

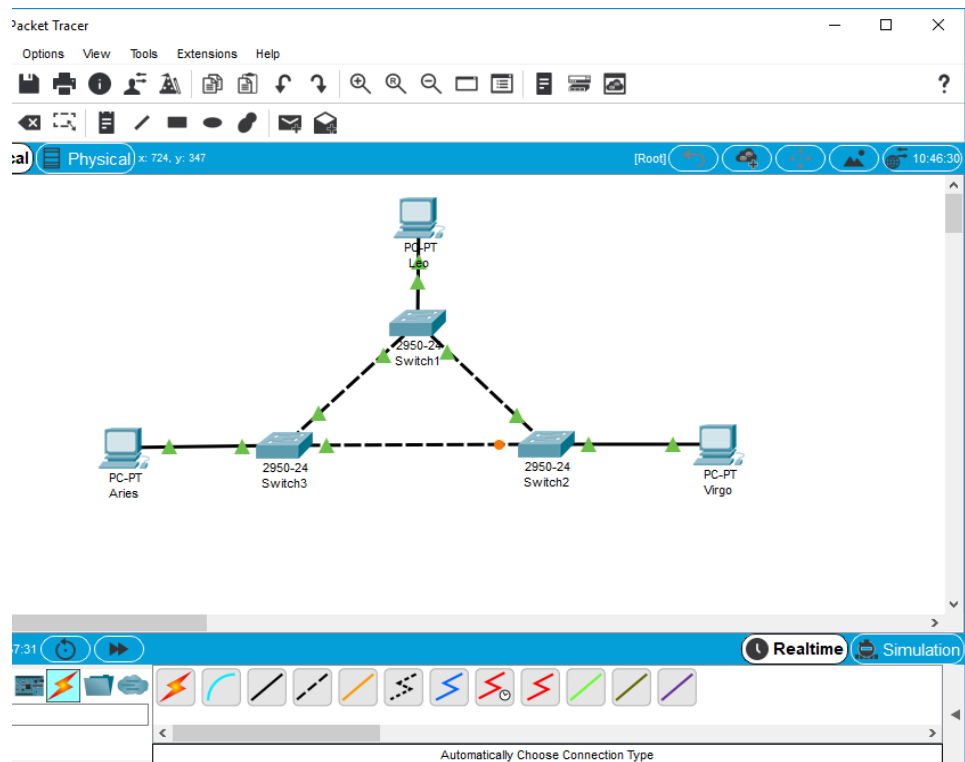
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NIM : L200170029  
Kelas : A

## MODUL 6

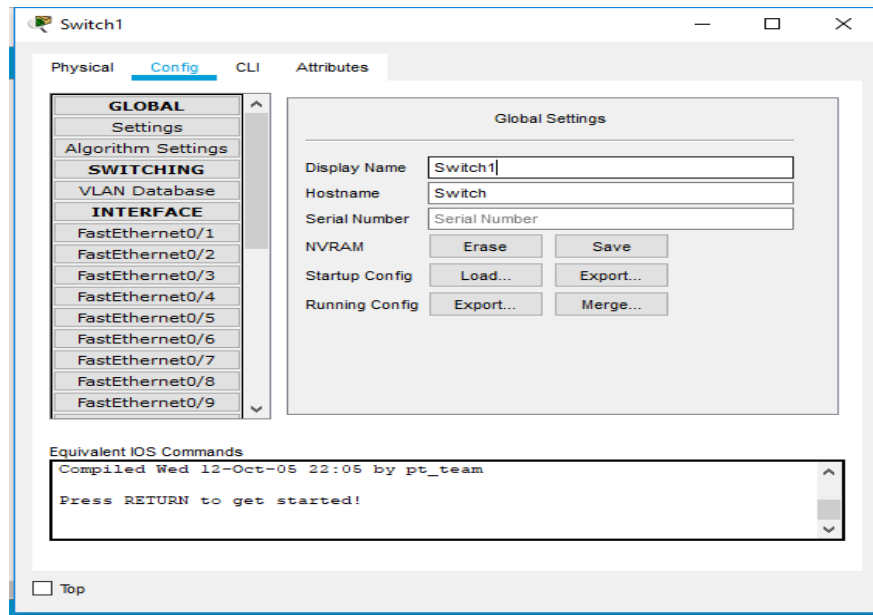
# SPANNING TREE PROTOCOL

### TOPOLOGI 1

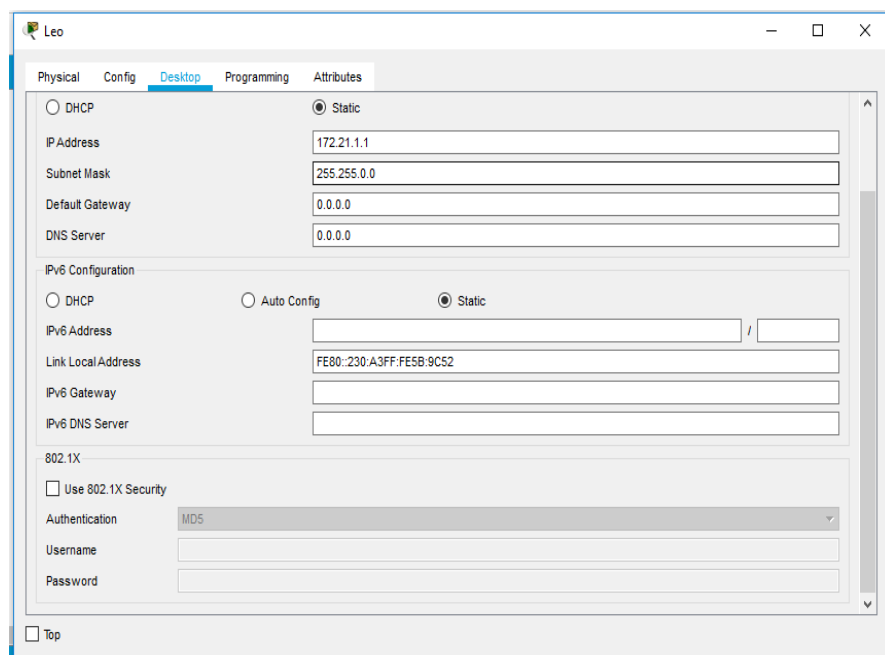
Packet Tracker menggunakan switch Catalyst 2950



1. Langkah pembuatan topologi.
  - ➔ Buka aplikasi Cisco Packet Tracker.
  - ➔ Setelah itu arahkan kursor pilih gambar gambar komputer dan switch Catalyst 2950. Tata komputer seperti segitika di setiap sudutnya. Seperti gambar dia atas.
  - ➔ Selanjutnya peberian kabel, pilih connection dan pilih automatically choose connection type.
  - ➔ Beri kabel pada switch dan komputer menggunakan kabel yang sama.



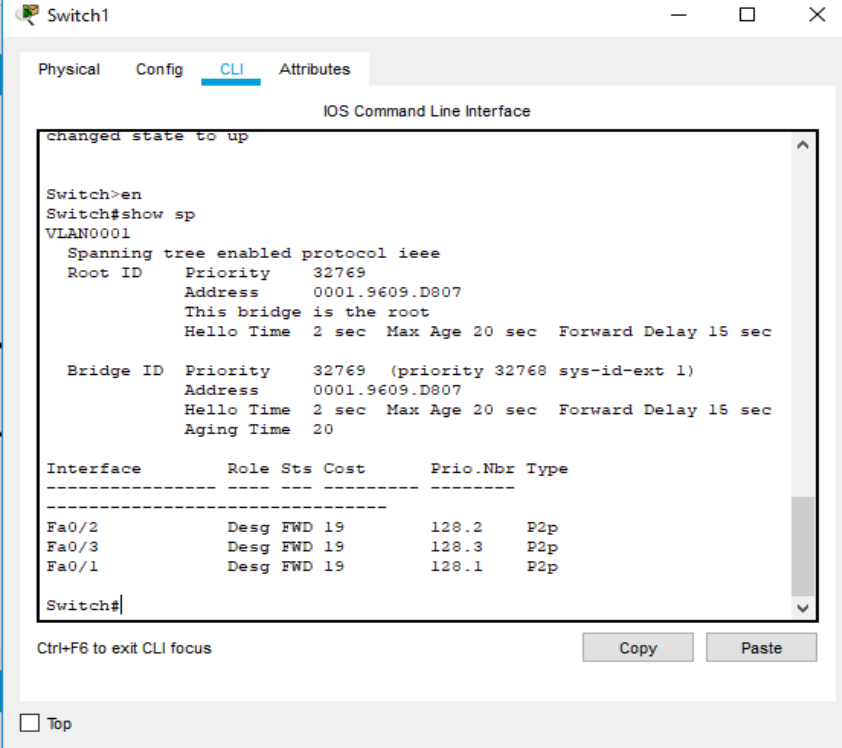
2. Memberi nama pada masing-masing switch dengan SW1, SW2, SW3.  
Langkah-langkah pemberian nama switch.
  - ➔ Klik 2x pada switch yang ingin di ubah namanya.
  - ➔ Lalu pilih config.
  - ➔ Ubah nama pada display name.



3. Mengkonfigurasi PC dengan alamat IP.
  - Leo = 172.21.1.1/24
  - Aries = 172.21.1.2/24
  - Virgo = 172.21.1.3/24
4. Pada mode user atau mode privileged, lihat status STP pada masing-masing switch. Langkah pengoperasiannya.

- Tekan enter
- Masuk mode privileged (optimal)
- Ketik show spanning tree

a. Switch1



The screenshot shows the CLI of Switch1. The user has entered 'en' to enter privileged mode and 'show sp' to display spanning tree information for VLAN0001. The output shows that the bridge is the root of the spanning tree. Below the text output, there is a table showing the status of interfaces Fa0/2, Fa0/3, and Fa0/1.

```
Switch>en
Switch#show sp
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address    0001.9609.D807
              This bridge is the root
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
              Address    0001.9609.D807
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time 20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Desg FWD 19        128.2    P2p
Fa0/3          Desg FWD 19        128.3    P2p
Fa0/1          Desg FWD 19        128.1    P2p

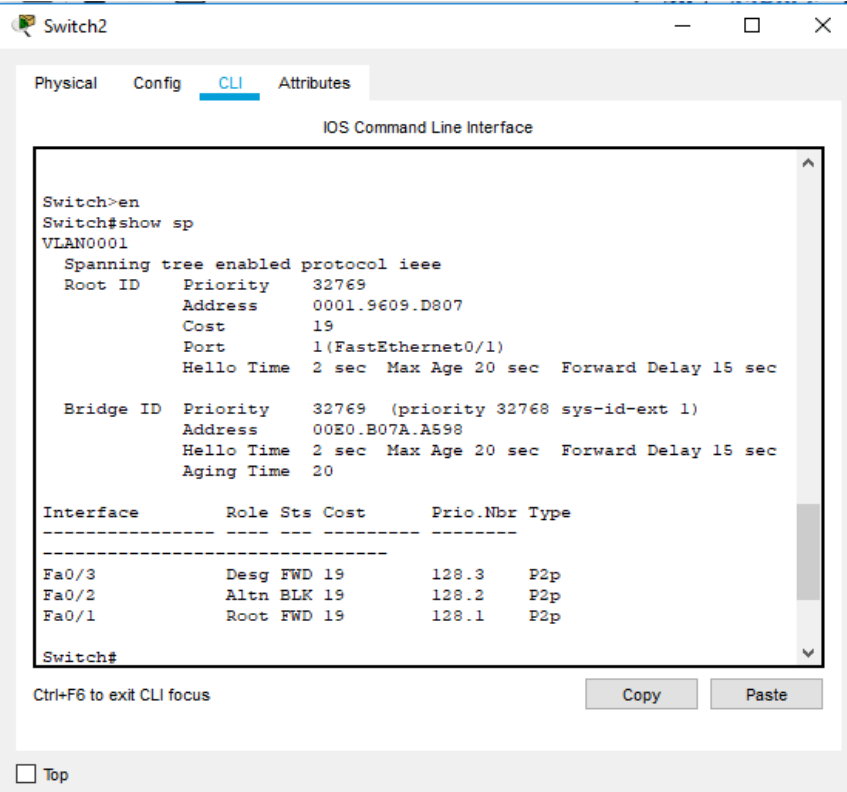
Switch#
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

Switch2



The screenshot shows the CLI of Switch2. The user has entered 'en' to enter privileged mode and 'show sp' to display spanning tree information for VLAN0001. The output shows that the bridge is not the root of the spanning tree. Below the text output, there is a table showing the status of interfaces Fa0/3, Fa0/2, and Fa0/1.

```
Switch>en
Switch#show sp
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address    0001.9609.D807
              Cost        19
              Port        1(FastEthernet0/1)
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
              Address    00E0.B07A.A598
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time 20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/3          Desg FWD 19        128.3    P2p
Fa0/2          Altn BLK 19        128.2    P2p
Fa0/1          Root FWD 19        128.1    P2p

Switch#
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

Switch3

```

Switch3
Physical Config CLI Attributes
IOS Command Line Interface

Switch>en
Switch#show sp
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
            Address    0001.9609.D807
            Cost        19
            Port        1(FastEthernet0/1)
            Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
            Address    00E0.8F65.A079
            Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time   20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Desg FWD 19        128.2    P2p
Fa0/1          Root FWD 19        128.1    P2p
Fa0/3          Desg FWD 19        128.3    P2p

Switch#
  
```

b. Untuk setiap switch di isikan pada tabel berikut.

SW1

No	Variable	Nilai
1	Root ID	32769, 0001.9609.D807
2	Priority	32769
3	MAC Address	0001.9609.D807
4	Bridge ID	32769
5	Cost (0/1;0/2;0/3)	19/1;19/2;19/3
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

Interface	Role	sts	cost
Fa0/2	Desg	FWD	19
Fa0/3	Desg	FWD	19
Fa0/1	Desg	FWD	19

SW2

No	Variable	Nilai
1	Root ID	32769, 0001.9609.D807
2	Priority	32769
3	MAC Address	0001.9609.D807

4	Bridge ID	32769
5	Cost (0/1;0/2;0/3)	19/1;19/2;19/3
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

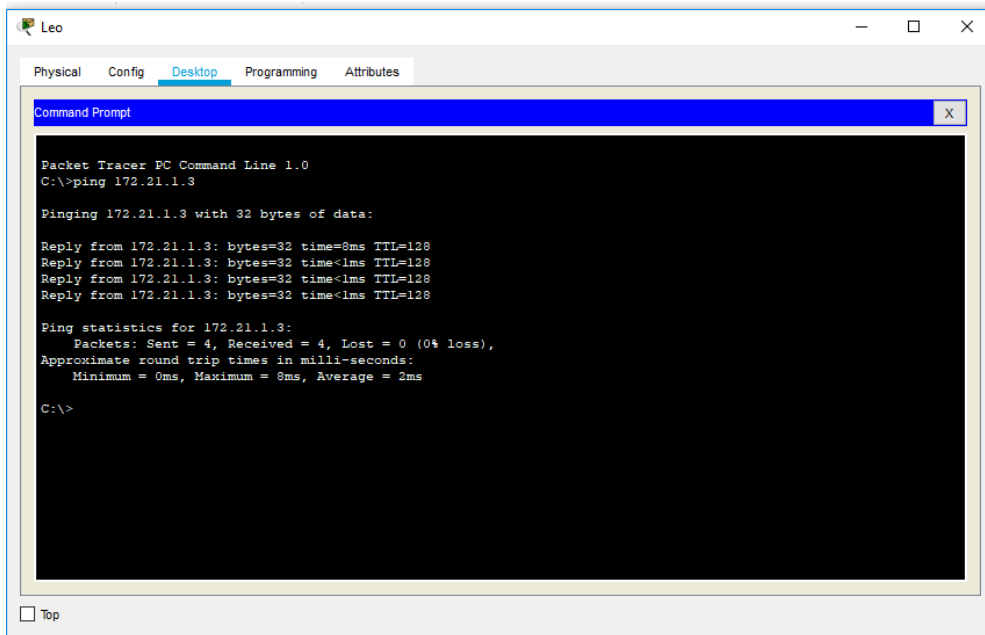
Interface	Role	sts	cost
Fa0/3	Desg	FWD	19
Fa0/2	Altn	BLK	19
Fa0/1	Root	FWD	19

### SW3

No	Variable	Nilai
1	Root ID	32769, 0001.9609.D807
2	Priority	32769
3	MAC Address	0001.9609.D807
4	Bridge ID	32769
5	Cost (0/1;0/2;0/3)	19/1;19/2;19/3
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

Interface	Role	sts	cost
Fa0/2	Desg	FWD	19
Fa0/1	Root	FWD	19
Fa0/3	Desg	FWD	19

- c.
  - Menjadi root bridge ditunjukan pada Switch2.
  - Menjadi designated bridge ditunjukan pada Switch2.
  - Menjadi Root port ditunjukan pada Switch3 dan Switch2
  - Menjadi Designated port ditunjukan pada Switch1.
- d. Switch yang berada pada keadaan forwarding adalah Sswitch1 dan Switch3  
Switch yang berada pada keadaan blocking adalah Switch2.
5. Langkah untuk melakukan ping dari PC Leo ke PC Virgo.
  - ➔ Klik 2x pada PC Leo.
  - ➔ Pilih Desktop lalu klik pada Command Prompt.
  - ➔ Ketik *ping 172.21.1.3*.
  - ➔ Lalu akan muncul hasilnya.



The screenshot shows a Packet Tracer PC Command Line window for a device named 'Leo'. The window has tabs for Physical, Config, Desktop, Programming, and Attributes, with 'Desktop' currently selected. The Command Prompt displays the output of a ping command to 172.21.1.3. The output shows four successful replies with 32 bytes of data, a time of 8ms, and a TTL of 128. Ping statistics indicate 4 packets sent, 4 received, and 0% loss, with an average round trip time of 2ms.

```
Packet Tracer PC Command Line 1.0
C:\>ping 172.21.1.3

Pinging 172.21.1.3 with 32 bytes of data:

Reply from 172.21.1.3: bytes=32 time=8ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 172.21.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 8ms, Average = 2ms

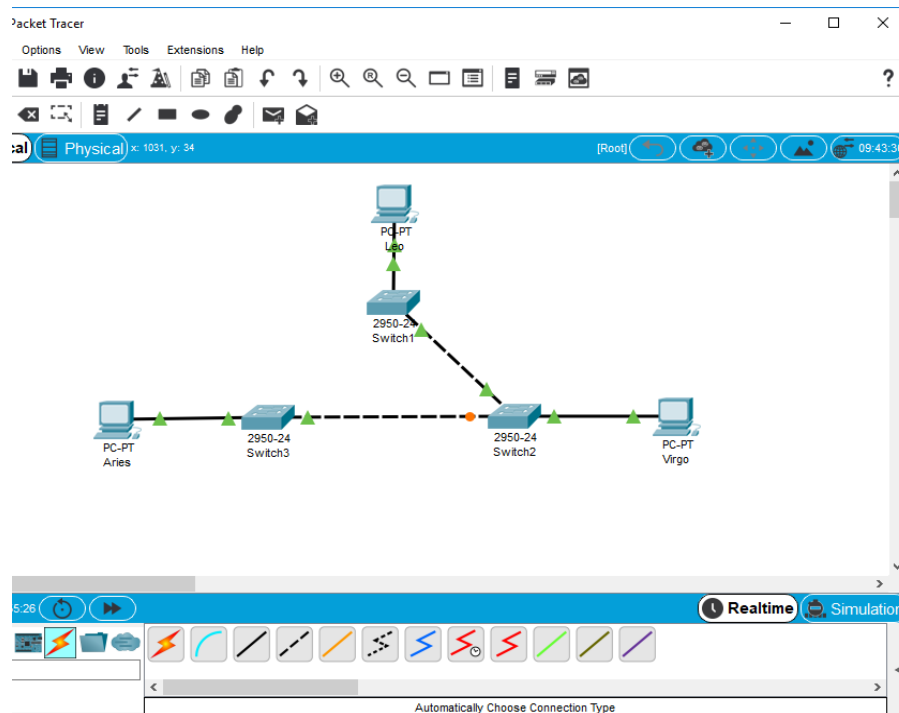
C:\>
```

6. Langkah untuk menyimpan konfigurasi jaringan.

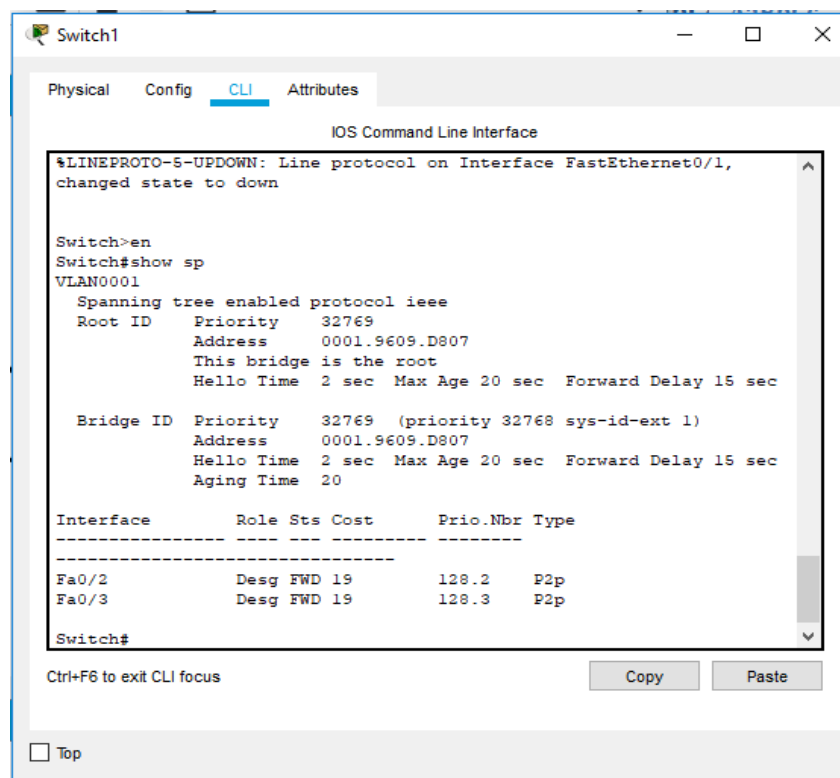
- ➔ Klik File lalu pilih Save AS.
- ➔ Pilih tempat untuk menyimpan file.
- ➔ Lalu beri nama file dengan *lab2.nwc*.

## TOPOLOGI2

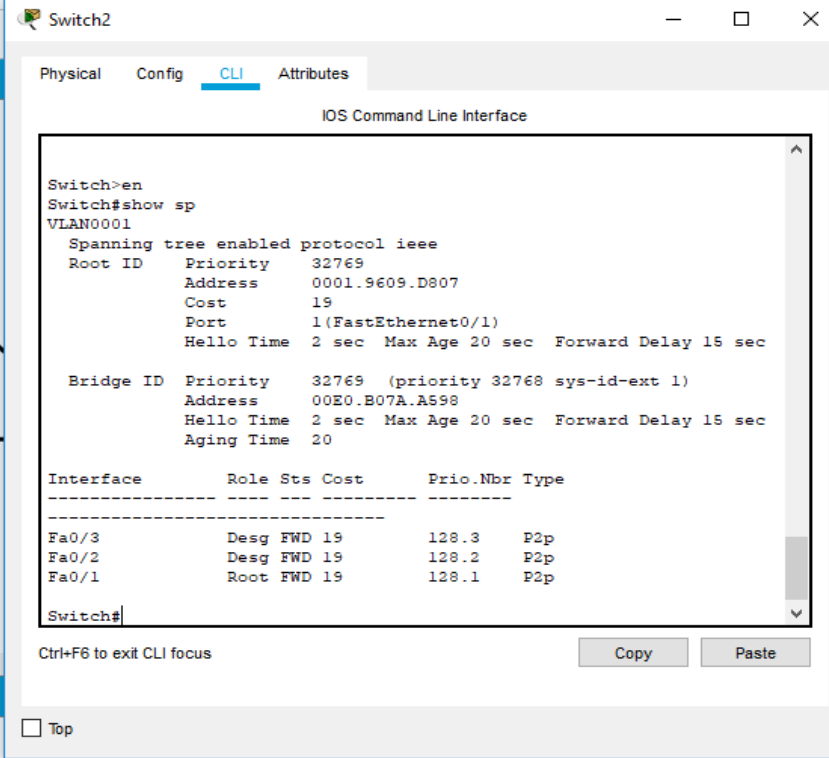
7. Mengubah topologi menjadi seperti berikut.



8. Menyimpan topologi dan membuka topologi tersebut pada lingkungan Packet Tracker. Kemudian load file konfigurasi lab2.ncw
9. Switch1



## Switch2



The screenshot shows the CLI of Switch2. The user has entered the command 'show sp' to display spanning tree information for VLAN0001. The output shows that the spanning tree is enabled with protocol IEEE. The root ID is 0001.9609.D807 with a priority of 32769. The bridge ID is 00E0.B07A.A598 with a priority of 32769. The interface Fa0/1 is the root of the tree, while Fa0/2 and Fa0/3 are designated forwarders.

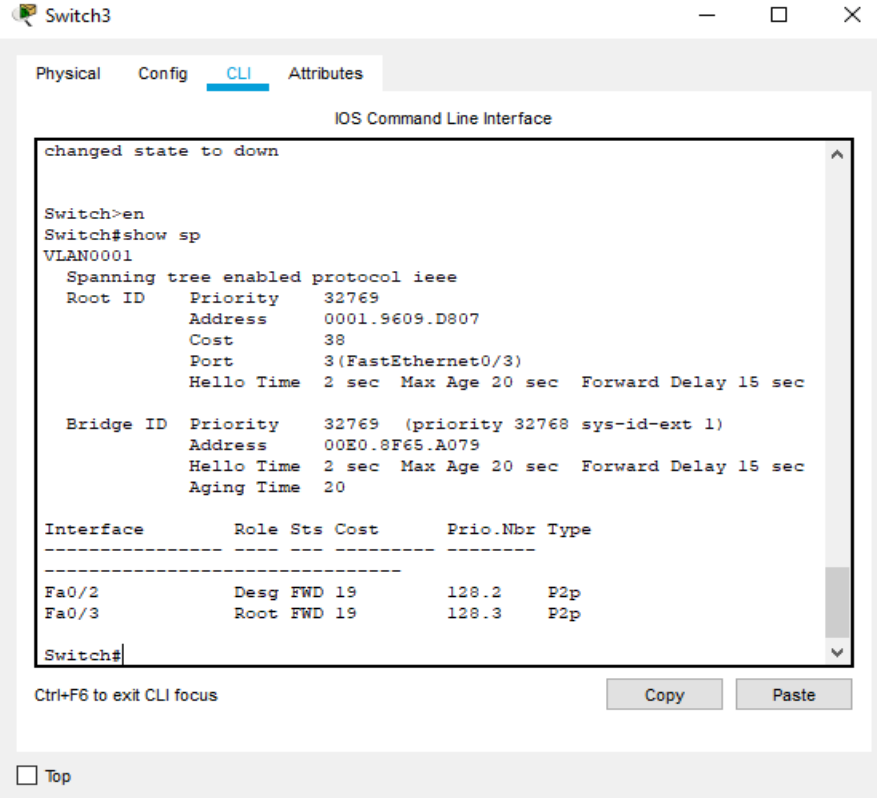
```
Switch>en
Switch#show sp
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address    0001.9609.D807
              Cost        19
              Port        1(FastEthernet0/1)
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
              Address    00E0.B07A.A598
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/3          Desg FWD 19        128.3    P2p
Fa0/2          Desg FWD 19        128.2    P2p
Fa0/1          Root FWD 19        128.1    P2p

Switch#
```

## Switch3



The screenshot shows the CLI of Switch3. The user has entered the command 'show sp' to display spanning tree information for VLAN0001. The output shows that the spanning tree is enabled with protocol IEEE. The root ID is 0001.9609.D807 with a priority of 32769. The bridge ID is 00E0.8F65.A079 with a priority of 32769. The interface Fa0/3 is the root of the tree, while Fa0/2 is a designated forwarder.

```
changed state to down

Switch>en
Switch#show sp
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address    0001.9609.D807
              Cost        38
              Port        3(FastEthernet0/3)
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
              Address    00E0.8F65.A079
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Desg FWD 19        128.2    P2p
Fa0/3          Root FWD 19        128.3    P2p

Switch#
```



SW1

No	Variable	Nilai
1	Root ID	32769, 0001.9609.D807
2	Priority	32769
3	MAC Address	0001.9609.D807
4	Bridge ID	32769
5	Cost (0/2;0/3)	19/2;19/3
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

Interface	Role	sts	cost
Fa0/2	Desg	FWD	19
Fa0/3	Desg	FWD	19

SW2

No	Variable	Nilai
1	Root ID	32769, 0001.9609.D807
2	Priority	32769
3	MAC Address	0001.9609.D807
4	Bridge ID	32769
5	Cost (0/1;0/2;0/3)	19/1;19/2;19/3
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

Interface	Role	sts	cost
Fa0/3	Desg	FWD	19
Fa0/2	Desg	FWD	19
Fa0/1	Root	FWD	19

SW3

No	Variable	Nilai
1	Root ID	32769, 0001.9609.D807
2	Priority	32769
3	MAC Address	0001.9609.D807
4	Bridge ID	32769
5	Cost (0/2;0/3)	19/2;19/3
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

Interface	Role	sts	cost
Fa0/2	Desg	FWD	19
Fa0/3	Root	FWD	19