



Switch Configuration Example for Q-SYS™ Platform

HP 1910 and HP 1920

Important Note

This switch configuration example is intended to serve as a network setup guideline for systems using only Q-LAN audio 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) | HP 1920 (Gigabit)
not for HPE OfficeConnect switches

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.

NOTE: This setup procedure is only for HP 1910 and 1920 Series Gigabit (1 Gb/s) switches; the Fast Ethernet (FE) versions will not work with Q-SYS. Also, do not use this setup procedure for HPE OfficeConnect switches, which lack IGMP Snooping and are unsuitable for use with Q-SYS.

This guide uses this syntax in the command line instructions. Do not actually type these symbols.

Symbol(s)	Description	What it means/they mean
{ }	Braces	Required section; you must include this
[]	Square brackets	Optional section; use only if needed
	Vertical line, or pipe	<i>Or</i> ; that is, select one and only one

Italicized text is a placeholder and indicates that you must type in the appropriate value, such as an IP address or an integer.

Assign IP Address, Log into Web UI and check Firmware

1. If your HP switch already has a static IP address, please skip to step 9.
2. Connect the serial port on the PC to the switch's console port, using the console cable included with the switch.
3. Open a terminal emulator such as PuTTY and connect to the device using the following serial settings: 38400, N, 8, 1. Once the boot process is finished, you should see a message to press Enter.

```
Login authentication
Username:█
```

4. Press **Enter** to begin a login authentication. You will be prompted for a username.

5. If the switch is still set to factory defaults, the username is admin and the password is blank (just press **Enter** for each one). If you don't have credentials to access the switch, you must consult the user documentation for instructions on resetting the switch to factory defaults. *NOTE: The switch should be set to factory default settings before you proceed with the rest of these directions.*

```
Username:admin
Password:
<HP>
#Apr 26 12:09:29:561 2000 HP SHELL/4/LOGIN:
Trap 1.3.6.1.4.1.25506.2.2.1.1.3.0.1:admin login from Console
#Apr 26 12:09:29:691 2000 HP SHELL/S/SHELL_LOGIN: admin logged in from aux0.█
```

6. The terminal window should now display this:
7. Press **Enter**. You should now see a command prompt.

8. Next, assign an IP address to the switch; a static address is preferable so you can keep track of it. Type your command in this format:

```
ipsetup { dhcp | ip-address ip-address { mask | mask-length } } [ default-gateway ip-address ]
```

Where **ip-address** is the IP address you wish to assign to the switch and, optionally, as the gateway;
mask and **mask-length** are respectively the IPv4 subnet mask itself or the length of the subnet mask in bits; for example a mask length of 8 is equivalent to a mask of 255.0.0.0. Use one or the other.)

```
<HP>ipsetup ip-address 10.0.1.2 8 default-gateway 10.0.1.1
<HP>ipsetup ip-address 10.0.1.2 255.0.0.0
```

- Here are two examples of how you can execute this command.

NOTE: The default gateway designation is entirely optional and is only useful for accessing the switch's web interface from another VLAN. Absence of a default gateway designation in the switch setup does not prevent computers on the network accessing a default gateway.

Press **Enter**.

9. The console session is done. Now connect a network cable from the computer to one of the Ethernet ports on the switch.



10. Open a web browser and enter the switch's IP address into the address bar. Press **Enter**. The home page of the switch's web interface will open and display a login window (shown at left).

If you have already set up other credentials for the web interface, enter the user name and password here. If you haven't, then enter the user name admin and leave the password box blank.

Also type the **Verify Code** displayed. Click **Login**.

11. On the home page, check the switch's firmware version. This guide was prepared using the following versions. If your switch uses an older version, you should update it.

- HP 1910 : Version Release 1513P81
- HP 1920: Release 1111

Here are links to the firmware update pages for each series:

- HP 1910: <https://h10145.www1.hp.com/Downloads/ProductsList.aspx?lang=en&cc=us&prodSeriesId=4218346>
- HP 1920: <https://h10145.www1.hp.com/Downloads/ProductsList.aspx?lang=en&cc=us&prodSeriesId=7399514>

Please skip Step 12 if you don't need to update the firmware.

12. Follow these steps to update the firmware:

- A. Save your settings first, even if you have only set the IP address via the command line. Click **Save**, located in the upper right corner. Now your settings will remain intact through the firmware upgrade.
- B. 1920 series only: To make room for the new firmware images, you must delete one of the two copies of the existing firmware. In the navigation tree on the left, select **Device** and then **File Management**.

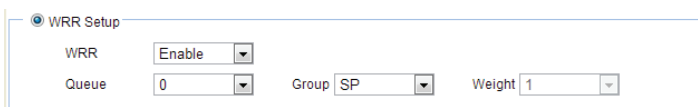
In the file listing, locate the row that shows **Main** as the Boot File Type. Click the wastebasket icon to the right of this row. To confirm, click **OK**. Wait for the file to be removed (this will take several minutes). Continue with step C.

- C. In the navigation tree at the left, select **Device** and then **Device Maintenance**.
- D. Click **Software Upgrade**. Click **Choose File**. Navigate to and select the firmware upgrade file you had downloaded. Select **Reboot** after the upgrade is finished. Click **Apply**.
- E. Allow the switch to perform its upgrade, after which it will automatically reboot. Log in to its web interface again and proceed.

Setting up DSCP Quality of Service for Q-LAN

13. In the navigation tree at left, select **QoS**. Under QoS, select **Queue**.

14. Click **Setup**.



The screenshot shows the 'WRR Setup' configuration page. It contains four dropdown menus: 'WRR' is set to 'Enable', 'Queue' is set to '0', 'Group' is set to 'SP', and 'Weight' is set to '1'.

15. Select these values:

WRR: **Enable**; Queue: **7**; Group: **SP**

NOTE: Weight does not matter when Group is set to SP.

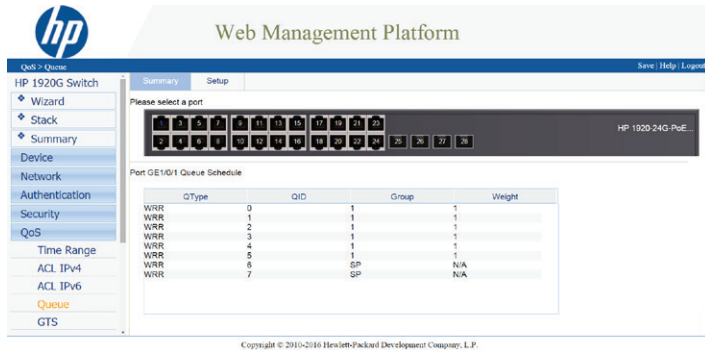
Click **Select All**. All the port numbers will turn blue. Click **Apply**. A box will appear, showing the status of the settings being applied to each port.

Next, select these values:

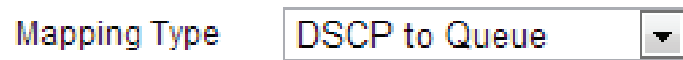
WRR: **Enable**; Queue: **6**; Group: **SP**

As before, click **Select All**. All the port numbers will turn blue. Click Apply. A box will appear, showing the status of the settings being applied to each port.

16. Click **Close**.



17. To verify that the queues are set up properly, select **Summary** and select any port. For any port you select, queues 0 through 7 should have the settings shown here.



18. In the navigation tree at left, select **QoS** again. Under QoS, select **Priority Mapping**.

19. **Set Mapping Type to DSCP to Queue.**

20. For DSCP values 47 through 63, select queue **5**.

21. On DSCP value 46, select queue **7**. (This is for Q-LAN clock packets.)

22. On DSCP value 34, select queue **6**. (This is for Q-LAN audio packets.)

23. Look through the queue settings for all the DSCP values. The only DSCP value set to queue 7 should be 46, and the only DSCP value set to queue 6 should be 34. All the other Priority Mapping table settings are immaterial.

24. Click **Apply**.

25. In the navigation tree at left, select **QoS** again. Under QoS, select **Port Priority**. A table of all the switch's ports will appear.

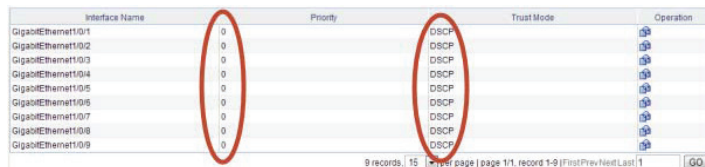


26. At each port, click the icon for **Operation** (🔧) and configure the port like this.

Priority should always be **0**.

For Trust Mode, select **DSCP**.

Click **Apply**.



This assures that all packets that are not DSCP tagged will not be prioritized. When you have configured all the ports, they should all indicate Priority of 0 and Trust Mode of DSCP.

27. Do not set any other policies, behaviors, rate limiting, or time ranges in the switch. If the switch was at its factory default settings at the start of this configuration process, there will be no overlooked miscellaneous settings that may spoil the switch's performance with Q-LAN.
28. **Optional:** These administrative steps, setting account passwords and enabling IGMP snooping across the entire VLAN, may be desirable but are not required for Q-LAN performance and functionality.

Username	<input type="text" value="admin"/>	Access Level	Management
<input checked="" type="checkbox"/> Password Modify			
New Password	<input type="password" value="....."/> (1-63 Chars.)	Confirm New Password	<input type="password" value="....."/>
Password Encryption	<input type="radio"/> Reversible <input checked="" type="radio"/> Irreversible		
>Service Type	<input checked="" type="checkbox"/> Web <input type="checkbox"/> FTP <input checked="" type="checkbox"/> Telnet <input checked="" type="checkbox"/> Terminal		

To set account passwords:

Select **Device** in the navigation tree and then click **Users**.

Select **Modify**. By default, only the admin account will be listed.

Select the admin account and select **Password Modify**. Enter the new password in **New Password** and again in **Confirm New Password**.

For **Password Encryption**, select **Irreversible**.

Click **Apply**.

Enabling IGMP snooping across the entire VLAN ensures peaceful coexistence with multicast traffic.

In the navigation tree, select **Network** and then select **IGMP snooping**. Next, select **Basic**. For **IGMP Snooping**, select **Enable**.

1920 Series only: For **Drop Unknown Multicast Data**, select **Enable**.

Click **Apply**.

On the same page, under **VLAN Configuration**, click the **Operation** icon () for the VLAN.

For **IGMP Snooping**, select **Enable**.

For **Version**, select **2**.

1910 Series only: For **Drop Unknown**, select **Enable**.

For **Querier**, select **Enable**.

Leave the other parameters at their default settings.

Click **Apply**.

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29. **Mandatory:** Click **Save**, located at the upper right. This will save the current configuration.

30. The switch configuration procedure is complete, but is good practice to download a backup copy of the configuration for archiving or for uploading to an identical switch model. To do so:

Select **Device** in the navigation tree. Then select **Configuration**.

Click **Backup** to download a .cfg file that contains all the settings you have made. (NOTE: The 1920 Series also offers an XML file with an incomplete set of configuration data; select the .cfg file only.)

To upload and use this configuration file in another switch that is an identical model, you will have to edit the line containing its IP address:

```
interface Vlan-interface1
ip address 10.0.1.2 255.0.0.0
```

Open the .cfg file in a text editor program such as Notepad.

Locate these lines (the actual IP address will probably be different from what is shown here).

Edit the IP address (and the subnet mask, if necessary).

Save the file under a different file name.

In the web interface of the new switch, select **Device** in the navigation tree, and then select **Configuration**.

Click **Restore**. Select the appropriate .cfg file and click **Apply**.

Select **Device** in the navigation tree and then select **Device Maintenance**. Click **Reboot**.

Any time you make changes to the switch's configuration, it is good practice to make a new backup file after you save the configuration in the switch itself.