VLAN Trunk Protocol

VTP is a protocol that functions in a client-server model. One device, in this case, **NYCORE1**, will be configured as the server where all VLAN configurations are made. Client devices, in this case, **NYACCESS1** receive the information about the VLANs, created and automatically create them in their own VLAN databases.

Learning Outcomes

After completing this exercise, you will be able to:

- Configure VTP to distribute VLAN database information from one switch to another

Your Devices

You will be using the following devices in this lab. Please make sure these are powered on before proceeding.

- **NYCORE1** (Cisco 3750v2-24PS Switch)
- **NYACCESS1** (Cisco 2960-24 Switch)

Task 1 - Configuring VTP Between NYCORE1 and NYACCESS1

In this section, you will configure **VTP** between the **NYCORE1** and **NYACCESS1** switches so that VLAN information from the former will be propagated automatically to the latter.

> Before typing the commands as noted, please ensure that the device is at the **#** prompt. If not, please type "enable" to proceed.

Step 1

Connect to **NYCORE1** and view the current **VTP** configuration with the following command. This is the default **VTP** configuration of a switch:

```
NYCORE1#show vtp status
VTP Version capable             : 1 to 3
VTP version running             : 1
VTP Domain Name                 :
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 08cc.683f.2f00
Configuration last modified by 0.0.0.0 at 3-1-93
00:33:23
Local updater ID is 0.0.0.0 (no valid interface found)
Feature VLAN:
--------------
VTP Operating Mode              : Server
Maximum VLANs supported locally : 1005
Number of existing VLANs        : 7
Configuration Revision          : 2
MD5 digest                      : 0x3A 0x3F 0xBE 0xD2
0x26 0x14 0x1C 0xFB

                                  0x78 0x64 0x76 0x38

0x71 0xFE 0xC9 0xA9
NYCORE1#
```

Look over the VTP configuration. To set up VTP on this switch, the following configuration will be implemented:

- VTP Version number: **3**
- VTP Domain Name: **vtp.practice-labs.com**
- VTP operating mode: **server**
- VTP password: **cisco**

> *Note: **VTP** has three versions. It is always best to use the latest version.*

Step 2

To configure the **NYCORE1** switch with the above parameters, enter the following commands:

```
NYCORE1#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
NYCORE1(config)#vtp domain vtp.practice-labs.com
Changing VTP domain name from NULL to vtp.practice-
labs.com
NYCORE1(config)#
*Mar  1 02:33:46.327: %SW_VLAN-6-VTP_DOMAIN_NAME_CHG:
VTP domain name changed to vtp.practice-labs.com.
NYCORE1(config)#vtp mode server
Device mode already VTP Server for VLANS.
NYCORE1(config)#vtp version 3
*Mar  1 02:34:04.094: %SW_VLAN-6-OLD_CONFIG_FILE_READ:
Old version 2 VLAN configuration file detected and read
OK.  Version 3 files will be written in the future
NYCORE1(config)#vtp password cisco
Setting device VTP password to cisco
NYCORE1(config)#exit
NYCORE1#
```

As you initiate the commands, you will see various messages indicating the changes that you are making.

Step 3

Verify the VTP configuration once again:

```
NYCORE1#show vtp status
VTP Version capable             : 1 to 3
VTP version running             : 3
VTP Domain Name                 : vtp.practice-labs.com
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 08cc.683f.2f00
Feature VLAN:
--------------
VTP Operating Mode              : Server
Number of existing VLANs        : 7
Number of existing extended VLANs : 0
Maximum VLANs supported locally : 1005
Configuration Revision          : 0
Primary ID                      : 0000.0000.0000
Primary Description             :
MD5 digest                      : 0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
                                  0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00
Feature MST:
--------------
VTP Operating Mode              : Transparent
Feature UNKNOWN:
--------------
VTP Operating Mode              : Transparent
NYCORE1#
```

Because you activated VTP v3, some additional features are shown in the output which is outside the scope of this lab. You can see however that the configuration that you implemented has been applied.

Step 4

Next, view the **VTP** configuration on the **NYACCESS1** switch:

```
NYACCESS1#show vtp status
*Mar  1 02:41:05.085: %SYS-5-CONFIG_I: Configured from
console bshow vtp status
VTP Version capable             : 1 to 3
VTP version running             : 1
VTP Domain Name                 : vtp.practice-labs.com
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 2834.a2b7.7980
Configuration last modified by 0.0.0.0 at 3-1-93
00:33:23
Local updater ID is 0.0.0.0 (no valid interface found)
Feature VLAN:
--------------
VTP Operating Mode              : Server
Maximum VLANs supported locally : 64
Number of existing VLANs        : 7
Configuration Revision          : 2
MD5 digest                      : 0xDA 0x70 0xB4 0x31
0x5F 0x34 0x24 0x7F

                                  0xEA 0xB7 0x4F 0xF0
0x6F 0x90 0x26 0x1C
NYACCESS1#
```

Almost everything is as expected except for the **VTP Domain Name**. You will notice that it has changed. When the **VTP domain name** of a switch is empty, it will join the first VTP domain it learns about. Because it is connected to the **NYCORE1** switch with this **VTP domain name**, it automatically joins that

domain.

Step 5

Next, configure the remaining **VTP** parameters to make **NYACCESS1** a **VTP** client with the following commands:

```
NYACCESS1#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
NYACCESS1(config)#vtp version 3
*Mar  1 02:48:23.289: %SW_VLAN-6-OLD_CONFIG_FILE_READ:
Old version 2 VLAN configuration file detected and read
OK.  Version 3 files will be written in the future
NYACCESS1(config)#vtp password cisco
Setting device VTP password to cisco
NYACCESS1(config)#vtp mode client
Setting device to VTP Client mode for VLANS.
NYACCESS1(config)#exit
NYACCESS1#
```

Step 6

The **VTP** configuration should be complete. After several seconds, the VLANs from the **NYCORE1** switch will have been sent to **NYACCESS1** and inserted into the VLAN database. To confirm this, view the VLANs on the **NYACCESS1** switch:

```
NYACCESS1#show vlan brief
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, Gi0/1
                                                    Gi0/2
10   Management                     active
20   Sales                          active
1002 fddi-default                   act/unsup
1003 trcrf-default                  act/unsup
1004 fddinet-default                act/unsup
1005 trbrf-default                  act/unsup
NYACCESS1#
```

VLANs **10** and **20** have been successfully added to the VLAN database.

Step 7

Next, you will see what happens when you create a new VLAN on a switch that is configured as a **VTP** client. Issue the following commands on the **NYACCESS1** switch:

```
NYACCESS1#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
NYACCESS1(config)#vlan 30
VTP VLAN configuration not allowed when device is in
CLIENT mode.
NYACCESS1(config)#exit
NYACCESS1#
```

VLANs can no longer be manipulated from a VTP client. All changes must occur at the VTP server.

Step 8

Go back to the **NYCORE1** switch, which is the **VTP** server, and attempt to add a new VLAN there:

```
NYCORE1#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
NYCORE1(config)#vlan 30
VTP VLAN configuration not allowed when device is not
the primary server for vlan database.
NYCORE1(config)#exit
NYCORE1#
```

Again, you are unable to create the VLAN. This is because **VTP** version 3 requires you to make the server a primary **VTP** server. To do so, make sure you are in **privilege executive mode** and issue the following command and press **Enter** when asked to confirm:

Alert: It may take several seconds for the command to execute so be patient.

```
NYCORE1#vtp primary
This system is becoming primary server for feature vlan
No conflicting VTP3 devices found.
Do you want to continue? [confirm]
NYCORE1#
*Mar  1 03:04:37.148: %SW_VLAN-
4-VTP_PRIMARY_SERVER_CHG: 08cc.683f.2f00 has become the
primary server for the VLAN VTP feature
NYCORE1#
```

Step 9

Now attempt once again to add a new VLAN. If successful, name it **Test**:

```
NYCORE1#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
NYCORE1(config)#vlan 30
NYCORE1(config-vlan)#name Test
NYCORE1(config-vlan)#exitexit
NYCORE1(config)#exit
NYCORE1#
```

You have successfully created the VLAN.

Step 10

Go to the **NYACCESS1** switch and see if the VLAN you created has been added to the database there:

```
NYACCESS1#show vlan brief
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, Gi0/1

                                        Gi0/2
10    Management                        active
20    Sales                             active
30    Test                              active
1002 fddi-default                       act/unsup
1003 trcrf-default                      act/unsup
1004 fddinet-default                    act/unsup
1005 trbrf-default                      act/unsup
NYACCESS1#
```

The **Test** VLAN has been added successfully.

You have successfully configured **VTP,** and all of the necessary VLANs have automatically been propagated from **NYCORE1** to the **NYACCESS1** switch.

In the next section, you will complete the trunk configuration that you began at the beginning of this exercise.

> Leave the devices you have powered on in their current state and proceed to the next exercise.