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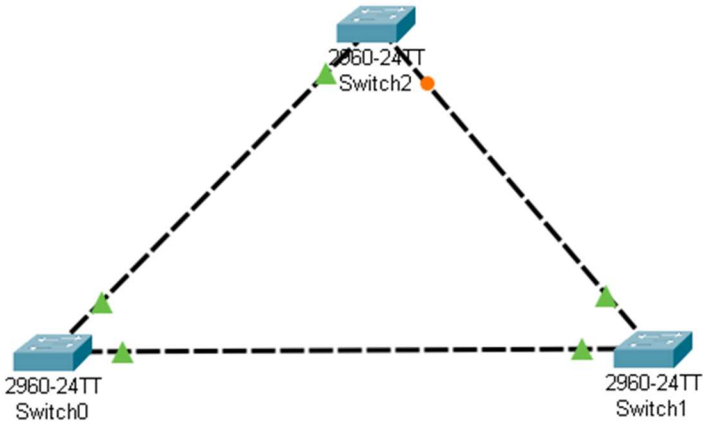
C7

To know which switch is the root: they must have the same Root ID

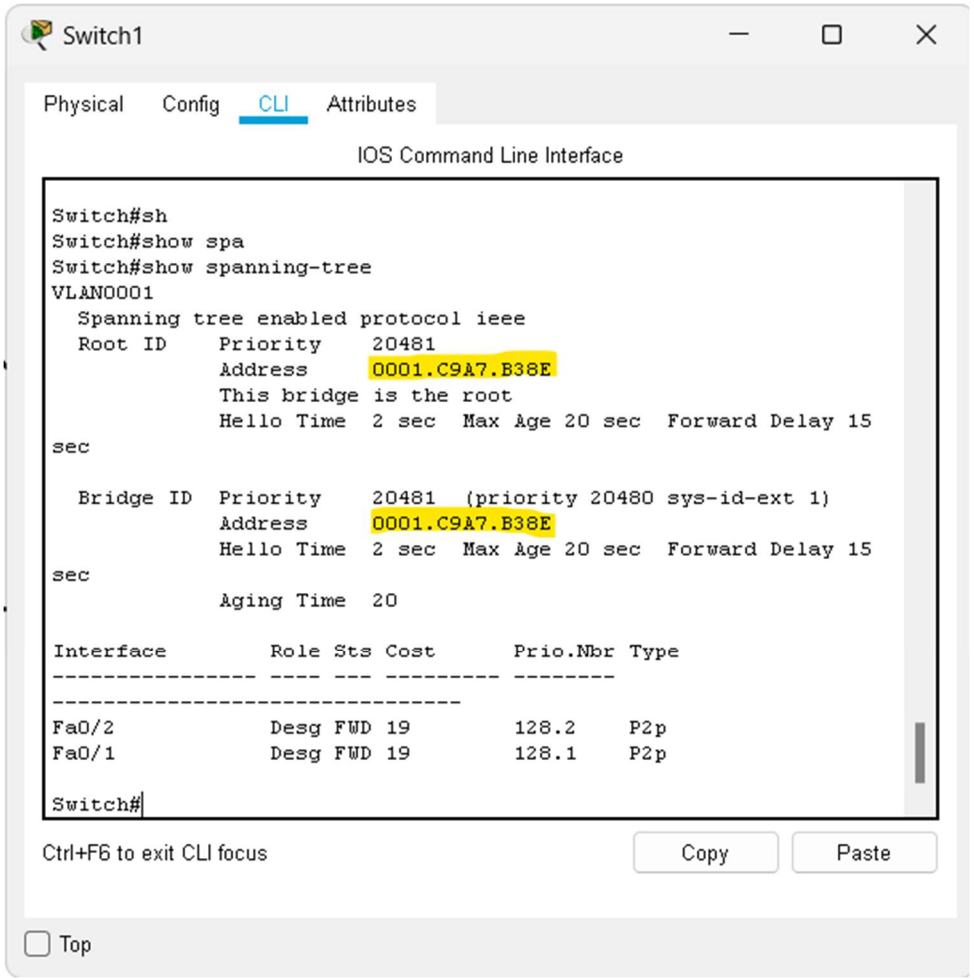


```
Switch>en
Switch>enable
Switch#show span
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID     Priority    24577
              Address     0002.167D.3A2D
              This bridge is the root
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15
sec

  Bridge ID   Priority    24577  (priority 24576 sys-id-ext 1)
              Address     0002.167D.3A2D
              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
```

So, switch 0 is the root.

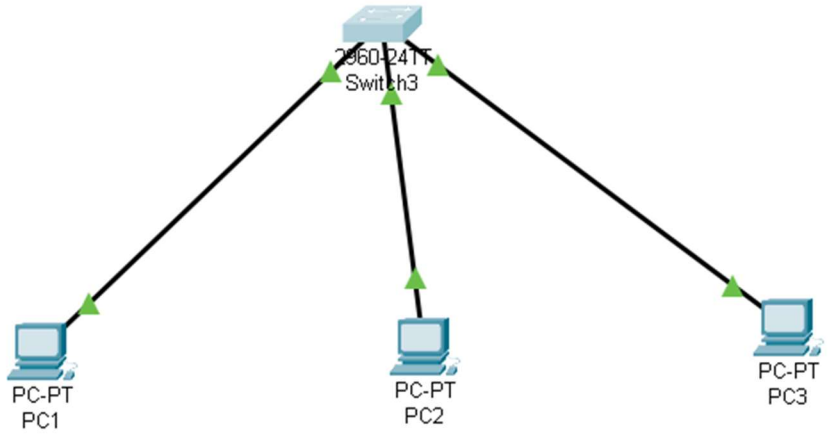
To change the root switch into another one, we use these commands.

```
Switch#
Switch#
Switch#en
Switch#enable
Switch#conf
Switch#configure
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#span
Switch(config)#spanning-tree vla
Switch(config)#spanning-tree vlan 1 root primary
Switch(config)#
```



So, now switch 1 is the root.

We can apply the fast protocol to make the connection between the PC and the switch faster by using these commands:



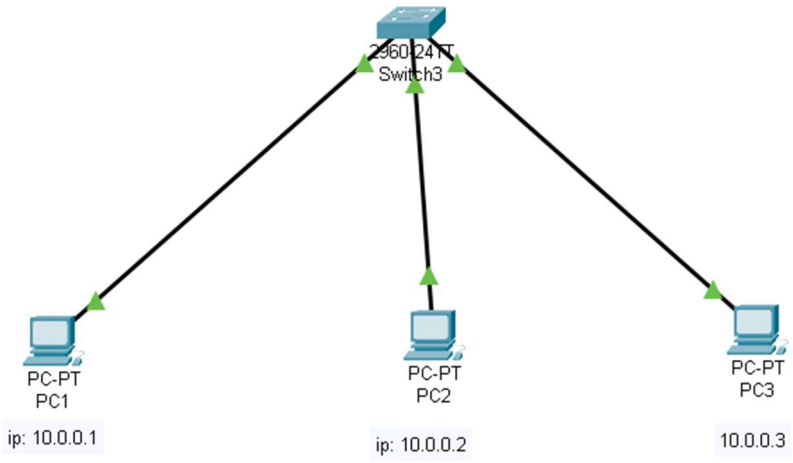

```
Switch>
Switch>
Switch>en
Switch>enable
Switch#conf
Switch#configure
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#inter
Switch(config)#interface range f0/1-24
Switch(config-if-range)#spa
Switch(config-if-range)#spanning-tree port
Switch(config-if-range)#spanning-tree portfast
```

These commands are executed if we have many devices connected to a switch.

If we want to apply fast protocol on two switches, we use these commands:

```
Switch#
Switch#
Switch#conf
Switch#configure
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#span
Switch(config)#spanning-tree mode
Switch(config)#spanning-tree mode rap
Switch(config)#spanning-tree mode rapid-pvst
Switch(config)#
```

Port security:



Switch security can be done by using these commands.

```
Switch#
Switch#conf
Switch#configure
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int
Switch(config)#interface rang
Switch(config)#interface range f0/1-24
Switch(config-if-range)#swit
Switch(config-if-range)#switchport mo
Switch(config-if-range)#switchport mode acc
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#swi
Switch(config-if-range)#switchport por
Switch(config-if-range)#switchport port-security
Switch(config-if-range)#swi
Switch(config-if-range)#switchport por
Switch(config-if-range)#switchport port-security ma
Switch(config-if-range)#switchport port-security mac
Switch(config-if-range)#switchport port-security mac-address sti
Switch(config-if-range)#switchport port-security mac-address
sticky
Switch(config-if-range)#exit
Switch(config)#exit
Switch#
```

Then we can show the results.

```
Switch#
Switch#show
Switch#show port
Switch#show port-security
Secure Port MaxSecureAddr CurrentAddr SecurityViolation Security Action
               (Count)       (Count)        (Count)
---------------------------------------------------------------------
        Fa0/1        1           0                0         Shutdown
        Fa0/2        1           0                0         Shutdown
        Fa0/3        1           0                0         Shutdown
        Fa0/4        1           0                0         Shutdown
        Fa0/5        1           0                0         Shutdown
        Fa0/6        1           0                0         Shutdown
        Fa0/7        1           0                0         Shutdown
        Fa0/8        1           0                0         Shutdown
        Fa0/9        1           0                0         Shutdown
       Fa0/10        1           0                0         Shutdown
       Fa0/11        1           0                0         Shutdown
       Fa0/12        1           0                0         Shutdown
       Fa0/13        1           0                0         Shutdown
       Fa0/14        1           0                0         Shutdown
       Fa0/15        1           0                0         Shutdown
       Fa0/16        1           0                0         Shutdown
       Fa0/17        1           0                0         Shutdown
       Fa0/18        1           0                0         Shutdown
       Fa0/19        1           0                0         Shutdown
       Fa0/20        1           0                0         Shutdown
       Fa0/21        1           0                0         Shutdown
       Fa0/22        1           0                0         Shutdown
       Fa0/23        1           0                0         Shutdown
       Fa0/24        1           0                0         Shutdown
---------------------------------------------------------------------
Switch#
```