National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

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EE-357 Computer and Communication Networks

Experiment - 5

Introduction to VLANs and Inter-VLAN

		PLO5/ CLO3		PLO5/ CLO3	PLO5/ CLO3	PLO5/ CLO3
Name	**Reg. No**	**Viva / Quiz / Lab Performance 5 Marks**	**Analysis of data in Lab Report 5 Marks**	**Modern Tool Usage 5 Marks**	**Ethics and Safety 5 Marks**	**Individual and Team Work 5 Marks**
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National University of Sciences and Technology (NUST)
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EXPERIMENT NO 5
Part-1: Introduction to VLANs

1. Objective

- Create a basic switch configuration and verify it.
- Create two VLANs, name them and assign member ports to them.

2. Resources Required

- Computer
- Packet Tracer (version 5 or higher)
- ENSP

3. Introduction

When managing a switch, the Management Domain is always VLAN 1. The Network Administrator's workstation must have access to a port in the VLAN 1 Management Domain. All ports are assigned to VLAN 1 by default. This lab will also help demonstrate how VLANs can be used to separate traffic and reduce broadcast domains.

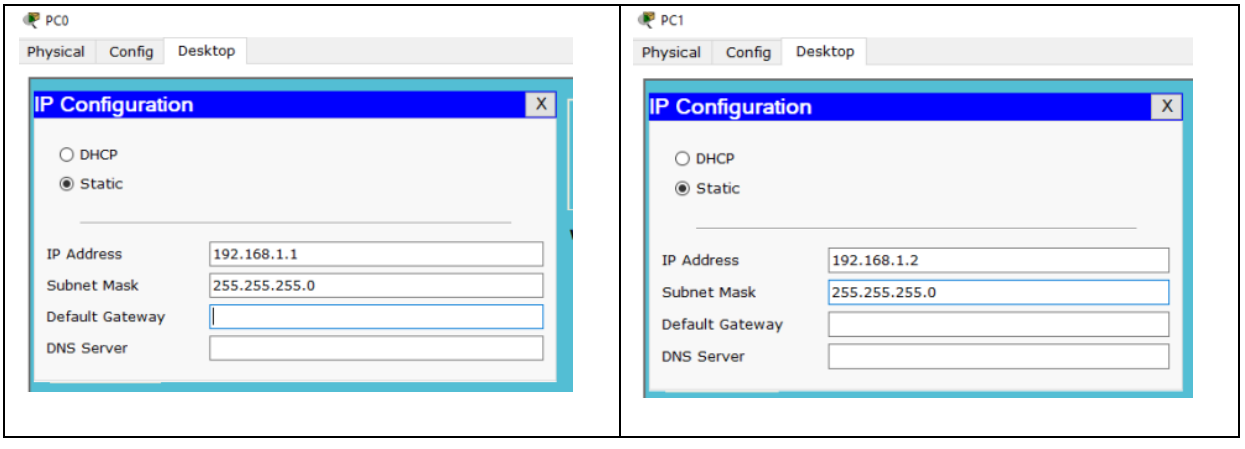
4. Procedure

Step 1 Configure the switch

Configure the hostname, access and command mode passwords, as well as the management LAN settings.

Step 2 Configure the hosts attached to the switch

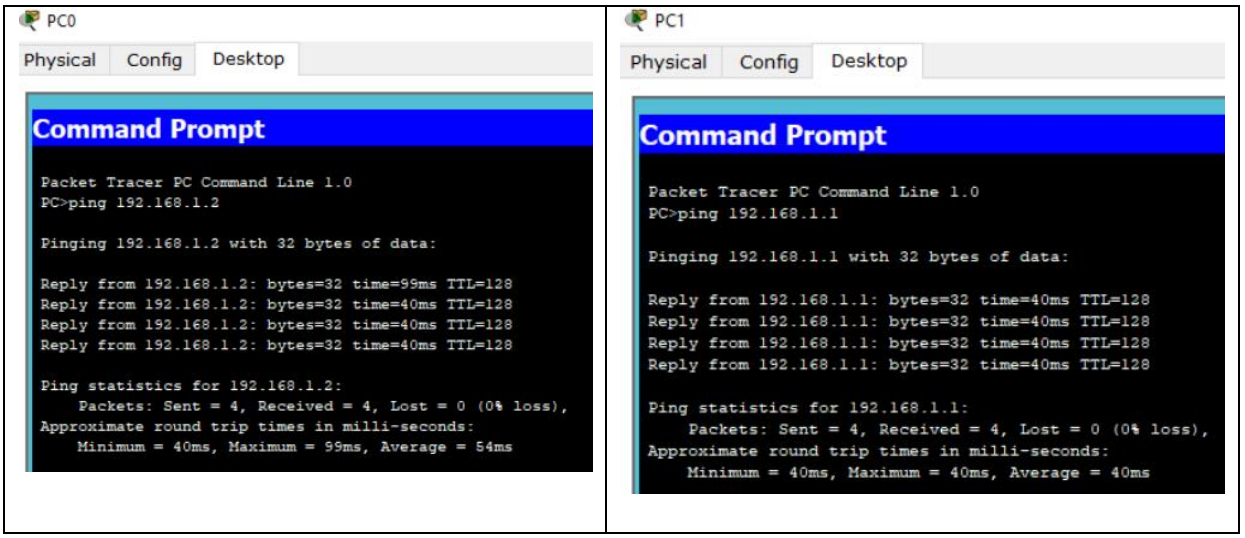
Configure the hosts to use the same subnet for the address, mask, and default gateway.



Step 3 Verify connectivity

a. To verify that the host and switch are correctly configured, ping one host from the other.

b. Was the ping successful? _____yes_____



c. If the answer is no, troubleshoot the host and switch configurations.

Step 4 Show the IOS version

a. It is very important to know the version of the operating system. Differences between versions may change how commands are entered. Type the **show version** command at the user EXEC or privileged EXEC mode prompt as follows:

Switch_A#**show version**

b. What version of the switch IOS is displayed? _____version 12.1(22)_____

Step 5 Display the VLAN interface information

a. On the switch, type the command **show vlan** at the privileged EXEC prompt as follows:

Switch_A#**show vlan**

```
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                Fa0/21, Fa0/22, Fa0/23, Fa0/24
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
1002 enet  101002     1500  -      -      -        -    -        0      0
1003 enet  101003     1500  -      -      -        -    -        0      0
1004 enet  101004     1500  -      -      -        -    -        0      0
1005 enet  101005     1500  -      -      -        -    -        0      0
```

Step 6 Create and name two VLANs

Enter the following commands to create and name two VLANs:

Switch_A#**vlan database**

Switch_A(vlan)#**vlan 2 name VLAN2**

Switch_A(vlan)#**vlan 3 name VLAN3**

Switch_A(vlan)#**exit**

Step 7 Display the VLAN interface information

a. On Switch_A, type the command **show vlan** at the privileged EXEC prompt as follows:

Switch_A#**show vlan**

b. Are there new VLANs in the listing? _____yes_____

```
VLAN Name                                Status    Ports
---- ----------------------------------- --------- -------------------------------
1    default                             active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                   Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                   Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                   Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                   Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                   Fa0/21, Fa0/22, Fa0/23, Fa0/24
2    VLAN2                               active
3    VLAN3                               active
1002 fddi-default                        active
1003 token-ring-default                  active
1004 fddinet-default                     active
1005 trnet-default                       active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 enet  101002     1500  -      -      -        -    -        0      0
1003 enet  101003     1500  -      -      -        -    -        0      0
1004 enet  101004     1500  -      -      -        -    -        0      0
1005 enet  101005     1500  -      -      -        -    -        0      0
```

Step 8 Assign ports to VLAN 2

Assigning ports to VLANs must be done from the interface mode. Enter the following commands to add port 2 to VLAN 2:

Switch_A#**configure terminal**

Switch_A(config)#**interface fastethernet 0/2**

Switch_A(config-if)#**switchport mode access**

Switch_A(config-if)#**switchport access vlan 2**

Switch_A(config-if)#**end**

Step 9 Display the VLAN interface information

a. On Switch_A, type the command **show vlan** at the privileged EXEC prompt as follows:

Switch_A#**show vlan**

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/2, Fa0/3, Fa0/4, Fa0/5
                                                 Fa0/6, Fa0/7, Fa0/8, Fa0/9
                                                 Fa0/10, Fa0/11, Fa0/12, Fa0/13
                                                 Fa0/14, Fa0/15, Fa0/16, Fa0/17
                                                 Fa0/18, Fa0/19, Fa0/20, Fa0/21
                                                 Fa0/22, Fa0/23, Fa0/24
2    VLAN2                             active    Fa0/1
3    VLAN3                             active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 enet  101002     1500  -      -      -        -    -        0      0
1003 enet  101003     1500  -      -      -        -    -        0      0
1004 enet  101004     1500  -      -      -        -    -        0      0
1005 enet  101005     1500  -      -      -        -    -        0      0
```

Step 10 Assign a port to VLAN 3

Assigning ports to VLANs must be done from the interface mode. Enter the following commands to add port 3 to VLAN3

Switch_A#**configure terminal**

Switch_A(config)#**interface fastethernet 0/3**

Switch_A(config-if)#**switchport mode access**

Switch_A(config-if)#**switchport access vlan 3**

Switch_A(config-if)#**end**

Step 11 Look at the VLAN interface information

a. On Switch_A, type the command **show vlan** at the privileged EXEC prompt as follows:

Switch_A#**show vlan**

b. Is port 3 assigned to VLAN 3? ____yes_____

c. Is the port still listed in the default VLAN? _____no_____

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/3, Fa0/4, Fa0/5, Fa0/6
                                                 Fa0/7, Fa0/8, Fa0/9, Fa0/10
                                                 Fa0/11, Fa0/12, Fa0/13, Fa0/14
                                                 Fa0/15, Fa0/16, Fa0/17, Fa0/18
                                                 Fa0/19, Fa0/20, Fa0/21, Fa0/22
                                                 Fa0/23, Fa0/24
2    VLAN2                             active    Fa0/1
3    VLAN3                             active    Fa0/2
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 enet  101002     1500  -      -      -        -    -        0      0
 --More-- |
```

Step 12 Look at only VLAN2 information

a. Instead of displaying all of the VLANs type the **show vlan id 2** command at the privileged EXEC mode prompt as follows:

Switch_A#**show vlan id 2**

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
2    VLAN2                             active    Fa0/1

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
2    enet  100002     1500  -      -      -        -    -        0      0
```

Or

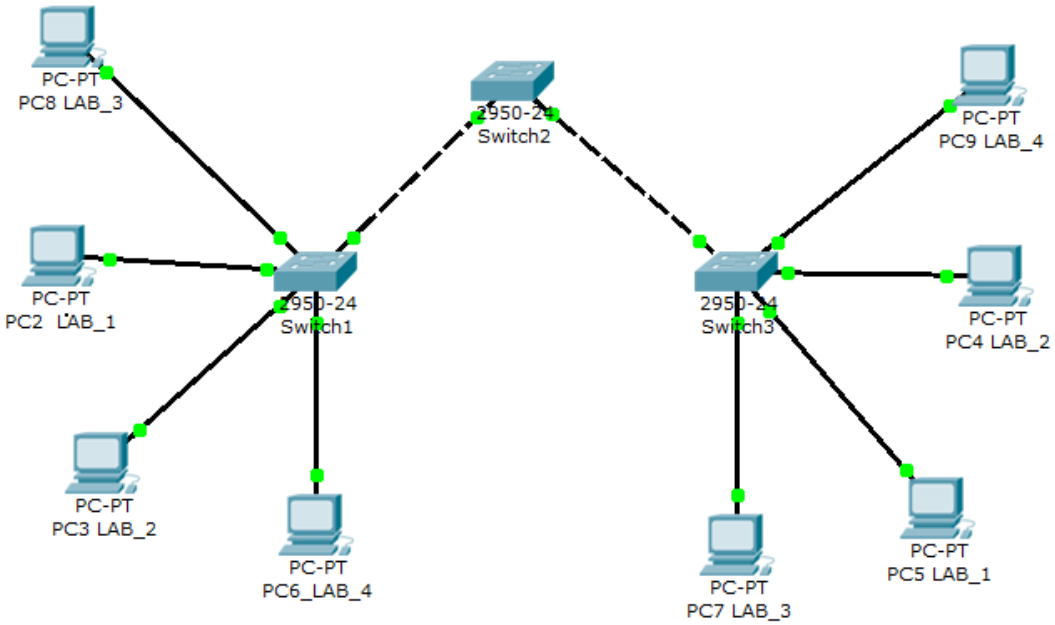
Switch_A#**show vlan name VLAN2**

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
2    VLAN2                             active    Fa0/1

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
2    enet  100002     1500  -      -      -        -    -        0      0
```

5. Student Activity

Now using above concept solve the below question.



Configuring switches

Switch1

Physical | Config | CLI

IOS Command Line Interface

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname Switch1
Switch1(config)#exit
%SYS-5-CONFIG_I: Configured from console by console
Switch1#
```

Switch2

Physical | Config | CLI

IOS Command Line Interface

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z
Switch(config)#hostname Switch2
Switch2(config)#exit
%SYS-5-CONFIG_I: Configured from console by console
Switch2#
```

Configure the hosts attached to the switch & Verify connectivity

Ping within same switch is successful, whereas ping to a PC connected to another switch is not successful

```
Packet Tracer PC Command Line 1.0
PC>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=70ms TTL=128
Reply from 192.168.1.3: bytes=32 time=40ms TTL=128
Reply from 192.168.1.3: bytes=32 time=40ms TTL=128
Reply from 192.168.1.3: bytes=32 time=40ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 40ms, Maximum = 70ms, Average = 47ms
```

```
PC>ping 192.168.2.6

Pinging 192.168.2.6 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.2.6:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Create and name Four VLANs for each switch, Assign a port to all VLANs and Display the VLAN interface information

Switch1

Physical | Config | CLI

IOS Command Line Interface

```
                                                Fa0/21, Fa0/22, Fa0/23, Fa0/24
2    VLAN2                            active    Fa0/1
3    VLAN3                            active    Fa0/2
4    VLAN4                            active    Fa0/3
5    VLAN5                            active    Fa0/4
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
4    enet  100004     1500  -      -      -        -    -        0      0
5    enet  100005     1500  -      -      -        -    -        0      0
1002 enet  101002     1500  -      -      -        -    -        0      0
1003 enet  101003     1500  -      -      -        -    -        0      0
1004 enet  101004     1500  -      -      -        -    -        0      0
1005 enet  101005     1500  -      -      -        -    -        0      0
```

Switch2

Physical | Config | CLI

IOS Command Line Interface

```
Switch2#show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/1, Fa0/6, Fa0/7, Fa0/8
                                                Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                Fa0/21, Fa0/22, Fa0/23, Fa0/24
2    VLAN2                            active    Fa0/2
3    VLAN3                            active    Fa0/3
4    VLAN4                            active    Fa0/4
5    VLAN5                            active    Fa0/5
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
```

Trunk on both Switches

```
Switch1>EN
Switch1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch1(config)#interface fastethernet0/5
Switch1(config-if)#switchport mode trunk
Switch1(config-if)#end
%SYS-5-CONFIG_I: Configured from console by console
```

```
Switch2>en
Switch2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch2(config)#interface fastethernet0/1
Switch2(config-if)#switchport mode trunk
Switch2(config-if)#^Z
%SYS-5-CONFIG_I: Configured from console by console
```

The ping is successful for the PCs on Same VLAN

PC2

Physical | Config | Desktop

Command Prompt

```
PC>ping 192.168.1.6

Pinging 192.168.1.6 with 32 bytes of data:

Reply from 192.168.1.6: bytes=32 time=126ms TTL=128
Reply from 192.168.1.6: bytes=32 time=126ms TTL=128
Reply from 192.168.1.6: bytes=32 time=125ms TTL=128
Reply from 192.168.1.6: bytes=32 time=114ms TTL=128

Ping statistics for 192.168.1.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 114ms, Maximum = 126ms, Average = 122ms
```

EXPERIMENT NO 5

Part-2: Introduction of Inter-VLAN

1. Objective

- This lab exercise is designed for understanding Inter-VLAN routing..

2. Resources Required

- Computer
- Packet Tracer (version 5 or higher)
- ENSP

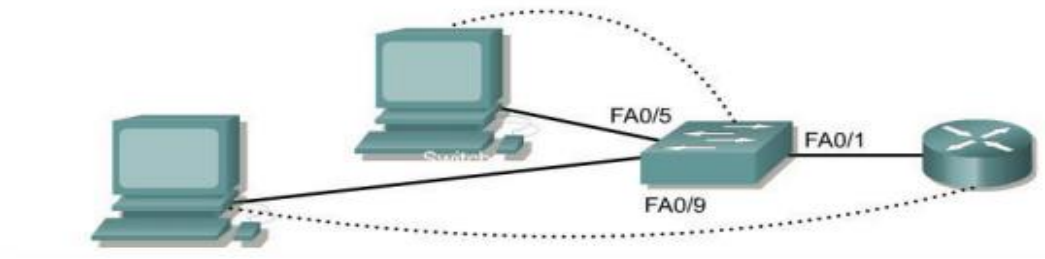
3. Introduction

This lab introduces Cisco IOS (Internetwork Operating System) which is the proprietary CLI (command line interface) based software empowering nearly all the Cisco devices. IOS is a package of routing, switching, internetworking and telecommunications functions tightly integrated with a multitasking operating system.

A broadcast domain is a logical division of a computer network, in which all nodes can reach each other by broadcast at the data link layer. A simple LAN is a single broadcast domain. To reduce the numbers of devices in a broadcast domain, we have to divide broadcast domain. VLAN serve for this purpose. The whole idea of VLAN technology is to divide LAN into logical, instead of physical, segments. VLANs are created at the Data Link layer so switches apply them to a network. Computers in different VLANs can't communicate with each other so Inter-VLAN routing is required for this purpose.

4. Procedure

1. Open Packet Tracer 5 and setup a network similar to the following network. Use Cisco 2950T switch & Cisco 1841 router.



2. Double click the switch and goto CLI tab. Follow the steps below to complete the lab. You can do the same using a PC if you use a **console (one side is RS 232, other is RJ45—blue colored in Packet Tracer)** cable for connection between PC and

Switch. Goto PC's desktop then Terminal (equivalent of HyperTerminal), accept the default settings and login to the Switch.

Step 1 Configure the switch

Configure the hostname, access, and command mode passwords.

Hostname is **Switch_A**

Console, VTY, and enable passwords are **cisco**.

Enable secret password is **class**.

If problems occur while performing this configuration, refer to the Basic Switch Configuration lab.

Step 2 Configure the hosts attached to the switch

Configure the hosts using the following information.

a. For the host in port 0/5:
IP address **192.168.5.2**
Subnet mask **255.255.255.0**
Default gateway **192.168.5.1**
b. For the host in port 0/9:
IP address **192.168.7.2**
Subnet mask **255.255.255.0**
Default gateway **192.168.7.1**

Step 3 Verify connectivity

a. Were the pings successful?

_____

b. Why or why not? _____

Step 4 Create and name two VLANs

Enter the following commands to create and name two VLANs:

Switch_A#**vlan database**
Switch_A(vlan)#**vlan 10 name LAB_A**
Switch_A(vlan)#**vlan 20 name LAB_B**
Switch_A(vlan)#**exit**
Another (newer) way of doing the same is by entering the following commands:

Switch_A(config)#**vlan 10**
Switch_A(config-vlan)#**name LAB_A**

Switch_A(config-vlan)#**vlan 20**
Switch_A(config-vlan)# **name LAB_B**

Step 5 Configure VTP protocol

Assigning ports to VLANs must be done from the interface mode. Enter the following commands to add port 0/5to VLAN 10:

Switch_A#**configure terminal**
Switch_A(config)#**interface fastethernet 0/5**
Switch_A(config-if)#**switchport mode access**
Switch_A(config-if)#**switchport access vlan 10**
Switch_A(config-if)#**end**

Step 6 Assign ports to VLAN 20

Enter the following commands to add port 0/9 to VLAN 20:

Switch_A#**configure terminal**
Switch_A(config)#**interface fastethernet 0/9**
Switch_A(config-if)#**switchport mode access**
Switch_A(config-if)#**switchport access vlan 20**
Switch_A(config-if)#**end**

Step 7 Display the VLAN interface information

a. On Switch_A, type the command **show vlan** at the privileged EXEC prompt as follows:

Switch_A#**show vlan**

b. Are there new VLANs in the listing?

_____

Step 8 Display the VLAN interface information

a. On Switch_A, type the command **show vlan** at the privileged EXEC prompt as follows:

Switch_A#**show vlan**

b. Are ports assigned correctly? _____

Step 9 Create the trunk

On Switch_A, type the following commands at the Fast Ethernet 0/1 interface command prompt.

Switch_A(config)#**interface fastethernet0/1**
Switch_A(config-if)#**switchport mode trunk**
Switch_A(config-if)#**end**

Step 10 Configure the router

a. Configure the router with the following data. You may use the **config** tab. Note that, in order to support trunking and inter- VLAN routing, the router must have a Fast Ethernet interface.

Hostname is **Router_A**

Console, VTY, and enable passwords are **cisco**.

Enable secret password is **class**.

b. Then configure the Fast Ethernet interface using the following commands:
Router_A(config)#**interface fastethernet 0/0**
Router_A(config-if)#**no shutdown**
Router_A(config-if)#**interface fastethernet 0/0.1**
Router_A(config-subif)#**encapsulation dot1q 10**
Router_A(config-subif)#**ip address 192.168.5.1 255.255.255.0**
Router_A(config-if)#**interface fastethernet 0/0.2**
Router_A(config-subif)#**encapsulation dot1q 20**
Router_A(config-subif)#**ip address 192.168.7.1 255.255.255.0**
Router_A(config-subif)#**end**

Step 11 Test the VLANS and the trunk

Ping from the host in Switch_A port 0/9 to the host in port 0/5.

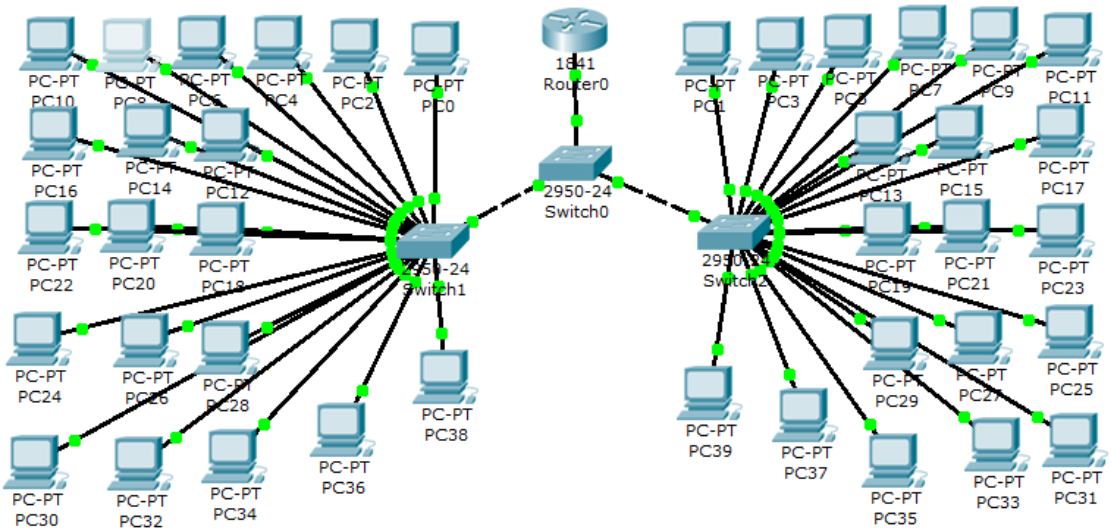
a. Was the ping successful?

_____ b. Why?

_____

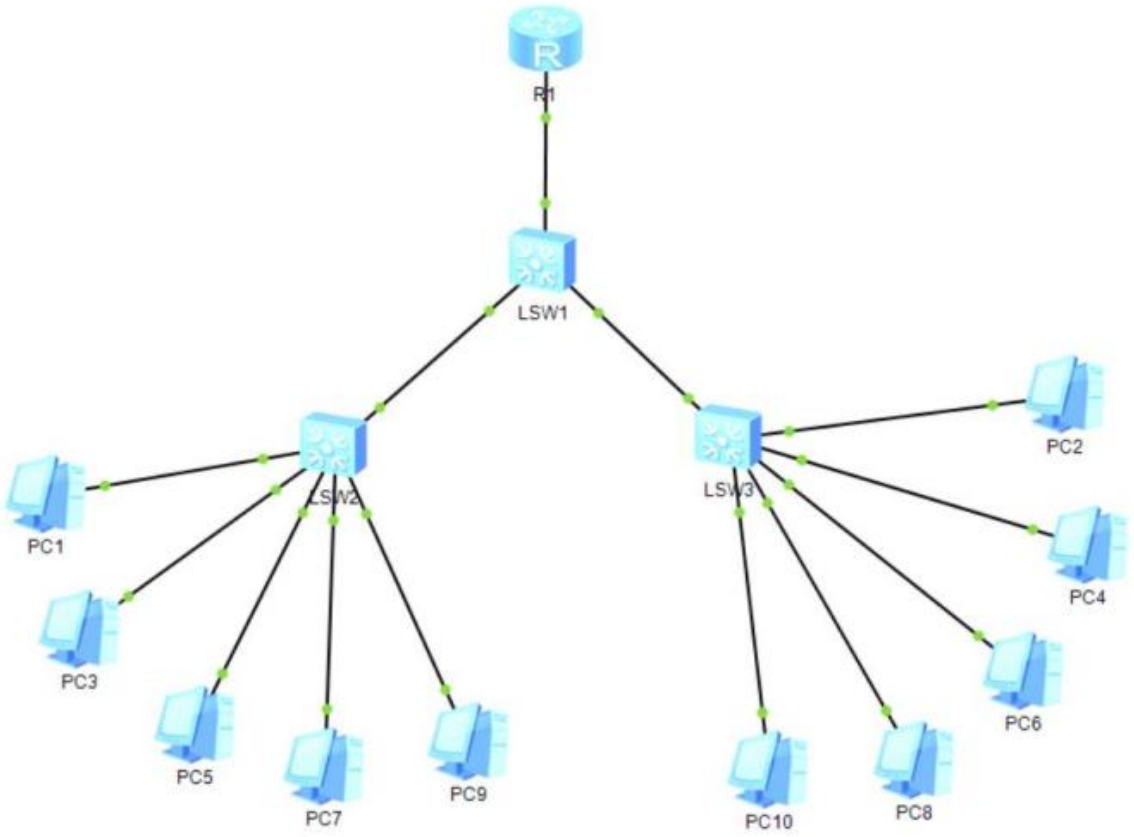
5. Student Activity

Now using above concept solve the below question.



PC #	VLAN	Network Address
PC0-PC4	10	192.168.1.0
PC5-PC9	15	192.168.2.0
PC10-PC14	20	192.168.3.0
PC15-PC19	30	192.168.4.0
PC20-PC24	35	192.168.5.0
PC25-PC29	40	192.168.6.0
PC30-PC34	50	192.168.7.0
PC35-39	70	192.168.8.0

6. Conclusions:



SW1 CONFIGURATION(Creating VLANs and Assigning Ports)

```
VID  Status  Property      MAC-LRN Statistics Description
--------------------------------------------------------------------------------

1    enable  default       enable  disable    VLAN 0001
2    enable  default       enable  disable    VLAN 0002
3    enable  default       enable  disable    VLAN 0003
4    enable  default       enable  disable    VLAN 0004
5    enable  default       enable  disable    VLAN 0005
6    enable  default       enable  disable    VLAN 0006
[SW1]
```

SW2 CONFIGURATION (Creating VLANs and Assigning Ports)

```
change loop count is 0, and the maximum number of recor
<SW2>display port vlan gigabitethernet 0/0/3
Port                        Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/3        access       3     -
<SW2>display port vlan gigabitethernet 0/0/2
Port                        Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/2        access       2     -
<SW2>display port vlan gigabitethernet 0/0/4
Port                        Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/4        access       4     -
<SW2>display port vlan gigabitethernet 0/0/5
Port                        Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/5        access       5     -
<SW2>display port vlan gigabitethernet 0/0/6
Port                        Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/6        access       6     -
<SW2>

VID  Status  Property      MAC-LRN Statistics Description
------------------------------------------------------------------------------

1    enable  default       enable  disable    VLAN 0001
2    enable  default       enable  disable    VLAN 0002
3    enable  default       enable  disable    VLAN 0003
4    enable  default       enable  disable    VLAN 0004
5    enable  default       enable  disable    VLAN 0005
6    enable  default       enable  disable    VLAN 0006
[SW2]
```

Switch 2 Trunk

```
Mar 18 2022 20:22:08-08:00 SW2 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.20
.191.3.1 configurations have been changed. The current change number is 2
change loop count is 0, and the maximum number of records is 4095.3
[SW2-GigabitEthernet0/0/1]port trunk allow-pass vlan 3
[SW2-GigabitEthernet0/0/1]port trunk allow-pass vlan 4
[SW2-GigabitEthernet0/0/1]port trunk allow-pass vlan 5
[SW2-GigabitEthernet0/0/1]
Mar 18 2022 20:22:18-08:00 SW2 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.20
.191.3.1 configurations have been changed. The current change number is 2
change loop count is 0, and the maximum number of records is 4095.
[SW2-GigabitEthernet0/0/1]port trunk allow-pass vlan 6
[SW2-GigabitEthernet0/0/1]
Mar 18 2022 20:22:28-08:00 SW2 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.20
.191.3.1 configurations have been changed. The current change number is 2
change loop count is 0, and the maximum number of records is 4095.
[SW2-GigabitEthernet0/0/1]port trunk allow-pass vlan 3
[SW2-GigabitEthernet0/0/1]port trunk allow-pass vlan 4
[SW2-GigabitEthernet0/0/1]display port vlan gigabitethernet 0/0/1
Port                    Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/1    trunk        1     1-6
[SW2-GigabitEthernet0/0/1]
```

Switch 3 Trunk

LSW3

```
.191.3.1 configurations have been changed. The current change number is 24, th
change loop count is 0, and the maximum number of records is 4095.
[SW3-GigabitEthernet0/0/1]port trunk allow-pass vlan 4
[SW3-GigabitEthernet0/0/1]
Mar 18 2022 20:27:40-08:00 SW3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 25, th
change loop count is 0, and the maximum number of records is 4095.
[SW3-GigabitEthernet0/0/1]port trunk allow-pass vlan 5
[SW3-GigabitEthernet0/0/1]
Mar 18 2022 20:27:50-08:00 SW3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 26, th
change loop count is 0, and the maximum number of records is 4095.
[SW3-GigabitEthernet0/0/1]port trunk allow-pass vlan 6
[SW3-GigabitEthernet0/0/1]
Mar 18 2022 20:28:00-08:00 SW3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 27, th
change loop count is 0, and the maximum number of records is 4095.
<SW3>system-view
Enter system view, return user view with Ctrl+Z.
[SW3]display port vlan gigabitethernet 0/0/1
Port                    Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/1    trunk        1     1-6
[SW3]
```

SW3 CONFIGURATION(Creating VLANs and Assigning Ports)

```
VID  Status  Property      MAC-LRN Statistics Description
--------------------------------------------------------------------------------

1    enable  default       enable  disable    VLAN 0001
2    enable  default       enable  disable    VLAN 0002
3    enable  default       enable  disable    VLAN 0003
4    enable  default       enable  disable    VLAN 0004
5    enable  default       enable  disable    VLAN 0005
6    enable  default       enable  disable    VLAN 0006
[SW3]
```

LSW3

```
[SW3-GigabitEthernet0/0/4]port default vlan 3
Mar 18 2022 20:15:20-08:00 SW3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 14, th
change loop count is 0, and the maximum number of records is 4095.
[SW3-GigabitEthernet0/0/4]port default vlan 4
[SW3-GigabitEthernet0/0/4]
Mar 18 2022 20:15:30-08:00 SW3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 16, th
change loop count is 0, and the maximum number of records is 4095.
[SW3-GigabitEthernet0/0/4]
<SW3>system-view
Enter system view, return user view with Ctrl+Z.
[SW3]interface GigabitEthernet 0/0/5
[SW3-GigabitEthernet0/0/5]port link-type access
[SW3-GigabitEthernet0/0/5]
Mar 18 2022 20:16:00-08:00 SW3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 17, th
change loop count is 0, and the maximum number of records is 4095.
[SW3-GigabitEthernet0/0/5]port default vlan 5
[SW3-GigabitEthernet0/0/5]
Mar 18 2022 20:16:10-08:00 SW3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 18, th
change loop count is 0, and the maximum number of records is 4095.
[SW3-GigabitEthernet0/0/5]
<SW3>system-view
```

LSW3

```
change loop count is 0, and the maximum number of records is 4095.
<SW3>system-view
Enter system view, return user view with Ctrl+Z.
[SW3]display port vlan GigabitEthernet 0/0/2
Port                    Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/2    access       2     -
[SW3]display port vlan GigabitEthernet 0/0/3
Port                    Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/3    access       3     -
[SW3]display port vlan GigabitEthernet 0/0/4
Port                    Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/4    access       4     -
[SW3]display port vlan GigabitEthernet 0/0/5
Port                    Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/5    access       5     -
[SW3]display port vlan GigabitEthernet 0/0/6
Port                    Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/6    access       6     -
[SW3]
```

Switch 3 Trunk

```
[SW1-GigabitEthernet0/0/1]
Mar 18 2022 20:30:08-08:00 SW1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 13, the
change loop count is 0, and the maximum number of records is 4095.
[SW1-GigabitEthernet0/0/1]port trunk allow-pass vlan 5
[SW1-GigabitEthernet0/0/1]
Mar 18 2022 20:30:18-08:00 SW1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 14, the
change loop count is 0, and the maximum number of records is 4095.
[SW1-GigabitEthernet0/0/1]port trunk allow-pass vlan 6
[SW1-GigabitEthernet0/0/1]
Mar 18 2022 20:30:28-08:00 SW1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.
.191.3.1 configurations have been changed. The current change number is 15, the
change loop count is 0, and the maximum number of records is 4095.
<SW1>system-view
Enter system view, return user view with Ctrl+Z.
[SW1]dispaly port vlan gigabitethernet 0/0/1
     ^
Error: Unrecognized command found at '^' position.
[SW1]display port vlan gigabitethernet 0/0/1
Port                    Link Type    PVID  Trunk VLAN List
--------------------------------------------------------------------------------
GigabitEthernet0/0/1    trunk        1     1-6
[SW1]
```

ROUTER CONFIGURATION