



VTP

Outline

- VTP
- VTP Modes
- VTP Versions
- VTP authentication
- VTP revision number
- VTP update exchange process

VTP

- VLAN Trunking Protocol (VTP)
- Cisco Proprietary
- VTP is used to propagate the VLAN configuration changes to all other Switches in a VTP domain.
- All VTP Switches must be in the same VTP domain.
- Switches must be connected via trunk ports.
- All switches must have the same VTP Password
- All switches in the same VTP domain must run the same VTP version

VTP

- VTP has three versions: V1, V2, V3
- A switch running VTP V1 and capable of VTP V2 will automatically upgrade to VTP V2 if it detects a VTP V2 or VTP V3 running neighbor switch.
- A VTP V2 Switch will remain V2 even if it detects a VTP V3 neighbor switch.
- VTP V2 introduced support for Token Ring VLANs.
- VTP V2 does not support extended range VLANs.

VTP Modes

Parameter	Server	Client	Transparent	Off
Can be used to configure Vlan	Yes	No	Yes	Yes
Supports Vlan IDs	1-1005	1-1005	1-4094	1-4094
Originates VTP updates	Yes	No	No	No
Forwards VTP updates **	Yes	Yes	Yes	No
Synchronizes Vlan database based on received VTP updates	Yes	Yes	No	No

**** When configured with matching VTP domain name and password**

VTP Versions

VTPv1 vs VTPv2 vs VTPv3

Feature	VTPv1	VTPv2	VTPv3
VTP Modes	Server/Client/Transparent	Server/Client/Transparent	Server/Client/Transparent/Off
Supported VLANs	1-1001	1-1005	1-4094
Token Ring Support	Not Supported	Supported	Supported
Extended VLANs	Not supported	Not supported	Supported
Authentication	Plain text password	Plain text password	Encrypted password
Version Dependent Transparent Mode	VTPv1 check the VTP domain name and VTP version, The Transparent switch will forward VTP messages only when both VTP domain name and VTP version matches.	VTP Transparent will forward VTP messages without checking the VTP version and domain name	VTP Transparent will forward VTP messages without checking the VTP version and domain name

VTP V3

- VTP Version 3 is backward compatible with version 2 on a per link basis.
- VTP password of version 3 is not displayed in the running configuration as in the case of version 1 and version 2.
- Provides three options for password:
 - SW(config)#vtp password cisco123
 - SW# show vtp password
 - SW(config)#vtp password cisco123 hidden
 - SW(config)#vtp password cisco123 secret

VTP V3

- Provides a VTP primary Server and secondary server (the secondary server acts as VTP client of VTP version 2)
- **VTP Version 3 Configuration:**
 - SW(config)#vtp version 3
 - SW(config)#vtp domain Kabul
 - SW#vtp primary
 - SW(config)#vtp password cisco123
 - SW(config)#vtp password cisco123 hidden
 - SW#show vtp password

VTP V3

- With VTP version 3, now we are able to turn VTP off globally or per link:
- SW(config)#vtp mode off
- SW(config-if)#no vtp

Some Important Points

- Cisco switches running Cisco IOS store VTP and VLAN information in a separate database stored in Flash, in file called `vlan.dat`.
- Cisco switches running CatOS store VTP and VLAN information in the main switch configuration file, stored in NVRAM.
- A VTP advertisement contains the VLANs configured in the domain that are allowed on the *trunk*, the VTP domain name, and the VTP configuration revision number.

Some Important Points

- If a VTP client or server is added to the network with the same VTP domain name configured and with a higher revision number, all other switches in the VTP domain will overwrite their VTP configurations with that of the newly added switch.
- It is possible for a VTP client to overwrite the VLAN configuration of the network by having a higher configuration revision number when added to the network. A switch will listen to VTP advertisements from both VTP clients and VTP servers.
- When extended range VLANs are configured they are only stored in running configuration.

VTP Configuration Revision Number

- It is a sequence number that show the latest/updated version of VLAN database
- The update with a higher revision number overwrites the current VLAN database on the VTP client and Server.
- The VLAN database is synchronized only if the revision number is the same in all devices
- A Client/Server switch with a wrong VLAN database and higher revision number can overwrite the VLAN database on all switches.

VTP Authentication

- Used to validate VTP updates
- Configuration and verification:
 - SW(config)#vtp domain Test
 - SW(config)#vtp password <password>
 - SW#show vtp status
 - Sw#show vtp password
 - SW#compare MD5 hashes

VTP Update Exchange Process

- VTP summary advertisement packets contain the **domain name**, **VTP password** and the **revision number**.
- When a switch receives a summary packet, it compares the domain name and password with its own values. If the domain name and password do not match, the packet is **dropped**.
- If the password and domain name match, the switch compares the **revision number** received with its own.
- If the revision number is **lower or equal** then the packet is **ignored**.

VTP Update Exchange Process

- If the revision number received is **higher** then then an advertisement request is sent for the latest updates
- When latest updates are received, the VLAN configuration and revision number are updated.
- NOTE:
- If you lose the only VTP server, then the better and easy way to get a VTP server is to change the mode of any client switch to VTP server.

Condition for VTP information Exchange

- The switches must be connected by a **trunk** port.
- Switches must be in the same **VTP domain**.
- Transparent switches must be in the same **VTP domain** or **null** in order to forward VLAN configuration.
- **VTP password** on all switches must match.

Keep in Mind

- Reset the **Revision Number** before joining a new switch to the network. (True in the case of client and server)
- The revision number can be changed by:
 - By changing the VTP domain name
 - By changing the VTP mode to transparent
- NOTE:
 - Once set, we can not completely remove the VTP domain name, however, we are able to change the VTP domain name.

REFERENCES

THANK YOU