

**CSE3052 - INFORMATION SECURITY
MANAGEMENT**

DIGITAL ASSIGNMENT-1

ALOKAM NIKHITHA

19BCE2555

Experiment-1

TITLE:

Connecting to Vlans.

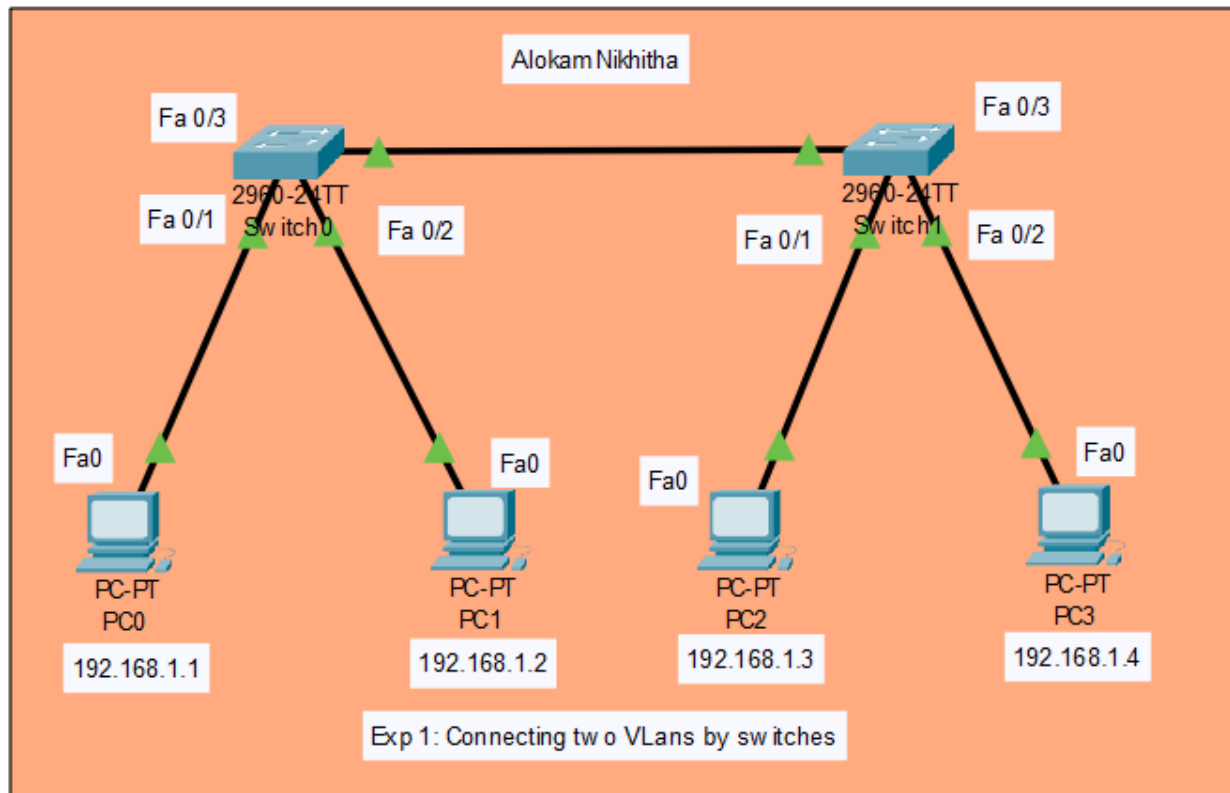
AIM:

To Connect two different VLANS using switches.

PROCEDURE:

- ✚ Select 2 Switches Switch0, Switch1.And Select 4 PCs
- ✚ Connect the First 2 PCs to the Switch0 and next 2 to the Switch1.
- ✚ Give the IP address for PCs
 - PC1 : 192.168.1.1
 - PC2 : 192.168.1.2
 - PC3 : 192.168.1.3
 - PC4 : 192.168.1.4
- ✚ Configure both the Switches.
- ✚ Set the hostname of Switch0 as s1.
- ✚ Set the hostname of Switch1 as s2.
- ✚ Give the ip address to Switch0 and Switch1 as 10.0.0.1 255.0.0.0 and 10.0.0.2 255.0.0.0 respectively.
- ✚ Pass message from the PC0 to PC3.
- ✚ Event list provides the passage of message between the components
- ✚ PDU List window shows the status of the message If it is in progress or Successful.

TOPOLOGY



PC/ Computer Configuration:

PC0 : 192.168.1.1

PC1 : 192.168.1.2

PC2 : 192.168.1.3

PC3 : 192.168.1.4

PC0

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.1.1

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::203:E4FF:FE8E:8B7

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

☐ Top

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.1.2

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::260:2FFF:FEA2:29CD

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

☐ Top

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.1.3

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::260:2FFF:FEE3:22DA

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

☐ Top

PC3

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.1.4

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::260:70FF:FEE2:9BD9

IPv6 Gateway

IPv6 DNS Server

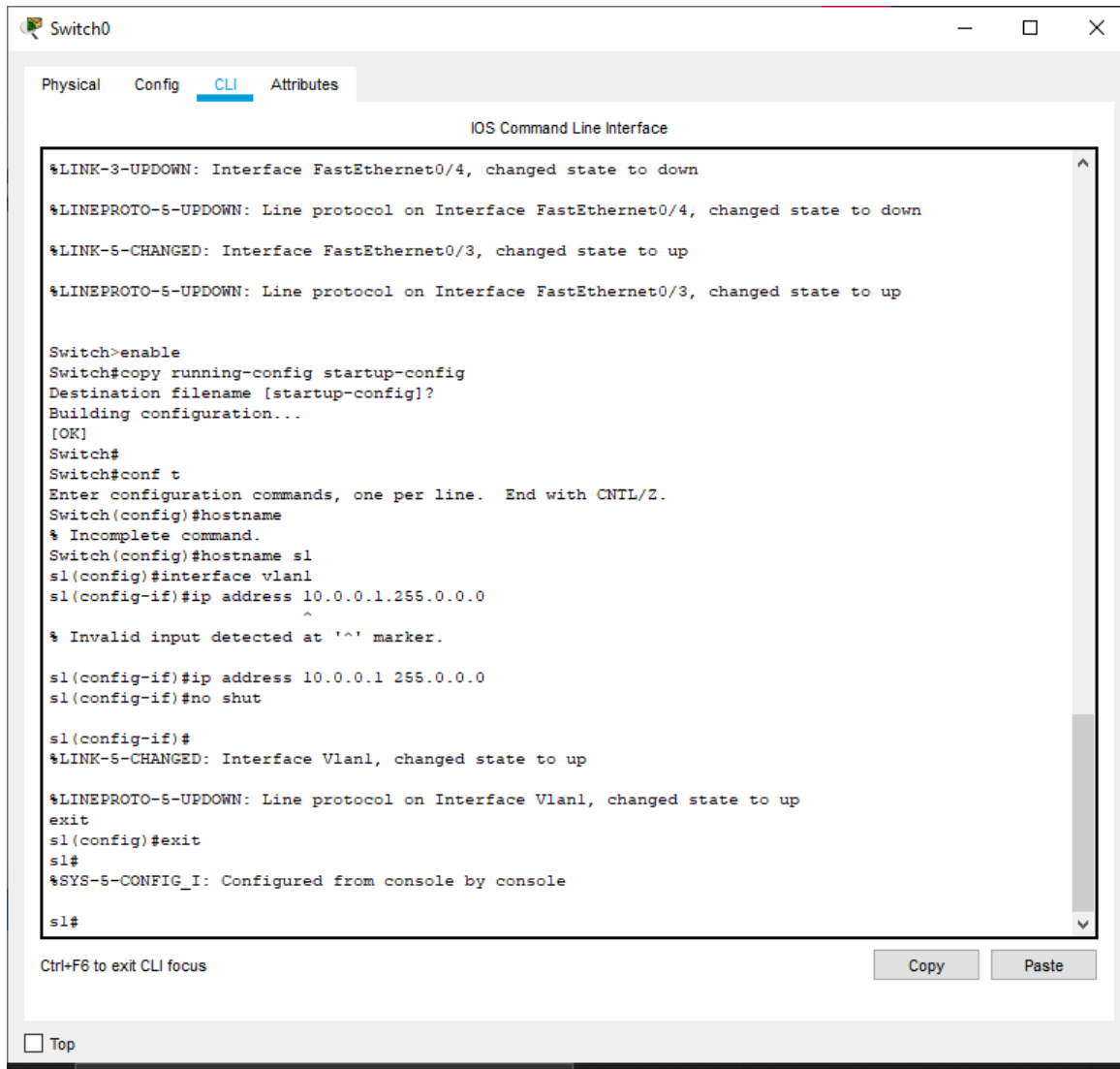
802.1X

☐ Use 802.1X Security

☐ Top

Switches Configuration:

Switch 0:



The screenshot shows a web-based interface for configuring a switch named 'Switch0'. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The interface shows a series of status messages and configuration commands entered in the CLI. The commands include enabling the switch, copying the running configuration to the startup configuration, and configuring the hostname 's1' and interface 'Vlan1' with IP address '10.0.0.1' and 'no shut' command. The status messages indicate that the interface 'Vlan1' has changed state to up and the line protocol is up.

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

%LINK-3-UPDOWN: Interface FastEthernet0/4, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to down
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up

Switch>enable
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch#
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname s1
% Incomplete command.
Switch(config)#hostname s1
s1(config)#interface vlan1
s1(config-if)#ip address 10.0.0.1.255.0.0.0
^
% Invalid input detected at '^' marker.

s1(config-if)#ip address 10.0.0.1 255.0.0.0
s1(config-if)#no shut

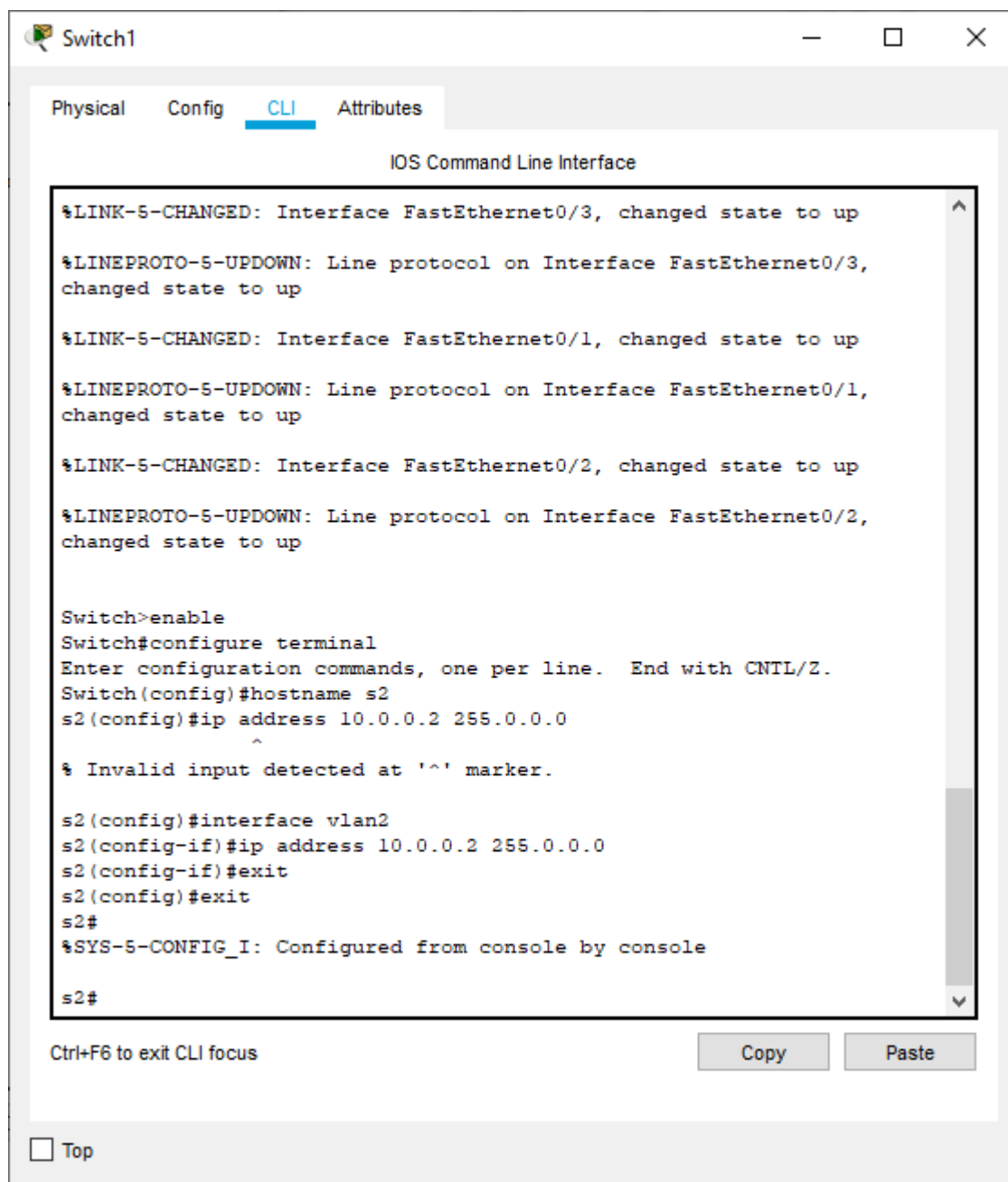
s1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up
exit
s1(config)#exit
s1#
%SYS-5-CONFIG_I: Configured from console by console
s1#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Switch 1:



SIMULATION

Cisco Packet Tracer - C:\Users\LENOVO\Cisco Packet Tracer 7.3.0\saves\Exp1.pkt

File Edit Options View Tools Extensions Help

Logical Physical x 776 y 410 [Root] 09:40:00

Exp 1: Connecting two VLANs by switches

Time: 00:13:01.743 PLAY CONTROLS: 2620XM

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Switch1	ICMP
	0.003	Switch1	PC3	ICMP
	0.004	PC3	Switch1	ICMP
	0.005	Switch1	Switch0	ICMP
	0.006	Switch0	PC0	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.006 s

Play Controls

Event List Filters - Visible Events

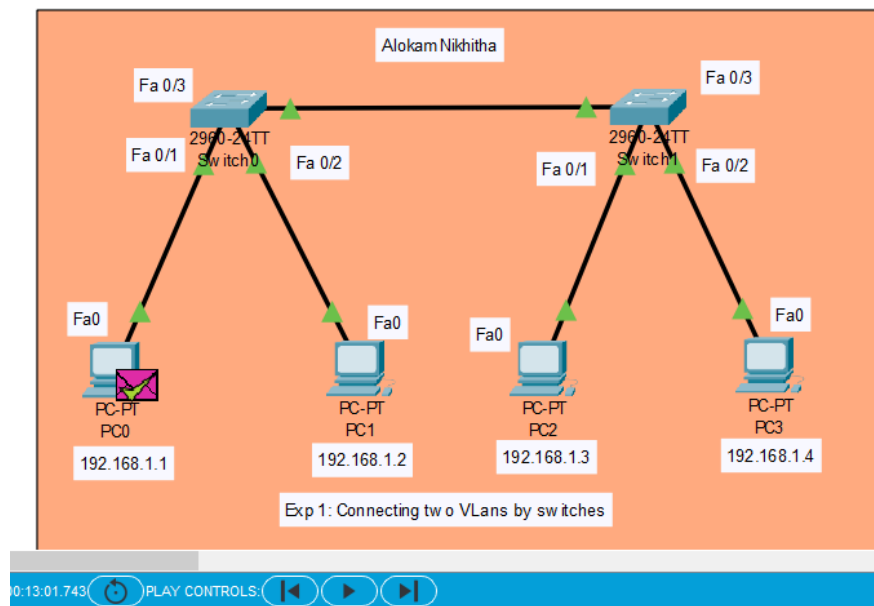
ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIPv2, RIPv3, RSTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Scenario 0 New Delete Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Ed

Successful PC0 PC3 ICMP 0.000 N 0





Event List

Simulation Panel				
Event List				
Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Switch1	ICMP
	0.003	Switch1	PC3	ICMP
	0.004	PC3	Switch1	ICMP
	0.005	Switch1	Switch0	ICMP
	0.006	Switch0	PC0	ICMP
	0.997	--	Switch1	STP
	0.998	Switch1	PC2	STP
	0.998	Switch1	Switch0	STP
	0.998	Switch1	PC3	STP
	0.999	Switch0	PC0	STP
	0.999	Switch0	PC1	STP
	2.998	--	Switch1	STP
	2.999	Switch1	PC2	STP

Simulation Panel				
Event List				
Vis.	Time(sec)	Last Device	At Device	Type
	0.998	Switch1	PC3	STP
	0.999	Switch0	PC0	STP
	0.999	Switch0	PC1	STP
	2.998	--	Switch1	STP
	2.999	Switch1	PC2	STP
	2.999	Switch1	Switch0	STP
	2.999	Switch1	PC3	STP
	3.000	Switch0	PC0	STP
	3.000	Switch0	PC1	STP
	5.002	--	Switch1	STP
	5.003	Switch1	PC2	STP
	5.003	Switch1	Switch0	STP
	5.003	Switch1	PC3	STP
	5.004	Switch0	PC0	STP
	5.004	Switch0	PC1	STP

Result

PDU List Window										
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	PC3	ICMP		0.000	N	0	(edit)	(delete)

Conclusion

After completing the config in this lab we will get to know that VLANs allow network administrators to automatically limit access to a specified group of users by dividing workstations into different isolated LAN segments. When users move their workstations, administrators don't need to reconfigure the network or change VLAN groups.

Experiment-2

TITLE:

Connecting two different LANS using a router and switches

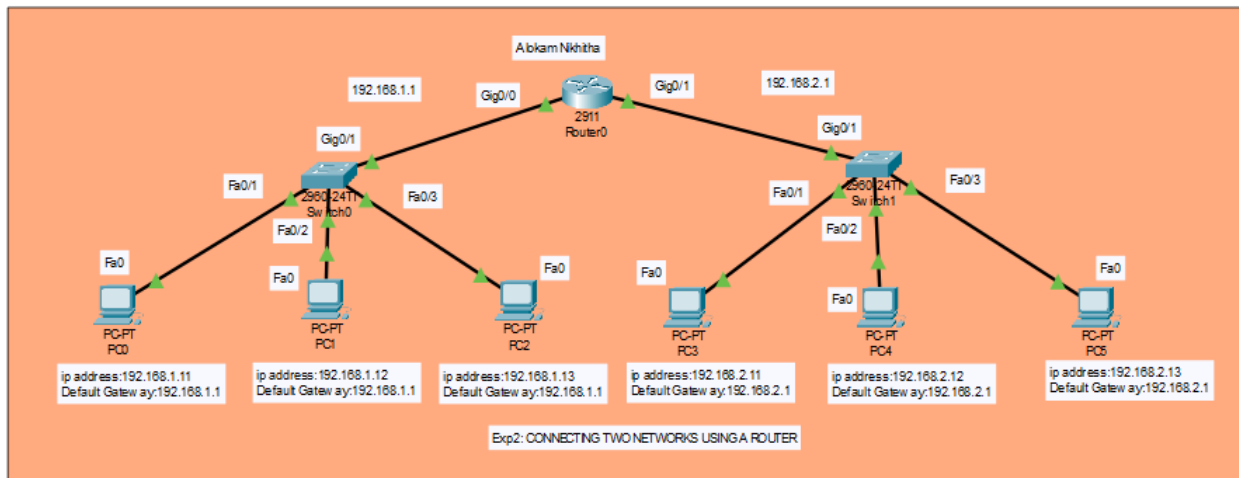
AIM:

To connect two different LANS using a router and switches configuration .

PROCEDURE:

- ✚ Select a 2911 Router
- ✚ Select 2960 2 switches and connect them to the router using Straight-through
- ✚ Select straight through cable from router select gigabitethernet 0/0 to switch0 gigabitethernet 0/1 and from router select gigabitethernet 0/1 to switch1 gigabitethernet 0/1
- ✚ Select 3 PCs and connect them to the switches in each network.
- ✚ Give addresses for Pcs in Network1 as : 192.168.1.11 to 192.168.1.13
- ✚ Give addresses for Pcs in Network2 as : 192.168.2.11 to 192.168.2.13
- ✚ Set default gateway for the Network 1 as 192.168.1.1 (as Similar to router gigabitEthernet 0/0)
- ✚ Set default gateway for the Network 2 as 192.168.2.1 (as Similar to router gigabitEthernet 0/1).
- ✚ Pass message from PC0 in Network1 to PC5 in Network 2
- ✚ Event list provides the passage of message between the components
- ✚ PDU List window shows the status of the message If it is in progress or Successful.

TOPOLOGY

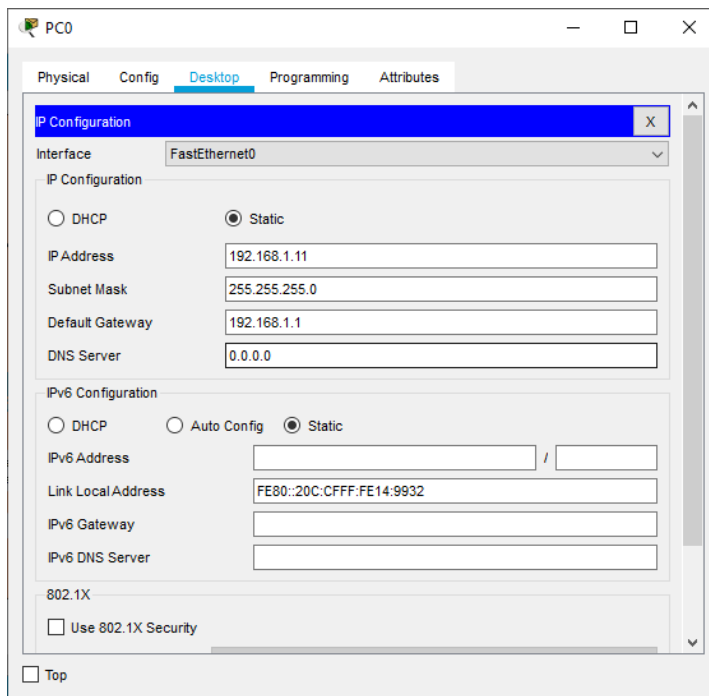


PC/ Computer Configuration:

PC0

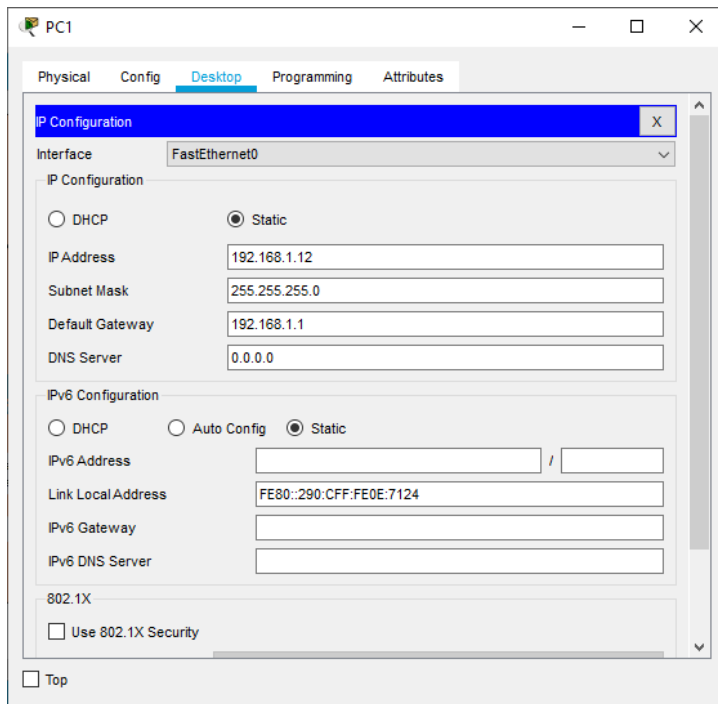
Ip Address: 192.168.1.11

Default Gateway:192.168.1.1



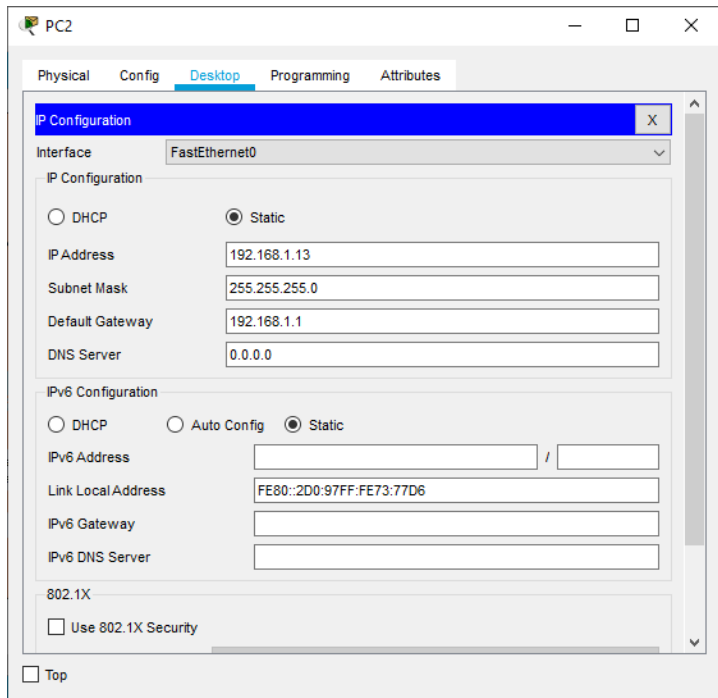
PC1

Ip Address: 192.168.1.12
Default Gateway:192.168.1.1



PC2

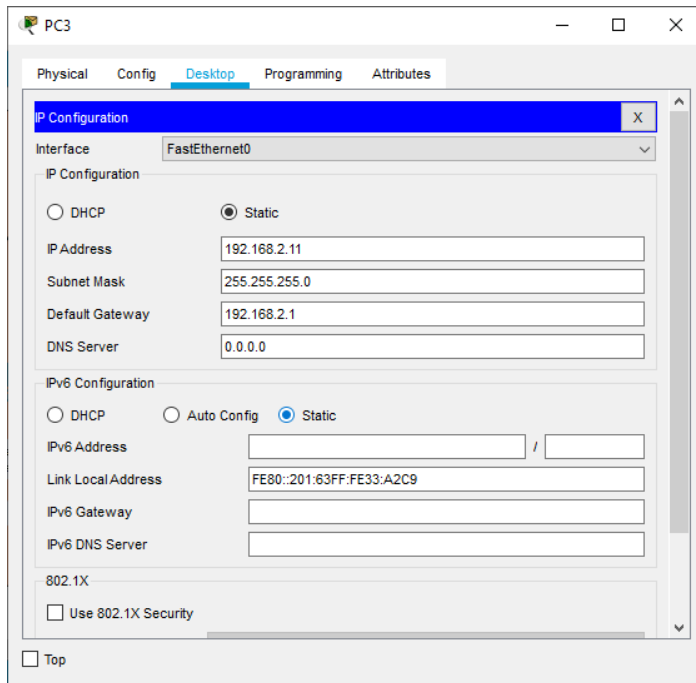
Ip Address: 192.168.1.13
Default Gateway:192.168.1.1



PC3

Ip Address: 192.168.2.11

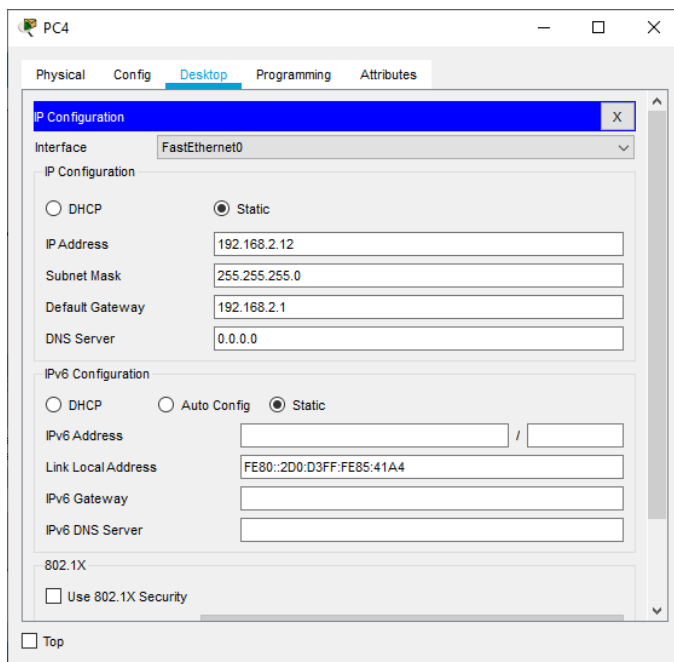
Default Gateway:192.168.2.1



PC4

Ip Address: 192.168.2.12

Default Gateway:192.168.2.1



PC5

Ip Address: 192.168.2.13

Default Gateway:192.168.2.1

The screenshot shows a configuration window for a device named PC5. The window has four tabs: Physical, Config, Desktop (selected), and Programming. Below the tabs is a section titled 'IP Configuration' with a close button (X). The 'Interface' dropdown is set to 'FastEthernet0'. Under 'IP Configuration', the 'Static' radio button is selected. The fields are filled with: IP Address: 192.168.2.13, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.2.1, and DNS Server: 0.0.0.0. Below this is the 'IPv6 Configuration' section, where 'Static' is also selected. The fields are: IPv6 Address (empty), Link Local Address: FE80::209:7CFF:FE42:A543, IPv6 Gateway (empty), and IPv6 DNS Server (empty). At the bottom, there is a '802.1X' section with a checkbox for 'Use 802.1X Security' which is unchecked. A 'Top' button is located at the bottom left of the window.

PC5

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.2.13

Subnet Mask 255.255.255.0

Default Gateway 192.168.2.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::209:7CFF:FE42:A543

IPv6 Gateway

IPv6 DNS Server

802.1X

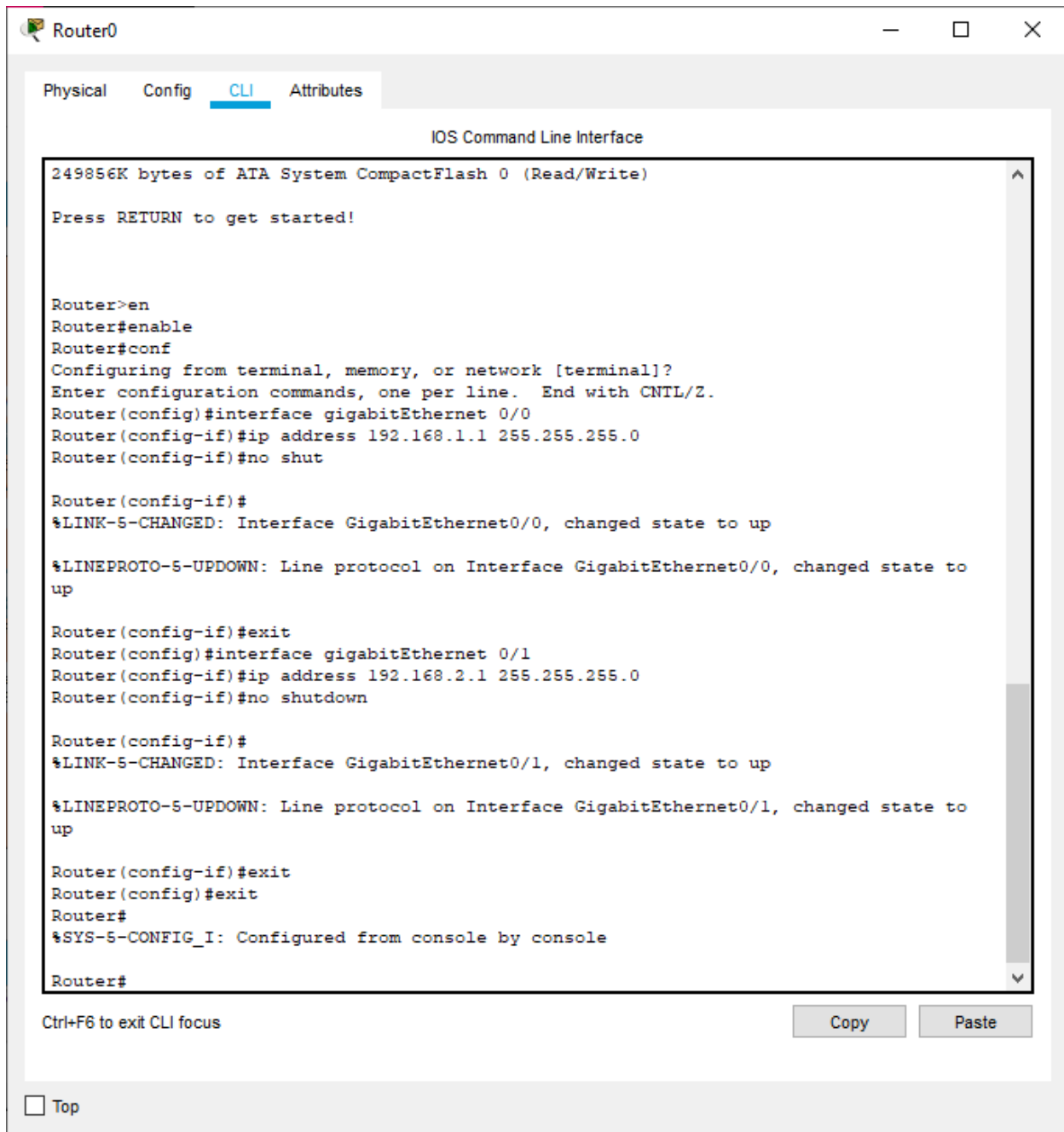
☐ Use 802.1X Security

☐ Top

Router Configuration:

Router 0:

CLI commands:



The screenshot shows a web browser window titled "Router0" with a tabbed interface. The "CLI" tab is selected, showing the "IOS Command Line Interface". The interface displays the following text:

```
249856K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!

Router>en
Router#enable
Router#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface gigabitEthernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shut

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

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

Router(config-if)#exit
Router(config)#interface gigabitEthernet 0/1
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```

Below the terminal output, there is a status bar with the text "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste". At the bottom left, there is a checkbox labeled "Top".

SIMULATION

Cisco Packet Tracer - C:\Users\LENOVO\Cisco Packet Tracer 7.3.0\saves\Exp2.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 1155, y: 333

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
0.000	--	PC0	PC0	ICMP
0.000	--	PC0	Switch0	ARP
0.001	0.001	PC0	Switch0	ARP

Reset Simulation ☒ Constant Delay Captured to: 0.001 s

Play Controls

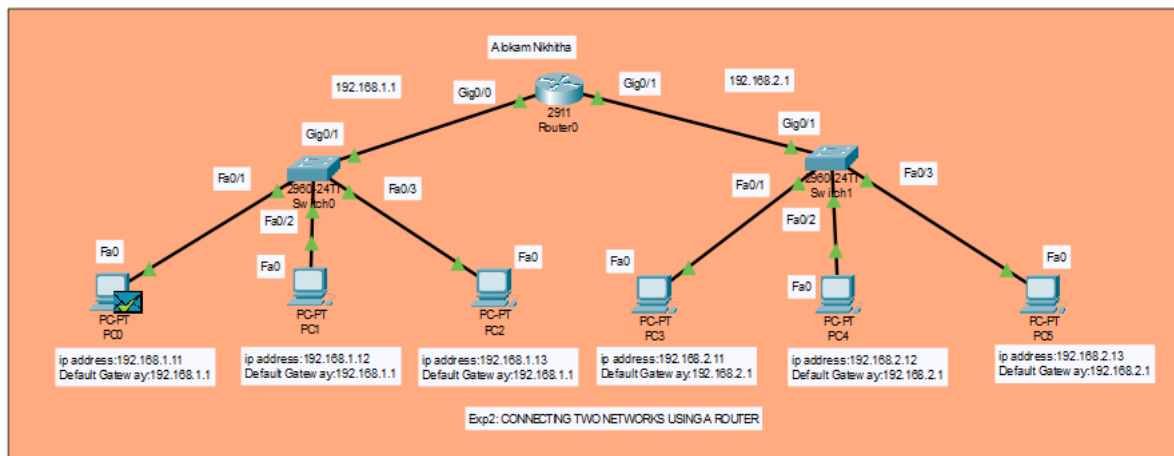
Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NTP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, RDP, RDPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:23:18.296 PLAY CONTROLS

Copper Straight-Through



Cisco Packet Tracer - C:\Users\LENOVO\Cisco Packet Tracer 7.3.0\saves\Exp2.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 1104, y: 543

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.708	Switch0	PC1	STP
	0.708	Switch0	PC2	STP
	0.708	Switch0	Router0	STP
	0.713	--	Switch1	STP
	0.714	Switch1	PC3	STP
	0.714	Switch1	PC4	STP
	0.714	Switch1	Router0	STP

Reset Simulation ☒ Constant Delay Captured to: 0.714 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDR, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, RER, RRP, RRPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Scenario 0

New Delete

Toolbox PDU List Window

Time: 00:24:00:163 PLAY CONTROLS: [Buttons]


Fire Last Status Source Destination Type Color Time(sec) Periodic Num Ex

Successful	PC0	PC5	ICMP		0.000	N	0
------------	-----	-----	------	--	-------	---	---



Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Router0	ICMP
	0.003	Router0	Switch1	ICMP
	0.004	Switch1	PC5	ICMP
	0.005	PC5	Switch1	ICMP
	0.006	Switch1	Router0	ICMP
	0.007	Router0	Switch0	ICMP
	0.008	Switch0	PC0	ICMP
	0.447	--	Switch0	DTP
	0.448	Switch0	Router0	DTP
	0.707	--	Switch0	STP
	0.708	Switch0	PC0	STP
	0.708	Switch0	PC1	STP
	0.708	Switch0	PC2	STP

Event List					
Vis.	Time(sec)	Last Device	At Device	Type	^
	0.714	Switch1	PC4	STP	
	0.714	Switch1	Router0	STP	
	2.707	--	Switch0	STP	
	2.708	Switch0	PC0	STP	
	2.708	Switch0	PC1	STP	
	2.708	Switch0	PC2	STP	
	2.708	Switch0	Router0	STP	
	2.718	--	Switch1	STP	
	2.719	Switch1	PC3	STP	
	2.719	Switch1	PC5	STP	
	2.719	Switch1	PC4	STP	
	2.719	Switch1	Router0	STP	
	3.572	--	Switch1	DTP	
	3.573	Switch1	PC5	DTP	
	4.710	--	Switch0	STP	

Event List					
Vis.	Time(sec)	Last Device	At Device	Type	^
	4.724	Switch1	PC5	STP	
	4.724	Switch1	PC4	STP	
	4.724	Switch1	Router0	STP	
	6.713	--	Switch0	STP	
	6.714	Switch0	PC0	STP	
	6.714	Switch0	PC1	STP	
	6.714	Switch0	PC2	STP	
	6.714	Switch0	Router0	STP	
	6.727	--	Switch1	STP	
	6.728	Switch1	PC3	STP	
	6.728	Switch1	PC5	STP	
	6.728	Switch1	PC4	STP	
	6.728	Switch1	Router0	STP	
	7.903	--	Switch1	DTP	
	7.904	Switch1	Router0	DTP	

Results

PDU List Window												
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete		
	Successful	PC0	PC5	ICMP		0.000	N	0	(edit)	(delete)		

Conclusion

To create two LANs and connect them with Cisco routers and switches. Basic commands for Cisco devices are demonstrated in this lab. Upon completing the Lab, students should know how to create a small office wide network.