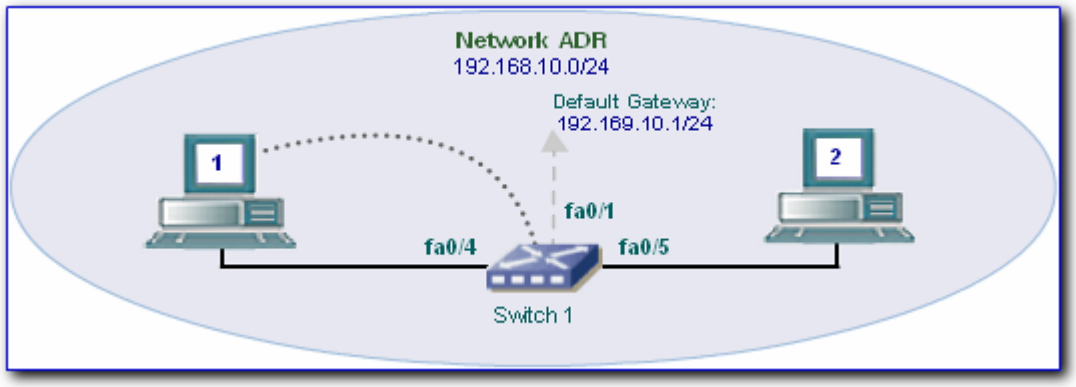
Portfolio Exercise 6a: Creating, Testing and Removing VLANs

Objectives

- Create and name two VLANs and assign member ports to them.
- Test VLAN operation by moving a workstation from one VLAN to another.
- Remove an interface from a VLAN.
- Delete a VLAN.
- Understand why you cannot delete VLAN 1.
- *Collect portfolio evidence for part of Grading Criteria P6*

Scenario



This practical provides you with the opportunity to demonstrate that you can create VLANs, test VLAN operation, remove interfaces from VLAN membership and remove entire VLANs.

Task 1: Document the Configuration

a. Specify the configuration of the switch and the hosts

Using the diagram above for reference, fill in the table below. Details such as the switch name and IP addresses you may decide for yourself.

	Switch 1
Name	
Enable Secret Password	
VTY and Console Password	
VLAN IP Address and Subnet Mask	
Gateway IP Address and Subnet Mask	

Now decide on IP addresses for the hosts and fill the table below.

	IP Address	**Subnet Mask**	**Default Gateway**
Host 1			
Host 2			

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Task 2: Configure the Switch and the Hosts

You will need to configure the switch and hosts as follows:-

- Set the switch name and the enable, console and VTY passwords
- Configure the VLAN management port with an IP address and subnet mask.
- Specify the default gateway IP address and subnet mask.
- Configure TCP/IP on the hosts

a. Configure the switch

As a reminder, the various configuration commands are specified below. You will need remember which mode to be in for yourself, e.g. global configuration mode etc.

Delete any existing configuration including the startup configuration and any **`vlan`** database information stored in a **`vlan.dat`** file. See below.

- For 2900 and 2950 series switches, use the **erase startup-config** and **delete flash:vlan.dat** commands. Then **reload** the switch.
- For 1900 series switches, use the **delete nvram** and **delete vtp** commands. Then **reload** the switch.

Set the switch's name using the **hostname** command

Set the enable password using the **enable secret** command

Set the line console and vty passwords using the **password** and **login** command

Set the IP address and subnet mask on the VLAN port using the **ip address** command and activate the port using the **no shutdown** command

Set the default gateway IP address and subnet mask using the **ip default-gateway** command.

*Don't forget to save your configuration using the **copy run start** command*

b. Configure the Hosts

Configure the hosts with the IP addresses, subnet masks and default gateway as specified in your documentation.

c. Verify Connectivity

If you have configured the switch and the hosts correctly you should be able to…

- Ping one host from another host

~~A printout showing output from ipconfig and the ping result is required~~

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Task 3: Create Two VLANs

Now you have completed the configuration of the switch and the hosts, you need to create two VLANs on the switch and assign ports to the appropriate VLANs.

a. Display existing VLAN information

On the switch, type the following command at the Privileged EXEC prompt:

```
Switch#show vlan

1900:

Switch#show vlan-membership
```

How many VLANs are set up by default on the switch? _____

Which is the name of the default VLAN? _____

Which ports belong to the default VLAN? _____

b. Create two new VLANs

Enter the following commands to create and name the two VLANs:

```
Switch#vlan database

Switch(vlan)#vlan 2 name VLAN2

Switch(vlan)#vlan 3 name VLAN3

Switch(vlan)#exit

1900:

Switch#config terminal

Switch(config)#vlan 2 name VLAN2

Switch(config)#vlan 3 name VLAN3
```

c. Display VLAN interface membership

Type the appropriate **`show vlan`** or **`show vlan-membership`** command for your switch at the Privileged EXEC prompt:

Are there new VLANs listed? _____

Do they have any ports assigned to them yet?
_____

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d. Assign interfaces to VLAN 2

You must be in interface mode to assign ports to VLANs. To add port 4 to VLAN 2 enter the following commands:

```
Switch#configure terminal

Switch(config)#interface fastethernet 0/4

Switch(config-if)#switchport mode access

Switch(config-if)#switchport access vlan 2

Switch(config-if)#end
```

1900:

```
Switch#config terminal

Switch(config)#interface Ethernet 0/4

Switch(config-if)#vlan static 2

Switch(config)#end
```

Now use the appropriate commands to **add ports 5 and 6 to VLAN 2**.

e. Check interface membership of VLAN 2

Type the appropriate **`show vlan`** or **`show vlan-membership`** command for your switch at the Privileged EXEC prompt:

Are ports 4, 5 and 6 assigned to VLAN 2? _____

Are the ports still listed in the default VLAN? _____

Tip: Instead of displaying all of the VLANs you can look at specific vlan information as follows:-

```
Switch#show vlan id 2

Or

Switch#show vlan name VLAN2
```

1900:

```
Switch#show vlan 2
```

Try it! What further information does this command show compared to the **`show vlan`** command?

_____

f. Assign interfaces to VLAN 3

Using the appropriate commands, now **assign port 7, 8, and 9 to VLAN 3**.

g. Check interface membership of VLAN 3

Type the appropriate command to view VLAN port membership:

Are ports 7, 8 and 9 assigned to VLAN 3? _____

Are the ports still listed in the default VLAN? _____

Task 4: Test VLAN Operation

Now you have completed the VLAN configuration and port assignments, you need to test VLAN operation.

a. Test the VLANs

If you have configured the switch and the hosts correctly you should only be able to ping one host from another host if they are on particular ports.

Connect host1 to port 0/2 and host2 to port 0/7. Wait until the port LEDs go green before proceeding

Can either host ping the switch IP address? _____

Explain the results? _____

_____

Connect host1 to port 0/4 and leave host2 on port 0/7. Wait until the port LEDs go green before proceeding

Ping the host on port 0/7 from the host on port 0/4.

Was the ping successful? _____

Explain the results? _____

Connect host1 to port 0/8 and leave host2 on port 0/7. Wait until the port LEDs go green before proceeding

Ping the host on port 0/8 from the host on port 0/7.

Was the ping successful? _____

Explain the results? _____

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~~Print out your switch configuration before proceeding onto the next part~~

Task 5: Remove VLAN Configuration

Now you have completed testing the VLANs, this next part is concerned with removing interfaces from VLAN membership and then removing entire VLANs.

a. Delete an interface from one of the VLANs

To remove an interface from a VLAN, use the **no** form of the **`switchport`** or **`vlan-membership`** command in the interface configuration mode, as follows:-

```
Switch#configure terminal

Switch(config)#interface fastethernet 0/4

Switch(config-if)#no switchport access vlan 2
```

1900:

```
Switch#configure terminal

Switch(config)#interface Ethernet 0/4

Switch(config-if)#no vlan-membership 2
```

Now remove interface 0/7 from VLAN 3 using the appropriate commands.

b. Display VLAN interface information

Type the appropriate command to view VLAN interface membership information.

Is port 0/4 removed from VLAN 2? _____

Is port 0/7 removed from VLAN 3? _____

c. Delete the VLANs

To remove an entire VLAN, enter the VLAN database mode and issue **no** form of the **`vlan`** command, as follows:-

```
Switch#vlan database

Switch(vlan)#no vlan 2
```

1900:

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```
Switch#config terminal

Switch(config)#no vlan 2
```

d. Display VLAN information

Type the appropriate command for your switch to view VLAN port membership:

Is VLAN 2 removed? _____

Now remove VLAN 3 using the appropriate commands.

What happened to the ports that were in VLANs 2 and 3?
_____

_____

e. Delete VLAN 1

Try to delete VLAN 1, which is the default VLAN, the same way that you deleted VLAN 3.

What happened? _____

_____

Explain why VLAN 1 is special? _____

_____

~~Print out your final switch configuration and label it appropriately~~

f. Restore the switch configuration to a default state

Erase the existing configuration and the vlan database from the switch and reload it. You should see the default switch prompt when it reloads.

Evidence

Please supply the following evidence to support your implementation of this task

~~Screenshots and configuration files required~~

- Screenshots showing the **ipconfig** and **ping** results of one host pinging another
- Printout showing the switch's configuration, **after** you have configured VLANs and assigned port members. Include suitable annotation pointing out parts you specifically configured
- Printout showing the switch's configuration, **after** you have deleted the VLANs. Include suitable

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annotation.

Please annotate, sign, date, put the portfolio exercise number and task number on all evidence pages