

L200160067  
Alfarez Syahputra Kuri  
A

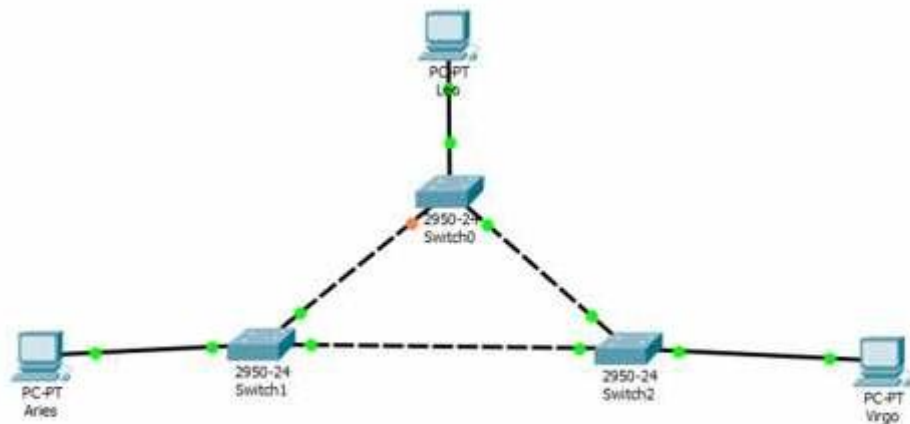
## MODUL 6

### SPANNING TREE PROTOCOL

#### C. Kegiatan Praktikum

##### Kegiatan 1. Topologi 1

##### 1. Membuat topologi



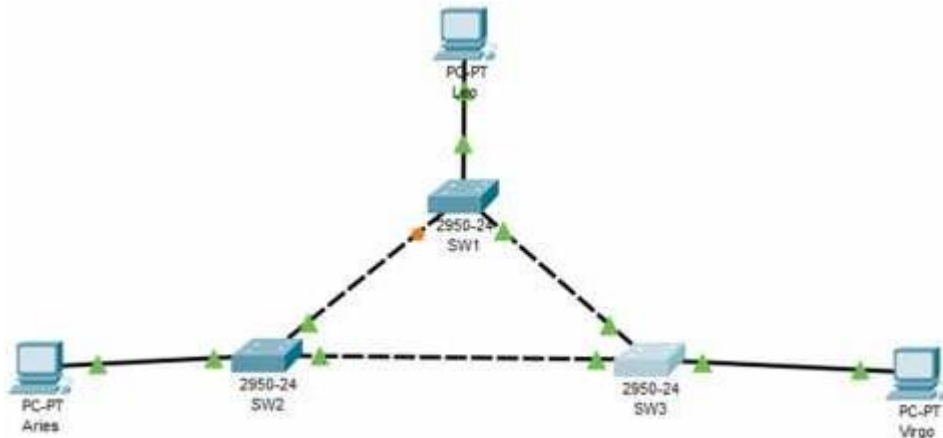
#### Tugas 1A:

Tulis langkah pembuatan

topologi. Jawab :

Pembuatan topologi pada kegiatan 1 menggunakan tiga buah switch 2950-24 yang dirangkai menjadi bentuk segitiga (ketiga switch terhubung). Pada setiap switch juga dihubungkan dengan PC. Switch 0 dihubungkan dengan PC Leo, switch 1 dihubungkan dengan PC Aries, dan switch 3 dihubungkan dengan PC Virgo.

2. Memberi nama masing-masing switch dengan SW1, SW2, dan SW3



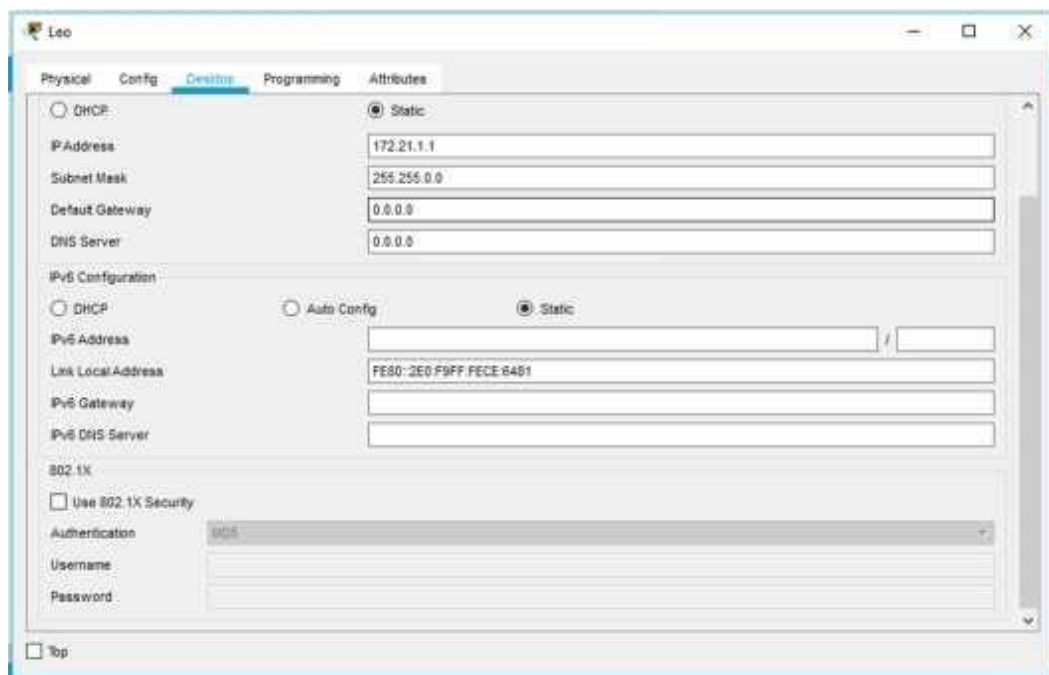
Tugas 2A:

Tulis langkah pemberian nama switch mulai dari mode user.

Jawab :

Switch paling atas diberi nama SW1, switch sebelah kiri diberi nama SW2 dan switch disebelah kanan diberi nama SW3.

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



- Aries = 172.21.1.2/24

The screenshot shows the configuration window for a switch named 'Aries'. The 'Desktop' tab is selected. Under the 'IP Addressing' section, the 'Static' radio button is chosen. The IP Address is set to 172.21.1.2, Subnet Mask to 255.255.0.0, Default Gateway to 0.0.0.0, and DNS Server to 0.0.0.0. The 'IPv6 Configuration' section has the 'Static' radio button selected, with the Link Local Address set to FE80::290:CFF:FE1:23DA. The '802.1X' section has 'Use 802.1X Security' unchecked, and the 'Authentication' dropdown is set to 'MD5'. There are fields for Username and Password, which are currently empty. A 'Top' button is located at the bottom left.

- Virgo = 172.21.1.3/24

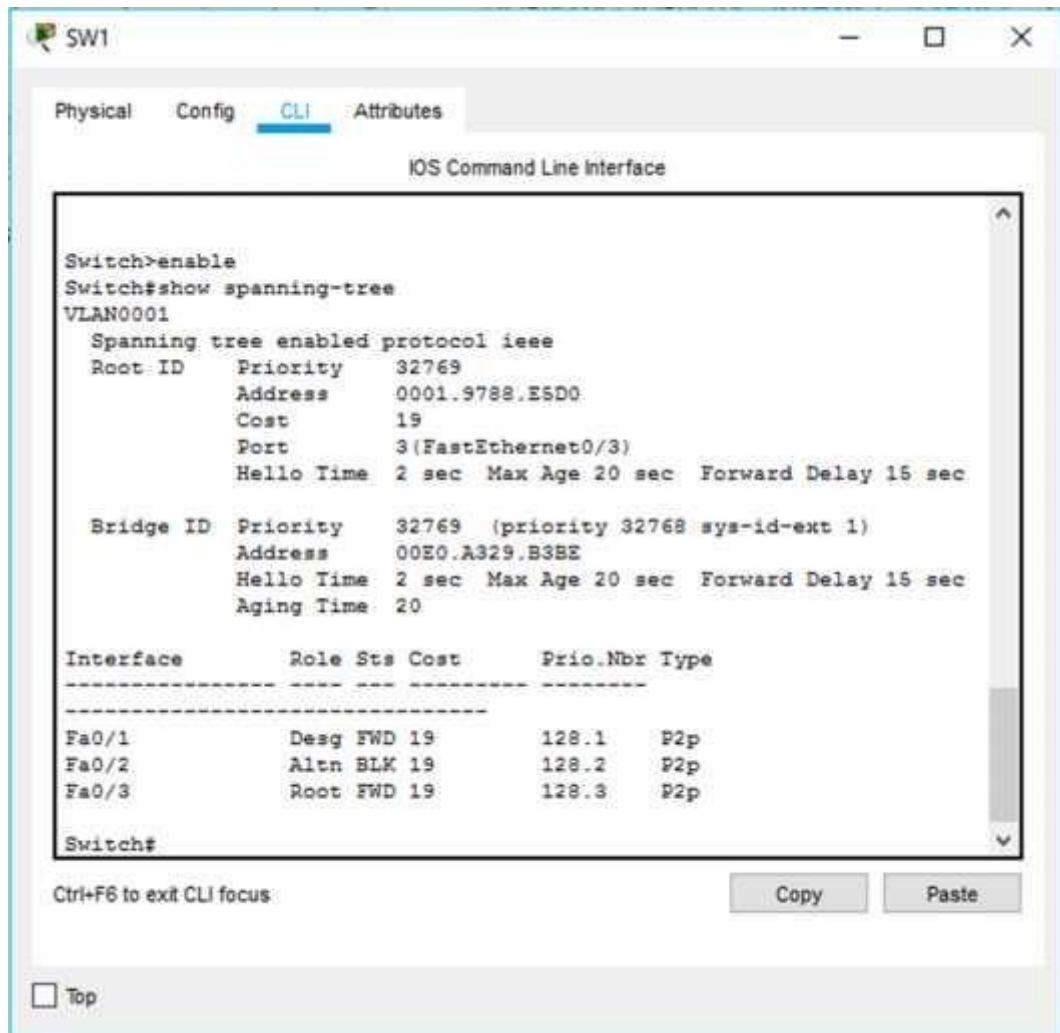
The screenshot shows the configuration window for a switch named 'Virgo'. The 'Desktop' tab is selected. Under the 'IP Addressing' section, the 'Static' radio button is chosen. The IP Address is set to 172.21.1.3, Subnet Mask to 255.255.0.0, Default Gateway to 0.0.0.0, and DNS Server to 0.0.0.0. The 'IPv6 Configuration' section has the 'Static' radio button selected, with the Link Local Address set to FE80::290:21FF:FE1A:D519. The '802.1X' section has 'Use 802.1X Security' unchecked, and the 'Authentication' dropdown is set to 'MD5'. There are fields for Username and Password, which are currently empty. A 'Top' button is located at the bottom left.

4. Pada mode user atau mode privileged, lihat status STP pada masing-masing switch. Langkah pengoperasian
  - Tekan enter
  - Masuk mode privileged
  - Ketik show spanning-tree

Tugas 4A:

Pada kondisi default, capture masing-masing tampilan status STP switch (SW1, SW2, SW3).

Jawab :



The screenshot shows a network switch (SW1) in its CLI interface. The user has entered the command `show spanning-tree` for VLAN0001. The output displays the spanning tree protocol status, including the root ID, priority, address, cost, port, hello time, max age, and forward delay. It also shows the bridge ID, priority, address, hello time, max age, and forward delay. A table at the bottom lists the interfaces and their roles in the spanning tree.

```
Switch>enable
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     0001.9788.E5D0
             Cost        19
             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.A329.B3BE
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

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

Switch#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

SW2

Physical

Config

CLI

Attributes

IOS Command Line Interface

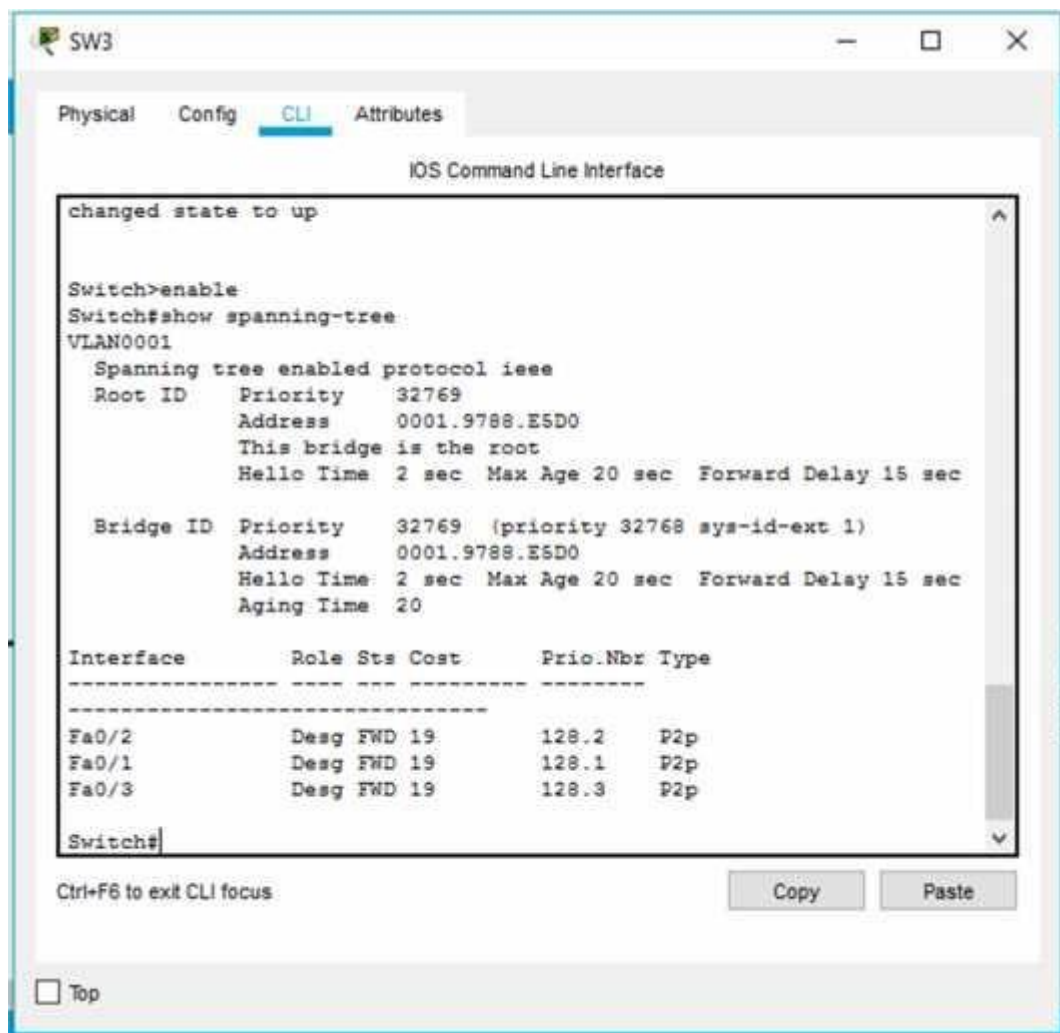
Switch>enable  
Switch#show spanning-tree  
VLAN0001  
Spanning tree enabled protocol ieee  
Root ID    Priority    32769  
          Address    0001.9788.E5D0  
          Cost        19  
          Port        2 (FastEthernet0/2)  
          Hello Time 2 sec    Max Age 20 sec    Forward Delay 15 sec  
  
Bridge ID   Priority    32769 (priority 32768 sys-id-ext 1)  
          Address    0030.F2D2.DD69  
          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  
Fa0/1            Desg   FWD   19        128.1       P2p  
Fa0/2            Root   FWD   19        128.2       P2p  
  
Switch#

Ctrl+F6 to exit CLI focus

Copy

Paste

☐ Top



Tugas 4B:

Untuk tiap-tiap switch, isikan tabel

berikut: Jawab :

SW1

No	Variabel	Nilai
1.	Root ID	32769, 0001.9788.E5D0
2.	Priority	32769
3.	MAC Address	0001.9788.E5D0
4.	Bridge ID	32769, 0001.9788.E5D0
5.	Cost (0/1;0/2;0/3)	Fa0/1: Desg; FWD; 19; 128.1; P2p Fa0/2: Altn; BLK; 19; 128.2; P2p Fa0/3: Root; FWD; 19; 128.3; P2p
6.	Hello Time	2 sec
7.	MaxAge	20 sec
8.	Forward Delay	15 sec

## SW2

No	Variabel	Nilai
1.	Root ID	32769, 0001.9788.E5D0
2.	Priority	32769
3.	MAC Address	0001.9788.E5D0
4.	Bridge ID	32769, 0001.9788.E5D0
5.	Cost (0/1;0/2;0/3)	Fa0/3: Desg; FWD; 19; 128.3; P2p Fa0/1: Desg; FWD; 19; 128.1; P2p Fa0/2: Root; FWD; 19; 128.2; P2p
6.	Hello Time	2 sec
7.	MaxAge	20 sec
8.	Forward Delay	15 sec

## SW3

No	Variabel	Nilai
1.	Root ID	32769, 0001.9788.E5D0
2.	Priority	32769
3.	MAC Address	0001.9788.E5D0
4.	Bridge ID	32769, 0001.9788.E5D0
5.	Cost (0/1;0/2;0/3)	Fa0/2: Desg; FWD; 19; 128.2; P2p Fa0/1: Desg; FWD; 19; 128.1; P2p Fa0/3: Desg; FWD; 19; 128.3; P2p
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:

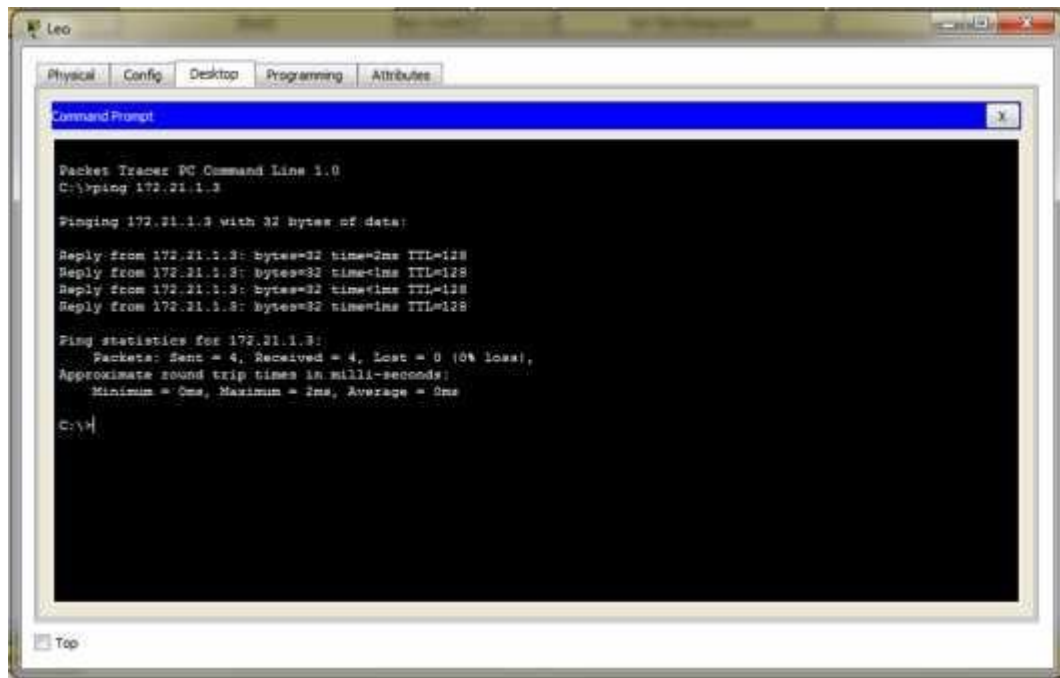
- Menjadi root bridge: SW3
- Menjadi designated bridge: SW3
- Menjadi root port: SW1 (Fa0/3), SW2 (Fa0/2)
- Menjadi designated port:

### SW3 Tugas 4D:

Pada kondisi default tersebut, dan port mana saja yang:

- Berada pada keadaan forwarding: SW2, SW3
- Berada pada keadaan blocking: SW1(Fa0/2)

5. Dari PC Leo lakukan ping ke PC Virgo



Tugas 5A:

Tulis langkah untuk melakukan perintah ping.

Jawab :

Klik PC Leo pilih menu “Desktop” lalu pilih “Command prompt” lalu ketikkan “ping 172.21.1.3” kemudian tekan enter.

6. Simpan konfigurasi jaringan dengan nama lab2.nwc

Tugas 6A:

Tulislah langkah untuk menyimpan konfigurasi jaringan.

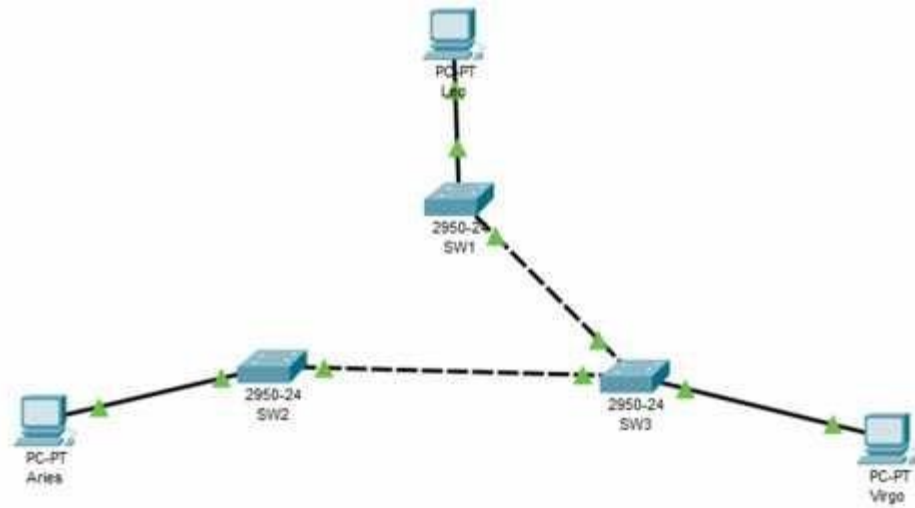
Jawab :

- Klik “File”
- pilih “Save as”
- pilih direktori
- ketikkan nama file “lab2.nwc”
- klik “save”



## Kegiatan 2. Topologi 2

### 1. Membuat topologi



2. Menyimpan topologi dan membuka topologi tersebut pada lingkungan Packet Tracer. Kemudian men-load file konfigurasi lab2.ncw.
3. Melakukan langkah- langkah seperti pada kegiatan 1.

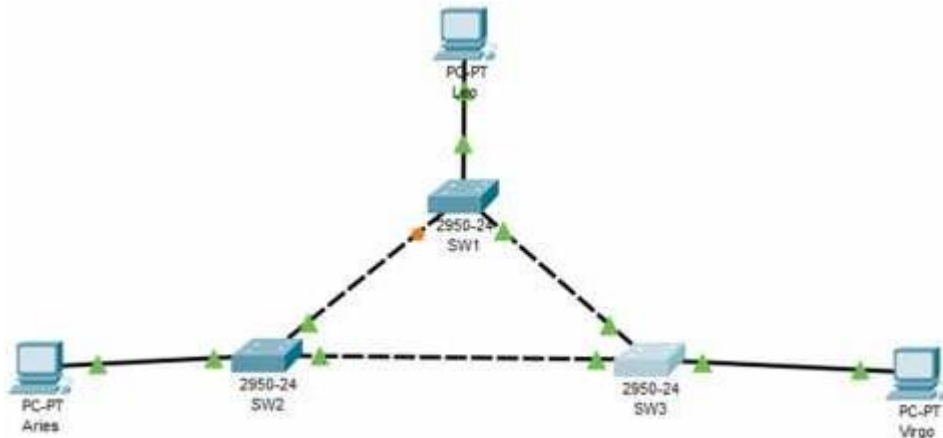
### 1. Tugas 1A:

Tulis langkah pembuatan

topologi. Jawab :

Pembuatan topologi pada kegiatan 1 menggunakan tiga buah switch 2950-24 yang dirangkai menjadi bentuk segitiga (ketiga switch terhubung). Pada setiap switch juga dihubungkan dengan PC. Switch 0 dihubungkan dengan PC Leo, switch 1 dihubungkan dengan PC Aries, dan switch 3 dihubungkan dengan PC Virgo.

2. Memberi nama masing-masing switch dengan SW1, SW2, dan SW3



Tugas 2A:

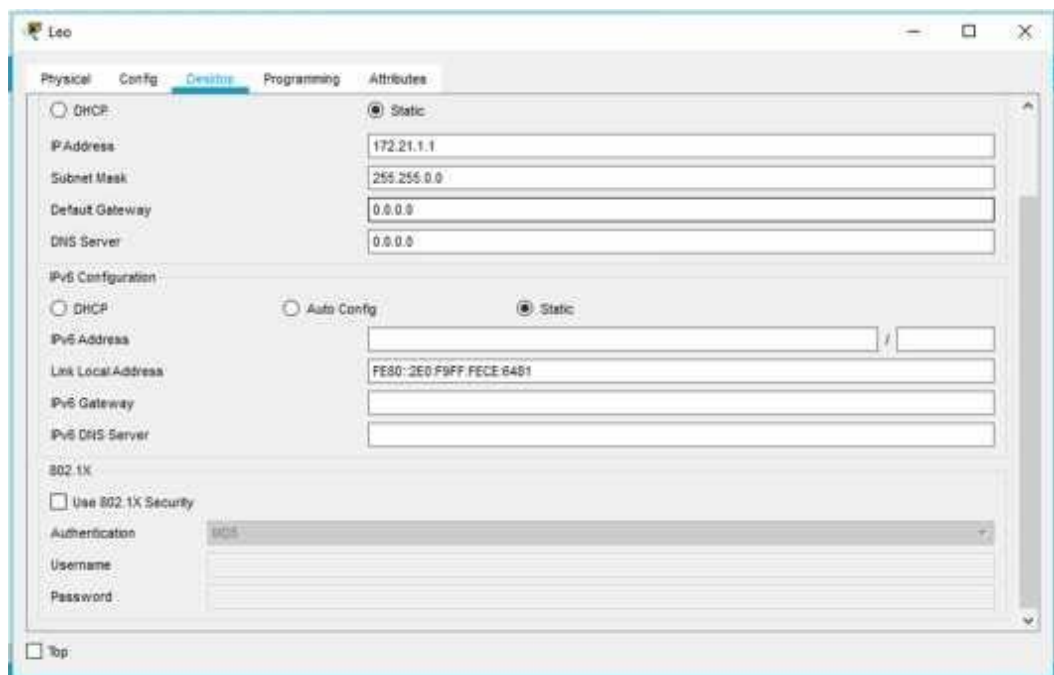
Tulis langkah pemberian nama switch mulai dari mode user.

Jawab :

Switch paling atas diberi nama SW1, switch sebelah kiri diberi nama SW2 dan switch disebelah kanan diberi nama SW3.

3. Konfigurasi masing-masing PC dengan alamat IP.

- Leo = 172.21.1.1/24



- Aries = 172.21.1.2/24

The screenshot shows the 'Aries' configuration window with the 'Desktop' tab selected. The 'Static' radio button is chosen for IP configuration. The IP Address is set to 172.21.1.2, Subnet Mask to 255.255.0.0, Default Gateway to 0.0.0.0, and DNS Server to 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is also selected, with an empty IPv6 Address field and a Link Local Address of FE80::290:CFF:FE01:23DA. The '802.1X' section has 'Use 802.1X Security' unchecked, and the 'Authentication' dropdown is set to 'MD5'. A 'Top' button is at the bottom left.

- Virgo = 172.21.1.3/24

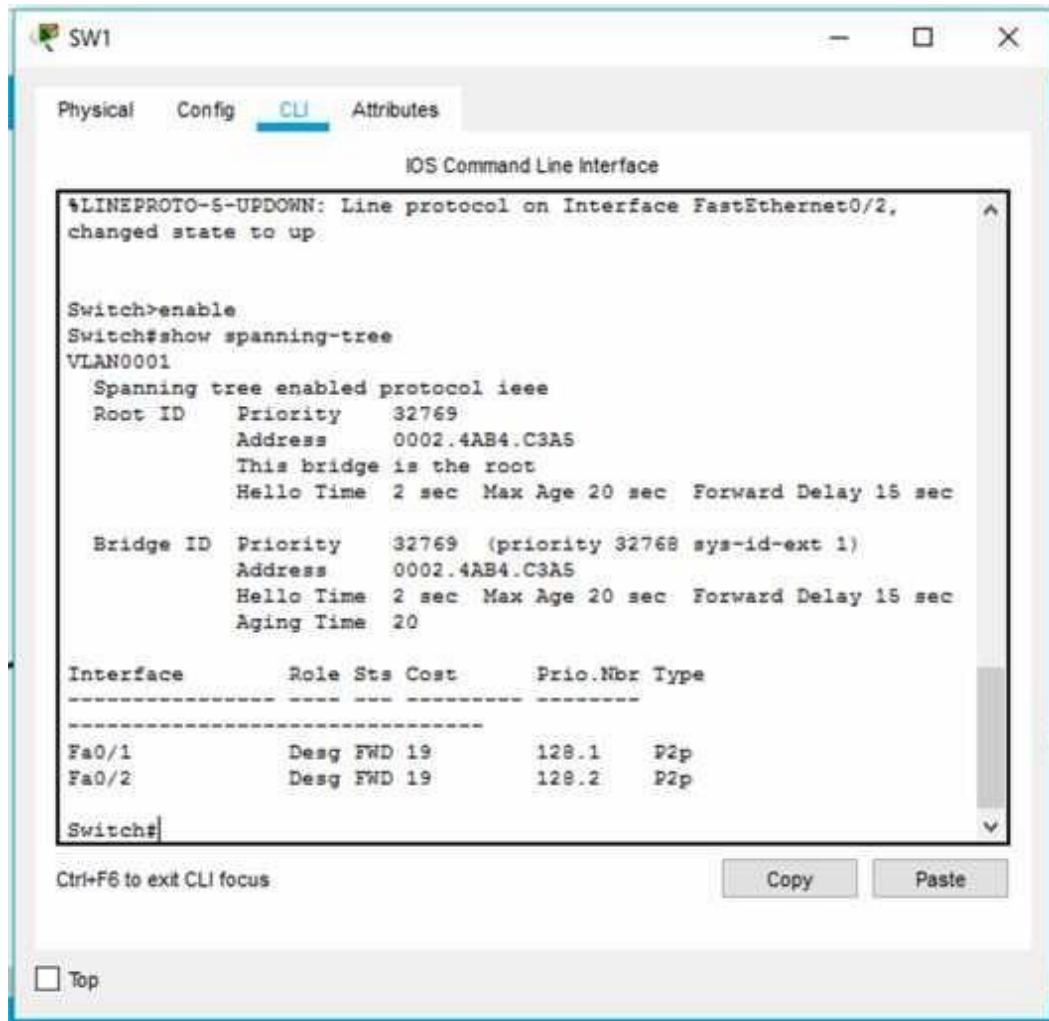
The screenshot shows the 'Virgo' configuration window with the 'Desktop' tab selected. The 'Static' radio button is chosen for IP configuration. The IP Address is set to 172.21.1.3, Subnet Mask to 255.255.0.0, Default Gateway to 0.0.0.0, and DNS Server to 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is also selected, with an empty IPv6 Address field and a Link Local Address of FE80::290:21FF:FE0A:D519. The '802.1X' section has 'Use 802.1X Security' unchecked, and the 'Authentication' dropdown is set to 'MD5'. A 'Top' button is at the bottom left.

4. Pada mode user atau mode privileged, lihat status STP pada masing-masing switch. Langkah pengoperasian
  - Tekan enter
  - Masuk mode privileged
  - Ketik show spanning-tree

Tugas 4A:

Pada kondisi default, capture masing-masing tampilan status STP switch (SW1, SW2, SW3).

Jawab:



The screenshot shows the CLI interface of switch SW1. The 'CLI' tab is selected. The command history shows the following sequence of commands and their outputs:

```
Switch>enable
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     0002.4AB4.C3A5
             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     0002.4AB4.C3A5
             Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
             Aging Time  20
```

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

The prompt is now 'Switch#'. At the bottom of the window, there is a 'Top' button and a 'Copy' button.

SW2

Physical

Config

CLI

Attributes

IOS Command Line Interface

changed state to up

Switch>enable

Switch#show spanning-tree

VLAN0001

Spanning tree enabled protocol ieee

Root ID Priority 32769

Address 0002.4AB4.C3A5

Cost 38

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 0060.4719.1542

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
Fa0/2	Desg	FWD	19	128.2	P2p

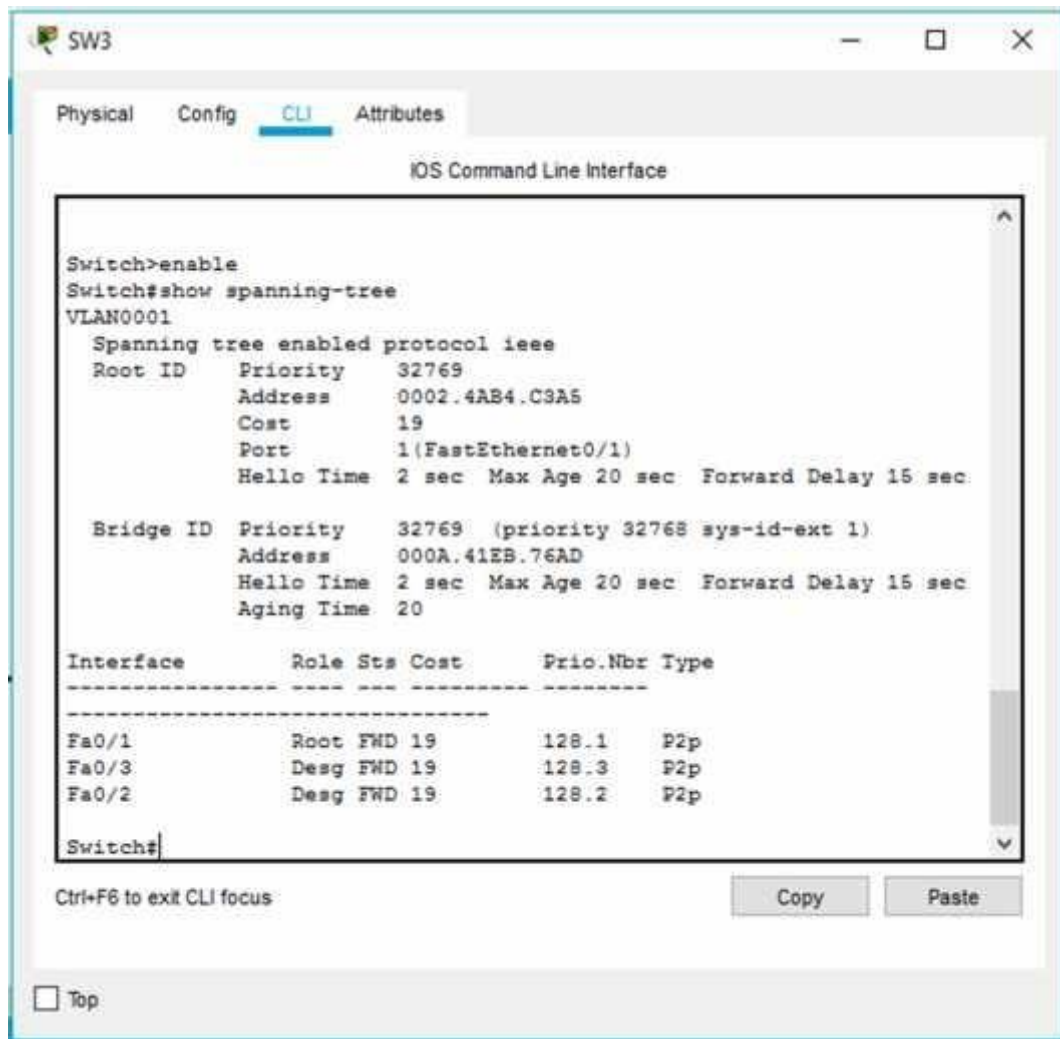
Switch#

Ctrl+F6 to exit CLI focus

Copy

Paste

☐ Top



Tugas 4B:

Untuk tiap-tiap switch, isikan tabel

berikut: Jawab :

SW1

No	Variabel	Nilai
1.	Root ID	32769, 0002.4AB4.C3A5
2.	Priority	32769
3.	MAC Address	0002.4AB4.C3A5
4.	Bridge ID	32769, 0002.4AB4.C3A5
5.	Cost (0/1;0/2;0/3)	Fa0/1: Desg; FWD; 19; 128.1; P2p Fa0/2: Desg; FWD; 19; 128.2; P2p
6.	Hello Time	2 sec
7.	MaxAge	20 sec
8.	Forward Delay	15 sec

## SW2

No	Variabel	Nilai
1.	Root ID	32769, 0002.4AB4.C3A5
2.	Priority	32769
3.	MAC Address	0002.4AB4.C3A5
4.	Bridge ID	32769, 0060.4719.1542
5.	Cost (0/1;0/2;0/3)	Fa0/1: Root; FWD; 19; 128.1; P2p Fa0/2: Desg; FWD; 19; 128.2; P2p
6.	Hello Time	2 sec
7.	MaxAge	20 sec
8.	Forward Delay	15 sec

## SW3

No	Variabel	Nilai
1.	Root ID	32769, 0002.4AB4.C3A5
2.	Priority	32769
3.	MAC Address	0002.4AB4.C3A5
4.	Bridge ID	32769, 000A.41EB.76AD
5.	Cost (0/1;0/2;0/3)	Fa0/1: Root; FWD; 19; 128.1; P2p Fa0/3: Desg; FWD; 19; 128.3; P2p Fa0/2: Desg; FWD; 19; 128.2; P2p
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:

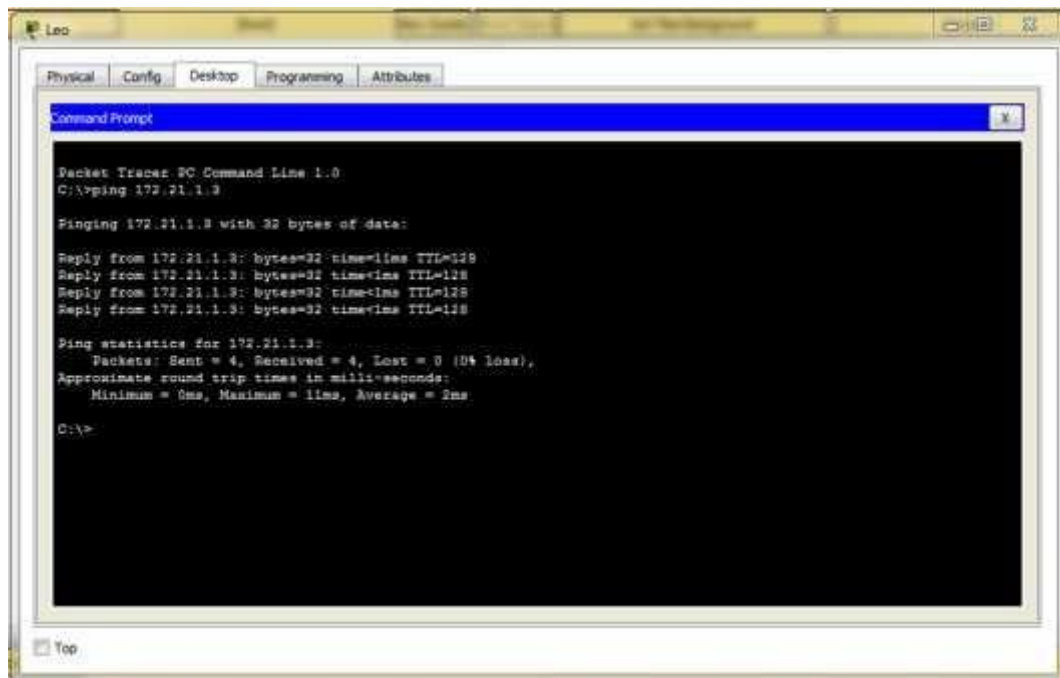
- Menjadi root bridge: SW1
- Menjadi designated bridge: SW1
- Menjadi root port: SW2 (Fa0/1) , SW3 (Fa0/1)
- Menjadi designated port:

### SW1 Tugas 4D:

Pada kondisi default tersebut, dan port mana saja yang:

- Berada pada keadaan forwarding: SW1, SW2, SW3
- Berada pada keadaan blocking: tidak ada

5. Dari PC Leo lakukan ping ke PC Virgo



```
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=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
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 = 1ms, Average = 1ms

C:\>
```

Tugas 5A:

Tulis langkah untuk melakukan perintah ping.

Jawab :

Klik PC Leo pilih menu "Desktop" lalu pilih "Command prompt" lalu ketikkan "ping 172.21.1.3" kemudian tekan enter.