NETGEAR
Auto-IP Surveillance Camera and Auto-WiFi VLANs on NETGEAR Switches

White Paper

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Introduction

Wireless technology and Surveillance IoT have essentially changed the way many administrators and network architects are designing and managing converged networks. IP cameras and wireless access points have evolved from a simple AC powered IP device to a PoE powered device that puts additional stresses on the bandwidth of the network, as well as adds significantly more complexity to ensuring QoS (Quality of Service) and prioritization of traffic type is upheld. Additionally, new WiFi 6 access points and high-resolution 4K and 8K cameras significantly increase the demand for bandwidth from the network and PoE power required from the sourcing PSE switch. In response to the high demands of bandwidth and optimized traffic segregation, NETGEAR has developed a new, automated approach to configuring IP cameras and wireless access points with the new Auto-Camera VLAN and Auto-WiFi VLAN features on our new multi-gigabit switches, the MS510TXM and MS510TXUP.

The NETGEAR Auto-Camera VLAN and Auto-WiFi VLAN feature provides a classification for digital camera and wireless access point packets and automatically places them into a camera or WiFi VLAN, so they can then be prioritized above other packets, allowing the switch to provide better QoS for those devices. Additionally, the Auto-Camera VLAN automatically enables multicast for those devices, as required by many IP camera systems, to ensure the packets are properly handled throughout the network. With the Auto-Camera VLAN and Auto-WiFi VLAN feature, automatic VLAN placement is based on the organizationally unique identifier (OUI) bits of a camera or wireless access points.

Key Terms

OUI

Device hardware manufacturers can include an organizationally unique identifier (OUI) in a network adapter to help identify a hardware device. The OUI is a unique 24-bit number assigned by the IEEE registration authority.

MAC address

Media Access Control address or MAC addresses - hardware addresses that uniquely identifies each node of a network. It is assigned by the vendor or manufacturer and saved to the device memory.

Auto-VLAN

Auto-VLAN feature automatically place matching devices (via OUI) into a pre-configured VLAN with QoS features.
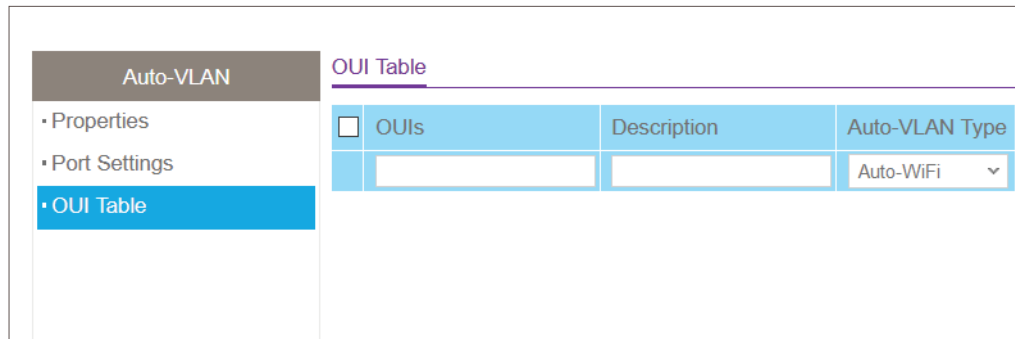
Steps to configure the NETGEAR Auto-Camera VLAN and Auto-WiFi VLAN feature:

1. Obtain the OUI of the IP security camera. The OUI is the first 6 hexadecimal digits or the 24-bit number of a device MAC address that uniquely identifies a vendor or manufacturer. The example below is a MAC address from a NETGEAR device and OUI is 08:36:C9.
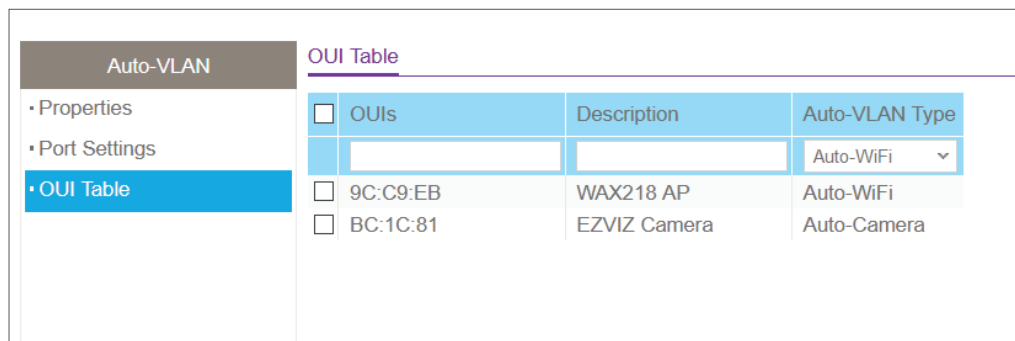
   08:36:C9:19:7B:6F

2. Once the user is on the local interface GUI, Select Switching > Auto-VLAN > OUI Table.

3. In the OUIs field, specify the WiFi device or camera OUI prefix to be added in the format AA:BB:CC. You can configure up to 32 OUIs.

4. In the Description field, enter the description for the OUI. The maximum length of description is 32 characters.

5. From the Auto-VLAN Type menu, select Auto-WiFi or Auto-Camera, depending on the type of device for which you are adding an OUI.

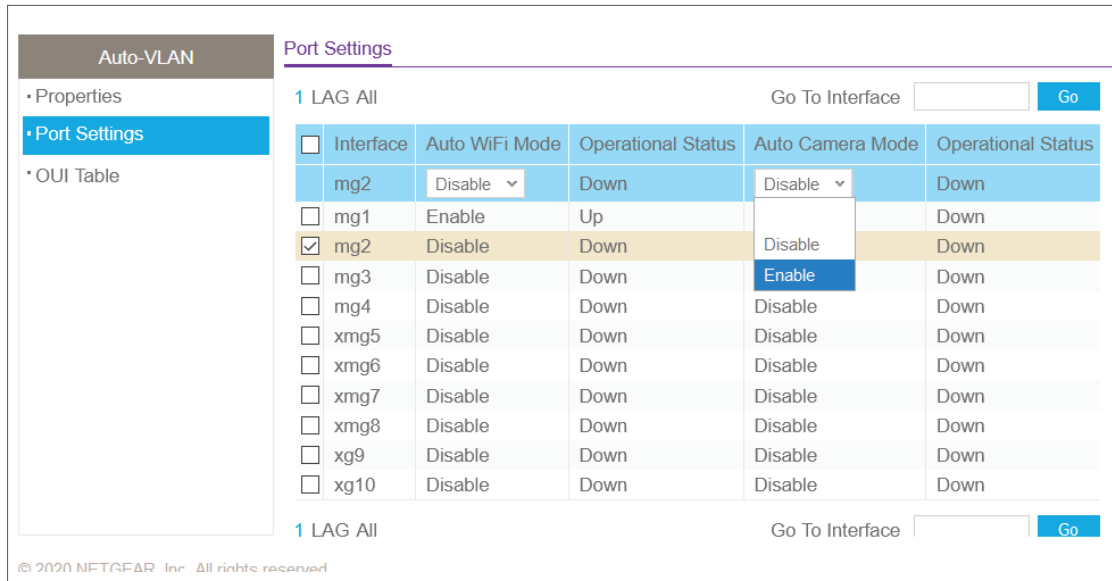6. Click the Add button. The OUI entry is added.

Steps to configure the Auto-Camera VLAN and Auto-WiFi VLAN ethernet ports

1. Select Switching > Auto-VLAN > Port Settings.

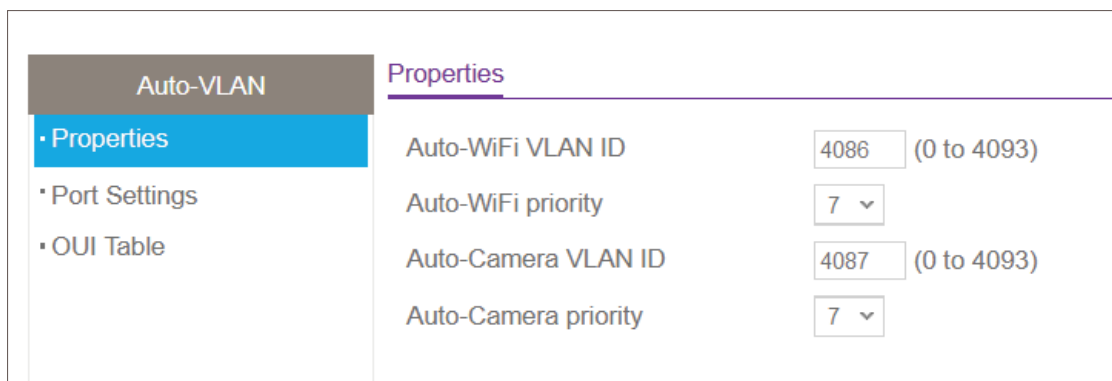2. In the Port Settings table, select the physical ethernet port.

3. If the device is a Camera, select Auto-Camera Mode and click Enable. If the device is WiFi access point, select Auto-WiFi Mode and click Enable. Once completed, click Apply to save changes.

Steps to verify and configure Auto-Camera VLAN and Auto-WiFi VLAN properties:

1. Select Switching > Auto-VLAN > Properties. The Properties page displays.

2. In the Auto-WiFi VLAN ID field, specify the VLAN ID for the Auto-WiFi VLAN. The default Auto-WiFi VLAN ID is 4086. You can use that VLAN ID or specify another VLAN ID.

3. From the Auto-WiFi priority menu, select the OUI-based priority for the Auto-WiFi VLAN from 0 to 7. The default value is 7.

4. In the Auto-Camera VLAN ID field, specify the ID for the Auto-Camera VLAN. The default Auto-Camera VLAN ID is 4087. You can use that VLAN ID or specify another VLAN ID.

5.   From the Auto-Camera priority menu, select the OUI-based priority for the Auto-Camera VLAN
      from 0 to 7. The default value is 7.

6.   Click the Apply button. Your settings are saved

      Note: If a device connected to a pre-configured Auto-VLAN port and is not on the OUI table, it will be
      automatically defaulted to VLAN1.

Device not on OUI table:

VLAN ID	MAC Address	Interface	Status
1	7C:D1:C3:15:BF:46	xg9	Learned
1	90:78:41:EE:F5:5C	xg9	Learned
1	94:A6:7E:51:F1:1E	xg9	Learned
1	B0:FC:0D:89:EC:E0	xg9	Learned
1	BC:1C:81:15:A7:BD	xg9	Learned
1	CC:50:E3:8B:81:10	xg9	Learned
1	DC:EB:69:70:90:B6	xg9	Learned
1	E2:EC:EE:4B:0D:E0	mg1	Learned
1	EA:A3:EC:A4:27:04	xg9	Learned

Total MAC Addresses: 29
Search: VLAN ID
Rows per page: 20   21 - 29 of 29

Device on OUI table:

Conclusion

Wireless networks and IP Surveillance technology has become much more technologically complex. Being able to quickly automate the simple task of configuring an IP camera or wireless access point to a specified VLAN will greatly simplify a complex network deployment. NETGEAR provides the ideal automated solution for configuring IP cameras and wireless access points with Auto-Camera VLAN and Auto-WiFi VLAN. Both features will provide administrators and network architects with the extra configuration tool to simplify the onboarding process of IP cameras and wireless access points. The NETGEAR MS510TXM, MS510TXUP and other switches provide the ideal switching solutions for SMB IP Surveillance and wireless networks.

For more information on NETGEAR switches and other technologies, please visit:
http://www.NETGEAR.com/Business/.

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