



# Switch Configuration Example for Q-SYS™ Platform

Hewlett-Packard HP 1910 (Gigabit only, minimum buffer size 40 kB per port)

## Important Note

This switch configuration example is intended to serve as a network setup guideline for systems using Q-LAN audio and video streaming within your Q-SYS system and should be used alongside the [Q-SYS Q-LAN Networking Overview](#) tech note for deeper setup insight. Keep in mind that QSC is unable to provide live network configuration support for third-party switch configuration. To learn more about network switch qualification services and the plug-and-play Q-SYS NS Series preconfigured network switches, visit <http://www.qsc.com/switches>.

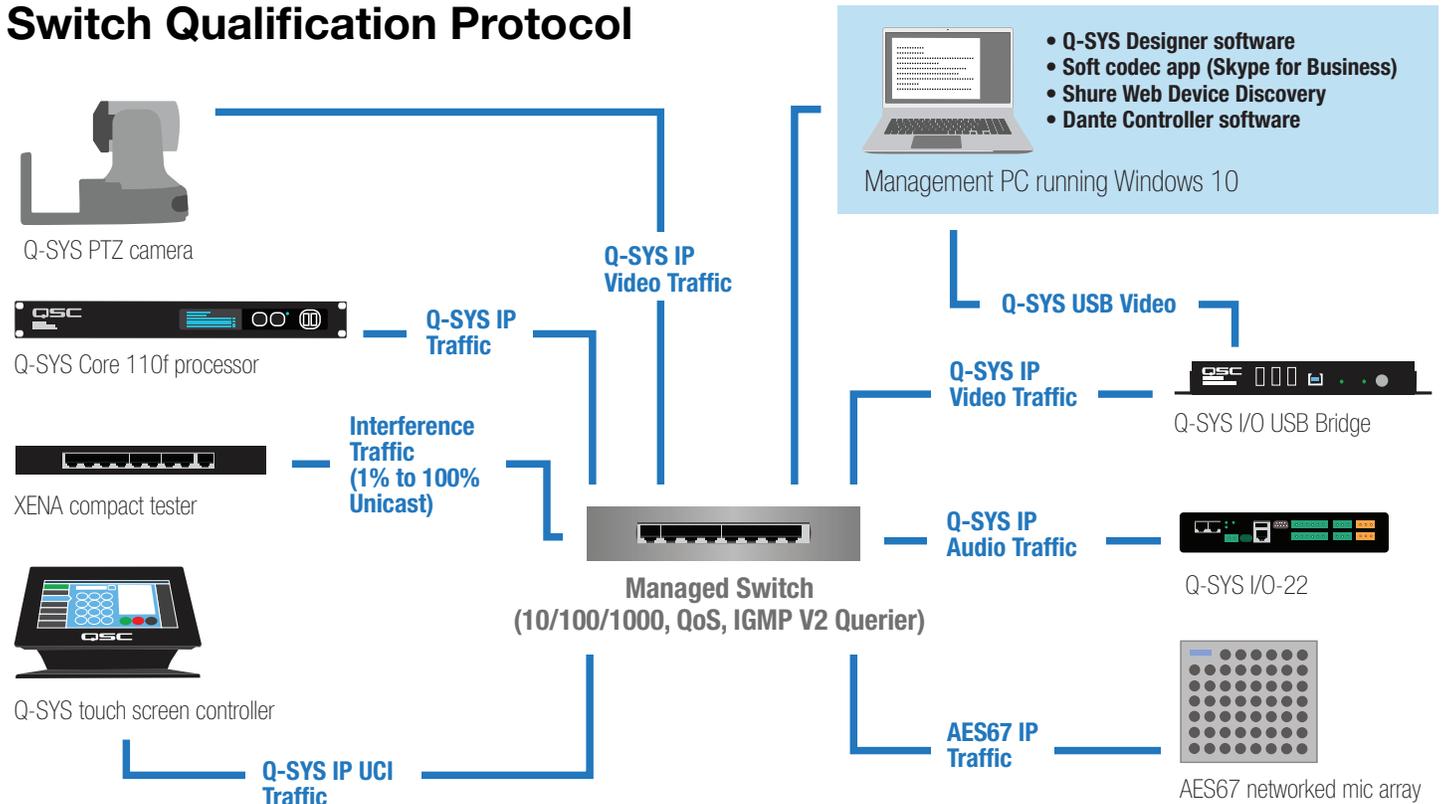
This document applies to these Hewlett-Packard switches:  
**HP-1910 (Gigabit only, minimum buffer size 40 kB per port)**

## Introduction

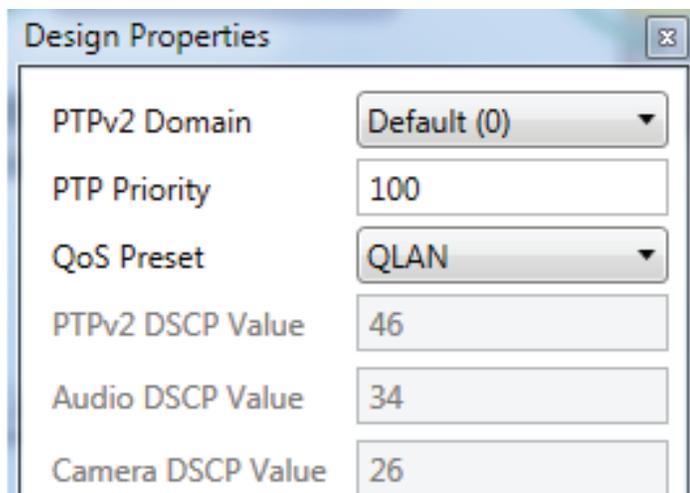
As of release 5.3.x, Q-SYS Designer software now supports AES67-standard interoperability. The AES67 standard does not prescribe a method of discovery for devices so manufacturers are free to implement one or more discovery services for their devices. In this configuration document, the process uses Bonjour as the discovery method for AES67 devices.

Q-SYS Designer now also offers a selection of Differential Services Code Point (DSCP) setting presets to optimize Quality of Service (QoS) for different types of deployment. DSCP codes are a six-bit value placed in the IP header of data packet, and they instruct a network switch to handle various types of data with defined levels of priority that ensure proper QoS.

## Switch Qualification Protocol



## Selecting QoS presets in a Q-SYS design file



1. In Q-SYS Designer, open the design. Make sure it is disconnected from the Core processor (press **F7** or select **File > Disconnect**).
2. Select **File > Design Properties**.
3. Select the appropriate QoS preset (See specification table below.)

## Specifications

Preset	Q-LAN	Audinate	Manual
<b>Use for:</b>	<ul style="list-style-type: none"> <li>• Q-LAN-only network</li> <li>• Q-LAN + AES67 network</li> </ul>	<ul style="list-style-type: none"> <li>• DANTE-only network</li> <li>• DANTE + Q-LAN network</li> <li>• DANTE + Q-LAN + AES67 network</li> </ul>	<ul style="list-style-type: none"> <li>• If custom DSCP settings are necessary</li> </ul>
<b>QoS class assigned:</b>	PTPv2: 46 Audio: 34 Camera: 26	PTPv2: 56 Audio: 46 Camera: 26	PTPv2: 56 Audio: 46 Camera: 26

4. Leave the PTPv2 Domain and PTP Priority settings at default. Click **OK**.

5. To save the settings, press **F5** or select **File > Save to Core & Run**.

## Configuring the network switch for Q-SYS

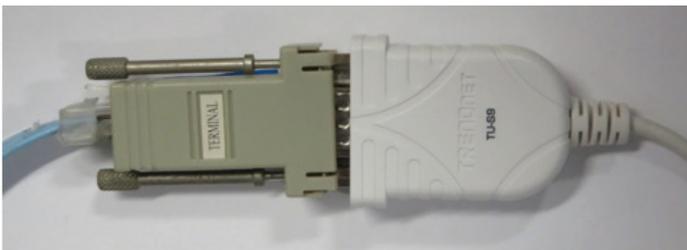
**NOTE: This setup procedure is valid for the Hewlett-Packard HP 1910 Series Gigabit switches. The Fast Ethernet (FE) switches from the HP 1910 Series will not work with Q-SYS.**

The switch's default IP setting is DHCP; its IP address will be assigned by a DHCP server, if one is present on the network. If there is no DHCP server, it will self-assign an address in the 169.254.x.x range.

NOTE: The Microsoft Edge browser for Windows 10 might cause some problems during switch configuration. Consider using Google Chrome or Firefox web browsers instead.

Configuring the switch requires these items:

- Computer with an available USB port
- DB9 to USB serial adaptor



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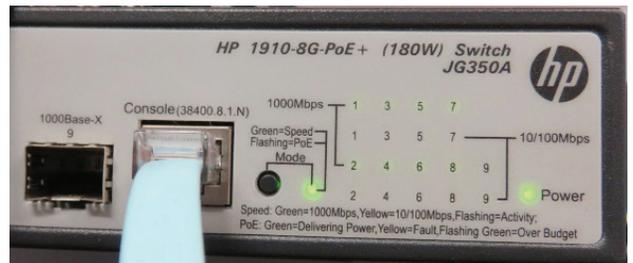
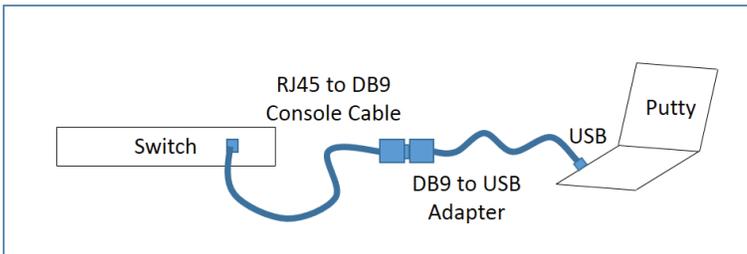


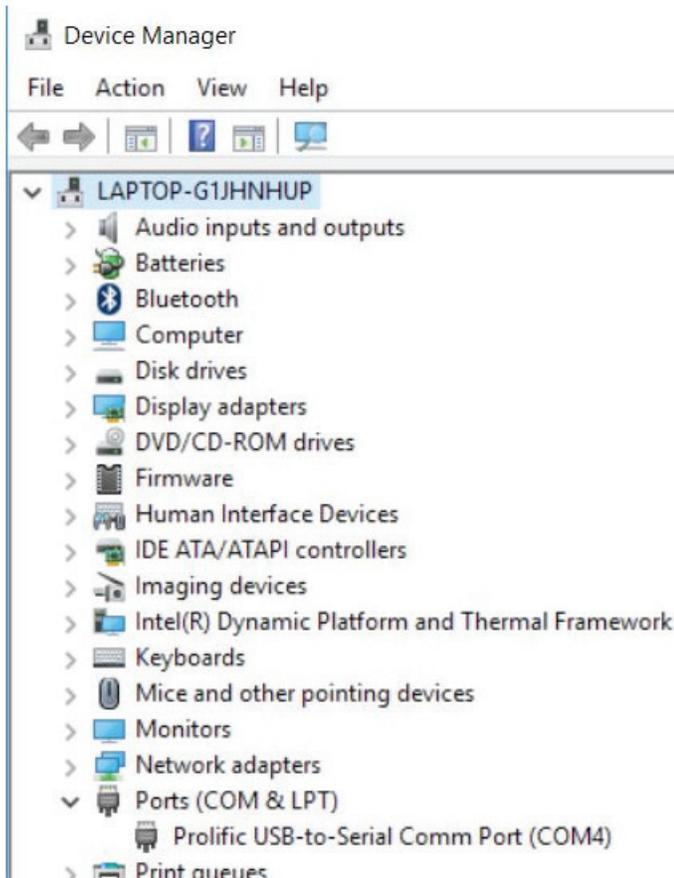
- Switch console cable (usually supplied with the switch)



- PuTTY terminal software (or equivalent)

Before starting, use the console cable and adaptor to connect the computer to the switch's console port.



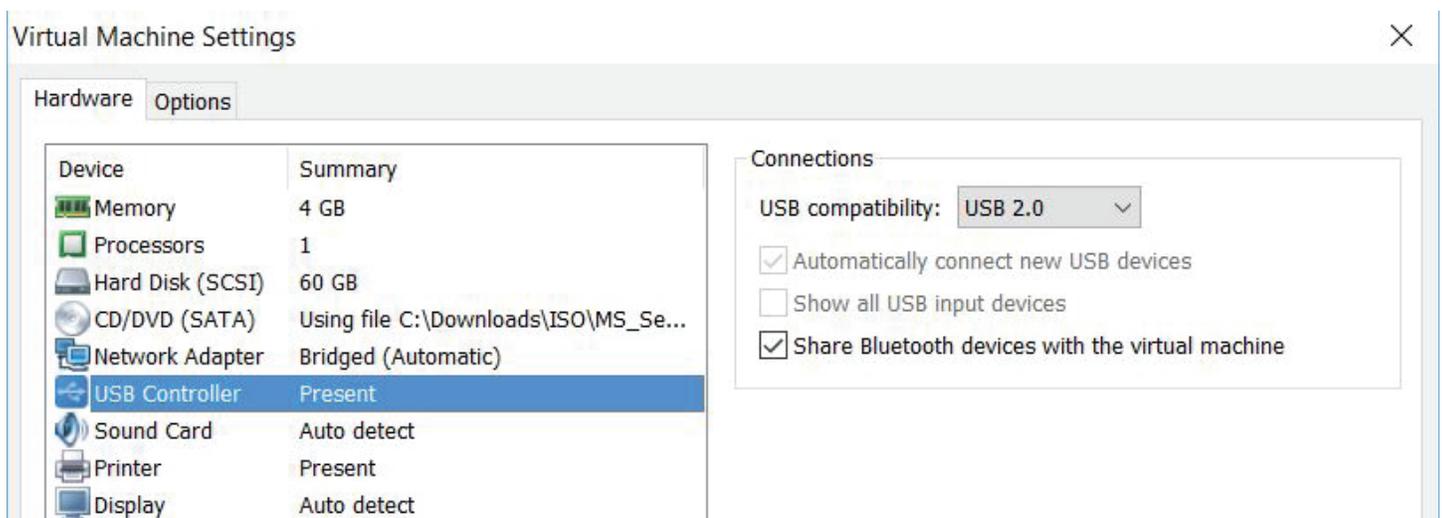


Verify that Windows recognizes the USB-to-serial adapter. In Windows, open Device Manager (In Windows 10, you can find it by typing **device manager** into the Cortana text box). Expand Ports (COM & LPT); the USB-to-serial comm port adapter should be listed there.

If the adapter does not appear, try these remedies:

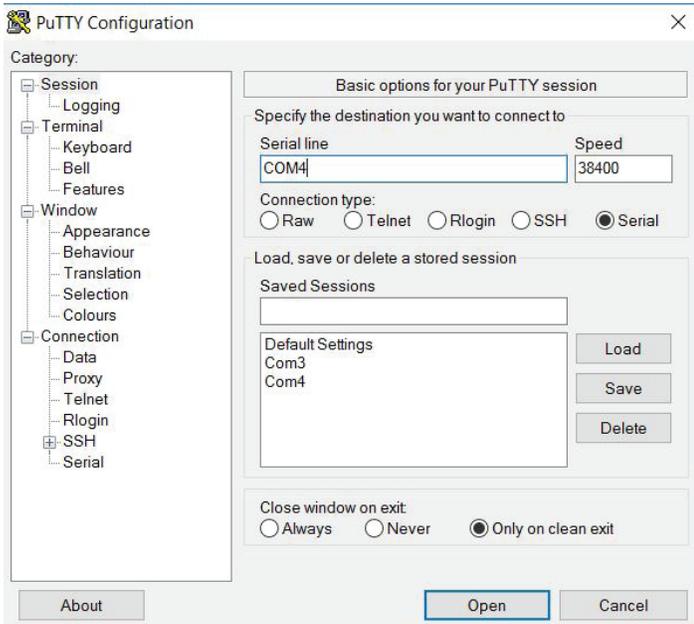
- Plug the USB-to-serial adapter directly into the computer, to bypass any USB hubs.
- Download and install the latest drivers for the USB-to-serial adapter.
- If you are using virtualization, make sure that the USB devices are configured to connect to the virtual machine. If you still have problems with the USB connections, try running the computer without any virtualization (i.e., “bare metal”).
- See if any Windows updates are queued. If there are, apply them and reboot the computer.
- Check security settings and any security software for issues that might prevent functioning of the USB devices.

1. When the computer properly recognizes the USB-to-Serial Comm Port, open PuTTY. The PuTTY Configuration window will open first.

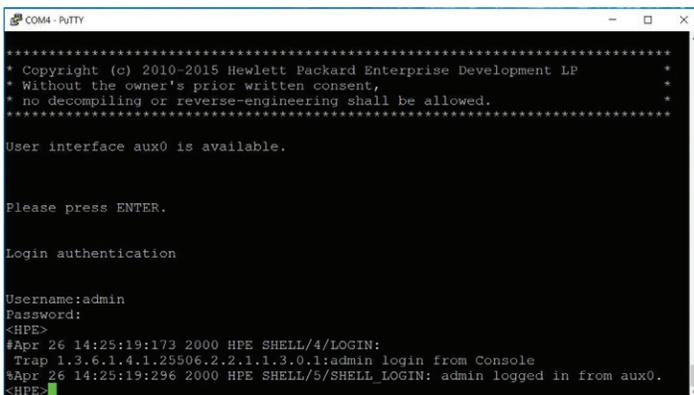


# Switch Configuration Example for Q-SYS™ Platform

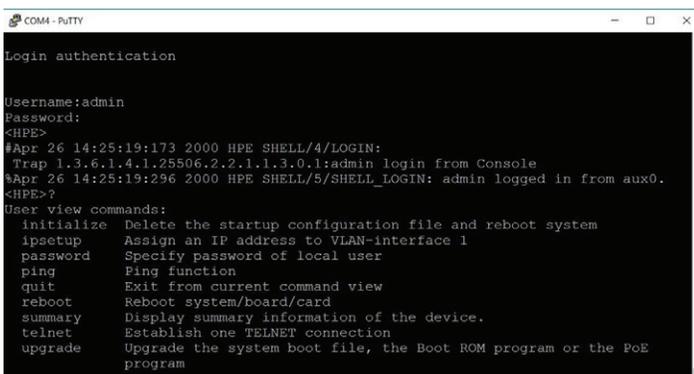
## Hewlett-Packard HP 1910



2. At **Connection type**, select **Serial**.
3. At **Serial line**, select the COM port that the USB-to-serial adapter is connected (as displayed in Device Manager).  
At **Speed**, enter **38400**.
4. Optional: If you wish to save these settings, enter a name for these settings in **Saved Sessions** and then click **Save**.
5. Click **Open**.



6. A terminal window will open as the session begins. Log in with the default username **admin**; press **Enter** instead of entering a password.



7. Type **?** and press **Enter** to view a list of available commands.

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```
<HPE>ipsetup ip-address 192.168.1.66 255.255.255.0 default-gateway 192.168.1.1
<RPE>
```

8. Type **ipsetup ip-address** <IP address> <subnet mask> **default-gateway** <gateway IP address> and press Enter.

Follow RFC1918 guidelines for private network addressing. The default gateway IP address will be necessary only if you need to access the switch from outside the subnet.

```
<HPE>initialize
The startup configuration file will be deleted and the system will be rebooted.
Continue? [Y/N]:
```

9. To reset the switch to its factory default settings, type **initialize** and then press **Enter**. When you are asked to confirm, press **Y**.

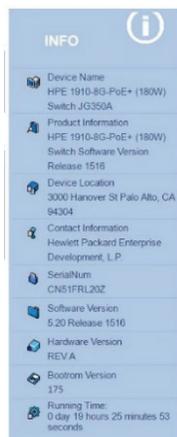
The switch will reboot.

10. Make sure the computer's network interface card (NIC) has an IP address and subnet mask compatible with the switch's IP and subnet settings.

11. Connect the computer through a network cable to one of the Ethernet ports on the switch. Open a browser window. Enter the switch's IP address into the address bar and press **Enter**.

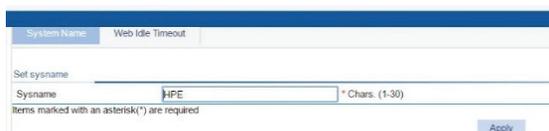


12. At the web interface login, use the username **admin**. Leave **Password** blank. At **Verify Code**, type the alphanumeric code at the right; this code is time sensitive and will become inoperative after a short while. If this happens, refresh the browser to reveal a new code.



13. The **Web Management Platform** Summary window will open. In the right Info column, check the switch's software version, hardware version, and bootrom version. The switch should have these versions or higher:

- Software version 5.20 Release 1516
- Hardware version 175



14. Go to **Device > Basic**.

At **Sysname**, give the switch a name that describes its location and/or function, up to 30 characters long. Click **Apply**.

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15. Select the **Web Idle Timeout** tab.

To keep the configuration process moving smoothly and free of timeout interruptions, increase the **Idle timeout** value to **999**. Click **Apply**.

16. Go to **Device > System Time**.

Select the current date and set the current time. Click **Apply**.

17. Go to **Device > Port Management**. Select **Setup**.

Under **Advanced Configuration**, click **Select All** to select all the ports. Then at **Flow Control**, select **Enable**.

At the bottom of the window, click **Apply**.

18. It is good practice to change the login settings to prevent unauthorized tampering. To do this, go to **Device > Users**. Select **Modify**.

In the list of user names, select **admin** (it will normally be the only one in the list anyway).

Select **Password Modify**, and at **Password Encryption**, select **Reversible**.

At **Service Type**, select **Web, Telnet, and Terminal**.

At **New Password**, type in the new password. Re-type it at **Confirm New Password**.

Click **Apply**.

VLAN ID	IGMP Snooping	Version	Drop Unknown	Querier	Qt
1	Disabled	2	Disabled	Disabled	60

19. Next, go to **Network > IGMP Snooping**. Select **Basic**.

At **IGMP Snooping**, select **Enable**. Click **Apply**.

20. In the **VLAN Configuration** table, on the **VLAN 1** row, click **Operation**.

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VLAN Configuration

VLAN ID: 1

IGMP Snooping:  Enable  Disable

Version:  2  3

Drop Unknown:  Enable  Disable

Querier:  Enable  Disable

Query Interval: 60 \*Seconds (2-300, Default = 60)

General Query Source Address: 192.168.1.66 \*IP address (Default = 0.0.0.0)

Special Query Source Address: 192.168.1.66 \*IP address (Default = 0.0.0.0)

Items marked with an asterisk(\*) are required

Apply Cancel

At **IGMP Snooping**, select **Enable**. At **Version**, select **2**. At **Drop Unknown**, select **Enable**. At **Querier**, select **Enable**. At **Query Interval**, enter **60**.

At **General Query Source Address**, enter the switch's IP address. Do the same at **Special Query Source Address**. Click **Apply**.

VLAN ID	IGMP Snooping	Version	Drop Unknown	Querier	Query Interval (Sec)	General Query Source Address	Special Query Source Address	Operation
1	Enabled	2	Enabled	Enabled	60	192.168.1.66	192.168.1.66	

21. The table should now show these settings (except with the correct IP addresses):

WRR Setup

WRR:

Queue:  Group:  Weight:

Please select port(s)

Apply Cancel

22. Go to **QoS > Queue**. Select **Setup**.

Click **Select All**. Select **WRR Setup**. At **WRR**, select **Enable**. At **Queue**, select **No Change**. Click **Apply**.

Port GE1/0/1 Queue Schedule

QType	QID	Group	N/A	Weight
WRR	0	SP	N/A	
WRR	1	SP	N/A	
WRR	2	SP	N/A	
WRR	3	SP	N/A	

23. Select **Summary**.

Click each port, one by one. The Port Queue Schedule for each one should be like this:

Priority Mapping

Mapping Type:

Input Value	Output Value						
0	1	0	1	2	0	0	0
4	0	5	0	6	0	7	0
8	0	9	0	10	0	11	0
12	0	13	0	14	0	15	0
16	0	17	0	18	0	19	0
20	0	21	0	22	0	23	0
24	0	25	0	26	5	27	0
28	0	29	0	30	0	31	0
32	0	33	0	34	6	35	0
36	0	37	0	38	0	39	0
40	0	41	0	42	0	43	0
44	0	45	0	46	7	47	0
48	0	49	0	50	0	51	0
52	0	53	0	54	0	55	0
56	0	57	0	58	0	59	0
60	0	61	0	62	0	63	0

Restore Apply Cancel

24. Go to **QoS > Priority Mapping**. At **Mapping Type**, select **DSCP To Queue**.

**For a QLAN-only network:**

- At Input Value 26, select an Output Value of **5**.
- At Input Value 34, select an Output Value of **6**.
- At Input Value 46, select an Output Value of **7**.

Click **Apply** and proceed to Step 25.

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Queue Mapping

Mapping Type: DSCP to Queue

Input Value	Output Value						
0	0	1	0	2	0	3	0
4	0	5	0	8	0	7	0
8	5	9	0	10	0	11	0
12	0	13	0	14	0	15	0
16	0	17	0	18	0	19	0
20	0	21	0	22	0	23	0
24	0	25	0	26	5	27	0
28	0	29	0	30	0	31	0
32	0	33	0	34	0	35	0
36	0	37	0	38	0	39	0
40	0	41	0	42	0	43	0
44	0	45	0	46	6	47	0
48	0	49	0	50	0	51	0
52	0	53	0	54	0	55	0
56	7	57	0	58	0	59	0
60	0	61	0	62	0	63	0

Restore Apply Cancel

## For a combined QLAN and Audinate/Dante or QLAN and AES67 network:

- At Input Value 8, select an Output Value of **5**.
- At Input Value 26, select an Output Value of **5**.
- At Input Value 46, select an Output Value of **6**.
- At Input Value 56, select an Output Value of **7**.

Click **Apply** and proceed to Step 25.

Queue Priority

Interface Name	Priority	Trust Mode	Operation
GigabitEthernet1/0/1	0	Untrust	⊕
GigabitEthernet1/0/2	0	Untrust	⊕
GigabitEthernet1/0/3	0	Untrust	⊕
GigabitEthernet1/0/4	0	Untrust	⊕
GigabitEthernet1/0/5	0	Untrust	⊕
GigabitEthernet1/0/6	0	Untrust	⊕
GigabitEthernet1/0/7	0	Untrust	⊕
GigabitEthernet1/0/8	0	Untrust	⊕
GigabitEthernet1/0/9	0	Untrust	⊕

networks: 15 per page | page 1/1, record 1-8 | first | previous | next | last | 1/1 | GO

25. Go to **QoS > Port Priority**.

Starting with Port 1 (i.e., **GigabitEthernet1/0/1**), click the **Operation** icon.

Queue Priority

Interface Name: GigabitEthernet1/0/1

Priority: 0

Trust Mode: DSCP

Restore Apply Cancel

At Trust Mode, select **DSCP**. Click **Apply**. Repeat for each port.

When you are done, all the ports will have DSCP as their Trust Mode.

26. With the queues mapped and trust modes set, save the configuration so the switch will continue operating with these settings whenever it reboots. In the upper right corner of the window, click **Save**. Click **OK** to confirm.

27. The switch is now configured. You may shut down the PuTTY session and close the browser.