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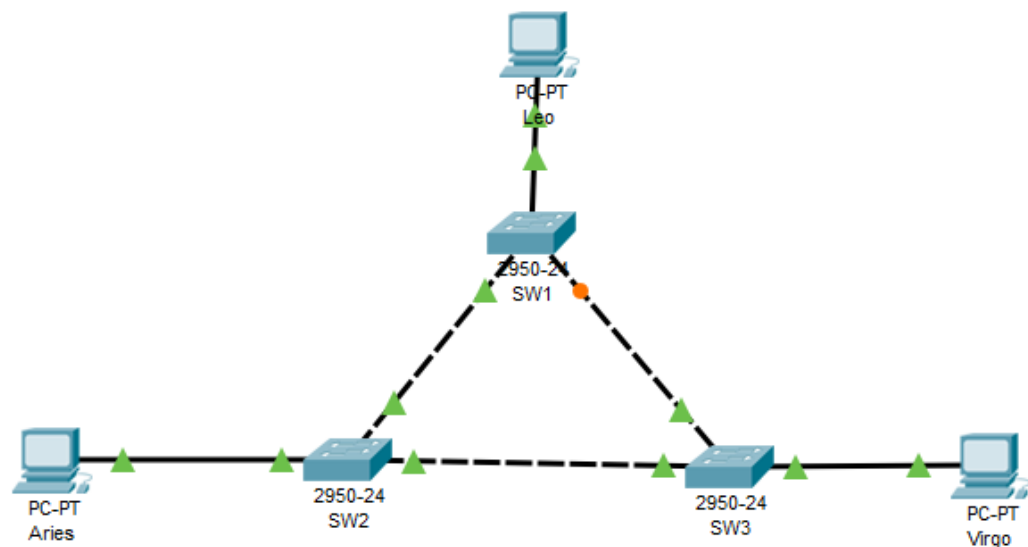
Kelas : A

## PRAKTIKUM MODUL 6 JARINGAN KOMPUTER

### C. Kegiatan Praktikum

#### Kegiatan 1. Topologi 1

##### a. Membuat topologi



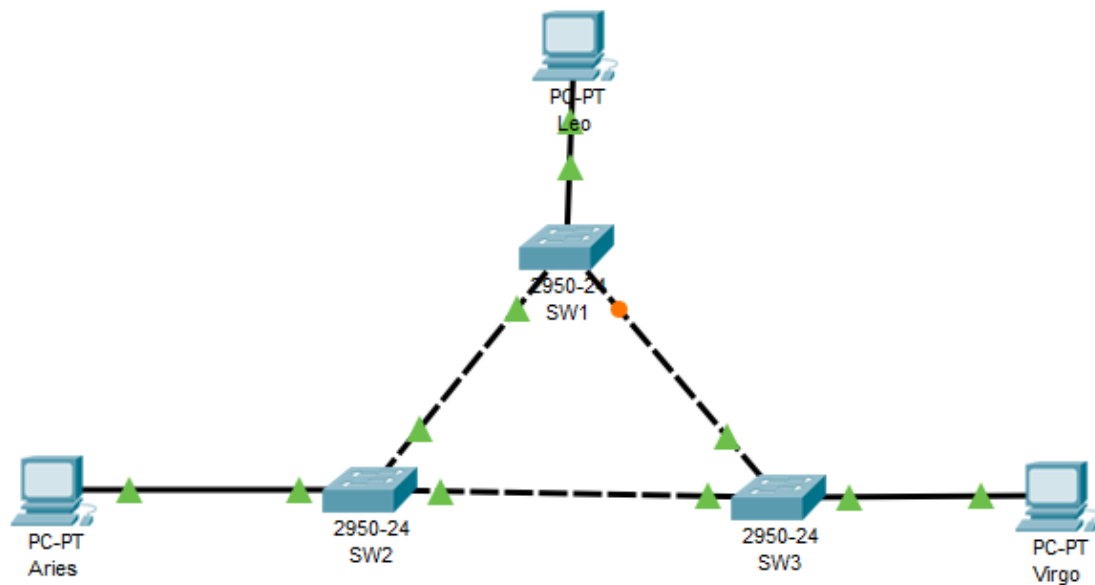
Tugas 1A:

Tulis langkah pembuatan topologi.

Jawab :

Pembuatan topologi pada kegiatan 1 menggunakan tiga buah switch 2950-24 yang dirangkai menjadi bentuk segitiga yang saling terhubung. Pada setiap switch juga dihubungkan dengan PC. Switch 0 (SW 1) dihubungkan dengan PC Leo, switch 1 (SW 2) dihubungkan dengan PC Aries, dan switch 3 (SW 3) dihubungkan dengan PC Virgo.

- b. 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.

- c. Konfigurasi masing-masing PC dengan alamat IP.

- Leo = 172.21.1.1/24

Leo

Physical Config **Desktop** Programming Attributes

☐ DHCP ☒ Static

IP Address

Subnet Mask

Default Gateway

DNS Server

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address  /

Link Local Address

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication

Username

Password

☐ Top

- Aries = 172.21.1.2/24

Aries

Physical Config **Desktop** Programming Attributes

☐ DHCP ☒ Static

IP Address

Subnet Mask

Default Gateway

DNS Server

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address  /

Link Local Address

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication

Username

Password

☐ Top

- Virgo = 172.21.1.3/24

The screenshot shows the Virgo network configuration window with the 'Desktop' tab selected. The interface is divided into three main sections: Physical, Config, and Attributes. The 'Config' section is further divided into Desktop, IPv6 Configuration, and 802.1X.

**Physical**

- ☐ DHCP
- ☒ Static

**Desktop**

- IP Address: 172.21.1.3
- Subnet Mask: 255.255.0.0
- Default Gateway: 0.0.0.0
- DNS Server: 0.0.0.0

**IPv6 Configuration**

- ☐ DHCP
- ☐ Auto Config
- ☒ Static

**Static IPv6 Configuration**

- IPv6 Address: [Empty] / [Empty]
- Link Local Address: FE80::20C:CFFF:FE48:B1ED
- IPv6 Gateway: [Empty]
- IPv6 DNS Server: [Empty]

**802.1X**

- ☐ Use 802.1X Security
- Authentication: MD5
- Username: [Empty]
- Password: [Empty]

☐ Top

- d. 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 :

SW1

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    000B.BE5E.1135  
          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    00D0.FF78.79C4  
          Hello Time 2 sec    Max Age 20 sec    Forward Delay 15 sec  
          Aging Time 20  
  
Interface        Role    Sts    Cost        Prio.Nbr    Type  
-----  
Fa0/2            Root   FWD   19        128.2    P2p  
Fa0/1            Altn   BLK   19        128.1    P2p  
Fa0/3            Desg   FWD   19        128.3    P2p  
  
Switch#

Ctrl+F6 to exit CLI focus

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 SW2

PhysicalConfigCLIAttributes

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     000B.BE5E.1135
            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     000B.BE5E.1135
            Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20

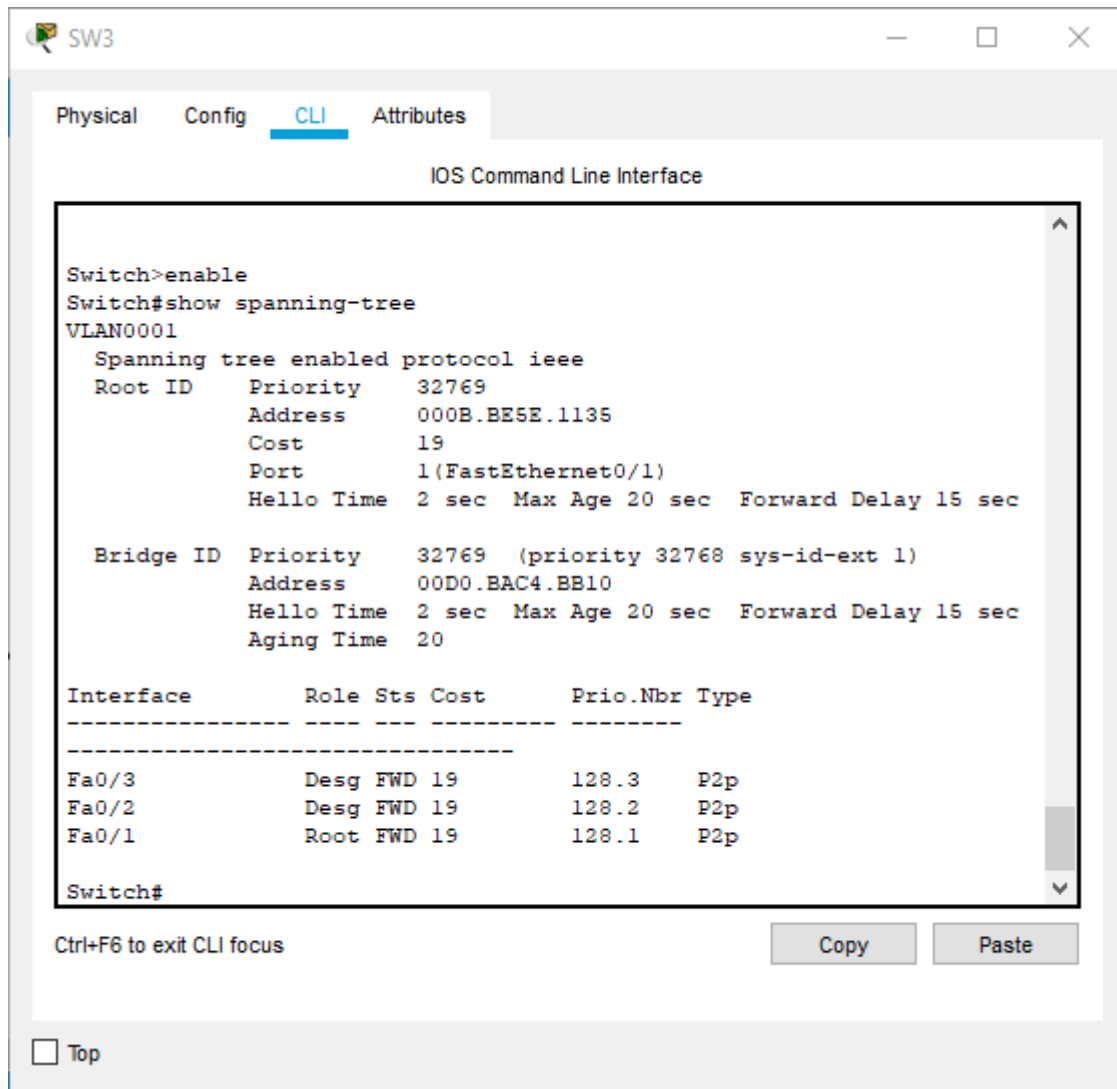
Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Desg FWD 19        128.2    P2p
Fa0/3          Desg FWD 19        128.3    P2p
Fa0/1          Desg FWD 19        128.1    P2p

Switch#
```

Ctrl+F6 to exit CLI focus

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Tugas 4B:

Untuk tiap-tiap switch, isikan tabel berikut:

Jawab :

SW1

No	Variabel	Nilai
1.	Root ID	32769, 000B.BE5E.1135
2.	Priority	32769
3.	MAC Address	000B.BE5E.1135

4.	Bridge ID	00D0.FF78.79C4
5.	Cost (0/1;0/2;0/3)	Fa0/2: Root;FWD;19;128.2;P2p Fa0/1: Altn; BLK; 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

#### SW2

No	Variabel	Nilai
1.	Root ID	32769, 000B.BE5E.1135
2.	Priority	32769
3.	MAC Address	000B.BE5E.1135
4.	Bridge ID	32769, 000B.BE5E.1135
5.	Cost (0/1;0/2;0/3)	Fa0/2: Desg; FWD; 19; 128.2; P2p Fa0/3: Desg; FWD; 19; 128.3; P2p Fa0/1: Desg; FWD; 19; 128.1; P2p
6.	Hello Time	2 sec
7.	MaxAge	20 sec
8.	Forward Delay	15 sec

#### SW3

No	Variabel	Nilai
1.	Root ID	32769, 000B.BE5E.1135
2.	Priority	32769
3.	MAC Address	000B.BE5E.1135
4.	Bridge ID	00D0.BAC4.BB10
5.	Cost (0/1;0/2;0/3)	Fa0/3: Desg; FWD; 19; 128.3; P2p Fa0/2: Desg; FWD; 19; 128.2; P2p Fa0/1: Root; FWD; 19; 128.1; 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: SW2
- Menjadi designated bridge: SW2
- Menjadi root port: SW1 (Fa0/2), SW3 (Fa0/1)
- Menjadi designated port: SW2

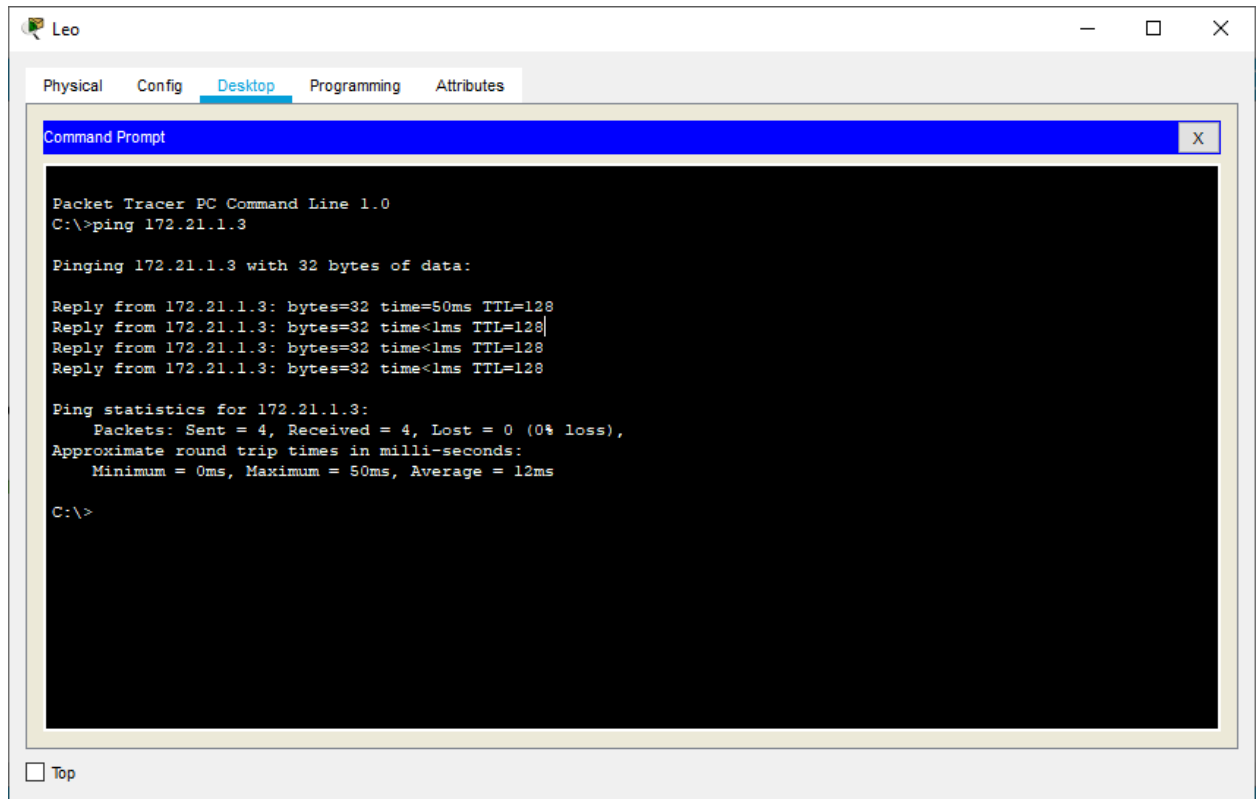
#### Tugas 4D:

Pada kondisi default tersebut, dan port mana saja yang:

- Berada pada keadaan forwarding: SW2, SW3
- Berada pada keadaan blocking: SW1(Fa0/1)

e. 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.

1. Simpan konfigurasi jaringan dengan nama lab2.nwc

Tugas 6A:

Tulislah langkah untuk menyimpan konfigurasi jaringan.

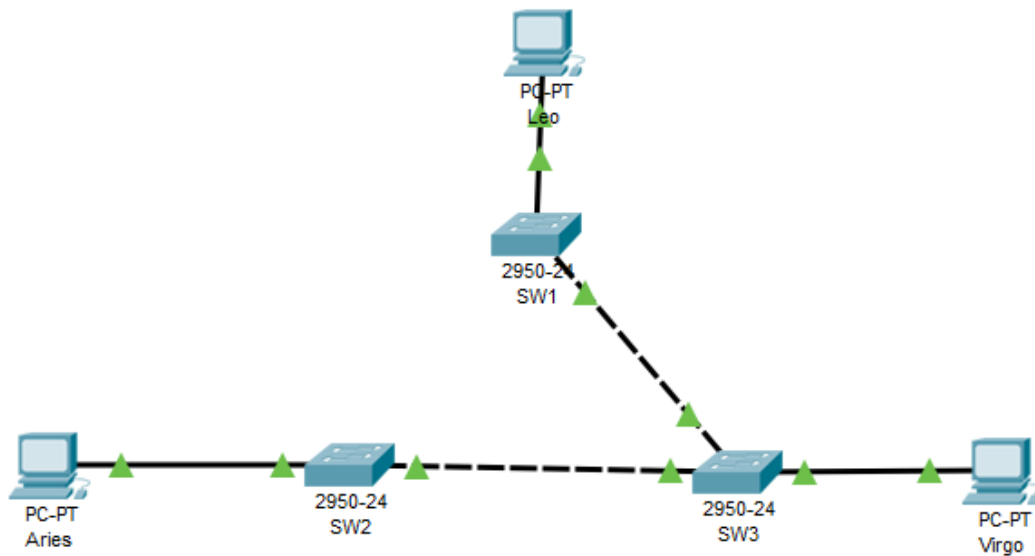
Jawab :

- 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.

#### Tugas 1A:

Tulis langkah pembuatan topologi.

Jawab :

Pembuatan topologi pada kegiatan 1 menggunakan tiga buah switch 2950-24 yang dirangkai menjadi bentuk segitiga tetapi bagian kiri tidak terhubung. Pada setiap switch juga dihubungkan dengan PC. Switch 0(SW 1) dihubungkan dengan PC Leo, switch 1(SW 2) dihubungkan dengan PC Aries, dan switch 3(SW 3) dihubungkan dengan PC Virgo.

#### 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.

Konfigurasi masing-masing PC dengan alamat IP.

- Leo = 172.21.1.1/24

The screenshot shows the configuration window for a PC named 'Leo'. The 'Desktop' tab is selected. Under the 'Config' section, 'Static' is chosen for IP configuration. The IP Address is set to 172.21.1.1, 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 shows 'Static' selected, with an empty IPv6 Address field, Link Local Address set to FE80::260:5CFF:FE55:76B2, and empty fields for IPv6 Gateway and IPv6 DNS Server. The 802.1X section has 'Use 802.1X Security' unchecked, Authentication set to MD5, and empty fields for Username and Password. A 'Top' button is at the bottom left.

Field	Value
IP Address	172.21.1.1
Subnet Mask	255.255.0.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0
IPv6 Address	
Link Local Address	FE80::260:5CFF:FE55:76B2
IPv6 Gateway	
IPv6 DNS Server	
Use 802.1X Security	<input type="checkbox"/>
Authentication	MD5
Username	
Password	

- Aries = 172.21.1.2/24

The screenshot shows the configuration window for a PC named 'Aries'. The 'Desktop' tab is selected. Under the 'Config' section, 'Static' 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. The IPv6 Configuration section shows 'Static' selected, with an empty IPv6 Address field, Link Local Address set to FE80::2D0:97FF:FE4E:A5D6, and empty fields for IPv6 Gateway and IPv6 DNS Server. The 802.1X section has 'Use 802.1X Security' unchecked, Authentication set to MD5, and empty fields for Username and Password. A 'Top' button is at the bottom left.

Field	Value
IP Address	172.21.1.2
Subnet Mask	255.255.0.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0
IPv6 Address	
Link Local Address	FE80::2D0:97FF:FE4E:A5D6
IPv6 Gateway	
IPv6 DNS Server	
Use 802.1X Security	<input type="checkbox"/>
Authentication	MD5
Username	
Password	

- Virgo = 172.21.1.3/24

The screenshot shows the 'Virgo' application window with the 'Desktop' tab selected. The configuration is set to 'Static' for both IPv4 and IPv6. The IPv4 settings include IP Address (172.21.1.3), Subnet Mask (255.255.0.0), Default Gateway (0.0.0.0), and DNS Server (0.0.0.0). The IPv6 settings include IPv6 Address (empty), Link Local Address (FE80::20C:CFFF:FE48:B1ED), IPv6 Gateway (empty), and IPv6 DNS Server (empty). The 802.1X section has 'Use 802.1X Security' unchecked, 'Authentication' set to 'MD5', and empty fields for 'Username' and 'Password'. A 'Top' button is at the bottom left.

Section	Option	Value
IPv4 Configuration	Mode	Static
	IP Address	172.21.1.3
	Subnet Mask	255.255.0.0
	Default Gateway	0.0.0.0
IPv4 Configuration	DNS Server	0.0.0.0
	Mode	Static
	IPv6 Address	
	Link Local Address	FE80::20C:CFFF:FE48:B1ED
IPv6 Configuration	IPv6 Gateway	
	IPv6 DNS Server	
802.1X	Use 802.1X Security	<input type="checkbox"/>
	Authentication	MD5
	Username	
	Password	

1. 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:

SW1

Physical

Config

CLI

Attributes

IOS Command Line Interface

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

Switch>ENABLE

Switch#show spanning-tree

VLAN0001

Spanning tree enabled protocol ieee

Root ID      Priority      32769

Address      0001.6381.62ED

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      0001.6381.62ED

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	Desg	FWD	19	128.1	P2p

Switch#

Ctrl+F6 to exit CLI focus

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☐ Top

SW2

Physical

Config

CLI

Attributes

IOS Command Line Interface

changed state to down

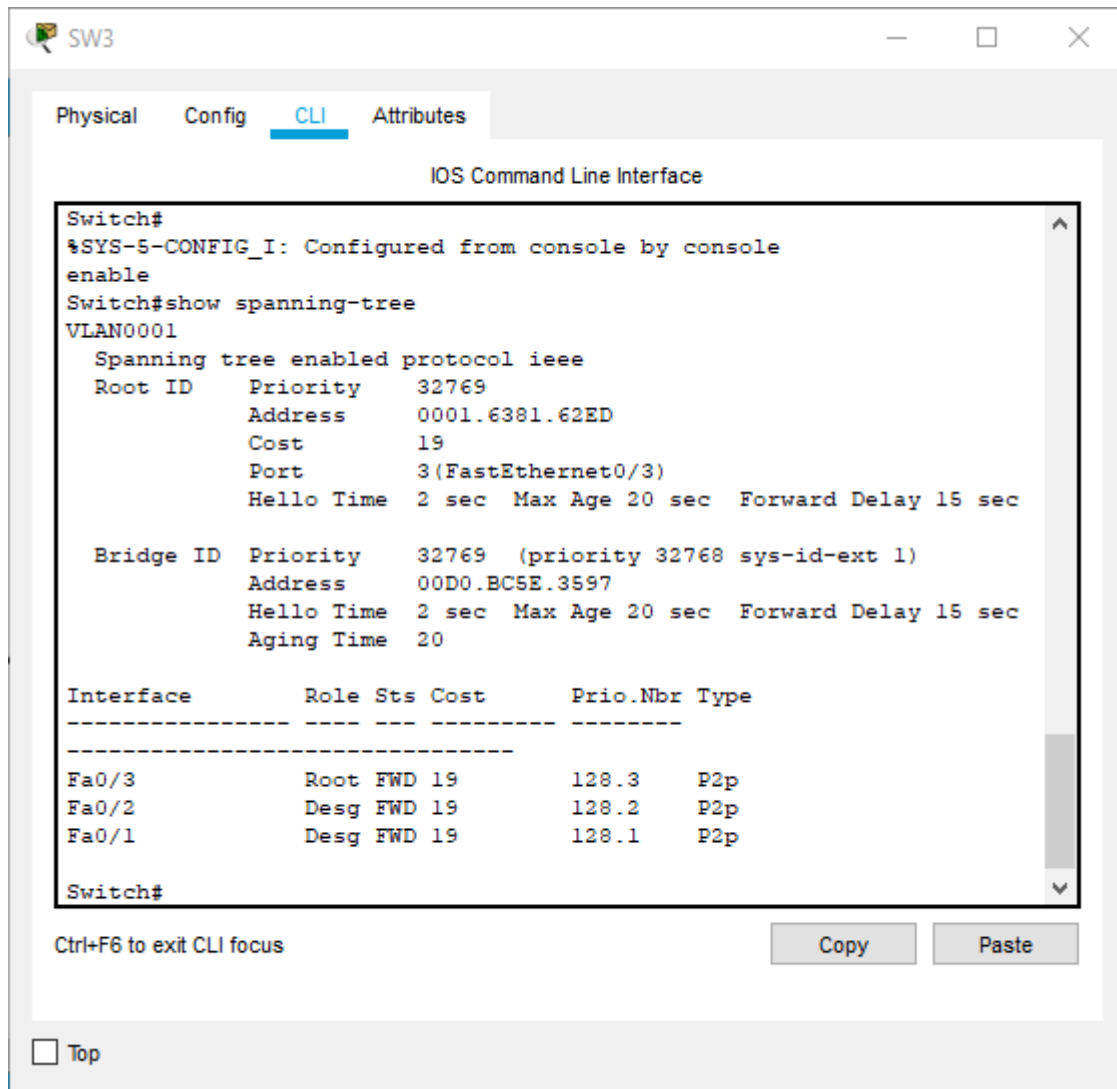
Switch>enable  
Switch#show spanning-tree  
VLAN0001  
Spanning tree enabled protocol ieee  
Root ID    Priority    32769  
          Address    0001.6381.62ED  
          Cost        38  
          Port        3(FastEthernet0/3)  
          Hello Time 2 sec    Max Age 20 sec    Forward Delay 15 sec  
  
Bridge ID   Priority    32769    (priority 32768 sys-id-ext 1)  
          Address    00E0.F94D.BE76  
          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  
Fa0/3            Root   FWD   19        128.3       P2p  
  
Switch#

Ctrl+F6 to exit CLI focus

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Tugas 4B:

Untuk tiap-tiap switch, isikan tabel berikut:

Jawab :

SW1

No	Variabel	Nilai
1.	Root ID	32769, 0001.6381.62ED
2.	Priority	32769
3.	MAC Address	0001.6381.62ED
4.	Bridge ID	0001.6381.62ED
5.	Cost (0/1;0/2;0/3)	Fa0/2: Desg; FWD; 19; 128.2; P2p Fa0/1: Desg; FWD; 19; 128.1; P2p
6.	Hello Time	2 sec
7.	MaxAge	20 sec
8.	Forward Delay	15 sec

#### SW2

No	Variabel	Nilai
1.	Root ID	32769, 0001.6381.62ED
2.	Priority	32769
3.	MAC Address	0001.6381.62ED
4.	Bridge ID	00E0.F94D.BE76
5.	Cost (0/1;0/2;0/3)	Fa0/1: Desg; FWD; 19; 128.1; P2p Fa0/3: Root; FWD; 19; 128.3; P2p
6.	Hello Time	2 sec
7.	MaxAge	20 sec
8.	Forward Delay	15 sec

#### SW3

No	Variabel	Nilai
1.	Root ID	32769, 0001.6381.62ED
2.	Priority	32769
3.	MAC Address	0001.6381.62ED
4.	Bridge ID	00D0.BC5E.3597
5.	Cost (0/1;0/2;0/3)	Fa0/3: Root; FWD; 19; 128.3; P2p Fa0/2: Desg; FWD; 19; 128.2; P2p Fa0/1: Desg; FWD; 19; 128.1; 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 (Fa0/3) , SW3 (Fa0/3)
- Menjadi designated port: SW1

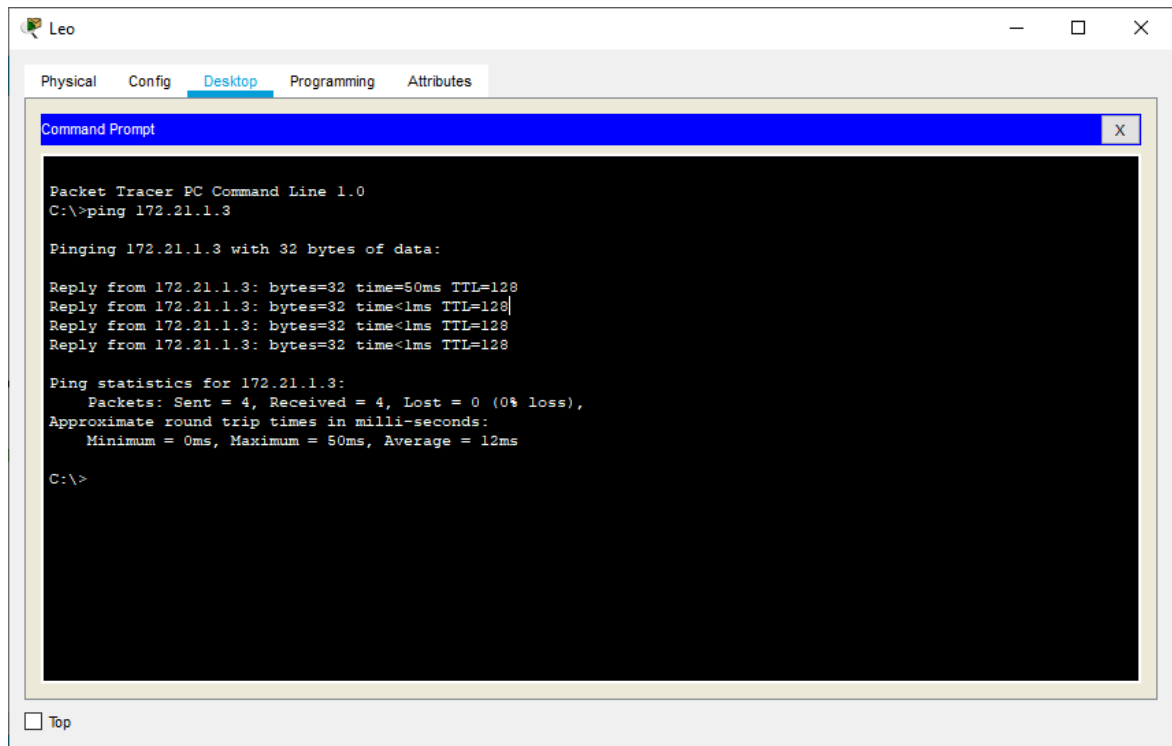
#### Tugas 4D:

Pada kondisi default tersebut, dan port mana saja yang:

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



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.

