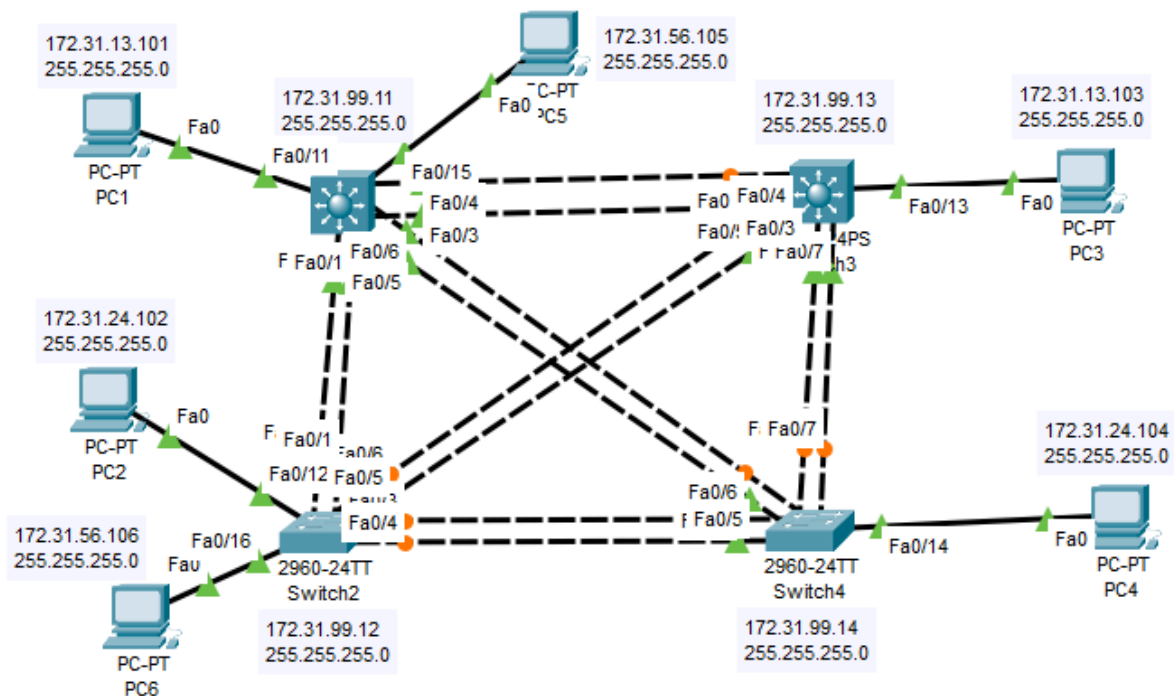


Lab 2

Description: In this lab we used packet tracer to create multiple vlans using the cisco cli.

Topology:



Syntax:

Command	Description	IOS Mode
Vtp mode server	Sets the VTP mode to server, allowing that switch to make VLAN configuration changes	Global Configuration Mode
Switchport mode access	Configures an interface to belong to one VLAN	Interface Configuration Mode

Switchport trunk encapsulation dot1q	Sets trunk encapsulation to 802.1Q	Interface Configuration Mode
spanning-tree	Configures how the switch partakes in the spanning tree protocol	Global Configuration Mode
Switchport access vlan (####)	Assigns the number specified to an access port	Interface Configuration Mode

Verification:

This screenshot shows all of the commands being successfully entered for one of the switches.

```

IOS Command Line Interface
switch3(config)#int vlan 1
switch3(config-if)#ip address 172.31.99.13 255.255.255.0
switch3(config-if)#no shutdown

switch3(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

switch3(config-if)#exit
switch3(config)#line con 0
switch3(config-line)#password cisco
switch3(config-line)#login
switch3(config-line)#logging synchronous
switch3(config-line)#exit
switch3(config)#line vty 0 4
switch3(config-line)#password cisco
switch3(config-line)#login
switch3(config-line)#logging synchronous
switch3(config-line)#exit
switch3(config)#vtp domain INETLAB
Domain name already set to INETLAB.
switch3(config)#vtp password cisco
Setting device VLAN database password to cisco
switch3(config)#vtp mode server
Device mode already VTP SERVER.
switch3(config)#vlan 13
switch3(config-vlan)#name PC1+PC3
switch3(config-vlan)#vlan 24
switch3(config-vlan)#name PC2+PC4
switch3(config-vlan)#vlan 56
switch3(config-vlan)#name PC5+PC6
switch3(config-vlan)#int Fa0/13
switch3(config-if)#switchport mode access
switch3(config-if)#switchport access vlan 13
switch3(config-if)#int range Fa0/3 - 8
switch3(config-if-range)#switchport trunk encapsulation dot1q
switch3(config-if-range)#switchport mode trunk

```

F. These are the screenshots showing that all of the PCs can ping the PC in their respective VLAN.

PC1 to PC3

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 172.31.13.103

Pinging 172.31.13.103 with 32 bytes of data:

Reply from 172.31.13.103: bytes=32 time<1ms TTL=128
Reply from 172.31.13.103: bytes=32 time<1ms TTL=128
Reply from 172.31.13.103: bytes=32 time<1ms TTL=128
Reply from 172.31.13.103: bytes=32 time<1ms TTL=128

Ping statistics for 172.31.13.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

PC2 to PC4

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 172.31.24.104

Pinging 172.31.24.104 with 32 bytes of data:

Reply from 172.31.24.104: bytes=32 time<1ms TTL=128
Reply from 172.31.24.104: bytes=32 time<1ms TTL=128
Reply from 172.31.24.104: bytes=32 time<1ms TTL=128
Reply from 172.31.24.104: bytes=32 time<1ms TTL=128

Ping statistics for 172.31.24.104:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC5 to PC6

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 172.31.56.106

Pinging 172.31.56.106 with 32 bytes of data:

Reply from 172.31.56.106: bytes=32 time<1ms TTL=128
Reply from 172.31.56.106: bytes=32 time<1ms TTL=128
Reply from 172.31.56.106: bytes=32 time=7ms TTL=128
Reply from 172.31.56.106: bytes=32 time<1ms TTL=128

Ping statistics for 172.31.56.106:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 7ms, Average = 1ms
```

G. These are the screenshots showing that all of the switches can ping the rest of the switches.

Switch1

```
switch1>ping 172.31.99.12

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.12, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/4 ms

switch1>ping 172.31.99.13

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.13, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

switch1>ping 172.31.99.14

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.14, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms
```

Switch2

```
switch2>ping 172.31.99.11

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.11, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

switch2>ping 172.31.99.13

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.13, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/6 ms

switch2>ping 172.31.99.14

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.14, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms
```

Switch3

```
switch3>ping 172.31.99.11

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.11, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

switch3>ping 172.31.99.12

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.12, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

switch3>ping 172.31.99.14

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.14, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/7 ms
```

Switch4

```
switch4>ping 172.31.99.11

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.11, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

switch4>ping 172.31.99.12

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.12, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

switch4>ping 172.31.99.13

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.31.99.13, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/4 ms
```

H. This screenshot shows that switch1 is the root bridge in STP.

```
switch1#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    1
             Address     0001.C91B.1276
             This bridge is the root
             Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    1 (priority 0 sys-id-ext 1)
             Address     0001.C91B.1276
             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                    Desg FWD 19        128.3    P2p
Fa0/6                    Desg FWD 19        128.6    P2p
Fa0/5                    Desg FWD 19        128.5    P2p
Fa0/4                    Desg FWD 19        128.4    P2p
Fa0/2                    Desg FWD 19        128.2    P2p

VLAN0013
  Spanning tree enabled protocol ieee
  Root ID    Priority    13
             Address     000C.CF67.CC16
             Cost         19
             Port         5(FastEthernet0/5)
             Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    28685 (priority 28672 sys-id-ext 13)
             Address     0001.C91B.1276
             Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface                Role Sts Cost      Prio.Nbr Type
-----
Fa0/1                    Altn BLK 19        128.1    P2p
```

Conclusion:

This lab was pretty interesting. It was fun to have to set up the VLANs with no help from anyone in class. It was a little easier, since we have done this many times in class. I am getting used to the commands and hardly struggle with them anymore. Everything worked out pretty well and I didn't really have any notable problems.