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VLAN Configuration Commands

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Chapter 1 VLAN Configuration Commands

1.1 VLAN Configuration Commands

VLAN configuration commands include:

- `vlan`
- `name`
- `switchport pvid`
- `switchport mode`
- `switchport trunk`
- `show vlan`

1.1.1 `vlan`

To add a VLAN, use the **vlan** command. Use the `no` form of this command to delete a VLAN.

[no] vlan *vlan-id*

Parameter

Parameter	Description
<i>vlan-id</i>	ID of the VLAN. Range is from 1 to 4094.

Default

None

Command mode

Global

Instruction

Use this command to enter the VLAN configuration mode and to modify some attributes of the VLAN.

Example

This example shows how to add a new VLAN:

```
Switch_config#  
Switch_config#vlan 2  
Switch_config_vlan_2#
```

1.1.2 name

To assign a name to a VLAN, use the **name** command. Use the no form of this command to remove the name assigned to a VLAN.

[no] name *str*

Parameter

Parameter	Description
<i>str</i>	Name of the defined VLAN. The name consists of up to 32 characters.

Default

The default VLAN name is 'Default'. Other VLAN name is VLANxxxx (xxxx is 4-digit stack ID).

Command mode

VLAN configuration mode

Instruction

This command can modify VLAN name to indicate special VLAN according to special requirements.

Example

The following command modify vlan200 to main405.

```
Switch_config#  
Switch_config#  
Switch_config#vlan 200  
Switch_config_vlan_200#name ?  
WORD The ascii name of VLAN(32bytes)  
Switch_config_vlan_200#name main405
```

1.1.3 switchport pvid

To configure port VLAN of in the access mode, use the **switchport pvid** command.

switchport pvid *vlan-id*

no switchport pvid

Parameter

Parameter	Description
<i>vlan-id</i>	VLAN ID of the port。 Range is from 1 to 4094。

Default

All ports are subordinate to VLAN 1.

Command mode

Interface configuration mode

Instruction

Vlan of the pvid must exist before configuring this command. The port can be access mode or frame relay mode.

Example

The following example configures interface fastethernet 0/1 as the access interface of VLAN 10:

```
Switch(config)#interface f0/1
```

```
Switch(config)#vlan10
```

```
Switch(config-f0/1)#switchport pvid 10
```

1.1.4 switchport mode

To configure the interface mode, use the **switchport mode** command.

switchport mode {*access* | *dot1q-tunnel* | *trunk*}

Parameter

Parameter	Description
<i>access</i>	Sets a nontrunking, nontagged single VLAN Layer 2 interface.

<i>dot1q-tunnel</i>	Sets the trunking mode to TUNNEL unconditionally.
<i>trunk</i>	Specifies a trunking VLAN Layer 2 interface.

Default

Access mode

Command mode

Interface configuration mode

Instruction

If you enter access mode, the interface goes into permanent non-trunking mode and negotiates to convert the link into a nontrunk link even if the neighboring interface does not agree to the change.

If you enter trunk mode, the interface goes into permanent trunking mode and negotiates to convert the link into a trunk link even if the neighboring interface does not agree to the change.

If you enter dot1q-tunnel mode, the port is set unconditionally as an 802.1Q tunnel port.

The switchport mode command conflicts with 802.1X protocol. You cannot configure 802.1X protocol in trunk mode. 802.1X protocol is valid only in access mode.

Example

The following example configures the port to the trunk mode:

```
Switch(config-f0/1)#switchport mode trunk
```

1.1.5 switchport trunk

To set the trunk characteristics, use the **switchport trunk** command. To reset all of the trunking characteristics back to the original defaults, use the no form of this command.

[no] switchport trunk {*vlan-allowed vlan-list*} | {*vlan-untagged vlan-list*}

Parameter

Parameter	Description
<i>vlan-allowed</i>	Sets the list of allowed VLANs that transmit traffic from this interface in tagged format. Value is from 1 to 4094.
<i>vlan-untagged</i>	Sets the list of allowed VLANs that transmit traffic from this interface in untagged format. Value is from 1 to 4094.

Default

The default native vlan ID is 1.

The valid VLAN ID is from 1 to 4094 (all VLANs).

Command mode

Interface configuration

Instruction

You can use this command on an interface no matter it is in access or trunk mode. But this command is valid only when the interface is in trunking mode.

The `vlan-allowed` parameter sets the list of allowed VLANs that transmit traffic from this interface in tagged format. The `vlan-untagged` parameter sets the list of allowed VLANs that transmit traffic from this interface in untagged format.

The `vlan-list` format is `all | none | add | remove | except vlan-list[,vlan-list...]` where:

- all**—Specifies all VLANs from 1 to 1005. Beginning with Cisco IOS Release 12.4(15)T, the valid VLAN ID range is from 1 to 4094.

- none**—Indicates an empty list. This keyword is not supported in the `switchport trunk allowed vlan` form of the command.

- add**—Adds the defined list of VLANs to those currently set instead of replacing the list.

- remove**—Removes the defined list of VLANs from those currently set instead of replacing the list.

- except**—Lists the VLANs that should be calculated by inverting the defined list of VLANs.

- vlan-list**—Is either a single VLAN number from 1 to 1005 or a continuous range of VLANs described by two VLAN numbers, the lesser one first, separated by a hyphen that represents the VLAN IDs of the allowed VLANs when this port is in trunking mode. Beginning with Cisco IOS Release 12.4(15)T, the valid VLAN ID range is from 1 to 4094.

Example

The following example configures VLAN ID range to 1-10:

```
Switch(config-f0/1)#switchport trunk vlan-allowed 1-10,20-30,55
Switch(config-f0/1)#switchport trunk vlan-untagged 2-1000
```


1.1.6 double-tagging

To configure global VLAN tunnel characteristic, use the **double-tagging** command.

[no] **double-tagging**

Note:

Since the realization of the switch chip features vary widely, some switches can only enable/disable VLAN tunnel characteristic in global configuration mode, and some can also be configured on an interface.

The supporting capability in dot1q-tunnel of various models is as follows:

Model	Supporting capability in dot1 q-tunnel
2116 / 2224 / 2224M / 2226 / 2448B / 3224 / 3224M / 3424 / 6508	Not supported
2224D	Global
2448 / 2516 / 2524 / 3448 / 3512	port

For unlisted models or new models, please refer to the technical supporting engineers or download the latest instructions for reference.

Parameter

none

Default

disabled

Command mode

Interface configuration

Instruction

Some switch chips don't support port-based VLAN tunnelling configuration. They only support enabling or disabling this characteristic at the same time on all interfaces (please refer to the model description of the configuration manual). The switch that uses this kind of switch doesn't provide the switchport mode dot1q-tunnel command in the interface configuration mode. It provides the double-tagging command in the global configuration mode instead to enable or disable the double-tagging characteristic in the global configuration.

Example

The following example enables global vlan tunnel characteristic of the switch:

```
Switch(config)#double-tagging
```

1.1.7 show vlan

To display VLAN information, use the show vlan command.

```
show vlan [id vlan-id | interface intf-id]
```

Parameter

Parameter	Description
<i>id</i>	Displays information about a single VLAN that is identified by a VLAN ID number; valid values are from 1 to 4094.
<i>interface</i>	Displays the specified interface

Default

None

Command mode

EXEC/ All configuration modes

Instruction

None

Example

The following example shows all VLAN information:

```
Switch#sho vlan
```

```
VLAN Status  Name          Ports
-----
1   Static  Default      F0/1, F0/2, F0/3, F0/4, F0/5, F0/6, F0/7, F0/8
                                F0/9, F0/10, F0/11, F0/12, F0/13, F0/14, F0/15
                                F0/16, F0/17, F0/18, F0/19, F0/20, F0/21, F0/22
                                F0/23, F0/24, G1/1, G2/1, P1
2   Static  VLAN0002     F0/3
3   Static  VLAN0003     F0/3
4   Static  VLAN0004     F0/3
5   Static  VLAN0005     F0/3
6   Static  VLAN0006     F0/3
```

Status: it indicates the source of VLAN. Static: indicates the VLAN is formed by configuration. Dynamic: indicates the VLAN is dynamically formed by GVRP protocol.

The following example shows the concrete information of a VLAN:

```
Switch> show vlan id 1
```

```
VLAN id: 1, Name: default, TotalPorts:11
```

Ports	Attributes

F0/1	Trunk,Untagged
F0/2	Access
F0/5	Trunk,Untagged
F0/7	Trunk,Tagged
F0/8	Trunk,Tagged
F0/9	Trunk,Tagged
F0/11	Access
F0/12	Access
F0/14	Trunk,Tagged
F0/15	Trunk,Tagged
F0/16	Trunk,Untagged

The following example shows the relevant information about a VLAN on an interface:

```
Switch#sho vlan int f0/6
```

Interface	VLAN			
Name	Property	PVID	Vlan-Map	uTagg-VLan-Map

FastEthernet0/6	Trunk	1	3,5,7,9,11,13,15	none
			17,19	

```
Switch#sho vlan int f0/7
```

Interface	VLAN			
Name	Property	PVID	Vlan-Map	uTagg-VLan-Map

FastEthernet0/7	Access	7	7	----

1.1.8 interface supervlan

Description

[no] interface supervlan *index*

It is used to configure the SuperVLAN interface.

Parameter

Parameter	Description
<i>index</i>	Index of the SuperVlan port, ranging from 1 to 32

Default

None

Explanation

The command is configured in global configuration mode. It is used to configure a SuperVLAN port and enable the system to enter the port configuration mode. Its “no” form can be used to delete the configured interface.

Example

See the **sub vlan** command.

1.1.9 sub vlan

Description

[no] sub vlan [*string*] [**add** *add-string*] [**remove** *rem-string*]

It is used to configure a SubVLAN on the SuperVLAN interface. Its “no” form can be used to delete all SubVlans on the SuperVLAN interface. Only one subcommand can be used each time.

Parameter

Parameter	Description
<i>string</i>	Sets SubVlan in a SuperVLAN. If you set a SubVlan, the original configuration will be deleted. string here means the VLAN list, for example, 2, 4, 5 and 6 stand for VLAN 2, VLAN 4, VLAN 5 and VLAN 6 respectively.
<i>add-string</i>	Adds the add-string VLAN list to the original SubVlan. The format is the same as above.
<i>rem-string</i>	Removes the del-string VLAN list from the original SubVlan. The format is the same as above.

Default

The SubVlan in SuperVlan is null by default.

Explanation

A SubVLAN list can be configured in the SuperVLAN.

Example

In the following example, interface SuperVlan 5 is configured and SubVLANs are set. Interface SuperVlan 5 has the SubVlan lists 2, 3, 5, 6, 7, 9, 11 and 12, that is, Vlan 2, Vlan 3, Vlan 5, Vlan 6, Vlan 7, Vlan 9, Vlan 11 and Vlan 12.

```
interface supervlan 5
subvlan 2,3,5-7
subvlan add 7,9-12
subvlan remove 10
```