



VLAN Configuration Commands

As our products undergo continuous development the specifications are subject to change without prior notice.

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Chapter 1 VLAN Configuration Commands

1.1 VLAN Configuration Commands

VLAN configuration commands include:

- `vlan`
- `name`
- `dot1q-tunnel`
- `switchport pvid`
- `switchport mode`
- `switchport trunk`
- `show vlan`
- `show interface vlan`

1.1.1 `vlan`

Syntax

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

The default is 1.

Command Mode

Global configuration mode

Usage Guidelines

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

Example

This example shows how to add a new VLAN with its ID as 2:

```
Switch_config#  
Switch_config#vlan 2  
Switch_config_vlan2#exit
```

1.1.2 name

Syntax

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

Usage Guidelines

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

Example

The following example shows how to modify vlan200 to main405.

```
Switch_config#  
Switch_config#  
Switch_config#vlan 200  
Switch_config_vlan200#name ?  
    WORD  The ascii name of VLAN(32bytes)  
Switch_config_vlan200#name main405
```

1.1.3 dot1q-tunnel

Syntax

dot1q-tunnel

no dot1q-tunnel

The command is used to enable or disable global Dot1q Tunnel.

Parameter

None

Default

Global Dot1q Tunnel is not enabled.

Command Mode

Global configuration mode

Usage Guidelines

The command is used to enable Dot1Q Tunnel globally, turn all ports to Dot1Q Tunnel downlink ports and add SPVLAN tag to the incoming packets.

Example

The following example shows how to enable Dot1q Tunnel globally.

```
Switch_config#dot1q-tunnel
```

1.1.4 switchport pvid

Syntax

switchport pvid *vlan-id*

no switchport pvid

To configure VLAN of the access-mode port, run **switchport pvid vlan-id**.

Parameter

Parameter	Description
<i>vlan-id</i>	VLAN ID which the port belongs to, ranging between 1 and 4049

Default

All ports belong to VLAN 1.

Command Mode

Interface configuration mode

Usage Guidelines

If the vlan which pavid belongs to does not exist before the command is configured, the vlan will be created at the same time as the pavid is generated. The port can be in access mode or relay mode.

Example

The following example shows how to configure GigaEthernet 0/1 to the access port of VLAN 10.

```
Switch_config#interface g0/1
```

```
Switch_config_g0/1#switchport pvid 10
```

1.1.5 switchport mode

Syntax

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

switchport mode {access | trunk | dot1q-tunnel-uplink | dot1q-translating-tunnel}

no switchport mode

Parameter

Parameter	Description
<i>access</i>	The access mode
<i>trunk</i>	The relay mode
<i>dot1q-tunnel-uplink</i>	VLAN tunnel uplink mode
<i>dot1q-translating-tunnel</i>	VLAN translating tunnel mode

Default

Access mode

Command Mode

Interface configuration mode

Usage Guidelines

OLT supports the following modes: the access mode, the relay mode, the VLAN translating tunnel mode and the VLAN tunnel uplink mode.

The access mode indicates that the port belongs to just one VLAN; only the untagged Ethernet frame can be transmitted and received.

The relay mode indicates that the port connects other switches and the tagged Ethernet frame can be transmitted and received.

The VLAN translating tunnel mode is a sub mode based on the relay mode. The port looks up the VLAN translation table according to the VLAN tag of received packets to obtain corresponding SPVLAN, and then the switching chip replaces the original tag with SPVLAN or adds the SPVLAN tag to the outside layer of the original tag. When the packets is forwarded out of the port, the SPVLAN will be replaced by the original tag or the SPVLAN tag will be removed mandatorily. Hence, the OLT omits different VLAN partitions that access the network, and then passes them without change to the other subnet that connects the other port of the same client, realizing transparent transmission.

The VLAN tunnel uplink mode is a sub mode based on the relay mode. The SPVLAN should be set when packets are forwarded out of the port. When the packets are received by the port, their TPIDs will be checked. If difference occurs or they are untagged packets, the SPVLAN tag which contains their own TPID will be added to them as their outer-layer tag.

The port mode collides with the 802.1X protocol. The 802.1X protocol cannot be configured in relay mode (including the VLAN translating tunnel mode and the VLAN tunnel uplink mode); the port on which the 802.1X protocol is configured cannot be set to the relay mode. That is to say, the 802.1X protocol can be effective only on the access-mode port (including the VLAN tunnel mode).

The 802.1X standard does not support authentication on the trunk port. The reason is that the authentication object regulated in the standard is not the port. As to port multiplexing, if user authentication is approved in one VLAN, all other VLAN users who multiplex this port are also authorized correspondingly, therefore, the trunk port does not support authentication.

Example

The following example shows how to set the port to the VLAN tunnel uplink mode:

```
Switch_config_g0/1#switchport mode dot1q-tunnel-uplink
```

1.1.6 switchport trunk

Syntax

To set the trunk characteristics, use the **switchport trunk** 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 can receive or transmit traffic on this interface. 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 mode

Usage Guidelines

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.

When the vlan list is used, you can add, remove or set (none, all, except) the lists of the existing VLAN. The input list is divided by “,” and “-”, for instance, ‘1, 3, 5, 7’ represents respectively “vlan 1, vlan 3, vlan 5 and vlan7”; ‘1, 3-5, 7’ represents vlan 1, vlan 3, vlan4, vlan 5 and vlan7.

Example

The following example configures VLAN ID range to 1-10 and trunk untagged VLAN to 2-1000.

```
Switch_config_g0/1#switchport trunk vlan-allowed 1-10
Switch_config_g0/1#switchport trunk vlan-untagged 2-1000
```

1.1.7 show vlan

Syntax

To display VLAN information, use the show vlan command.

show vlan [id *vlan-id* | interface *intf-id* | dot1q-tunnel [interface *intf*] | mac-vlan | subnet | protocol-vlan | dot1q-translating-tunnel]

Parameter

Parameter	Description
Id <i>vlan-id</i>	Displays information about the specified VLAN; valid values are from 1 to 4094.
Interface <i>Intf-id</i>	Displays the specified interface
dot1q-tunnel [interface <i>intf</i>]	Displays global information and summary statistics of Dot1Q Tunnel, or displays Dot1Q Tunnel information of the specified port.
mac-vlan	Displays mac-based VLAN table entries
subnet	Displays IP subnet-based VLAN table entries
protocol-vlan	Displays protocol-based VLAN templates or table entries
dot1q-translating-tunnel	Displays information on port VLAN tunnel translation

Default

None

Command Mode

EXEC/ All configuration modes

Usage Guidelines

None

Example

The following example shows all VLAN information:

```
Switch#show vlan
```

VLAN	Status	Name	Ports
1	Static	Default	g0/1, g0/2, g0/4.....
2	Static	VLAN0002	g0/3
3	Static	VLAN0003	g0/3
4	Static	VLAN0004	g0/3
5	Static	VLAN0005	g0/3

Status: 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
g0/1	Trunk,Untagged
g0/2	Access

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

```
Switch#show vlan int g0/6
```

Interface	VLAN
Name	Property PVID Vlan-Map uTagg-VLan-Map
GigaEthernet0/2	Trunk 1 3,5,7,9,11,13,15 none 17,19

```
Switch#show vlan int g0/7
```

Interface	VLAN
Name	Property PVID Vlan-Map uTagg-VLan-Map
GigaEthernet 0/3	Access 7 7 ----

1.1.8 show interface vlan

Syntax

show interface vlan *intf-id*

The above command is used to show information about VLAN Interface.

Parameter

Parameter	Description	Value ranges
Intf-id	Shows specified port	1-4094

Default

None

Command Mode

EXEC/ All configuration modes

Usage Guidelines

None

Example

The following example shows how to show information about Interface VLAN 1.

```
Switch#show int vlan 1
```

```
VLAN1 is up, line protocol is up
```

```
Hardware is EtherSVI, Address is 00e0.0f42.0071(00e0.0f42.0071)
```

```
MTU 1500 bytes, BW 1000000 kbit, DLY 2000 usec
```

```
Encapsulation ARPA, loopback not set
```

```
5 minute input rate 0 bits/sec, 0 packets/sec
```

```
5 minute output rate 0 bits/sec, 0 packets/sec
```

```
0 packets input, 0 bytes, 0 no buffer
```

```
Received 0 broadcasts, 0 multicasts
```

0 input errors, 0 input discards

0 packets output, 0 bytes, 0 underruns

Transmitted 0 broadcasts, 0 multicasts

0 output errors, , 0 discards

ARP type: ARPA, ARP timeout 04:00:00

The statistics values are explained as follows:

Pachets input means the input of all packets, including broadcast packets, multicast packets and unicast packets.

Bytes means the byte volume of all packets.

Broadcasts means received broadcast packets.

Multicasts means received multicast packets.

Input errors means received error packets.

Input discards means that the received packets are dropped, such as the received packets when the interface protocol is down.

Pachets output means the output of all packets, including broadcast packets, multicast packets and unicast packets.

Bytes means the byte volume of all transmitted packets.

Broadcasts means transmitted broadcast packets.

Multicasts means transmitted multicast packets.

Output errors means transmitting error packets.

Output discards means that the transmitted packets are dropped, such as the transmitted packets when the interface protocol is down.