





Switch Configuration Example for Q-SYS<sup>TM</sup> 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 <u>Q-SYS Q-LAN Networking Overview</u> 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 <u>http://www.qsc.com/switches</u>.

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.





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

Design Properties	X
PTPv2 Domain	Default (0)
PTP Priority	100
QoS Preset	QLAN •
PTPv2 DSCP Value	46
Audio DSCP Value	34
Camera DSCP Value	26

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





## **Specifications**

Preset	Q-LAN	Audinate	Manual
Use for:	<ul> <li>Q-LAN-only network</li> </ul>	<ul> <li>DANTE-only network</li> </ul>	<ul> <li>If custom DSCP settings are necessary</li> </ul>
	<ul> <li>Q-LAN + AES67 network</li> </ul>	<ul> <li>DANTE + Q-LAN network</li> </ul>	
		DANTE + Q-LAN + AES67 network	
QoS class assigned:	PTPv2: 46	PTPv2: 56	PTPv2: 56
	Audio: 34	Audio: 46	Audio: 46
	Camera: 26	Camera: 26	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







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.







### Switch Configuration Example **for Q-SYS™ Platform** Hewlett-Packard HP 1910



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 adaper 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.

dware Options		
evice Memory Processors Hard Disk (SCSI) CD/DVD (SATA) Network Adapter	Summary 4 GB 1 60 GB Using file C:\Downloads\ISO\MS_Se Bridged (Automatic)	Connections USB compatibility: USB 2.0 Automatically connect new USB devices Show all USB input devices Share Bluetooth devices with the virtual machine
USB Controller	Present	
Sound Card Printer Display	Auto detect Present Auto detect	



#### 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.

- @ COMM-PUTY □ × 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.







<pre>cHPE&gt;ipsetup ip-address 192.168.1.66 255.255.255.0 default-gateway 192.168.1.1 </pre>	8.	Type <b>ipsetup ip-address</b> < <i>IP</i> address> < <i>subnet</i> mask> <b>default-gateway</b> <gateway address="" ip=""> and press Enter.</gateway>
		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]:</hpe>	9.	To reset the switch to its factory default settings, type <b>initialize</b> and then press <b>Enter</b> . When you are asked to confirm, press <b>Y</b> .

- 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**.

INFO         INFC 1018.8.765         Switch J03.002         INFC 1018.767         Switch J03.002         INFC 1018.767		YTHR	leb User Login nin IR Login	User Name Password Verify Code	Hewlett Packard Enterprise	cill'
Hirt: 1910-836-M6 With Software VA Product Information HEFE 1910-84-766 Switch Software VA Relates 1516 Contact Information Heaviet Packador Development, L.P. Software VArsion 5:20 Relates 1516 Software VArsion 5:20 Relates 1516 Handware Version 5:20 Relates 1516 Relation 1517 Boltonon Version 1:3 Running Time: 0:30 Running Time: 0:3	(i)	INFO Device Name				
Device Location     South Hanvers     Preve Device     Contect Information     Section 11     Contect Information     Child Fill 202     Section 12	oE+ (180W) on oE+ (180W) Version	HPE 1910-8G-PoE Switch JG350A Product Information HPE 1910-8G-PoE Switch Software Ve Release 1516	А			
System Name Web lde Timeout	Palo Alto, C/ ion Enterprise	Device Location 3000 Hanover St Pa 94304 Contact Information Hewlett Packard En	4			
Web lde Tineout	9, 16	Development, L.P. SerialNum CN51FRL20Z Software Version 5/20 Release 1516				
System Name Web Ide Timeout	n	Hardware Version REV.A Bootrom Version 175	6			
System Name Web Idle Timeout	5 minutes 53	0 day 19 hours 25 n seconds	6			
					Web Idle Timeout	System Name
Set sysname HPE * Chars. (1-30)		30)	* Chars. (1-3		HPE	Set sysname Sysname

- 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

The switch will reboot.

#### 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**.



	999	"Minutes(1-999, I	Default = 10)
Items marked with an	asterisk(*) are required		
			Apply
			System Time Configuration
			2017-02-23 13:12:19
			📢 🧹 Feb 2017 🕨
			29 30 31 1 2 3 4
			5 6 7 8 9 10 1
			12 13 14 15 16 17 1
			26 27 28 1 2 3 4
			5 6 7 8 9 10 1
			Time 13:12:25
			Today OK
_			
× .	Summary Detail Setup		
	Basic Configuration		Accessory (
	Port State No Change • Link Type No Change •	Speed No Change •	Duplex No Change   4)
	Advanced Configuration		
	MDI No Change •	Flow Enable •	
	Power Save No Change  Storm Suppression	Count No Change V	(0-8192)
	Breadcast No Change •	Multicast No Change	Unicast Suppression
	Select All Select None		
			and the strength of the strength of the
Super Password	Create Moo	ty Remove	Switch To Management
Super Password	Create Moo	fields below	Switch To Management
Super Password	Create Mco ted user attributes in the Access Lev	dy Remove e fields below el Servi	Switch To Management
Super Password	Create Moo ted user attributes in the Access Lev Management	dy Remove fields below el Servi Web/T	Switch To Management ce Type elnet/Terminal
Super Password	Create Moo ted user attributes in the Access Lev Management	fields below el Servi Web/T	Switch To Management
Super Password	Create Mod ted user attributes in the Access Lev Management	dy Remove #fields below #el Servi Web/T	Switch To Management
Super Password	Create Moo ted user attributes in the Access Lev Management	dy Remove e fields below al Servi Web/T	Switch To Management
Super Password	Create Moo ted user attributes in the Access Lev Management	dy Remove e fields below el Servi Web/T	Switch To Management
Super Password	Create Moo ted user attributes in the Access Lav Management	fields below al Servi Web/T	Switch To Management
Super Password	Create Moo ted user attributes in the Access Lav Management	fields below al Servi Web/T	Switch To Management
Super Password	Create Moo ted user attributes in the Access Lav Management	fields below al Servi Web/T	Switch To Management
Super Password nd modify the select admin	Create Moo ted user attributes in the Access Lav Management	fy Remove fields below al Servi Web/T Access Level	Switch To Management
Super Password nd modify the select admin todfy	Create Moo ted user attributes in the Access Lav Management	Access Level	Switch To Management
Super Password nd modify the select admin todfy	Create Moo ted user attributes in the Access Lev Management (1-63 Chars.)	ry Remove = fields below = 1 Servi Web/T Web/T Access Leve Confirm New Password	Switch To Management
Super Password and modify the select admin todify	Create Moo ted user attributes in the Access Lev Management (1-63 Chars.) () Irreversible	ry Remove fields below al Servi Web/T Access Level Confirm New Password	Switch To Management ce Type elnet/Terminal Management

Basic	Advanced					
IGMP Snoop	ing:      Enable	Disa	ble		Apply	
VI AN Config	iration					
VLAN Configu	vitation	N ID	۲	Search	Advance	ed Sea
VLAN Configu R. VLAN ID	IGMP Snooping	N ID Version	Drop Unknown	Search	Advance	ed Sea

#### 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.

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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New P Passw >Serv



/LAN Configuration				
VLAN ID:	1			
IGMP Snooping:	Enable	O Disable		
Version:	2	03		
Drop Unknown:	Enable	O Disable		
Querier:	Enable	O Disable		
Query Interval:	60		*Seconds (2-300, Default = 60)	
General Query Source Address:	192.168.1.66	5	*IP address (Default = 0.0.0.0)	
Special Query Source Address:	192.168.1.66	5	*IP address (Default = 0.0.0.0)	

Apply

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.

- 21. The table should now show these settings (except with the correct IP addresses):
- Summary Setup WRR Setup WRR Enable • Group SP • Weight 1 • Please select port(s) Setect All Select None Apply Cancel

Refresh

ummary Setup				
e select a port				
	000 900			HPE 1910-8G-PoE
3E1/0/1 Queue Sche	tule	Omer	Whiteha	
3E1/0/1 Queue Scher QType	dule QID	Group	Weight	
GE1/0/1 Queue Scher QType VRR VRR	cute QID 0	Group SP SP	Weight N/A N/A	

Apping Type	DSCP to 0	anene .									
Input Value	Out	put Value	Input Value	(	Dutput Value	Input Value		Output Value	Input Value		Output Value
0	0	•	1	0		2	0	•	3	0	
	0	•	5	0	•	6	0	*	7	0	٠
	0	•	9	0		10	0	*	11	0	
12	0	•	13	0	•	14	0	•	15	0	
16	0	•	17	0		18	0		19	0	
80	0	•	21	0	•	22	0		23	0	
14	0	•	25	0		26	5	•	27	0	
8	0	•	29	0	•	30	0		31	0	
12	0	•	33	0		34	6	*	35	0	
96	0	•	37	0		38	0	*	39	0	
40	0	•	41	0	•	42	0		43	0	•
14	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	
50	0	•	61	0	•	62	0		63	0	

22. Go to QoS > Queue. Select Setup.

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

23. Select Summary.

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

#### 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.





lapping Type	DSCPI	Queue •									
Input Value	(	lutput Value	Input Value		Output Value	Input Value		Output Value	Input Value		Output Value
D	0		1	0		2	0	•	3	0	
	0	•	5	0		6	0		7	0	
	5	*	9	0	•	10	0	•	11	0	
12	0	•	13	0		14	0		15	0	
16	0	*	17	0		18	0	*	19	0	
80	0		21	0	•	22	0		23	0	٠
84	0	*	25	0		26	5	•	27	0	
8	0		29	0		30	0		31	0	
12	0		33	0	•	34	0	•	35	0	
6	0		37	0		38	0	•	39	0	٠
10	0	•	41	0		42	0	*	43	0	
14	0		45	0	•	46	6		47	0	
18	0	*	49	0		50	0	•	51	0	
52	0		53	0	•	54	0	•	55	0	
56	7	*	57	0		58	0	•	59	0	
80	0	•	61	0		62	0		63	0	

# 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.

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

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

Port Priorit							Save   Hel
interface lame	GigabitEtherr	net1/0/1					
Priority	0						
Trust Mode	DSCP						
			Restore	Apply	Cancel		

Untrus Untrus Untrus Untrus Untrus Untrus

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.



Interface Name . Search 1.4

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