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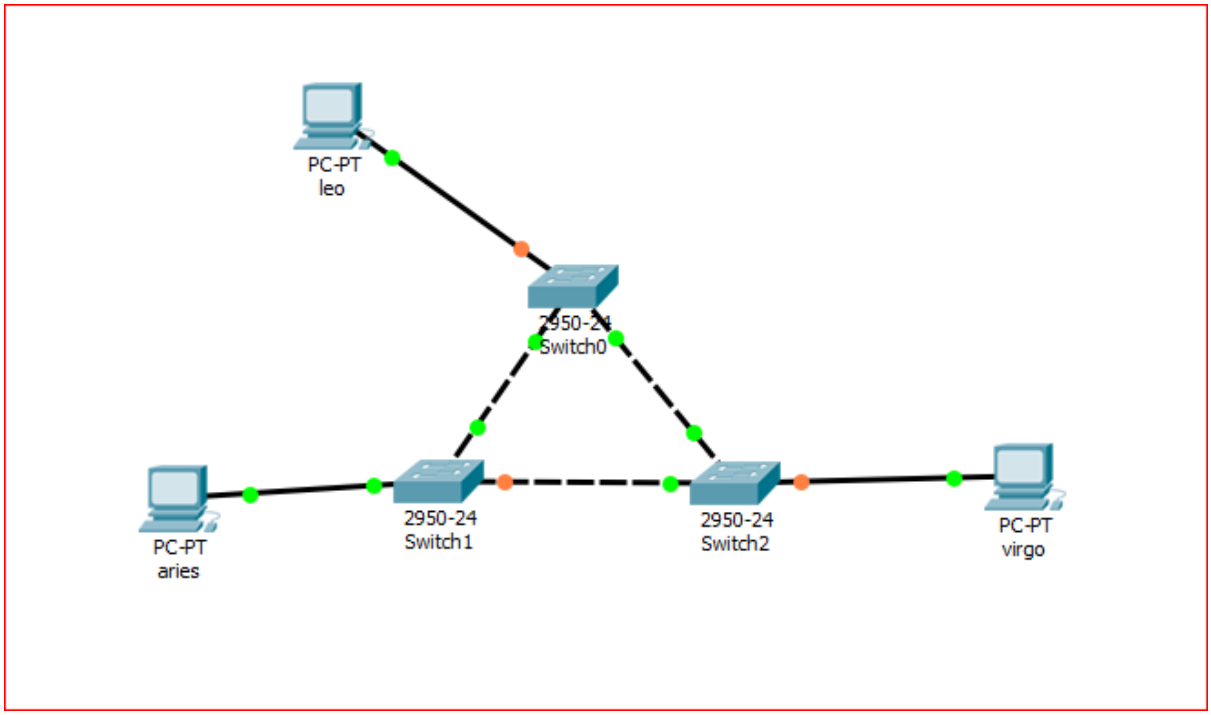
MODUL 6
SPANNING TREE PROTOCOL

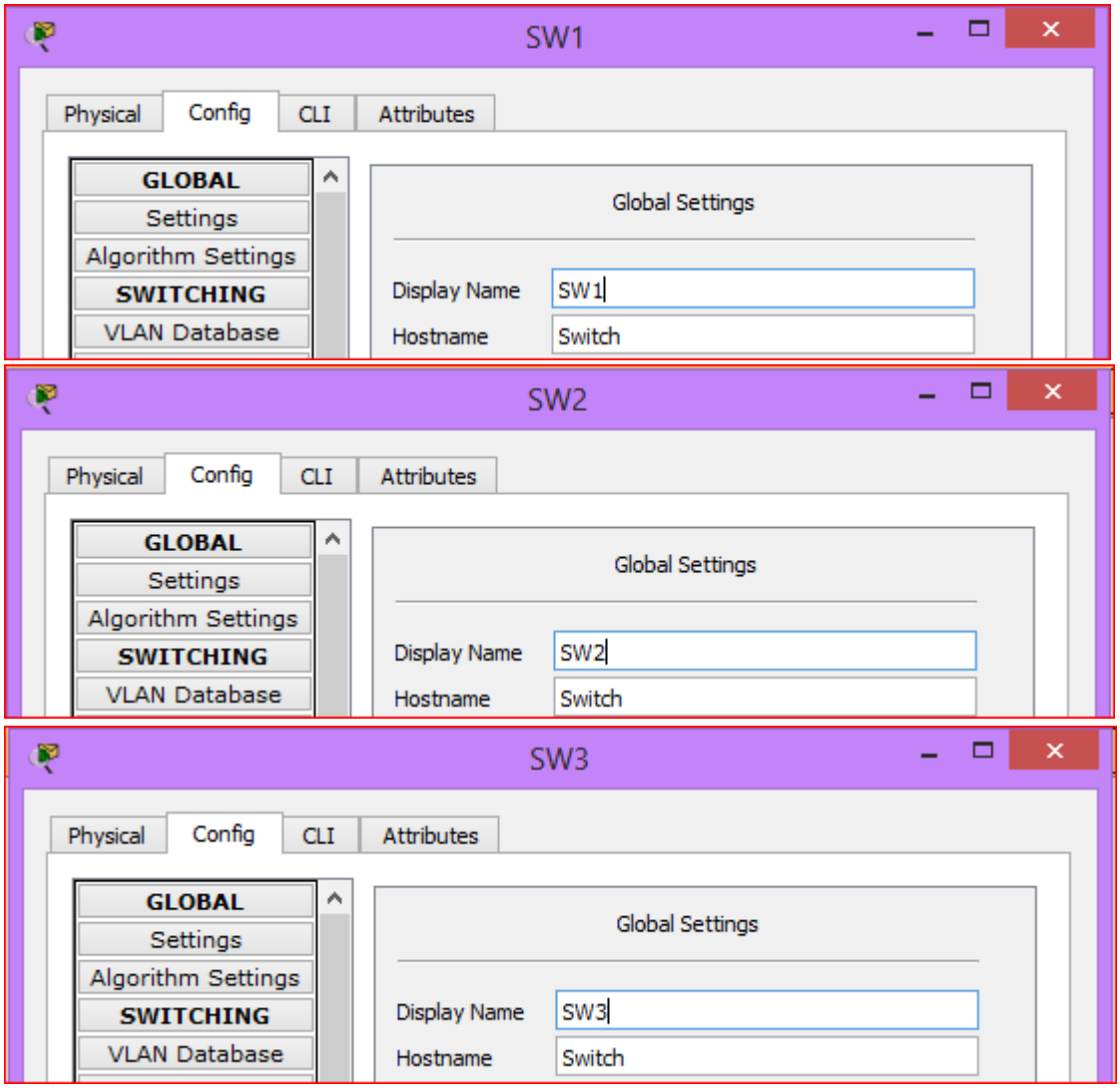
1. **Kegiatan 1. Topologi 1**
   1. Menggunakan Packet Tracer buat topologi berikut ini dengan menggunakan switch Catalyst 2950



Tugas 1A : Tulis langkah pembuatan topologi

1. Masuk ke Aplikasi Cisco Packet Tracer
2. Pilih pada tab “End Devices” dan klik “PC”
3. Drag ke tempat pengerjaan dan lakukan sebanyak 3 kali
4. Pilih pada tab “Switches” dan klik Switch 2950-24
5. Drag ke tempat pengerjaan dan lakukan sebanyak 3 kali
6. Hubungkan dengan kabel otomatis

2. Beri nama masing-masing switch



Tugas 2A : Tulis langkah pemberian nama switch mulai dari mode user

- SW1

```
Switch>enable
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW1
SW1(config)#exit
SW1#
%SYS-5-CONFIG_I: Configured from console by console
```

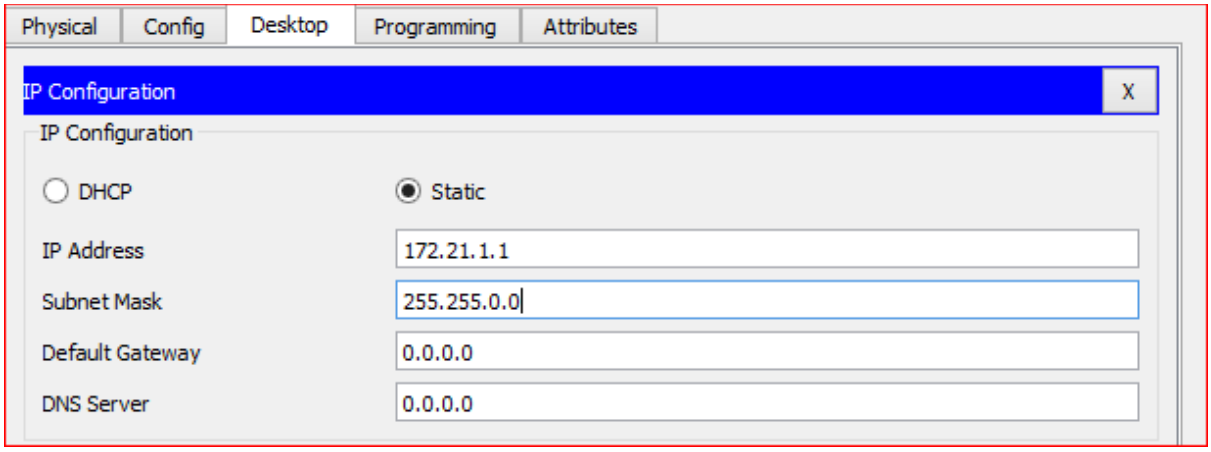
- SW2

```
Switch>enable
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW2
SW2(config)#exit
SW2#
%SYS-5-CONFIG_I: Configured from console by console
```

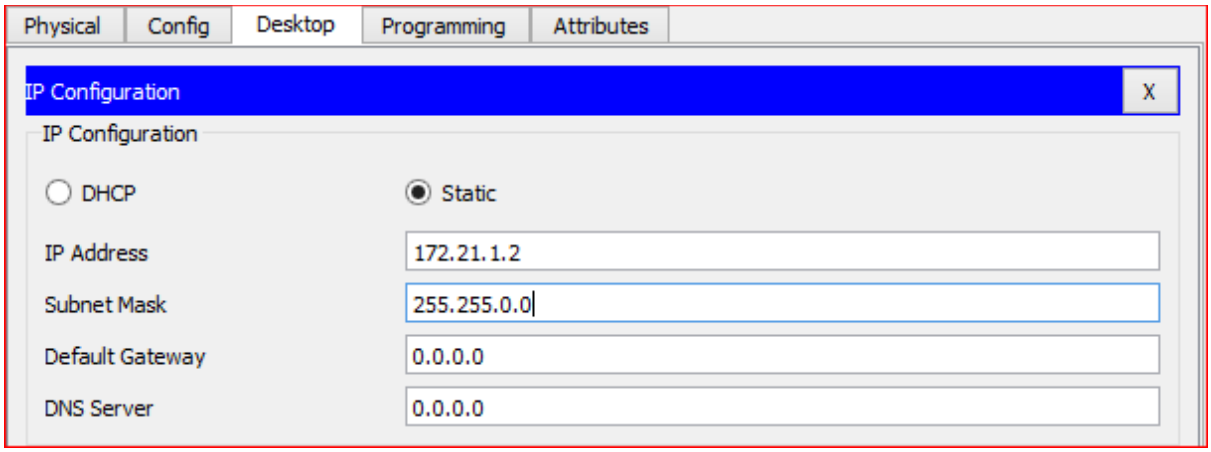
- SW3

```
Switch>enable
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW3
SW3(config)#exit
SW3#
%SYS-5-CONFIG_I: Configured from console by console
```

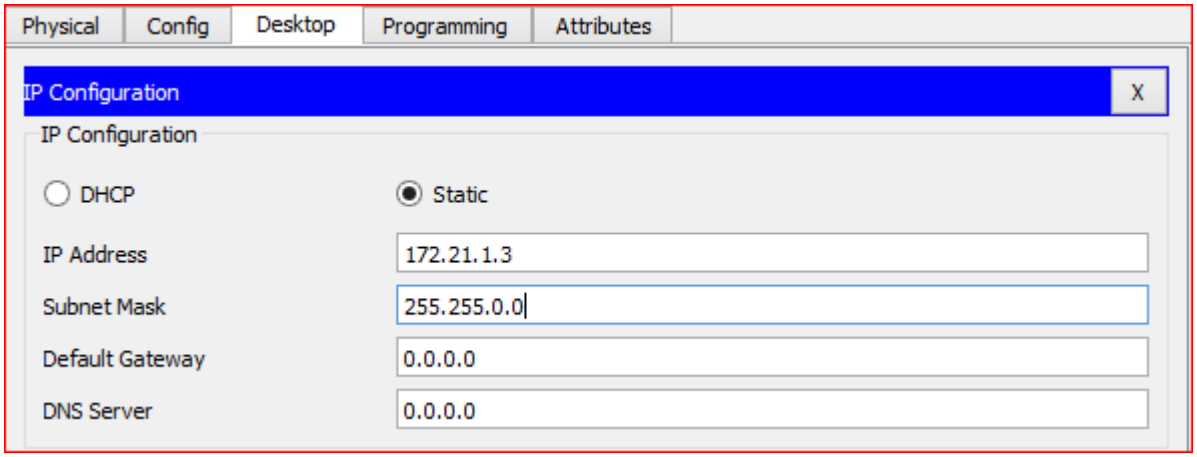
3. Konfigurasi masing-masing PC dengan alamat IP
   - Leo = 172.21.1.1/24



   - Aries = 172.21.1.2/24



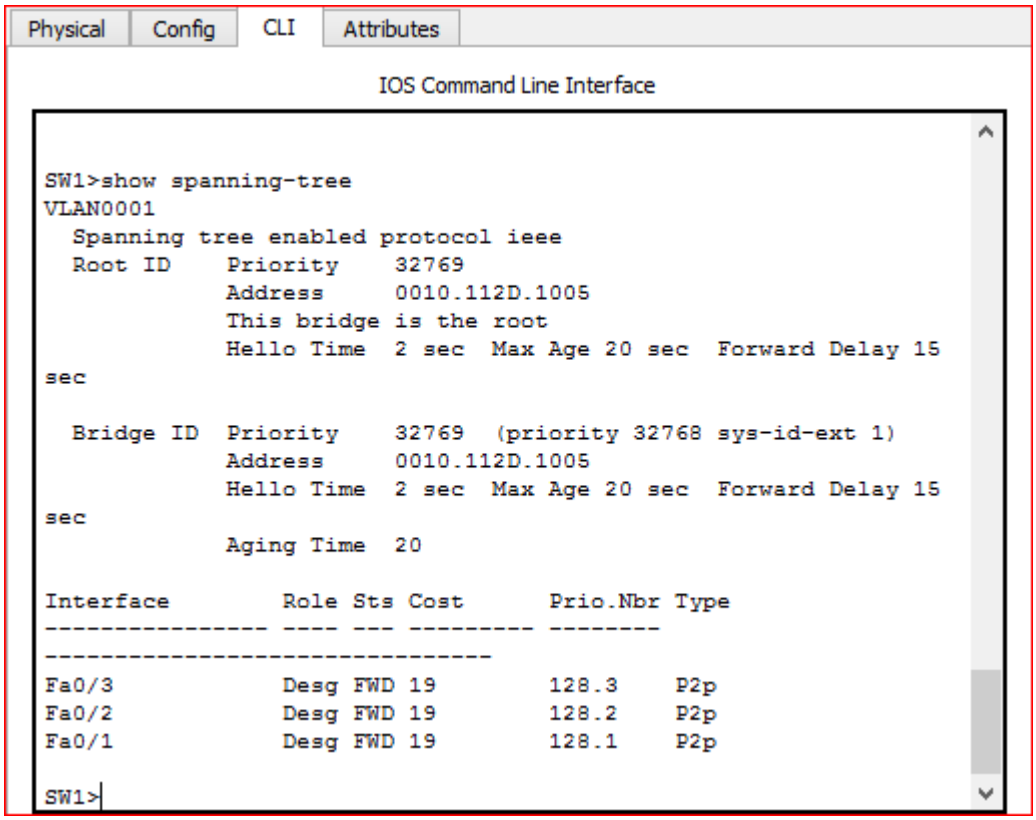
   - Virgo = 172.21.1.3/24



4. Pada mode user atau mode privileged, lihat status STP pada masing-masing switch. Langkah pengoperasian
   - Tekan enter
   - Masuk mode privileged (optional)
   - Ketik ***Show spanning-tree***

Tugas 4A : Pada kondisi default, capture masing-masing tampilan status STP switch

SW1



SW2

Physical | Config | CLI | Attributes

IOS Command Line Interface

```
SW2>show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID     Priority    32769
              Address     0010.112D.1005
              Cost        19
              Port        2(FastEthernet0/2)
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15
sec

  Bridge ID   Priority    32769  (priority 32768 sys-id-ext 1)
              Address     00E0.8F17.758B
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15
sec
              Aging Time  20

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

SW2>
```

SW3

Physical | Config | CLI | Attributes

IOS Command Line Interface

```
SW3>show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID     Priority    32769
              Address     0010.112D.1005
              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     00D0.5817.AA8C
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15
sec
              Aging Time  20

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

SW3>
```

Tugas 4B : Untuk tiap-tiap switch, isikan tabel berikut

No	Variabel	Nilai
1	Root ID	32769.0090.0C21.E04A
2	Priority	32769
3	MAC Address	00E0.B0EA.3A13
4	Bridge ID	32769.00E0.B0EA.3A13
5	Cost(0/1;0;2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

No	Variabel	Nilai
1	Root ID	32769.0090.0C21.E04A
2	Priority	32769
3	MAC Address	00E0.B0AE.9A46
4	Bridge ID	32769.00E0.B0AE.9A46
5	Cost(0/1;0;2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

No	Variabel	Nilai
1	Root ID	32769.0090.0C21.E04A
2	Priority	32769
3	MAC Address	0090.0C21.E04A
4	Bridge ID	32769.0090.0C21.E04A
5	Cost(0/1;0;2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

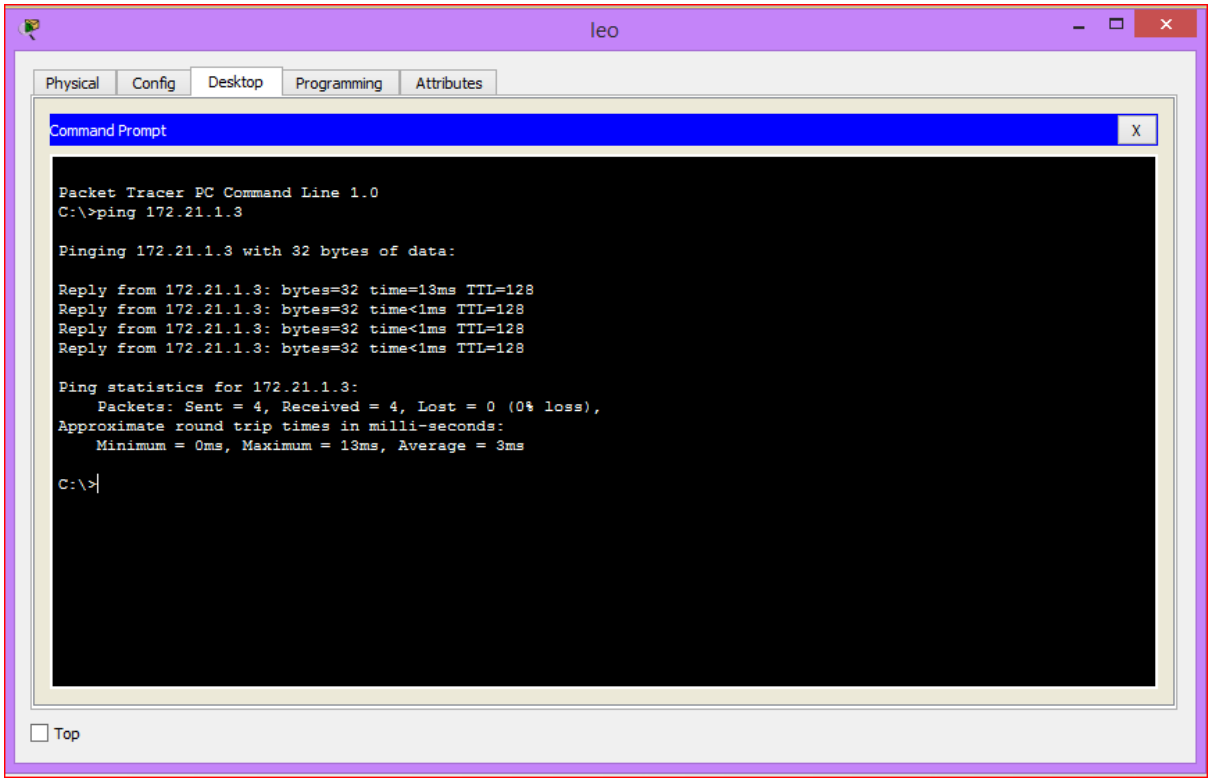
Tugas 4C : Pada kondisi default tersebut, switch dan port mana saja yang :

a. Menjadi root bridge : SW3
b. Menjadi designated bridge : SW2
c. Menjadi root port : SW1 Fa0/2, SW2 Fa0/3
d. Menjadi designated port : SW1 Fa0/3, SW2 Fa0/1 Fa0/2, SW3

Tugas 4D : Pada kondisi default tersebut, dan port mana saja yang :

- Berada pada keadaan forwarding : SW1 Fa0/2 Fa0/3, SW2 Fa0/1 Fa0/2 Fa0/3, SW3 Fa0/1 Fa0/2 Fa0/3
- Berada pada keadaan blocking : SW1 Fa0/1

5. Dari PC Leo lakukan ping ke PC Virgo



Tugas 5A : Tulis langkah untuk melakukan perintah ping

- ✓ Klik pada PC Leo
- ✓ Lalu pilih tab dekstop
- ✓ Kemudian pilih terminal (Command Prompt)
- ✓ Tuliskan ping 172.21.1.3

6. Simpan konfigurasi jaringan dengan nama lab2.nwc

Tugas 6A : Tulis langkah untuk menyimpan konfigurasi jaringan

a. Ketik “Write” pada masing-masing CLI switches

SW1

```
SW1>enable
SW1#write
Building configuration...
[OK]
SW1#
```

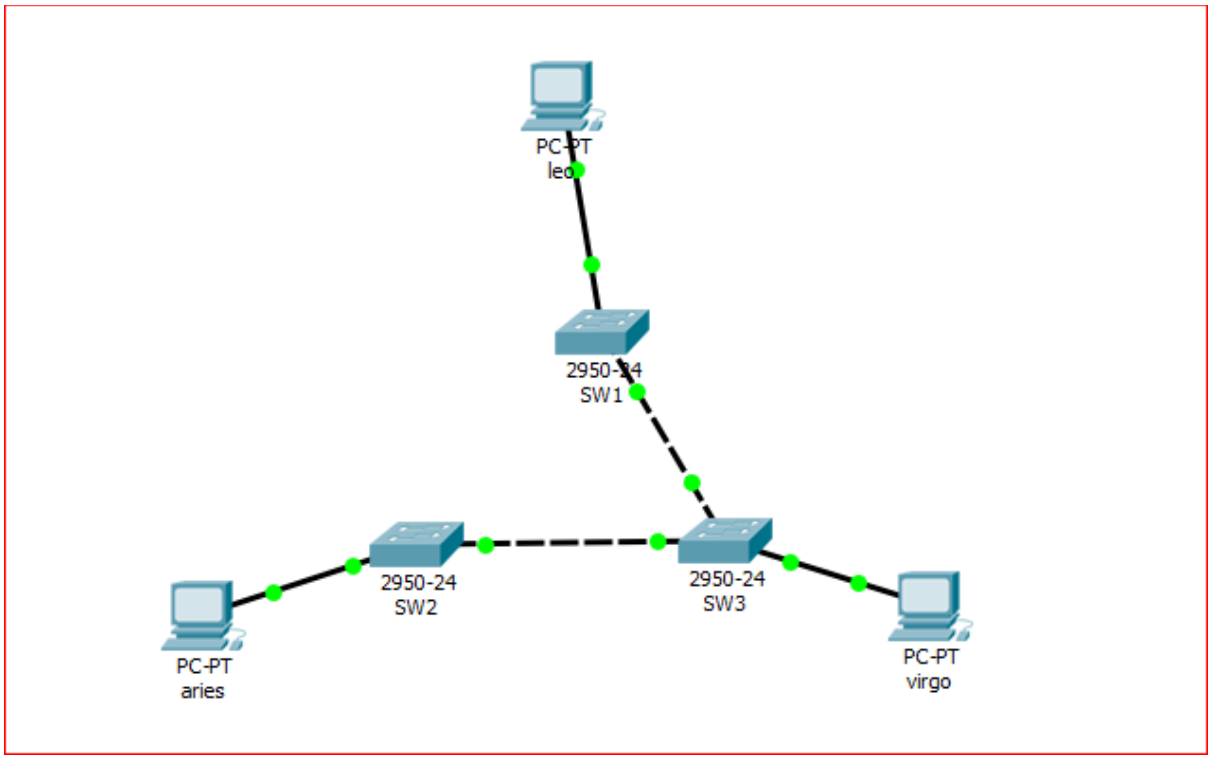
SW2

```
SW2>enable
SW2#write
Building configuration...
[OK]
SW2#
```

SW3

```
SW3>enable
SW3#write
Building configuration...
[OK]
SW3#
```

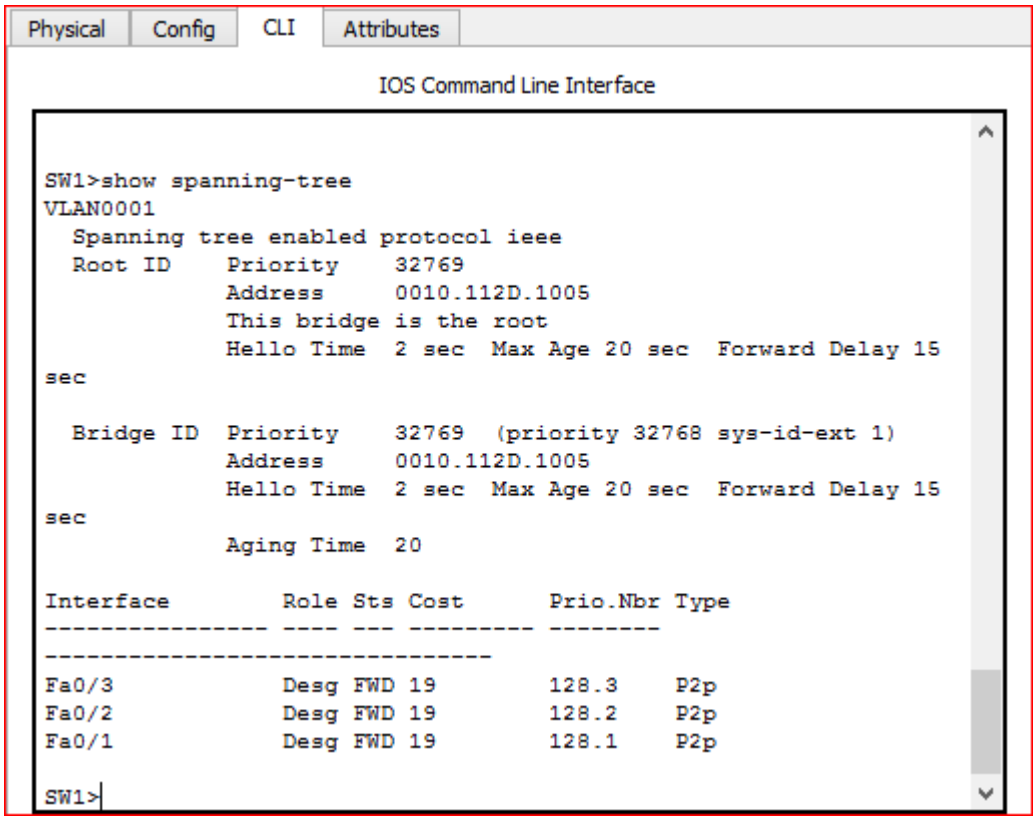
2. **Kegiatan 2. Topologi 2**
    1. Menggunakan packet tracer ubah topologi menjadi topologi berikut ini



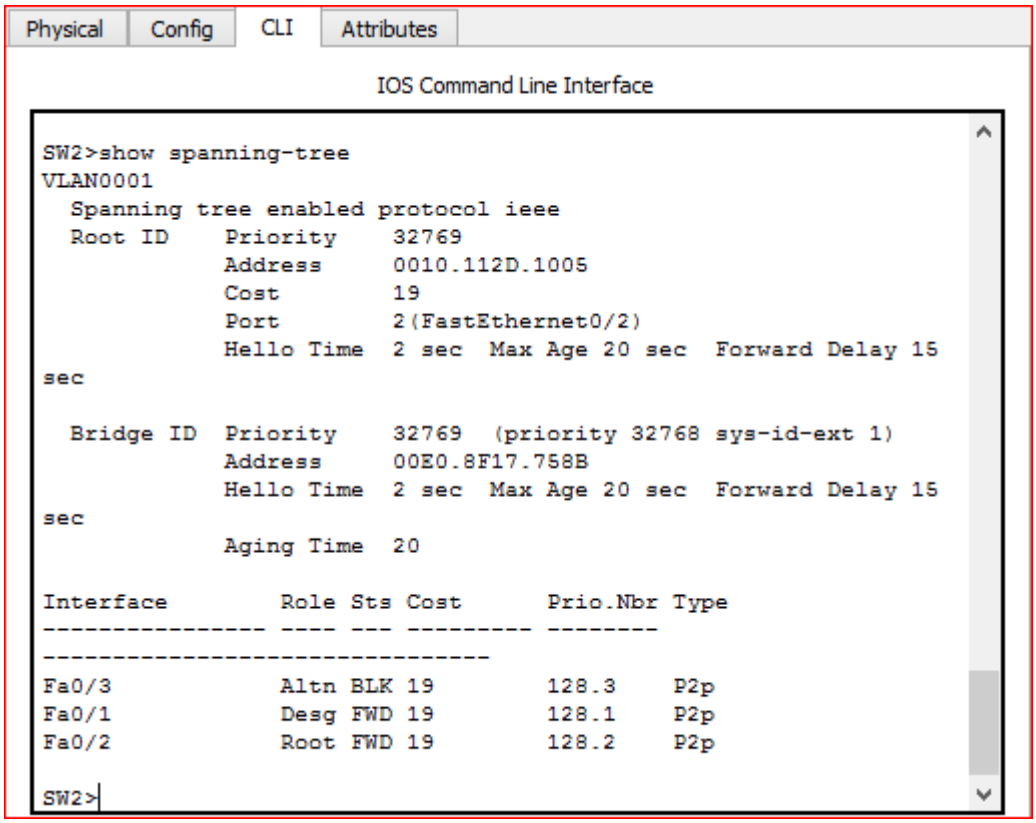
    2. Pada mode user atau privileged , lihat status STP pada masing-masing switch. Langkah pengoperasian :
        - Tekan enter
        - Masuk mode privileged (optional)
        - Ketik ***Show spanning-tree***

Tugas 9A : Pada kondisi default, capture masing-masing tampilan status STP switch

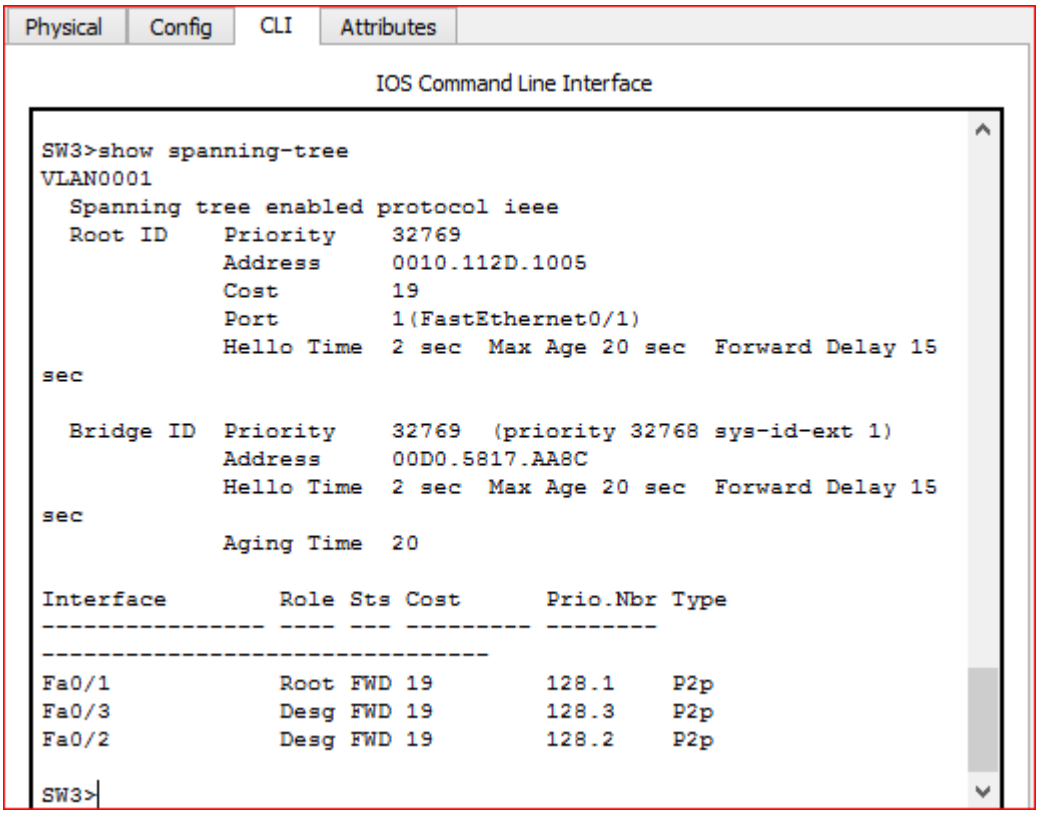
SW1


Physical
Config
CLI
Attributes
IOS Command Line Interface
SW1>show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 32769
Address 0010.112D.1005
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 0010.112D.1005
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 Desg FWD 19 128.1 P2p
SW1>

SW2


Physical
Config
CLI
Attributes
IOS Command Line Interface
SW2>show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 32769
Address 0010.112D.1005
Cost 19
Port 2(FastEthernet0/2)
Hello Time 2 sec Max Age 20 sec Forward Delay 15
sec
Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)
Address 00E0.8F17.758B
Hello Time 2 sec Max Age 20 sec Forward Delay 15
sec
Aging Time 20
Interface Role Sts Cost Prio.Nbr Type
Fa0/3 Altn BLK 19 128.3 P2p
Fa0/1 Desg FWD 19 128.1 P2p
Fa0/2 Root FWD 19 128.2 P2p
SW2>

SW3



Tugas 9A : Untuk tiap-tiap switch, isikan tabel berikut

No	Variabel	Nilai
1	Root ID	32769.0090.0C21.E04A
2	Priority	32769
3	MAC Address	00E0.B0EA.3A13
4	Bridge ID	32769.00E0.B0EA.3A13
5	Cost(0/1;0;2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

No	Variabel	Nilai
1	Root ID	32769.0090.0C21.E04A
2	Priority	32769
3	MAC Address	00E0.B0AE.9A46
4	Bridge ID	32769.00E0.B0AE.9A46
5	Cost(0/1;0;2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

No	Variabel	Nilai
1	Root ID	32769.0090.0C21.E04A

2	Priority	32769
3	MAC Address	0090.0C21.E04A
4	Bridge ID	32769.0090.0C21.E04A
5	Cost(0/1;0;2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

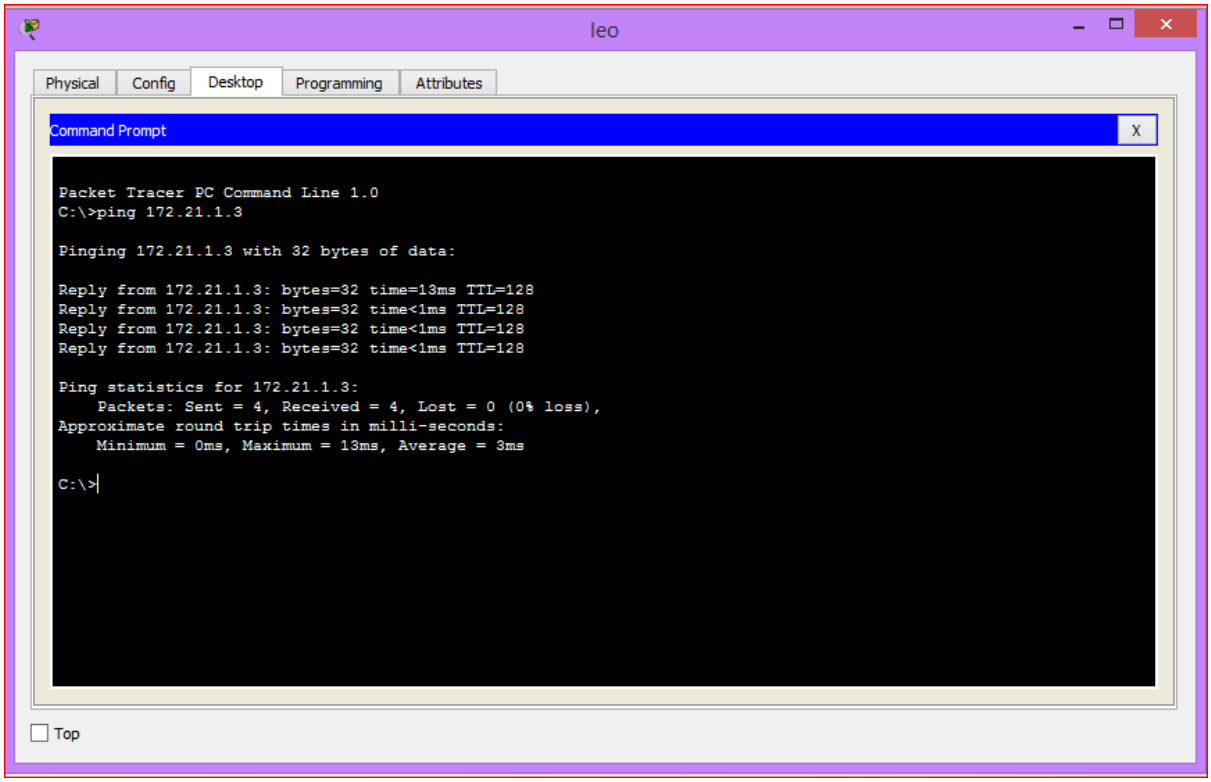
Tugas 9A : Pada kondisi default tersebut, switch dan port mana saja yang :

a. Menjadi root bridge : SW3
b. Menjadi designated bridge : SW2
c. Menjadi root port : SW1 Fa0/2, SW2 Fa0/3
d. Menjadi designated port : SW1 Fa0/3, SW2 Fa0/1 Fa0/2, SW3

Tugas 4D : Pada kondisi default tersebut, dan port mana saja yang :

- Berada pada keadaan forwarding : SW1 Fa0/2 Fa0/3, SW2 Fa0/1 Fa0/2 Fa0/3, SW3 Fa0/1 Fa0/2 Fa0/3
- Berada pada keadaan blocking : SW1 Fa0/1

3. Dari PC Leo lakukan ping ke PC virgo



Tugas 5A : Tulis langkah untuk melakukan perintah ping

- ✓ Klik pada PC Leo
- ✓ Lalu pilih tab dekstop
- ✓ Kemudian pilih terminal (Command Prompt)
- ✓ Tuliskan ping 172.21.1.3