

Lab3 - Guideline

Topics

- A. VLANs and Trunking
- B. VTP protocol
- C. Inter-VLAN routing: Router, Sw L3

Step1: create the below depicted topology using Cisco Packet Tracer simulator

Step2: set the links between the switches in trunk mode

Step3: create VLAN 10 (name IT), 20 (name Staff), 30, 40, 50 **only** on the L3 Switch

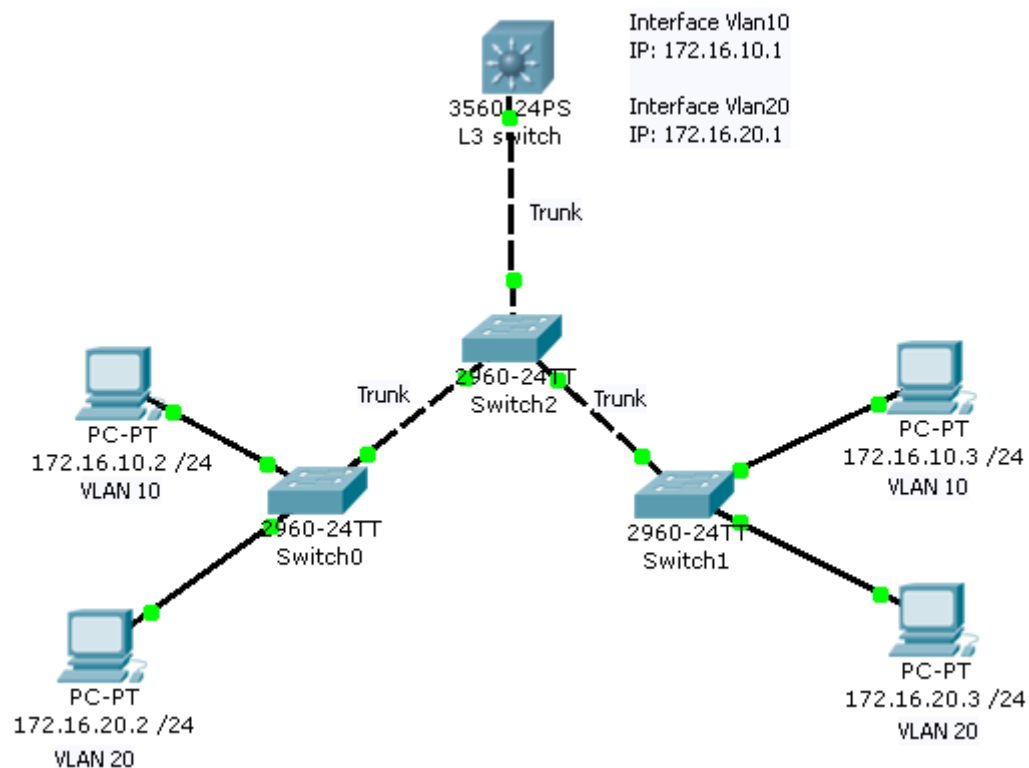
Step4: propagate VLANs' information using VTP protocol

Step5: assign IP addresses as shown below

Step6: set the appropriate switches' interfaces in access mode

Step7: test the connectivity

Laboratory test configuration:



A. VLANs and Trunking

Commands Used:

! Create VLANs 10 - 50

Switch>enable

Switch#configure terminal

Switch(config)#vlan 10

Description: Global configuration command that creates VLAN 10

Switch(config-vlan)#name IT

Description: Assigns a name to the VLAN

Switch#show vlan brief

Description: Displays VLANs information (the contents of the vlan.dat file)

Set interfaces in TRUNK or ACCESS mode

Switch(config)#interface fa 0/1

*Switch(config-if)#switchport mode **access***

Switch(config-if)#switchport access vlan 10

Description: Configures a port as an access port and assigns VLAN 10 to an access port

*Switch(config-if)#switchport mode **trunk***

Description: Configures a port as a trunk port

*Switch#show interfaces **trunk***

Description: Displays trunking information for the switch

B. VTP Protocol

VTP = VLAN Trunking Protocol

- allows for the propagation of VLAN's from a single switch to multiple switches (Server-Client architecture) in the same **VTP Domain** (domain = share the same VLANs)

VTP Server switch - centralized point of management in the network for VLAN definition and propagation. *Define all VLANs on the server.*

VTP Client switch - learns its VLAN information from the VTP Server in its specified VTP Domain.

VTP Transparent switch - does not participate in VTP. A VTP transparent switch does not advertise its VLAN configuration and does not synchronize its VLAN configuration based on received advertisements, but transparent switches do forward VTP advertisements that they receive out their trunk ports in VTP Version 2.

Commands Used:

Switch#show vtp status

Description: view the current settings configured for VTP

*Switch(config)# vtp mode **server***

or

*Switch(config)# vtp mode **client***

or

*Switch(config)# vtp mode **transparent***

Description: set VTP switch type.

*Switch(config)# vtp **domain** CND*

Description: set the VTP domain name. Switches sharing the same VLANs must use the same domain name.

- a) On the Server switch:
 - a. Define the VLANs to be propagated using VTP.
 - b. Set the domain name
- b) Set the links between switches in mode trunk
- c) Set the other switches:
 - a. in Client mode, to synchronize with the Server.
 - b. Set the domain name
- d) Check VTP status on all switches.

C. Inter-Vlan routing using a L3 Switch

Commands Used:

*SwitchL3(config)#**ip routing***

Description: Enable routing on the switch

SwitchL3 (config)#interface fa 0/1

SwitchL3 (config-if)#switchport trunk encapsulation dot1q

SwitchL3 (config-if)#switchport mode trunk

Description: Set an interface in mode trunk on Layer3 Switch

Assign IP address to VLAN interfaces, following the next example:

SwitchL3 (config)#interface Vlan10

SwitchL3 (config-if)#ip address 172.16.10.1 255.255.255.0

SwitchL3 (config-if)#no shutdown

Description: Configure the VLAN interfaces with the IP addresses

SwitchL3 #show ip route

Description: Visualize the routing table

Set the Default Gateway IP on the host computers.

Test the connectivity.