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## **Lab-1**

**Aim :** To explore and learn networking commands.

### **Commands:**

*Name:* ping

### **Usage:**

A ping is a basic internet program that allows a user to test and verify if a particular destination IP address exists and can accept requests in computer network administration.

### **Syntax:**

ping [options] <target address>

### **options:**

- t Ping the specified host until stopped.
  - To see statistics and continue - type Control-Break;
  - To stop - type Control-C.
- a Resolve addresses to hostnames.
- n count Number of echo requests to send.
- l size Send buffer size.
- f Set Don't Fragment flag in packet (IPv4-only).
- i TTL Time To Live.
- v TOS Type Of Service (IPv4-only. This setting has been deprecated and has no effect on the type of service field in the IP Header).
- r count Record route for count hops (IPv4-only).
- s count Timestamp for count hops (IPv4-only).
- j host-list Loose source route along host-list (IPv4-only).
- k host-list Strict source route along host-list (IPv4-only).
- w timeout Timeout in milliseconds to wait for each reply.
- R Use routing header to test reverse route also (IPv6-only).
  - Per RFC 5095 the use of this routing header has been deprecated. Some systems may drop echo requests if this header is used.
- S <Srcaddr> Source address to use.

- c      compartment Routing compartment identifier.
- p      Ping a Hyper-V Network Virtualization provider address.
- 4      Force using IPv4.
- 6      Force using IPv6.

Example:

```
C:\Users\DELL>ping 202.12.103.20

Pinging 202.12.103.20 with 32 bytes of data:
Reply from 202.12.103.20: bytes=32 time=5ms TTL=251
Reply from 202.12.103.20: bytes=32 time=37ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=11ms TTL=251

Ping statistics for 202.12.103.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 37ms, Average = 13ms
```

```
C:\Users\DELL>ping 202.12.103.20 -t

Pinging 202.12.103.20 with 32 bytes of data:
Reply from 202.12.103.20: bytes=32 time=38ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=2ms TTL=251
Reply from 202.12.103.20: bytes=32 time=40ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=8ms TTL=251
Reply from 202.12.103.20: bytes=32 time=43ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=10ms TTL=251
Reply from 202.12.103.20: bytes=32 time=46ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=16ms TTL=251
Reply from 202.12.103.20: bytes=32 time=49ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=16ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=12ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=1ms TTL=251
Reply from 202.12.103.20: bytes=32 time=14ms TTL=251

Ping statistics for 202.12.103.20:
    Packets: Sent = 21, Received = 21, Lost = 0 (0% loss),
    approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 49ms, Average = 14ms
Control-C
^C
```

```
C:\Users\DELL>ping 202.12.103.20 -n count
Bad value for option -n, valid range is from 1 to 4294967295.
```

Name: ipconfig

Usage:

The ipconfig command displays all the currently connected network interfaces whether they are active or not.

Syntax:

ipconfig [options]

options:

/all	Display full configuration information.
/release	Release the IPv4 address for the specified adapter.
/release6	Release the IPv6 address for the specified adapter.
/renew	Renew the IPv4 address for the specified adapter.
/renew6	Renew the IPv6 address for the specified adapter.
/flushdns	Purges the DNS Resolver cache.
/registerdns	Refreshes all DHCP leases and re-registers DNS names
/displaydns	Display the contents of the DNS Resolver Cache.
/showclassid	Displays all the dhcp class IDs allowed for adapter.
/setclassid	Modifies the dhcp class id.
/showclassid6	Displays all the IPv6 DHCP class IDs allowed for adapter.
/setclassid6	Modifies the IPv6 DHCP class id.

Example:

```
Windows IP Configuration

Ethernet adapter Ethernet:

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

Wireless LAN adapter Local Area Connection* 5:

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

Wireless LAN adapter Local Area Connection* 6:

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

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : auup.amity.edu.in
    Link-local IPv6 Address . . . . . : fe80::e5bf:81ed:d6f6:3221%16
    IPv4 Address. . . . . : 10.103.28.82
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 10.103.255.254

Ethernet adapter Bluetooth Network Connection:

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

*Name:* tracert

#### Usage:

The tracert diagnostic utility determines the route to a destination by sending internet control message protocol(ICMP) echo packets to the destination.

#### Syntax:

tracert [options] <target address>

#### Options:

- d Do not resolve addresses to hostnames.
- h maximum\_hops Maximum number of hops to search for target.
- j host-list Loose source route along host-list (IPv4-only).
- w timeout Wait timeout milliseconds for each reply.
- R Trace round-trip path (IPv6-only).
- S srcaddr Source address to use (IPv6-only).
- 4 Force using IPv4.
- 6 Force using IPv6.

#### Example:

```
C:\Users\DELL>tracert 202.12.103.20

Tracing route to 202.12.103.20 over a maximum of 30 hops

  1    1 ms    <1 ms    1 ms    10.103.255.254
  2    8 ms    <1 ms    1 ms    10.0.253.1
  3    9 ms    1 ms    1 ms    202.12.103.126
  4    2 ms    3 ms    1 ms    202.12.103.14
  5    1 ms    <1 ms    <1 ms    202.12.103.20

Trace complete.
```

```
C:\Users\DELL>tracert google.com

Tracing route to google.com [142.250.194.14]
over a maximum of 30 hops:

  1    1 ms    1 ms    1 ms    10.103.255.254
  2    1 ms    1 ms    <1 ms    10.0.253.1
  3    1 ms    2 ms    1 ms    202.12.103.126
  4   21 ms    1 ms    1 ms    74.125.50.56
  5    5 ms    3 ms    3 ms    108.170.251.97
  6    2 ms    1 ms    1 ms    142.251.52.199
  7   21 ms    1 ms    1 ms    del12s01-in-f14.1e100.net [142.250.194.14]

Trace complete.
```

Name: arp

Usage:

The arp command displays and modifies the Internet-to-adapter address translation tables used by the Address in Networks and communication management.

Syntax:

pathping [options] <target name>

Options:

- a Displays current ARP entries by interrogating the current protocol data. If inet\_addr is specified, the IP and Physical addresses for only the specified computer are displayed. If more than one network interface uses ARP, entries for each ARP table are displayed.
- g Same as -a.
- v Displays current ARP entries in verbose mode. All invalid entries and entries on the loop-back interface will be shown.

inet\_addr Specifies an internet address.

-N if\_addr Displays the ARP entries for the network interface specified by if\_addr.

-d Deletes the host specified by inet\_addr. inet\_addr may be wildcarded with \* to delete all hosts.

-s Adds the host and associates the Internet address inet\_addr with the Physical address eth\_addr. The Physical address is given as 6 hexadecimal bytes separated by hyphens. The entry is permanent.

eth\_addr Specifies a physical address.

if\_addr If present, this specifies the Internet address of the interface whose address translation table should be modified. If not present, the first applicable interface will be used.

Example:

```
Interface: 192.168.137.1 --- 0xb
  Internet Address    Physical Address    Type
  192.168.137.255     ff-ff-ff-ff-ff-ff  static
  224.0.0.22          01-00-5e-00-00-16  static
  224.0.0.251         01-00-5e-00-00-fb  static
  224.0.0.252         01-00-5e-00-00-fc  static
  239.192.152.143     01-00-5e-40-98-8f  static
  239.255.255.250     01-00-5e-7f-ff-fa  static
  255.255.255.255     ff-ff-ff-ff-ff-ff  static

Interface: 10.103.28.82 --- 0x10
  Internet Address    Physical Address    Type
  10.103.255.254      d8-24-bd-91-26-40  dynamic
  10.103.255.255      ff-ff-ff-ff-ff-ff  static
  224.0.0.22          01-00-5e-00-00-16  static
  224.0.0.251         01-00-5e-00-00-fb  static
  224.0.0.252         01-00-5e-00-00-fc  static
  224.0.0.253         01-00-5e-00-00-fd  static
  239.192.152.143     01-00-5e-40-98-8f  static
  239.255.255.250     01-00-5e-7f-ff-fa  static
  255.255.255.255     ff-ff-ff-ff-ff-ff  static
```

Name: pathping

Usage:

Provides information about network latency and network loss at intermediate hops between a source and destination.

Syntax:

pathping [options] <target name>

Options:

- g  
Loose source rout along host-list.
- h <maximum\_hops>  
Maximum number of hops to search for target.
- i <address>  
Use the specified source address.
- n  
Do not resolve addresses to hostnames.
- p <period>  
Wait period milliseconds between pings.
- q <num\_queries>  
Number of queries per hop.
- w  
Wait timeout milliseconds for each reply.
- 4

- Force using IPv4.
- 6 Force using IPv6.
- ? Displays help at the command prompt.

Example:

```
C:\Users\DELL>pathping 202.12.103.20

Tracing route to 202.12.103.20 over a maximum of 30 hops

 0  jaswanthpc.auup.amity.edu.in [10.103.28.82]
 1  10.103.255.254
 2  10.0.253.1
 3  202.12.103.126
 4  202.12.103.14
 5  202.12.103.20

Computing statistics for 125 seconds...
Hop  RTT      Source to Here   This Node/Link   Address
    0                               0/ 100 = 0%      jaswanthpc.auup.amity.edu.in [10.103.28.82]
    1  17ms      0/ 100 = 0%      0/ 100 = 0%      |
    2  16ms      0/ 100 = 0%      0/ 100 = 0%      10.103.255.254
    3  13ms      0/ 100 = 0%      0/ 100 = 0%      |
    4  19ms      0/ 100 = 0%      0/ 100 = 0%      10.0.253.1
    5  12ms      0/ 100 = 0%      0/ 100 = 0%      |
    6  10ms      0/ 100 = 0%      0/ 100 = 0%      202.12.103.126
    7  18ms      0/ 100 = 0%      0/ 100 = 0%      |
    8  15ms      0/ 100 = 0%      0/ 100 = 0%      202.12.103.14
    9  14ms      0/ 100 = 0%      0/ 100 = 0%      |
   10  11ms      0/ 100 = 0%      0/ 100 = 0%      202.12.103.20

Trace complete.
```

Name: finger

Usage:

Finger command is a user information lookup command which gives details of all the users logged in.

Syntax:

finger [options]

options:

- l Displays information in long list format.
- user Specifies the user you want information about. Omit the user parameter to display information about all users on the specified host.
- @host Specifies the server on the remote system whose users you want information about.



-?

Displays help at the command prompt.

Example:

```
C:\Users\DELL>finger 202.12.103.20
[jaswanthpc]
```

Name: hostname

*Usage:*

Displays the host name portion of the full computer name of the computer

Syntax:

Hostname [options]

Options:

-?

Displays help at the command prompt.

Example:

```
C:\Users\DELL>hostname
jaswanthpc
```

Name: whoami

*Usage:*

Displays user, group and privileges information for the user who is currently logged on to the local system. If used without parameters, `whoami` displays the current domain and username.

Syntax:

whoami [options]

options:

/upn

Displays the user name in user principal name (UPN) format.

/fqdn

Displays the user name in fully qualified domain name (FQDN) format.

/logonid

Displays the logon ID of the current user.

/user

Displays the current domain and user name of the security identifier (SID).

/groups

Displays the user groups to which the current user belongs.

/priv

Displays the security privileges of the current user.

- `/fo <Format>`  
Specifies the output format.
- `/all`  
Displays all information in the current access token, including the current user name, security identifiers (SID), privileges, and groups that the current user belongs to.
- `/nh`  
Specifies that the column header should not be displayed in the output. This is valid only for table and CSV formats.
- `/?`  
Displays help at the command prompt.

Example:

```
C:\Users\DELL>whoami
jaswanthpc\de11
```

## **Lab-2**

**Aim:** To explore configure various network topologies.

### **Theory:**

#### **Bus topology**

Bus topology, also known as line topology, is a type of network topology in which all devices in the network are connected by one central RJ-45 network cable or coaxial cable.

#### **Star topology**

Star topology is a network topology in which each network component is physically connected to a central node such as a router, hub, or switch. In a star topology, the central hub acts like a server and the connecting nodes act like clients.

#### **Mesh topology**

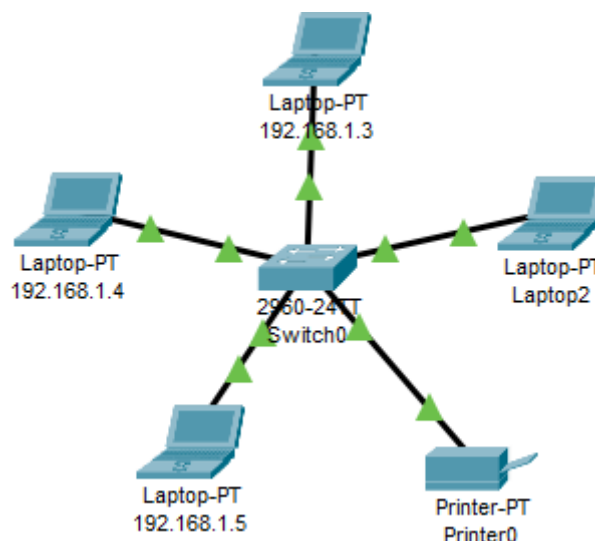
In a mesh topology there is no central connection point. Instead, each node is connected to at least one other node and usually to more than one. Each node is capable of sending messages to and receiving messages from other nodes.

#### **Ring topology**

Ring topology is a type of network topology in which each device is connected to two other devices on either side via an RJ-45 cable or coaxial cable. This forms a circular ring of connected devices which gives it its name

### **Output:**

#### **Star topology:**



```

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.4

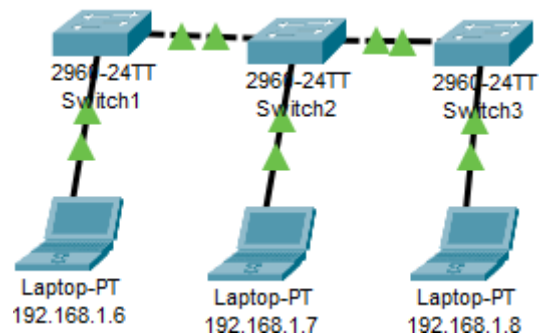
Pinging 192.168.1.4 with 32 bytes of data:

Reply from 192.168.1.4: bytes=32 time=4ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=2ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms

```

### Bus topology:



```

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.6

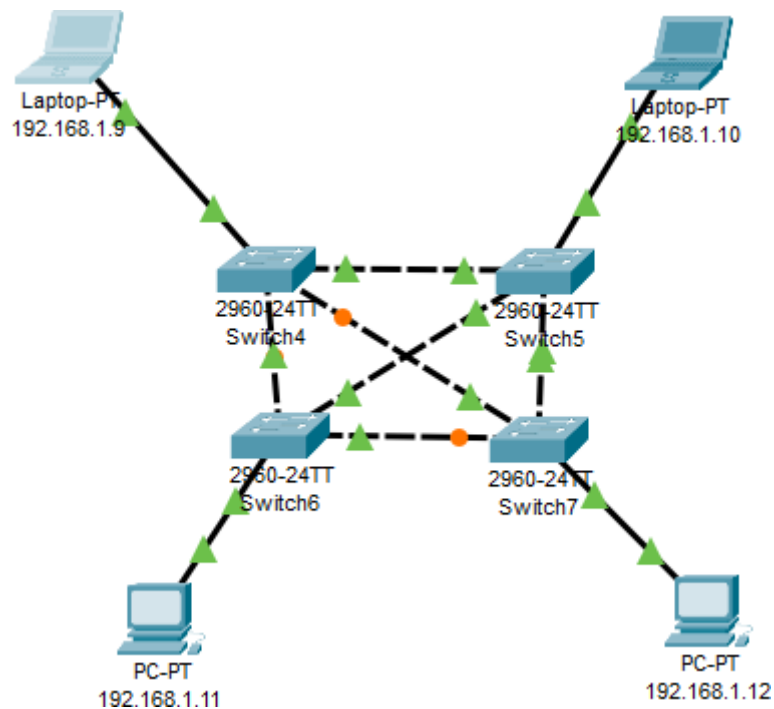
Pinging 192.168.1.6 with 32 bytes of data:

Reply from 192.168.1.6: bytes=32 time=4ms TTL=128
Reply from 192.168.1.6: bytes=32 time<1ms TTL=128
Reply from 192.168.1.6: bytes=32 time<1ms TTL=128
Reply from 192.168.1.6: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.1.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms

```

### Mesh topology:



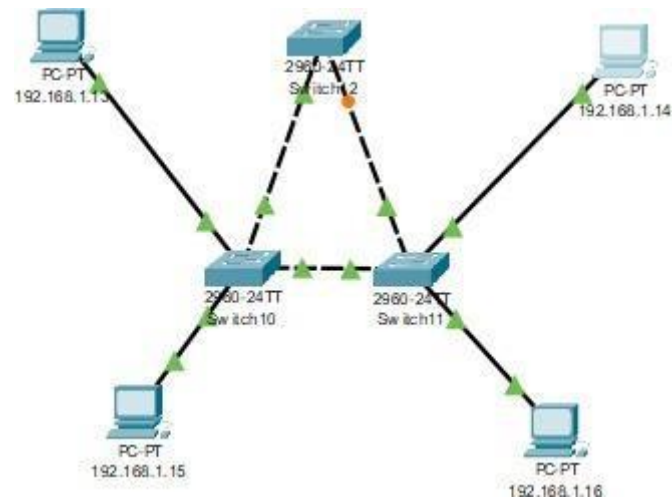
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.9

Pinging 192.168.1.9 with 32 bytes of data:

Reply from 192.168.1.9: bytes=32 time=4ms TTL=128
Reply from 192.168.1.9: bytes=32 time<1ms TTL=128
Reply from 192.168.1.9: bytes=32 time=2ms TTL=128
Reply from 192.168.1.9: bytes=32 time=3ms TTL=128

Ping statistics for 192.168.1.9:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 2ms
```

### Ring topology:



```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.15

Pinging 192.168.1.15 with 32 bytes of data:

Reply from 192.168.1.15: bytes=32 time=301ms TTL=128
Reply from 192.168.1.15: bytes=32 time<1ms TTL=128
Reply from 192.168.1.15: bytes=32 time=4ms TTL=128
Reply from 192.168.1.15: bytes=32 time=4ms TTL=128

Ping statistics for 192.168.1.15:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 301ms, Average = 77ms
```

## **Lab-3**

**Aim:** To configure switch for different topologies.

**Theory:** The commands used to configure the switches and assign to them a unique set of ip addresses are:

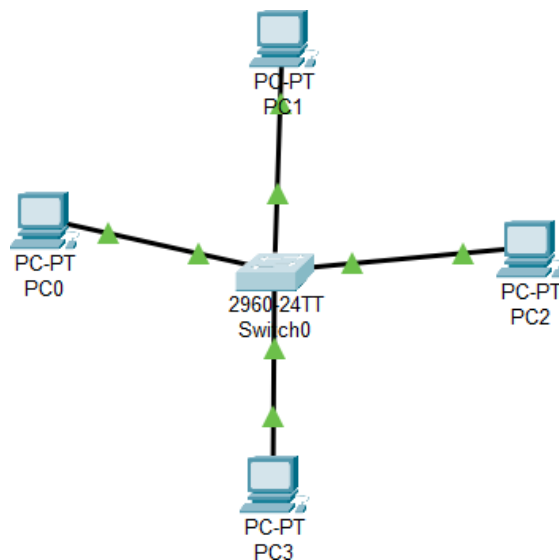
- 1.enable: To enter privileged EXEC mode
- 2.hostname enter-host-here: To set hostname
- 3.enable secret priv-pass: The password is set in encrypted form
- 4.ip address enter-ip-here enter-subnet-here: To set ip address and subnet
- 5.no shutdown: This command enables an interface
- 6.end: This command is issued to return to privileged mode.

To check for network connectivity:

- Ping ip-address-of-end-device-on-network

### **Outputs:**

- Star topology



Switch0

PhysicalConfigCLIAttributes

IOS Command Line Interface

```
Switch>enable
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname Sw-Floor-1
Sw-Floor-1(config)#line console 0
Sw-Floor-1(config-line)#password cisco
Sw-Floor-1(config-line)#login
Sw-Floor-1(config-line)#end
Sw-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

Sw-Floor-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Sw-Floor-1(config)#enable secret cisco
Sw-Floor-1(config)#exit
Sw-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

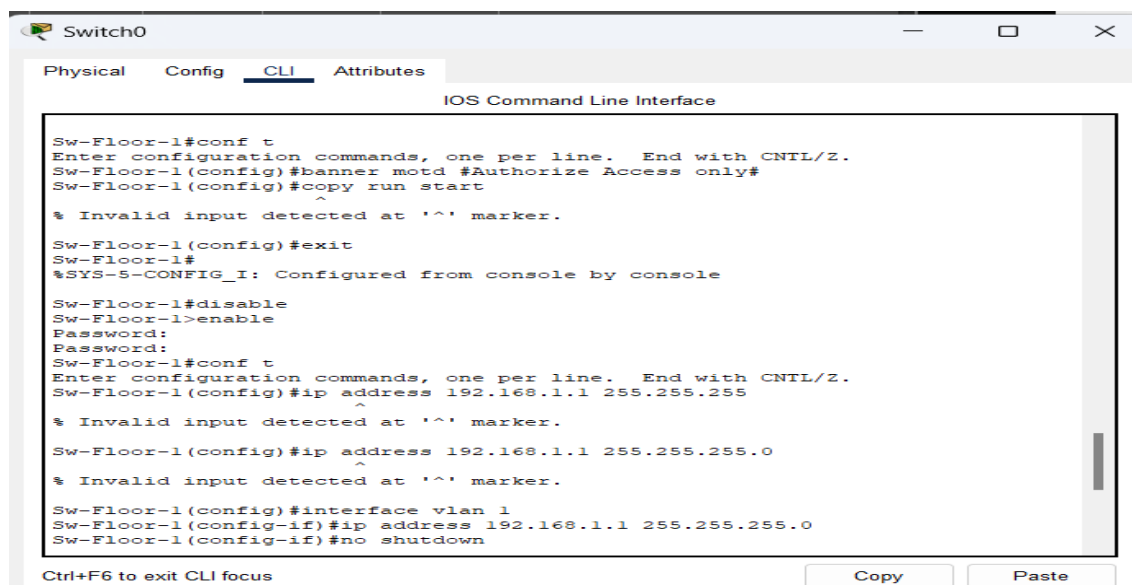
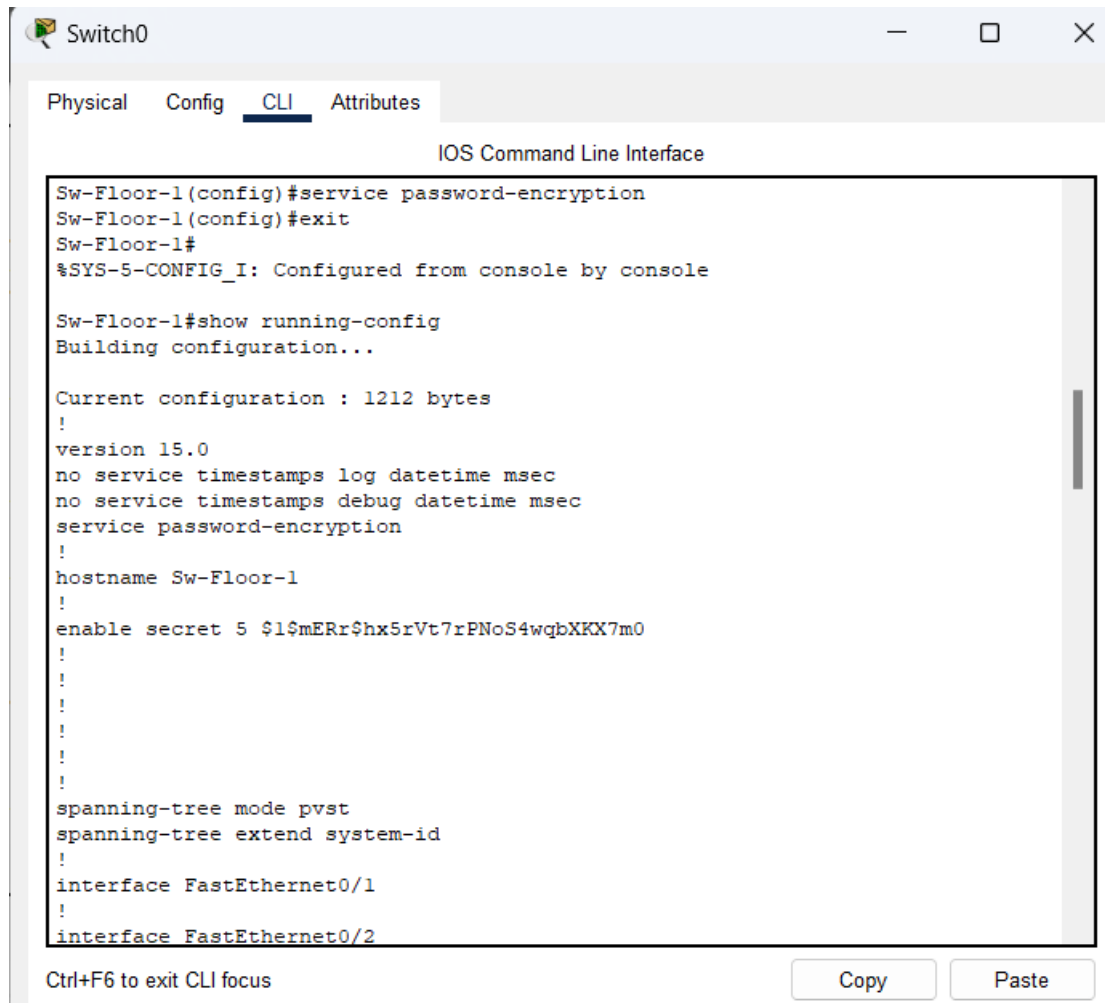
Sw-Floor-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Sw-Floor-1(config)#line vty 0 15
Sw-Floor-1(config-line)#password cisco
Sw-Floor-1(config-line)#login
Sw-Floor-1(config-line)#end
Sw-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

Sw-Floor-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
```

Ctrl+F6 to exit CLI focus

CopyPaste





```
Switch0
Physical Config CLI Attributes
IOS Command Line Interface

% Invalid input detected at '^' marker.

Sw-Floor-1(config)#interface vlan 1
Sw-Floor-1(config-if)#ip address 192.168.1.1 255.255.255.0
Sw-Floor-1(config-if)#no shutdown

Sw-Floor-1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up
%IP-4-DUPADDR: Duplicate address 192.168.1.1 on Vlan1, sourced by 0001.433C.7081

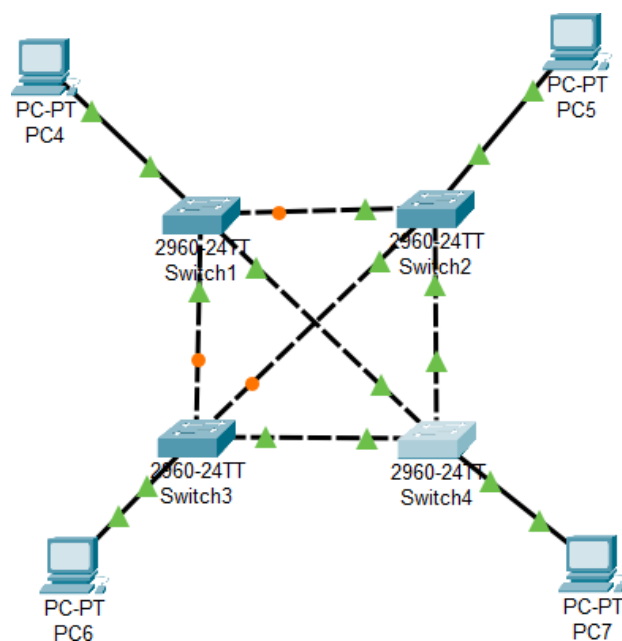
Sw-Floor-1(config-if)#end
Sw-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

Sw-Floor-1#ping 192.168.1.3

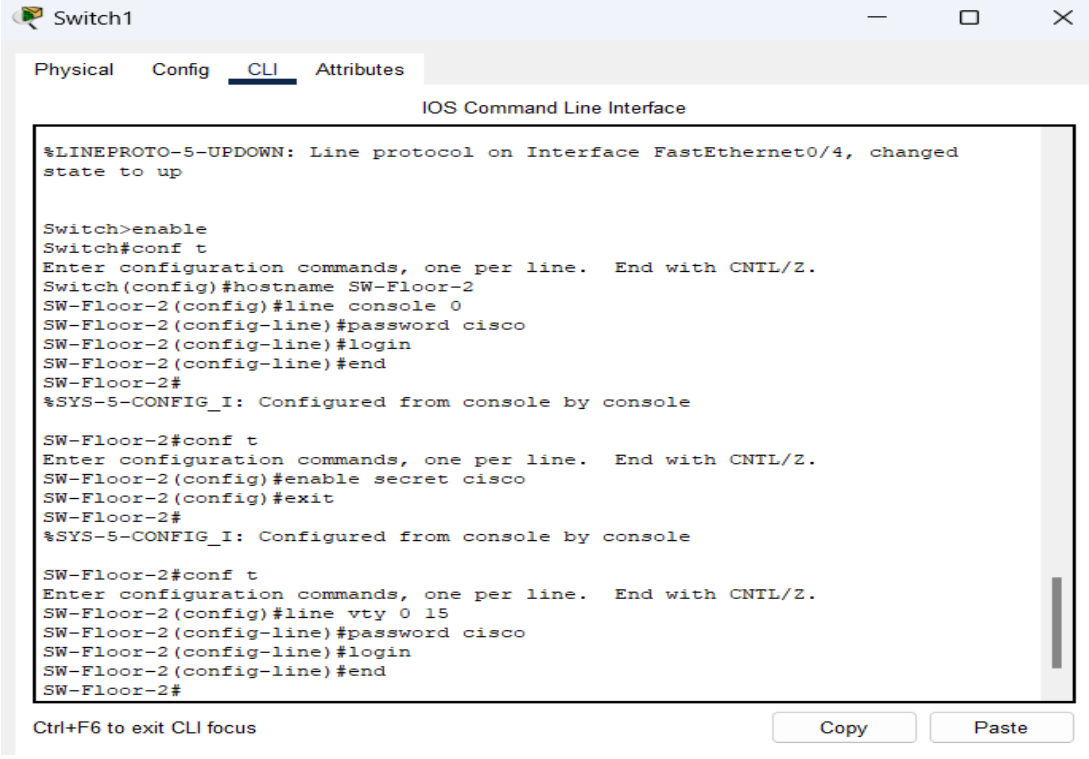
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.3, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/0 ms

Sw-Floor-1#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

- MESH topology



## Switch1 configuration for mesh topology:

A screenshot of a network configuration window titled "Switch1". It has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The main area is labeled "IOS Command Line Interface" and contains a text box with the following text:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed
state to up

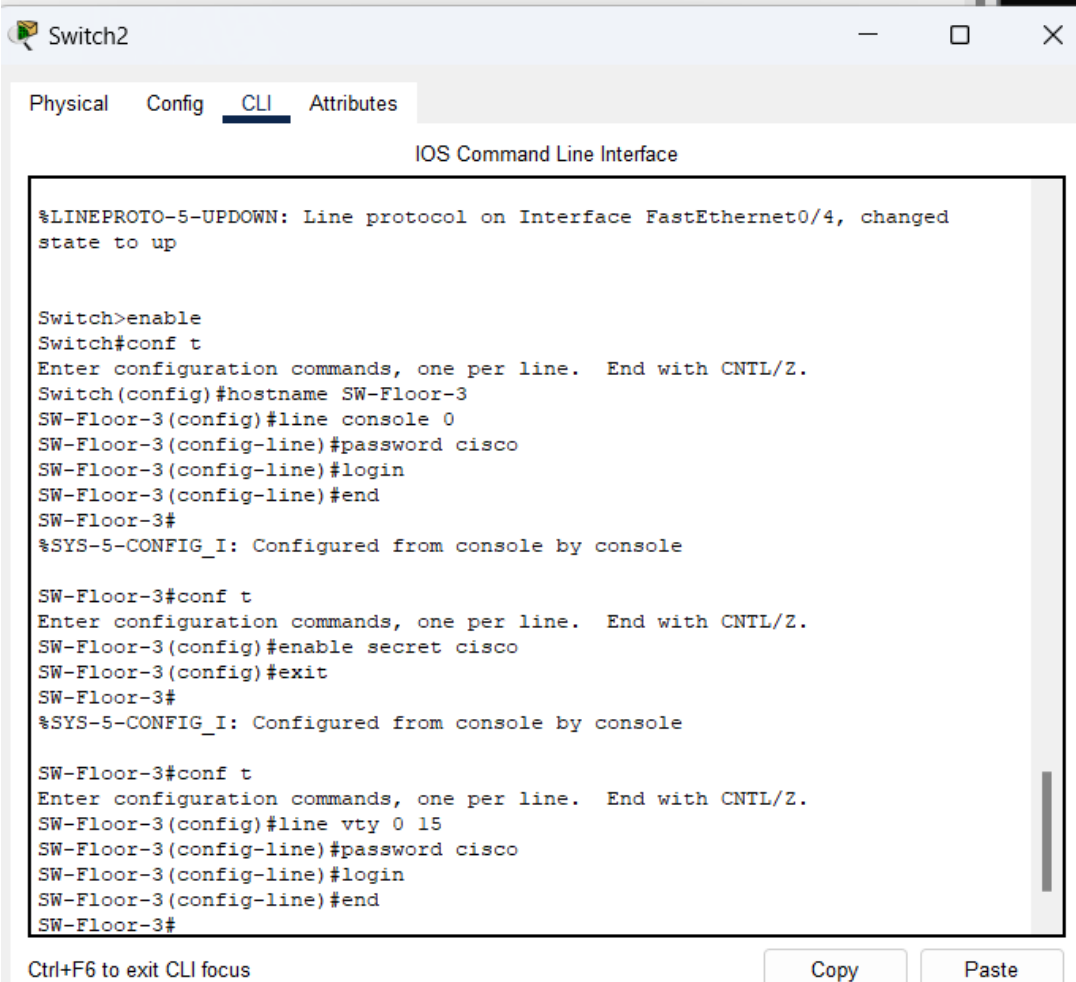
Switch>enable
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW-Floor-2
SW-Floor-2(config)#line console 0
SW-Floor-2(config-line)#password cisco
SW-Floor-2(config-line)#login
SW-Floor-2(config-line)#end
SW-Floor-2#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-Floor-2(config)#enable secret cisco
SW-Floor-2(config)#exit
SW-Floor-2#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-Floor-2(config)#line vty 0 15
SW-Floor-2(config-line)#password cisco
SW-Floor-2(config-line)#login
SW-Floor-2(config-line)#end
SW-Floor-2#
```

Below the text box, it says "Ctrl+F6 to exit CLI focus". To the right are "Copy" and "Paste" buttons.

## Switch2 configuration for mesh topology:

A screenshot of a network configuration window titled "Switch2". It has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The main area is labeled "IOS Command Line Interface" and contains a text box with the following text:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed
state to up

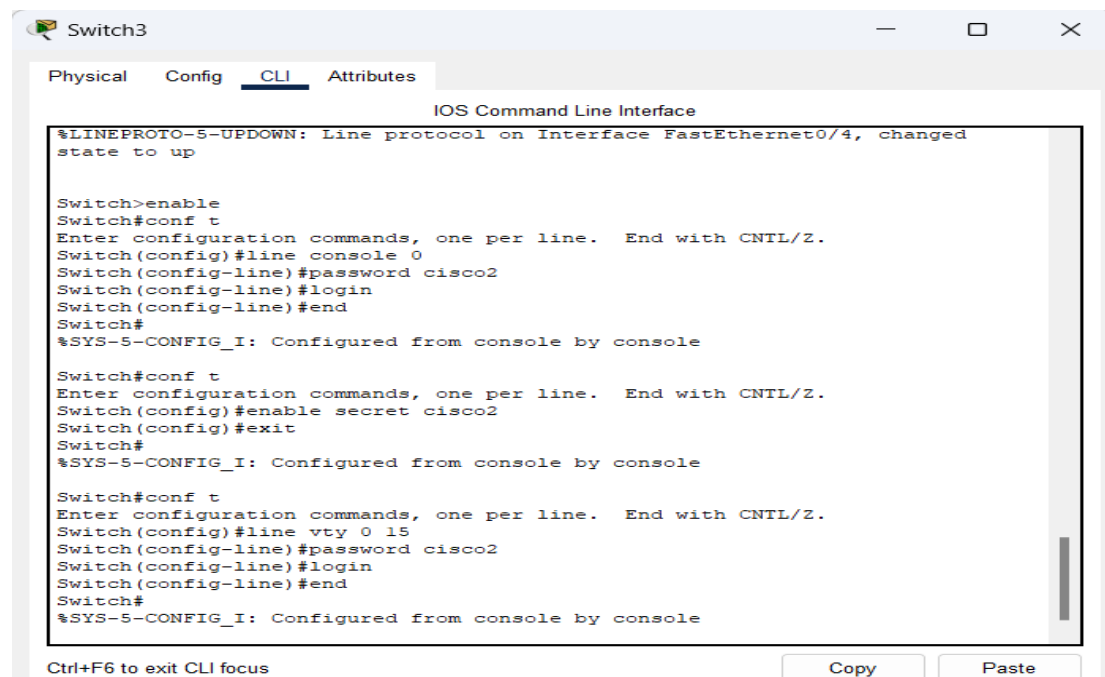
Switch>enable
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW-Floor-3
SW-Floor-3(config)#line console 0
SW-Floor-3(config-line)#password cisco
SW-Floor-3(config-line)#login
SW-Floor-3(config-line)#end
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-Floor-3(config)#enable secret cisco
SW-Floor-3(config)#exit
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-Floor-3(config)#line vty 0 15
SW-Floor-3(config-line)#password cisco
SW-Floor-3(config-line)#login
SW-Floor-3(config-line)#end
SW-Floor-3#
```

Below the text box, it says "Ctrl+F6 to exit CLI focus". To the right are "Copy" and "Paste" buttons.

## Switch3 configuration for mesh topology:



The screenshot shows a window titled "Switch3" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The interface shows a sequence of commands and their outputs for configuring Switch3. The commands include enabling the switch, entering configuration mode, setting the console line, password, and login, and then repeating these steps for the vty lines. The outputs indicate that the configuration was successful for each step.

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed
state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#line console 0
Switch(config-line)#password cisco2
Switch(config-line)#login
Switch(config-line)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

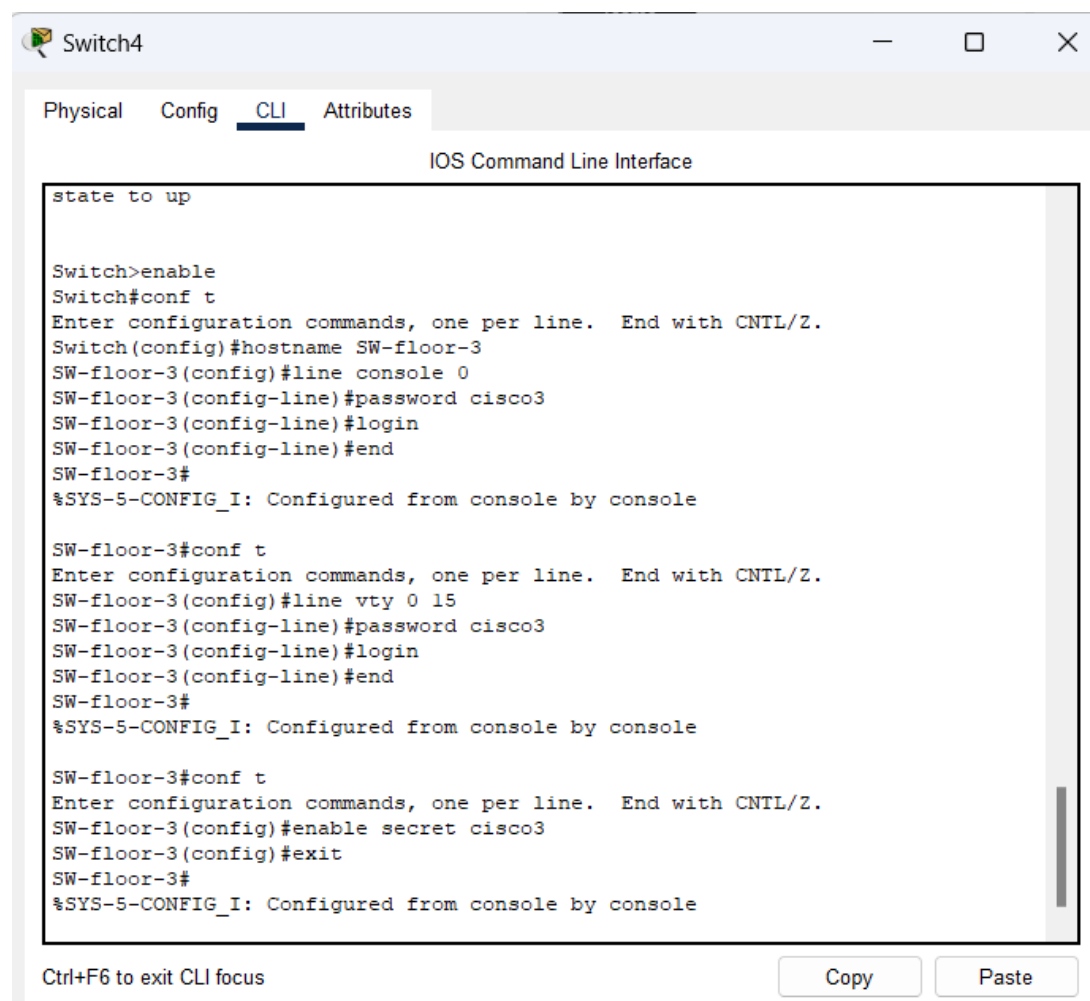
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#enable secret cisco2
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#line vty 0 15
Switch(config-line)#password cisco2
Switch(config-line)#login
Switch(config-line)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

Copy Paste

## Switch4 configuration for mesh topology:



The screenshot shows a window titled "Switch4" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The interface shows a sequence of commands and their outputs for configuring Switch4. The commands include enabling the switch, entering configuration mode, setting the hostname to "SW-floor-3", setting the console line, password, and login, and then repeating these steps for the vty lines. The outputs indicate that the configuration was successful for each step.

```
state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW-floor-3
SW-floor-3(config)#line console 0
SW-floor-3(config-line)#password cisco3
SW-floor-3(config-line)#login
SW-floor-3(config-line)#end
SW-floor-3#
%SYS-5-CONFIG_I: Configured from console by console

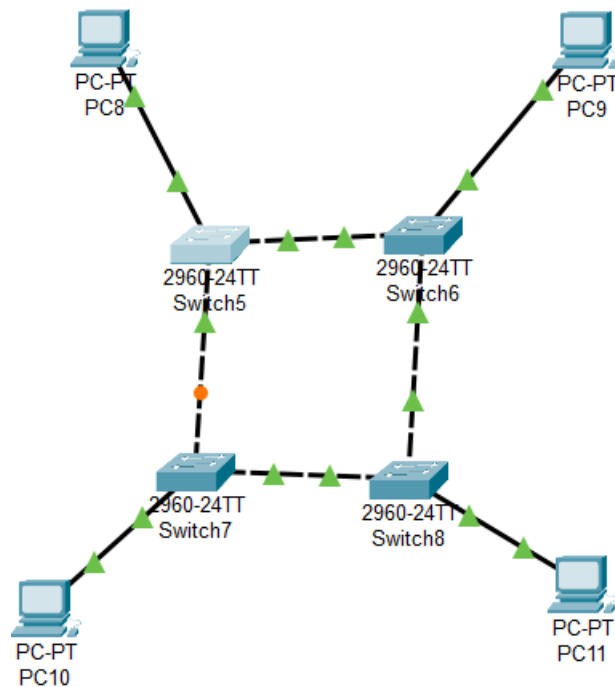
SW-floor-3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-floor-3(config)#line vty 0 15
SW-floor-3(config-line)#password cisco3
SW-floor-3(config-line)#login
SW-floor-3(config-line)#end
SW-floor-3#
%SYS-5-CONFIG_I: Configured from console by console

SW-floor-3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW-floor-3(config)#enable secret cisco3
SW-floor-3(config)#exit
SW-floor-3#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

Copy Paste

- RING topology



### Switch5 configuration for ring topology

Switch5
Physical Config CLI Attributes

IOS Command Line Interface

```

state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-1
SW-Floor-1(config)#line console 0
SW-Floor-1(config-line)#password cisco4
SW-Floor-1(config-line)#login
SW-Floor-1(config-line)#end
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

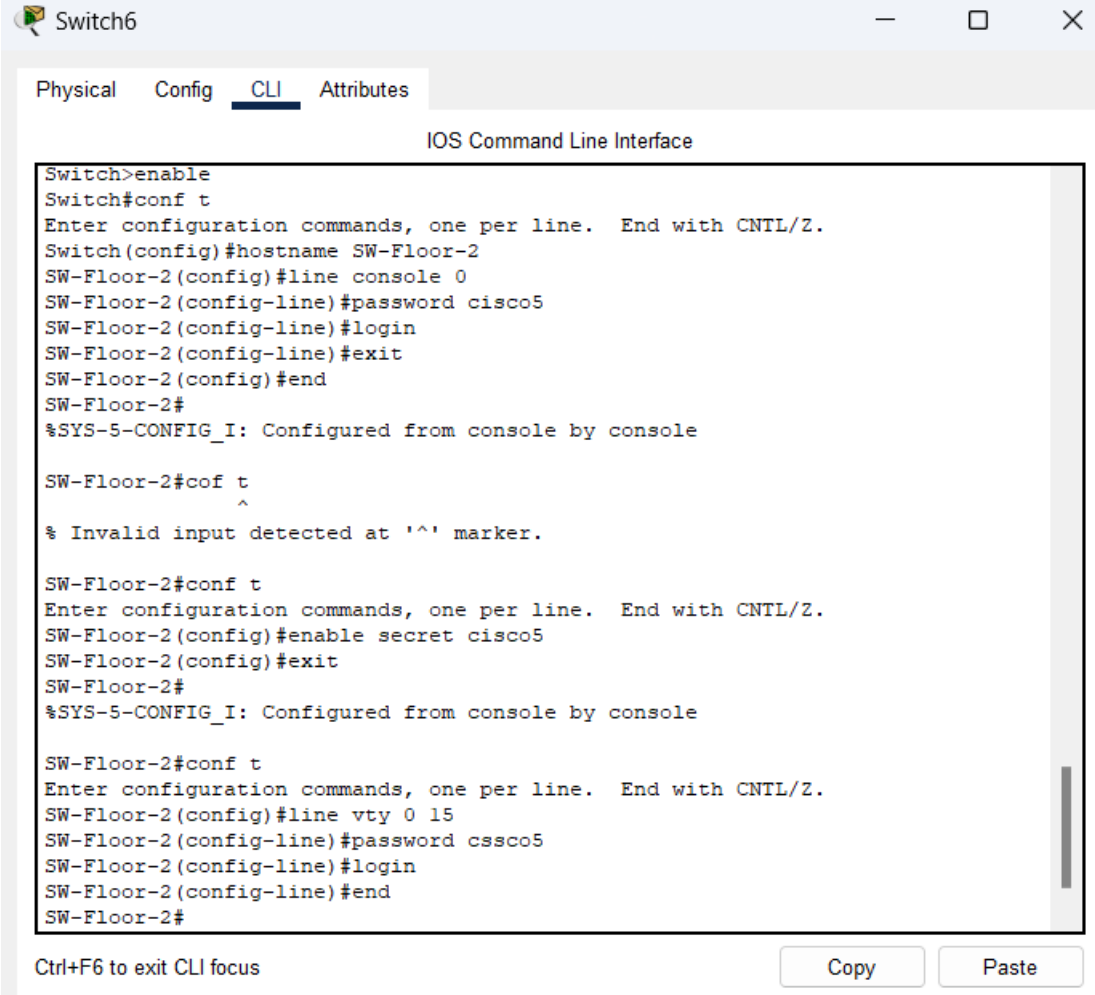
SW-Floor-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-1(config)#enable secret cisco4
SW-Floor-1(config)#exit
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-1(config)#line vty 0 15
SW-Floor-1(config-line)#password cisco4
SW-Floor-1(config-line)#login
SW-Floor-1(config-line)#end
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

```

Ctrl+F6 to exit CLI focus
Copy Paste

## Switch6 configuration for ring topology:



The screenshot shows a window titled "Switch6" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text is as follows:

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-2
SW-Floor-2(config)#line console 0
SW-Floor-2(config-line)#password cisco5
SW-Floor-2(config-line)#login
SW-Floor-2(config-line)#exit
SW-Floor-2(config)#end
SW-Floor-2#
%SYS-5-CONFIG_I: Configured from console by console

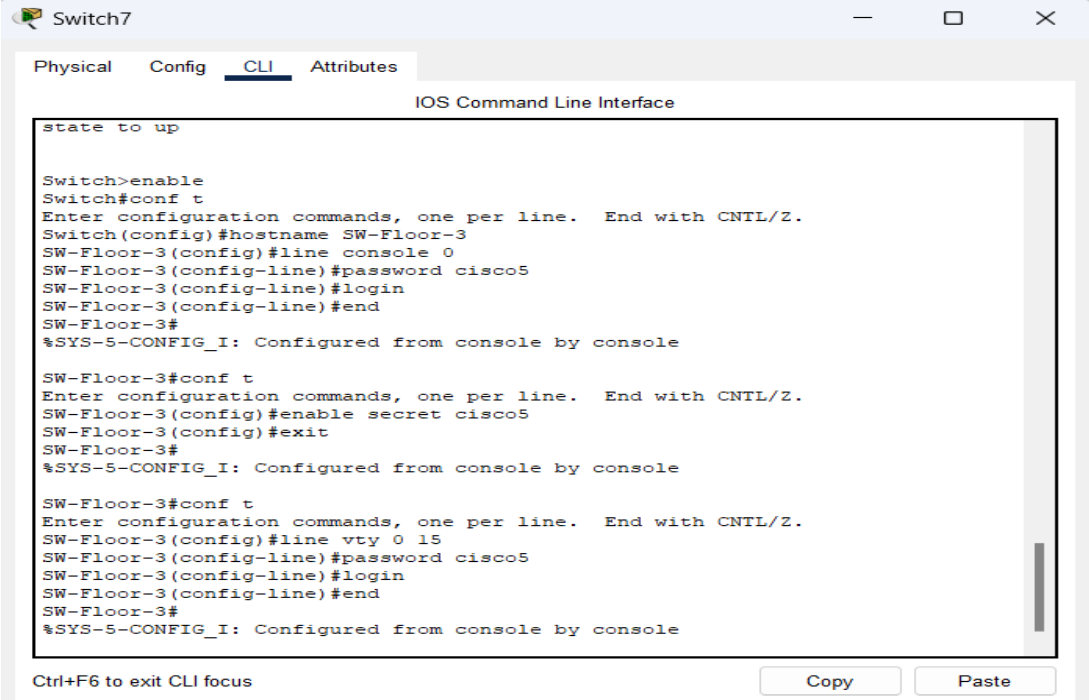
SW-Floor-2#conf t
^
% Invalid input detected at '^' marker.

SW-Floor-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-2(config)#enable secret cisco5
SW-Floor-2(config)#exit
SW-Floor-2#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-2(config)#line vty 0 15
SW-Floor-2(config-line)#password cisco5
SW-Floor-2(config-line)#login
SW-Floor-2(config-line)#end
SW-Floor-2#
```

Below the terminal window, there is a status bar that says "Ctrl+F6 to exit CLI focus" and two buttons labeled "Copy" and "Paste".

## Switch7 configuration for ring topology:



The screenshot shows a window titled "Switch7" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text is as follows:

```
state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-3
SW-Floor-3(config)#line console 0
SW-Floor-3(config-line)#password cisco5
SW-Floor-3(config-line)#login
SW-Floor-3(config-line)#end
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-3(config)#enable secret cisco5
SW-Floor-3(config)#exit
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-3(config)#line vty 0 15
SW-Floor-3(config-line)#password cisco5
SW-Floor-3(config-line)#login
SW-Floor-3(config-line)#end
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console
```

Below the terminal window, there is a status bar that says "Ctrl+F6 to exit CLI focus" and two buttons labeled "Copy" and "Paste".

## Switch8 configuration for ring topology:

Switch8

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-4
SW-Floor-4(config)#line console 0
SW-Floor-4(config-line)#password cisco6
SW-Floor-4(config-line)#login
SW-Floor-4(config-line)#end
SW-Floor-4#
%SYS-5-CONFIG_I: Configured from console by console
\
Translating "\"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address

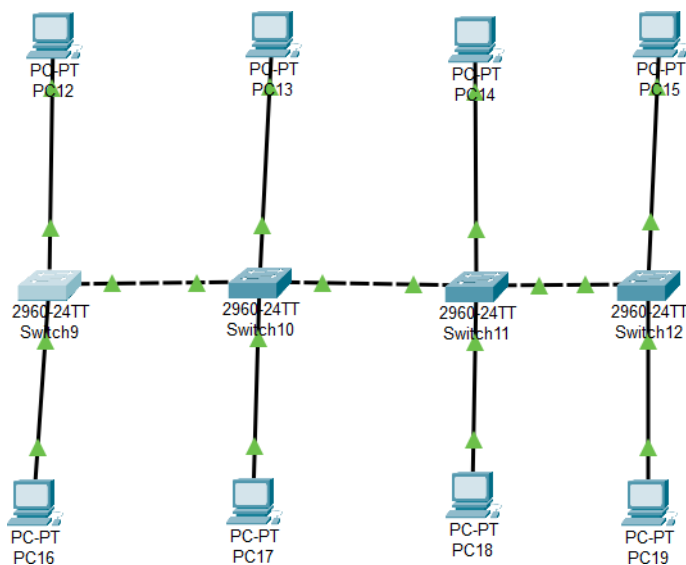
SW-Floor-4#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-4(config)#enable secret cisco6
SW-Floor-4(config)#exit
SW-Floor-4#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-4#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-4(config)#line vty 0 15
SW-Floor-4(config-line)#password cisco6
SW-Floor-4(config-line)#login
SW-Floor-4(config-line)#end
SW-Floor-4#
%SYS-5-CONFIG_I: Configured from console by console
```

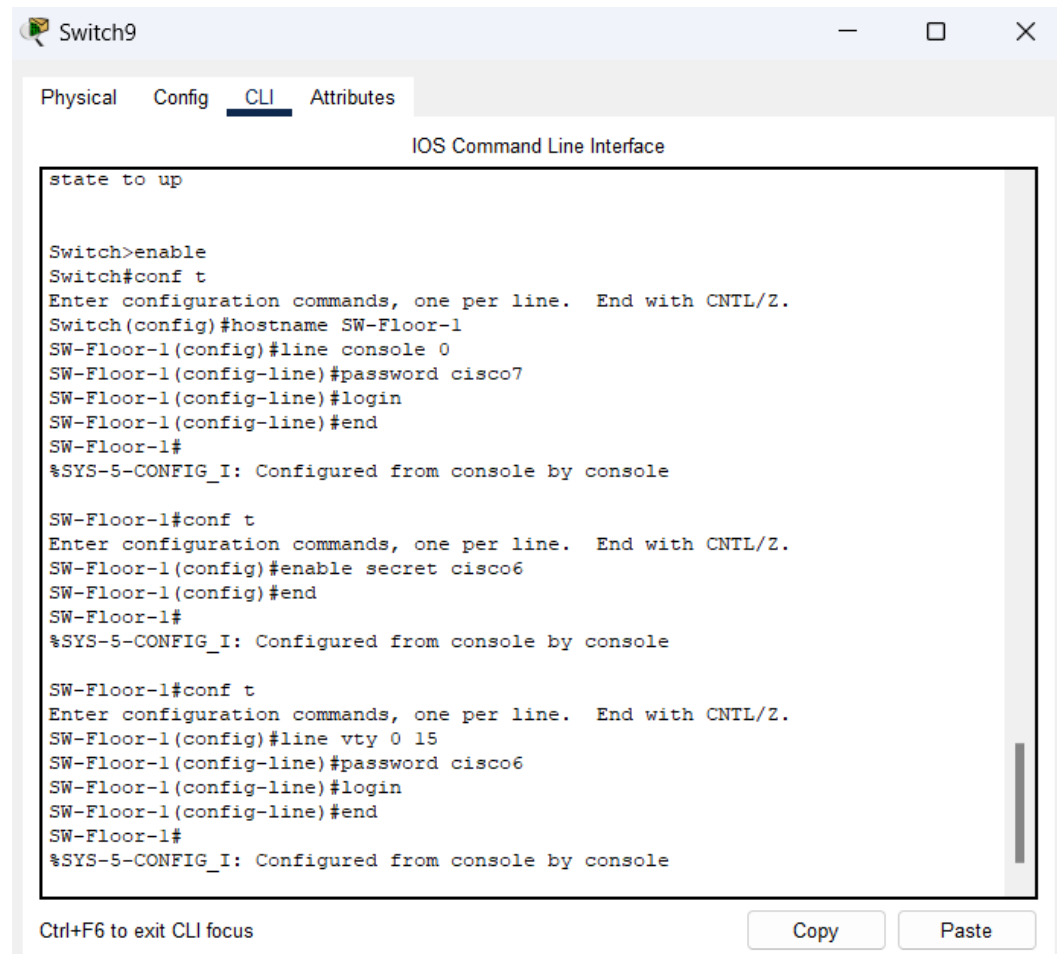
Ctrl+F6 to exit CLI focus

Copy Paste

- BUS topology



## Switch9 configuration for bus topology:



The screenshot shows a window titled "Switch9" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text shows the configuration process for Switch9, starting with "state to up" and "Switch>enable". It then enters configuration mode with "Switch#conf t". The configuration includes setting the hostname to "SW-Floor-1", configuring the console line (0) with password "cisco7" and login, and ending the configuration. A system message indicates the configuration was successful. The process is repeated for the vty lines (0 to 15) with password "cisco6" and login. The terminal text is as follows:

```
state to up

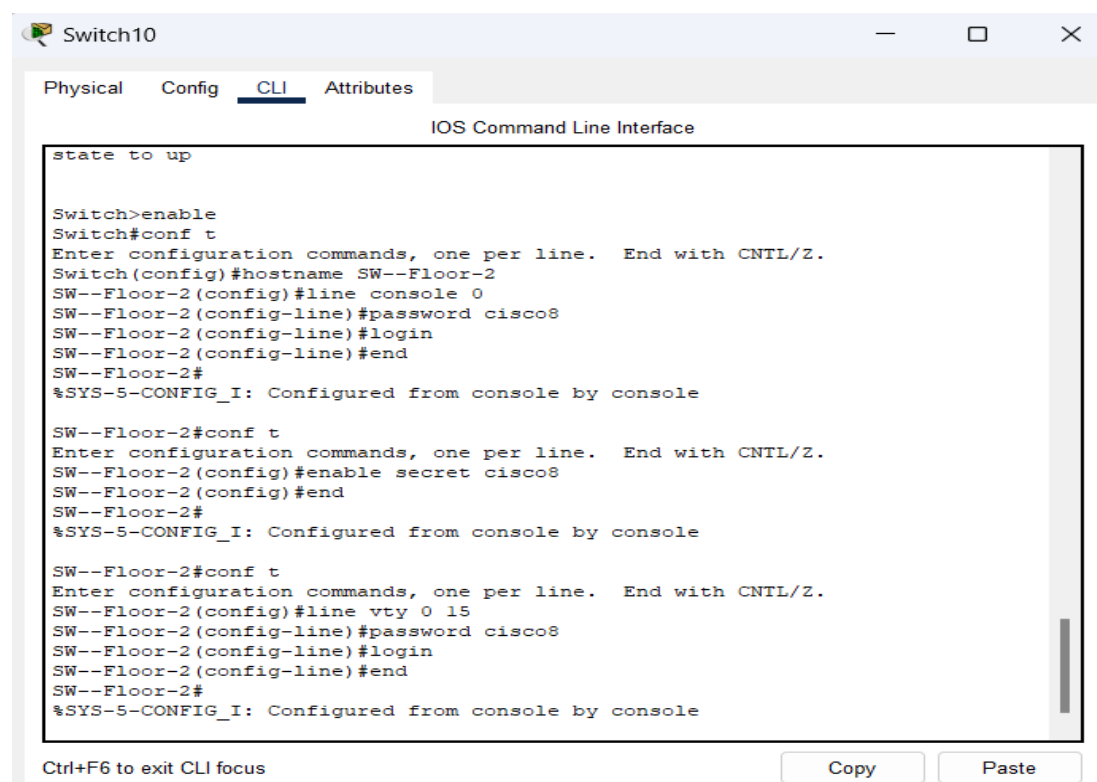
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-1
SW-Floor-1(config)#line console 0
SW-Floor-1(config-line)#password cisco7
SW-Floor-1(config-line)#login
SW-Floor-1(config-line)#end
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-1(config)#enable secret cisco6
SW-Floor-1(config)#end
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-1(config)#line vty 0 15
SW-Floor-1(config-line)#password cisco6
SW-Floor-1(config-line)#login
SW-Floor-1(config-line)#end
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console
```

At the bottom of the window, there is a text prompt "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste".

## Switch10 configuration for bus topology:



The screenshot shows a window titled "Switch10" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text shows the configuration process for Switch10, starting with "state to up" and "Switch>enable". It then enters configuration mode with "Switch#conf t". The configuration includes setting the hostname to "SW--Floor-2", configuring the console line (0) with password "cisco8" and login, and ending the configuration. A system message indicates the configuration was successful. The process is repeated for the vty lines (0 to 15) with password "cisco8" and login. The terminal text is as follows:

```
state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW--Floor-2
SW--Floor-2(config)#line console 0
SW--Floor-2(config-line)#password cisco8
SW--Floor-2(config-line)#login
SW--Floor-2(config-line)#end
SW--Floor-2#
%SYS-5-CONFIG_I: Configured from console by console

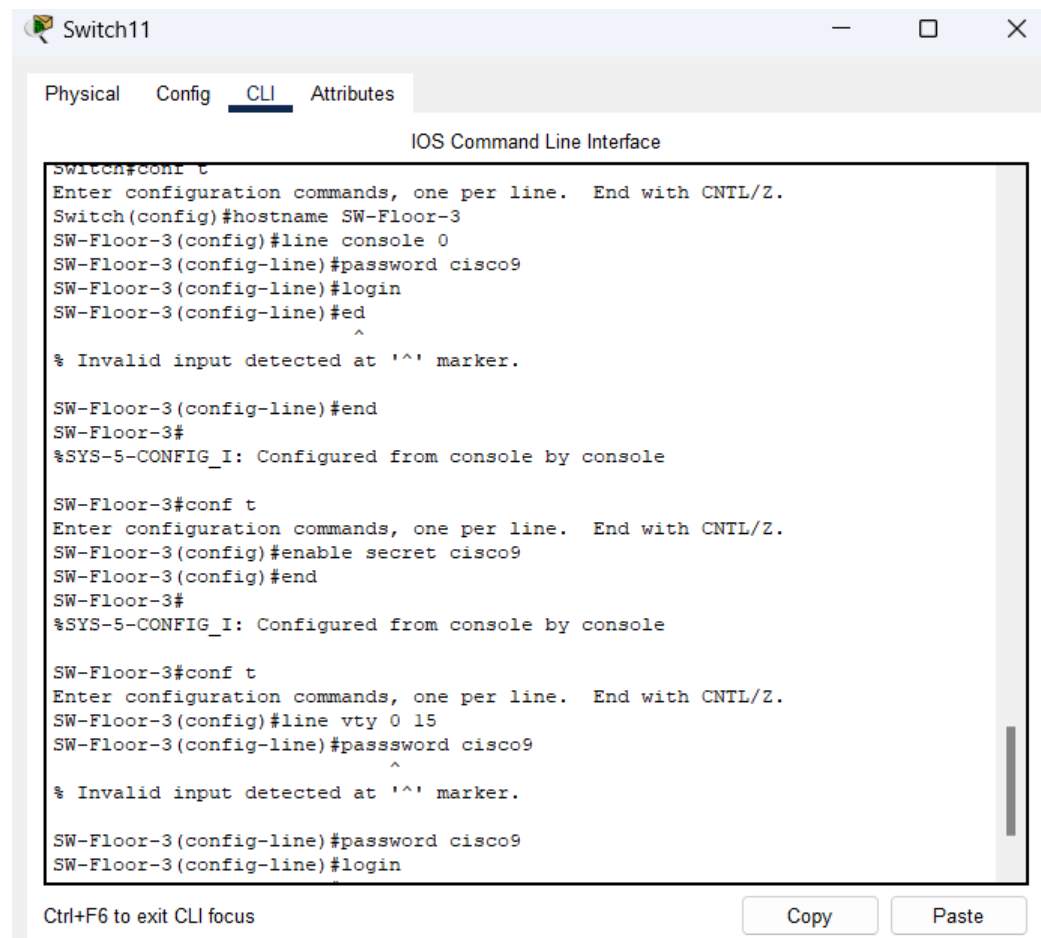
SW--Floor-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW--Floor-2(config)#enable secret cisco8
SW--Floor-2(config)#end
SW--Floor-2#
%SYS-5-CONFIG_I: Configured from console by console

SW--Floor-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW--Floor-2(config)#line vty 0 15
SW--Floor-2(config-line)#password cisco8
SW--Floor-2(config-line)#login
SW--Floor-2(config-line)#end
SW--Floor-2#
%SYS-5-CONFIG_I: Configured from console by console
```

At the bottom of the window, there is a text prompt "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste".



## Switch11 configuration for bus topology:

The screenshot shows a window titled "Switch11" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text shows the configuration for Switch11, including setting the hostname to SW-Floor-3, configuring console access with password cisco9, and configuring vty access with password cisco9. There are three configuration blocks, each followed by a confirmation message: "%SYS-5-CONFIG\_I: Configured from console by console".

```
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-3
SW-Floor-3(config)#line console 0
SW-Floor-3(config-line)#password cisco9
SW-Floor-3(config-line)#login
SW-Floor-3(config-line)#end
^
% Invalid input detected at '^' marker.

SW-Floor-3(config-line)#end
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-3(config)#enable secret cisco9
SW-Floor-3(config)#end
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console

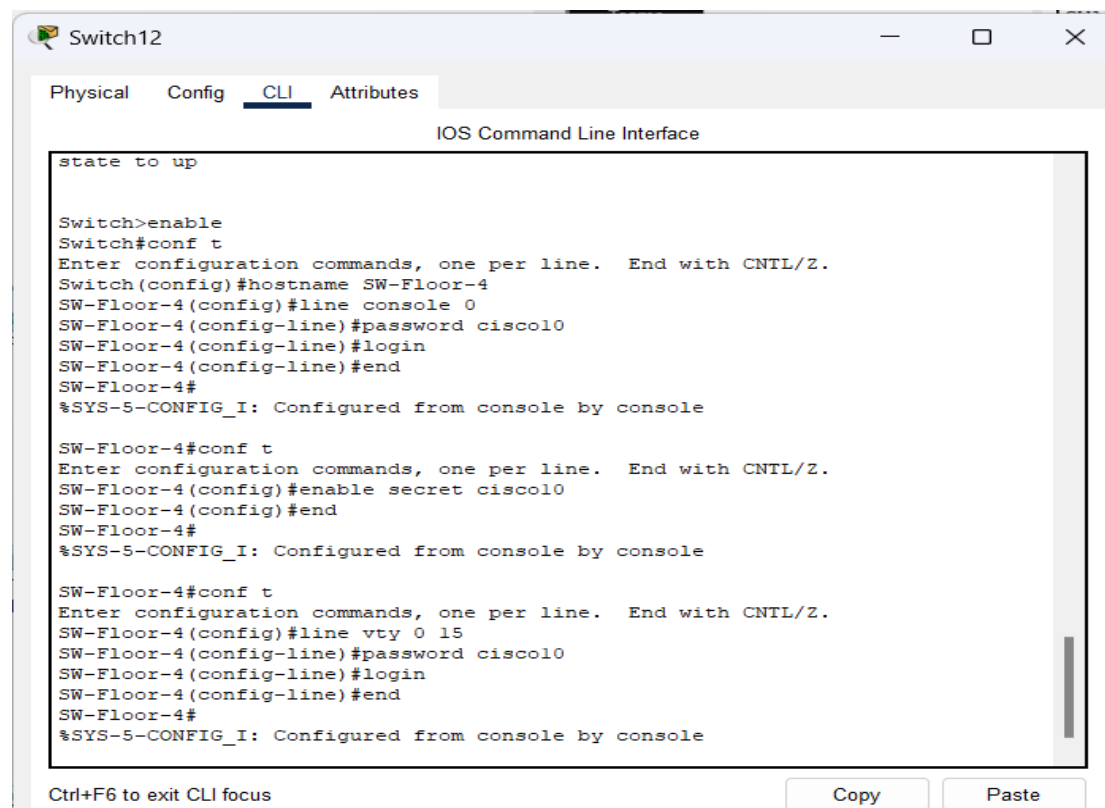
SW-Floor-3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-3(config)#line vty 0 15
SW-Floor-3(config-line)#password cisco9
^
% Invalid input detected at '^' marker.

SW-Floor-3(config-line)#password cisco9
SW-Floor-3(config-line)#login
```

Ctrl+F6 to exit CLI focus

Copy Paste

## Switch12 configuration for bus topology:

The screenshot shows a window titled "Switch12" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text shows the configuration for Switch12, including setting the hostname to SW-Floor-4, configuring console access with password cisco10, and configuring vty access with password cisco10. There are three configuration blocks, each followed by a confirmation message: "%SYS-5-CONFIG\_I: Configured from console by console".

```
state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-4
SW-Floor-4(config)#line console 0
SW-Floor-4(config-line)#password cisco10
SW-Floor-4(config-line)#login
SW-Floor-4(config-line)#end
SW-Floor-4#
%SYS-5-CONFIG_I: Configured from console by console

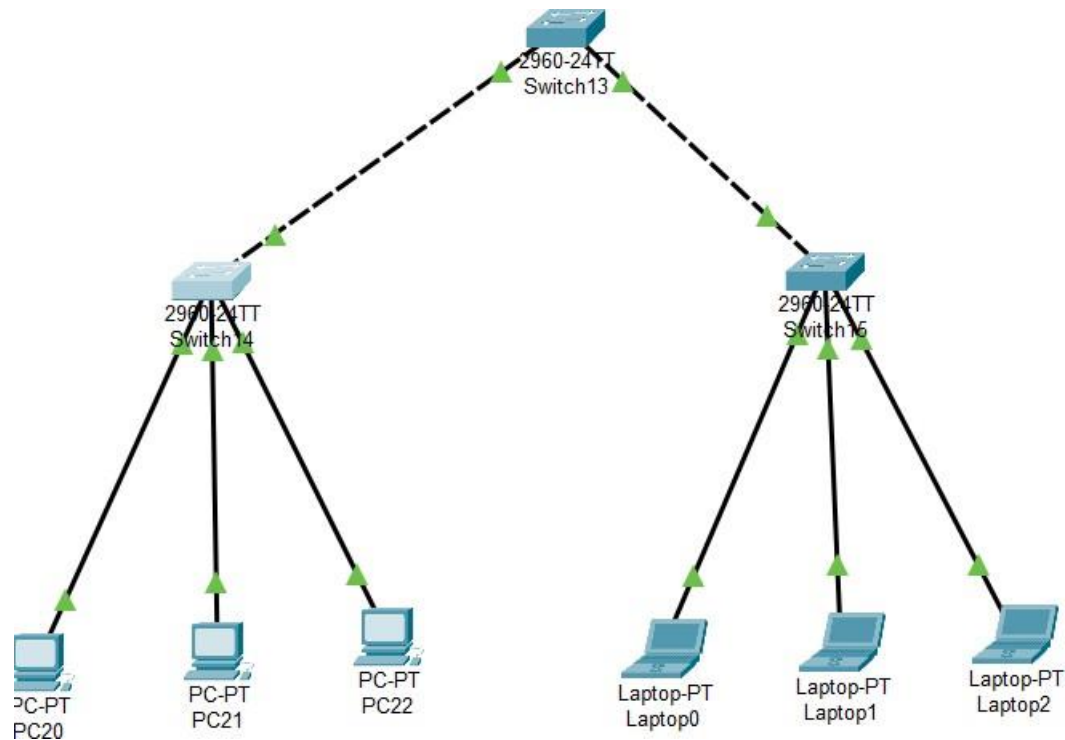
SW-Floor-4#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-4(config)#enable secret cisco10
SW-Floor-4(config)#end
SW-Floor-4#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-4#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-4(config)#line vty 0 15
SW-Floor-4(config-line)#password cisco10
SW-Floor-4(config-line)#login
SW-Floor-4(config-line)#end
SW-Floor-4#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

Copy Paste

- TREE topology



### Switch14 configuration for tree topology:

Switch14
Physical Config CLI Attributes

IOS Command Line Interface

```

state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-1
SW-Floor-1(config)#line console 0
SW-Floor-1(config-line)#password ciscoll
SW-Floor-1(config-line)#login
SW-Floor-1(config-line)#end
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

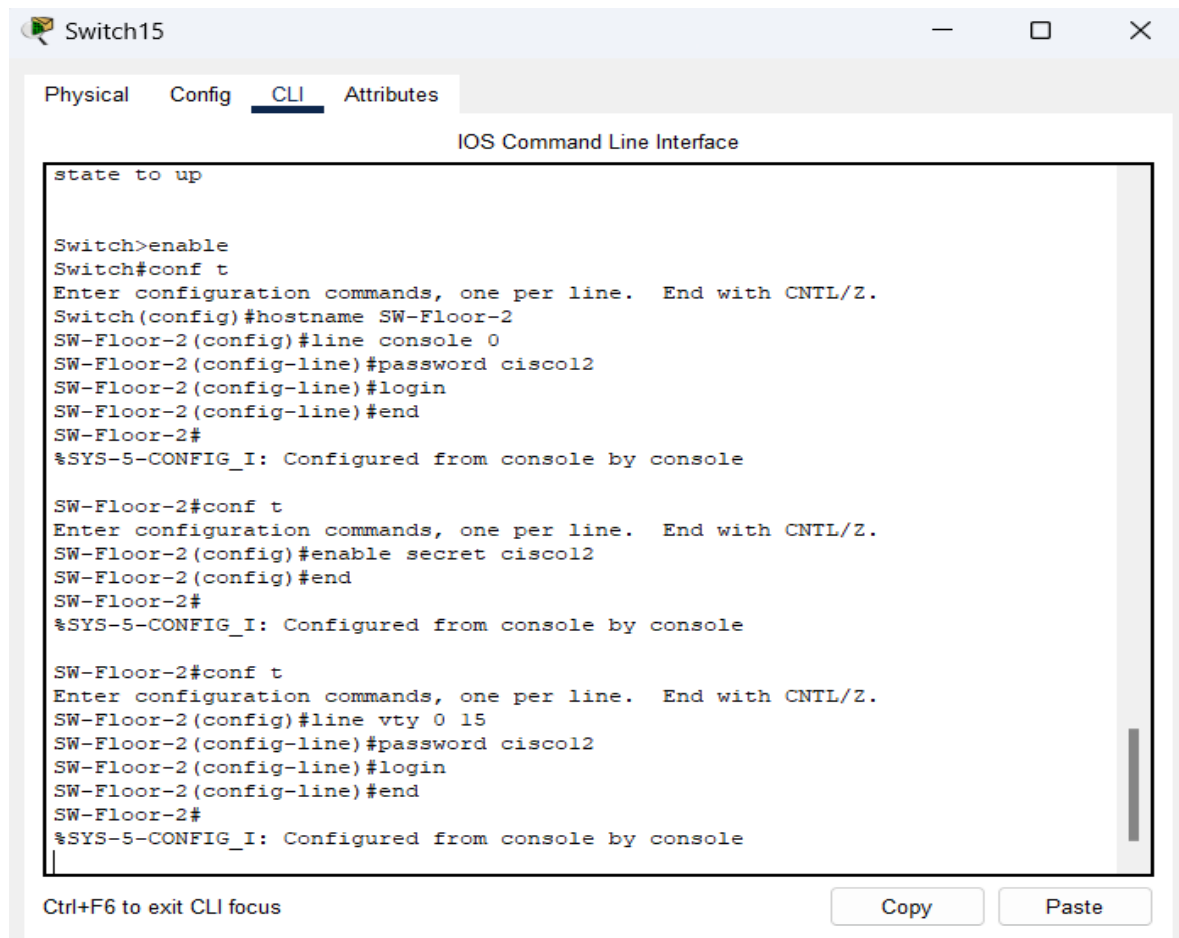
SW-Floor-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-1(config)#enable secret ciscoll
SW-Floor-1(config)#end
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-1(config)#line vty 0 15
SW-Floor-1(config-line)#password ciscoll
SW-Floor-1(config-line)#login
SW-Floor-1(config-line)#end
SW-Floor-1#
%SYS-5-CONFIG_I: Configured from console by console

```

Ctrl+F6 to exit CLI focus
Copy Paste

## Switch15 configuration for tree topology:



The screenshot shows a window titled "Switch15" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The interface shows the following commands and prompts:

```
state to up

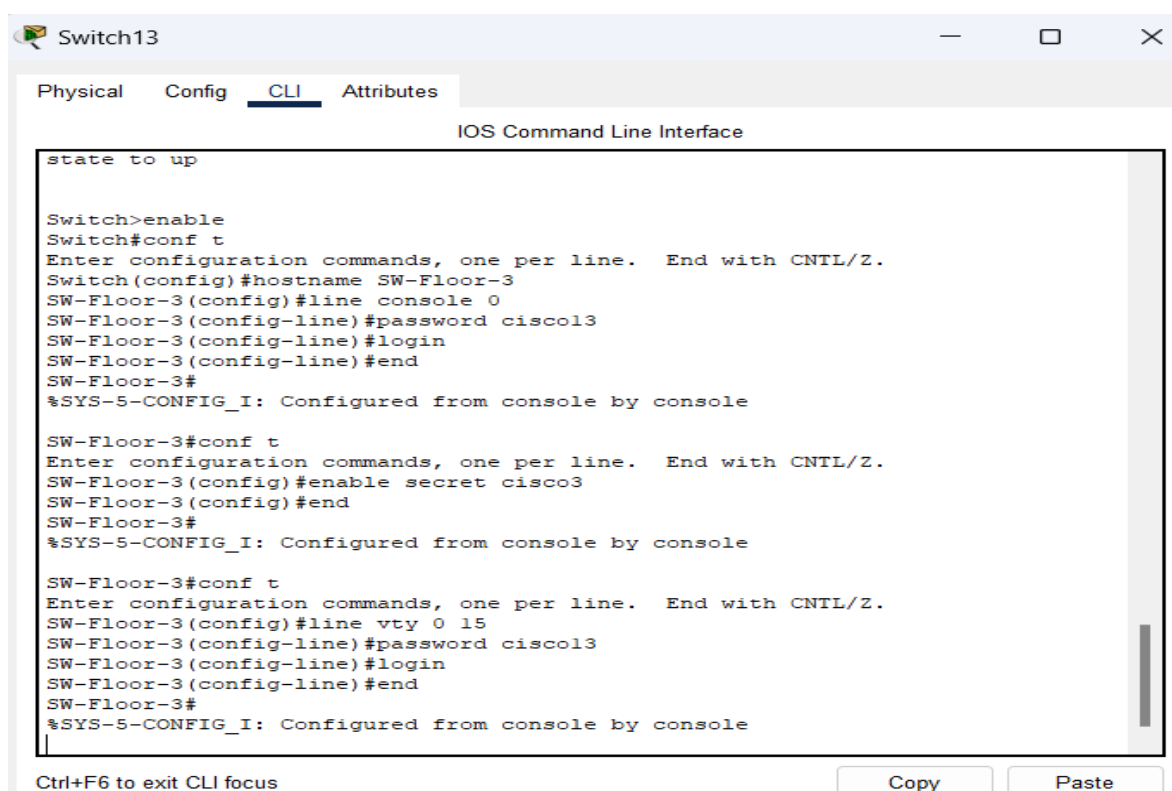
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-2
SW-Floor-2(config)#line console 0
SW-Floor-2(config-line)#password cisco12
SW-Floor-2(config-line)#login
SW-Floor-2(config-line)#end
SW-Floor-2#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-2(config)#enable secret cisco12
SW-Floor-2(config)#end
SW-Floor-2#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-2(config)#line vty 0 15
SW-Floor-2(config-line)#password cisco12
SW-Floor-2(config-line)#login
SW-Floor-2(config-line)#end
SW-Floor-2#
%SYS-5-CONFIG_I: Configured from console by console
```

At the bottom of the window, there is a text label "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste".

## Switch13 configuration for tree topology:



The screenshot shows a window titled "Switch13" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The interface shows the following commands and prompts:

```
state to up

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW-Floor-3
SW-Floor-3(config)#line console 0
SW-Floor-3(config-line)#password cisco13
SW-Floor-3(config-line)#login
SW-Floor-3(config-line)#end
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-3(config)#enable secret cisco3
SW-Floor-3(config)#end
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console

SW-Floor-3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-Floor-3(config)#line vty 0 15
SW-Floor-3(config-line)#password cisco13
SW-Floor-3(config-line)#login
SW-Floor-3(config-line)#end
SW-Floor-3#
%SYS-5-CONFIG_I: Configured from console by console
```

At the bottom of the window, there is a text label "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste".

## Lab-4

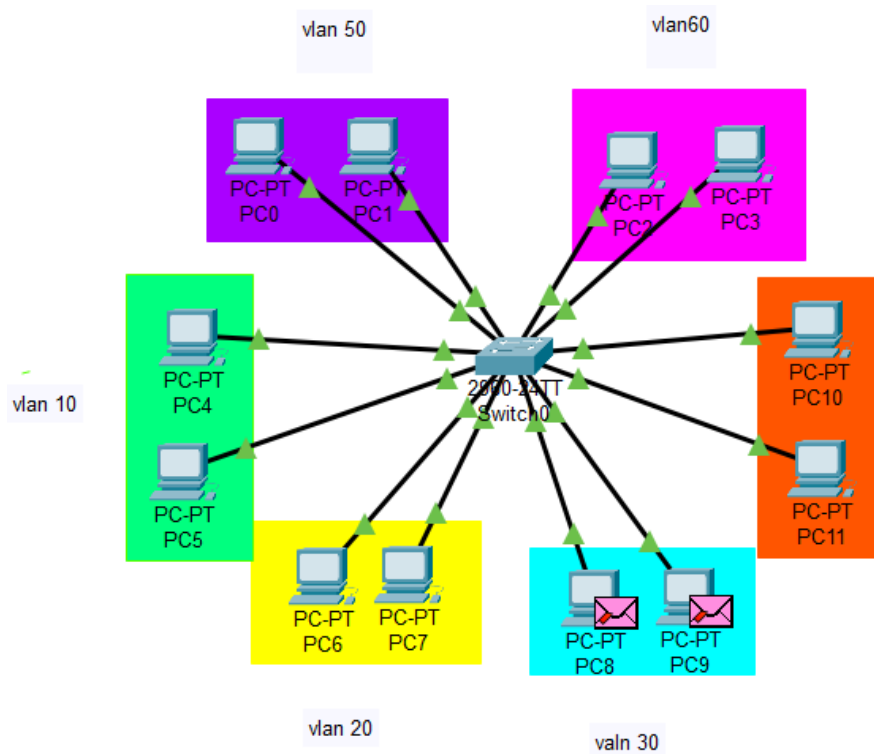
**Aim:** To explore and configure VLANs.

**Theory:**

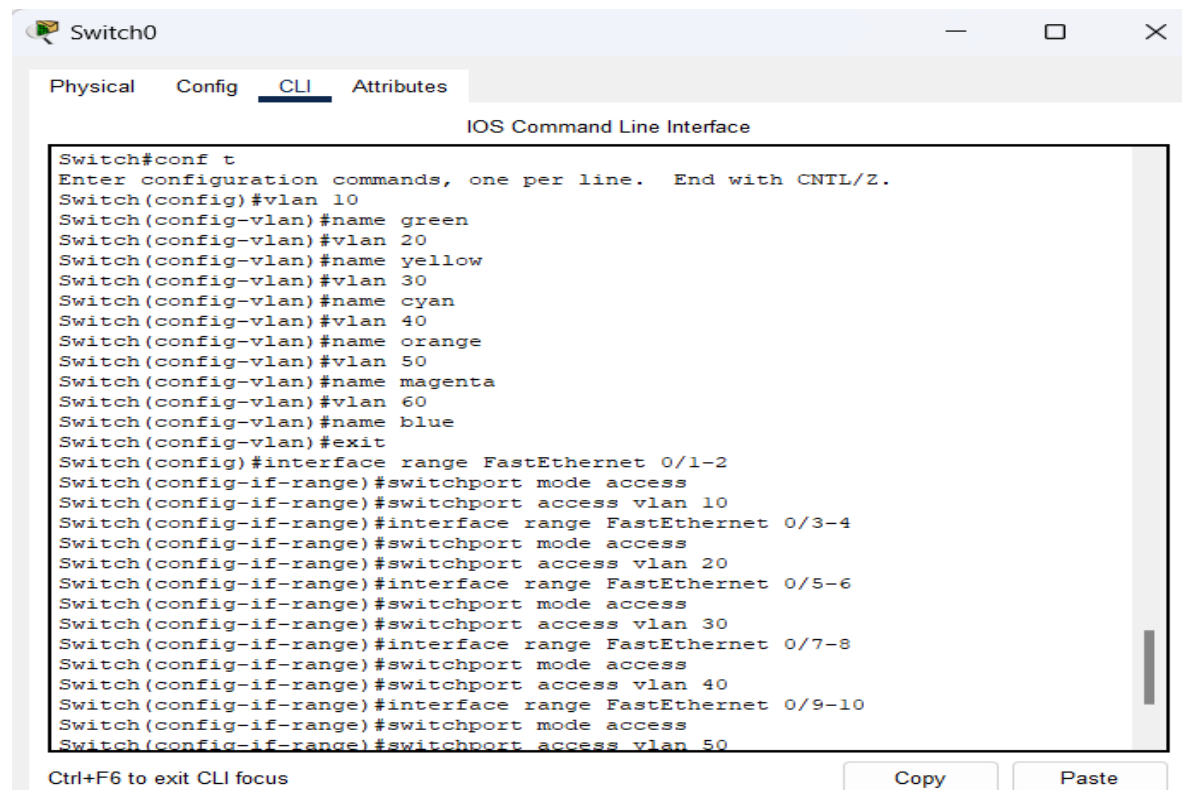
A network switch connects devices within a network and forwards data packets to and from those devices. Unlike a router, a switch only sends data to the single device it is intended for (which may be another switch, a router, or a user's computer), not to networks of multiple devices.

**Output:**

**Network Diagram:**



## Switch configuration:



```
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::20B:BEFF:FEE5:2845
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 192.168.1.1
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                0.0.0.0

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>192.168.1.2
Invalid Command.

C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=4ms TTL=128
```

```

C:\>192.168.1.2
Invalid Command.

C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=4ms TTL=128
Reply from 192.168.1.2: bytes=32 time=4ms TTL=128
Reply from 192.168.1.2: bytes=32 time=10ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 10ms, Average = 4ms

C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

```

```





Device Name: Switch0
Custom Device Model: 2960 IOS15
Hostname: Switch

Port                Link    VLAN   IP Address    MAC Address
FastEthernet0/1     Up      10     --            000C.CF63.6401
FastEthernet0/2     Up      10     --            000C.CF63.6402
FastEthernet0/3     Up      20     --            000C.CF63.6403
FastEthernet0/4     Up      20     --            000C.CF63.6404
FastEthernet0/5     Up      30     --            000C.CF63.6405
FastEthernet0/6     Up      30     --            000C.CF63.6406
FastEthernet0/7     Up      40     --            000C.CF63.6407
FastEthernet0/8     Up      40     --            000C.CF63.6408
FastEthernet0/9     Up      50     --            000C.CF63.6409
FastEthernet0/10    Up      50     --            000C.CF63.640A
FastEthernet0/11    Up      60     --            000C.CF63.640B
FastEthernet0/12    Up      60     --            000C.CF63.640C
FastEthernet0/13    Down    1      --            000C.CF63.640D
FastEthernet0/14    Down    1      --            000C.CF63.640E
FastEthernet0/15    Down    1      --            000C.CF63.640F
FastEthernet0/16    Down    1      --            000C.CF63.6410
FastEthernet0/17    Down    1      --            000C.CF63.6411
FastEthernet0/18    Down    1      --            000C.CF63.6412
FastEthernet0/19    Down    1      --            000C.CF63.6413
FastEthernet0/20    Down    1      --            000C.CF63.6414
FastEthernet0/21    Down    1      --            000C.CF63.6415
FastEthernet0/22    Down    1      --            000C.CF63.6416
FastEthernet0/23    Down    1      --            000C.CF63.6417
FastEthernet0/24    Down    1      --            000C.CF63.6418
GigabitEthernet0/1  Down    1      --            000C.CF63.6419
GigabitEthernet0/2  Down    1      --            000C.CF63.641A
Vlan1               Down    1      <not set>     0006.2A31.EB3E

```

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Switch0

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	PC1	ICMP		0.000	N	0	(edit)	(delete)
	Failed	PC0	PC8	ICMP		1.211	N	1	(edit)	(delete)

## Lab-5

**Aim:** To configure Router

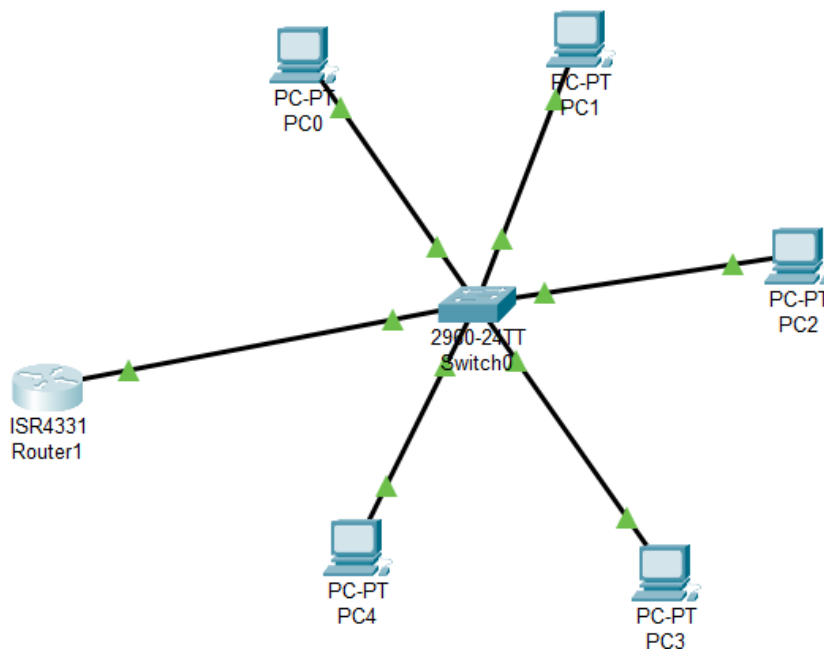
**Software Used:** - Packet Tracer by Cisco

### **THEORY**

A **router** is a device that connects two or more packet-switched networks or subnetworks. It serves two primary functions: managing traffic between these networks by forwarding data packets to their intended IP addresses and allowing multiple devices to use the same Internet connection.

A network **switch** forwards data packets between groups of devices in the same network, whereas a router forwards data between different networks.

### **Output:**



## Router configuration:

```
Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#interface g0/0/0
R1(config-if)#ip address 192.168.1.2 255.255.255.0
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed
state to up

R1(config-if)#exit
R1(config)#interface g0/0/0.10
R1(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0.10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0.10,
changed state to up

R1(config-subif)#encapsulation dot1Q 10
      ^
% Invalid input detected at '^' marker.

R1(config-subif)#encapsulation dot1Q 10
R1(config-subif)#ip address 10
      ^
```

Ctrl+F6 to exit CLI focus

Copy

Paste

Router1

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
% Invalid input detected at '^' marker.

R1(config-subif)#ip address 10.0.0.1 255.0.0.0
R1(config-subif)#exit
R1(config)#interface g0/0/0.20
R1(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0.20,
changed state to up

R1(config-subif)#encapsulation dot1Q 20
R1(config-subif)#ip address 20.0.0.1 255.0.0.0
R1(config-subif)#exit
R1(config)#interface g0/0/0
R1(config-if)#exit
R1(config)#interface loopback 0

R1(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to
up

R1(config-if)#ip address 192.168.2.1 255.255.255.0
R1(config-if)#interface loopback 1

R1(config-if)#
%LINK-5-CHANGED: Interface Loopback1, changed state to up
```

Ctrl+F6 to exit CLI focus

Copy

Paste



Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
R1(config-if)#
%LINK-5-CHANGED: Interface Loopback1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to
up

R1(config-if)#ip address 192.168.3.1 255.255.255.0
R1(config-if)#end
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#copy running-config startup-config
Destination filename [startup-config]? jaswanth
%Error copying nvram:jaswanth (Invalid argument)
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#show run
Building configuration...

Current configuration : 1100 bytes
!
version 16.6.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R1
!
```

Ctrl+F6 to exit CLI focus

Copy Paste

Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
!
!
interface Loopback0
ip address 192.168.2.1 255.255.255.0
!
interface Loopback1
ip address 192.168.3.1 255.255.255.0
!
interface GigabitEthernet0/0/0
ip address 192.168.1.2 255.255.255.0
duplex auto
speed auto
!
interface GigabitEthernet0/0/0.10
encapsulation dot1Q 10
ip address 10.0.0.1 255.0.0.0
!
interface GigabitEthernet0/0/0.20
encapsulation dot1Q 20
ip address 20.0.0.1 255.0.0.0
!
interface GigabitEthernet0/0/1
no ip address
duplex auto
speed auto
shutdown
!
interface GigabitEthernet0/0/2
no ip address
duplex auto
```

Ctrl+F6 to exit CLI focus

Copy Paste

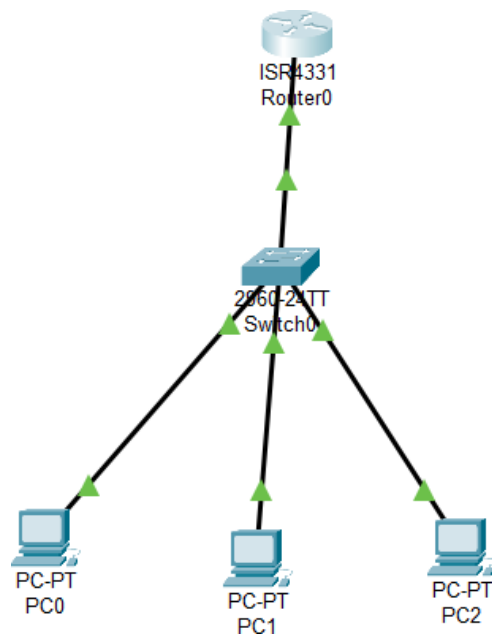
## **Lab-6**

**Aim:** configuring router and learn about 802.11 protocol

### **Theory:**

The 802.11 protocol consists of a series of half-duplex over-the-air modulation techniques that use the same basic protocol. The 802.11 protocol family employs carrier-sense multiple access with collision avoidance whereby equipment listens to a channel for other users before transmitting each frame.

### **Output:**



Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface g0/0/0
Router(config-if)#no ip address
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed
state to up

Router(config-if)#exit
Router(config)#interface g0/0/0.10
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0.10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0.10,
changed state to up

Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 10.0.0.1 255.0.0.0
Router(config-subif)#exit
Router(config)#interface g0/0/0.20
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0.20, changed state to up
```

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0.10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0.10,
changed state to up

Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 10.0.0.1 255.0.0.0
Router(config-subif)#exit
Router(config)#interface g0/0/0.20
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0.20,
changed state to up

Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#20.0.0.1 255.0.0.0
^
% Invalid input detected at '^' marker.

Router(config-subif)#20.0.0.1 255.0.0.0
^
% Invalid input detected at '^' marker.

Router(config-subif)#ip address 20.0.0.1 255.0.0.0
Router(config-subif)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

Copy Paste

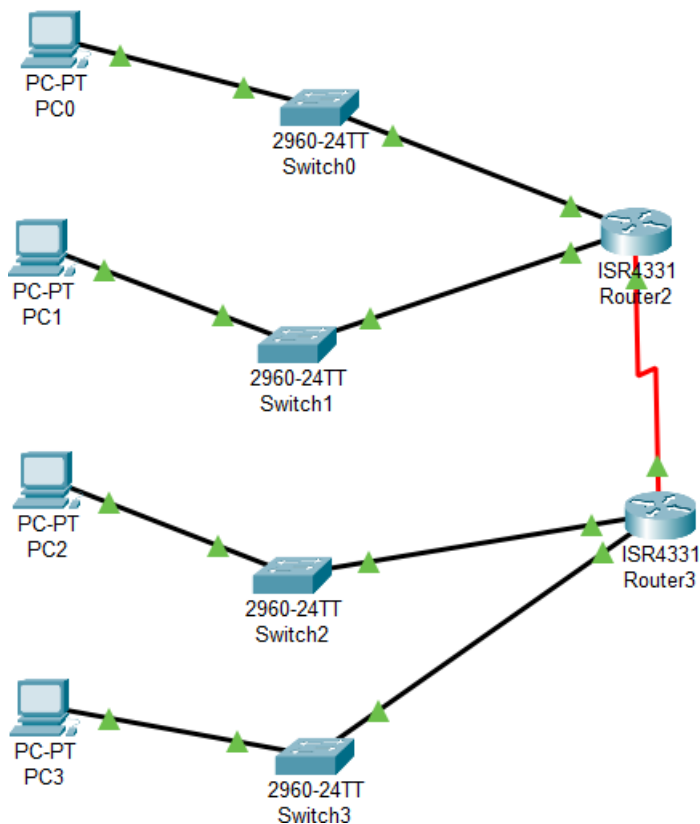
## Lab-7

**Aim:** To configure ipv6 address on a router

**Theory:** IPv4 users can move to IPv6 and receive services such as exit-to-exit security, quality of service (QoS), and globally unique addresses.

In the ipv6 address interface configuration command, you must enter the ipv6-address and ipv6-prefix variables with the address specified in hexadecimal using 16-bit values between colons.

**Output:**



Router2

PhysicalConfigCLIAttributes

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface g0/0/0
Router(config-if)#ipv6 address 2001:db8:acad:1::1/64
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface gigabitethernet 0/0/1
Router(config-if)#ipv6 address 2001:db8:acad:2::1/64
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface serial 0/1/0
Router(config-if)#ipv6 address 2001:db8:acad:3::1/64
Router(config-if)#no shutdown
Router(config-if)#interface gigabitethernet 0/0/0
Router(config-if)#ipv6 address fe80::1:1 link-local
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show interface gigabitethernet 0/0/0
GigabitEthernet0/0/0 is up, line protocol is up (connected)
  Hardware is ISR4331-3x1GE, address is 0001.c79c.de01 (bia 0001.c79c.de01)
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
  Full Duplex, 1000Mbps, link type is auto, media type is Auto Select
```

Ctrl+F6 to exit CLI focusCopyPaste

Router2

PhysicalConfigCLIAttributes

IOS Command Line Interface

```
0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 watchdog, 1017 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

Router#
Router#
Router#
Router#show ipv6 interface brief
GigabitEthernet0/0/0      [up/up]
    FE80::1:1
    2001:DB8:ACAD:1::1
GigabitEthernet0/0/1      [up/up]
    FE80::201:C7FF:FE9C:DE02
    2001:DB8:ACAD:2::1
GigabitEthernet0/0/2      [administratively down/down]
    unassigned
Serial0/1/0               [up/up]
    FE80::201:C7FF:FE9C:DE01
    2001:DB8:ACAD:3::1
Serial0/1/1               [administratively down/down]
    unassigned
Vlan1                     [administratively down/down]
    unassigned
```

Ctrl+F6 to exit CLI focusCopyPaste

Router3

Physical Config CLI Attributes

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up

Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface gigabitethernet 0/0/0
Router(config-if)#ipv6 address 2001:db8:acad:2::1/64
%GigabitEthernet0/0/0: Error: 2001:DB8:ACAD:2::/64 is overlapping with
2001:DB8:ACAD:2::/64 on GigabitEthernet0/0/1
Router(config-if)#ipv6 address 2001:db8:acad:1::1/64
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface gigabitethernet 0/0/1
Router(config-if)#ipv6 address 2001:db8:acad:2::1/64
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface serial 0/1/0
Router(config-if)#ipv6 address 2001:db8:acad:3::1/64
Router(config-if)#no shutdown
Router(config-if)#interface gigabitethernet 0/0/0
Router(config-if)#ipv6 address fe80::1:1 link-local
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show interface gigabitethernet 0/0/0
```

Ctrl+F6 to exit CLI focus

Copy Paste

Router3

Physical Config CLI Attributes

IOS Command Line Interface

```
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 watchdog, 1017 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

Router#show ipv6 interface brief
GigabitEthernet0/0/0      [up/up]
    FE80::1:1
    2001:DB8:ACAD:1::1
GigabitEthernet0/0/1      [up/up]
    FE80::250:FFF:FE8D:5B02
    2001:DB8:ACAD:2::1
GigabitEthernet0/0/2      [administratively down/down]
    unassigned
Serial0/1/0               [up/up]
    FE80::250:FFF:FE8D:5B01
    2001:DB8:ACAD:3::1
Serial0/1/1               [administratively down/down]
    unassigned
Vlan1                     [administratively down/down]
    unassigned
Router#
```

Ctrl+F6 to exit CLI focus

Copy Paste

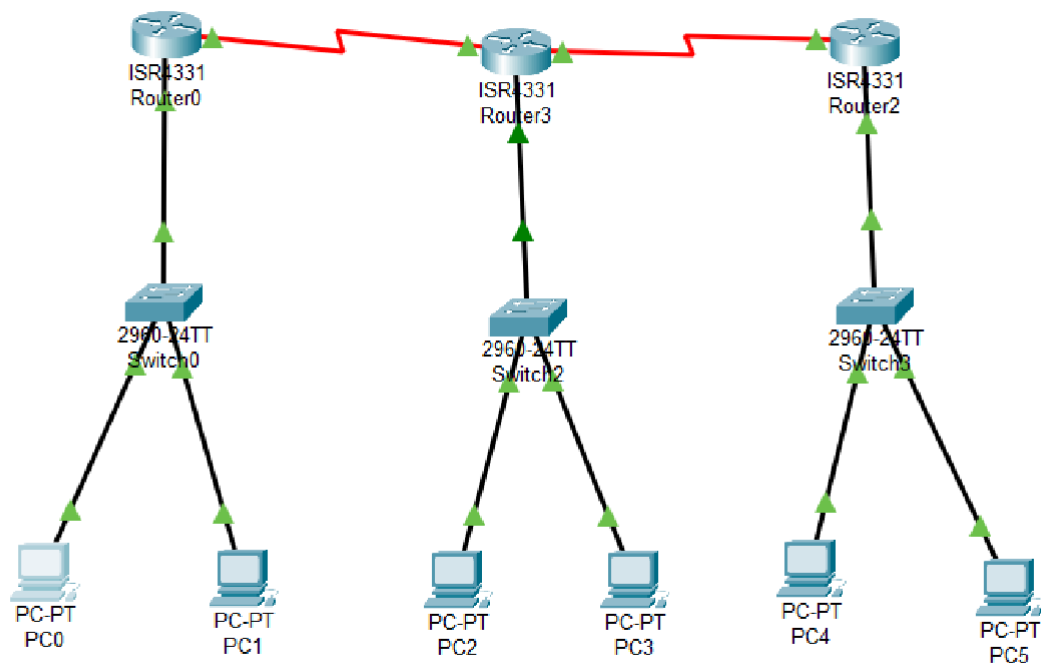
## **LAB-8**

**Aim:** To learn static routing of the routers

### **Theory:**

The routing table has the information of path to send the data to different network. Static routing refers to set the path manually instead of automatic generation of the path by the DHCP protocol.

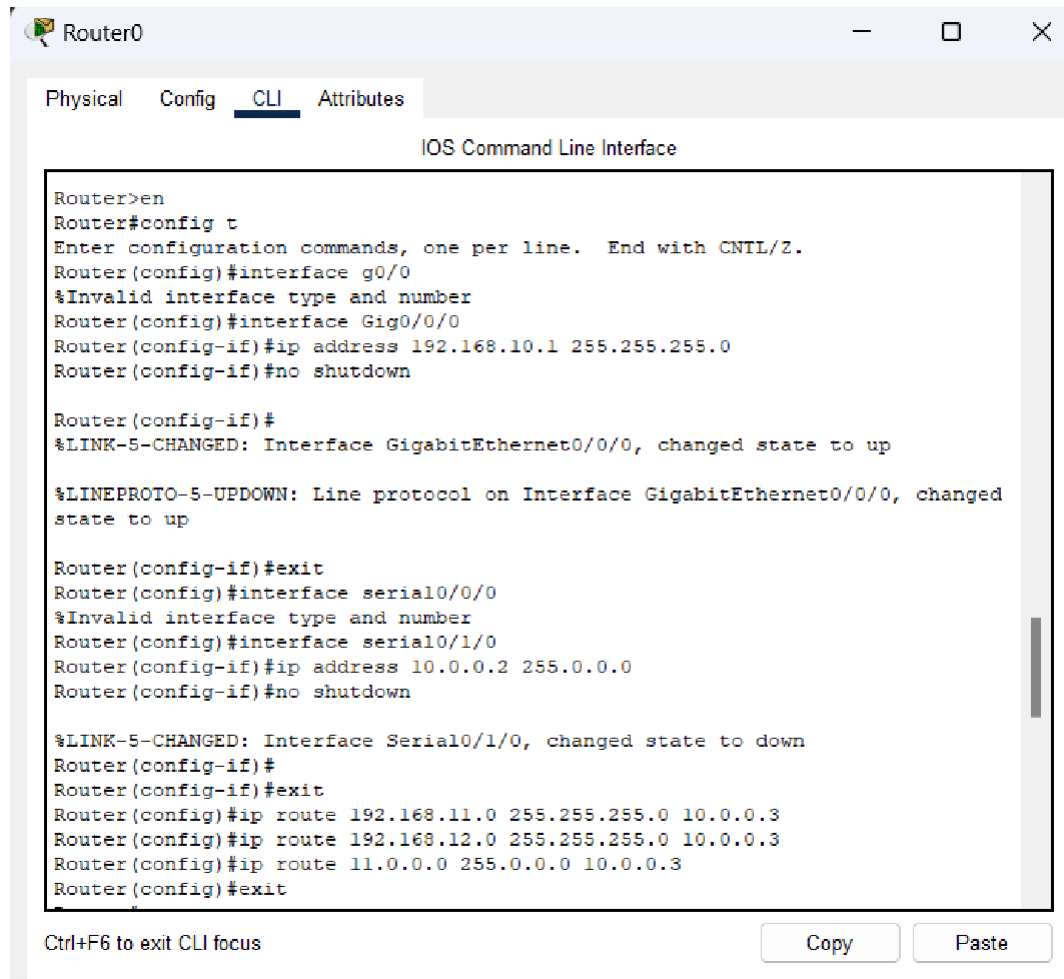
### **Topology:**



---

### **Output:**

## Router0 configuration:

A screenshot of a network configuration window titled "Router0". It has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The main area is titled "IOS Command Line Interface" and contains a text box with the following commands and output:

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface g0/0
%Invalid interface type and number
Router(config)#interface Gig0/0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

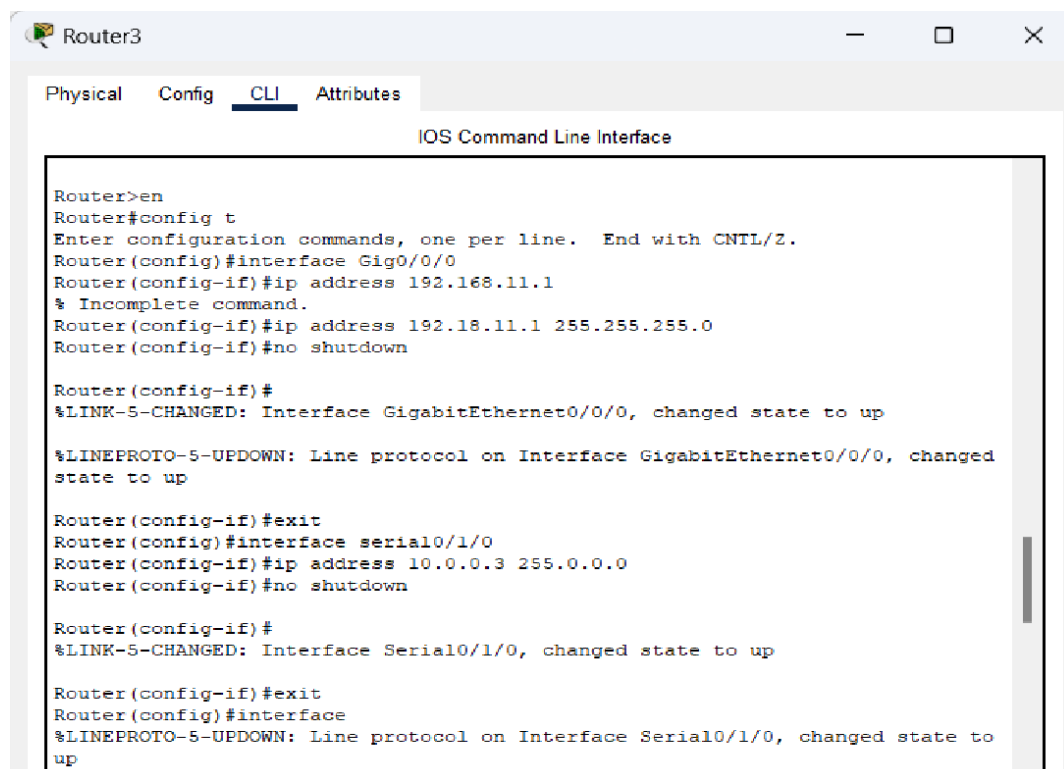
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed
state to up

Router(config-if)#exit
Router(config)#interface serial0/0/0
%Invalid interface type and number
Router(config)#interface serial0/1/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
Router(config-if)#
Router(config-if)#exit
Router(config)#ip route 192.168.11.0 255.255.255.0 10.0.0.3
Router(config)#ip route 192.168.12.0 255.255.255.0 10.0.0.3
Router(config)#ip route 11.0.0.0 255.0.0.0 10.0.0.3
Router(config)#exit
```

At the bottom, there is a status bar with "Ctrl+F6 to exit CLI focus" on the left and "Copy" and "Paste" buttons on the right.

## Router3 configuration:

A screenshot of a network configuration window titled "Router3". It has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The main area is titled "IOS Command Line Interface" and contains the following commands and output:

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Gig0/0/0
Router(config-if)#ip address 192.168.11.1
% Incomplete command.
Router(config-if)#ip address 192.18.11.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

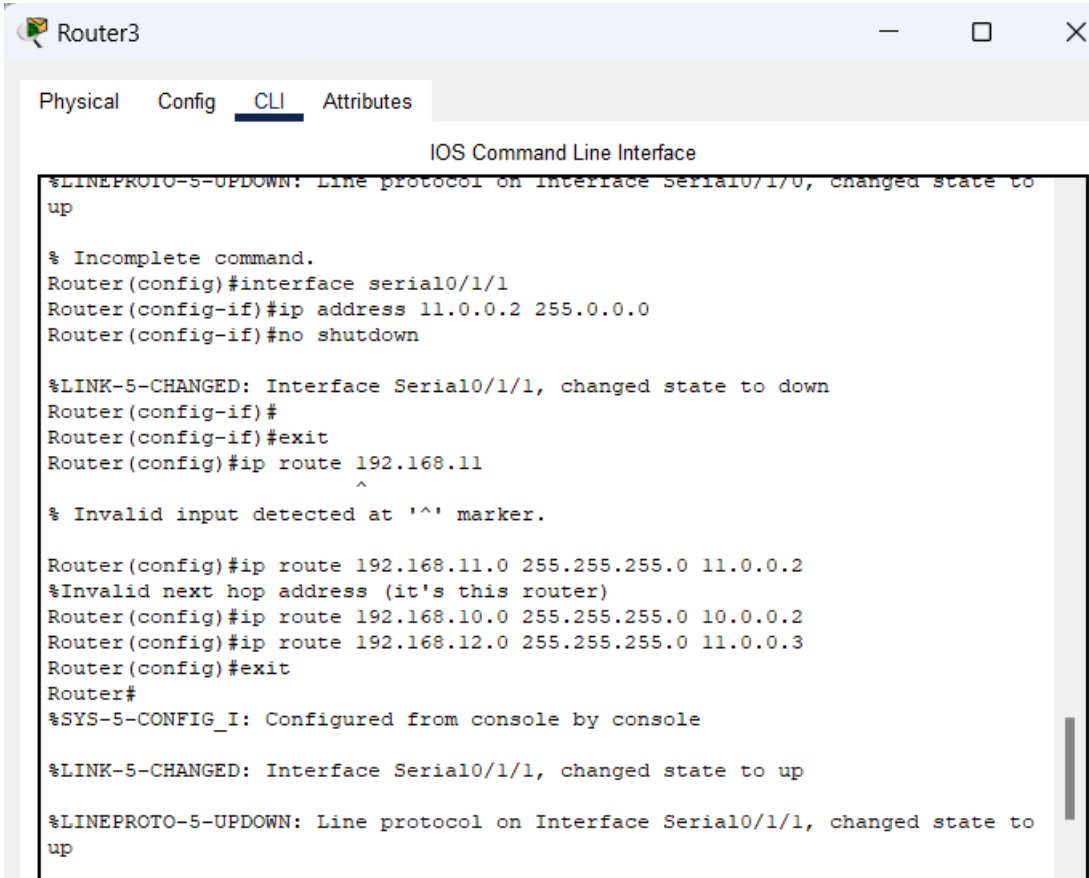
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed
state to up

Router(config-if)#exit
Router(config)#interface serial0/1/0
Router(config-if)#ip address 10.0.0.3 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

Router(config-if)#exit
Router(config)#interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to
up
```





A screenshot of a network simulator window titled "Router3". It has tabs for "Physical", "Config", "CLI" (which is selected), and "Attributes". The main area is titled "IOS Command Line Interface" and displays a series of commands and system messages. The messages indicate that the line protocol on Serial0/1/0 changed to up, followed by an incomplete command. Then, interface Serial0/1/1 was configured with IP 11.0.0.2/24 and no shutdown. This caused the link state to change to down. The user then exited the interface configuration and entered an IP route for 192.168.11.0. An invalid input was detected at an '^' marker. The user then entered a correct IP route for 192.168.11.0/24 with next hop 11.0.0.2. This caused the link state to change to up, and finally the line protocol on Serial0/1/1 changed to up.

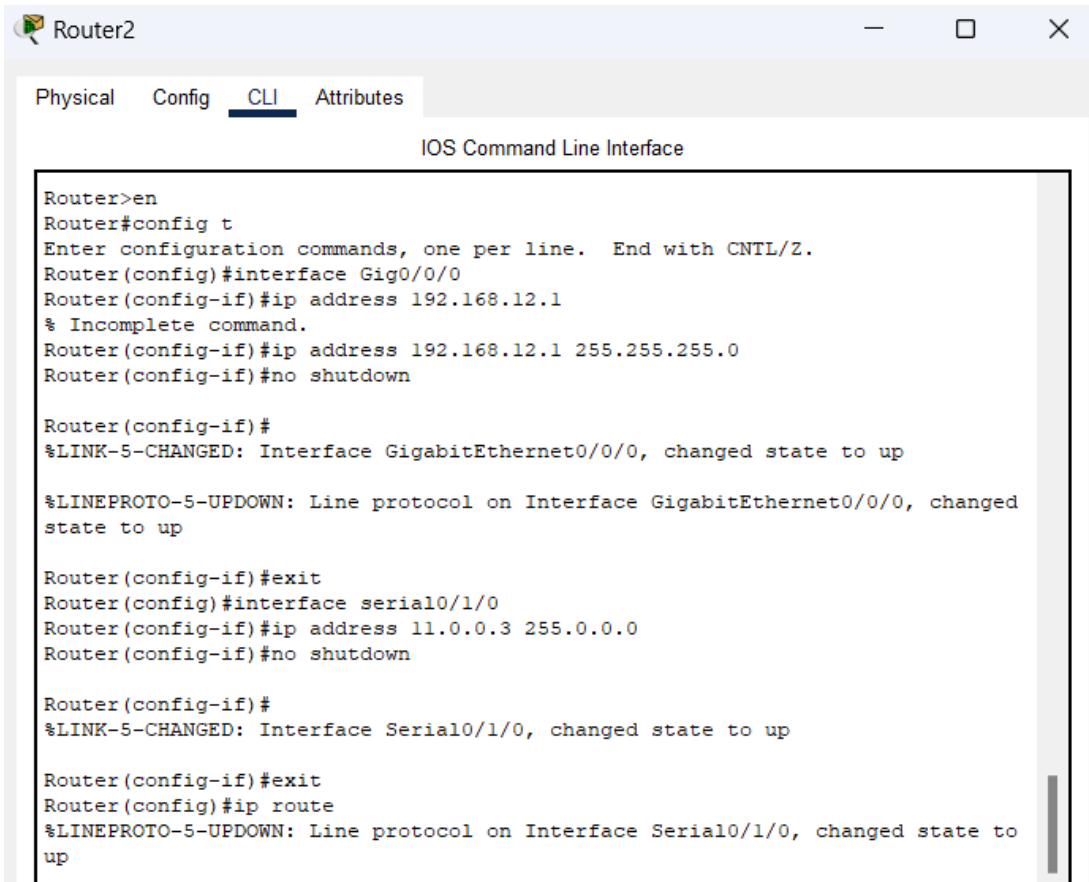
```
Router3
Physical Config CLI Attributes
IOS Command Line Interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up
% Incomplete command.
Router(config)#interface serial0/1/1
Router(config-if)#ip address 11.0.0.2 255.0.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/1/1, changed state to down
Router(config-if)#
Router(config-if)#exit
Router(config)#ip route 192.168.11
Router(config)#ip route 192.168.11.0 255.255.255.0 11.0.0.2
%Invalid next hop address (it's this router)
Router(config)#ip route 192.168.10.0 255.255.255.0 10.0.0.2
Router(config)#ip route 192.168.12.0 255.255.255.0 11.0.0.3
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

%LINK-5-CHANGED: Interface Serial0/1/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/1, changed state to up
```

## Router2 configuration:



A screenshot of a network simulator window titled "Router2". It has tabs for "Physical", "Config", "CLI" (which is selected), and "Attributes". The main area is titled "IOS Command Line Interface" and displays a series of commands and system messages. The user enters 'en' to enter enable mode, then 'config t' to enter global configuration mode. They configure GigabitEthernet0/0/0 with IP 192.168.12.1/24 and no shutdown. This causes the link state to change to up and the line protocol to change to up. Then, they configure Serial0/1/0 with IP 11.0.0.3/24 and no shutdown. This causes the link state to change to up. Finally, they enter an IP route for 192.168.12.0/24 with next hop 11.0.0.3. This causes the line protocol on Serial0/1/0 to change to up.

```
Router2
Physical Config CLI Attributes
IOS Command Line Interface
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Gig0/0/0
Router(config-if)#ip address 192.168.12.1
% Incomplete command.
Router(config-if)#ip address 192.168.12.1 255.255.255.0
Router(config-if)#no shutdown

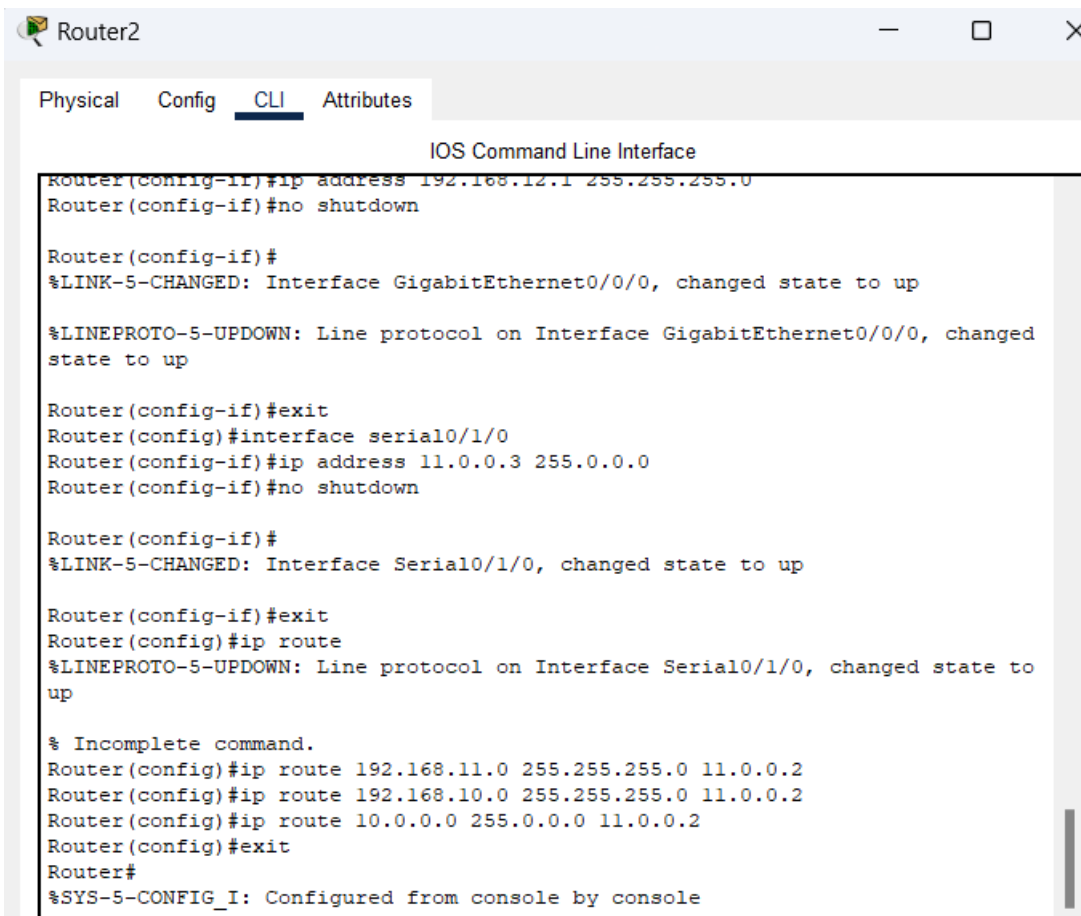
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

Router(config-if)#exit
Router(config)#interface serial0/1/0
Router(config-if)#ip address 11.0.0.3 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

Router(config-if)#exit
Router(config)#ip route
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up
```



The screenshot shows a window titled "Router2" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and responses:

```
Router(config-if)#ip address 192.168.12.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed
state to up

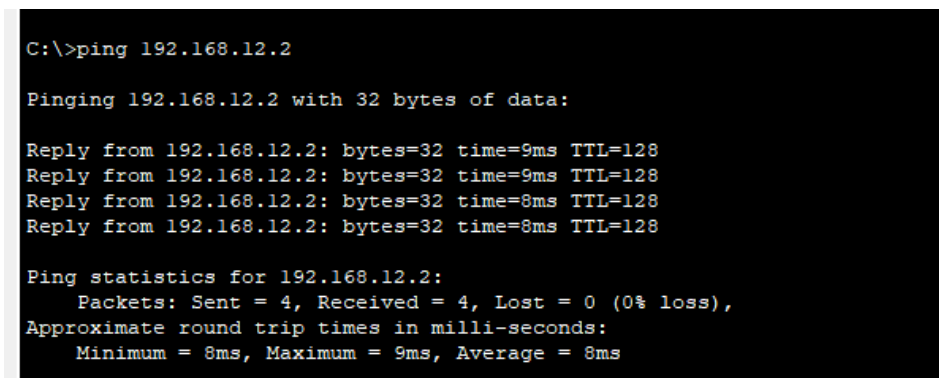
Router(config-if)#exit
Router(config)#interface serial0/1/0
Router(config-if)#ip address 11.0.0.3 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

Router(config-if)#exit
Router(config)#ip route
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to
up

% Incomplete command.
Router(config)#ip route 192.168.11.0 255.255.255.0 11.0.0.2
Router(config)#ip route 192.168.10.0 255.255.255.0 11.0.0.2
Router(config)#ip route 10.0.0.0 255.0.0.0 11.0.0.2
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

## testing



The screenshot shows a Windows command prompt with the following output:

```
C:\>ping 192.168.12.2

Pinging 192.168.12.2 with 32 bytes of data:

Reply from 192.168.12.2: bytes=32 time=9ms TTL=128
Reply from 192.168.12.2: bytes=32 time=9ms TTL=128
Reply from 192.168.12.2: bytes=32 time=8ms TTL=128
Reply from 192.168.12.2: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.12.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 9ms, Average = 8ms
```

## **Lab-9**

### **Aim:**

To use DHCP, DNS & WEB services using servers.

### **Theory:**

1. **DHCP server:** It is used to assign IP address to the client machines automatically.
2. **DNS server:** It is used to resolve the domain name to IP address. It is also used to resolve the IP address to domain name.
3. **WEB server:** It is used to host the web pages. It is also used to host the web applications.

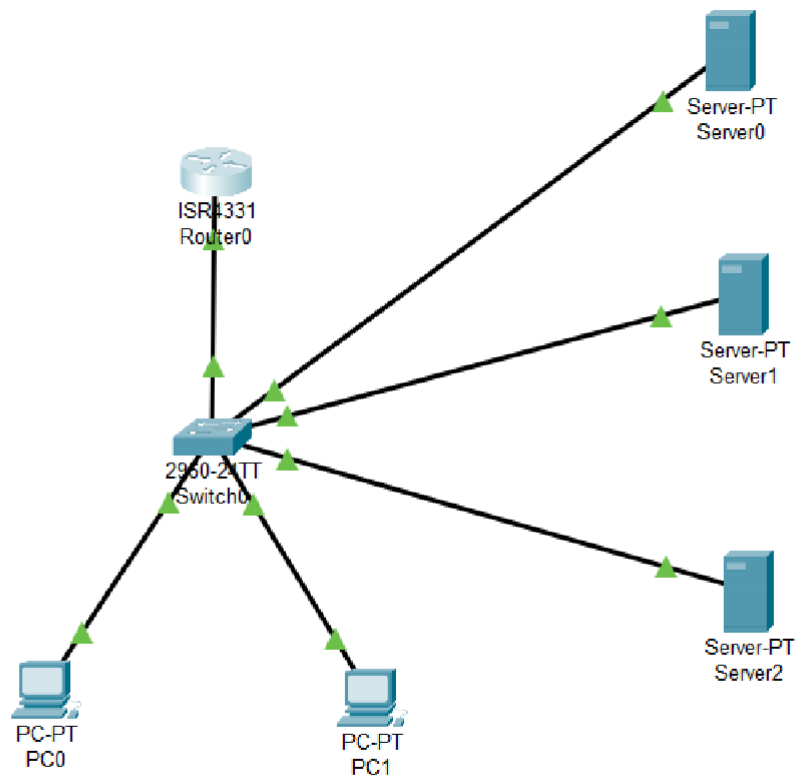
### **Code:**

```
R1#disable
R1>enable
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int gig0/0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#exit
R1(config)#
```

---

---

### **OUTPUTS:**



## 1.ON the router port

Router0

Physical
Config
CLI
Attributes

**GLOBAL**
Settings
Algorithm Settings
**ROUTING**
Static
RIP
**SWITCHING**
VLAN Database
**INTERFACE**
GigabitEthernet0/0/0
GigabitEthernet0/0/1
GigabitEthernet0/0/2

GigabitEthernet0/0/0

Port Status
Bandwidth
Duplex
MAC Address
IP Configuration
IPv4 Address
Subnet Mask
Tx Ring Limit

☒ 1000 Mbps
☐ 100 Mbps
☐ 10 Mbps

☐ Half Duplex
☒ Full Duplex

☒ On
☒ Auto
☒ Auto

00D0.BC0D.7D01

192.168.1.1

255.255.255.0

10

## 2. Apply configuration settings to router to assign it IP address

```
R1#disable
R1>enable
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int gig0/0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#exit
R1(config)#
```

## 3. Change server 0 services to apply it DHCP

The screenshot shows the 'Server0' configuration window with the 'Services' tab selected. The 'DHCP' service is highlighted in the left sidebar. The main area displays the DHCP configuration for the 'FastEthernet0' interface. The 'Service' is set to 'On'. The 'Pool Name' is 'Routing1'. The 'Default Gateway' is '192.168.1.1'. The 'DNS Server' is '0.0.0.0'. The 'Start IP Address' is '192.168.10.3' and the 'Subnet Mask' is '255.255.255.0'. The 'Maximum Number of Users' is '253'. The 'TFTP Server' and 'WLC Address' are both '0.0.0.0'. Below the configuration fields, there are 'Add', 'Save', and 'Remove' buttons. A table at the bottom lists the configured DHCP pools.

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
Routing1	192.168.1.1	0.0.0.0	192.168.10.3	255.255.255.0	253	0.0.0.0	0.0.0.0
Routing	192.168.1.1	0.0.0.0	192.168.10.3	255.255.255.0	253	0.0.0.0	0.0.0.0

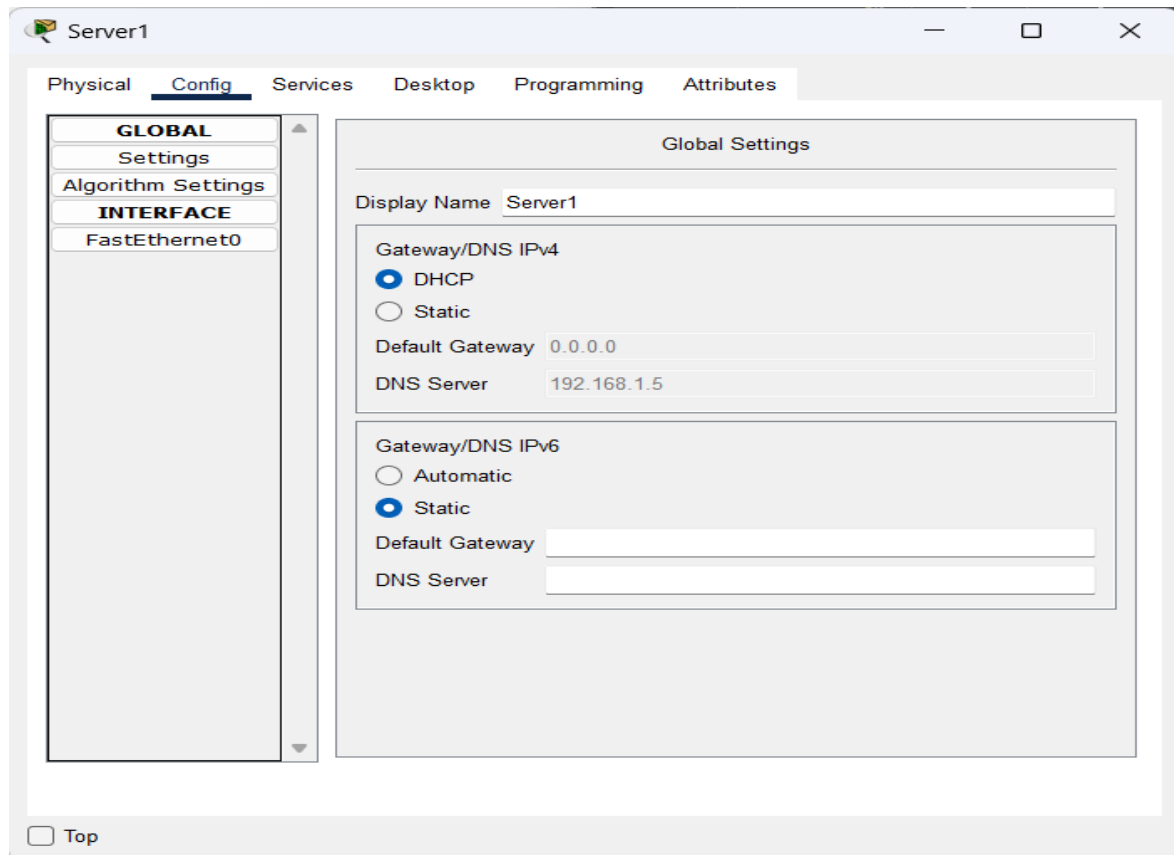
## 4. Change server 1 services to ON DNS

The screenshot shows the 'Server1' configuration window with the 'Services' tab selected. The 'DNS' service is highlighted in the left sidebar. The main area displays the DNS configuration. The 'DNS Service' is set to 'On'. The 'Resource Records' section shows a record with 'Name' 'jaswanth', 'Type' 'A Record', and 'Address' '192.168.1.8'. Below this, there are 'Add', 'Save', and 'Remove' buttons. A table at the bottom lists the configured DNS records.

No.	Name	Type	Detail
0	jaswanth	A Record	192.168.1.8

At the bottom of the window, there is a 'DNS Cache' button and a 'Top' link.

## 5. Change server 1 services to ON DHCP



The screenshot shows the 'Server1' configuration window with the 'Config' tab selected. The left sidebar contains a tree view with 'GLOBAL' expanded, showing 'Settings' and 'Algorithm Settings'. Under 'INTERFACE', 'FastEthernet0' is selected. The main area displays 'Global Settings' for 'Server1'. The 'Gateway/DNS IPv4' section has 'DHCP' selected with a radio button, and the 'Default Gateway' is set to '0.0.0.0' and the 'DNS Server' to '192.168.1.5'. The 'Gateway/DNS IPv6' section has 'Static' selected with a radio button, and the 'Default Gateway' and 'DNS Server' fields are empty.

Server1

Physical **Config** Services Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Global Settings

Display Name Server1

Gateway/DNS IPv4

☒ DHCP

☐ Static

Default Gateway 0.0.0.0

DNS Server 192.168.1.5

Gateway/DNS IPv6

☐ Automatic

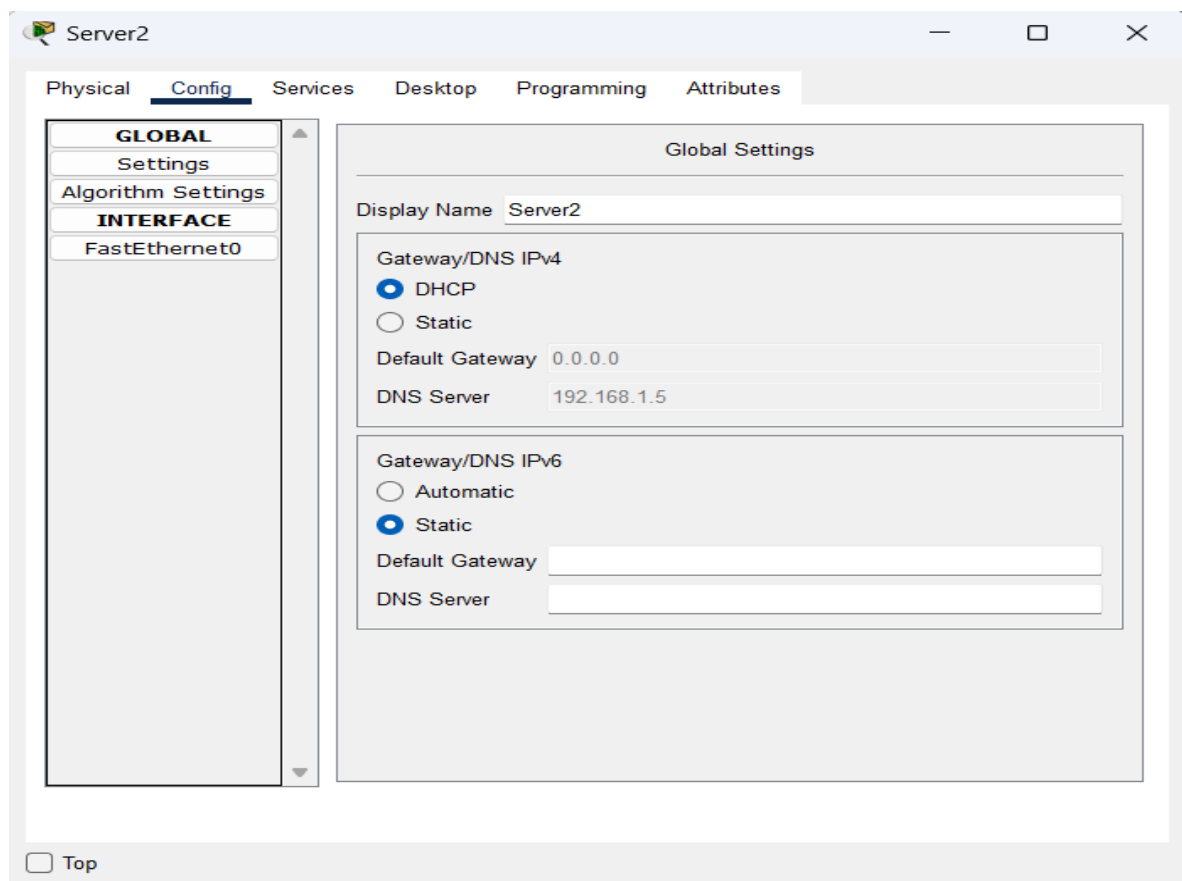
☒ Static

Default Gateway

DNS Server

☐ Top

## 6. Change server 2 services to ON DHCP



The screenshot shows the 'Server2' configuration window with the 'Config' tab selected. The left sidebar contains a tree view with 'GLOBAL' expanded, showing 'Settings' and 'Algorithm Settings'. Under 'INTERFACE', 'FastEthernet0' is selected. The main area displays 'Global Settings' for 'Server2'. The 'Gateway/DNS IPv4' section has 'DHCP' selected with a radio button, and the 'Default Gateway' is set to '0.0.0.0' and the 'DNS Server' to '192.168.1.5'. The 'Gateway/DNS IPv6' section has 'Static' selected with a radio button, and the 'Default Gateway' and 'DNS Server' fields are empty.

Server2

Physical **Config** Services Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Global Settings

Display Name Server2

Gateway/DNS IPv4

☒ DHCP

☐ Static

Default Gateway 0.0.0.0

DNS Server 192.168.1.5

Gateway/DNS IPv6

☐ Automatic

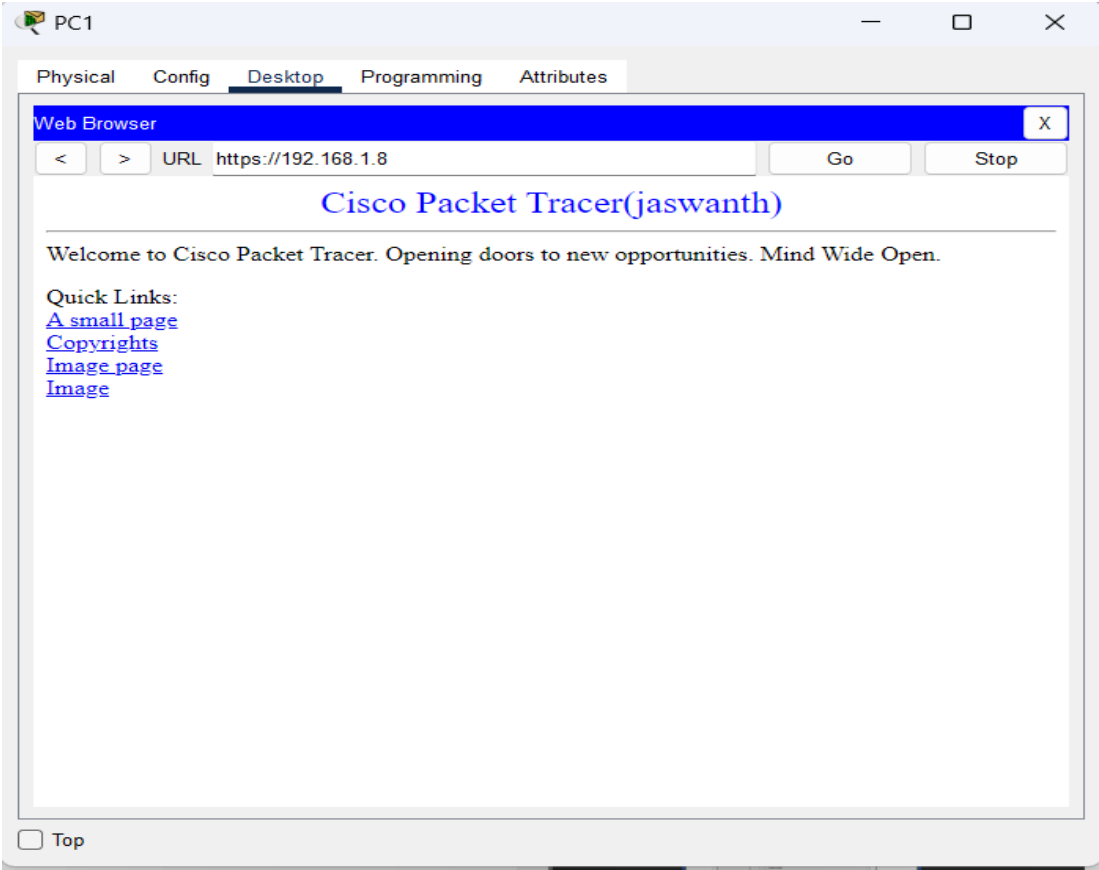
☒ Static

Default Gateway





DNS Server

☐ Top

7.Change HTML page to server 2



10.Checking the connection across different PC's

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC1	PC0	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC0	PC1	ICMP		0.000	N	1	(edit)	(delete)