

# Data Communications Laboratory

## Single-Switch VLANs

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**PLEASE NOTE MY LAPTOP WAS NOT WORKING WITH CISCO PACKET TRACER, I WORKED WITH SCREENSHARE WITH MEMBERS IN MY GROUP, I DO NOT HAVE SCREENSHOTS BECAUSE OF THIS!!! SORRY!**

### Step 5: Verify connectivity

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

Was the ping successful?

**At first, there was no response.**

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

**When troubleshooting, we first tried to set a default gateway, this did nothing. Then we realized that the VLAN was not on. The VLAN interface when using the command 'show interface vlan 1' said that the vlan was down.**

**To turn it on, we had to configure the vlan 1 interface on the switch and use the command 'no shut' and 'no shutdown'. This set the VLAN to 'up'.**

**Then the ping worked. We found that setting the default gateway did not really matter. When we used command 'show interface vlan 1' it doesn't display the default gateway.**

### Step 6: Show the Comware version (IOS version)

It is very important to know the version of the operating system. Differences between versions may change how commands are entered.

```
Switch_A# show version
```

What version of IOS is displayed?

**Cisco IOS Software: Version 15.0(2)SE4**

### **Step 7: Display the VLAN interface information**

On Switch\_A, type these commands as follows then answer the following questions:

```
Switch_A# show vlan brief
Switch_A# show vlan
Switch_A# show vlan id 1
```

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

**There are 5 VLANs by default (IDs: 1, 1002, 1003, 1004, 1005)**

Which ports belong to the default VLAN?

**All of the ports of the switch belong to the default VLAN. With the Cisco 2960 switch, there are FA0/1-24 (24 ports) and Gig0/1-2 (2 ports).**

### **Step 8: Create and name two VLANs**

Enter the following commands to create and name two VLANs:

```
Switch_A# configure terminal
Switch_A(config)# vlan 2
Switch_A(config-vlan)# vlan 3
Switch_A(config-vlan)# end
```

### **Step 9: Display the VLAN interface information**

On Switch\_A, type the command display vlan as follows:

```
Switch_A# show vlan brief
```

Are there new VLANs in the listing?

**There are new VLANs in the listing  
There is now VLAN 2 (VLAN0002) and VLAN 3 (VLAN0003)**

Do they have any ports assigned to them yet? Which command would you use to check this? Hint: “**display vlan ...**”

**No there are no ports assigned to the 2 new VLANs.**

**To check this, we can type ‘show vlan id 2’ or ‘show vlan id 3’ to see details about the VLANs. These details include the assigned ports of the VLAN.**

### Step 10: Assign ports to VLAN 2

To assign ports to a VLAN we enter the configuration mode for that VLAN then add the desired ports. 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)# switch port access vlan 2
Switch_A(config-if)# end
```

### Step 11: Display the VLAN interface information

On Switch\_A, type the commands as follows:

```
Switch_A# show vlan id 2
Switch_A# show vlan id 1
```

Is port 2 assigned to VLAN 2?

**Yes, port Fast Ethernet 0/2 is now assigned to VLAN 2.**

Is the port still listed in the default VLAN?

**No, port Fast Ethernet 0/2 is no longer assigned to the default VLAN.**

### Step 12: Assign ports to VLAN 3

We will again assign some ports but this time to VLAN 3:

```
Switch_A# configure terminal
Switch_A(config)# interface fastethernet 0/3
```

```
Switch_A(config-if) # switch port access vlan 3  
Switch_A(config-if) # end
```

### Step 13: Look at the VLAN interface information

On Switch\_A, type the following commands:

```
Switch_A# show vlan id 3  
Switch_A# show vlan id 1
```

Is port 3 assigned to VLAN 3?

**Yes, port Fast Ethernet 0/3 is now assigned to VLAN 3.**

Is the port still listed in the default VLAN?

**No, port Fast Ethernet 0/3 is no longer assigned to the default VLAN.**

Now try to Ping from one host to the other. Ensure that the first host is in Port 1 and the second host is in port 2.

Was the Ping successful? Why?

**No, the ping was not successful. This is because PC 1's connected port is a part of VLAN 1 and PC 2's connected port is a part of VLAN 2. As these are on different VLANs, they are treated that they are not on the same network. So they are not able to communicate with each other, therefore, they are not able to ping each other.**

What could we do in order for the hosts to now ping?

**Configure the ports of the switch so that they are active on the same VLAN. For example, currently the FastEthernet 0/2 port is active on VLAN 2 and FastEthernet 0/1 port is active on VLAN 1. To allow them to communicate, we reassign FastEthernet 0/2 to VLAN 1, meaning that both PCs would now be on VLAN 1 and would be able to ping each other.**

Get your demonstrator to test your setup and mark your documentation. (We could include a process, like plug between VLAN ports, test pings, etc)