CS 342: Computer Networks Lab

Assignment - 5
Cisco Packet Tracer

Group - 37

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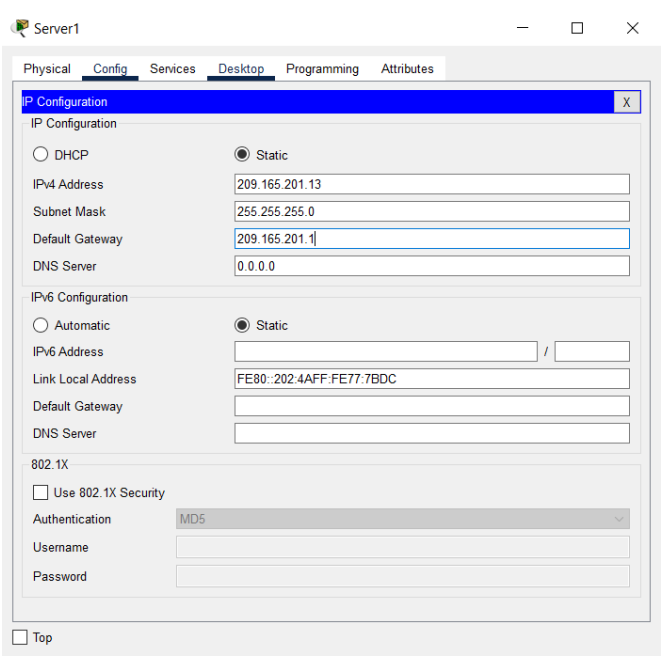
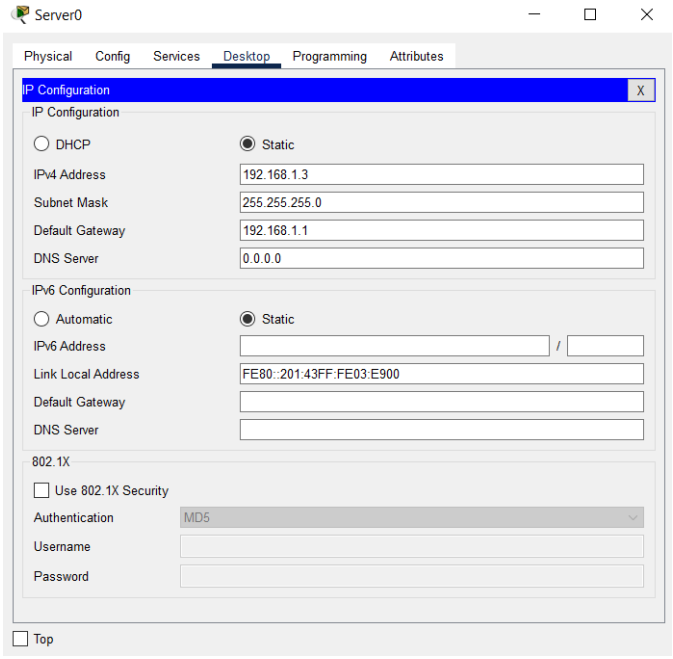
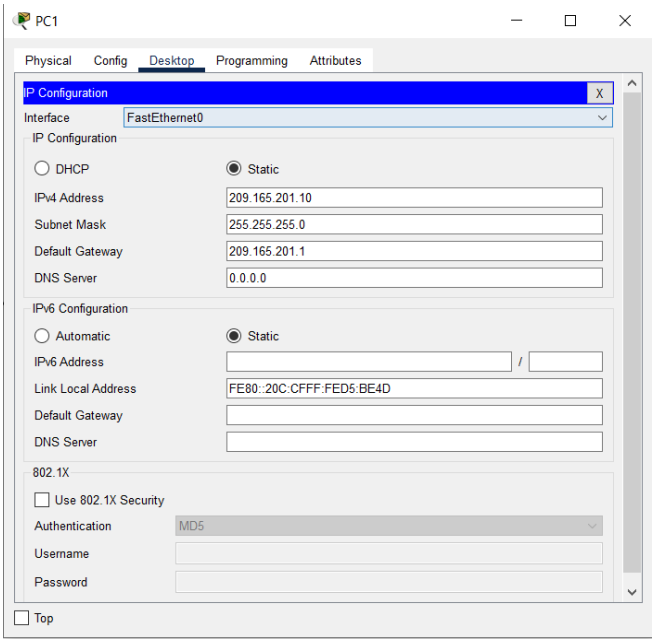
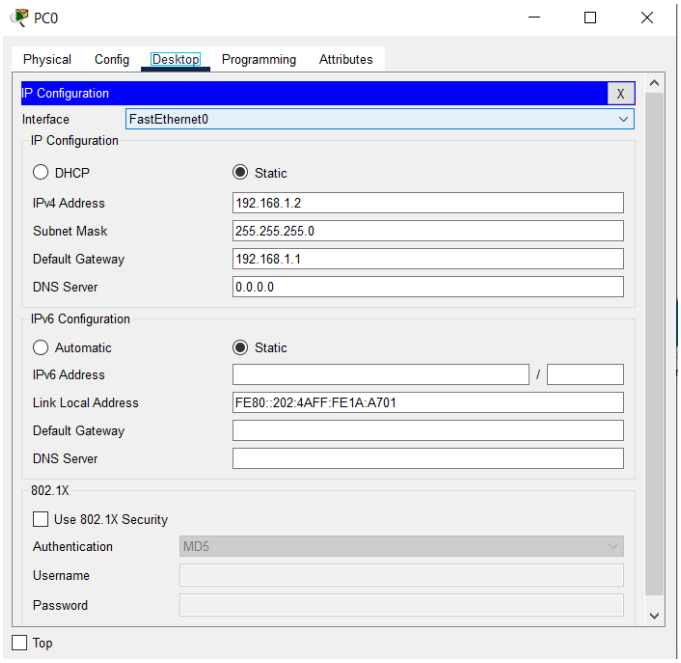
Tasks using Command Line Interface (CLI):

A. Assign IP address, subnet mask, default gateway to the PC and Server as described



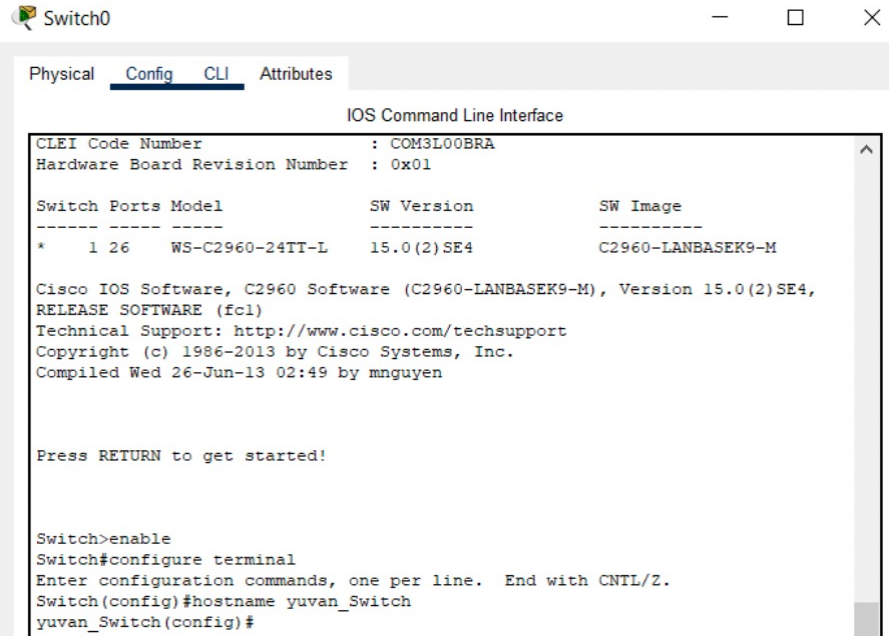




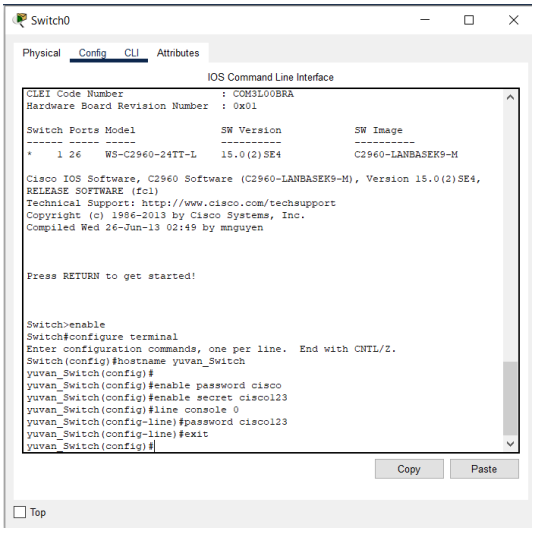


B. Configure both the Switches in global configuration mode

1. Configure Switch hostname: <YourShortName>_Switch

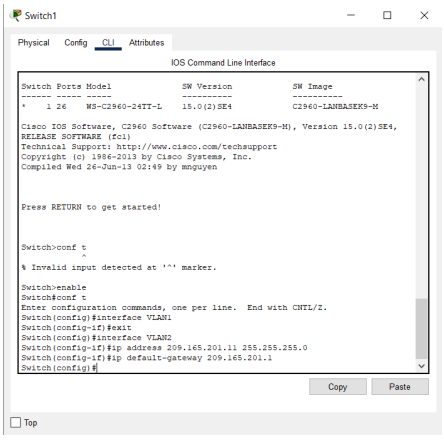


2. Configure password and secret for privileged mode and Configure the console password for global configuration mode



3. Assign given IP addresses to VLANs and default gateways for the switches;

```
Switch(config)#interface VLAN1
Switch(config-if)#ip address 192.168.1.5 255.255.255.0
Switch(config-if)#ip default-gateway 192.168.1.1
Switch(config)#
```



4. Add corresponding devices to VLANs as show in the diagram

Switch0

Physical Config CLI Attributes

IOS Command Line Interface

```
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#interface fa0/1
yuvan_Switch(config-if)#switchport access vlan 1
yuvan_Switch(config-if)#exit
yuvan_Switch(config)#interface fa0/2
yuvan_Switch(config-if)#switchport access vlan 1
yuvan_Switch(config-if)#exit
yuvan_Switch(config)#interface fa0/3
yuvan_Switch(config-if)#switchport access vlan 1
yuvan_Switch(config-if)#exit
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
yuvan_Switch(config)#
```

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Top

Switch1

Physical Config CLI Attributes

IOS Command Line Interface

```
state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan2, changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed
state to up

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up

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


yuvan_Switch>
yuvan_Switch>enable
Password:
yuvan_Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
yuvan_Switch(config)#interface fa0/1
yuvan_Switch(config-if)#switchport access vlan 2
yuvan_Switch(config-if)#exit
yuvan_Switch(config)#interface fa0/2
yuvan_Switch(config-if)#switchport access vlan 2
yuvan_Switch(config-if)#exit
yuvan_Switch(config)#interface fa0/3
yuvan_Switch(config-if)#switchport access vlan 2
yuvan_Switch(config-if)#exit
yuvan_Switch(config)#
```

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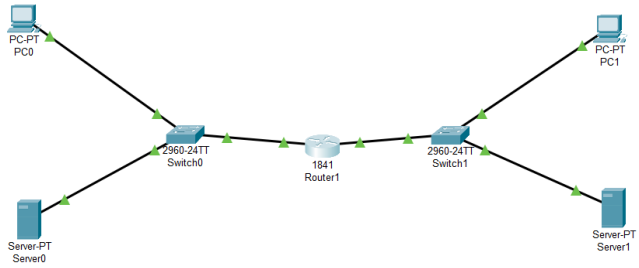
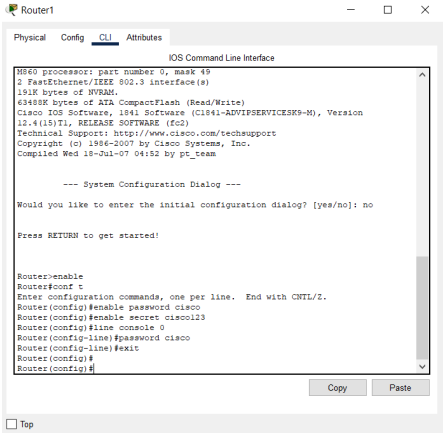
C. Configure Router in global configuration mode

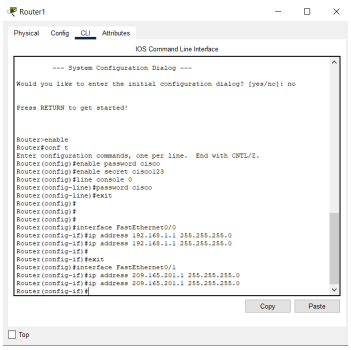


1. Configure router hostname: <YourShortName>_Router

2. Configure the password and secret for privileged mode and Configure the console password for global configuration mode



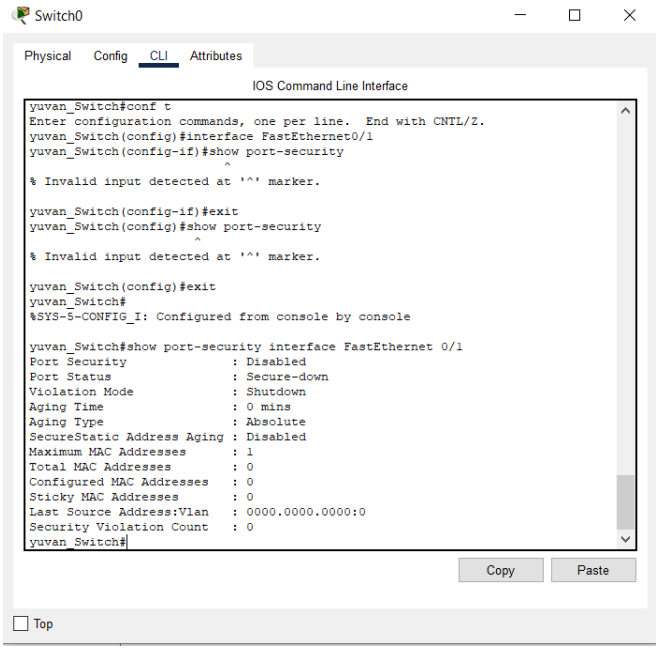
3. Assign given IP address, subnet mask to interface fa0/0 and fa0/1 as mentioned in the table



D. Configure port security in the switch

1. Configure port security for the port used by PC0.

```
yuvan_Switch(config)#interface fa 0/1
yuvan_Switch(config-if)#switchport mode access
yuvan_Switch(config-if)#^Z
yuvan_Switch#
%SYS-5-CONFIG_I: Configured from console by console

yuvan_Switch#show interfaces fastEthernet 0/1 switchport
Name: Fa0/1
Switchport: Enabled
Administrative Mode: static access
Operational Mode: static access
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: native
Negotiation of Trunking: Off
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk encapsulation: dot1q
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk private VLANs: none
Operational private-vlan: none
Trunking VLANs Enabled: All
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL
Protected: false
 --More--
```




```
yuvan_Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
yuvan_Switch(config)#interface fa 0/1
yuvan_Switch(config-if)#switchport port-security maximum 1
yuvan_Switch(config-if)#^Z
yuvan_Switch#
%SYS-5-CONFIG_I: Configured from console by console

yuvan_Switch#show port-security interface fastEthernet 0/1
Port Security              : Enabled
Port Status                : Secure-up
Violation Mode             : Shutdown
Aging Time                 : 0 mins
Aging Type                 : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses      : 1
Total MAC Addresses        : 0
Configured MAC Addresses   : 0
Sticky MAC Addresses       : 0
Last Source Address:Vlan   : 0000.0000.0000:0
Security Violation Count   : 0
```

```
yuvan_Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
yuvan_Switch(config)#interface fa 0/1
yuvan_Switch(config-if)#switchport port-security mac-address sticky
yuvan_Switch(config-if)#
```

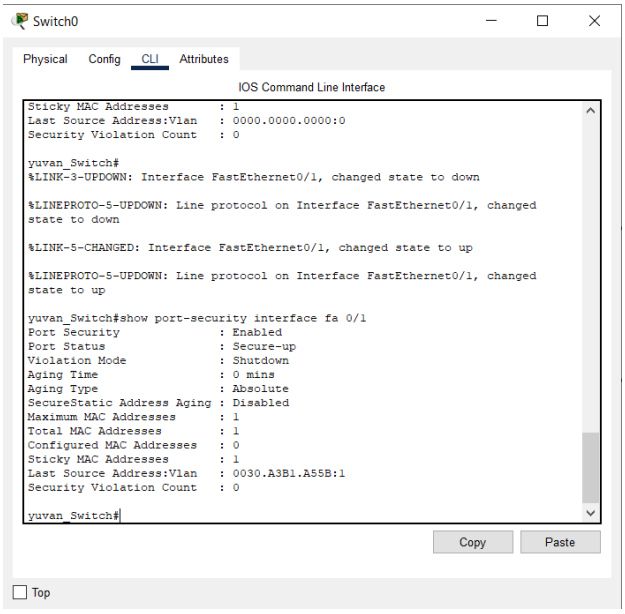
2. Verify port security enabled for fa0/1.

```
yuvan_Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
yuvan_Switch(config)#interface fa 0/1
yuvan_Switch(config-if)#switchport port-security
yuvan_Switch(config-if)#^Z
yuvan_Switch#
%SYS-5-CONFIG_I: Configured from console by console

yuvan_Switch#show port-security fa 0/1
                             ^
% Invalid input detected at '^' marker.

yuvan_Switch#show port-security fastEthernet 0/1
                             ^
% Invalid input detected at '^' marker.

yuvan_Switch#show port-security interface fastEthernet 0/1
Port Security              : Enabled
Port Status                : Secure-up
Violation Mode             : Shutdown
Aging Time                 : 0 mins
Aging Type                 : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses      : 1
Total MAC Addresses        : 0
Configured MAC Addresses   : 0
Sticky MAC Addresses       : 0
Last Source Address:Vlan   : 0000.0000.0000:0
Security Violation Count   : 0

yuvan_Switch#
```

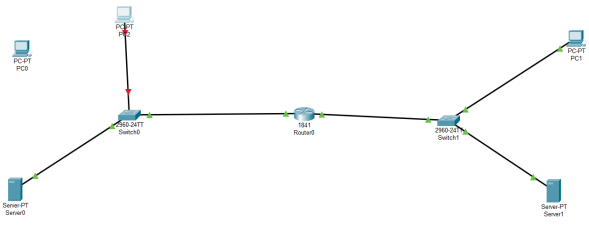
3. Send ping PC0 to Switch0

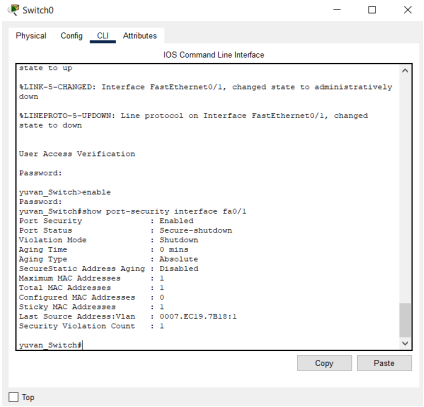
```
C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.1.5: bytes=32 time<1ms TTL=255
Reply from 192.168.1.5: bytes=32 time<1ms TTL=255
Reply from 192.168.1.5: bytes=32 time<1ms TTL=255
Reply from 192.168.1.5: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

4. Now verify whether Switch0 added the MAC address for PC0 to the running configuration



5. Remove connection fa0/1 between Switch0 and PC0 using GUI and connect PC2 to port fa0/1 to cause the port to shut down.



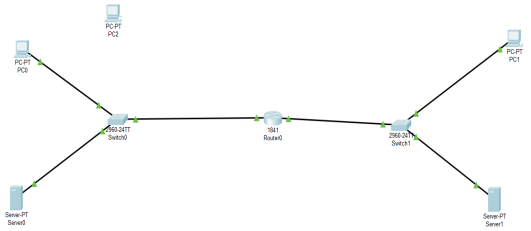


6. Viewing the fa0/1 interface shows that line protocol is down, which indicates the security violation

```
yuvan_Switch#show interface fa0/1 status
Port      Name               Status       Vlan       Duplex  Speed Type
Fa0/1                        err-disabled 1          auto    auto
10/100BaseTX
```

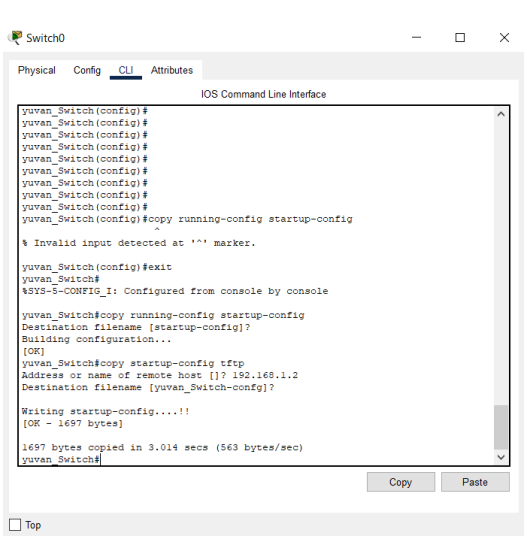
7. Re-connect PC0 with port fa0/1 of Switch 0 using GUI and re-enable the port

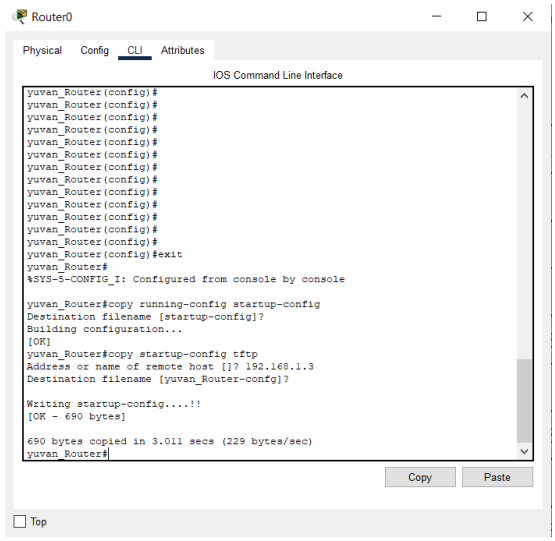
```
yuvan_Switch#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
yuvan_Switch(config)#interface fa0/1
yuvan_Switch(config-if)#shutdown

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively
down
yuvan_Switch(config-if)#no shutdown

yuvan_Switch(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
state to up

yuvan_Switch(config-if)#
```



E. Manage Configuration files.

1. Save the current configuration for Switch0 and Router0 to NVRAM. And 2. Back up the startup configuration file on Switch0 and Router0





3. Verify that the server has a Router0-config and Switch0-config file.