CS 334/CS 534 Lab 4 :

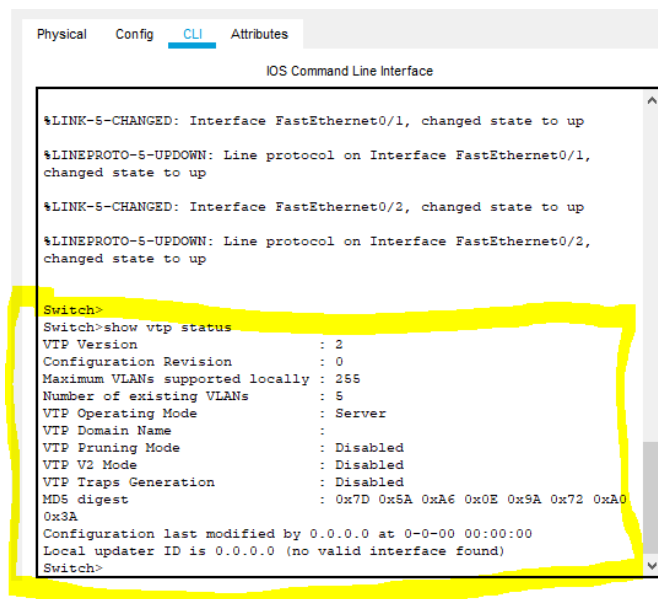# Switching Part 2

Continuing Switches

In the last lab we learned about switches, their place in the network, and how to configure basic VLANs. This lab will continue driving switches and common network deployment models. This lab aims to test your ability to configure VLAN and VTP. There will be two sections on this lab. The first section will be a learning/walkthrough section that will prepare you for the second section which is the practice section. Only the second section will be graded.

Learning about VTP

1. Review this document about VTP architecture. It can be found here.
2. By default, all newly created switches start in VTP Server Mode.
3. Open the SAMPLE1 packets file that was included with this lab. If you have not already downloaded it from Canvas, please do so. Pay close attention to the cabling used between switches and the ports used.
4. Your file should have 4 switches on the screen. One should be labeled VTP Server. This will be your VTP Server, and the other 3 will be labeled VTP Client x.

   We are now going to use the command line (which uses IOS commands) to configure our 3 VTP CLIENTS to VTP CLIENT MODE.
5. Open the CLI for VTP CLIENT 1 and type "show vtp status". It should look like this:

6. We will now change the VTP Operating Mode to CLIENT by first entering the following commands:
   a. Switch>enable (enable mode to privileged commands)
   b. Switch#config term (Open the configuration of switch)
   c. Switch(config)#vtp mode client (Change the vtp mode to client)
   d. Sitch(config)#exit (to exit config mode)
7. Repeat steps 5 and 6 for ALL 3 CLIENT Switches.
8. Now that we have configured all of our switches, you can run the command "vtp show status" and it should now show the operating mode as client. If yours does not show in client mode, retry step 6. If you are still having trouble, contact your TA.

   The next step is to configure each link between the switches as a "TRUNK" line. You may do this using the IOS Command Line commands or through the Graphical Config of each switch. For this walkthrough I will demonstrate using the Graphical Config.
9. On each switch, navigate to the config page and select the interface you would like to change to a TRUNK.

We will now make sure that each switch is configured to the right domain and has the correct password set. We will do this with IOS commands via the command line. You should use the command "exit" (possibly multiple times) until your CLI says "Press RETURN to get started" in order to align with this next step.

10. On the VTP Server, type the following commands:
    a. Switch>enable
    b. Switch#configure terminal
    c. Switch(config)#vtp domain NETWORKING
    d. Switch(config)#vtp password cisco
11. Run the commands a,b,and d on the 3 CLIENT Switches.

    You can verify that all the Switches are on the correct VTP Domain by running the following command on all of the switches and looking at the VTP Domain Name field:
    a. Switch>show vtp status

12. Now from the VTP SERVER we can configure two new VLANs called "Students" and "Servers" with the ids of 20 and 50, respectively. When you create these on the VTP Server, you should see them appear in each of the client switches as well.

    If you do not, you probably missed a step somewhere. Ask a TA for Assistance or repeat the above steps.

You have now finished the learning section of the lab. Good Job!

PRACTICE SECTION:

Introduction Statement. You will now modify an env that has multiple machines and multiple switches on separate VLANs. You will inspect the PDUs and answer questions about your env. You will turn in a .pkt file, a word file (with your name AND blazerid), and any supporting screenshots. Please refer to the syllabus for any other information about submitting assignments.

Scenario: UAB has multiple research labs that have different machines that need to communicate with each other. Because these are different rooms, they are connected to different switches. To reduce the administrative overhead of having to configure new VLANs on each switch, UAB IT decides to deploy a VTP switching environment. They are unsure what all VLANs they will need in the future and decided that by using VTP they would only have to configure each client switch once, and could make any needed changes to the VTP server which could "push" VLAN configuration changes to the clients. They know the research lab machines will need to be able to communicate with each other. The professors in each lab also share things with each other and send reports

to the Lab Director. There are also Lab Management machines that need to be able to talk amongst themselves. There are only Management machines located in the Management Room and UAB IT does not want any other switch to know about them.

Your job is to provide an environment that meets all the requirements in the scenario.

6 points – Turn in your env (.pkt) that meets all of the requirements above.

3 points – Provide a Screenshot of a PDU that contains the VTP "Subset Advertisement" sharing an updated VLAN. Screenshot(s) should include VLAN ID, VLAN TYPE, VLAN NAME LEN

2 points – Provide a screenshot of the Interfaces that connect Switch 2 to Switch 3. In other words, screenshot Switch 2 FastEthernet0/2 and Switch 3 FastEthernet0/1.

Bonus (1pt): Provide a screenshot of an example of Spanning Tree Protocol BPDU from one switch to another. Make sure screenshots include: Root Path Cost, Root ID, Bridge ID, Port ID.

IMPORTANT: When adding desktops to the env, you must do the following during configuration:
1. In Desktop → IP Configuration: Create a Static Entry of:
   a. IP Address → 192.168.1.x (where x is some number other than 0 or 1)
   b. Subnet mask → 255.255.255.0
   c. Default Gateway → 192.168.1.1
I am not going to explain now, we will learn about this later.