Lab 9.2.5 VTP Client and Server Configurations
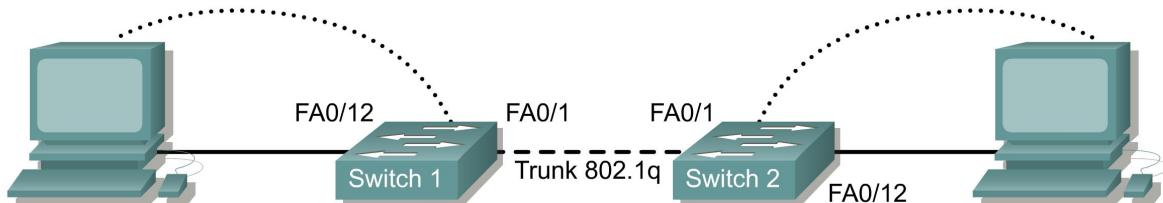
Switch Designation	Switch Name	Enable Secret Password	Enable, VTY, and Console Passwords	VLAN 1 IP Address	Subnet Mask	VLAN Names and Numbers	Switch Port Assignments
Switch 1	Switch_A	class	cisco	192.168.1.2	255.255.255.0	VLAN 1 Native VLAN 10 Accounting VLAN 20 Marketing VLAN 30 Engineering	fa0/2 - 0/3 fa0/4 - 0/6 fa0/7 - 0/9 fa0/10 - 0/12
Switch 2	Switch_B	class	cisco	192.168.1.3	255.255.255.0	VLAN 1 Native VLAN 10 Accounting VLAN 20 Marketing VLAN 30 Engineering	fa0/2 - 0/3 fa0/4 - 0/6 fa0/7 - 0/9 fa0/10 - 0/12

Straight-through cable ———— Serial cable �ez⎓ Console (Rollover)•••••••• Crossover cable – – – –

Objective

- Create a basic switch configuration and verify it.

- Create multiple VLANs, name them and assign multiple member ports to them.

- Configure the VTP protocol to establish Server and client switches.

- Create an 802.1q trunk line between the two switches to allow communication between paired VLANs.

- Then test the VLANs functionality by moving a workstation from one VLAN to another.

Background/Preparation

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.

Cable a network similar to the one of in diagram. The configuration output used in this lab is produced from a 2950 series switch. Any other switch used may produce different output. The following steps are to be executed on each switch unless specifically instructed otherwise.

Start a HyperTerminal session.

Note: Go to the erase and reload instructions at the end of this lab. Perform those steps on all switches in this lab assignment before continuing.

Step 1 Configure the switch

Configure the hostname, access, and command mode passwords, as well as the management LAN settings. These values are shown in the chart. 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 IP address, mask, and default gateway on each host. Be sure to choose addresses that are on the same subnet as the switch.

Step 3 Verify connectivity

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

b. Were the pings successful? _____

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

Step 4 Display the VLAN interface information

On Switch_A, type the command `show vlan` at the Privileged EXEC prompt as follows:

```
Switch_A#show vlan
```

Note: There should be an entry for VLAN 1 and the default VLANs (1002 +). If other VLANs appear, they could be deleted as instructed in Step 2 of the Erasing and Reloading instructions at the end of this lab or refer to the Lab Exercise: Deleting VLAN Configurations.

Step 5 Configure VTP

a. VLAN Trunking Protocol (VTP) needs to be configured on both switches. VTP is the protocol that will communicate information about which VLANs exist from one switch to another. If VTP did not provide this information, VLANs would have to be created on all switches individually.

b. By default, the Catalyst switch series are configured as VTP servers. In the event that the server services are turned off, use the following command to turn it back on:

```
Switch_A#vlan database
Switch_A(vlan)#vtp server
Switch_A(vlan)#vtp domain group1
Switch_A(vlan)#exit
```

Step 6 Create and name three VLANs

Enter the following commands to create and name three VLANs:

```
Switch_A#vlan database
Switch_A(vlan)#vlan 10 name Accounting
Switch_A(vlan)#vlan 20 name Marketing
Switch_A(vlan)#vlan 30 name Engineering
Switch_A(vlan)#exit
```

Use the **show vlan** command to verify that the VLANs have been created correctly.

Step 7 Assign ports to VLAN 10

Assigning ports to VLANs must be done from the interface mode. Enter the following commands to add ports 0/4 to 0/6 to VLAN 10:

```
Switch_A#configure terminal
Switch_A(config)#interface fastethernet 0/4
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 10
Switch_A(config-if)#interface fastethernet 0/5
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 10
Switch_A(config-if)#interface fastethernet 0/6
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 10
Switch_A(config-if)#end
```

Step 8 Assign ports to VLAN 20

Enter the following commands to add ports 0/7 to 0/9 to VLAN 20:

```
Switch_A#configure terminal
Switch_A(config)#interface fastethernet 0/7
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 20
Switch_A(config-if)#interface fastethernet 0/8
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 20
Switch_A(config-if)#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 9 Assign ports to VLAN 30

Enter the following commands to add ports 0/10 to 0/12 to VLAN 30:

```
Switch_A#configure terminal
Switch_A(config)#interface fastethernet 0/10
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 30
Switch_A(config-if)#interface fastethernet 0/11
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 30
Switch_A(config-if)#interface fastethernet 0/12
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 30
Switch_A(config-if)#end
```

Step 10 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 0/10 through 0/12 assigned to VLAN 30?

_____

Step 11 Configure VTP client

Enter the following commands to configure Switch_B to be a VTP client:

```
Switch_B#vlan database
Switch_B(vlan)#vtp client
Switch_B(vlan)#vtp domain group1
Switch_B(vlan)#exit
```

Step 12 Create the trunk

On both switches, Switch_A and Switch_B, type the following command at the fastethernet 0/1 interface command prompt. Note that it is not necessary to specify the encapsulation on a 2950, since it only supports 802.1Q.

```
Switch_A(config)#interface fastethernet 0/1
Switch_A(config-if)#switchport mode trunk
Switch_A(config-if)#end

Switch_B(config)#interface fastethernet 0/1
Switch_B(config-if)#switchport mode trunk
Switch_B(config-if)#end
```

2900:

```
Switch_A(config)#interface fastethernet0/1
Switch_A(config-if)#switchport mode trunk
Switch_A(config-if)#switchport trunk encapsulation dot1q
Switch_A(config-if)#end

Switch_B(config)#interface fastethernet0/1
Switch_B(config-if)#switchport mode trunk
Switch_B(config-if)#switchport trunk encapsulation dot1q
Switch_B(config-if)#end
```

Step 13 Verify the trunk

a. To verify that port fastethernet 0/1 has been established as a trunk port, type `show interface fastethernet 0/1 switchport` at the Privileged EXEC mode prompt

b. What type of trunking encapsulation is shown on the output results? _____

Step 14 Display the VLAN interface information

a. On Switch_B, type the command `show vlan` at the Privileged EXEC prompt as follows:

```
Switch_B#show vlan
```

b. Do VLANs 10, 20, and 30 show without having to type them in? _____

c. Why did this happen? _____

Step 15 Assign ports to a VLAN 10

Although the VLAN definitions have migrated to Switch_B using VTP, it is still necessary to assign ports to these VLANs on Switch_B. Assigning ports to VLANs must be done from the interface mode. Enter the following commands to add ports 0/4 to 0/6 to VLAN 10.

```
Switch_B#configure terminal
Switch_B(config)#interface fastethernet 0/4
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 10
Switch_B(config-if)#interface fastethernet 0/5
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 10
Switch_B(config-if)#interface fastethernet 0/6
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 10
Switch_B(config-if)#end
```

Step 16 Assign ports to VLAN 20

Enter the following commands to add ports 0/7 to 0/9 to VLAN 20:

```
Switch_B#configure terminal
Switch_B(config)#interface fastethernet 0/7
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 20
Switch_B(config-if)#interface fastethernet 0/8
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 20
Switch_B(config-if)#interface fastethernet 0/9
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 20
Switch_B(config-if)#end
```

Step 17 Assign ports to VLAN 30

Enter the following commands to add ports 0/10 to 0/12 to VLAN 30:

```
Switch_B#configure terminal
Switch_B(config)#interface fastethernet 0/10
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 30
Switch_B(config-if)#interface fastethernet 0/11
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 30
Switch_B(config-if)#interface fastethernet 0/12
Switch_B(config-if)#switchport mode access
Switch_B(config-if)#switchport access vlan 30
Switch_B(config-if)#end
```

Step 18 Display the VLAN interface information

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

```
Switch_B#show vlan
```

b. Are ports 0/10 through 0/12 assigned to VLAN 30? _____

Step 19 Test the VLANS and the trunk

Ping from the host in Switch_A port 0/12 to the host in Switch_B port 0/12.

a. Was the ping successful? _____

b. Why? _____

Ping from the host in Switch_A port 0/12 to the switch IP 192.168.1.2.

c. Was the ping successful? _____

d. Why? _____

Step 20 Move hosts

Move the host in Switch_A from port 0/12 to port 0/8. Wait until the port LED goes green and then go to the next step.

Step 21 Test the VLANS and the trunk

Ping from the host in Switch_A port 0/8 to the host in Switch_B port 0/12.

a. Was the ping successful? _____

b. Why? _____

Ping from the host in Switch_A port 0/8 to the switch IP 192.168.1.2.

c. Was the ping successful? _____

d. Why? _____

Once the steps are complete, logoff by typing `exit`, and turn all the devices off. Then remove and store the cables and adapter.

Erasing and Reloading the Switch

For the majority of the labs in CCNA 3 and CCNA 4 it is necessary to start with an unconfigured switch. Use of a switch with an existing configuration may produce unpredictable results. These instructions allow preparation of the switch prior to performing the lab so previous configuration options do not interfere. The following is the procedure for clearing out previous configurations and starting with an unconfigured switch. Instructions are provided for the 2900, 2950, and 1900 Series switches.

2900 and 2950 Series Switches

1. Enter into the Privileged EXEC mode by typing `enable`.

   ```
   Switch>enable
   ```

   If prompted for a password, enter **class**, if that does not work, ask the instructor.

2. Remove the VLAN database information file.

   ```
   Switch#delete flash:vlan.dat
   Delete filename [vlan.dat]?[Enter]
   Delete flash:vlan.dat? [confirm] [Enter]
   ```

   If there was no VLAN file, this message is displayed.

   ```
   %Error deleting flash:vlan.dat (No such file or directory)
   ```

3. Remove the switch startup configuration file from NVRAM.

   ```
   Switch#erase startup-config
   ```

   The responding line prompt will be:

   ```
   Erasing the nvram filesystem will remove all files! Continue? [confirm]
   ```

   Press **Enter** to confirm.

   The response should be:

   ```
   Erase of nvram: complete
   ```

4. Check that VLAN information was deleted.

   Verify that the VLAN configuration was deleted in Step 2 using the `show vlan` command. If previous VLAN configuration information (other than the default management VLAN 1) is still present it will be necessary to power cycle the switch (hardware restart) instead of issuing the `reload` command. To power cycle the switch, remove the power cord from the back of the switch or unplug it. Then plug it back in.

   If the VLAN information was successfully deleted in Step 2, go to Step 5 and restart the switch using the `reload` command.

5. Software restart (using the `reload` command)

Note: This step is not necessary if the switch was restarted using the power cycle method.

a. At the Privileged EXEC mode enter the command **reload**.

```
Switch(config)#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

b. Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm] [Enter]
```

The first line of the response will be:

```
Reload requested by console.
```

After the switch has reloaded, the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

c. Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started! [Enter]
```

1900 Series Switches

1. Remove VLAN Trunking Protocol (VTP) information.

```
#delete vtp
This command resets the switch with VTP parameters set to factory
defaults.
All other parameters will be unchanged.

Reset system with VTP parameters set to factory defaults, [Y]es or
[N]o?
```

Enter **y** and press **Enter**.

2. Remove the switch startup configuration from NVRAM.

```
#delete nvram
```

This command resets the switch with factory defaults. All system parameters will revert to their default factory settings. All static and dynamic addresses will be removed.

Reset system with factory defaults, [**Y**]es or [**N**]o?

Enter **y** and press **Enter**.