TECHNICAL NOTE

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HOW TO CREATE VOICE VLANS ON ALLOY AS RANGE SWITCHES VIA THE WEB GUI

1. Introduction

The purpose of this document is to outline the procedure of to configure voice VLAN's on Alloy AS range switches using LLDP.

This Technical Note will go through steps such as logging into the switch, creating the Voice VLANs, LLDP settings, LLDP-MED settings as well as how to verify it is configured correctly.

This document will focus on how to create Voice VLAN's via the Web GUI, however it can also be created through the CLI and configuration files.

Contents

2. Disabling CIST on Voice VLAN Ports

For Voice VLAN's to be enabled, you first must disable CIST on the switch ports you wish to enable Voice VLAN's on. To do this follow the steps below.

- Log into the web GUI of the Switch
- Enter in the the admin credentials
- Select *Configuration → Spanning Tree -> CIST Port*
- Under the heading *CIST Normal Port Configuration* Disable the ports you wish to use for Voice VLANS unchecking the STP enable option.
  Select *Save*

CIST Normal Port Configuration

| Port | STP Enabled | Path Cost | | Priority | Admin Edge | Auto Edge | Restricted | | BPDU Guard | Point-to-point |
							Role	TCN		
*	☐	<> ▼		<> ▼	<> ▼	☑	☐	☐	☐	<> ▼
1	☐	Auto ▼		128 ▼	Non-Edge ▼	☑	☐	☐	☐	Auto ▼
2	☐	Auto ▼		128 ▼	Non-Edge ▼	☑	☐	☐	☐	Auto ▼
3	☐	Auto ▼		128 ▼	Non-Edge ▼	☑	☐	☐	☐	Auto ▼
4	☐	Auto ▼		128 ▼	Non-Edge ▼	☑	☐	☐	☐	Auto ▼
5	☐	Auto ▼		128 ▼	Non-Edge ▼	☑	☐	☐	☐	Auto ▼

3. Enabling Voice VLANS

Now that the CIST ports have been disabled, you can then enable Voice VLAN's on the switch, and the individual ports you wish to enable the Voice VLAN's onto.
To enable this, follow the steps below.

- Select *Configuration* -> *Voice VLAN* → *Configuration*
  Under Voice VLAN Configuration
- Mode: **Enabled**
  Under Port Configuration
- To enable the port select Mode to either **Forced** or **Auto** Enabled.
- Discovery Protocol : **Both**
- Select **Apply**

Voice VLAN Configuration

Voice VLAN Configuration

Mode	Enabled ▾
VLAN ID	50
Aging Time	86400 seconds
Traffic	7 (High) ▾

Port Configuration

Port	Mode	Security	Discovery Protocol
*	<> ▾	<> ▾	<> ▾
1	Auto ▾	Disabled ▾	Both ▾
2	Auto ▾	Disabled ▾	Both ▾

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4. Set the Voice VLAN OUI

To be able to automatically assign IP Handsets to the Voice VLAN's they need to have their OUI added to the OUI table. By default with the AS Range Grandstream, Snom and Yealink are automatically added. However if you wish to add any other IP Handsets this is done via this section.

To Add OUI's to the table follow the steps below.

- Select **Configuration → Voice VLAN → OUI**
- To add a new Entry, click **Add New Entry**
- Click **Apply** To save

Voice VLAN OUI Table

Delete	Telephony OUI	Description
☐	00-0b-82	Grandstream
☐	00-04-13	Snom
☐	00-15-65	Yealink

Add New Entry

Apply   Reset

5. Enabling LLDP

LLDP allows IP Phones to be to automatically be assigned VLAN's based on their OUI.
To enable LLDP on the switch, follow the steps below.

- Select the *Configuration → LLDP → LLDP Menu*
  Under LLDP Port Configuration
- Change the mode to *Enabled* to enable LLDP for the selected ports.
- Select *Apply*.

LLDP Port Configuration

Port	Mode	CDP aware	Optional TLVs				
			Port Descr	Sys Name	Sys Descr	Sys Capa	Mgmt Addr
*	<>	☐	☑	☑	☑	☑	☑
1	Enabled	☐	☑	☑	☑	☑	☑
2	Enabled	☐	☑	☑	☑	☑	☑
3	Enabled	☐	☑	☑	☑	☑	☑
4	Enabled	☐	☑	☑	☑	☑	☑
5	Enabled	☐	☑	☑	☑	☑	☑
6	Enabled	☐	☑	☑	☑	☑	☑
7	Enabled	☐	☑	☑	☑	☑	☑
8	Enabled	☐	☑	☑	☑	☑	☑

6. Configuring LLDP-MED

From the LLDP-MED menu, first you need to create a policy.
What the Policy will do is allow you to setup the VLAN ID to be assigned automatically to the LLDP device, in the above example when a device is configured to use LLDP, it will be assigned the VLAN of 50 as tagged, and the QoS will be set to Voice.
To configure LLDP-MED, follow the below steps.

- *Configuration → LLDP → LLDP-MED*
- Scroll down to Policies, and select *Add New Policy*.
- Enter the *Policy ID,* and the VLAN information you wish to assign such as Tagged or Untagged, VLAN ID.
- Configuring the Switch ports to use the policies
- Select **Apply** to save

Policies

Delete	Policy ID	Application Type	Tag	VLAN ID	L2 Priority	DSCP
☐	0	Voice ▾	Tagged ▾	50	0	0

Add New Policy

Policy Port Configuration

Port	Policy ID
	0
1	☑
2	☑
3	☑
4	☑
5	☑
6	☑

7. Verify Voice VLAN and LLDP Configuration

To verify all of the above has worked this can be done via the web interface, or via the CLI of the switch.
To check via CLI, you can connect to the switch via Telnet, SSH or Console.
Once logged in, issue the ***show mac address-table*** command, below is an example of Yealink IP Phones setup on VLAN 50 configured with LLDP.

```
Alloy# show mac address-table
Type    VID  MAC Address        Ports
Static  10   00:00:8c:00:dd:c3  GigabitEthernet 1/23
Static  10   00:00:8c:03:22:18  GigabitEthernet 1/23
Static  10   08:60:6e:17:be:81  GigabitEthernet 1/23
Static  10   33:33:00:00:00:01  GigabitEthernet 1/1-24 10GigabitEthernet 1/1-4 CPU
Static  10   33:33:00:00:00:02  GigabitEthernet 1/1-24 10GigabitEthernet 1/1-4 CPU
Static  10   33:33:ff:03:59:f7  GigabitEthernet 1/1-24 10GigabitEthernet 1/1-4 CPU
Static  10   ff:ff:ff:ff:ff:ff  GigabitEthernet 1/1-24 10GigabitEthernet 1/1-4 CPU
Static  50   00:15:65:4e:a8:53  GigabitEthernet 1/23
Static  50   00:15:65:b1:21:d7  GigabitEthernet 1/9
Static  50   00:e0:42:78:02:78  GigabitEthernet 1/23
```

To view via the CLI, follow the steps below.

- ***Monitor*** → MAC ***Table***

Type	VLAN	MAC Address	Port Members																
			CPU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Static	10	00-00-8C-00-DD-C3																	
Static	10	00-00-8C-03-22-18																	
Static	10	08-60-6E-17-BE-81																	
Static	10	33-33-00-00-00-01	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Static	10	33-33-00-00-00-02	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Static	10	33-33-FF-03-59-F7	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Static	10	FF-FF-FF-FF-FF-FF	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Static	50	00-15-65-4E-A8-53																	
Static	50	00-15-65-B1-21-D7										✔							
Static	50	00-E0-42-78-02-78																	