

CCNP Switching 2.0

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ATTENTION: This document outlines the differences between the standard CLSC course and the new Switching 2.0 course. This guide should be used to supplement the existing NetworkStudyGuides CLSC material if you intend to take the Switching 2.0 Exam.

□ VTP

- General Information
 - Layer 2 Messaging Protocol
 - Maintains VLAN consistency
 - Manages the adding, deleting, and renaming of VLANS
- Domain
 - Also call VLAN management domain
 - Can be one switch or several switches in the same VTP domain
- Modes
 - VTP server:
 - You can create, edit, delete VLANs and specify other parameters
 - Advertise their VLAN configurations to switches in the same VTP domain
 - Synchronize their VLAN configurations according to other switches
 - VLAN configuration are saved on nonvolatile memory
 - This is the default mode
 - VTP client:
 - Act like VTP servers with one huge exception they can not create, edit, or delete VLANS on a VTP client.
 - VLAN configurations are NOT saved in nonvolatile memory
 - VTP transparent:
 - Do not participate in VTP
 - Does not advertise their VLAN configuration

- Does not synchronize its VLAN configuration based on the advertisements that it receives.
 - Do forward VTP advertisements that they receive
 - Can create, edit, and delete VLANS
 - VLAN configurations are saved in nonvolatile memory, but they are not advertised to other switches
- Changing VTP Modes
 - There are two thing that will cause a VTP to change modes automatically:
 - When netork has more then 250 VLANs, the switch wqill change from a server to client mode, from client mode to transparent mode.
 - Multi VLAN port is configured on a supported switch, in VTP server of client mode will switch to transparent mode.
- Global Information in a VTP Advertisement:
 - VTP Domain Name
 - VTP Configuration Revision Number
 - Update Identity
 - Update Timestamp
 - MD5 Digest
- VLAN Information in a VTP Advertisement:
 - VLAN ID
 - VLAN Name
 - VLAN Type
 - VLAN State
 - Any more information that is specific to the VLAN
- VTP Version 2
 - Features that are not supported in VTP version 1
 - Token Ring LAN Switching and VLANs
 - Unrecognized TLV (Type Length Value)
 - Version Dependent Transparent Mode: In transparent mode forwards the VTP messages without checking the version number.
 - Consistency Checks: Only performed when you enter new data through the CLI, CVSM software, or SNMP.
- VTP Pruning
 - Increases bandwidth by restricting the flow of flooded traffic to the trunk links that provide access to the needed network devices.
 - Can block flooded traffic to VLANS in the pruning elgible list.
- VTP Configuration
 - All the switches in the VTP domain must runn the same VTP version.
 - Password entered for the domain name should be the same for all the switched in that domain.

- VTP version 2 switches can operate in the same VTP domain with a VTP version 1 switch as long as the version 2 is disabled on the switch.
- Don't enable VTP version 2 in the VTP domain unless all the switches in the domain has version 2.
- If the network is Token Ring, you must enable VTP version 2.
- Enabling VTP pruning on a VTP server will enable or disable it on the entire management domain.
- The Cisco IOS commands end and ctrl-z are not supported in the VLAN database mode.
- VLAN commands
 - Configuring A VTP Server:
 - **vlan database**: This will enter into the VLAN configuration mode.
 - **vtp domain *domain-name***: This will configure a VTP administrative-domain name. It has a length of 1 to 32 characters.
 - **vtp password *password-value***: this will set the password for the VTP domain. This password has a range of 8 to 64 characters.
 - **vtp server**: This will configure the switch as a server.
 - **vtp client**: This will put the switch in VTP client mode.
 - **vtp transparent**: This will place the switch in transparent mode, which will disable VTP on the switch.
 - **vlan *vlan-id* name *vlan-name***: This will add an Ethernet VLAN by assigning a number to it.
 - **vlan *vlan-id* mtu *mtu-size***: This will first identify the VLAN and then change the default MTU size to whatever you want.
 - **exit**: This will exit the VLAN database mode and return you to EXEC mode.
 - **show vtp status**: This will show the VTP configuration.
 - **show vlan name *vlan-name***: This will verify the VLAN configuration.
 - **vtp v2-mode**: This will enable VTP version 2 on the switch. Version 1 and Version 2 are not interoperable, so you will not enable version 2 unless every switch in the network supports version 2.
 - **no vtp v2-mode**: This will disable version 2 of VTP on the switch.
 - **no vlan *vlan-id***: This will remove the VLAN that has the ID number that you inputted.
 - **show vtp counters**: This will display the counters about the VTP messages being sent and received.
 - Commands assigning a port to a VLAN:
 - **configure terminal**: This will enter you into global configuration mode first.

- **interface *interface***: You will want to enter the interface configuration mode, as to define the interface to be added to the VLAN
- **switchport mode access**: This will define the VLAN membership for this port.
- **switchport access vlan *vlan-id***: This will assign the port to the VLAN that you want it to be assigned to.
- **exit**: This will put you right back in priveleged mode where you started from.
- **show interface *interface-id* switchport**: Verify the VLAN configuration.

□ Virtual Lan

- How they work:
 - Group of workstations with a common set of requirements, that are independent of location.
 - Same attributes of a physical LAN, but you do not have to group them in the same physical location.
 - On supported switched they limit unicast, multicast, and broadcast traffic flooding.
 - When traffic is flooded on a VLAN it is only flooded out of ports that support that VLAN
- Membership
 - Mode
 - Static Access: This is only one VLAN and is manually assigned. This is the default way.
 - Multi-VLAN: Belong to 250 VLANS maximum and they are manually assigned. This can not be configured when there is a trunk configured on the switch. VLANB traffic on this is not encapsulated.
 - Trunk: A member of all the VLANs in the database by default. This membership can be limited by the configuring of the allowed-VLAN list. ISL, ATM, or IEEE 802.1Q all make up the trunk.
- Add VLAN to a VTP database:
 - You can set the following parameters, when you add the VLAN to the VTP database:
 - VLAN ID
 - VLAN Name
 - VLAN Type:
 - Such As: Ethernet, FDDI, FDDI NET, TrBRF, TrCRF, Token Ring, Token Ring-Net
 - VLAN State:
 - Two types: Active or Suspended
 - MTU for the VLAN
 - SAID (Security Association Identifier)

- Bridgr Id Number for TrBRF VLANs
 - Ring Number for FDDI and TrCRF VLANs
 - Parent VLAN number for TrCRF VLANs
 - STP type for TrCRF VLANs
 - VLAN Number to use when translating one VLAN to another
- Token Ring VLANs Supported
 - Must run VTP version 2
 - Token Ring TrBRF
 - Token Ring TrCRF
- VLAN Configuration Guidelines
 - Max 250 VLANs can be active or supported by a switch.
 - Note: Some models only support 64 VLANs
 - To create a VLAN the switch must be in VTP server or transparent mode.
- Default VLAN Configurations
 - Ethernet Parameters Defaults:
 - VLAN ID Range: 1-1005
 - VLAN Name: No Limit
 - 802.10 SAID
 - MTU Size: 1500
 - Translational Bridge 1: 0
 - Translational Bridge 2: 0
 - VLAN State: Active
 - FDDI Parameters Defaults:
 - VLAN ID: 1-1005
 - VLAN Name: No Limit
 - 802.10 SAID
 - MTU Size: 1500
 - Bridge Number: 0
 - STP Type: IEEE
 - Translational Bridge 1: 0
 - Translational Bridge 2: 0
 - VLAN State: Active
 - FDDI-Net Parameter Defaults:
 - VLAN ID: 1-1005
 - VLAN Name: No Limit
 - 802.10 SAID
 - MTU Size:
 - Version 1: 1500
 - Verison 2: 4472
 - Bridge Number:
 - Version 1: 0
 - Version 2: User Specified
 - STP Type: IBM
 - Translational Bridge 1: 0
 - Translational Bridge 2: 0

- - VLAN State: Active