E11-A923-F9EE8381D390}
00-50-56-C0-00-01     \Device\NPF{6093BE44-955A-43F6-A41C-83853A14925A}
00-50-56-C0-00-08     \Device\NPF{AC4457E5-17A2-4959-96C1-138118E9D725}

c:\>_
```

Result:

Thus the various network commands are executed and the output is verified

NETWORK TOPOLOGY:



HOST PC0 IP ADDRESS:

PC0

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 1.1.1.1

Subnet Mask: 255.0.0.0

Default Gateway: 1.1.1.1

DNS Server:

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::2E0:F7FF:FE47:BC98

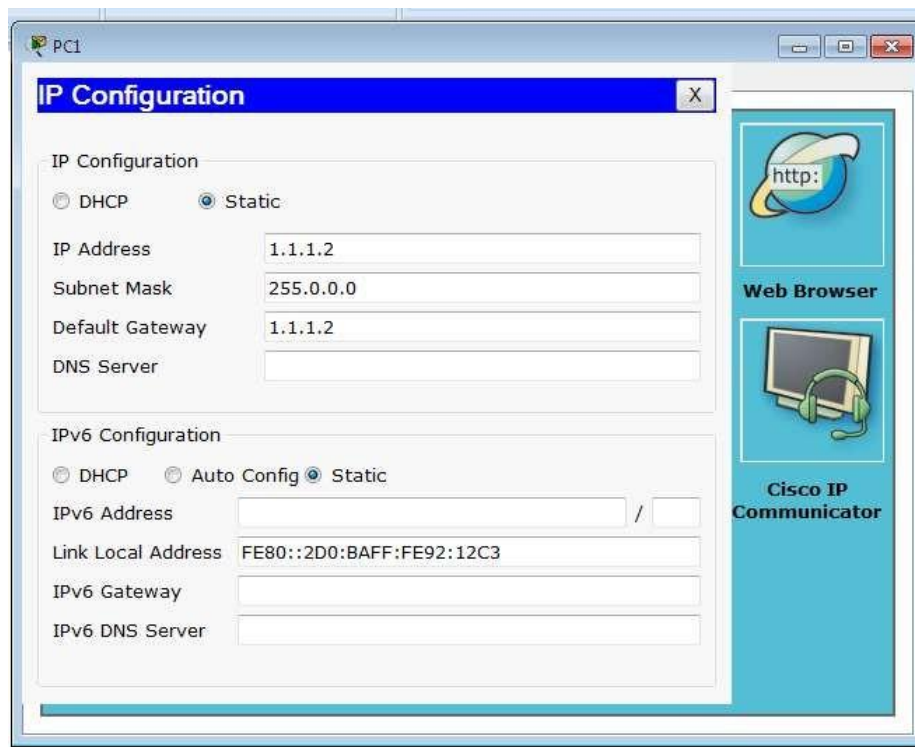
IPv6 Gateway:

IPv6 DNS Server:

Web Browser

Cisco IP Communicator

HOST PC1 IP ADDRESS:

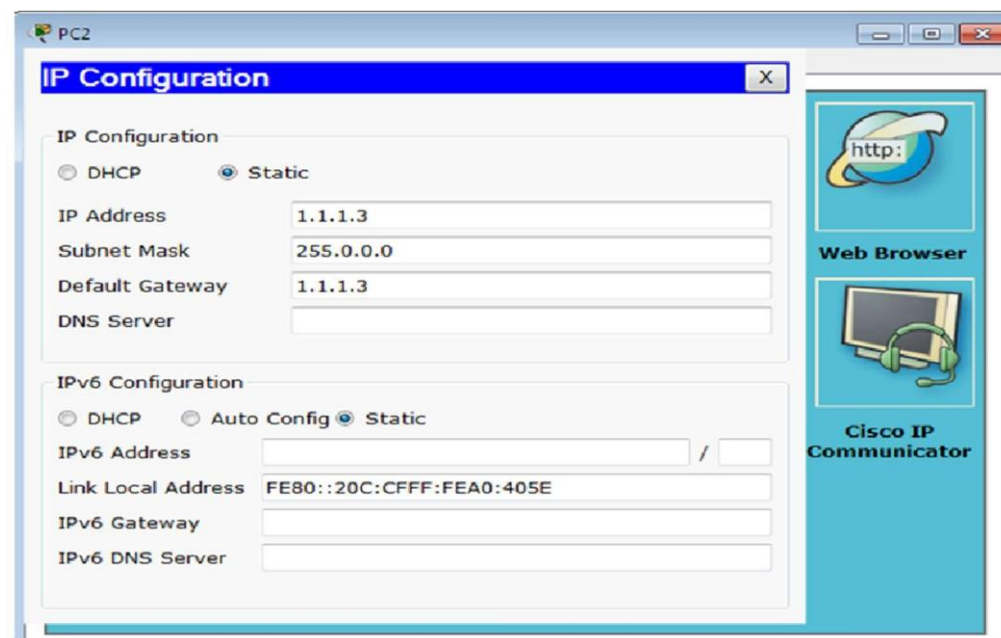


The screenshot shows the 'IP Configuration' window for PC1. The window has a title bar with 'PC1' and standard window controls. The main content area is divided into two sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are filled with: IP Address: 1.1.1.2, Subnet Mask: 255.0.0.0, Default Gateway: 1.1.1.2, and DNS Server: (empty). In the 'IPv6 Configuration' section, the 'Static' radio button is also selected. The fields are: IPv6 Address: (empty), Link Local Address: FE80::2D0:BAFF:FE92:12C3, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty). On the right side of the window, there is a vertical toolbar with two icons: a 'Web Browser' icon (a globe with 'http:') and a 'Cisco IP Communicator' icon (a headset on a screen).

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	1.1.1.2
Subnet Mask	255.0.0.0
Default Gateway	1.1.1.2
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::2D0:BAFF:FE92:12C3	
IPv6 Gateway		
IPv6 DNS Server		

HOST PC2 IP ADDRESS:



The screenshot shows the 'IP Configuration' window for PC2. The window has a title bar with 'PC2' and standard window controls. The main content area is divided into two sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are filled with: IP Address: 1.1.1.3, Subnet Mask: 255.0.0.0, Default Gateway: 1.1.1.3, and DNS Server: (empty). In the 'IPv6 Configuration' section, the 'Static' radio button is also selected. The fields are: IPv6 Address: (empty), Link Local Address: FE80::20C:CFFF:FEA0:405E, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty). On the right side of the window, there is a vertical toolbar with two icons: a 'Web Browser' icon (a globe with 'http:') and a 'Cisco IP Communicator' icon (a headset on a screen).

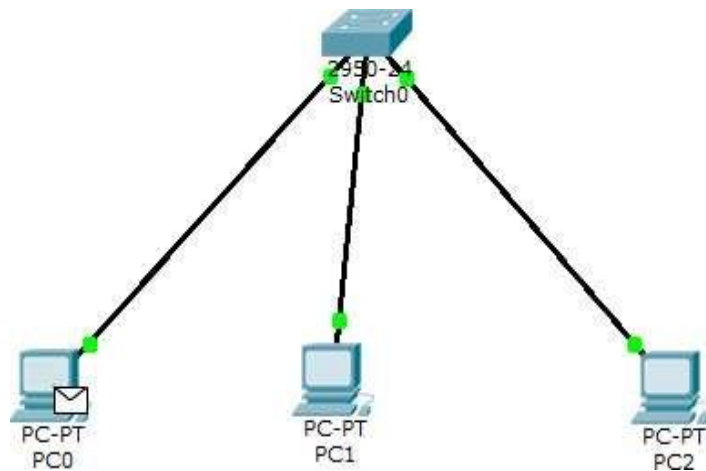
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	1.1.1.3
Subnet Mask	255.0.0.0
Default Gateway	1.1.1.3
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::20C:CFFF:FEA0:405E	
IPv6 Gateway		
IPv6 DNS Server		

VERIFY LAN NETWORK CONNECTIVITY:

Using Add Simple PDU(p), Click the mail icon and then drop one mail to PC0 and another mail to PC1. If the resultant window show the successful delivery then network connectivity is successful or up.

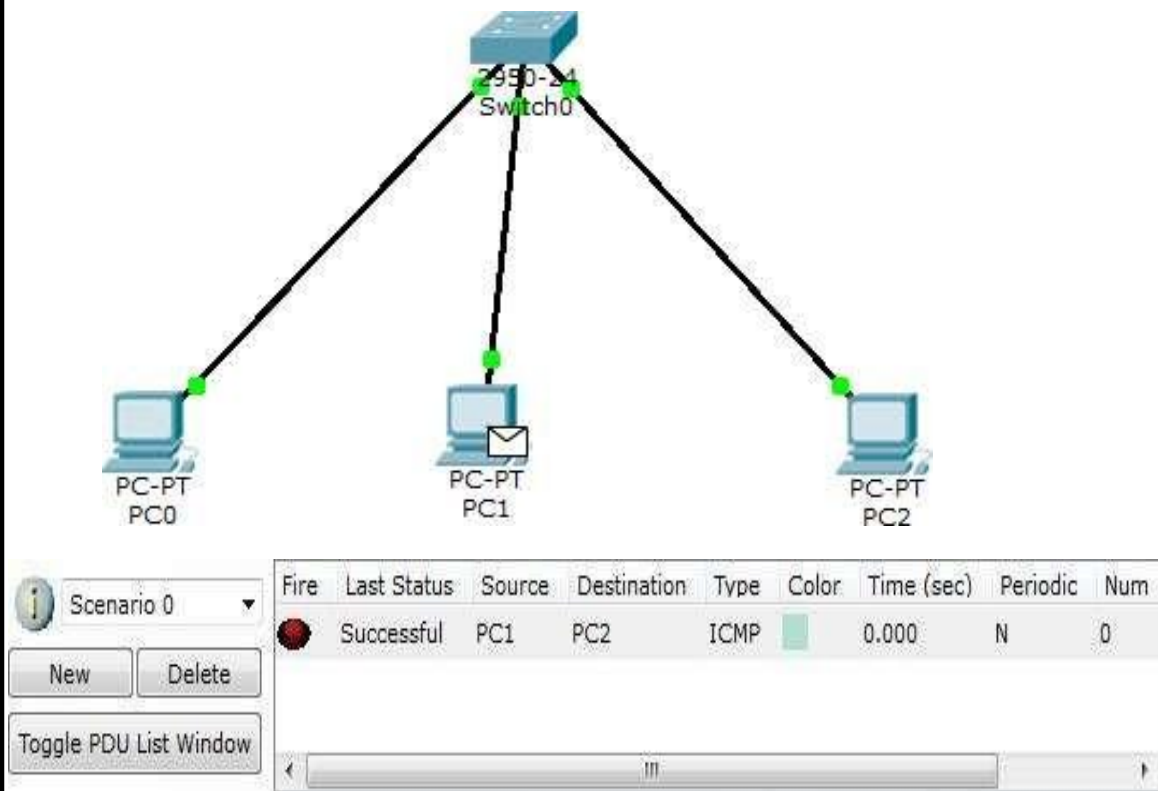
HOST PC0 TO HOST PC1:



The 'PDU List' window displays a table with the following columns: Fire, Last Status, Source, Destination, Type, Color, Time (sec), Periodic, and Num. A single row is shown with the following data: Fire (red dot icon), Last Status (Successful), Source (PC0), Destination (PC1), Type (ICMP), Color (purple square), Time (sec) (0.000), Periodic (N), and Num (0). Below the table are buttons for 'New', 'Delete', and 'Toggle PDU List Window'.

Fire	Last Status	Source	Destination	Type	Color	Time (sec)	Periodic	Num
	Successful	PC0	PC1	ICMP		0.000	N	0

HOST PC1 TO HOST PC2:

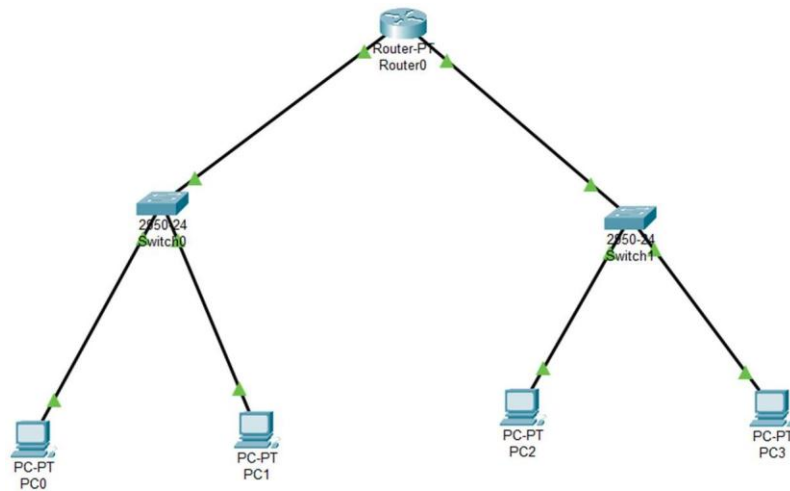


RESULT:

Thus the LAN connection is established, hosts are configured, the communications among the machines are verified and manipulated successfully.

NETWORK TOPOLOGY:

PC0 IP CONFIGURATION ADDRESS:



PC0 IP CONFIGURATION ADDRESS:

IP Configuration

☐ DHCP ☒ Static

IP Address: 1.1.1.1

Subnet Mask: 255.0.0.0

Default Gateway: 1.0.0.1

DNS Server:

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::201:97FF:FE5D:58B9

IPv6 Gateway:

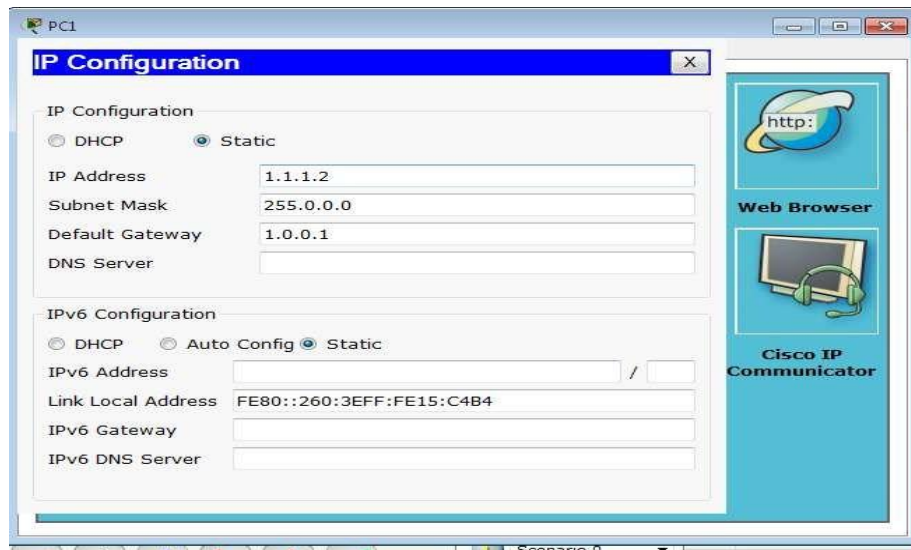
IPv6 DNS Server:

http:

Web Browser

Cisco IP Communicator

PC1 IP CONFIGURATION ADDRESS:

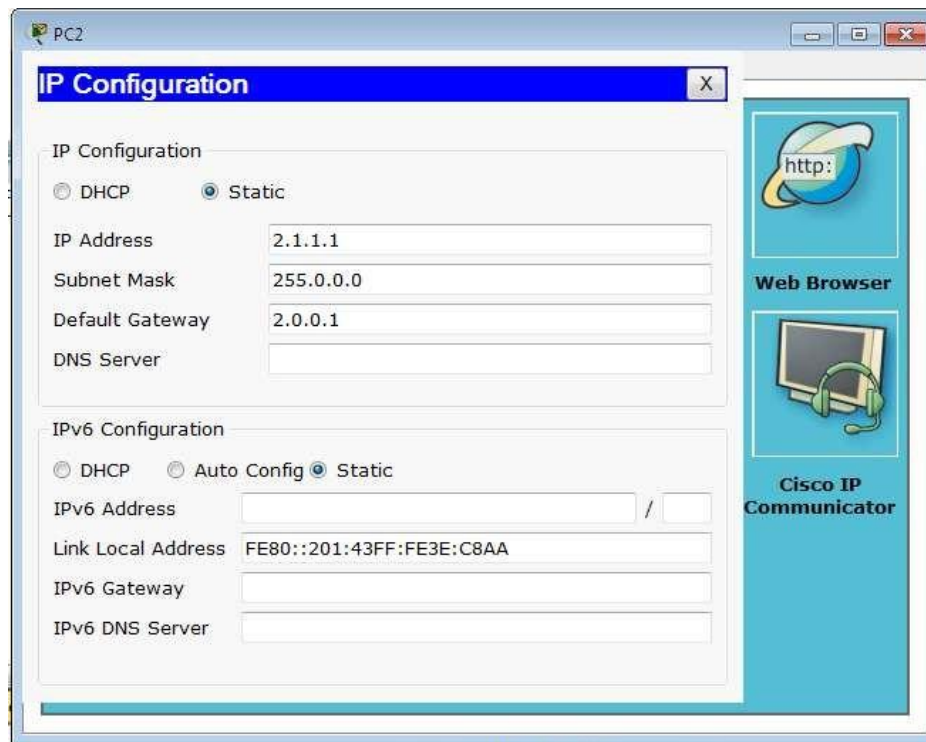


The screenshot shows the 'IP Configuration' window for PC1. It has two main sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are filled with: IP Address: 1.1.1.2, Subnet Mask: 255.0.0.0, Default Gateway: 1.0.0.1, and DNS Server: (empty). In the 'IPv6 Configuration' section, the 'Static' radio button is also selected. The fields are filled with: IPv6 Address: (empty), Link Local Address: FE80::260:3EFF:FE15:C4B4, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty). On the right side of the window, there are icons for 'Web Browser' (with 'http:' text) and 'Cisco IP Communicator'.

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	1.1.1.2
Subnet Mask	255.0.0.0
Default Gateway	1.0.0.1
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::260:3EFF:FE15:C4B4	
IPv6 Gateway		
IPv6 DNS Server		

PC2 IP CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC2. It has two main sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are filled with: IP Address: 2.1.1.1, Subnet Mask: 255.0.0.0, Default Gateway: 2.0.0.1, and DNS Server: (empty). In the 'IPv6 Configuration' section, the 'Static' radio button is also selected. The fields are filled with: IPv6 Address: (empty), Link Local Address: FE80::201:43FF:FE3E:C8AA, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty). On the right side of the window, there are icons for 'Web Browser' (with 'http:' text) and 'Cisco IP Communicator'.

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	2.1.1.1
Subnet Mask	255.0.0.0
Default Gateway	2.0.0.1
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::201:43FF:FE3E:C8AA	
IPv6 Gateway		
IPv6 DNS Server		

PC3 IP CONFIGURATION ADDRESS:



ROUTER 0 CONFIGURATION

```
Router>enable
```

```
Router#configure terminal
```

Enter configuration commands, one per line. End with
CNTL/Z.

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

```
Router(config-if)#ip address 1.0.0.1 255.0.0.0
```

```
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 fastethernet 0/0
```

```
Router(config-if)#interface fastethernet 1/0
```

```
Router(config-if)#ip address 2.0.0.1 255.0.0.0
```

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

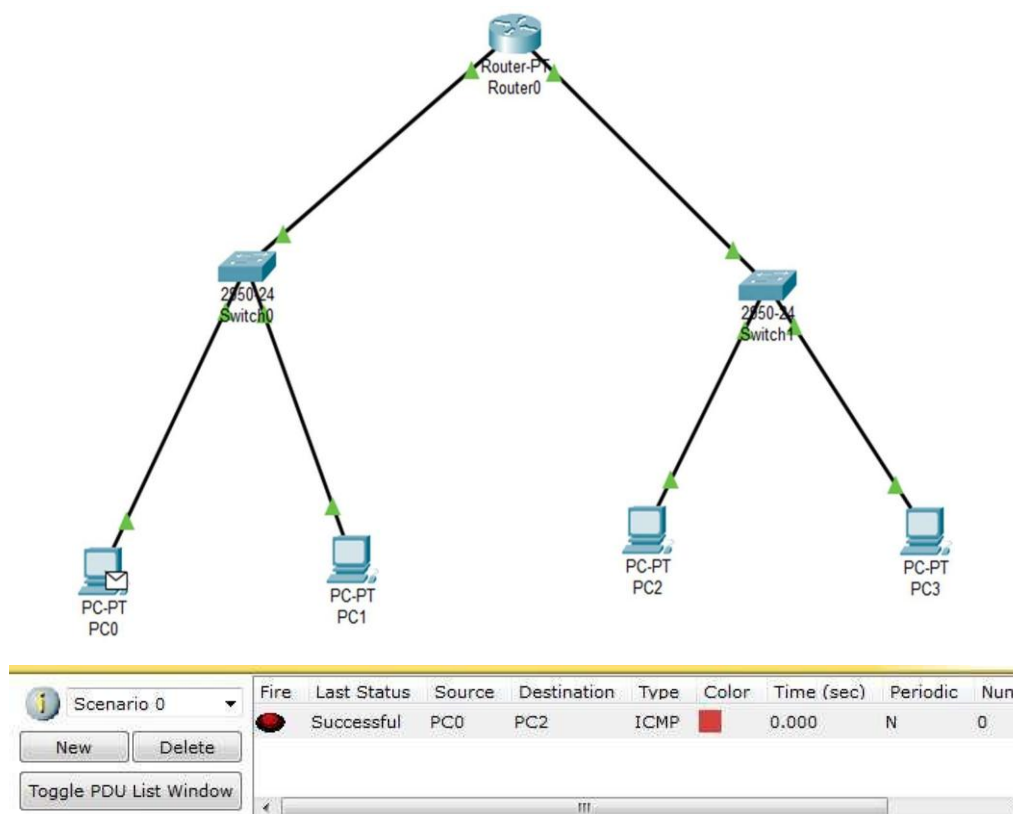
```
Router(config-if)#
```

```
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet1/0, changed state to up
Router(config-if)#exit
```

VERIFY LAN NETWORK CONNECTIVITY

Using Add Simple PDU(p), Click the mail icon and then drop one mail to one of the PC in first LAN and another mail to PC in another LAN. If the resultant window show the successful delivery of the mail then network connectivity is successful.

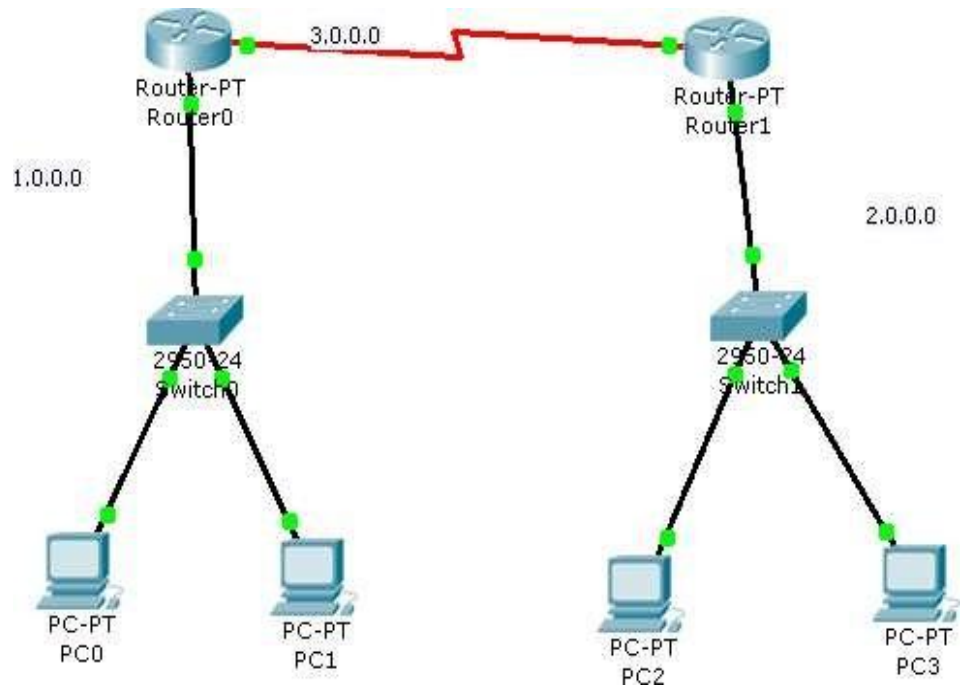
PC0 TO PC2



CONCLUSION:

Thus two LANs are connected using router with static routes and the communication between LANs is checked successfully.

NETWORK TOPOLOGY:



PC0 IP CONFIGURATION ADDRESS:

PC0

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 1.1.1.1

Subnet Mask: 255.0.0.0

Default Gateway: 1.0.0.1

DNS Server:

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::201:97FF:FE5D:58B9

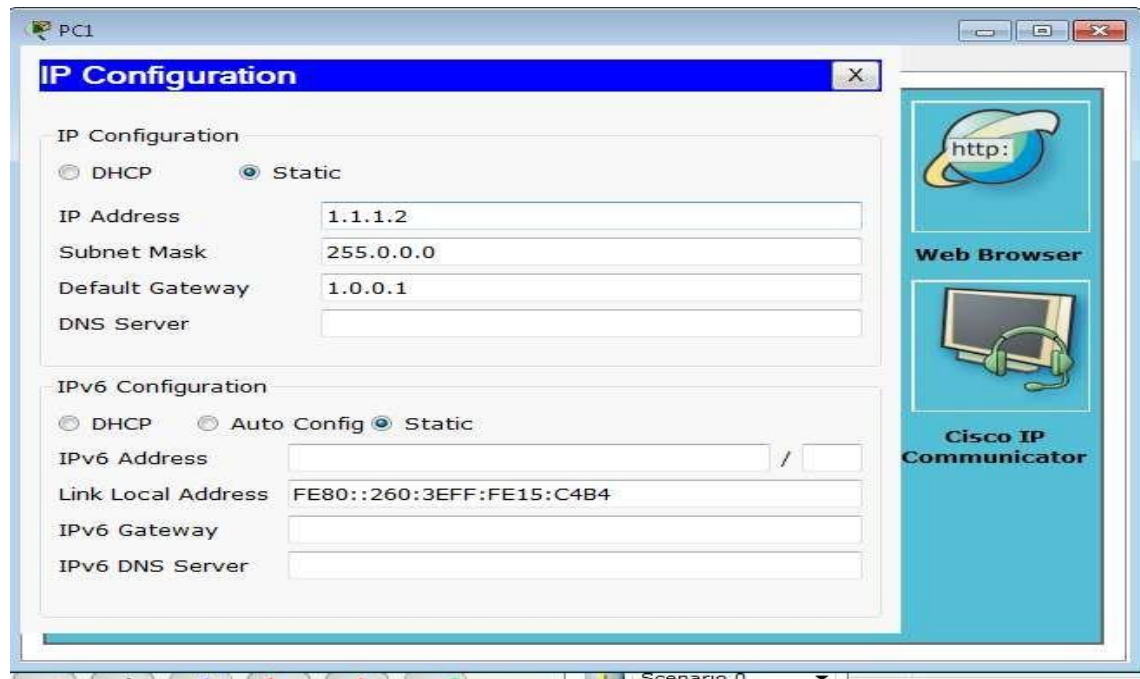
IPv6 Gateway:

IPv6 DNS Server:

Web Browser

Cisco IP Communicator

PC1 IP CONFIGURATION ADDRESS:

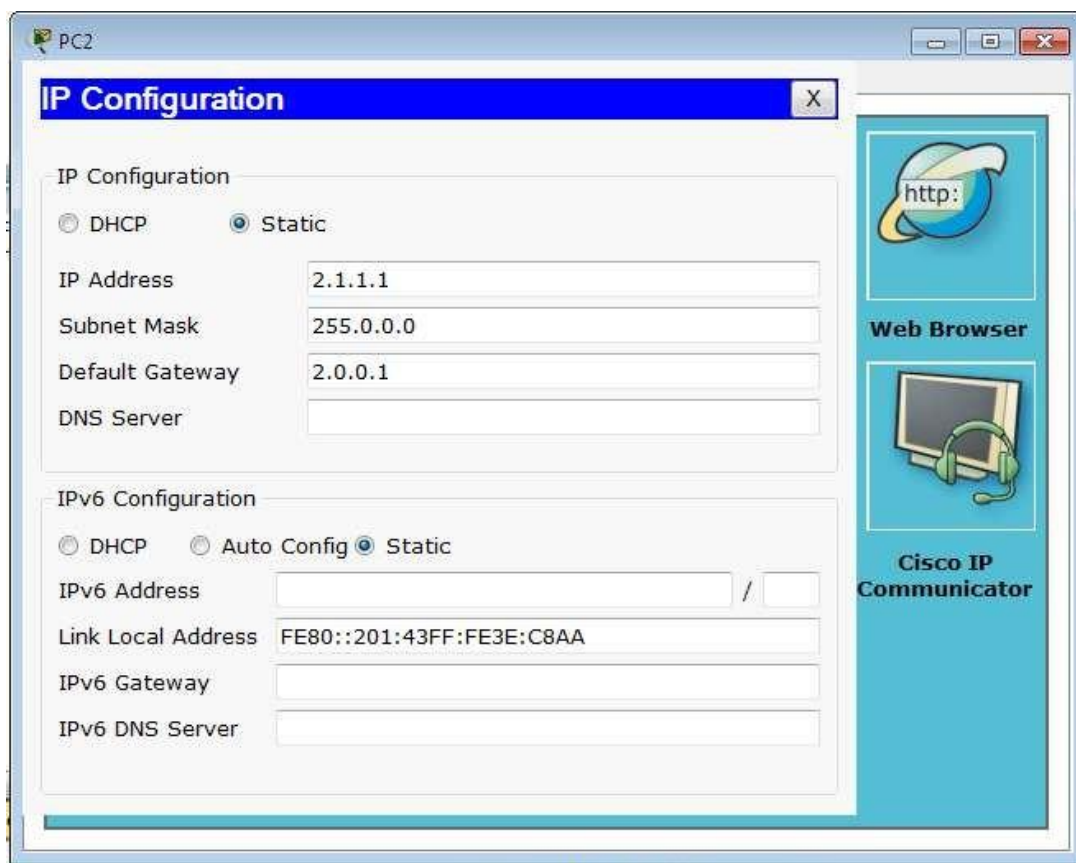


The screenshot shows the 'IP Configuration' window for PC1. The window has a title bar with 'PC1' and standard window controls. The main content area is titled 'IP Configuration' and contains two sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are: IP Address (1.1.1.2), Subnet Mask (255.0.0.0), Default Gateway (1.0.0.1), and DNS Server (empty). In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The fields are: IPv6 Address (empty), Link Local Address (FE80::260:3EFF:FE15:C4B4), IPv6 Gateway (empty), and IPv6 DNS Server (empty). On the right side of the window, there is a vertical toolbar with icons for 'http:' (Web Browser) and a headset (Cisco IP Communicator).

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	1.1.1.2
Subnet Mask	255.0.0.0
Default Gateway	1.0.0.1
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::260:3EFF:FE15:C4B4	
IPv6 Gateway		
IPv6 DNS Server		

PC2 IP CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC2. The window has a title bar with 'PC2' and standard window controls. The main content area is titled 'IP Configuration' and contains two sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are: IP Address (2.1.1.1), Subnet Mask (255.0.0.0), Default Gateway (2.0.0.1), and DNS Server (empty). In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The fields are: IPv6 Address (empty), Link Local Address (FE80::201:43FF:FE3E:C8AA), IPv6 Gateway (empty), and IPv6 DNS Server (empty). On the right side of the window, there is a vertical toolbar with icons for 'http:' (Web Browser) and a headset (Cisco IP Communicator).

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	2.1.1.1
Subnet Mask	255.0.0.0
Default Gateway	2.0.0.1
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::201:43FF:FE3E:C8AA	
IPv6 Gateway		
IPv6 DNS Server		

PC3 IP CONFIGURATION ADDRESS:



ROUTER 0 CONFIGURATION:

```
^1Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 1.0.0.1 255.0.0.0
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#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial 2/0
Router(config-if)#ip address 3.0.0.1 255.0.0.0
Router(config-if)#clock rate 64000
Router(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#ip route 2.0.0.0 255.0.0.0 3.0.0.0
```

ROUTER 1 CONFIGURATION:

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 2.0.0.1 255.0.0.0
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

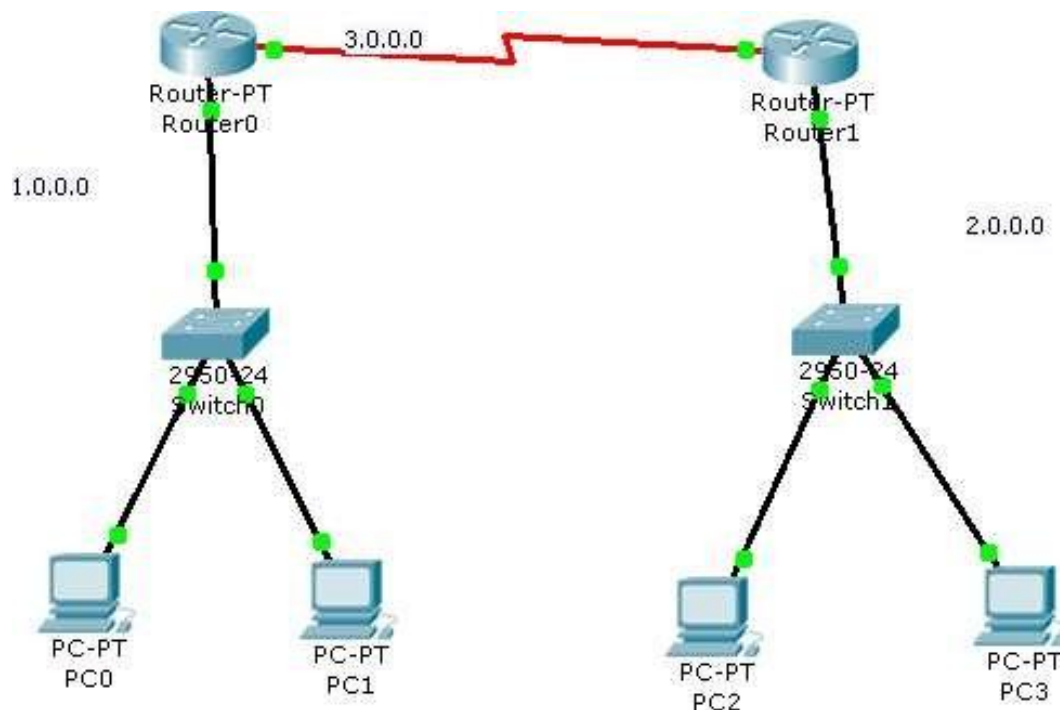
```
Router(config-if)#exit
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial 2/0
Router(config-if)#ip address 3.0.0.0 255.0.0.0
Bad mask /8 for address 3.0.0.0
Router(config-if)#ip address 3.0.0.1 255.0.0.0
Router(config-if)#clock rate 64000
Router(config-if)#no shutdown
%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
```

```
Router(config)#ip route 1.0.0.0 255.0.0.0 3.0.0.0
```

VERIFY LAN NETWORK CONNECTIVITY

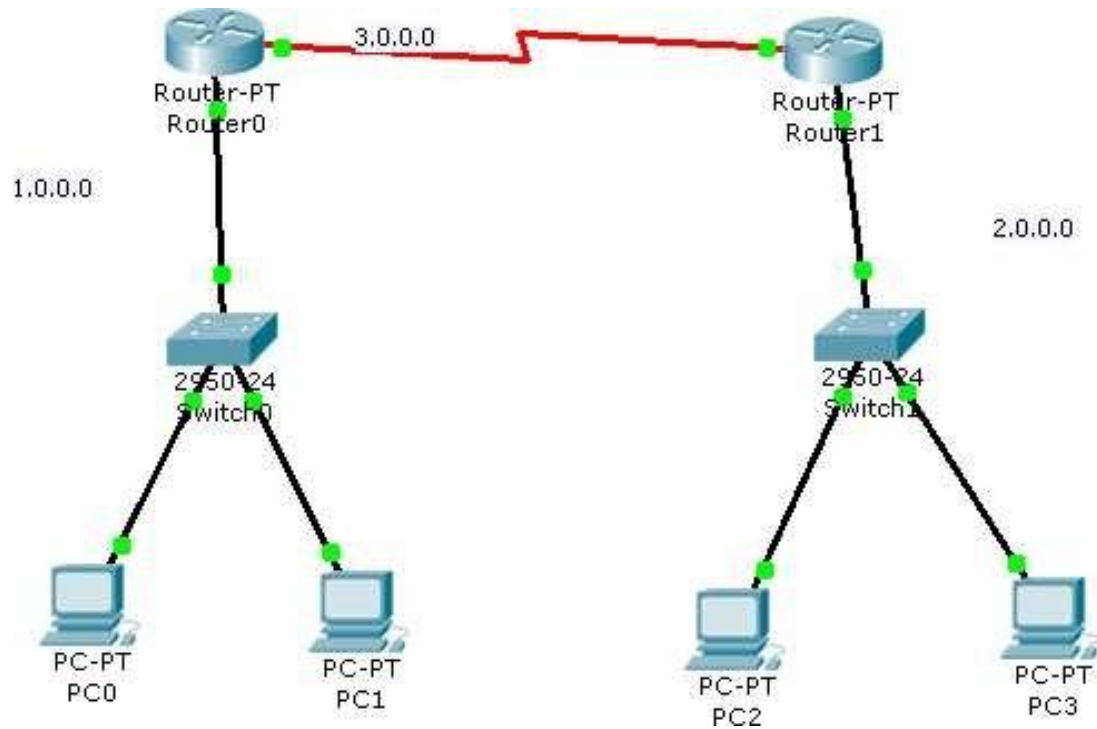
Using Add Simple PDU(p), Click the mail icon and then drop one mail to one of the PC in first LAN and another mail to PC in another LAN. If the resultant windows show the successful delivery of the mail then network connectivity is successful.

PC0 TO PC2



Scenario 0	Fire	Last Status	Source	Destination	Type	Color	Time (sec)	Periodic	Num
New	●	Successful	PC0	PC2	ICMP	■	0.000	N	0
Delete									
Toggle PDU List Window									

PC1 TO PC3



Scenario 0	Fire	Last Status	Source	Destination	Type	Color	Time (sec)	Periodic	Num
New	●	Successful	PC1	PC3	ICMP	■	0.000	N	0
Delete									
Toggle PDU List Window									

CONCLUSION

Thus two LANs are connected using router with static routes and the communication between LANs is checked successfully.

CODE:

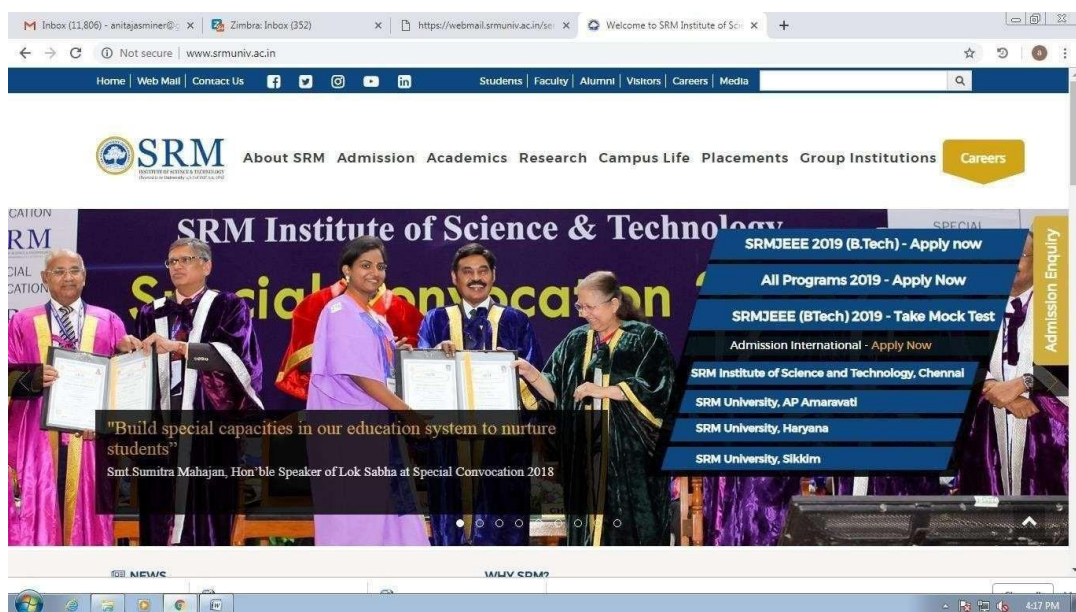
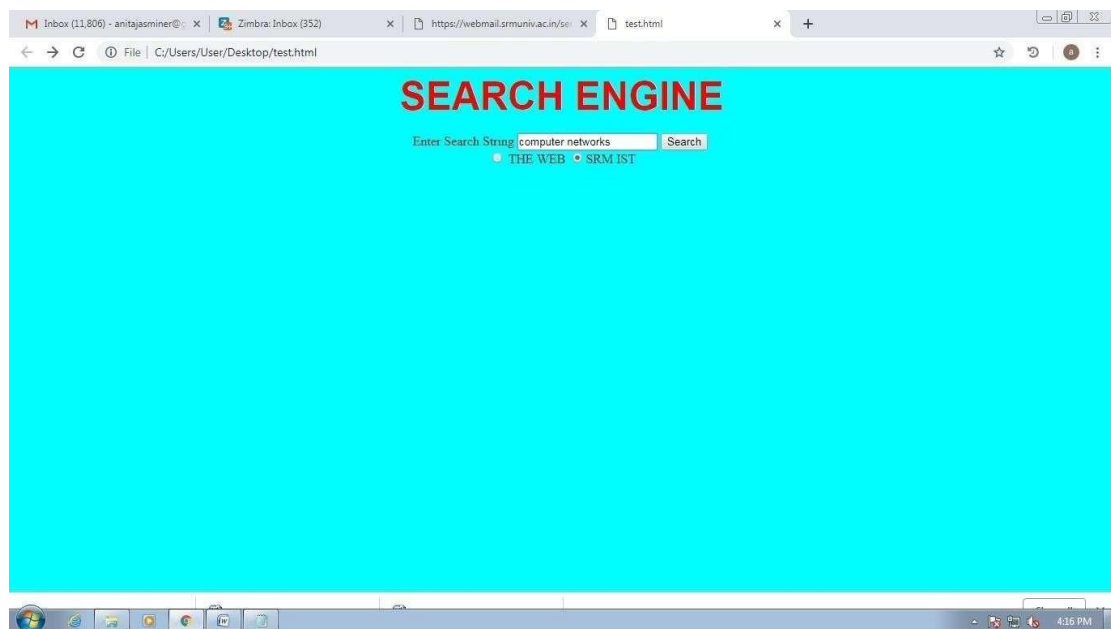
```
<html>
<head>
<script type="text/javascript">
function chk() {
// get selected radio button value
var search = document.querySelector('input[name="s"]:checked').value;
// get text from textbox
var query = document.frm.t.value;

if (search == "WEB") {
// open google with the query
location.assign("https://www.google.com/search?q=" + encodeURIComponent(query));
} else {
// open SRM site
location.assign("http://www.srmuniv.ac.in");
}
}
</script>
</head>
<body bgcolor="cyan">
<center>
<font size="36" color="red" face="Arial">
<b>SEARCH ENGINE</b></font><br><br>

<form name="frm" method="get" action="">
Enter Search String <input type="text" name="t">
<input type="button" value="Search" onclick="chk()"><br><br>

<input type="radio" name="s" value="WEB"> THE WEB
<input type="radio" name="s" value="SRM"> SRM IST
</form>
</center>
</body>
</html>
```

OUTPUT:



RESULT:

Thus the program to implement a mini search engine is executed successfully and the output is verified

CODE:

```
// WebServer1.java
import java.io.BufferedReader;
import java.io.File;
import java.io.FileInputStream;
import java.io.InputStreamReader;
import java.io.PrintStream;
import java.net.ServerSocket;
import java.net.Socket;
import java.util.StringTokenizer;

public class WebServer1 {

    public static void main(String[] args) throws Exception {
        ServerSocket ss = new ServerSocket(5555);
        System.out.println("Server waiting for client request");
        while(true)
        {

            try
            {
                Socket sock = ss.accept();

                BufferedReader in = new BufferedReader(new
                    InputStreamReader(sock.getInputStream()));
                PrintStream out = new PrintStream(sock.getOutputStream(),true);

                String reqLine = in.readLine();
                System.out.println(reqLine);

                StringTokenizer line = new StringTokenizer(reqLine);

                if(line.nextToken().equals("GET"))
                {
                    String fileName = line.nextToken();
                    if(fileName.startsWith("/") == true)
                        fileName = fileName.substring(1);
                    fileName = "C:\\Users\\user\\Desktop\\" + fileName ;
                    System.out.println(fileName);
                }
            }
        }
    }
}
```

```

File file = new File(fileName);
int fileSize = (int) file.length();

FileInputStream fis = new FileInputStream(fileName);
byte[] fileData = new byte[fileSize];
fis.read(fileData);

out.print("HTTP/1.0 200 OK\r\n");

if(fileName.endsWith(".html"))
    out.print("Content-Type: text/html\r\n");
if(fileName.endsWith(".jpg"))
    out.print("Content-Type: image/jpeg\r\n");
if(fileName.endsWith(".gif"))
    out.print("Content-Type : image/gif\r\n");

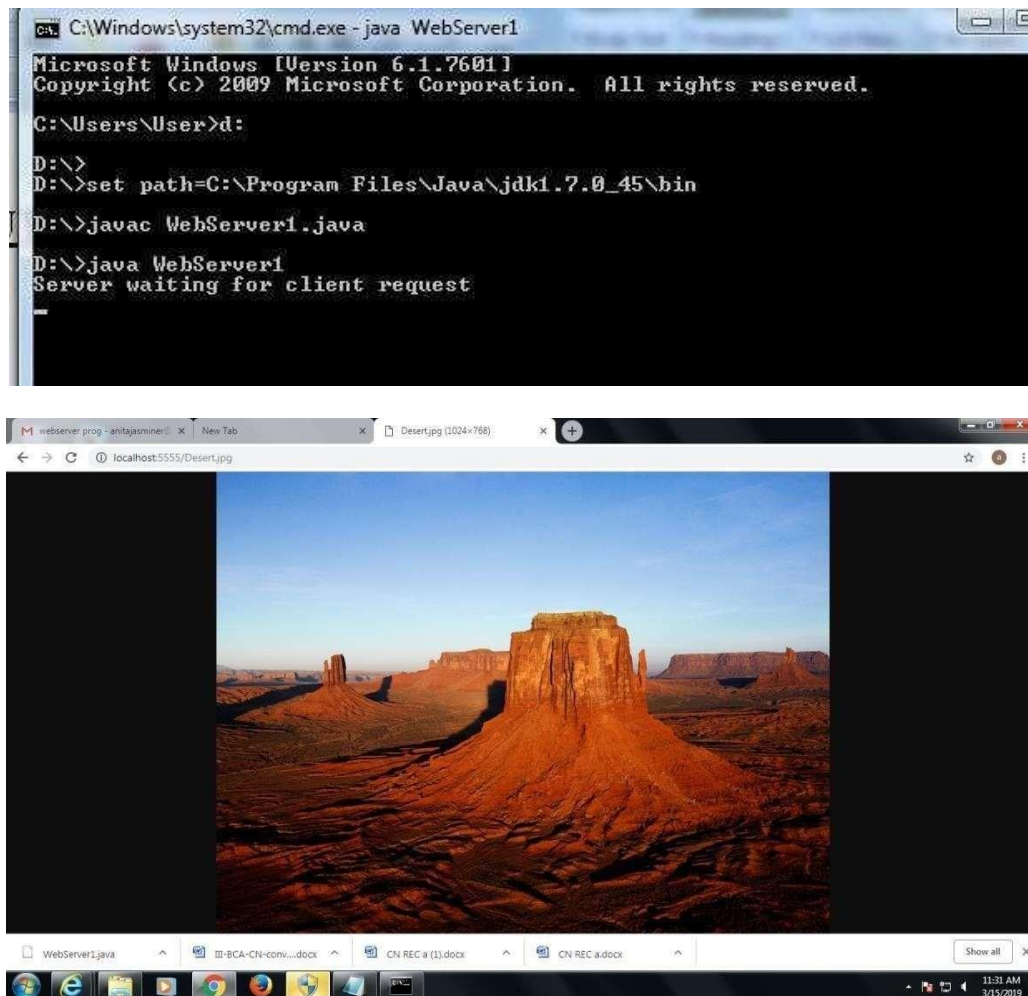
out.print("Content-Length: "+fileSize+"\r\n\r\n");
out.write(fileData);
out.print("\r\n\r\n");
out.close();
}
else

    System.out.println("Bad request message");

} catch (Exception e) {
    e.printStackTrace();
}
}
}
}

```

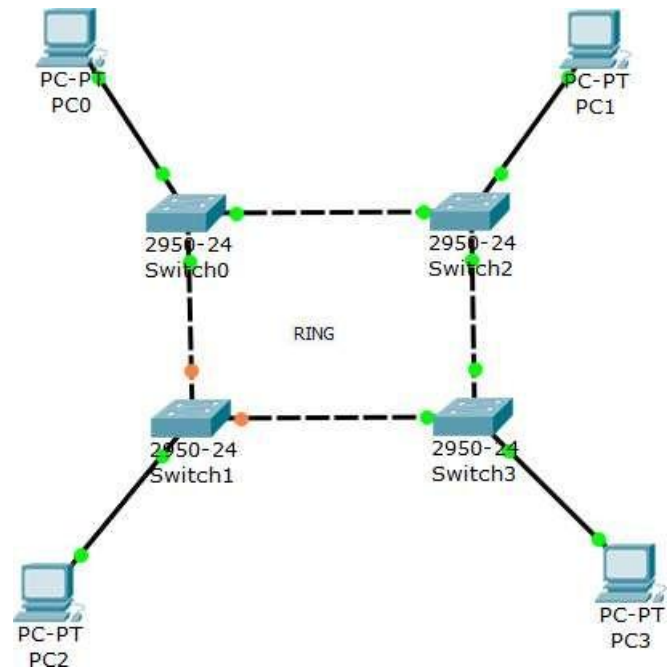
OUTPUT



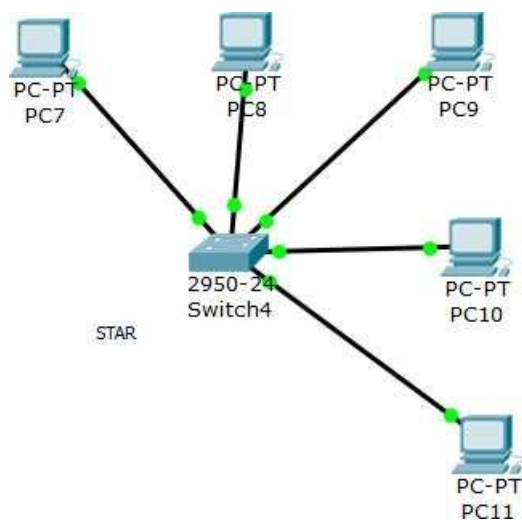
RESULT:

Thus the program for implementing web server is successfully executed and the output is verified.

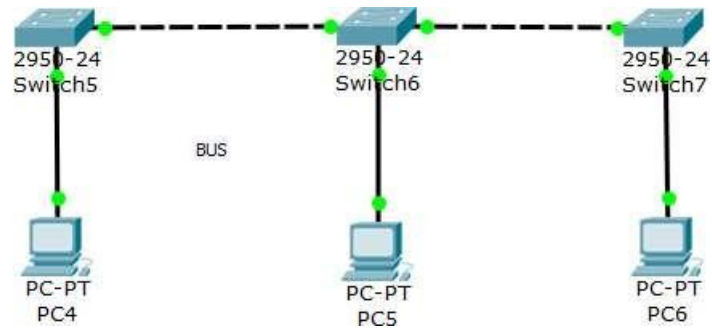
NETWORK TOPOLOGY:
RING TOPOLOGY:



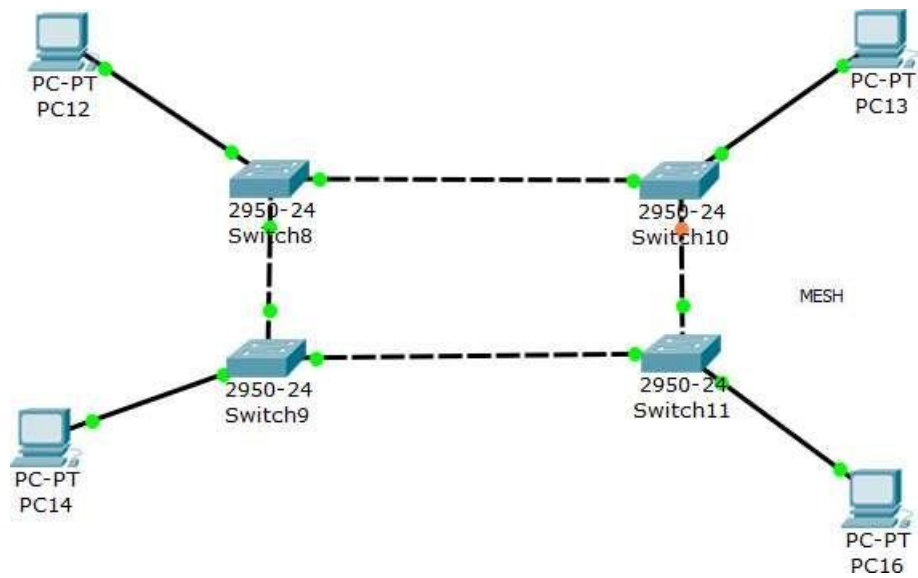
STAR TOPOLOGY:



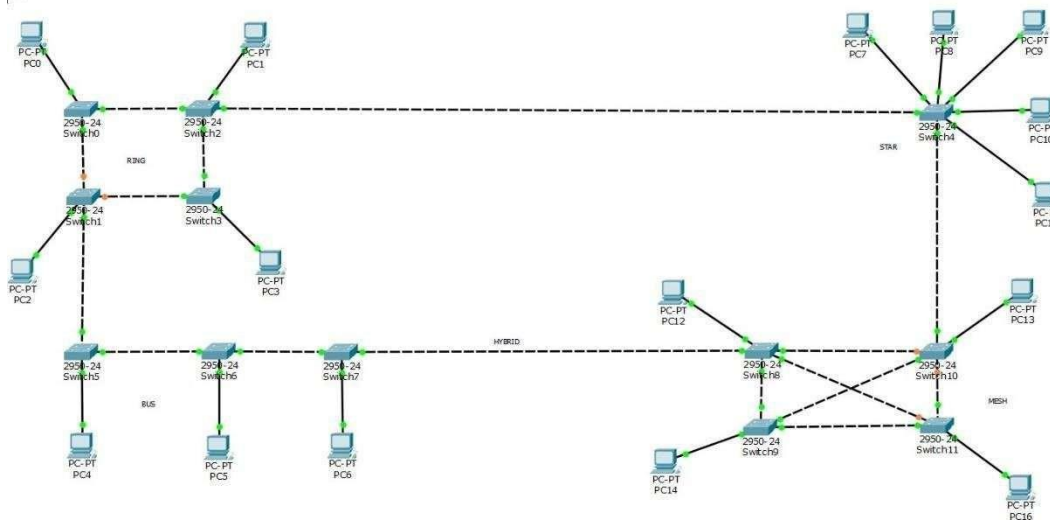
BUS TOPOLOGY:



MESH TOPOLOGY:



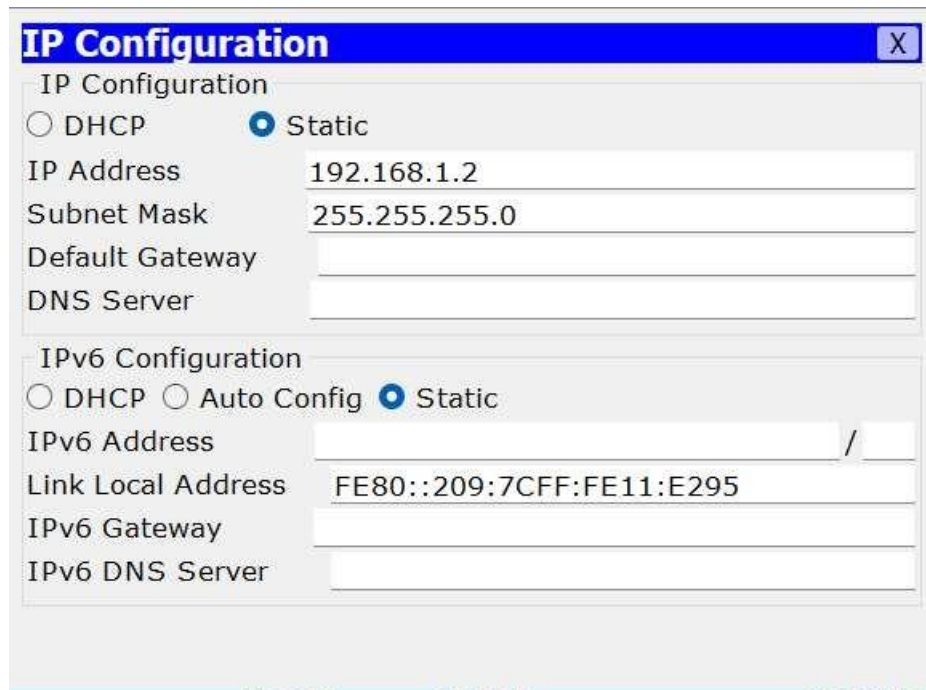
HYBRID TOPOLOGY:



PC0 IP CONFIGURATION ADDRESS:

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::2D0:BAFF:FEE4:5A8B
IPv6 Gateway	
IPv6 DNS Server	

PC1 IP CONFIGURATION ADDRESS:

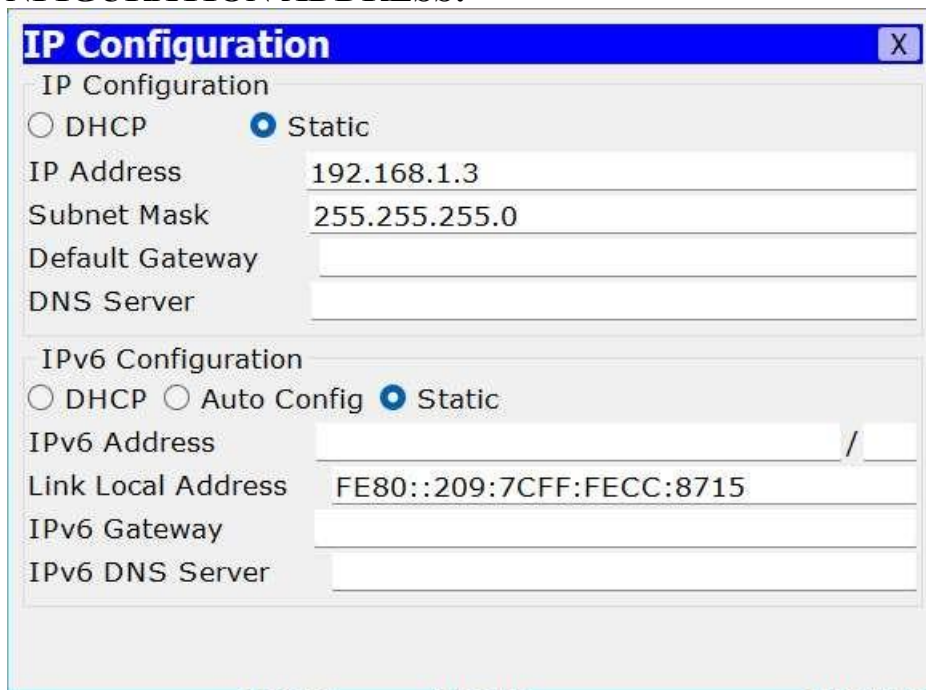


The screenshot shows a window titled "IP Configuration" with a close button (X) in the top right corner. It contains two sections: "IP Configuration" and "IPv6 Configuration". In the "IP Configuration" section, the "Static" radio button is selected. The fields are filled with: IP Address: 192.168.1.2, Subnet Mask: 255.255.255.0, Default Gateway: (empty), and DNS Server: (empty). In the "IPv6 Configuration" section, the "Static" radio button is also selected. The fields are filled with: IPv6 Address: (empty) / (empty), Link Local Address: FE80::209:7CFF:FE11:E295, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty).

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	192.168.1.2
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	/
Link Local Address	FE80::209:7CFF:FE11:E295
IPv6 Gateway	
IPv6 DNS Server	

PC2 IP CONFIGURATION ADDRESS:

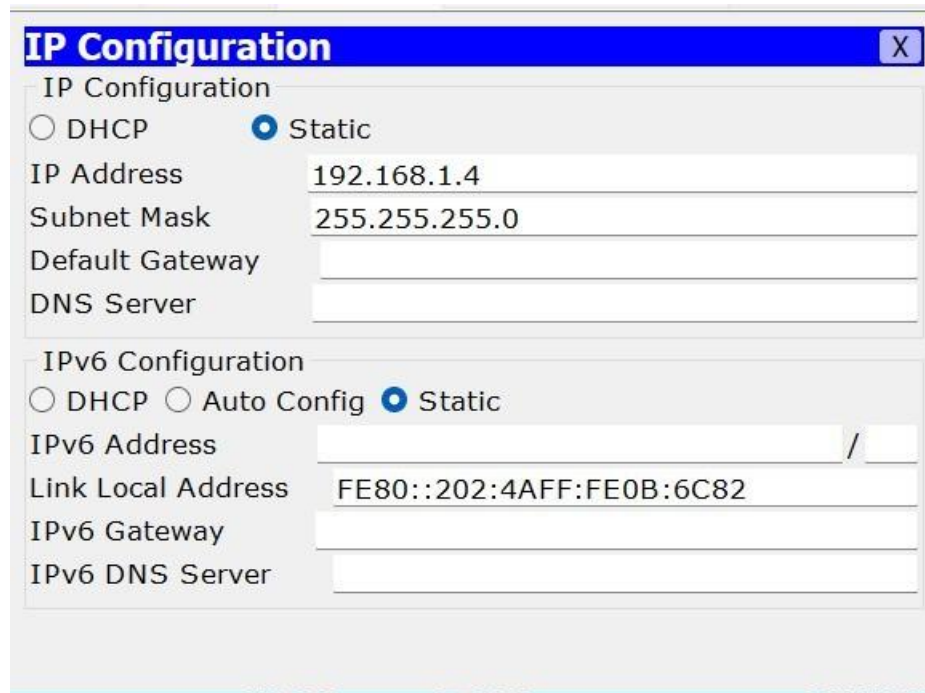


The screenshot shows a window titled "IP Configuration" with a close button (X) in the top right corner. It contains two sections: "IP Configuration" and "IPv6 Configuration". In the "IP Configuration" section, the "Static" radio button is selected. The fields are filled with: IP Address: 192.168.1.3, Subnet Mask: 255.255.255.0, Default Gateway: (empty), and DNS Server: (empty). In the "IPv6 Configuration" section, the "Static" radio button is also selected. The fields are filled with: IPv6 Address: (empty) / (empty), Link Local Address: FE80::209:7CFF:FECC:8715, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty).

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	192.168.1.3
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	/
Link Local Address	FE80::209:7CFF:FECC:8715
IPv6 Gateway	
IPv6 DNS Server	

PC3 IP CONFIGURATION ADDRESS:

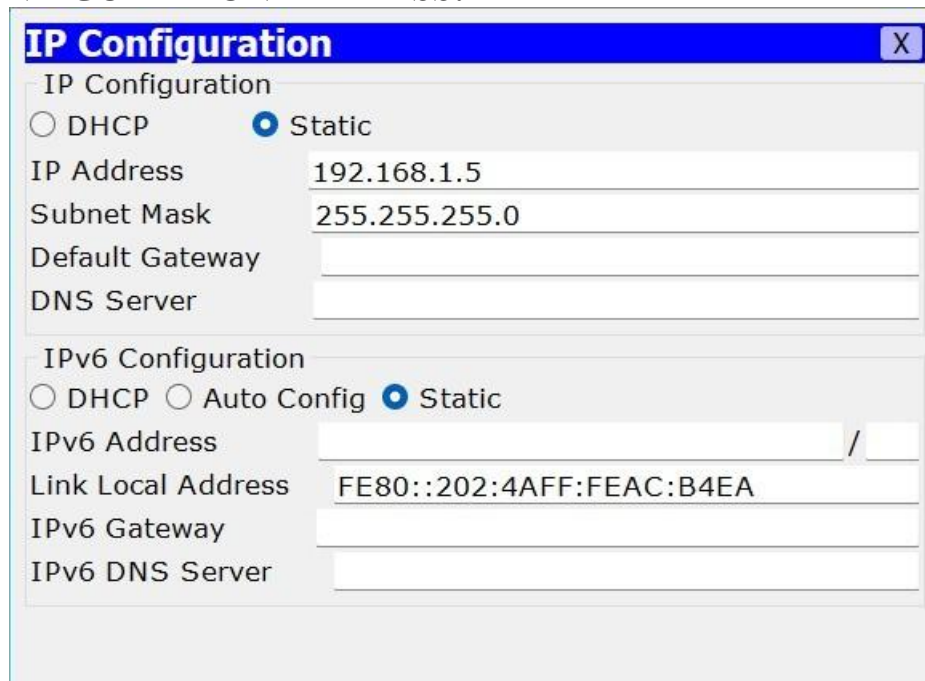


The screenshot shows a window titled "IP Configuration" with a close button (X) in the top right corner. The window is divided into two sections: "IP Configuration" and "IPv6 Configuration". In the "IP Configuration" section, the "Static" radio button is selected. The fields are filled with: IP Address: 192.168.1.4, Subnet Mask: 255.255.255.0, Default Gateway: (empty), and DNS Server: (empty). In the "IPv6 Configuration" section, the "Static" radio button is also selected. The fields are filled with: IPv6 Address: (empty) / (empty), Link Local Address: FE80::202:4AFF:FE0B:6C82, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty).

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.4
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::202:4AFF:FE0B:6C82	
IPv6 Gateway		
IPv6 DNS Server		

PC4 IP CONFIGURATION ADDRESS:

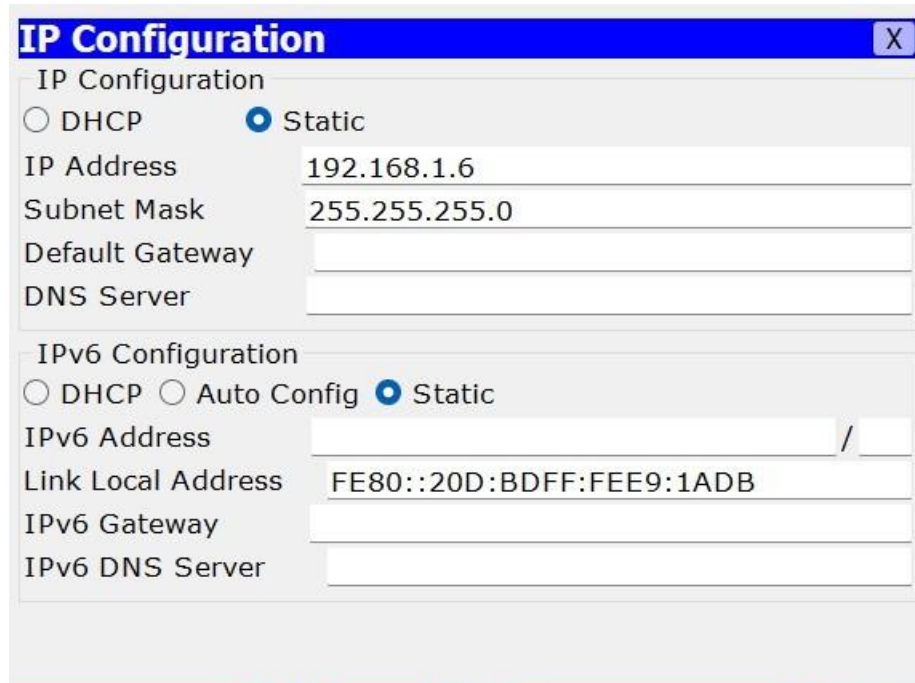


The screenshot shows a window titled "IP Configuration" with a close button (X) in the top right corner. The window is divided into two sections: "IP Configuration" and "IPv6 Configuration". In the "IP Configuration" section, the "Static" radio button is selected. The fields are filled with: IP Address: 192.168.1.5, Subnet Mask: 255.255.255.0, Default Gateway: (empty), and DNS Server: (empty). In the "IPv6 Configuration" section, the "Static" radio button is also selected. The fields are filled with: IPv6 Address: (empty) / (empty), Link Local Address: FE80::202:4AFF:FEAC:B4EA, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty).

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.5
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::202:4AFF:FEAC:B4EA	
IPv6 Gateway		
IPv6 DNS Server		

PC5 IP CONFIGURATION ADDRESS:



The image shows a screenshot of a network configuration window titled "IP Configuration" with a close button (X) in the top right corner. The window is divided into two sections: "IP Configuration" and "IPv6 Configuration".

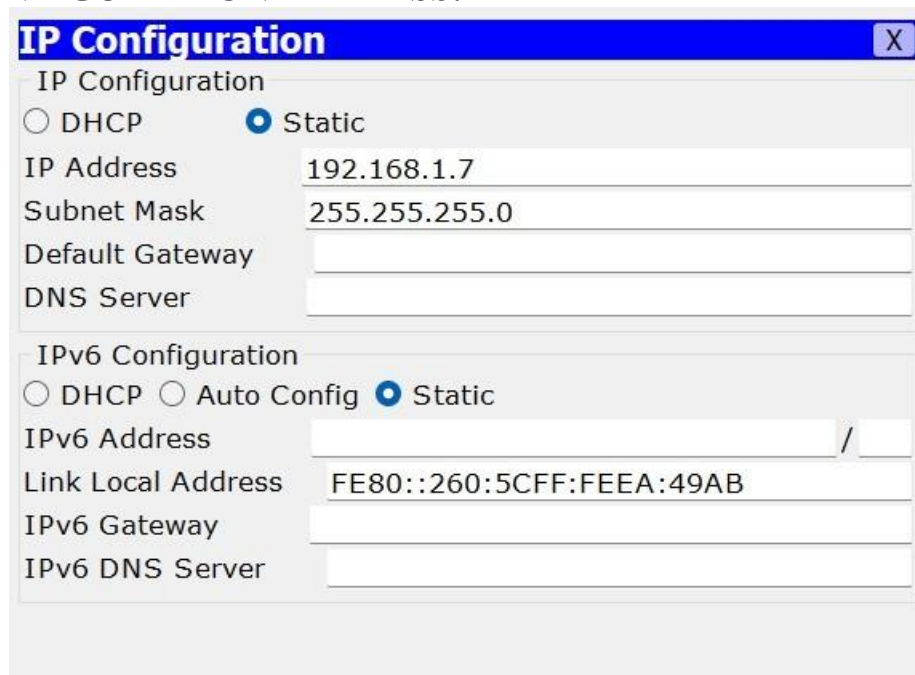
IP Configuration

- ☐ DHCP
- ☒ Static
- IP Address: 192.168.1.6
- Subnet Mask: 255.255.255.0
- Default Gateway: (empty field)
- DNS Server: (empty field)

IPv6 Configuration

- ☐ DHCP
- ☐ Auto Config
- ☒ Static
- IPv6 Address: (empty field) / (empty field)
- Link Local Address: FE80::20D:BDFF:FEE9:1ADB
- IPv6 Gateway: (empty field)
- IPv6 DNS Server: (empty field)

PC6 IP CONFIGURATION ADDRESS:



The image shows a screenshot of a network configuration window titled "IP Configuration" with a close button (X) in the top right corner. The window is divided into two sections: "IP Configuration" and "IPv6 Configuration".

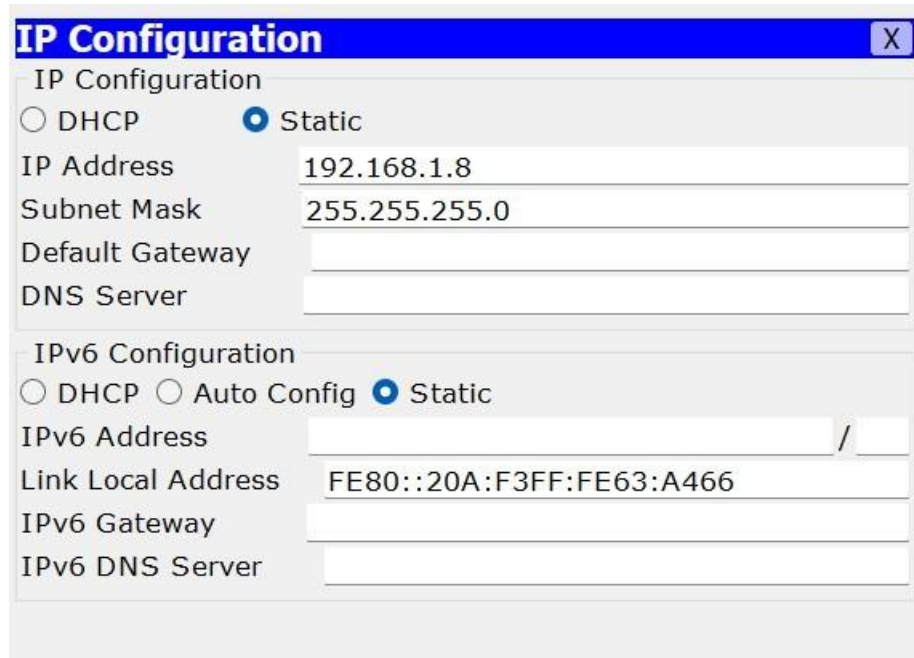
IP Configuration

- ☐ DHCP
- ☒ Static
- IP Address: 192.168.1.7
- Subnet Mask: 255.255.255.0
- Default Gateway: (empty field)
- DNS Server: (empty field)

IPv6 Configuration

- ☐ DHCP
- ☐ Auto Config
- ☒ Static
- IPv6 Address: (empty field) / (empty field)
- Link Local Address: FE80::260:5CFF:FEEA:49AB
- IPv6 Gateway: (empty field)
- IPv6 DNS Server: (empty field)

PC7 IP CONFIGURATION ADDRESS:

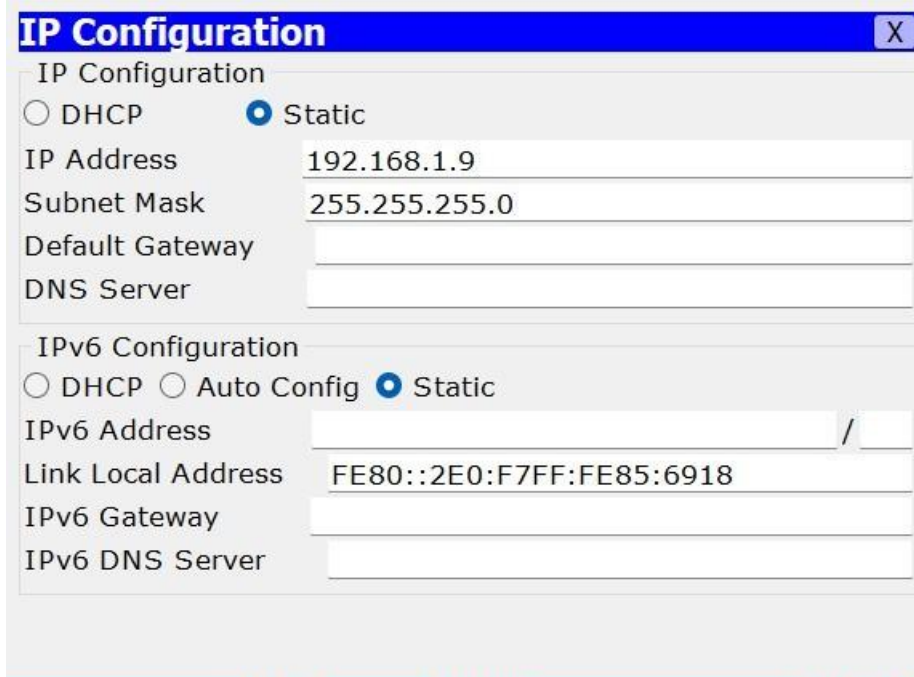


The screenshot shows the 'IP Configuration' window for PC7. It has a blue title bar with the text 'IP Configuration' and a close button 'X'. The window is divided into two sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The 'IP Address' field contains '192.168.1.8', the 'Subnet Mask' field contains '255.255.255.0', and the 'Default Gateway' and 'DNS Server' fields are empty. In the 'IPv6 Configuration' section, the 'Static' radio button is also selected. The 'IPv6 Address' field is empty with a slash '/' next to it, the 'Link Local Address' field contains 'FE80::20A:F3FF:FE63:A466', and the 'IPv6 Gateway' and 'IPv6 DNS Server' fields are empty.

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	192.168.1.8
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	/
Link Local Address	FE80::20A:F3FF:FE63:A466
IPv6 Gateway	
IPv6 DNS Server	

PC8 IP CONFIGURATION ADDRESS:

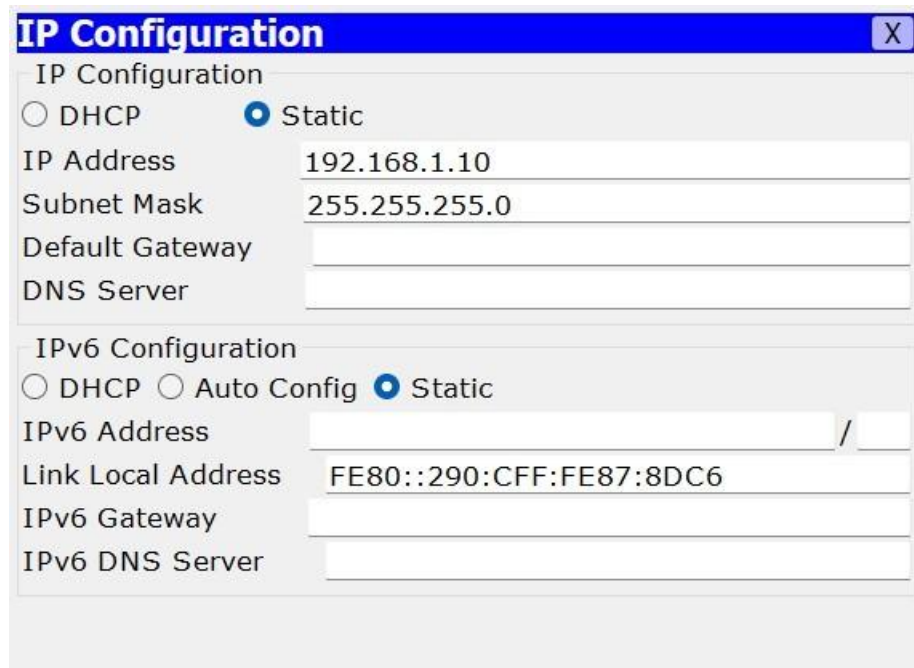


The screenshot shows the 'IP Configuration' window for PC8. It has a blue title bar with the text 'IP Configuration' and a close button 'X'. The window is divided into two sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The 'IP Address' field contains '192.168.1.9', the 'Subnet Mask' field contains '255.255.255.0', and the 'Default Gateway' and 'DNS Server' fields are empty. In the 'IPv6 Configuration' section, the 'Static' radio button is also selected. The 'IPv6 Address' field is empty with a slash '/' next to it, the 'Link Local Address' field contains 'FE80::2E0:F7FF:FE85:6918', and the 'IPv6 Gateway' and 'IPv6 DNS Server' fields are empty.

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	192.168.1.9
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	/
Link Local Address	FE80::2E0:F7FF:FE85:6918
IPv6 Gateway	
IPv6 DNS Server	

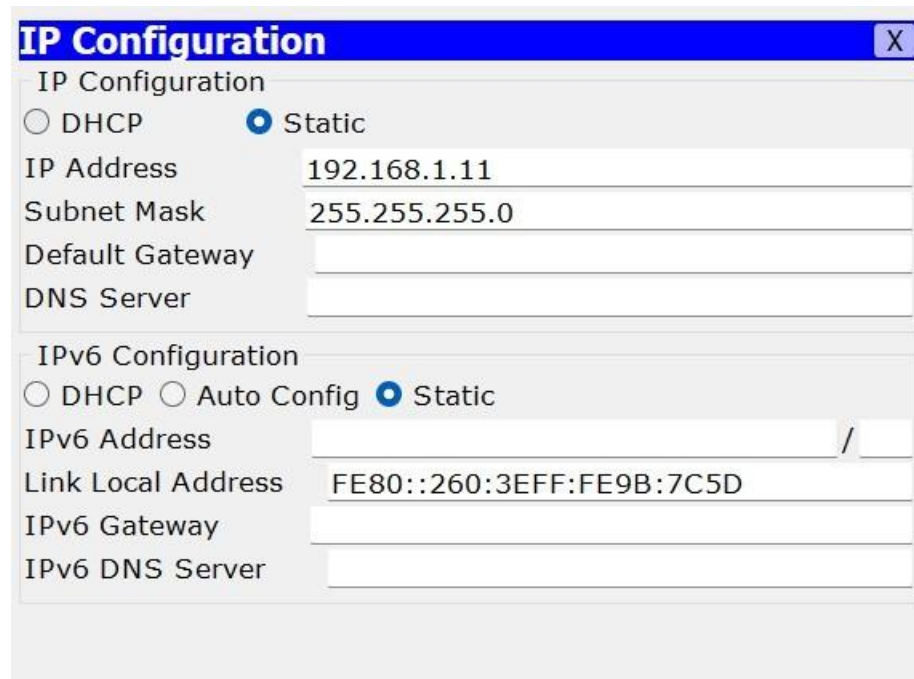
PC9 IP CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC9. The 'IP Configuration' section has 'Static' selected. The 'IPv6 Configuration' section also has 'Static' selected. The IP Address is 192.168.1.10, Subnet Mask is 255.255.255.0, and the Link Local Address is FE80::290:CFF:FE87:8DC6.

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.10
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config <input checked="" type="radio"/> Static
IPv6 Address	/
Link Local Address	FE80::290:CFF:FE87:8DC6
IPv6 Gateway	
IPv6 DNS Server	

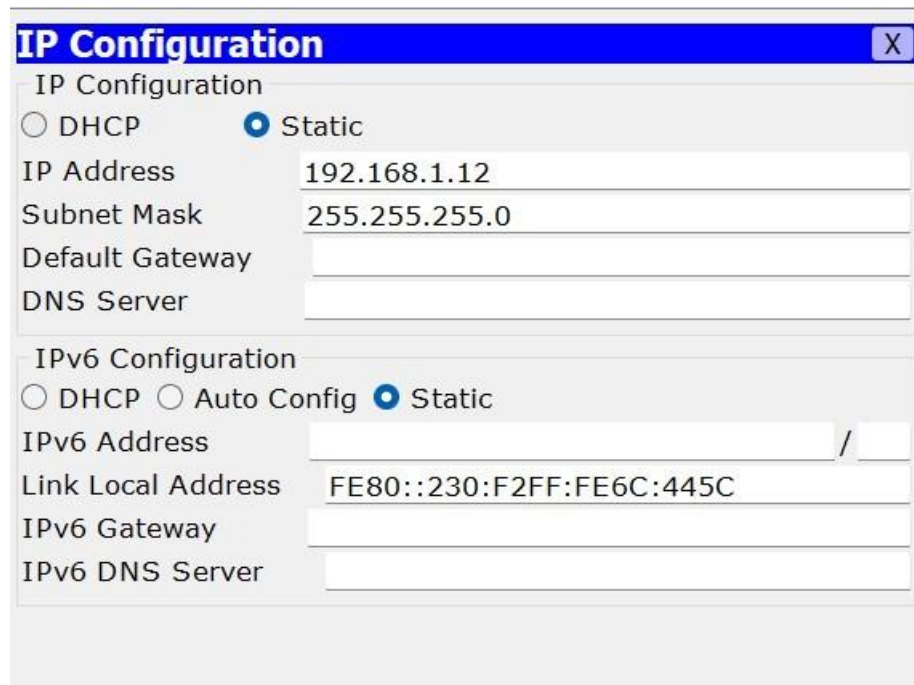
PC10 IP CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC10. The 'IP Configuration' section has 'Static' selected. The 'IPv6 Configuration' section also has 'Static' selected. The IP Address is 192.168.1.11, Subnet Mask is 255.255.255.0, and the Link Local Address is FE80::260:3EFF:FE9B:7C5D.

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.11
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config <input checked="" type="radio"/> Static
IPv6 Address	/
Link Local Address	FE80::260:3EFF:FE9B:7C5D
IPv6 Gateway	
IPv6 DNS Server	

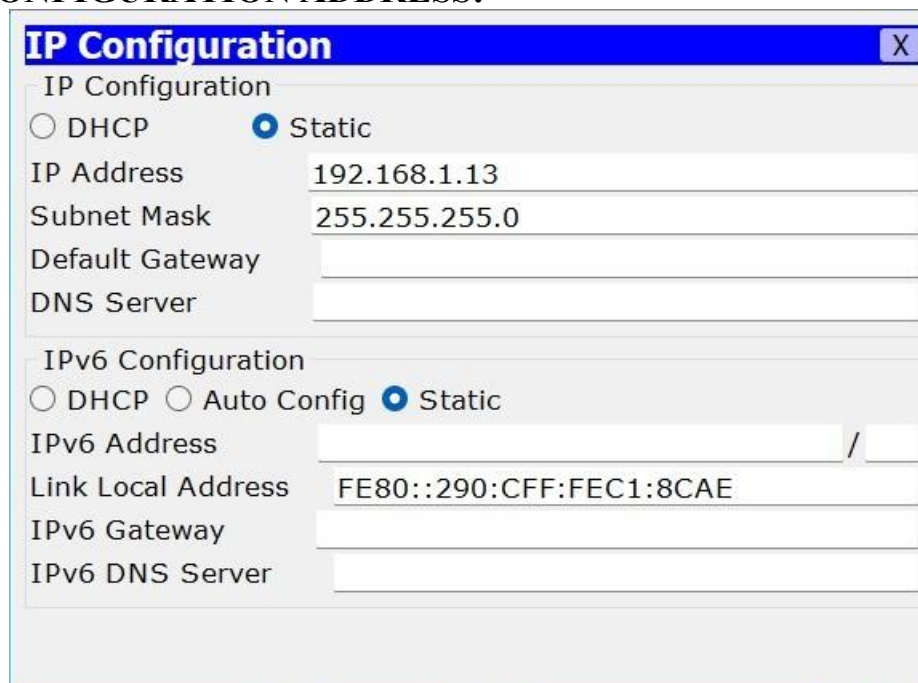
PC11 IP CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC11. The window has a blue title bar with the text 'IP Configuration' and a close button 'X'. Below the title bar, there is a section for 'IP Configuration' with two radio buttons: 'DHCP' (unselected) and 'Static' (selected). The 'Static' configuration fields are filled with the following values: IP Address: 192.168.1.12, Subnet Mask: 255.255.255.0, Default Gateway: (empty), and DNS Server: (empty). Below this, there is a section for 'IPv6 Configuration' with three radio buttons: 'DHCP' (unselected), 'Auto Config' (unselected), and 'Static' (selected). The 'Static' configuration fields are filled with the following values: IPv6 Address: (empty), Link Local Address: FE80::230:F2FF:FE6C:445C, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty).

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.12
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config
	<input checked="" type="radio"/> Static
IPv6 Address	/
Link Local Address	FE80::230:F2FF:FE6C:445C
IPv6 Gateway	
IPv6 DNS Server	

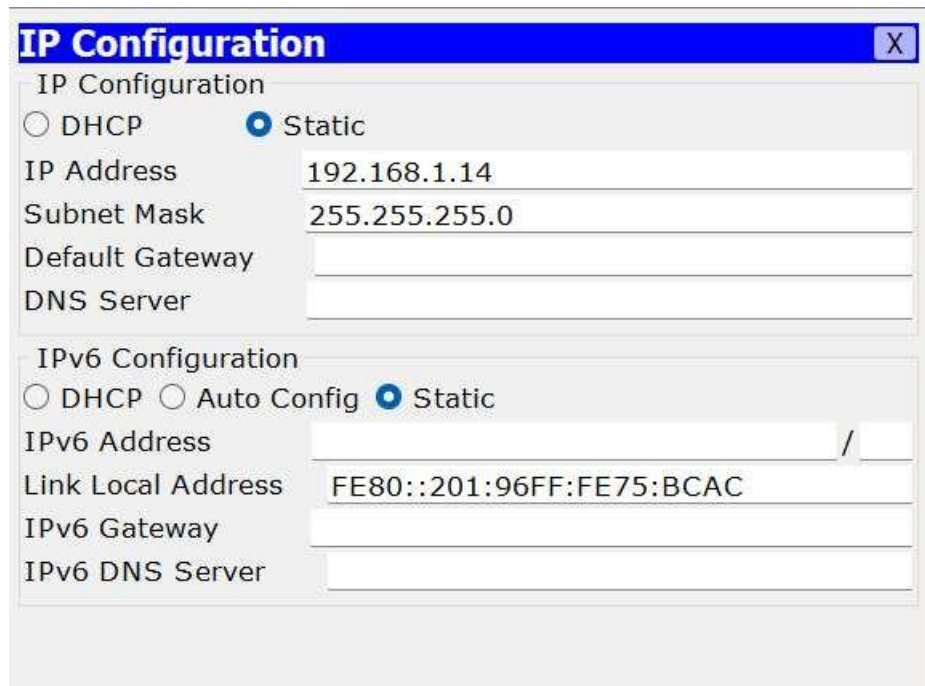
PC12 IP CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC12. The window has a blue title bar with the text 'IP Configuration' and a close button 'X'. Below the title bar, there is a section for 'IP Configuration' with two radio buttons: 'DHCP' (unselected) and 'Static' (selected). The 'Static' configuration fields are filled with the following values: IP Address: 192.168.1.13, Subnet Mask: 255.255.255.0, Default Gateway: (empty), and DNS Server: (empty). Below this, there is a section for 'IPv6 Configuration' with three radio buttons: 'DHCP' (unselected), 'Auto Config' (unselected), and 'Static' (selected). The 'Static' configuration fields are filled with the following values: IPv6 Address: (empty), Link Local Address: FE80::290:CFF:FEC1:8CAE, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty).

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.13
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config
	<input checked="" type="radio"/> Static
IPv6 Address	/
Link Local Address	FE80::290:CFF:FEC1:8CAE
IPv6 Gateway	
IPv6 DNS Server	

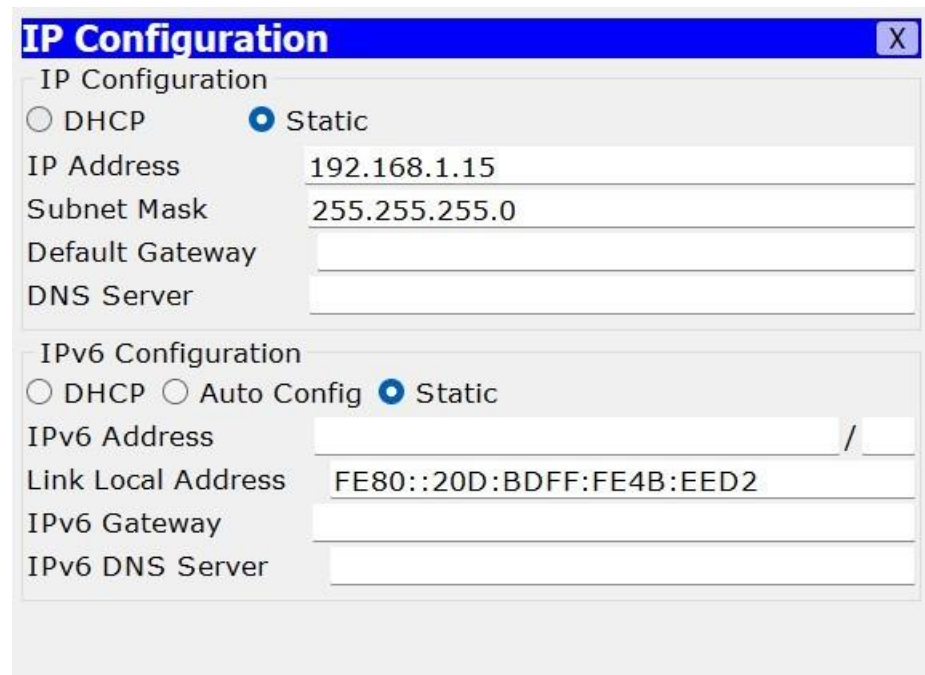
PC13 IP CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC13. The 'IP Configuration' section has 'Static' selected. The 'IPv6 Configuration' section has 'Static' selected. The IP Address is 192.168.1.14, Subnet Mask is 255.255.255.0, and the Link Local Address is FE80::201:96FF:FE75:BCAC.

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.14
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config
	<input checked="" type="radio"/> Static
IPv6 Address	/
Link Local Address	FE80::201:96FF:FE75:BCAC
IPv6 Gateway	
IPv6 DNS Server	

PC14 IP CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC14. The 'IP Configuration' section has 'Static' selected. The 'IPv6 Configuration' section has 'Static' selected. The IP Address is 192.168.1.15, Subnet Mask is 255.255.255.0, and the Link Local Address is FE80::20D:BDFF:FE4B:EED2.

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	192.168.1.15
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config
	<input checked="" type="radio"/> Static
IPv6 Address	/
Link Local Address	FE80::20D:BDFF:FE4B:EED2
IPv6 Gateway	
IPv6 DNS Server	

PC15 IP CONFIGURATION ADDRESS:

IP Configuration X

IP Configuration

☐ DHCP

☒ Static

IP Address

192.168.1.16

Subnet Mask

255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

/

Link Local Address

FE80::201:43FF:FE5C:D83D

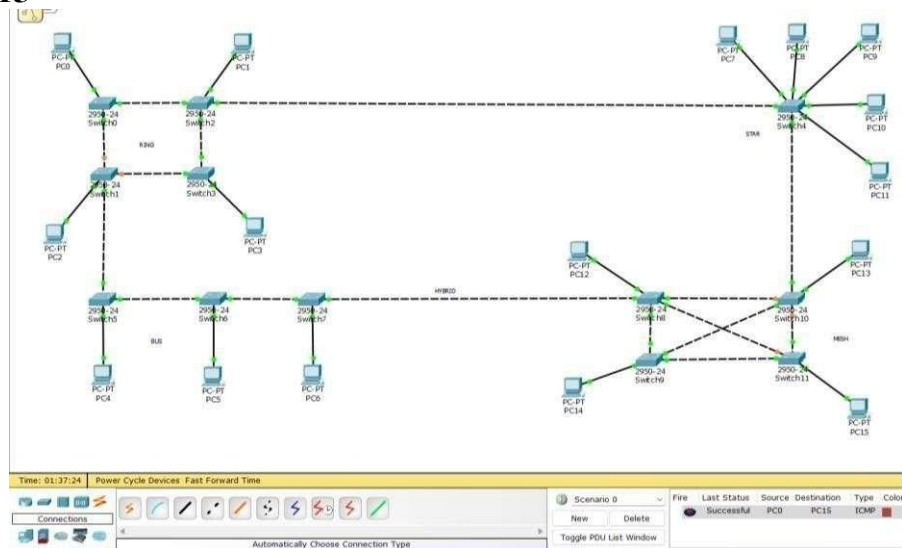
IPv6 Gateway

IPv6 DNS Server

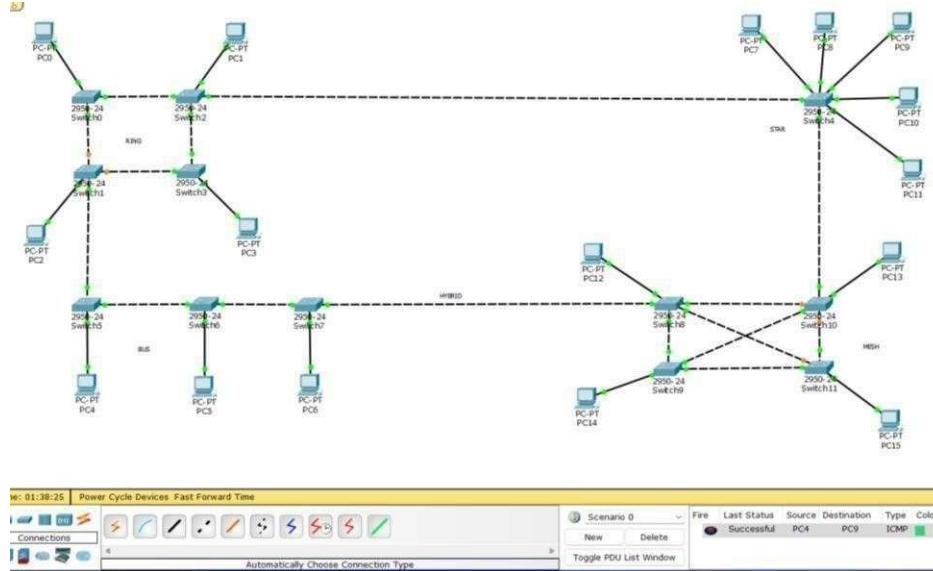
VERIFY LAN NETWORK CONNECTIVITY

Using Add Simple PDU(p), Click the mail icon and then drop one mail to one of the PC in first LAN and another mail to PC in another LAN. If the resultant window shows the successful delivery of the mail, then network connectivity is successful.

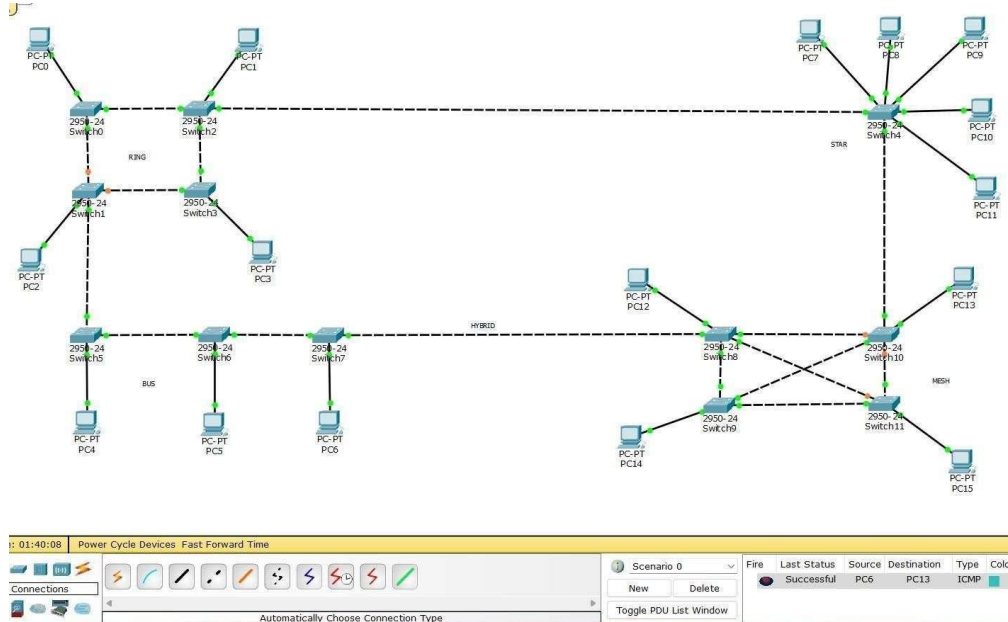
PC0 TO PC15



PC4 TO PC9



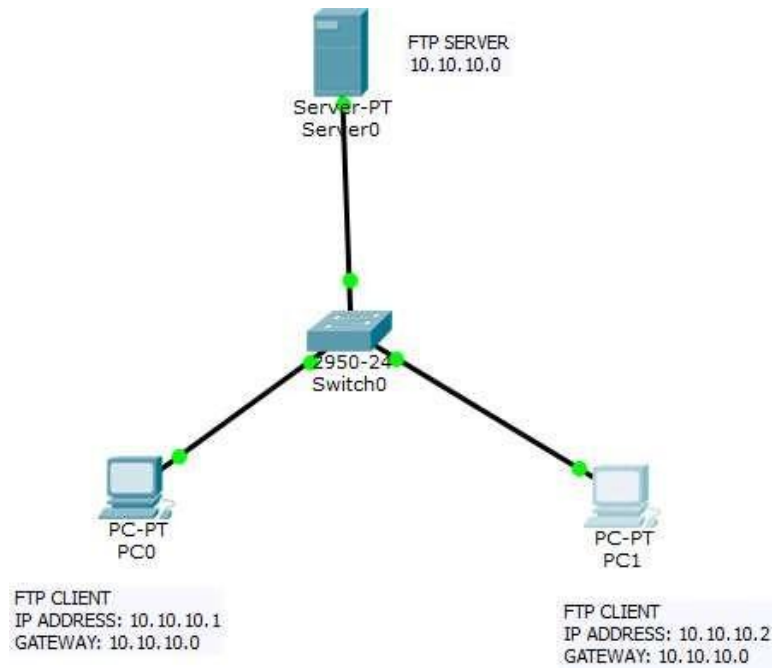
PC6 TO PC13



CONCLUSION:

Thus, various topologies are designed using cisco packet tracer and the communication between LANs is checked successfully

NETWORK ARCHITECTURE



SERVER 0 CONFIGURATION ADDRESS:

Server0

Physical Config Services Desktop Custom Interface

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address: 10.10.10.0

Subnet Mask: 255.0.0.0

Default Gateway:

DNS Server:

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

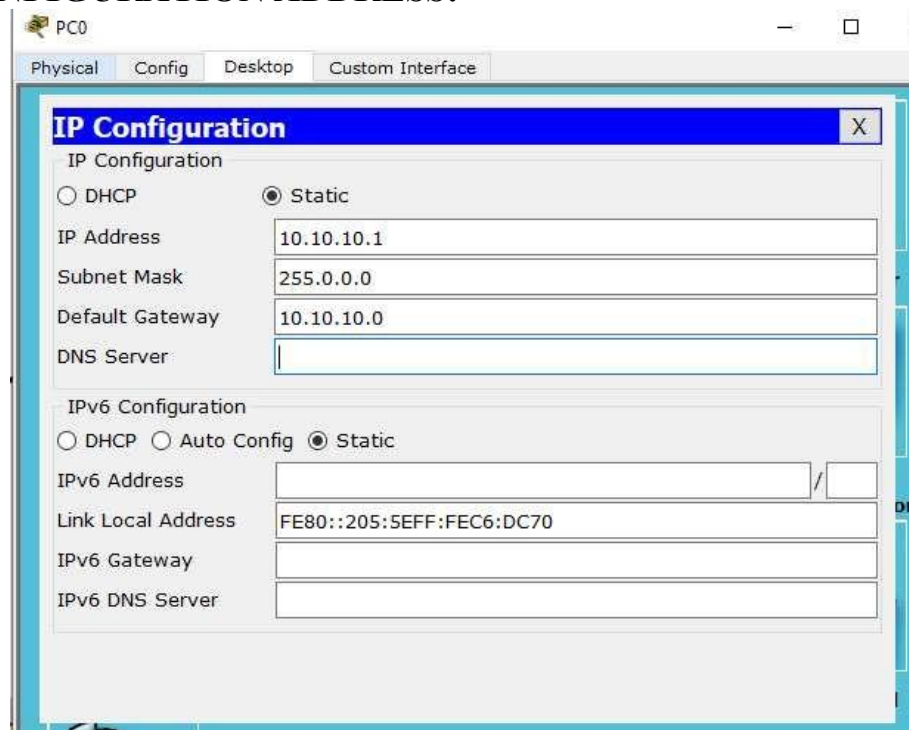
IPv6 Address: /

Link Local Address: FE80::204:9AFF:FE29:2842

IPv6 Gateway:

IPv6 DNS Server:

PC0 IP CONFIGURATION ADDRESS:

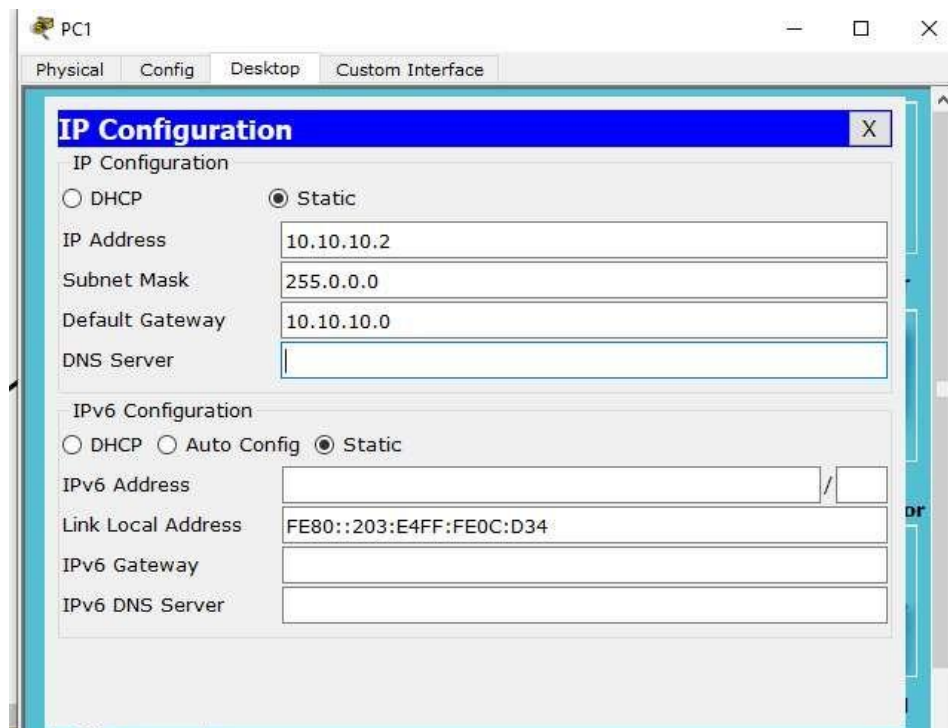


The screenshot shows the 'IP Configuration' window for PC0. The window has tabs for 'Physical', 'Config', 'Desktop', and 'Custom Interface'. The 'Config' tab is active. Under 'IP Configuration', the 'Static' radio button is selected. The fields are filled with: IP Address: 10.10.10.1, Subnet Mask: 255.0.0.0, Default Gateway: 10.10.10.0, and DNS Server: (empty). Under 'IPv6 Configuration', the 'Static' radio button is selected. The fields are filled with: IPv6 Address: (empty), Link Local Address: FE80::205:5EFF:FEC6:DC70, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty).

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	10.10.10.1
Subnet Mask	255.0.0.0
Default Gateway	10.10.10.0
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::205:5EFF:FEC6:DC70
IPv6 Gateway	
IPv6 DNS Server	

PC1 CONFIGURATION ADDRESS:



The screenshot shows the 'IP Configuration' window for PC1. The window has tabs for 'Physical', 'Config', 'Desktop', and 'Custom Interface'. The 'Config' tab is active. Under 'IP Configuration', the 'Static' radio button is selected. The fields are filled with: IP Address: 10.10.10.2, Subnet Mask: 255.0.0.0, Default Gateway: 10.10.10.0, and DNS Server: (empty). Under 'IPv6 Configuration', the 'Static' radio button is selected. The fields are filled with: IPv6 Address: (empty), Link Local Address: FE80::203:E4FF:FE0C:D34, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty).

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	10.10.10.2
Subnet Mask	255.0.0.0
Default Gateway	10.10.10.0
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::203:E4FF:FE0C:D34
IPv6 Gateway	
IPv6 DNS Server	

FTP SERVER0 CONFIGURATION:

Select services for FTP server S0. Switch off all the services except FTP.

Server0

Physical Config Services Desktop Custom Interface

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP

EMAIL

SMTP Service ☐ ON ☒ OFF

POP3 Service ☐ ON ☒ OFF

Domain Name: Set

User Setup

User Password

+
-
Change
Password

Switch on FTP service. Enter a Username (jane) and Password (123). Select the Read, Write, Delete permission. Click ADD.

Server0

Physical Config Services Desktop Custom Interface

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP

FTP

Service ☒ On ☐ Off

User Setup

Username Password

☒ Write ☒ Read ☒ Delete ☐ Rename ☐ List

	Username	Password	Permission
1	cisco	cisco	RWDNL

Add
Save
Remove

File

1	asa842-k8.bin
2	c1841-advipservicesk9-mz.124-15.T1.bin
3	c1841-ipbase-mz.123-14.T7.bin
4	c1841-ipbasek9-mz.124-12.bin

Remove

Go to the command prompt for PC0 . Connect to the FTP server and enter the username and password.

ipconfig

Packet Tracer PC Command Line 1.0

PC>ipconfig

FastEthernet0 Connection:(default port)

Link-local IPv6 Address: FE80::205:5EFF:FEC6:DC70

IP Address: 10.10.10.1

Subnet Mask: 255.0.0.0

Default Gateway: 10.10.10.0

PC>

PC>ftp 10.10.10.0

Trying to connect...10.10.10.0

Connected to 10.10.10.0

220- Welcome to PT Ftp server

Username:jane

331- Username ok, need password

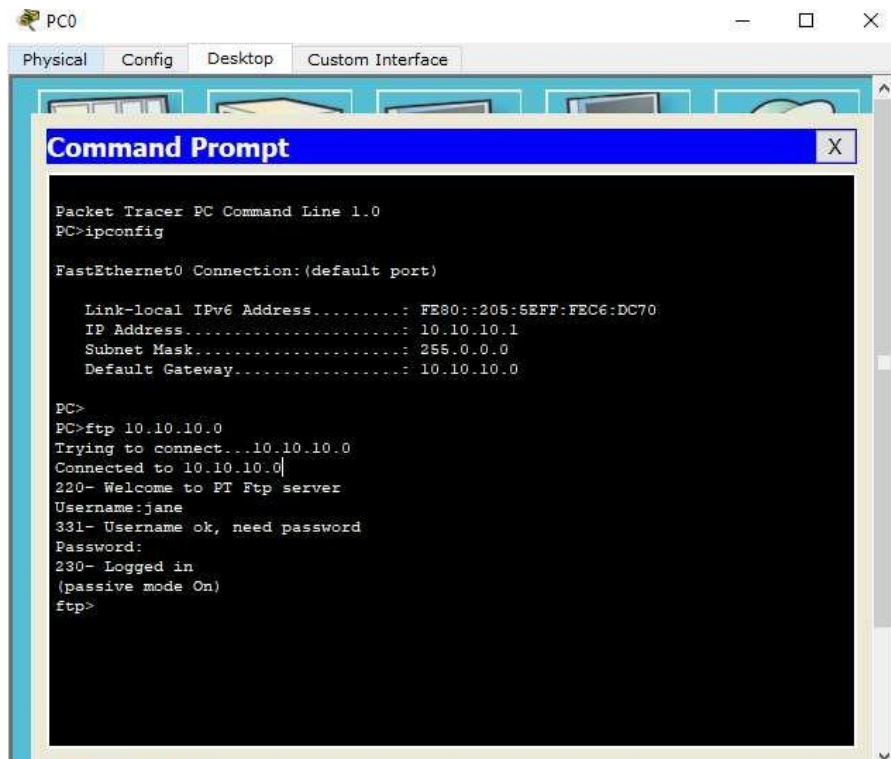
Password:

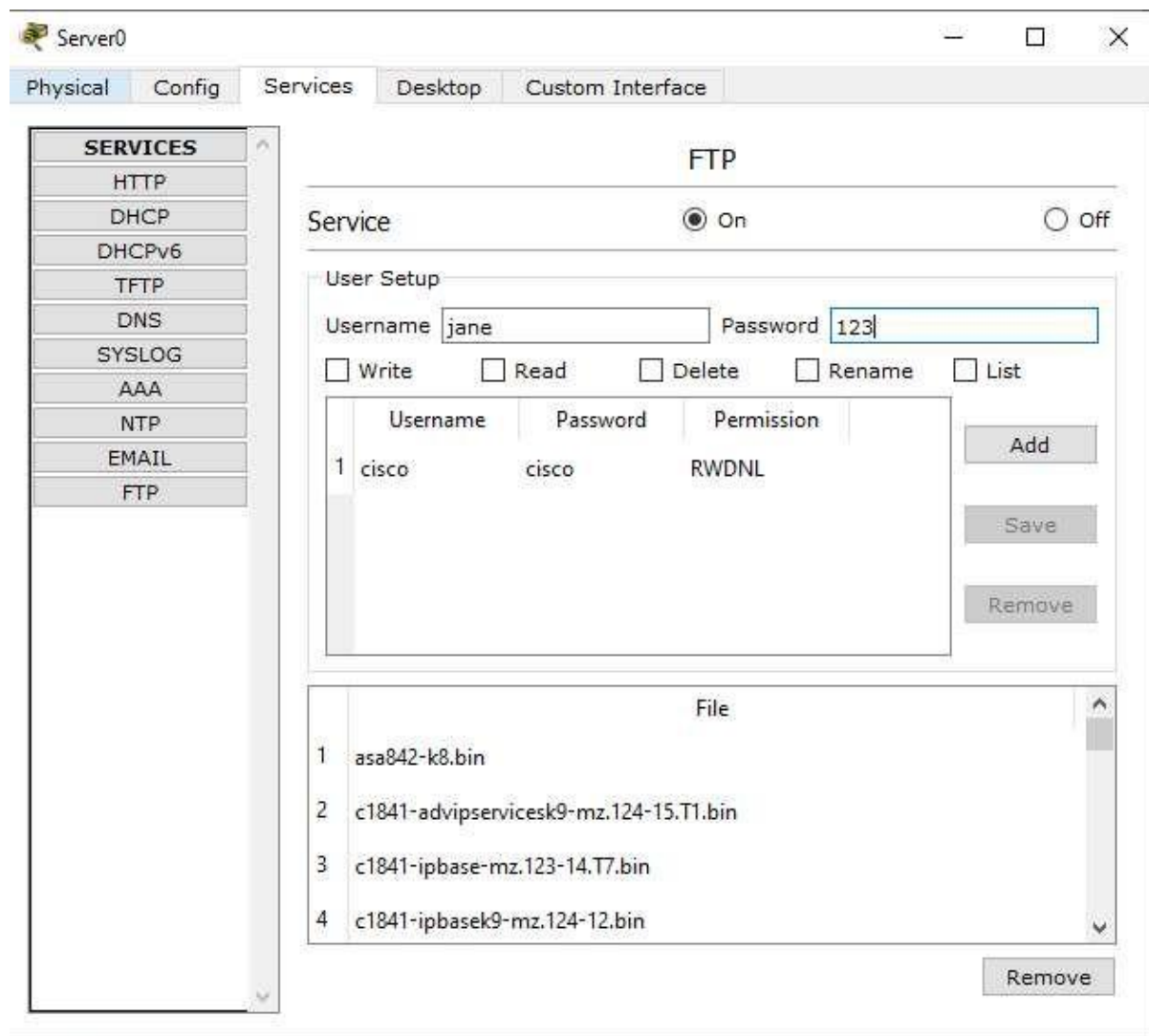
230- Logged in

(passive mode On)

ftp>

FTP LOGIN FROM PC0:

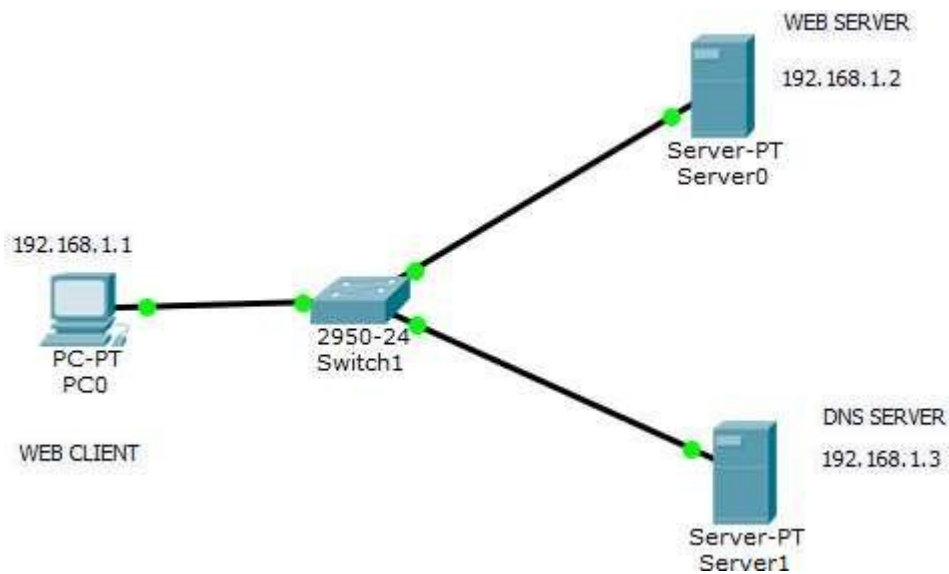




CONCLUSION:

Thus, FTP SERVER simulation using Cisco Packet Tracer is implemented successfully.

NETWORK ARCHITECTURE



PC0 CONFIGURATION ADDRESS:

PC0

Physical Config Desktop Custom Interface

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

Default Gateway:

DNS Server: 192.168.1.3

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::201:63FF:FE51:4A9

IPv6 Gateway:

IPv6 DNS Server:

SERVER0 CONFIGURATION ADDRESS:

Server0

Physical Config Services Desktop Custom Interface

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address: 192.168.1.2

Subnet Mask: 255.255.255.0

Default Gateway:

DNS Server: 192.168.1.3

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address:

Link Local Address: FE80::201:64FF:FE73:5116

IPv6 Gateway:

IPv6 DNS Server:

WEB SERVER S1 CONFIGURATION ADDRESS:

Server1

Physical Config Services Desktop Custom Interface

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP

DNS

DNS Service: ☒ On ☐ Off

Resource Records

Name: Type: A Record

Address:

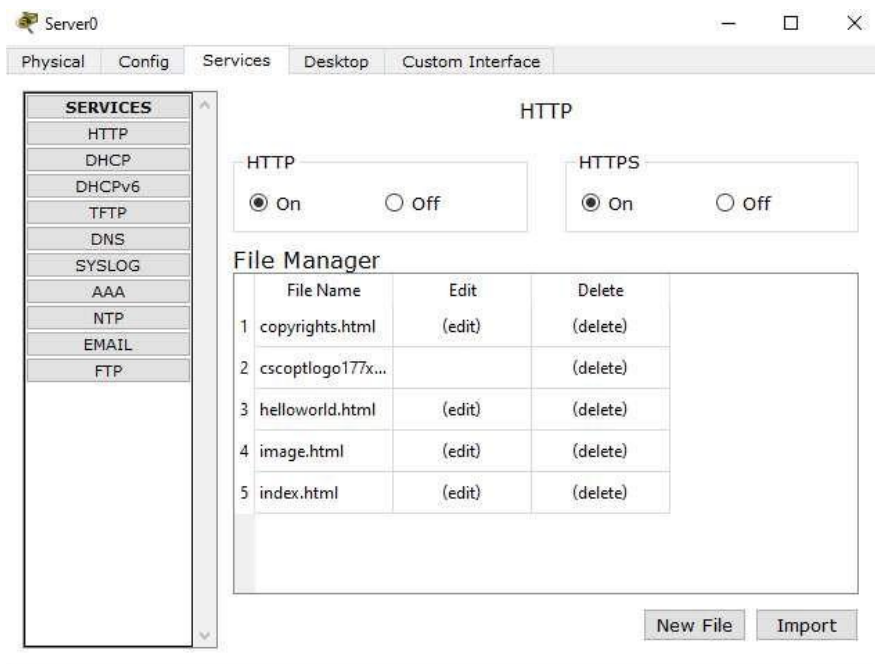
Add Save Remove

No.	Name	Type	Detail
0	www.google.com	A Record	192.168.1.2

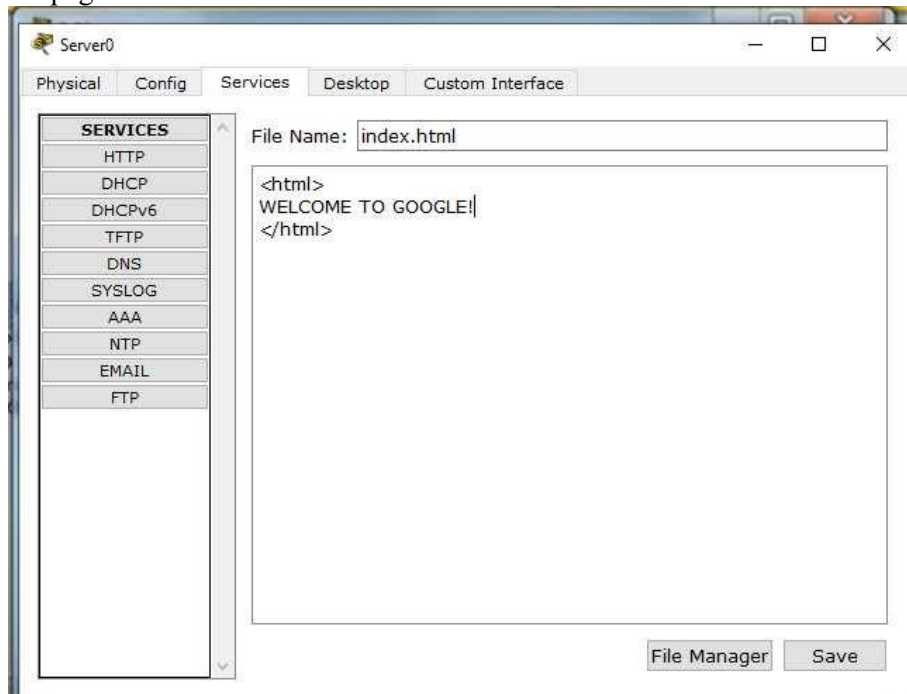
DNS Cache

DNS SERVER S0 CONFIGURATION:

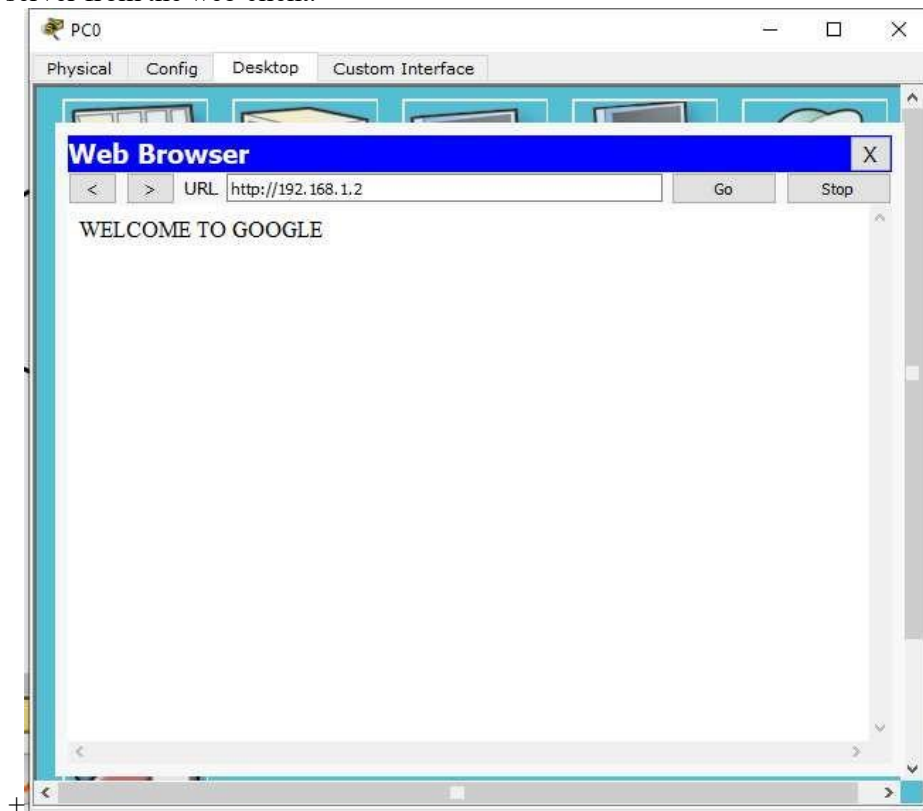
Select index.html and click on the edit option.



Edit the index.html page as shown below.



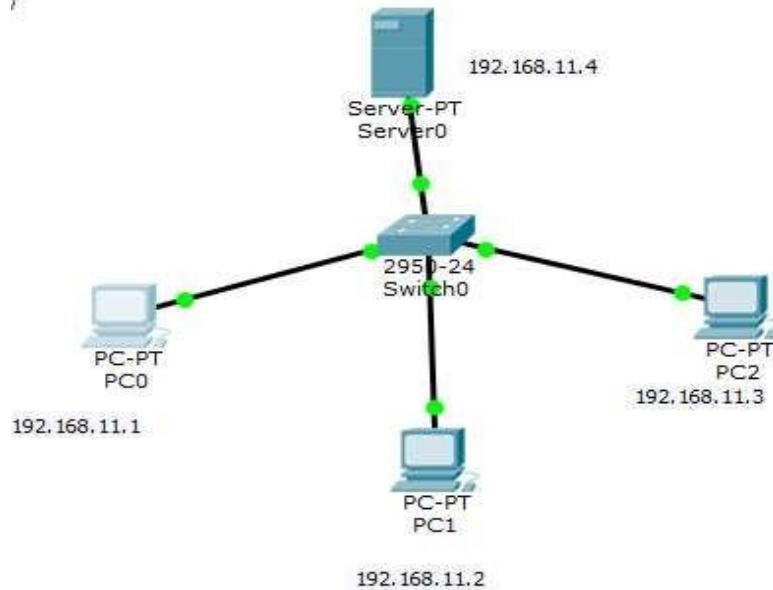
Log in the web server from the web client.



CONCLUSION:

Thus, DNS SERVER simulation using Cisco Packet Tracer is implemented successfully.

NETWORK ARCHITECTURE



PC0 CONFIGURATION ADDRESS

PC0

Physical Config Desktop Custom Interface

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 192.168.11.1

Subnet Mask: 255.255.255.0

Default Gateway:

DNS Server:

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

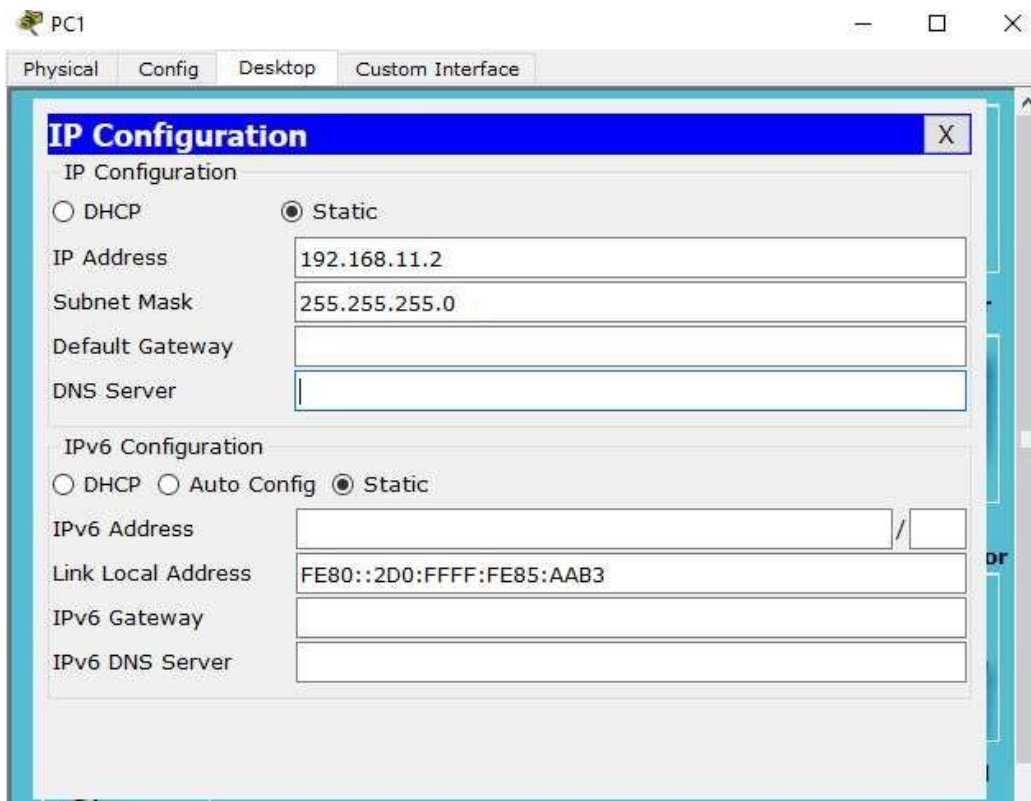
IPv6 Address: /

Link Local Address: FE80::200:CFF:FE00:B32D

IPv6 Gateway:

IPv6 DNS Server:

PC1 CONFIGURATION ADDRESS



The screenshot shows the 'IP Configuration' window for PC1. The window has tabs for 'Physical', 'Config', 'Desktop', and 'Custom Interface'. The 'Config' tab is active. The 'IP Configuration' section has two radio buttons: 'DHCP' and 'Static'. The 'Static' radio button is selected. Below the radio buttons are four text input fields: 'IP Address' (192.168.11.2), 'Subnet Mask' (255.255.255.0), 'Default Gateway' (empty), and 'DNS Server' (empty). The 'IPv6 Configuration' section has three radio buttons: 'DHCP', 'Auto Config', and 'Static'. The 'Static' radio button is selected. Below the radio buttons are four text input fields: 'IPv6 Address' (empty), 'Link Local Address' (FE80::2D0:FFFF:FE85:AAB3), 'IPv6 Gateway' (empty), and 'IPv6 DNS Server' (empty).

PC1

Physical Config Desktop Custom Interface

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.11.2

Subnet Mask 255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

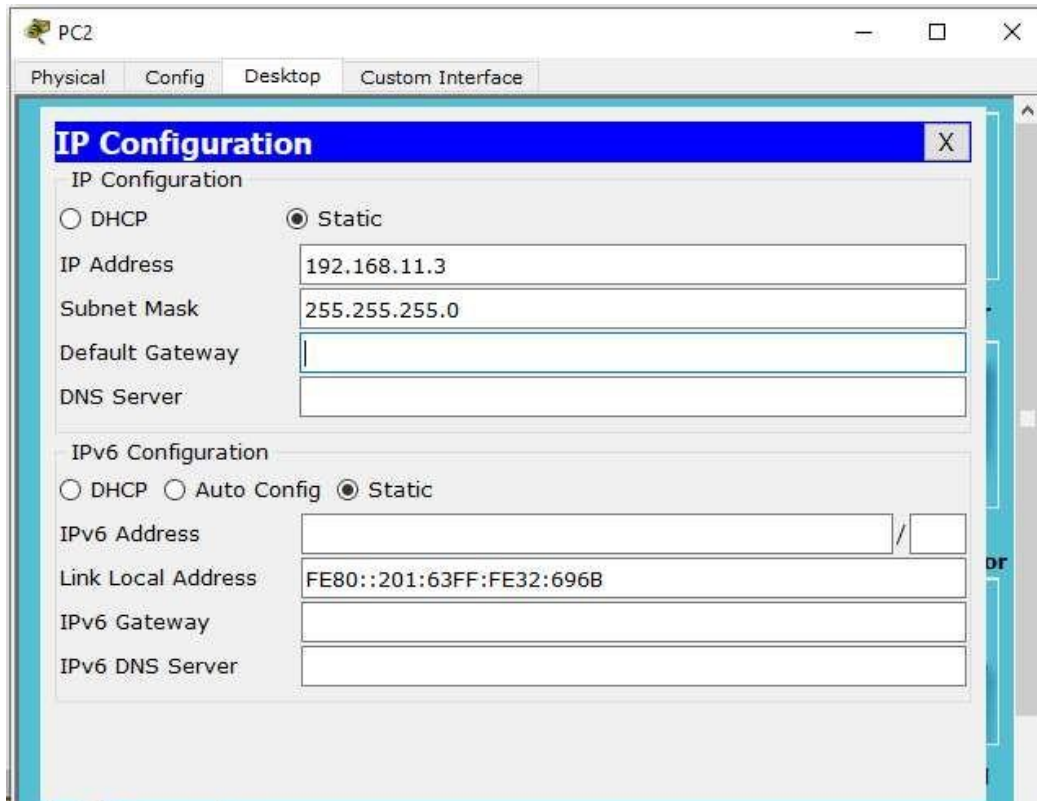
IPv6 Address /

Link Local Address FE80::2D0:FFFF:FE85:AAB3

IPv6 Gateway

IPv6 DNS Server

PC2 CONFIGURATION ADDRESS



The screenshot shows the 'IP Configuration' window for PC2. The window has tabs for 'Physical', 'Config', 'Desktop', and 'Custom Interface'. The 'Config' tab is active. The 'IP Configuration' section has two radio buttons: 'DHCP' and 'Static'. The 'Static' radio button is selected. Below the radio buttons are four text input fields: 'IP Address' (192.168.11.3), 'Subnet Mask' (255.255.255.0), 'Default Gateway' (empty), and 'DNS Server' (empty). The 'IPv6 Configuration' section has three radio buttons: 'DHCP', 'Auto Config', and 'Static'. The 'Static' radio button is selected. Below the radio buttons are four text input fields: 'IPv6 Address' (empty), 'Link Local Address' (FE80::201:63FF:FE32:696B), 'IPv6 Gateway' (empty), and 'IPv6 DNS Server' (empty).

PC2

Physical Config Desktop Custom Interface

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.11.3

Subnet Mask 255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::201:63FF:FE32:696B

IPv6 Gateway

IPv6 DNS Server

SERVER S0 CONFIGURATION ADDRESS

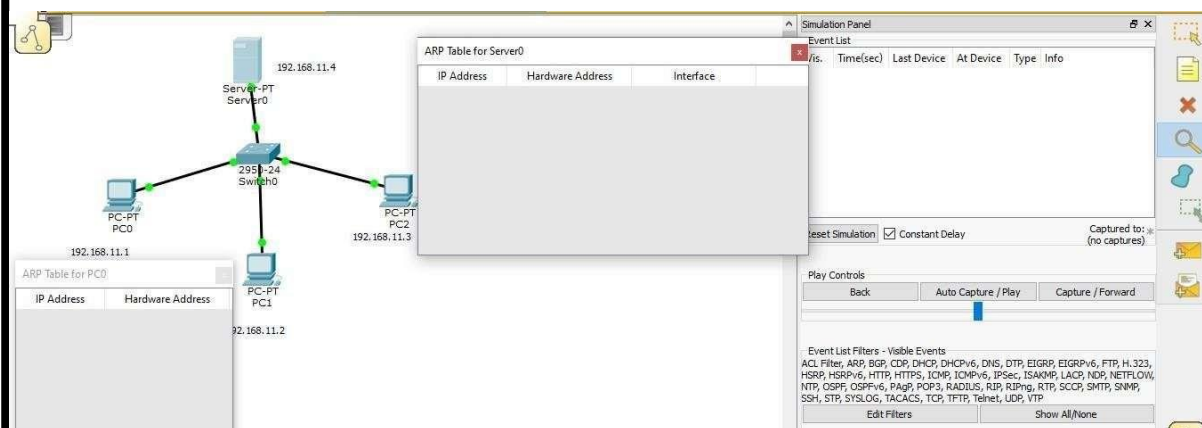
The screenshot shows the 'Server0' configuration window with the 'Config' tab selected. The 'IP Configuration' section is expanded, showing settings for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The 'IPv6 Configuration' section also has the 'Static' radio button selected.

IP Configuration	
Interface	FastEthernet0
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	192.168.11.4
Subnet Mask	255.255.255.0
Default Gateway	
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::2E0:A3FF:FE7B:DA6B
IPv6 Gateway	
IPv6 DNS Server	

SIMULATION SETTINGS

Click on the Simulation icon. Select Inspect (lens) tool. click on PC0 and Server0 and select ARP Table



Go to the command prompt of PC0 and type the following command to get the ARP entries

arp -a

Initially there will be no ARP entries.

Type the ping command for server(192.168.11.4)

Ping 192.168.11.4

The screenshot shows a network topology in Packet Tracer. A central 2950-24 Switch0 is connected to three devices: Server-PT Server0 (IP 192.168.11.4), PC-PT PC0 (IP 192.168.11.1), and PC-PT PC1 (IP 192.168.11.2). An ARP Table for PC0 is displayed, showing an empty table with columns for IP Address and Hardware Address. A Command Prompt window for PC0 is open, showing the following commands and output:

```
Packet Tracer PC Command Line 1.0
PC>arp -a
No ARP Entries Found
PC>ping 192.168.11.4
Pinging 192.168.11.4 with 32 bytes of data:
```

Two packets will be created (ICMP and ARP). Click on the ARP packet and select **OutboundPacket details** to find the IP Address and MAC Address

The screenshot shows the same network topology as before. The ARP Table for PC0 is still empty. The Outbound Packet details window for an ARP packet is open, showing the following information:

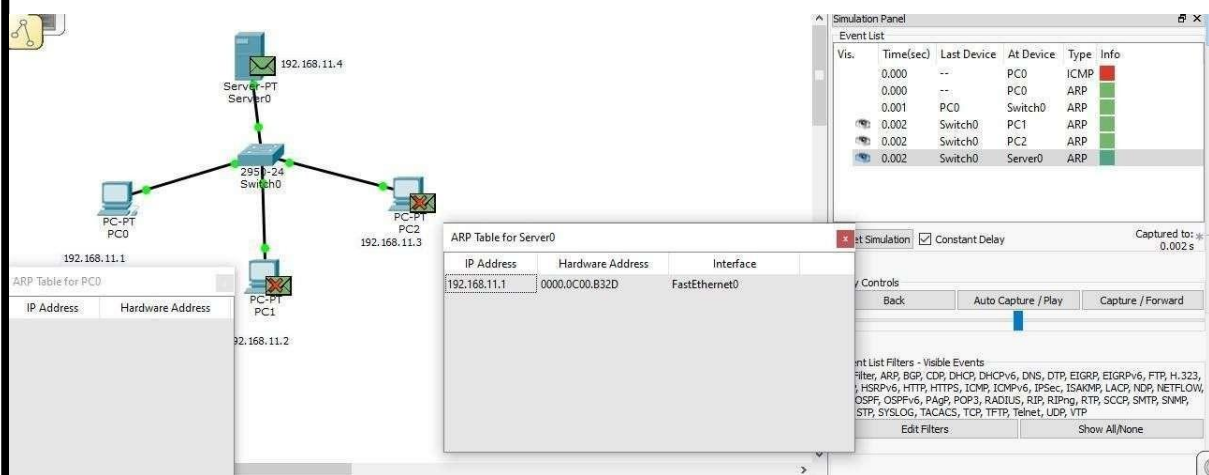
Ethernet II

0		4		8		14		19					
PREAMBLE:		101010...1011		DEST MAC:		FFFF.FFFF.FFFF		SRC MAC:		0000.0C00.B32D			
TYPE:		0x806		DATA (VARIABLE LENGTH)						FCS:		0x0	

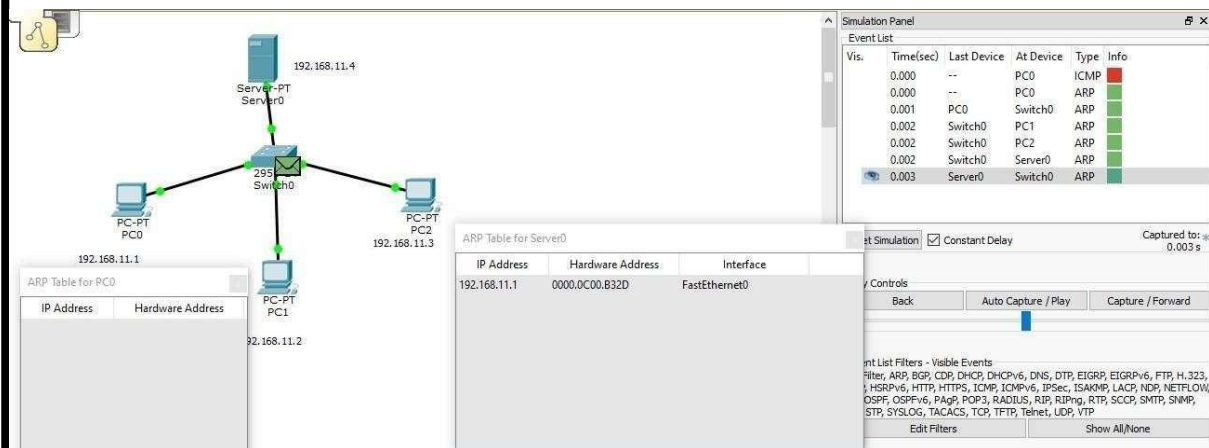
ARP

0		8		16		31					
HARDWARE TYPE:		0x1		PROTOCOL TYPE:		0x800					
HLEN:		0x6		PLEN:		0x4		OPCODE:		0x1	
SOURCE MAC: 0000.0C00.B32D (48 bits)						SOURCE IP (32 bits) ==>					
192.168.11.1											
TARGET MAC: 0000.0000.0000 (48 bits)											
192.168.11.4											
TARGET IP: 192.168.11.4 (32 bits)											

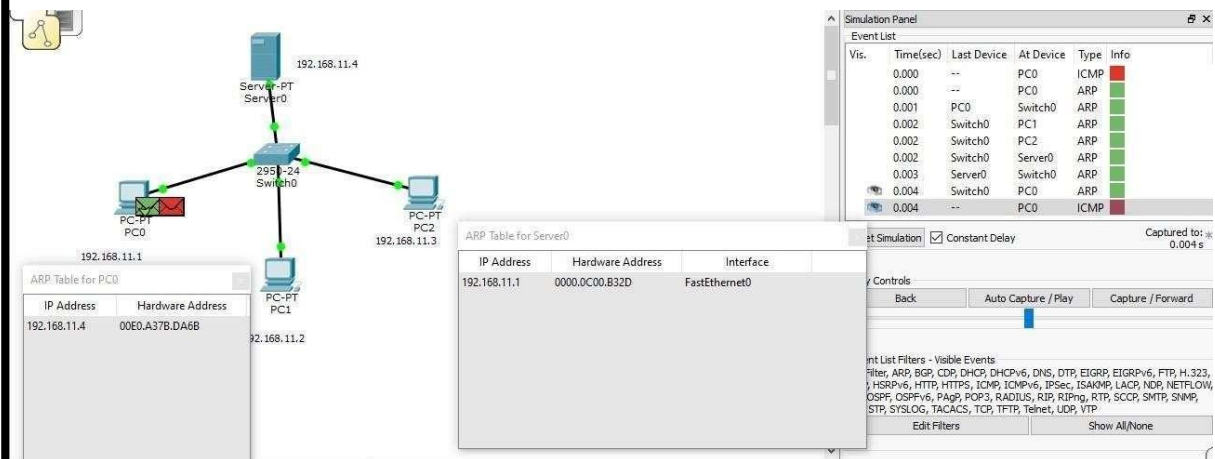
Click Capture/Forward button in the simulation panel. Ping request will be sent from PC to Switch. Click again Capture/Forward button in the simulation panel. Ping request will be sent from switch to other PC's.



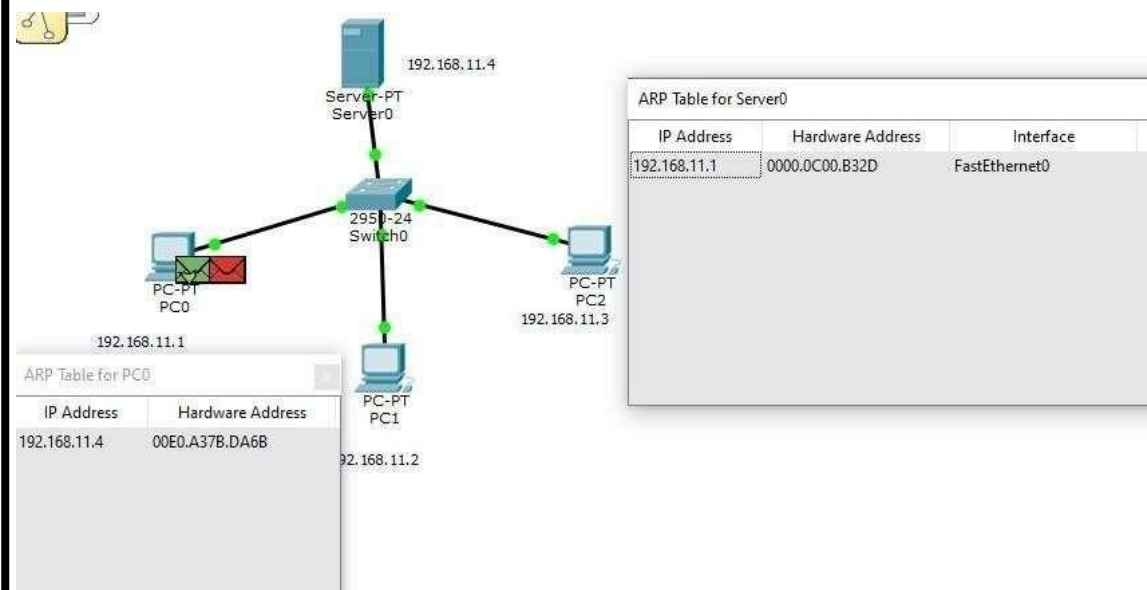
PC1 and PC2 will not accept the request. As the ping command is for PC0. Click Capture/Forward button in the simulation panel. Ping acceptance will be sent from PC0 to switch.



Click Capture/Forward button in the simulation panel. Ping acceptance will be sent from switch to PC0.



The updation of ARP table can be visualized.



CONCLUSION:

Thus, ARP simulation using Cisco Packet Tracer is implemented successfully.

