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Midterm – Examination

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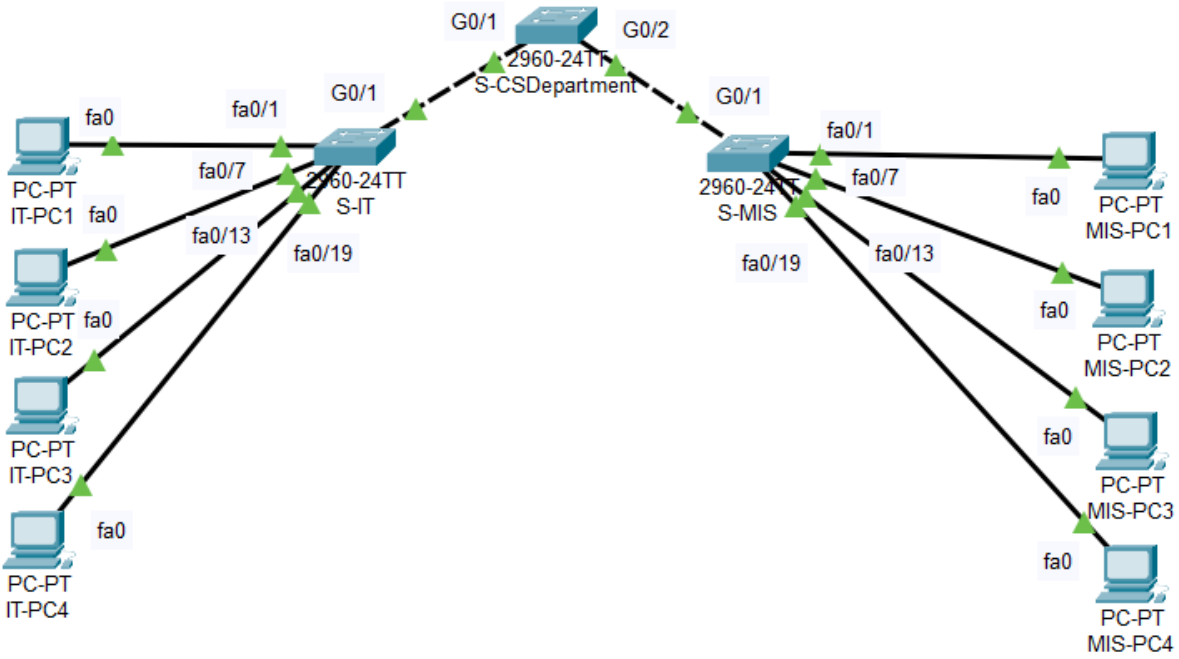

Packet Tracer – Configure VLANs, VTP and DTP

Addressing Table

Device	Interface	IP Address	Subnet Mask
IT-PC1	NIC	10.10.10.1	255.255.255.0
IT-PC2	NIC	10.10.20.1	255.255.255.0
IT-PC3	NIC	10.10.30.1	255.255.255.0
IT-PC4	NIC	10.10.40.1	255.255.255.0
MIS-PC1	NIC	10.10.10.2	255.255.255.0
MIS-PC2	NIC	10.10.20.2	255.255.255.0
MIS-PC3	NIC	10.10.30.2	255.255.255.0
MIS-PC4	NIC	10.10.40.2	255.255.255.0

S-CS Department	VLAN 99	10.10.99.1	255.255.255.0
S-IT	VLAN 99	10.10.99.2	255.255.255.0
S-MIS	VLAN 99	10.10.99.3	255.255.255.0

Objectives

Part 1: Configure and Verify DTP

Part 2: Configure and Verify VTP

Background / Scenario

As the number of switches in a network increases, the administration necessary to manage the VLANs and trunks can be challenging. To ease some of the VLAN and trunking configurations, VLAN trunking protocol (VTP) allows a network administration to automate the management of VLANs. Trunk negotiation between network devices is managed by the Dynamic Trunking Protocol (DTP), and is automatically enabled on Catalyst 2960 and Catalyst 3560 switches.

In this activity, you will configure trunk links between the switches. You will configure a VTP server and VTP clients in the same VTP domain. You will also observe the VTP behavior when a switch is in VTP transparent mode. You will assign ports to VLANs and verify end-to-end connectivity with the same VLAN.

Part 1: Configure and Verify DTP

In Part 1, you will configure trunk links among the switches, and you will configure VLAN 999 as the native VLAN.

Step 1: Verify VLAN configuration.

Verify the configured VLANs on the switches.

a. On S1, click the **CLI** tab. At the prompt, enter **enable** and enter the **show vlan brief** command to verify the configured VLANs on S-CS Department.

```
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, Fa0/24
Gig0/1, Gig0/2
99 Management active
999 VLAN999 active
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
```

b. Repeat step a. on S-IT and S-MIS. What VLANs are configured on the switches?

VLANs 99 and 999 are configured on all the switches.

Step 2: Configure Trunks on S-CSDepartment, S-IT, and S-MIS.

Dynamic trunking protocol (DTP) manages the trunk links between Cisco switches. Currently all the switchports are in the default trunking mode, which is dynamic auto. In this step, you will change the trunking mode to dynamic desirable for the link between switches S-CSDepartment and S-IT. For the link between switches S-CSDepartment and S-MIS, the link will be set as a static trunk. Use VLAN 999 as the native VLAN in this topology.

Part 2: Configure and Verify VTP

S-CSDepartment will be configured as the VTP server and S-IT will be configured as a VTP client. All the switches will be configured to be in the VTP domain **CCNA** and use the VTP password **cisco**.

VLANs can be created on the VTP server and distributed to other switches in the VTP domain. In this part, you will create 3 new VLANs on the VTP server, S-CSDepartment. These VLANs will be distributed to S-IT using VTP. Observe how the transparent VTP mode behaves.

Step 1: Configure S-CSDepartment as VTP server.

Configure S-CSDepartment as the VTP server in the **CCNA** domain with the password **cisco**.

```
Switch(config)#vtp domain CCNA
Changing VTP domain name from NULL to CCNA
Switch(config)#vtp pass
Switch(config)#vtp password cisco
Setting device VLAN database password to cisco
```

Step 2: Verify VTP on S-CSDepartment.

a. Use the **show vtp status** command on the switches to confirm that the VTP mode and domain are

```
Switch#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 : CCNA
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 000A.F3D3.5A00
Configuration last modified by 10.10.99.1 at 3-1-93 01:07:58
Local updater ID is 10.10.99.1 on interface Vl99 (lowest numbered VLAN interface found)

Feature VLAN :
--------------
VTP Operating Mode                : Server
Maximum VLANs supported locally   : 255
Number of existing VLANs          : 11
Configuration Revision            : 12
MD5 digest                        : 0x79 0x3B 0x59 0x46 0xFE 0x50 0x2A 0xB9
                                    0x72 0xE7 0x65 0xDB 0xFD 0xE1 0x61 0xC5

Switch#
```

b. To verify the VTP password, use the **show vtp password** command.

```
Switch#show vtp password
VTP Password: cisco
```

Step 3: Add S-IT and S-MIS to the VTP domain.

Before S-IT and S-MIS will accept VTP advertisements from S-CSDepartment, they must belong to the same VTP domain. Configure S-IT as a VTP client with **CCNA** as the VTP domain name and **cisco** as the VTP password. Remember that VTP domain names are case sensitive.

a. Enter **show vtp status** command on all the switches to answer the following question.

Notice that the configuration revision number is 0 on all three switches. Explain.

The configuration revision number increments by one every time a VLAN is added, deleted, or modified. No additional configurations have been made to VLANs on any of the switches.

Step 4: Create more VLANs on S-CSDepartment.

a. Create VLANs 20 and 30 according to the table below.

VLAN Number	VLAN Name
10	Red
20	Blue
30	Yellow

40	Orange

c. Verify the addition of the new VLANs. Enter **show vlan brief** at the privileged EXEC mode.

Which VLANs are configured on S-CSDepartment?

VLANs 1, 10, 20, 30,40, 99, and 999.

d. Confirm configuration changes using the **show vtp status** command on S-CSDepartment and S-IT to confirm that the VTP mode and domain are configured correctly. Output for S-IT is shown here:

How many VLANs are configured on S-IT? Does S-IT have the same VLANs as S-CSDepartment? Explain.

S2 has 11 VLANs, the same number as S1. Because S1 is the VTP server and S2 is a VTP client in the CCNA domain, S2 has received the VLAN information from S1.

Step 5: Observe VTP transparent mode.

S-MIS is currently configured as VTP transparent mode.

a. Change VTP mode to client on S-MIS.

Use show commands to verify the changes on VTP mode. How many VLANs exists on S-MIS now?

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Note: VTP advertisements are flooded throughout the management domain every five minutes, or whenever a change occurs in VLAN configurations. To accelerate this process, you can switch between Realtime mode and Simulation mode until the next round of updates. However, you may have to do this multiple times because this will only forward Packet Tracer's clock by 10 seconds each time. Alternatively, you can change one of the client switches to transparent mode and then back to client mode.

Step 6: Assign VLANs to Ports

Use the **switchport mode access** command to set access mode for the access links. Use the **switchport access vlan** *vlan-id* command to assign a VLAN to an access port.

Ports	Assignments	Network
S2 F0/1 – 6 S3 F0/1 – 6	VLAN 10 (Red)	10.10.10.0 /24
S2 F0/7 – 12 S3 F0/7 – 12	VLAN 20 (Blue)	10.10.20.0 /24
S2 F0/13 – 18 S3 F0/13 – 18	VLAN 30 (Yellow)	10.10.30.0 /24
S2 F0/19 – 24	VLAN 40 (Orange)	10.10.40.0 /24

S3 F0/19 – 24		

a. Assign VLANs to ports on S-IT using assignments from the table above.

b. Assign VLANs to ports on S-MIS using assignment from the table above.

Step 7: Verify end to end connectivity.

a. From IT-PC1 ping MIS-PC1.

C:\>ping 10.10.10.2
Pinging 10.10.10.2 with 32 bytes of data:
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Ping statistics for 10.10.10.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms

b. From IT-PC2 ping MIS-PC2.

C:\>ping 10.10.20.2
Pinging 10.10.20.2 with 32 bytes of data:
Reply from 10.10.20.2: bytes=32 time<1ms TTL=128
Reply from 10.10.20.2: bytes=32 time<1ms TTL=128
Reply from 10.10.20.2: bytes=32 time<1ms TTL=128
Reply from 10.10.20.2: bytes=32 time<1ms TTL=128
Ping statistics for 10.10.20.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms

c. From IT-PC3 ping MIS-PC3.

C:\>ping 10.10.30.2
Pinging 10.10.30.2 with 32 bytes of data:
Reply from 10.10.30.2: bytes=32 time<1ms TTL=128
Reply from 10.10.30.2: bytes=32 time<1ms TTL=128
Reply from 10.10.30.2: bytes=32 time<1ms TTL=128
Reply from 10.10.30.2: bytes=32 time<1ms TTL=128
Ping statistics for 10.10.30.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms

d. From IT-PC4 ping MIS-PC4

C:\>ping 10.10.40.2

Pinging 10.10.40.2 with 32 bytes of data:
Reply from 10.10.40.2: bytes=32 time<1ms TTL=128
Reply from 10.10.40.2: bytes=32 time<1ms TTL=128
Reply from 10.10.40.2: bytes=32 time<1ms TTL=128
Reply from 10.10.40.2: bytes=32 time<1ms TTL=128
Ping statistics for 10.10.40.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms

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