

To create VLAN on the cisco area. The required requirements are..

1) VLAN Name : "Office Expansion".

2) VLAN ID: 20

3) Ports: The VLAN should include ports on which the new office area device are connected. These ports are on the switch module labeled "Expansion Switch".

Steps to create VLAN (Office Expansion) in CISCO Packet Tracer:—

step 1: To create VLAN, here I am using cisco packet tracer.

step 2: To use cisco packet tracer, download and install the cisco packet tracer.

step 3: After successfully installing the cisco packet tracer create an account in cisco packet tracer.

step 4: To create VLAN (Virtual local area network) launch the cisco packet tracer.

step 5: After the successful launching of cisco packet tracer create any kind of topology along with the cisco switch.

step 6: Here I am creating a star topology along with many devices like Pc's, laptop's and server and connected them to the cisco switch.

step 7: To configure the VLAN, click on the cisco switch and select CLI (command line interface)

step 8: Write some commands to configure the VLAN
The following commands are used to configure the VLAN

step 9: To configure the VLAN first enable the switch.

step 10: The command for enabling is,

```
switch>en
```

```
switch#
```

step 11: Issue the "configure terminal" command in order to enter the global configuration mode.

The command is *conf*_{ig}

step 12: Create an Id for VLAN and as per the requirements the Id is 20. so, the command will be

```
switch# VLAN 20
```

step 13: Create a name for VLAN and as per the requirements the name is "Office Expansion". so, the command will be,

```
switch# name OfficeExpansion.
```

step 14: Issue the "Interface [type] mod/port>" command in order to enter the interface configuration mode. Here the command is,

```
switch (config-vlan)# exit
```

```
switch (config)# int fa1/0
```

Here int is a interface and fa1/0 is the port number. Here we are configuring the port.

step 15: Issue the "switchport mode access" command in order to configure the port mode. The command will be,

```
switch (config-if) # switchport mode access
```

step 16: Issue the "switchport access <vlan-id>" command in order to enter the VLAN membership mode for the port. The command will be,

```
switch (config-if) # switchport access vlan 20
```

step 17: Now you can verify the VLAN configuration. Configuration is verified using "show VLAN brief".
Commands for the configuration of VLAN:-

```
switch>en  
switch # config  
switch (config) # vlan 20  
switch (config-vlan) # name OfficeExpansion  
switch (config-vlan) # exit  
switch (config) # int fa 0/1  
switch (config-if) # switchport mode access.  
switch (config-if) # switchport access vlan 20  
switch (config-if) # exit  
switch (config) # exit  
switch # show vlan brief
```

Here show vlan brief is used to show the available ports for the newly created vlan 20 ("OfficeExpansion").

Rationale:

- By creating a VLAN for the new office expansion, you're logically segregating the network.
- This enhances security by limiting broadcast domains and reduces the risk of unauthorized access to sensitive data.

Considerations:

- Ensure that the ports on the "Expansion switch" are only accessible to the authorized devices. Use proper security measures like strong passwords or 802.1X authentication if needed.
- Implement appropriate firewall rules and access control lists between VLANs to control inter-VLAN traffic & maintain security.
- Monitor the network performance regularly to ensure that the segmentation doesn't lead to bottlenecks or congestion. Adjust bandwidth allocation if necessary.