

3Com Solutions: AUTO VOICE VLANS

OVERVIEW

Auto-voice Virtual Local Area Network (VLAN), a feature of many 3Com® smart managed and fully managed Ethernet switches, segregates Voice over IP (VoIP) traffic from regular Ethernet traffic and applies to it a higher Quality of Service (QoS). This ensures high voice quality for phone conversations as voice and data traffic share the same switch and Ethernet ports.

WHY DO YOU NEED A VOICE VLAN?

Regular VLANs are created to logically separate client devices (typically users) that may be sharing the same switch. This is primarily done for security reasons so that only certain users have access to sensitive information. Voice VLANs are also used to segregate information, but unlike regular VLANs they separate voice traffic from regular Ethernet data traffic in order to ensure quality voice performance. They protect time sensitive voice traffic from being flooded by other data such as multicasts and broadcasts, ensuring large file downloads will not cause a conversation to “break up”.

As implemented in 3Com switches, this advanced functionality allows the switch to automatically detect voice devices—phones—and automatically channel this traffic into its own voice VLAN. If a phone is unplugged from a voice VLAN port, the switch automatically removes the port from the voice VLAN, preventing unauthorized access. An additional security feature allows only preconfigured voice devices to access the voice VLAN. And, should a device be removed from the voice VLAN, the remaining voice users continue to receive prioritized, high quality voice service.

CONFIGURATION IS EASY

3Com makes the auto-voice VLAN feature not only available, but also exceptionally easy to implement. The following system components are needed to configure an auto-voice VLAN:

- › A VoIP PBX, such as a 3Com Asterisk, NBX® or VCX™ Connect 100 or Connect 200 system
- › One or more Ethernet telephone-based handsets
- › A 3Com switch that supports auto-voice VLANs

Configuring a switch like the 3Com OfficeConnect® Managed Gigabit Switch involves steps that are described below and on the following pages:

1. Access the web browser management interface.
2. Create a VLAN.
3. Set the created VLAN as a voice VLAN.
4. Configure all ports that may be used for phone connectivity to support the voice VLAN.
5. Configure a port for the PBX connection. If the PBX supports VLAN tagging, then configure tagging on the PBX. If not, configure one port on the switch for untagged packets on the voice VLAN. Plug the PBX into the switch using the port that is configured for the untagged packet on the voice VLAN.
6. Confirm that the MAC addresses of the connected phones match the phones listed in the Organizationally Unique Identifier (OUI) table. If not, add their address information to the switch.
7. Save the configuration on your switch.

After completing and saving the configuration, each telephone needs to be programmed to send tagged packets on the auto-voice VLAN ports. Then the phones and PBX can be plugged into the pre-configured switch ports to complete implementation.

The data network will continue to run normally with this configuration, and when a phone is plugged in, the voice VLAN will be added automatically to the port used for the phone connection. Voice traffic from the phone will pass through the voice VLAN with higher priority than web browsing traffic. And if a PC is connected to the Ethernet switch port in the phone, PC data will pass through the phone into the network at a lower priority, optimizing voice quality.



CONFIGURATION SCREEN SHOTS 3Com OfficeConnect Managed Gigabit PoE Switch

1. Access the web browser management interface.

The screenshot shows the 'OfficeConnect Managed Gigabit PoE Switch' web interface. The page title is 'Device Summary [Device View]'. On the left is a navigation menu with options: Administration, Device, Port, Security, Monitoring, and Help. The main content area has a 'Device View' tab selected. Below the navigation is a row of 10 numbered buttons (1-10) and a '10' icon. Below that is a 'Device Summary Information' table with the following data:

| Device Summary Information | |
|----------------------------|---|
| Product Description: | OfficeConnect Managed Gigabit PoE |
| System Name: | |
| System Location: | |
| System Contact: | |
| Serial Number: | |
| Product 3C Number: | 3CDSG10PWR |
| System Object ID: | 1.3.6.1.4.1.43.1.8.64 |
| MAC Address: | 00:11:22:33:44:20 |
| System Up Time: | 0 days, 0 hours, 25 minutes, 49 seconds |
| Software Version: | 01.00.05 |
| Boot Version: | 1.0.0.2 |
| Hardware Version: | 00.00.01 |

At the bottom of the table is a 'Poll Now' button and the text 'The default polling interval is 60 sec'.

2. In "Device > VLAN [Setup]" create a voice VLAN (for example, VLAN 5).

The screenshot shows the 'OfficeConnect Managed Gigabit PoE Switch' web interface. The page title is 'Device > VLAN > [Setup]'. On the left is the same navigation menu as in the previous screenshot. The main content area has a 'Setup' tab selected. Below the navigation is a 'Create:' section with a 'VLAN IDs:' input field and an 'Example: 3,5-12' label. Below that is a table with the following data:

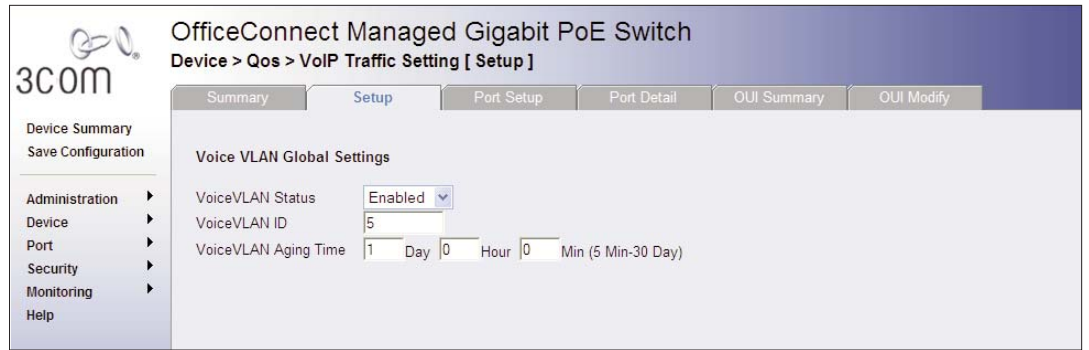
| ID | Name |
|----|---------|
| 1 | Default |
| 5 | Voice |

Below the table is a 'Rename VLAN (note you can do this later on the VLAN Modify page)' section. It has a 'Highlight from the list above to rename:' label and a table with the following data:

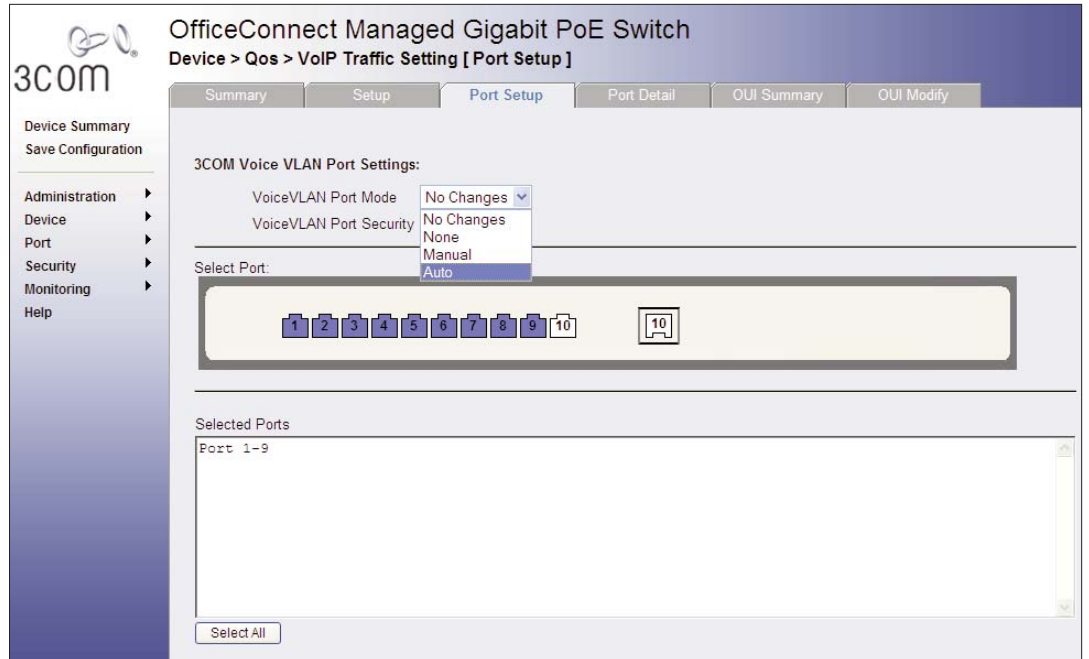
| ID | Name |
|----|----------------------|
| 1 | <input type="text"/> |

Next to the input field is a 'Rename' button. At the bottom left of the page is a 'Logout' button.

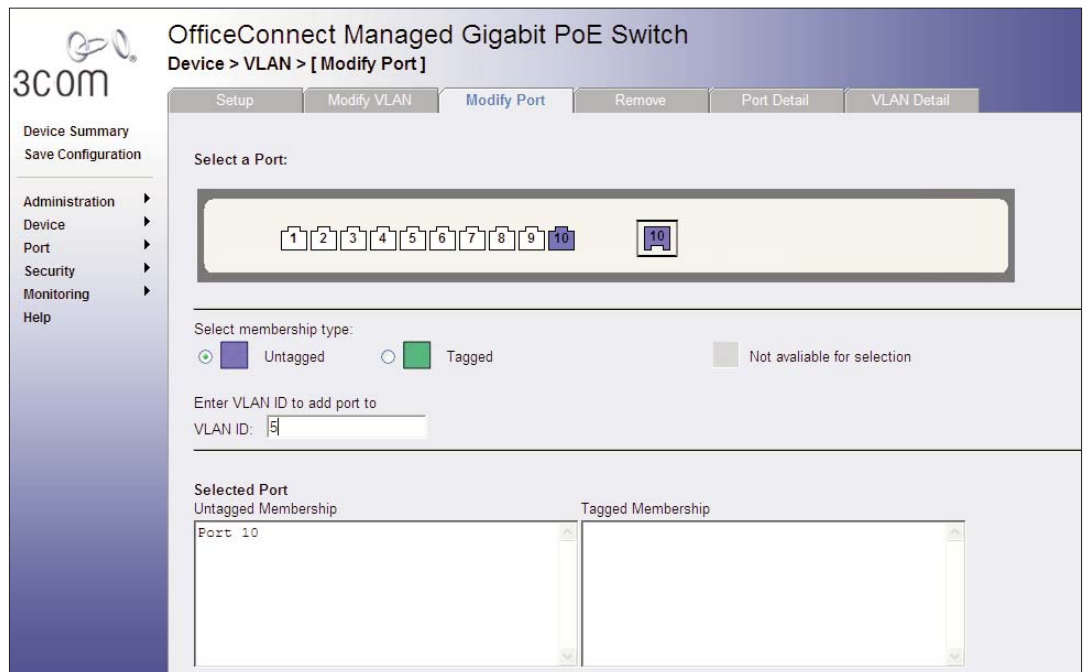
3. In “Device > QoS > VoIP Traffic Setting [Setup]” set VLAN 5 (or whatever VLAN you choose) to be the voice VLAN.



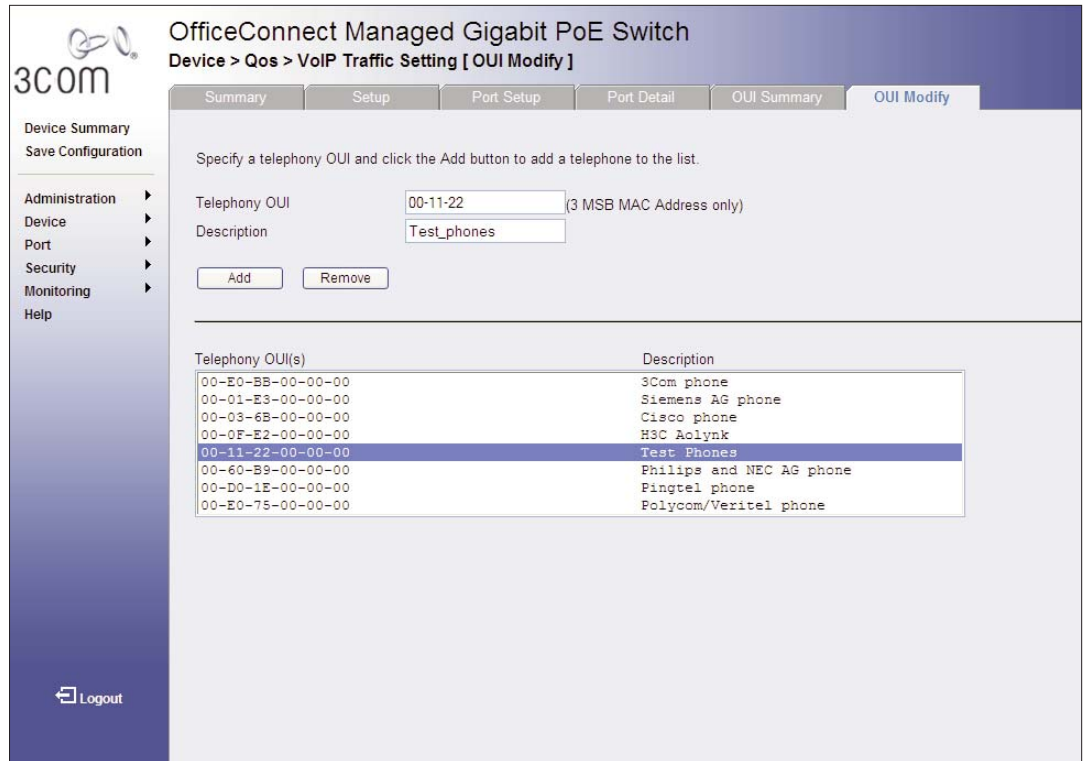
4. In “Device > QoS > VoIP Traffic Setting” configure auto-voice VLAN support for the ports that will be providing phone connectivity. Clicking on each port icon will change it to blue. Note: one port needs to be an uplink for data (in the example shown here, port 10 is used for this purpose).



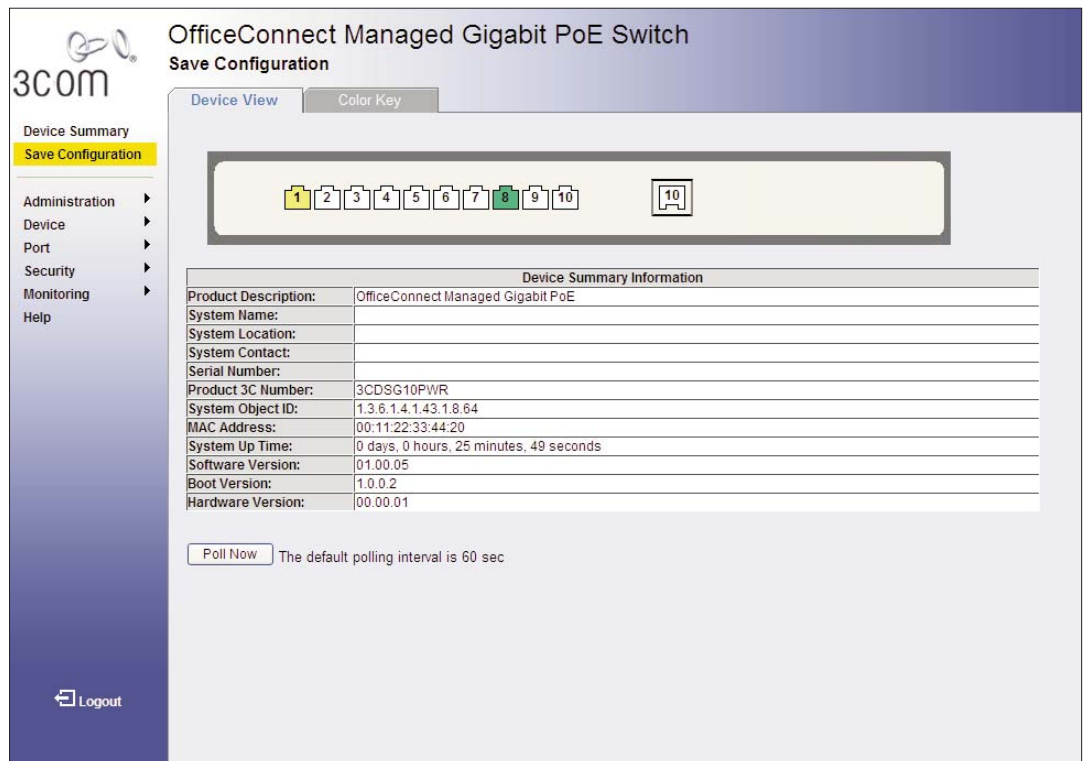
5. In “Device > VLAN > [Modify Port]” configure a port for the PBX connection. If the PBX supports VLAN tagging, then configure tagging on the PBX. If it does not, configure one port for an untagged voice VLAN to allow voice traffic to pass through to the PBX (in the example shown here, the 3Com Asterisk IP-PBX connects to port 10—the port configured for untagged packets on the voice VLAN—via VLAN 5).



6. In “Device > QoS > VoIP Traffic Setting [OUI Modify]” confirm that the MAC address of the connected phones matches those listed in the OUI table. If not, add their address information to the switch.



7. Save the configuration. After programming the phones to send tagged packets on the voice VLAN, plug the phones and the PBX into the appropriate ports. In the example shown here, after each phone is programmed to send tagged packets to VLAN 5, the phones would be plugged into the auto-voice VLAN configured ports (1 - 9) and the 3Com Asterisk IP-PBX into LAN port 10 of the switch to complete IP telephony service implementation.



Visit www.3com.com for more information about 3Com secure converged network solutions.

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