

Voice VLAN Commands

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show voice vlan

To display the voice VLAN status for all interfaces or for a specific interface if the voice VLAN type is OUI, use the **show voice vlan** Privileged EXEC mode command.

Syntax

show voice vlan [**type** {***oui*** [{*interface-id* **| detailed**}] | *auto*}]

Parameters

- **type oui**—(Optional) Common and OUI-voice-VLAN specific parameters are displayed.
- **type auto**—(Optional) Common and Auto Voice VLAN-specific parameters are displayed.
- **interface-id**—(Optional) Specifies an Ethernet port ID.
- **detailed**—(Optional) Displays information for non-present ports in addition to present ports.

Default Configuration

If the **type** parameter is omitted the current Voice VLAN type is used.

If the **interface-id** parameter is omitted then information about all present interfaces is displayed. If detailed is used, non-present ports are also displayed.

Command Mode

Privileged EXEC mode

User Guidelines

Using this command without parameters displays the current voice VLAN type parameters and local and agreed voice VLAN settings.

Using this command with the **type** parameter displays the voice VLAN parameters relevant to the type selected. The the local and agreed voice VLAN settings are displayed only if this is the current voice VLAN state.

The interface-id parameter is relevant only for the OUI VLAN type.

Examples

The following examples display the output of this command in various configurations.

Example 1—Displays the **auto** voice VLAN parameters (this is independent of the voice VLAN state actually enabled).

```
switch>show voice vlan type auto
switchxxxxxx# show voice vlan type auto
Best Local Voice VLAN-ID is 5
Best Local VPT is 5 (default)
Best Local DSCP is 46 (default)
Agreed Voice VLAN is received from switch 00:24:01:30:10:00
Agreed Voice VLAN priority is  0 (active static source)
Agreed Voice VLAN-ID is 5
Agreed VPT is 5
```

```
Agreed DSCP is 46
Agreed Voice VLAN Last Change is 11-Jul-11 15:52:51
switchxxxxxx#
```

Example 2—Displays the current voice VLAN parameters when the voice VLAN state is auto-enabled.

```
switch>show voice vlan
Administrate Voice VLAN state is auto-enabled on IPv4
Operational Voice VLAN state is auto-enabled
Best Local Voice VLAN-ID is 5
Best Local VPT is 5 (default)
Best Local DSCP is 46 (default)
Agreed Voice VLAN is received from switch 00:24:01:30:10:00
Agreed Voice VLAN priority is  0 (active static source)
Agreed Voice VLAN-ID is 5
Agreed VPT is 5
Agreed DSCP is 46
Agreed Voice VLAN Last Change is 11-Jul-11 16:48:13
switchxxxxxx#
```

Example 3—Displays the current voice VLAN parameters when the administrative voice VLAN state is auto-triggered but voice VLAN has not been triggered.

```
switch>show voice vlan
Administrate Voice VLAN state is auto-triggered on ipv6
Operational Voice VLAN state is disabled
VSDP Authentication is disabled
```

Example 4—Displays the current voice VLAN parameters when the administrative voice VLAN state is auto-triggered and it has been triggered.

```
switchxxxxxx(config)# voice vlan state auto-triggered
switchxxxxxx(config)# voice vlan state auto-triggered
operational voice vlan state is auto
admin state is auto triggered
switchxxxxxx# show voice vlan
Administrate Voice VLAN state is auto-triggered on ipv6
Operational Voice VLAN state is auto-enabled
Best Local Voice VLAN-ID is 5
Best Local VPT is 5 (default)
Best Local DSCP is 46 (default)
Agreed Voice VLAN is received from switch 00:24:01:30:10:00
Agreed Voice VLAN priority is  0 (active static source)
Agreed Voice VLAN-ID is 5
Agreed VPT is 5
Agreed DSCP is 46
Agreed Voice VLAN Last Change is 11-Jul-11 15:52:51
```

Example 5—Displays the current voice VLAN parameters when both auto voice VLAN and OUI are disabled.

```
switch>show voice vlan
switchxxxxxx# show voice vlan
Administrate Voice VLAN state is disabled
Operational Voice VLAN state is disabled
Best Local Voice VLAN-ID is 5
Best Local VPT is 5 (default)
Best Local DSCP is 46 (default)
Aging timeout: 1440 minutes
```

Example 6—Displays the voice VLAN parameters when the voice VLAN operational state is OUI.

```
switch>show voice vlan
Administrate Voice VLAN state is oui-enabled
Operational Voice VLAN state is oui-enabled
Best Local Voice VLAN-ID is 1 (default)
Best Local VPT is 4
```

```
Best Local DSCP is 1
Aging timeout: 1440 minutes
CoS: 6
Remark: Yes
OUI table
MAC Address - Prefix   Description
--------------------   ------------------
00:E0:BB               3COM
00:03:6B               Cisco
00:E0:75               Veritel
00:D0:1E               Pingtel
00:01:E3               Simens
00:60:B9               NEC/Philips
00:0F:E2               Huawei-3COM
00:09:6E               Avaya
Interface        Enabled    Secure    Activated  CoS Mode
-------------    -------    -------   ---------  --------
gi1/0/1              Yes        Yes         Yes      all
gi1/0/2              Yes        Yes         No       src
gi1/0/3              No         No
...
```

show voice vlan local

The **show voice vlan local** Privileged EXEC mode command displays information about the auto voice VLAN local configuration, including the best local voice VLAN.

Syntax

show voice vlan local

Parameters

This command has no arguments or keywords.

Command Mode

Privileged EXEC mode

Examples

Example 1—A CDP device is connected to an interface and a conflict is detected:

```
30-Apr-2011 00:39:24 %VLAN-W-ConflictingCDPDetected: conflict detected between operational
 VLAN and new CDP device 00:1e:13:73:3d:62 on interface gi7. Platform TLV is -4FXO-K9, Voice
 VLAN-ID is 100...
switchxxxxxx# show voice vlan local
Administrate Voice VLAN state is auto-triggered on IPv6
Operational Voice VLAN state is auto-enabled
VSDP Authentication is enabled, key string name is alpha
The character '*; marks the best local Voice VLAN
VLAN-ID  VPT    DSCP   Source        MAC Address         Interface
-------- -----  -----  ---------     -----------         ------------
   1       5     46    default       ---                 ---
  *104     7     63    static        ---                 ---
   100                 CDP           00:1e:13:73:3d:62   gi1/0/4
```

Example 2—Displays the local voice VLAN configuration when the voice VLAN state is auto-triggered.

```
switchxxxxxx# show voice vlan local
Administrate Voice VLAN state is auto-triggered on IPv4
Operational Voice VLAN state is auto-enabled
 VLAN-ID   VPT   DSCP    Source        MAC Address       Interface
--------- ----- ------ ---------- -------------------- -----------
    1       5     46    default            ---              ---
  *100                    CDP       00:23:56:1a:dc:68     gi1/0/4   100
 CDP       00:44:55:44:55:4d     gi1/0/4
The character "*" marks the best local voice VLAN.
```

Example 3—Displays the local voice VLAN configuration when the voice VLAN state is OUI.

```
switchxxxxxx# show voice vlan local
Administrate Voice VLAN state is auto-OUI
Operational Voice VLAN state is OUI
The character '*; marks the best local Voice VLAN
VLAN-ID    VPT   DSCP   Source      MAC Address      Interface
---------  ----  -----  ---------   ------------     --------------------
       1    0     0     default        ---               ---
     *10    1     27    static         ---               ---
      10                CDP          00:00:12:ea:87:dc    gi1/0/1
      10                CDP          00:00:aa:aa:89:dc    po1
```

voice vlan state

To set the type of voice VLAN that is functional on the device or disable voice VLAN entirely, use the **voice vlan state** Global Configuration mode command.

The **no** format of the command returns to the default.

Syntax

voice vlan state {***auto-enabled*** **|** ***auto-triggeredoui-enabled*** | ***disabled***}

no voice vlan state

Parameters

- **auto-enabled**—Auto Voice VLAN is enabled.
- **auto-triggered**—Auto Voice VLAN on the switch is in standby and is put into operation when the switch detects a CDP device advertising a voice VLAN or if a voice VLAN ID is configured manually on the switch.
- **oui-enabled**—Voice VLAN is of type OUI.
- **disabled**—Voice VLAN is disabled.

Default Configuration

Disabled

Command Mode

Global Configuration mode

User Guidelines

By factory default, CDP, LLDP, and LLDP-MED are enabled on the switch. In addition, manual Smartport mode and Basic QoS with trusted DSCP is enabled.

All ports are members of default VLAN 1, which is also the default Voice VLAN.

If the state is set to dynamic voice VLAN (**auto-triggered**) mode then voice VLAN is enabled by a trigger (advertisement received by voice device attached to port).

If the administrative state is:

- **disabled** — The operational state is **disabled**.
- **oui-enabled** —The operational state is **oui-enabled**.
- **auto-enabled** — The operational state is **auto-enabled**.
- **auto-triggered** — The operational state is **auto-enabled** only if one of the following occurs:
  - A static local configured voice VLAN ID, CoS/802.1p, and/or DSCP that is not factory default is configured.

- A CDP voice VLAN advertisement is received from a neighboring CDP device that is not a a device of the same family as the current device.
- A Voice Service Discovery Protocol (VSDP) message was received from a neighbor switch. VSDP is a Cisco Small Business proprietary protocol for SF and SG series managed switches.
- In all other cases the operational state is **disabled**.

Notes:

- To change the administrative state from **oui-enabled** to **auto-enabled** (or **auto-triggered)**, or vice versa, you must first set the administrative state to **disabled**.
- The administrative state cannot be set to **oui-enabled** if the Auto SmartPort administrative state is **enabled**.
- The administrative state cannot be set to **oui-enabled** if the voice VLAN is the default VLAN (VLAN 1). For **oui-enabled** mode, the voice VLAN cannot be 1.

Examples

Example 1 —The following example enables the OUI mode of Voice VLAN. The first try did not work - it was necessary to first disable voice VLAN.

```
switchxxxxxx(config)# voice vlan state oui-enabled
Disable the voice VLAN before changing the voice VLAN trigger.
switchxxxxxx(config)# voice vlan state disabled
switchxxxxxx(config)# voice vlan state oui-enabled
<CR>
```

Example 2 — The following example disables the Voice VLAN state. All auto Smartport configuration on ports are removed.

```
switchxxxxxx(config)# voice vlan state disabled
All interfaces with Auto Smartport dynamic type will be set to default.
Are you sure you want to continue? (Y/N)[Y] Y
switchxxxxxx(config)# 30-Apr-2011 00:04:41 %LINK-W-Down:  Vlan 5
30-Apr-2011 00:04:41 %LINK-W-Down:  Vlan 8
30-Apr-2011 00:04:41 %LINK-W-Down:  Vlan 9
30-Apr-2011 00:04:41 %LINK-W-Down:  Vlan 100
```

Example 3 —The following example sets the Voice VLAN state to auto-triggered. The VLANs are re-activated after auto SmartPort state is applied.

```
switchxxxxxx(config)# voice vlan state auto-triggered
switchxxxxxx(config)# 30-Apr-2011 00:13:52 %LINK-I-Up:  Vlan 5
30-Apr-2011 00:13:52 %LINK-I-Up:  Vlan 8
30-Apr-2011 00:13:52 %LINK-I-Up:  Vlan 9
30-Apr-2011 00:13:52 %LINK-I-Up:  Vlan 100
```

voice vlan refresh

To restart the Voice VLAN discovery process on all the Auto Voice VLAN-enabled switches in the VLAN by removing all externally learned voice VLAN attributes and resetting the voice VLAN to the default voice VLAN, use the **voice vlan refresh** Global Configuration mode command.

Syntax

voice vlan refresh

Parameters

This command has no arguments or keywords

Default Configuration

None

Command Mode

Global Configuration mode

Example

```
switchxxxxxx(config)# voice vlan refresh
switchxxxxxx(config)#
30-Apr-2011 02:01:02 %VLAN-I-ReceivedFromVSDP: Voice VLAN updated by VSDP. Voice VLAN-ID
100, VPT 5, DSCP 46 (Notification that Agreed Voice VLAN is updated)
(Auto Smartport configuration is changed)
30-Apr-2011 02:01:05 %LINK-W-Down:  Vlan 50
30-Apr-2011 02:01:05 %LINK-W-Down:  Vlan 100
30-Apr-2011 02:01:06 %LINK-I-Up:  Vlan 50
30-Apr-2011 02:01:06 %LINK-I-Up:  Vlan 100
switchxxxxxx# show voice vlan
Administrate Voice VLAN state is auto-triggered
Operational Voice VLAN state is auto-enabled
Best Local Voice VLAN-ID is 100
Best Local VPT is 5 (default)
Best Local DSCP is 46 (default)
(Following is the new active source)
Agreed Voice VLAN is received from switch b0:c6:9a:c1:da:00
Agreed Voice VLAN priority is  2 (active CDP device)
Agreed Voice VLAN-ID is 100
Agreed VPT is 5
Agreed DSCP is 46
Agreed Voice VLAN Last Change is 11-Apr-30 02:01:02
```

voice vlan id

To statically configure the VLAN identifier of the voice VLAN, use the **voice vlan id** Global Configuration mode command. To return the voice VLAN to the default VLAN (1), use the **no** format of the command.

Syntax

voice vlan id *vlan-id*

no voice vlan id

Parameters

vlan id *vlan-id*—Specifies the voice VLAN (range 1-4094).

Default Configuration

VLAN ID 1.

Command Mode

Global Configuration mode

User Guidelines

If the Voice VLAN does not exist, it is created automatically. It will not be removed automatically by the **no** version of this command.

Example

The following example enables VLAN 35 as the voice VLAN on the device.

```
switchxxxxxx(config)# voice vlan id 35
For Auto Voice VLAN, changes in the voice VLAN ID, CoS/802.1p, and/or DSCP will cause the
switch to advertise the administrative voice VLAN as static voice VLAN which has higher
priority than voice VLAN learnt from external sources.
Are you sure you want to continue? (Y/N)[Y] Y
30-Apr-2011 00:19:36 %VLAN-I-VoiceVlanCreated: Voice Vlan ID 35 was created.
switchxxxxxx(config)# 30-Apr-2011 00:19:51 %VLAN-I-ReceivedFromVSDP: Voice VLAN updated by
 VSDP. Voice VLAN-ID 35, VPT 5, DSCP 46
```

voice vlan vpt

To specify a value of VPT (802.1p VLAN priority tag) that will be advertised by LLDP in the Network Policy TLV, use the **voice vlan vpt** Global Configuration mode command. To return the value to the default, use the **no** format of the command.

Syntax

voice vlan vpt *vpt-value*

no voice vlan vpt

Parameters

vpt *vpt-value*—The VPT value to be advertised (range 0-7).

Default Configuration

5

Command Mode

Global Configuration mode

Example

The following example sets 7 as the voice VLAN VPT. A notification that the new settings are different than the old ones is displayed.

```
switchxxxxxx(config)# voice vlan vpt 7
For Auto Voice VLAN, changes in the voice VLAN ID, CoS/802.1p, and/or DSCPwill cause the
switch to advertise the administrative voice VLAN as static voice VLANwhich has higher
priority than voice VLAN learnt from external sources.
Are you sure you want to continue? (Y/N)[Y] Y
30-Apr-2011 00:24:52 %VLAN-W-BestLocal!=Oper: inconsistency detected, VSDP voice VLAN
configuration differs from best local. Best local is Voice VLAN-ID 104, VPT 5, DSCP 46
switchxxxxxx(config)# 30-Apr-2011 00:25:07 %VLAN-I-ReceivedFromVSDP: Voice VLAN updated by
 VSDP. Voice VLAN-ID 104, VPT 7, DSCP 46
```

voice vlan dscp

To specify a value of DSCP that will be advertised by LLDP in the Network Policy TLV, use the **voice vlan dscp** Global Configuration mode command. To return the value to the default, use the **no** format of the command.

Syntax

voice vlan dscp *dscp-value*

no voice vlan dscp

Parameters

dscp *dscp-value*—The DSCP value (range 0-63).

Default Configuration

46

Command Mode

Global Configuration mode

Example

The following example sets 63 as the voice VLAN DSCP.

```
switchxxxxxx(config)# voice vlan dscp 63
For Auto Voice VLAN, changes in the voice VLAN ID, CoS/802.1p, and/or DSCPwill cause the
switch to advertise the administrative voice VLAN as static voice VLANwhich has higher
priority than voice VLAN learnt from external sources.
Are you sure you want to continue? (Y/N)[Y] Y
30-Apr-2011 00:31:07 %VLAN-W-BestLocal!=Oper: inconsistency detected, VSDP voice VLAN
configuration differs from best local. Best local is Voice VLAN-ID 104, VPT 7, DSCP 46
switchxxxxxx(config)# 30-Apr-2011 00:31:22 %VLAN-I-ReceivedFromVSDP: Voice VLAN updated by
 VSDP. Voice VLAN-ID 104, VPT 7, DSCP 63
```

voice vlan oui-table

To configure the voice OUI table, use the **voice vlan oui-table** Global Configuration mode command. To restore the default configuration, use the **no** form of this command.

Syntax

voice vlan oui-table *{**add** mac-address-prefix | **remove** mac-address-prefix}* [*text*]

no voice vlan oui-table

Parameters

- **add** *mac-address-prefix*—Adds the specified MAC address prefix to the voice VLAN OUI table (length: 3 bytes).
- **remove** *mac-address-prefix*—Removes the specified MAC prefix address from the voice VLAN OUI table (length: 3 bytes).
- **text**—(Optional) Adds the specified text as a description of the specified MAC address to the voice VLAN OUI table (length: 1–32 characters).

Default Configuration

The default voice VLAN OUI table is:

OUI	Description
00:01:e3	Siemens AG Phone
00:03:6b	Cisco Phone
00:09:6e	Avaya Phone
00:0f:e2	Huawei-3COM Phone
00:60:b9	NEC/Philips Phone
00:d0:1e	Pingtel Phone
00:e0:75	Veritel Polycom Phone
00:e0:bb	3COM Phone

Command Mode

Global Configuration mode

User Guidelines

The classification of a packet from VoIP equipment/phones is based on the packet's OUI in the source MAC address. OUIs are globally assigned (administered) by the IEEE.

In MAC addresses, the first three bytes contain a manufacturer ID (Organizationally Unique Identifiers (OUI)) and the last three bytes contain a unique station ID.

Since the number of IP phone manufacturers that dominates the market is limited and well known, the known OUI values are configured by default and OUIs can be added/removed by the user when required.

Example

The following example adds an entry to the voice VLAN OUI table.

```
switchxxxxxx(config)# voice vlan oui-table add 00:AA:BB experimental
```

voice vlan cos mode

To select the OUI voice VLAN Class of Service (CoS) mode, use the **voice vlan cos mode** Interface Configuration mode command. To return to the default, use the **no** form of this command.

Syntax

voice vlan cos mode {*src* | **all** }

no voice vlan cos mode

Parameters

- **src**—QoS attributes are applied to packets with OUIs in the source MAC address.
- **all**—QoS attributes are applied to packets that are classified to the Voice VLAN.

Default Configuration

The default mode is **src**.

Command Mode

Interface Configuration mode

Example

The following example applies QoS attributes to voice packets.

```
switchxxxxxx(config-if)# voice vlan cos mode all
```

voice vlan cos

To set the OUI Voice VLAN Class of Service (CoS), use the **voice vlan cos** Global Configuration mode command. To restore the default configuration, use the **no** form of this command.

Syntax

voice vlan *cos cos* [*remark*]

no voice vlan cos

Parameters

- **cos** *cos*—Specifies the voice VLAN Class of Service value. (Range: 0–7)
- **remark**—(Optional) Specifies that the L2 user priority is remarked with the CoS value.

Default Configuration

The default CoS value is 6.

The L2 user priority is not remarked by default.

Command Mode

Global Configuration mode

Example

The following example sets the OUI voice VLAN CoS to 7 and does not do remarking.

```
switchxxxxxx(config)# voice vlan cos 7
```

voice vlan aging-timeout

To set the OUI Voice VLAN aging timeout interval, use the **voice vlan aging-timeout** Global Configuration mode command. To restore the default configuration, use the **no** form of this command.

Syntax

voice vlan aging-timeout *minutes*

no voice vlan aging-timeout

Parameters

aging-timeout *minutes*—Specifies the voice VLAN aging timeout interval in minutes. (Range: 1–43200).

Default Configuration

1440 minutes

Command Mode

Global Configuration mode

Example

The following example sets the OUI Voice VLAN aging timeout interval to 12 hours.

```
switchxxxxxx(config)# voice vlan aging-timeout 720
```

voice vlan enable

To enable OUI voice VLAN configuration on an interface, use the **voice vlan enable** Interface Configuration mode mode command. To disable OUI voice VLAN configuration on an interface, use the **no** form of this command.

Syntax

voice vlan enable

no voice vlan enable

Parameters

This command has no arguments or keywords.

Default Configuration

Disabled

Command Mode

Interface Configuration mode

User Guidelines

This command is applicable only if the voice VLAN state is globally configured as OUI voice VLAN (using show voice vlan, on page 2).

The port can join the voice VLAN only if it is member of in the PVID/native VLAN ID.

The port is added to the voice VLAN if a packet with a source MAC address OUI address (defined by voice vlan oui-table, on page 12) is trapped on the port. Note: The packet VLAN ID does not have to be the voice VLAN, it can be any VLAN.

The port joins the voice VLAN as a tagged port.

If the time since the last MAC address with a source MAC address OUI address was received on the interface exceeds the timeout limit (configured by voice vlan aging-timeout, on page 16), the interface is removed from the voice VLAN.

Example

The following example enables OUI voice VLAN configuration on gi1/0/2.

```
switchxxxxxx(config)# interface gi1/0/2
switchxxxxxx(config-if)# voice vlan enable
```