

COMPUTER NETWORK PRACTICE
MODULE 6 : SPANNING TREE PROTOCOL



By :

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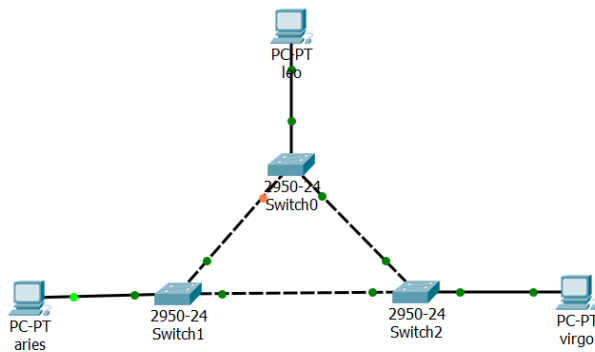
INFORMATION TECHNOLOGY
FACULTY OF COMMUNICATION AND INFORMATICS
UNIVERSITY OF MUHAMMADIYAH SURAKARTA

2020

PRACTICUM ACTIVITIES

1. ACTIVITY 1 TOPOLOGY 1

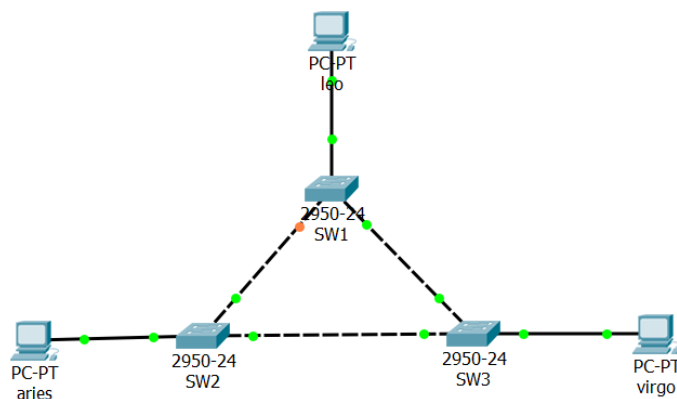
- a. Designing topology use switch Catalyst 2950 on packet tracer



Assignment 1A : Step of making topology

- ✓ Choose a switches
 - In the network devices section select switches
 - Use switches with type 2950-24
 - Arrange 3 switches like in the picture to make it look neat
- ✓ Choose pc
 - Select the end Devices section and select generic
 - Put 3 pc according to the picture
- ✓ Connect between devices using cables
 - Select the connection and select automatically choose connection type
 - Give cables to the switch and the computer, using the same cable

- b. Name each switch with SW1, SW2 and SW3



Assignment 2A: Step giving a switch name starting from mode user.

```
Switch> enable
Switch# conf term
Switch(config)#hostname SW1
SW1(config)#
```

c. Configure each PC with IP address

- Leo = 172.21.1.1/24

The screenshot shows the 'IP Configuration' window for PC 'Leo'. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Config' tab is active, and the 'IP Configuration' sub-tab is selected. Under 'IP Configuration', the 'Static' radio button is selected. 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. Under 'IPv6 Configuration', the 'Static' radio button is selected. The IPv6 Address is empty, Link Local Address is FE80::250:FFF:FE95:2A9D, IPv6 Gateway is empty, and IPv6 DNS Server is empty. A 'Top' button is at the bottom left.

- Aries = 172.21.1.2/24

The screenshot shows the 'IP Configuration' window for PC 'Aries'. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Config' tab is active, and the 'IP Configuration' sub-tab is selected. Under 'IP Configuration', the 'Static' radio button is selected. 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 selected. The IPv6 Address is empty, Link Local Address is FE80::201:63FF:FEDB:A60D, IPv6 Gateway is empty, and IPv6 DNS Server is empty. A 'Top' button is at the bottom left.

- Virgo = 172.21.1.3/24

The screenshot shows the 'IP Configuration' window for PC 'Virgo'. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Config' tab is active, and the 'IP Configuration' sub-tab is selected. Under 'IP Configuration', the 'Static' radio button is selected. 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 selected. The IPv6 Address is empty, Link Local Address is FE80::2D0:58FF:FEED:EDDB, IPv6 Gateway is empty, and IPv6 DNS Server is empty. A 'Top' button is at the bottom left.

Assignment 4A: See STP status each switch

- SW1

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 000A.4132.E465
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 0050.0F69.67E4
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
Switch#

Ctrl+F6 to exit CLI focus

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Top

- SW2

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 000A.4132.E465
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 0010.1134.0B12
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
Switch#

Ctrl+F6 to exit CLI focus

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Top

- SW3

SW3

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 000A.4132.E465
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 000A.4132.E465
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
Fa0/3 Desg FWD 19 128.3 P2p
Switch#

Ctrl+F6 to exit CLI focus

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Assignment 4B: Table each witch

- SW1

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32768
3	MAC Address	0050.0F69.67E4
4	Bridge IDE	32769
5	Cost (0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

- SW2

No	Variabel	Nilai
1	Root IDE	32769
2	Priority	32768
3	MAC Address	0010.1134.0B12
4	Bridge IDE	32769
5	Cost (0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

- SW3

No	Variabel	Nilai
1	Root IDE	32769
2	Priority	32768
3	MAC Address	000A.4132.E465
4	Bridge IDE	32769
5	Cost (0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

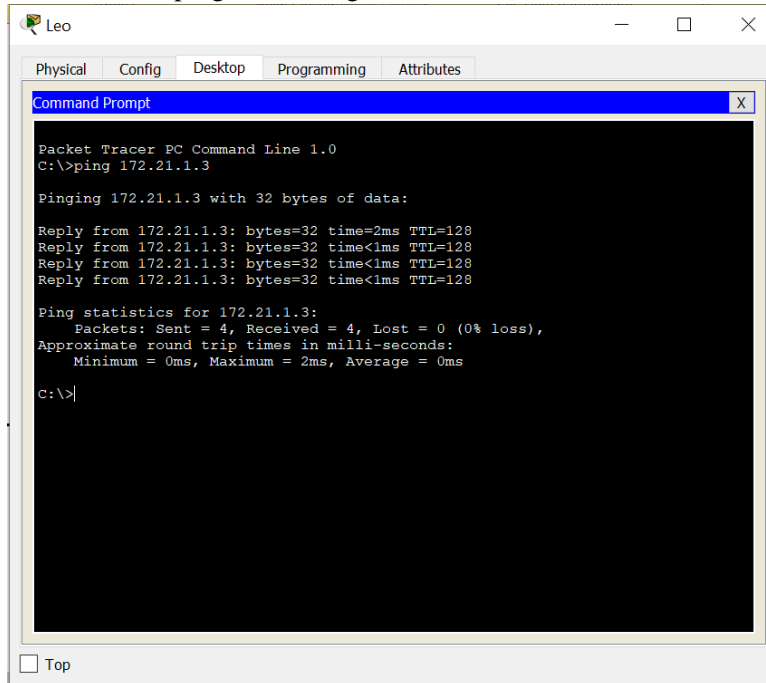
Assignment 4C:

- Root bridge : SW3
- Designed bridge : SW1 and SW2
- Root port : SW1 (Fa0/3) and SW2 (Fa0/3)
- Designed port : SW1(Fa0/1), SW2(Fa0/1 and Fa0/2), and SW3(Fa0/1, Fa0/2, and Fa0/3)

Assignment 4D:

- Forwarding : SW1(Fa0/1 and Fa0/3), SW2(Fa0/1, Fa0/2 and Fa0/3), and SW3(Fa0/1, Fa0/2, and Fa0/3)
- Blocking : SW1 (Fa0/2)

From PC Leo ping to PC Virgo

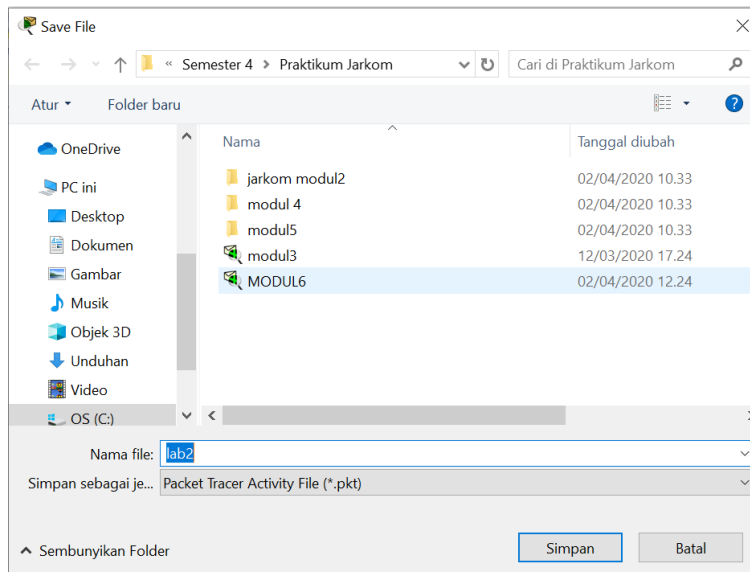


Assignment 5A: steps to do the ping command

- Klik leo pc
- Select desktop tab
- Select command promp
- Type ping 172.21.1.3

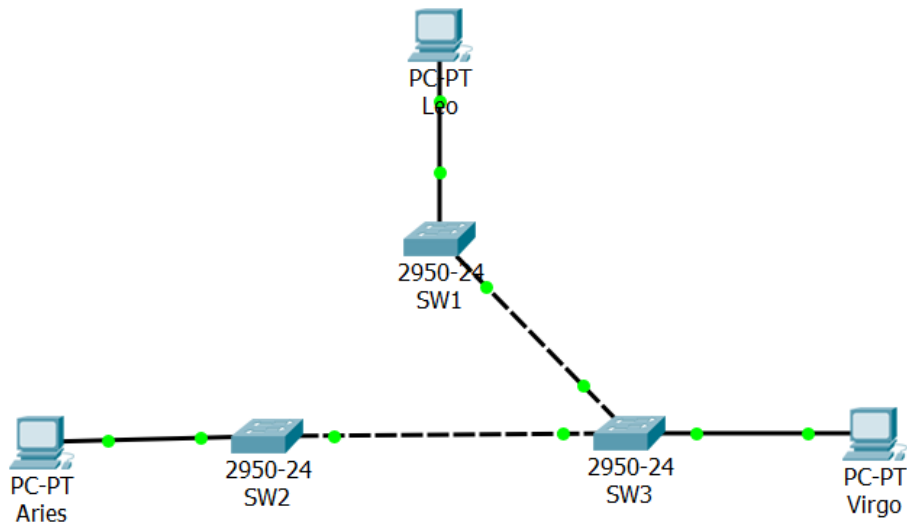
Assignment 6A: steps to save network configuration

- Klik file
- Select save as
- Name it lab2

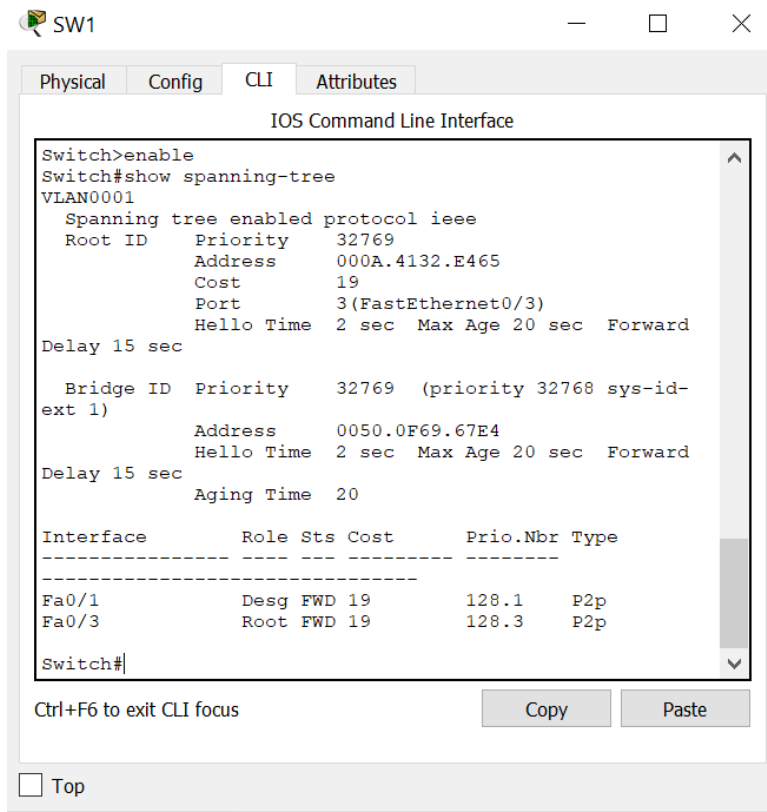


ACTIVITY 2. TOPOLOGY2

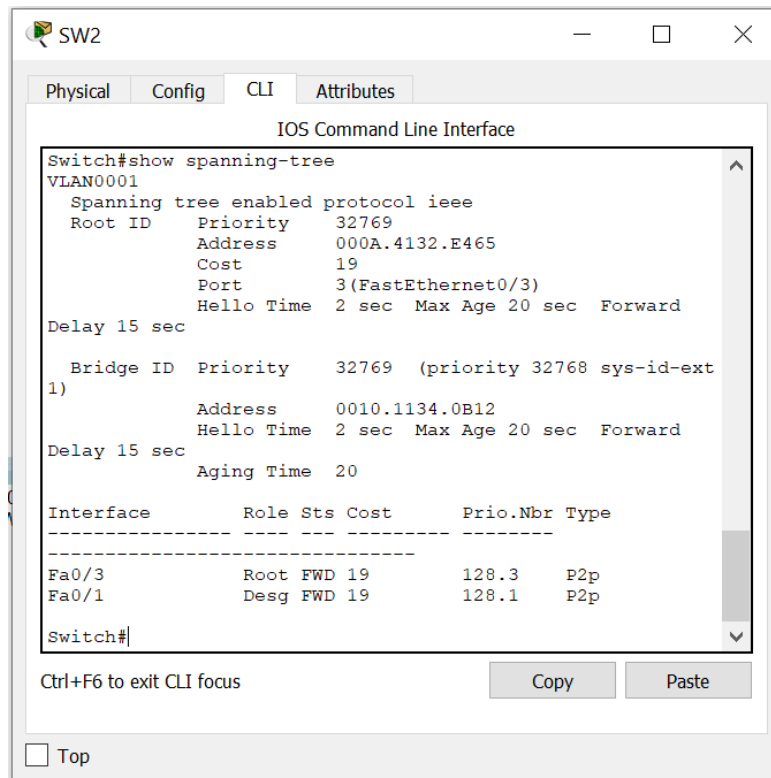
- a. Series of topology 2



- b. Save topology, and open the topology on packet tracer. Then load file configuration lab2.pkt
- c. See STP status each switch
✓ SW1



✓ SW2



SW2

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address     000A.4132.E465
              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     0010.1134.0B12
              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

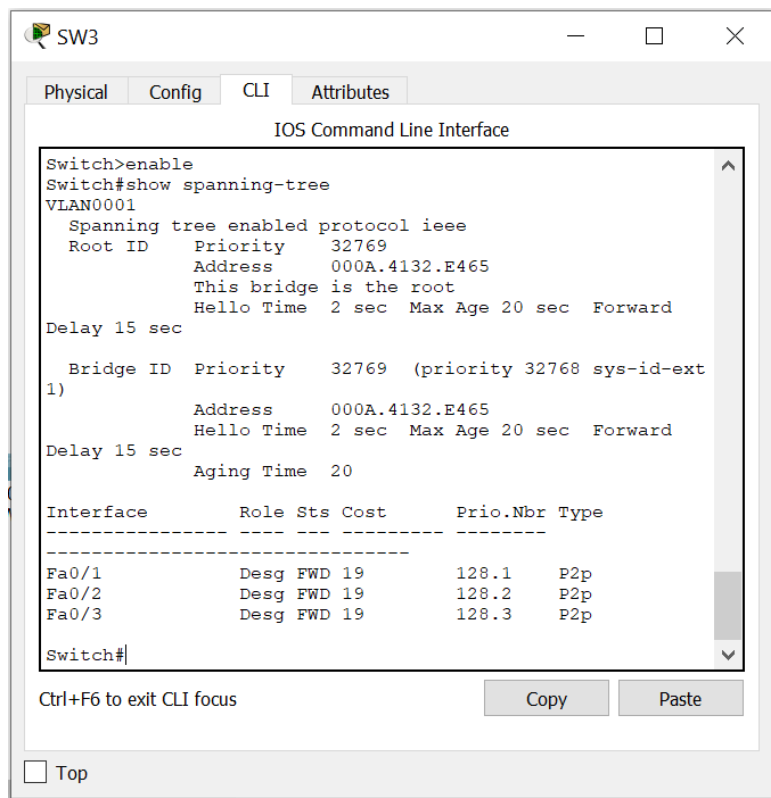
Switch#
```

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✓ SW3



SW3

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     000A.4132.E465
              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     000A.4132.E465
              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
Fa0/3          Desg FWD 19        128.3    P2p

Switch#
```

Ctrl+F6 to exit CLI focus

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d. Table each witch

- SW1

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32768
3	MAC Address	0050.0F69.67E4
4	Bridge IDE	32769
5	Cost (0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

- SW2

No	Variabel	Nilai
1	Root IDE	32769
2	Priority	32768
3	MAC Address	0010.1134.0B12
4	Bridge IDE	32769
5	Cost (0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

- SW3

No	Variabel	Nilai
1	Root IDE	32769
2	Priority	32768
3	MAC Address	000A.4132.E465
4	Bridge IDE	32769
5	Cost (0/1;0/2;0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

Assignment 4C:

- Root bridge : SW3
- Designed bridge : SW1 and SW2
- Root port : SW1 (Fa0/3) and SW2 (Fa0/3)
- Designed port : SW1(Fa0/1), SW2(Fa0/1), and SW3(Fa0/1, Fa0/2, and Fa0/3)

Assignment 4D:

- Forwarding : SW1(Fa0/1 and Fa0/3), SW2(Fa0/1 and Fa0/3), and SW3(Fa0/1, Fa0/2, and Fa0/3)
- Blocking : nothing

From PC Leo ping to PC Virgo

