

# **RAJSHAHI UNIVERSITY OF ENGINEERING & TECHNOLOGY**

## **LAB REPORT**

**COURSE NAME:** SESSIONAL BASED ON CSE-3205

**COURSE CODE:** CSE-3206

**SUBMITTED TO-**

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**Submission date:** 22 december,2022

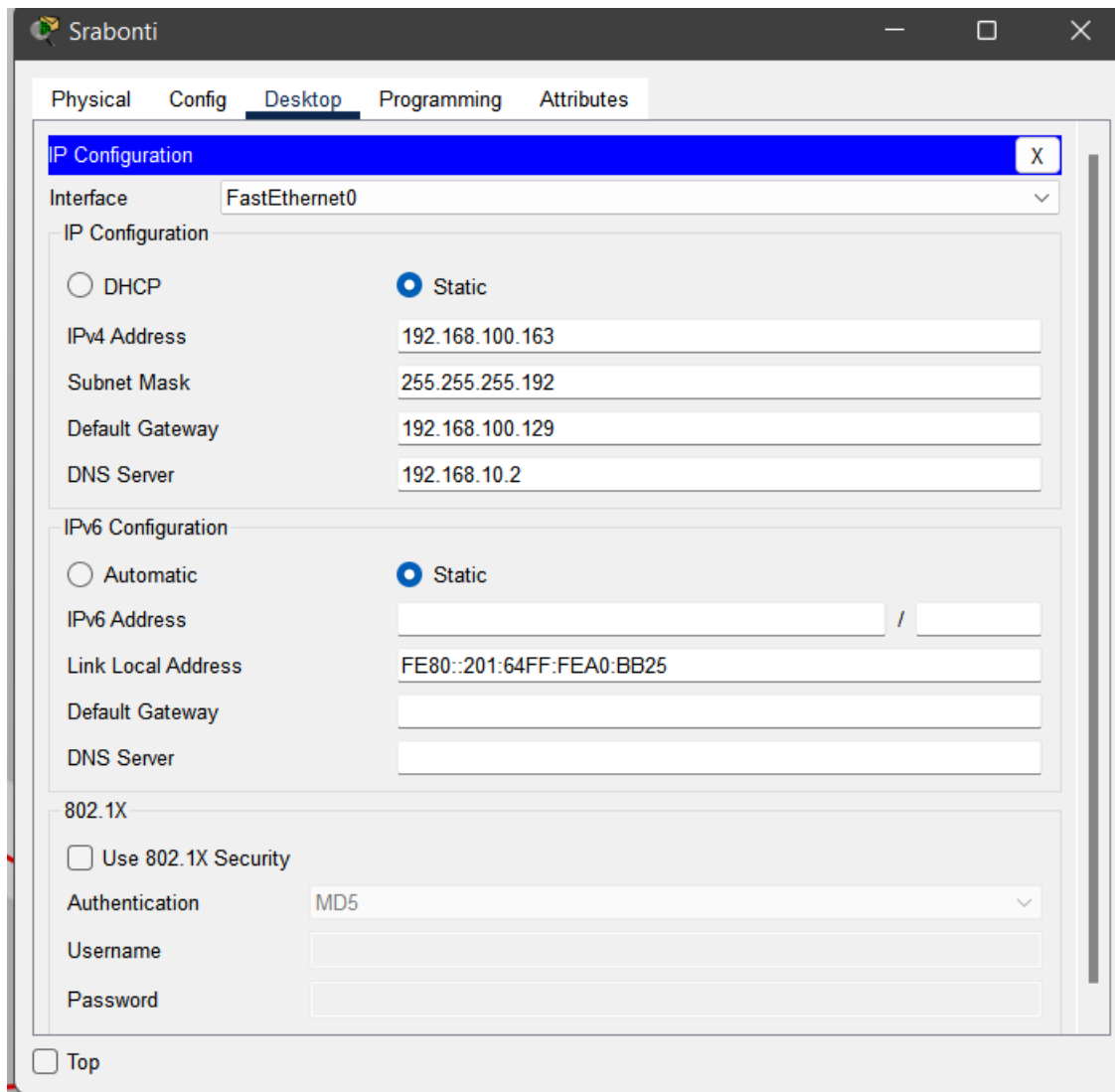
## Task-1:

Last octate of the IP address of “Name PC” should be the last 3 digits of your roll number (Static Host).

For example, if roll: 1803121 then IP address of “Name PC” can be like 192.168.100.121

## Solution:

IP ADDRESS for “Name PC” is given as 192.168.100.163



The screenshot shows the Srabonti network configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing settings for the 'FastEthernet0' interface. The 'Static' radio button is selected for IP Configuration. The IPv4 Address is set to 192.168.100.163, Subnet Mask to 255.255.255.192, Default Gateway to 192.168.100.129, and DNS Server to 192.168.10.2. The IPv6 Configuration section shows 'Static' selected, with a Link Local Address of FE80::201:64FF:FEA0:BB25. The 802.1X section has 'Use 802.1X Security' unchecked, and Authentication set to MD5. A 'Top' button is at the bottom left.

Section	Option	Value
IP Configuration	Interface	FastEthernet0
	Mode	Static
	IPv4 Address	192.168.100.163
	Subnet Mask	255.255.255.192
	Default Gateway	192.168.100.129
DNS Server	192.168.10.2	
IPv6 Configuration	Mode	Static
	IPv6 Address	
	Link Local Address	FE80::201:64FF:FEA0:BB25
	Default Gateway	
	DNS Server	
802.1X	Use 802.1X Security	<input type="checkbox"/>
	Authentication	MD5
	Username	
	Password	

## Task-2:

Use Dynamic Routing for the connection.

## Solution:

### Router 0 Gig 0/0:

The screenshot shows the configuration page for Router0, specifically for the GigabitEthernet0/0 interface. The interface is divided into several sections: Physical, Config (selected), CLI, and Attributes. The Config section is further divided into GLOBAL, ROUTING, SWITCHING, and INTERFACE. The INTERFACE section is selected, and the GigabitEthernet0/0 interface is highlighted. The configuration details for GigabitEthernet0/0 are as follows:

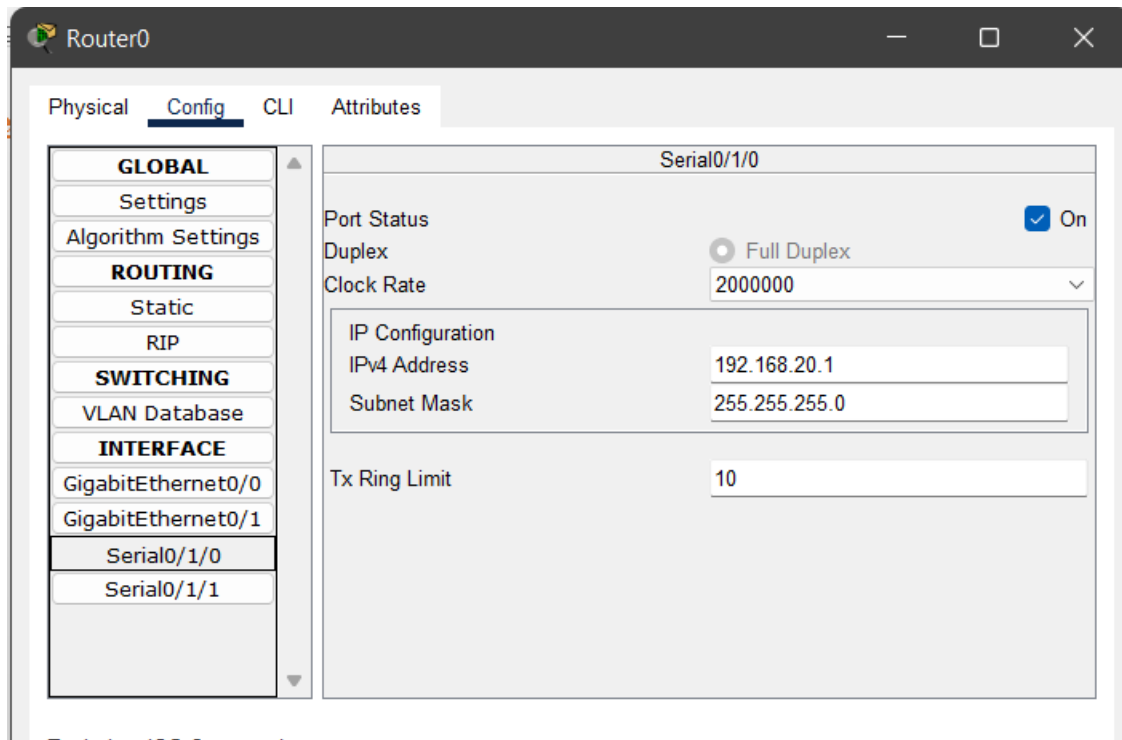
GigabitEthernet0/0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input type="radio"/> 1000 Mbps <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	0001.C92E.BD01
IP Configuration	
IPv4 Address	192.168.10.1
Subnet Mask	255.255.255.0
Tx Ring Limit	10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
```

☐ Top

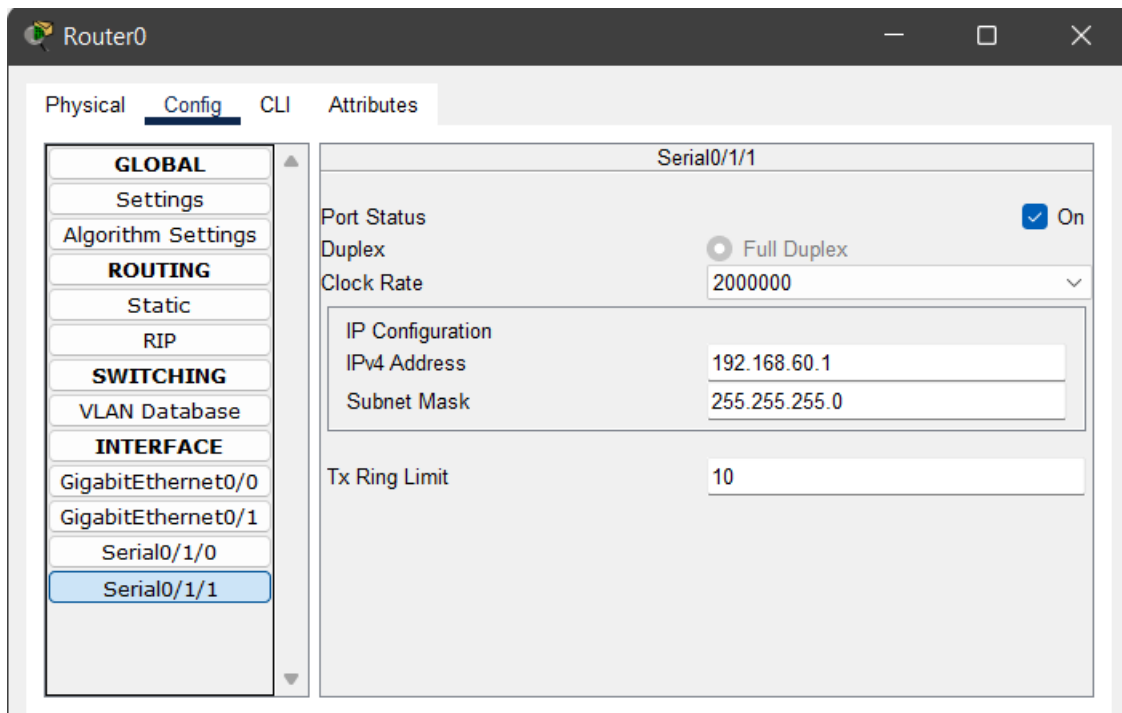
### Router 0 Serial 0/1/0:



The screenshot shows the configuration window for Router0, specifically for the Serial0/1/0 interface. The window has tabs for Physical, Config, CLI, and Attributes. The Config tab is active. On the left, there is a sidebar with a tree view showing the configuration hierarchy: GLOBAL (Settings, Algorithm Settings), ROUTING (Static, RIP), SWITCHING (VLAN Database), and INTERFACE (GigabitEthernet0/0, GigabitEthernet0/1, Serial0/1/0, Serial0/1/1). The Serial0/1/0 interface is selected. The main area displays the configuration for Serial0/1/0. The Port Status is On (checked). Duplex is set to Full Duplex (radio button selected). Clock Rate is set to 2000000. The IP Configuration section shows the IPv4 Address as 192.168.20.1 and the Subnet Mask as 255.255.255.0. The Tx Ring Limit is set to 10.

Serial0/1/0	
Port Status	<input checked="" type="checkbox"/> On
Duplex	<input type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	192.168.20.1
Subnet Mask	255.255.255.0
Tx Ring Limit	10

### Router 0 Serial 0/1/1:



The screenshot shows the configuration window for Router0, specifically for the Serial0/1/1 interface. The window has tabs for Physical, Config, CLI, and Attributes. The Config tab is active. On the left, there is a sidebar with a tree view showing the configuration hierarchy: GLOBAL (Settings, Algorithm Settings), ROUTING (Static, RIP), SWITCHING (VLAN Database), and INTERFACE (GigabitEthernet0/0, GigabitEthernet0/1, Serial0/1/0, Serial0/1/1). The Serial0/1/1 interface is selected. The main area displays the configuration for Serial0/1/1. The Port Status is On (checked). Duplex is set to Full Duplex (radio button selected). Clock Rate is set to 2000000. The IP Configuration section shows the IPv4 Address as 192.168.60.1 and the Subnet Mask as 255.255.255.0. The Tx Ring Limit is set to 10.

Serial0/1/1	
Port Status	<input checked="" type="checkbox"/> On
Duplex	<input type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	192.168.60.1
Subnet Mask	255.255.255.0
Tx Ring Limit	10

## Router 1 FastEthernet 0/0:

Router1

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

**FastEthernet0/0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.C7E5.0401

IP Configuration

IPv4 Address 192.168.40.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

## Router 1 Serial 0/1/0:

Router1

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

**Serial0/1/0**

Port Status ☒ On

Duplex ☒ Full Duplex

Clock Rate 2000000

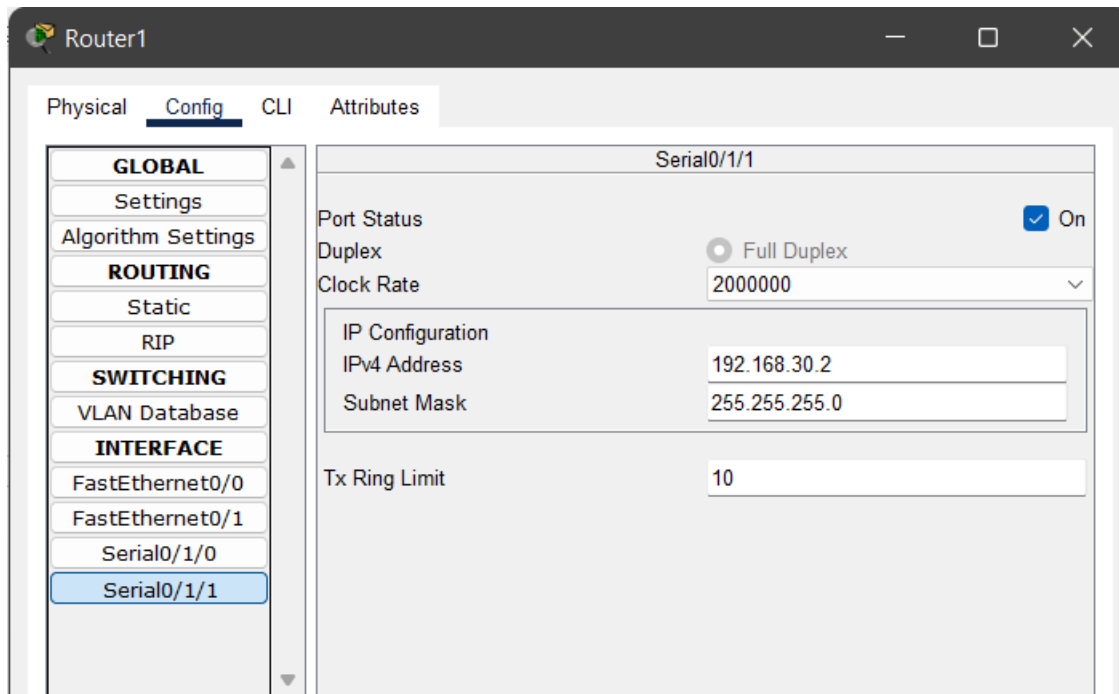
IP Configuration

IPv4 Address 192.168.20.2

Subnet Mask 255.255.255.0

Tx Ring Limit 10

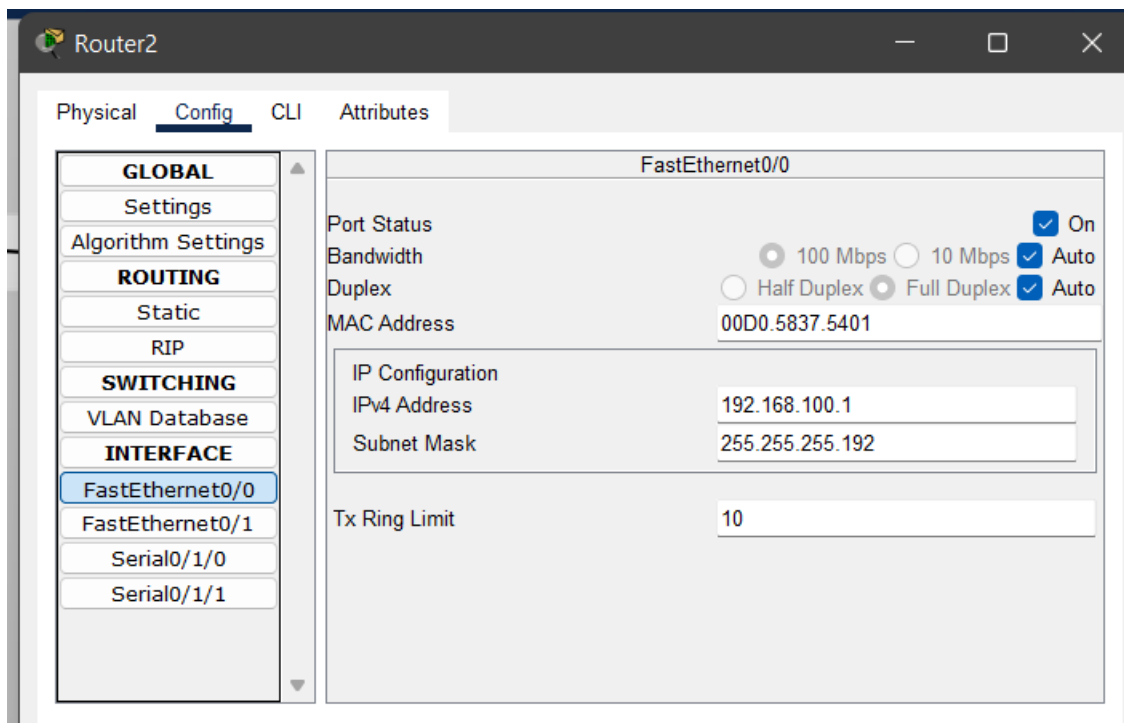
### Router 1 Serial 0/1/1:



The screenshot shows the configuration window for Router1, specifically for the Serial0/1/1 interface. The left sidebar contains a tree view with categories: GLOBAL (Settings, Algorithm Settings), ROUTING (Static, RIP), SWITCHING (VLAN Database), and INTERFACE (FastEthernet0/0, FastEthernet0/1, Serial0/1/0, Serial0/1/1). The Serial0/1/1 interface is selected. The main panel shows the following configuration:

Serial0/1/1	
Port Status	<input checked="" type="checkbox"/> On
Duplex	<input type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	192.168.30.2
Subnet Mask	255.255.255.0
Tx Ring Limit	10

### Router 2 FastEthernet 0/0:



The screenshot shows the configuration window for Router2, specifically for the FastEthernet0/0 interface. The left sidebar contains a tree view with categories: GLOBAL (Settings, Algorithm Settings), ROUTING (Static, RIP), SWITCHING (VLAN Database), and INTERFACE (FastEthernet0/0, FastEthernet0/1, Serial0/1/0, Serial0/1/1). The FastEthernet0/0 interface is selected. The main panel shows the following configuration:

FastEthernet0/0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	00D0.5837.5401
IP Configuration	
IPv4 Address	192.168.100.1
Subnet Mask	255.255.255.192
Tx Ring Limit	10

## Router 2 FastEthernet 0/1:

Router2

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

FastEthernet0/0

**FastEthernet0/1**

Serial0/1/0

Serial0/1/1

**FastEthernet0/1**

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☒ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 00D0.5837.5402

IP Configuration

IPv4 Address 192.168.100.129

Subnet Mask 255.255.255.192

Tx Ring Limit 10

## Router 2 Serial 0/1/0:

Router2

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

FastEthernet0/0

FastEthernet0/1

**Serial0/1/0**

Serial0/1/1

**Serial0/1/0**

Port Status ☒ On

Duplex ☒ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 192.168.30.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

## Router 2 Serial 0/1/1:

The screenshot shows the configuration window for the Serial0/1/1 interface on Router2. The window has tabs for Physical, Config, CLI, and Attributes. The Config tab is active. On the left, there is a sidebar with categories: GLOBAL, ROUTING, SWITCHING, and INTERFACE. Under the INTERFACE category, the Serial0/1/1 interface is selected. The main area displays the configuration for Serial0/1/1. The Port Status is 'On'. The Duplex is set to 'Full Duplex'. The Clock Rate is '2000000'. The IP Configuration section shows the IPv4 Address as '192.168.60.2' and the Subnet Mask as '255.255.255.0'. The Tx Ring Limit is set to '10'.

Serial0/1/1	
Port Status	<input checked="" type="checkbox"/> On
Duplex	<input type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	192.168.60.2
Subnet Mask	255.255.255.0
Tx Ring Limit	10

For each router all network addresses has been added in the RIP which ensures Dynamic Routing:

The screenshot shows the configuration window for the RIP configuration on Router2. The window has tabs for Physical, Config, CLI, and Attributes. The Config tab is active. On the left, there is a sidebar with categories: GLOBAL, ROUTING, SWITCHING, and INTERFACE. Under the ROUTING category, the RIP configuration is selected. The main area displays the configuration for the RIP. The Network Address list contains the following addresses: 192.168.10.0, 192.168.20.0, 192.168.30.0, 192.168.40.0, 192.168.60.0, and 192.168.100.0.

Network Address
192.168.10.0
192.168.20.0
192.168.30.0
192.168.40.0
192.168.60.0
192.168.100.0



### Task-3:

Assign the DNS name to “Name PC” as your Name.

### Solution:

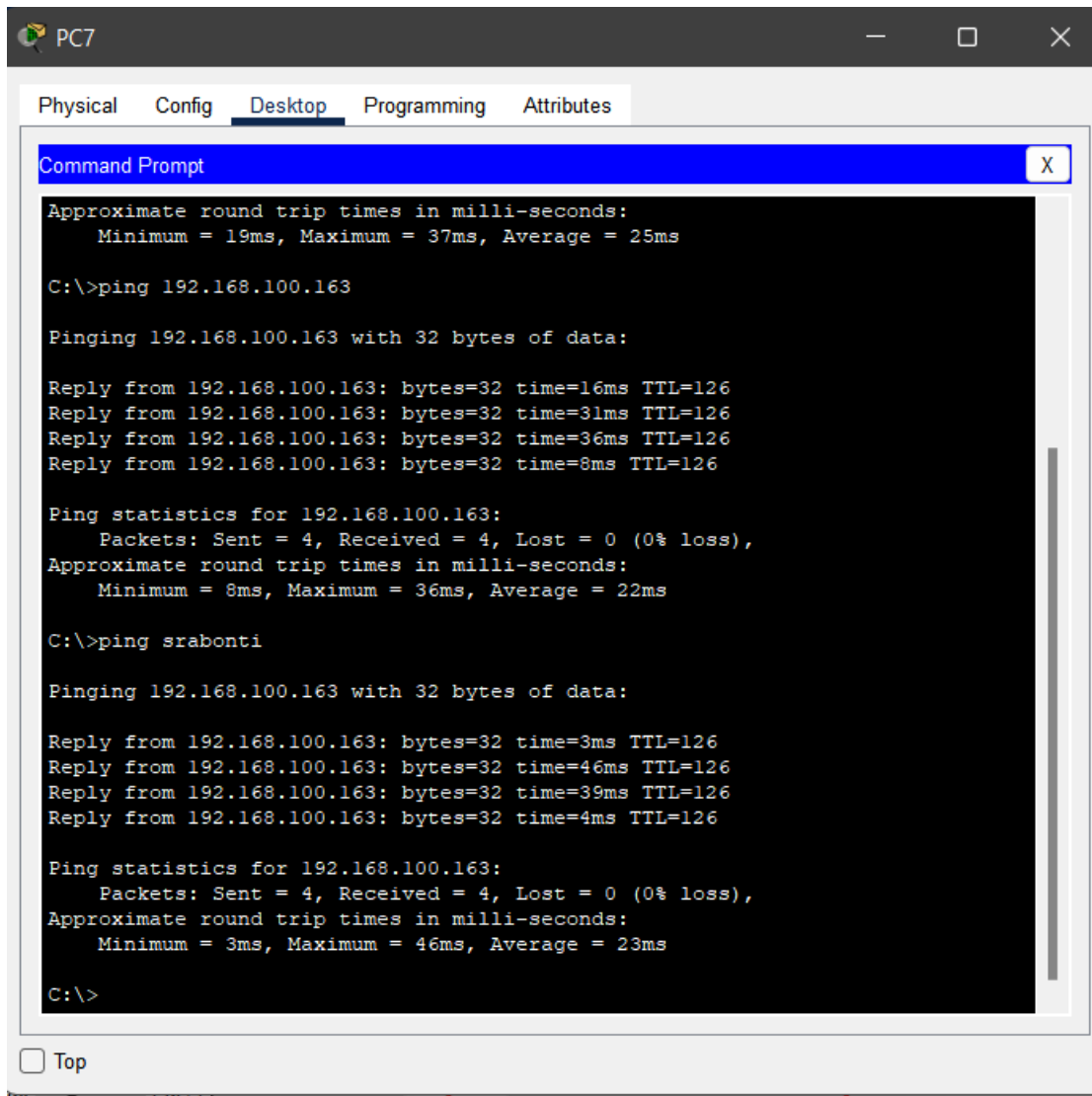
Name of the PC and IP ADDRESS has been added to the server in DNS section of **server0**:

The screenshot shows the 'Server0' configuration window with the 'Services' tab selected. On the left, a list of services includes HTTP, DHCP, DHCPv6, TFTP, DNS (highlighted), SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, and Radius EAP. The main area is titled 'DNS' and shows the 'DNS Service' is turned 'On'. Below this, the 'Resource Records' section contains a form with 'Name' set to 'srabonti', 'Type' set to 'A Record', and 'Address' set to '192.168.100.163'. There are 'Add', 'Save', and 'Remove' buttons. A table below the form lists the record:

No.	Name	Type	Detail
0	srabonti	A Record	192.168.100.163

At the bottom of the DNS section is a 'DNS Cache' button. A 'Top' link is located at the bottom left of the window.

After pinging to "Name PC":



The screenshot shows a virtual machine window titled "PC7" with a dark gray title bar and standard window controls. Inside the window, there are four tabs: "Physical", "Config", "Desktop", and "Attributes". The "Desktop" tab is selected and highlighted. Within the Desktop tab, a "Command Prompt" window is open, displaying the results of two ping commands. The first command is "C:\>ping 192.168.100.163", which shows four successful replies with varying round trip times (16ms, 31ms, 36ms, 8ms) and a summary of 0% loss. The second command is "C:\>ping srabonti", which also shows four successful replies with round trip times (3ms, 46ms, 39ms, 4ms) and a summary of 0% loss. At the bottom left of the PC7 window, there is a "Top" button with a small square icon next to it.

```
PC7
Physical Config Desktop Programming Attributes
Command Prompt X
Approximate round trip times in milli-seconds:
    Minimum = 19ms, Maximum = 37ms, Average = 25ms

C:\>ping 192.168.100.163

Pinging 192.168.100.163 with 32 bytes of data:

Reply from 192.168.100.163: bytes=32 time=16ms TTL=126
Reply from 192.168.100.163: bytes=32 time=31ms TTL=126
Reply from 192.168.100.163: bytes=32 time=36ms TTL=126
Reply from 192.168.100.163: bytes=32 time=8ms TTL=126

Ping statistics for 192.168.100.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 36ms, Average = 22ms

C:\>ping srabonti

Pinging 192.168.100.163 with 32 bytes of data:

Reply from 192.168.100.163: bytes=32 time=3ms TTL=126
Reply from 192.168.100.163: bytes=32 time=46ms TTL=126
Reply from 192.168.100.163: bytes=32 time=39ms TTL=126
Reply from 192.168.100.163: bytes=32 time=4ms TTL=126

Ping statistics for 192.168.100.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 46ms, Average = 23ms

C:\>
Top
```

## Task-4:

Assign IP addresses to all the host by DHCP except “Name PC”.

## Solution:

Pool name and DHCP details has been added for each LAN.

Server0

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

**DHCP**

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 192.168.10.1

DNS Server: 192.168.10.2

Start IP Address : 192 168 10 1

Subnet Mask: 255 255 255 0

Maximum Number of Users : 254

TFTP Server: 0.0.0.0

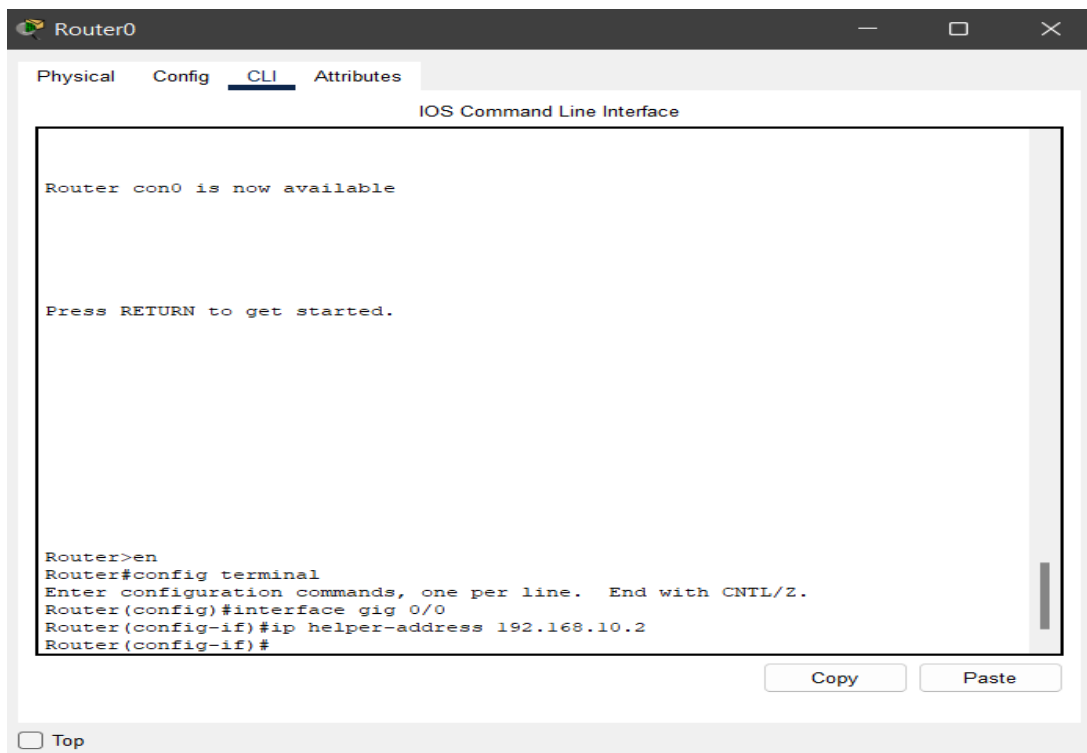
WLC Address: 0.0.0.0

Add Save Remove

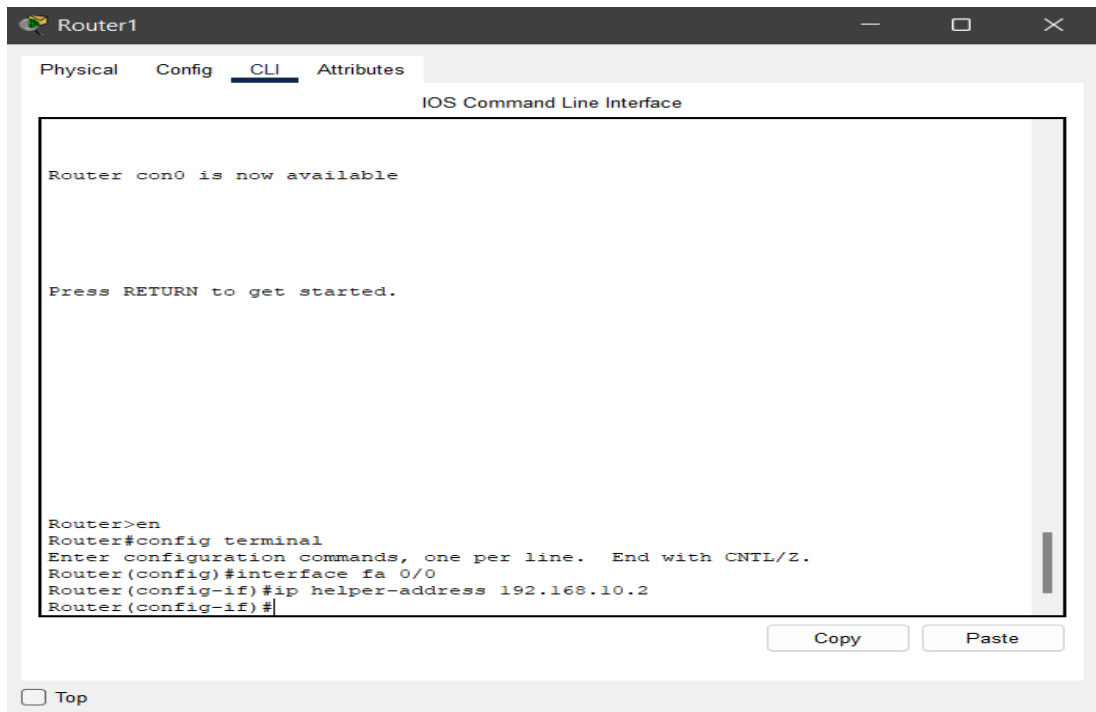
Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool4	192.168.100....	192.168.10.2	192.168.100....	255.255.255....	62	0.0.0.0	0.0.0.0
serverPool3	192.168.100.1	192.168.10.2	192.168.100.1	255.255.255....	62	0.0.0.0	0.0.0.0
serverPool2	192.168.40.1	192.168.10.2	192.168.40.1	255.255.255.0	254	0.0.0.0	0.0.0.0
serverPool	192.168.10.1	192.168.10.2	192.168.10.1	255.255.255.0	254	0.0.0.0	0.0.0.0

☐ Top


## Router 0 Terminal:



## Router 1 Terminal:



## Router 2 Terminal:

 Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Router(config)#router rip
Router(config-router)#network 192.168.10.0
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 192.168.60.0
Router(config-router)#network 192.168.100.0
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
%SYS-5-CONFIG_I: Configured from console by console

Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#en
% Ambiguous command: "en"
Router(config)#config terminal
%Invalid hex value
Router(config)#interface fa 0/0
Router(config-if)#ip helper-address 192.168.10.2
Router(config-if)#interface 0/1
^
% Invalid input detected at '^' marker.

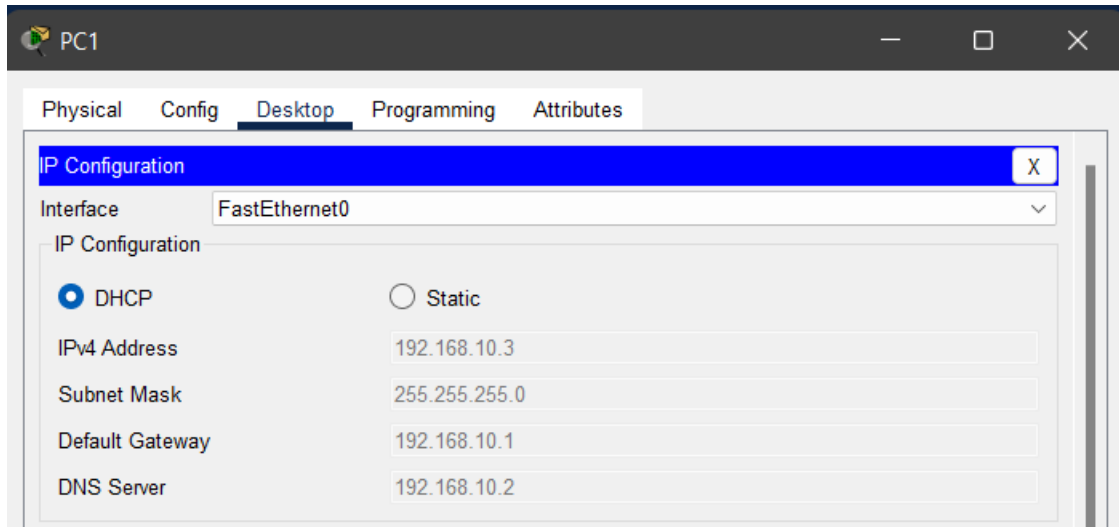
Router(config-if)#interface fa 0/1
Router(config-if)#ip helper-address 192.168.10.2
Router(config-if)#
```

Copy Paste

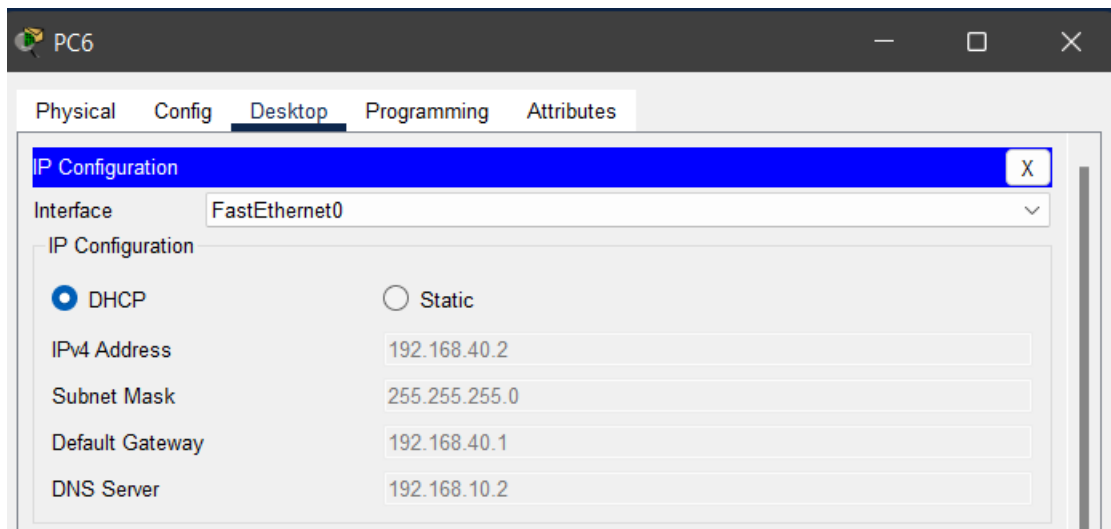
☐ Top

After adding pool name and details of each LAN in DHCP, IP ADDRESS that has been assigned to all host by DHCP:

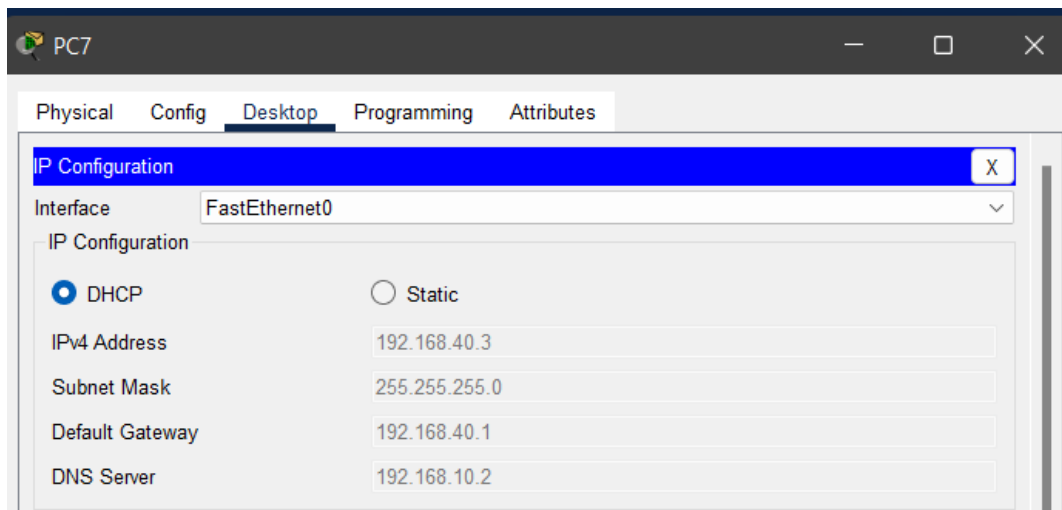
### PC1:



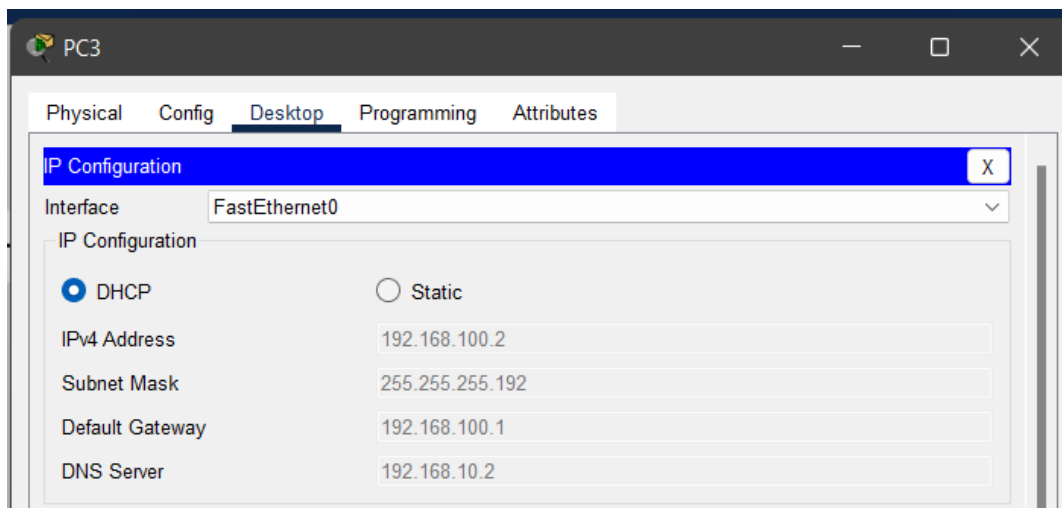
### PC6:



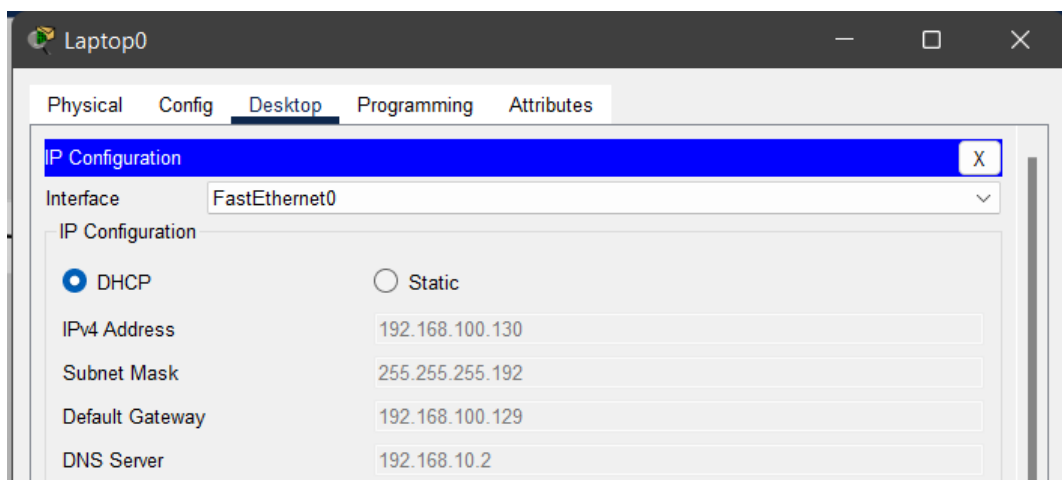
### PC7:



### PC3:



### Laptop0:



## Cables Description:

Connections	Cables used	Justification for using this cable
1. Router to Router	Serial DCE/DTE	For connecting two routers via their serial ports, we use Serial DCE/DTE cable.
2. Router to each switch 3. Router to each repeater 4. Switch to each host 5. Hub to each Host	Copper Straight Through	They are used to connect two different type of network device that allows one end to communicate at any time.
6. Router to host 7. Repeater to switch 8. Switch to Bridge 9. Bridge to Hub	Copper Cross Over	This cable is nearly same as the Copper Straight Through Cable. Only difference is it supports two way communication.

## Connection check:

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC6	Laptop0	ICMP		0.000	N	0	(edit)	
	Successful	PC7	Laptop0	ICMP		0.000	N	1	(edit)	
	Successful	Laptop0	PC3	ICMP		0.000	N	2	(edit)	
	Successful	Laptop0	PC1	ICMP		0.000	N	3	(edit)	
	Successful	PC1	PC3	ICMP		0.000	N	4	(edit)	
	Successful	PC1	PC7	ICMP		0.000	N	5	(edit)	

Time: 00:22:35

4331 4321 1941 2901 2911 8191OX 819HGW 829 1240 PT-Router PT-Empty 1841 2620XM 2621XM 2

Router-PT