

Modul 6

Spanning Tree Protocol

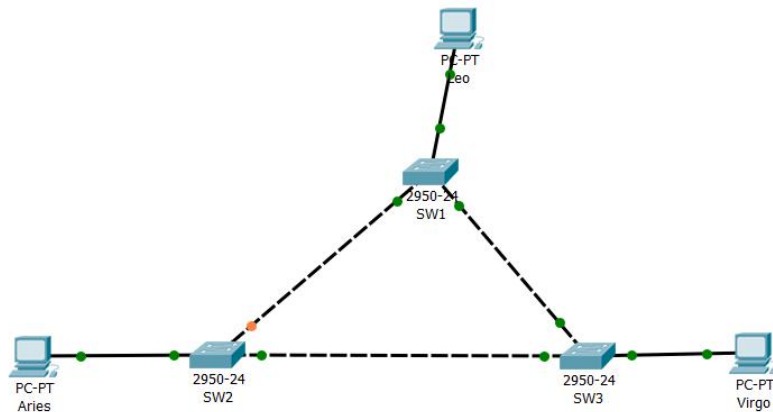
Sufyan Habib Zaini

L200184098

E

1. Kegiatan 1. Topologi 1

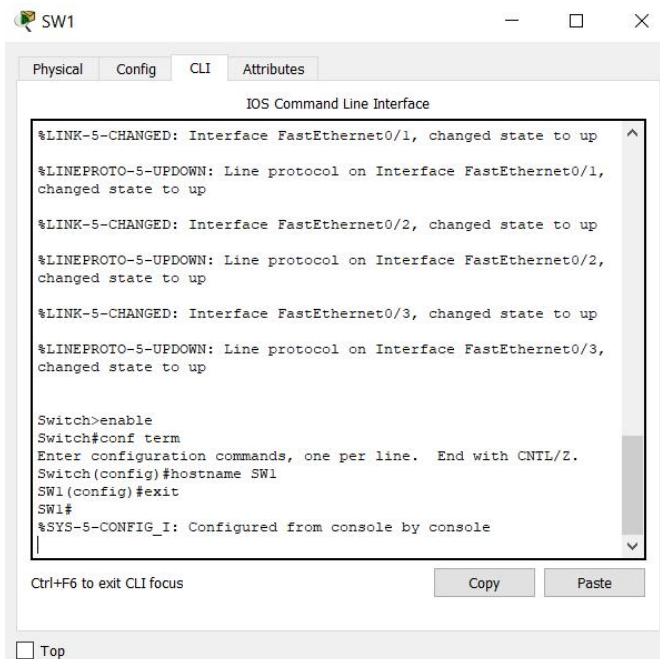
- a) Membuat Topologi Jaringan



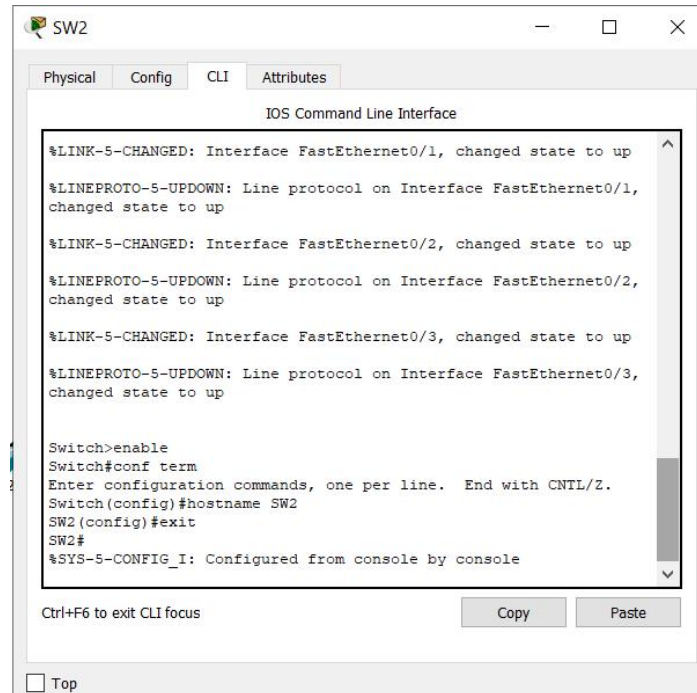
Tugas 1A:

- b) Beri nama masing-masing switch

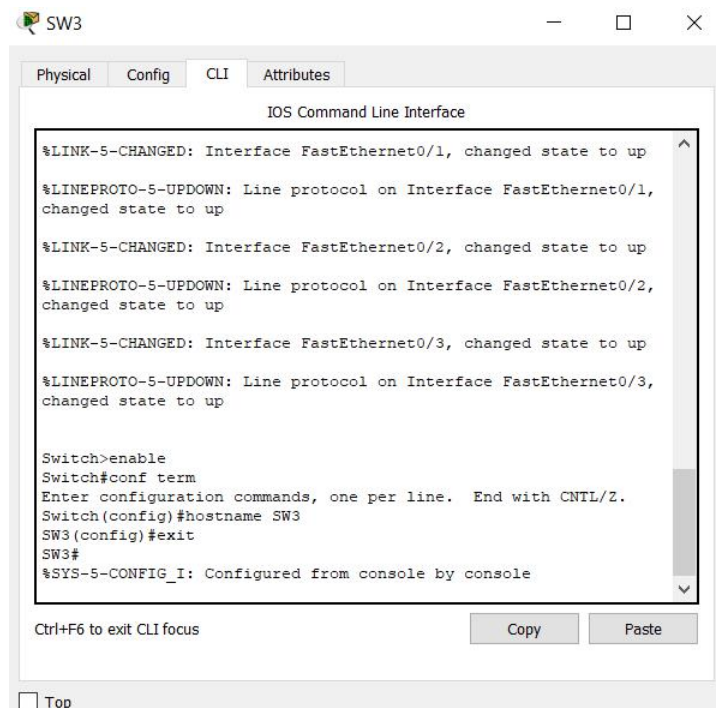
i. **SW1**



ii. SW2



iii. SW3.



Tugas 2A: Tulis langkah pemberian nama switch

- Switch

Switch>enable

Switch#conf term

Switch(config)#hostname SW1

SW1(config)#

(begitu juga dengan SWITCH 2, dan 3)

c) Konfigurasi masing-masing PC dengan alamat IP

The image shows two screenshots of network configuration windows for PCs named Leo and Aries. Both windows have tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Config' tab is active, showing the 'IP Configuration' window.

Leo's IP Configuration:

- IP Configuration: ☐ DHCP, ☒ Static
- IP Address: 172.21.1.1
- Subnet Mask: 255.255.0.0
- Default Gateway: 0.0.0.0
- DNS Server: 0.0.0.0

Leo's IPv6 Configuration:

- IPv6 Configuration: ☐ DHCP, ☐ Auto Config, ☒ Static
- IPv6 Address: [empty] / [empty]
- Link Local Address: FE80::2D0:FFFF:FE5A:C47A
- IPv6 Gateway: [empty]
- IPv6 DNS Server: [empty]

Aries's IP Configuration:

- IP Configuration: ☐ DHCP, ☒ Static
- IP Address: 172.21.1.2
- Subnet Mask: 255.255.0.0
- Default Gateway: 0.0.0.0
- DNS Server: 0.0.0.0

Aries's IPv6 Configuration:

- IPv6 Configuration: ☐ DHCP, ☐ Auto Config, ☒ Static
- IPv6 Address: [empty] / [empty]
- Link Local Address: FE80::200:CFF:FEA0:C448
- IPv6 Gateway: [empty]
- IPv6 DNS Server: [empty]

Virgo

Physical Config Desktop Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

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

IPv6 Address /

Link Local Address FE80::2E0:F7FF:FE5E:AD9A

IPv6 Gateway

IPv6 DNS Server

☐ Top

d) Spanning Tree pada Switch

Tugas 4A: Capture masing-masing tampilan switch

SW1

SW1

Physical Config CLI Attributes

IOS Command Line Interface

```
SW1#show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID    Priority    32769
           Address    0090.2150.E48A
           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    00D0.D3C4.CDE2
           Hello Time 2 sec  Max Age 20 sec  Forward Delay 15
sec
           Aging Time 20

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

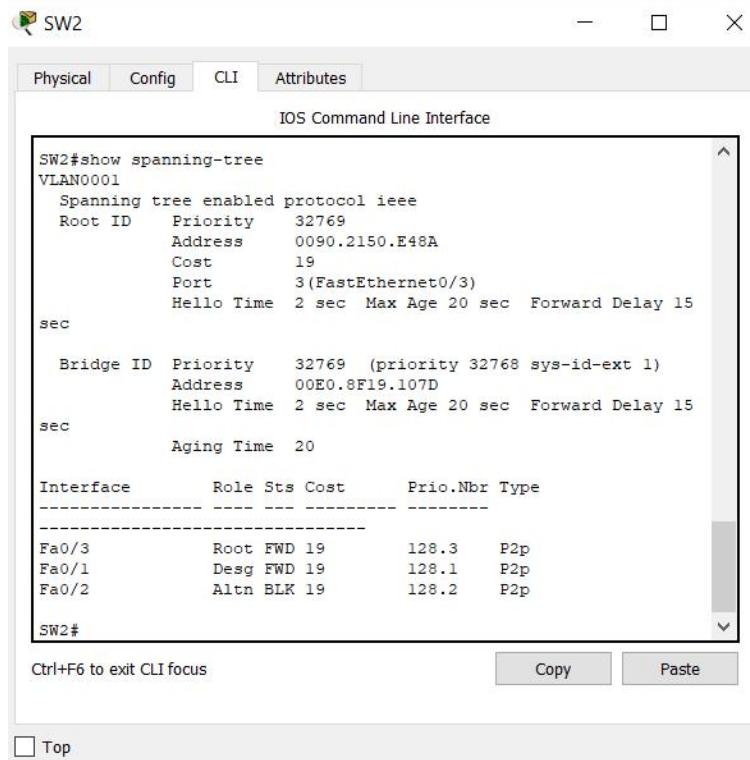
SW1#
```

Ctrl+F6 to exit CLI focus

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SW2



SW2

Physical Config CLI Attributes

IOS Command Line Interface

```
SW2#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
            Address     0090.2150.E48A
            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     00E0.8F19.107D
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15
sec

            Aging Time  20

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

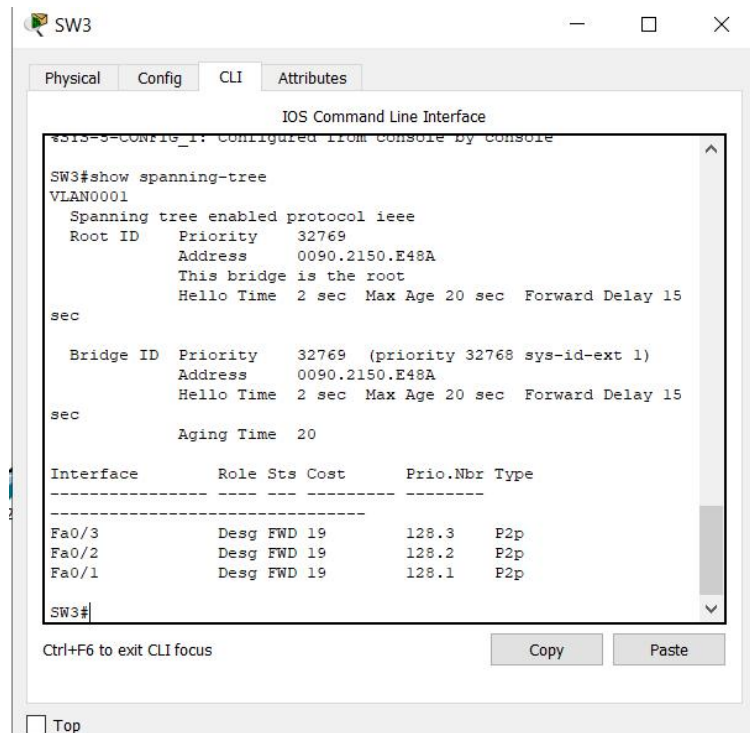
SW2#
```

Ctrl+F6 to exit CLI focus

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SW3



SW3

Physical Config CLI Attributes

IOS Command Line Interface

```
SW3-SW-Config-1: Configured from Console by Console
SW3#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
            Address     0090.2150.E48A
            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     0090.2150.E48A
            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

SW3#
```

Ctrl+F6 to exit CLI focus

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Tugas 4B: Isikan Tabel

SW1

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	00D0.D3C4.CDE2
4	Bridge ID	32769
5	Cost(0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15 sec

SW2

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	00E0.8F19.107D
4	Bridge ID	32769
5	Cost(0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15 sec

SW3

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	0090.2150.E48A
4	Bridge ID	32769
5	Cost(0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15 sec

Tugas 4C:

- Root bridge : SW2
- Designated bridge : SW3
- Root port : SW1(fa 0/2) dan SW2(fa 0/3)
- Designated port : SW1(fa 0/1), SW2(fa 0/1; fa 0/2; fa 0/3) dan SW3(fa 0/1; fa 0/2)

Tugas 4D : Menentukan port yang berada pada keadaan forwarding dan blocking

- Forwarding

SW1(fa 0/1; fa 0/2)

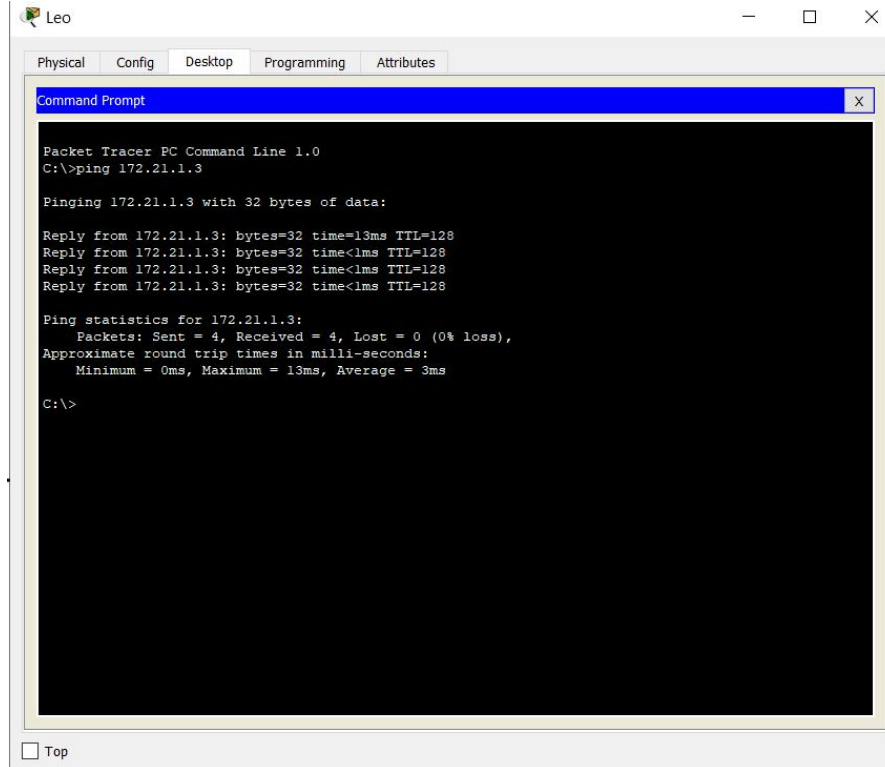
SW2(fa 0/1; fa 0/2; fa 0/3)

SW3(fa 0/1; fa 0/2; fa 0/3)

- Blocking

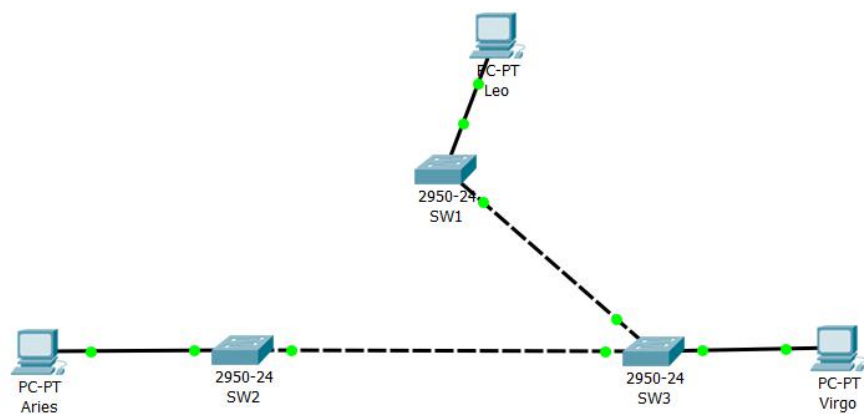
SW1(fa 0/3)

e) Ping PC Leo ke PC Virgo

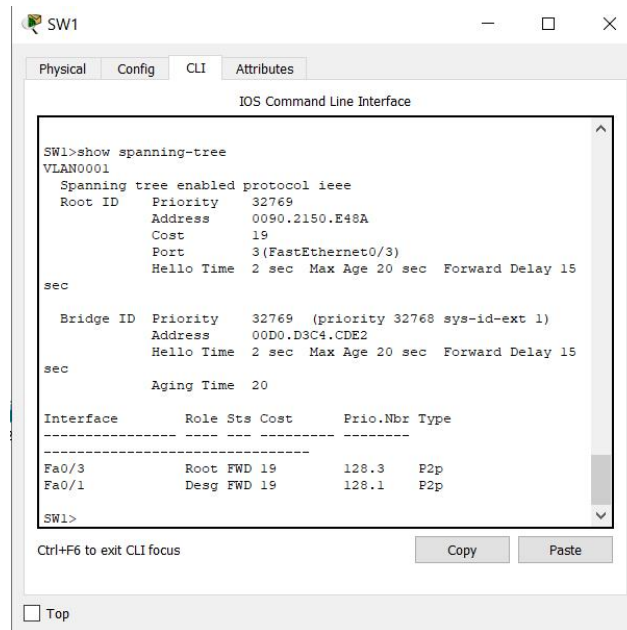


2. Kegiatan 2. Topologi 2

a) Membuat topologi jaringan



- b) Lakukan langkah 4 dan 5
SW1



The screenshot shows the CLI of switch SW1. The command 'show spanning-tree' has been executed, displaying the spanning tree configuration for VLAN0001. The output includes the root ID, bridge ID, and a table of interfaces with their roles and costs.

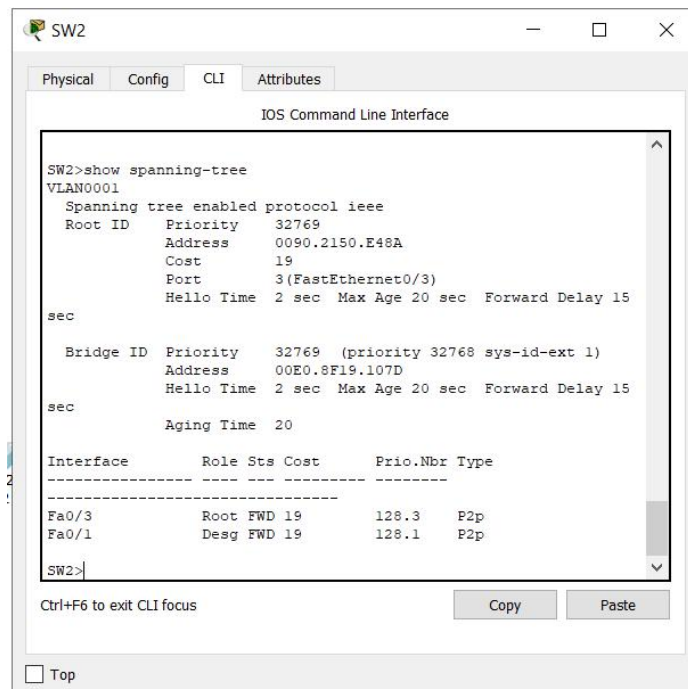
```
SW1>show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address    0090.2150.E48A
              Cost       19
              Port       3(FastEthernet0/3)
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15
sec
              Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
              Address    00D0.D3C4.CDE2
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15
sec
              Aging Time 20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/3          Root FWD 19        128.3    F2p
Fa0/1          Desg FWD 19        128.1    F2p

SW1>
```

Buttons: Copy, Paste

SW2



The screenshot shows the CLI of switch SW2. The command 'show spanning-tree' has been executed, displaying the spanning tree configuration for VLAN0001. The output includes the root ID, bridge ID, and a table of interfaces with their roles and costs.

```
SW2>show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address    0090.2150.E48A
              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    00E0.8F19.107D
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15
sec
              Aging Time 20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/3          Root FWD 19        128.3    F2p
Fa0/1          Desg FWD 19        128.1    F2p

SW2>
```

Buttons: Copy, Paste

SW3

```

SW3>show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address    0090.2150.E48A
              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    0090.2150.E48A
              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

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	00D0.D3C4.CDE2
4	Bridge ID	32769
5	Cost(0/1;0/3)	19;19
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15 sec

SW2

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	00E0.8F19.107D
4	Bridge ID	32769
5	Cost(0/2;0/3)	19;19
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15 sec

SW3

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	0090.2150.E48A
4	Bridge ID	32769
5	Cost(0/1;0/2;0/3)	19;19;19

6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15 sec

- Root bridge : SW3
- Designated bridge : SW1 dan SW2
- Root port : SW1(fa 0/3) dan SW2(fa 0/3)
- Designated port : SW1(fa 0/1), SW2(fa 0/2), dan SW3(fa 0/1; fa 0/2; fa 0/3)
- Forwarding
 - SW1(fa 0/1; fa 0/3)
 - SW2(fa 0/2; fa 0/3)
 - SW3(fa 0/1; fa 0/2; fa 0/3)
- Blocking
 - Tidak ada yang terblok

Tugas 5A:

Klik pada PC Leo, pilih tab desktop, setelah itu pilih command prompt, lalu ketikan 'ping 172.21.1.3' di command prompt

- Ping dari PC Leo 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=13ms 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 = 13ms, Average = 3ms

C:\>172.21.1.3
Invalid Command.

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 = 0ms, Average = 0ms

C:\>
  
```