S6L Luminex Switch Setup and Configuration

Before you can use Luminex switches for S6L star configurations, all switches must have the correct firmware version and internal settings configured for AVB compatibility. After updating firmware you must load a pre-configured Profile available from Luminex, or use a macOS or Windows computer to make all required settings manually.

⚠ *Configuring switches requires some familiarity with network protocols and utilities. If necessary, consult a network specialist to make sure your installation is successful.*

Luminex switches support redundant star connections for up to three S6L systems configured for I/O sharing (three-system I/O sharing requires VENUE 7.0 or later).

⚠ *If your S6L systems include MLN-192 Milan Option cards, all Milan devices must be connected to a separate physical network. Do not connect the MLN-192 card or any Milan devices to Luminex switches that are being used for S6L star configurations.*

Requirements

- 2x AVB-192 Network Cards in the E6L Engine(s)
- Luminex GigaCore firmware version 2.8.4 is required with VENUE 7.0. For the latest firmware, visit the **Luminex Product Downloads** site.

Luminex GigaCore firmware version 2.8.3 is still supported for 2x S6L I/O Sharing (only) with VENUE 6.3 or later.

  - Both switches *must* be running firmware version 2.8.4 or later to be compatible with VENUE 7.0 or later. The following Network Switch models from Luminex are qualified for use with S6L in a redundant star configuration:
  - **Luminex GigaCore 10 AVB switches**
  - **Luminex GigaCore 26i AVB switches**

Switches do not need to be identical. For example, you can use one GigaCore 10 with a GigaCore 26i. In addition, other GigaCore switches by Luminex that have not yet been officially qualified by Avid should also be compatible. For the latest information regarding Switch firmware version compatibility and official Switch model qualification see the following article on our Knowledge Base: **Which AVB Network Switches are qualified for connecting S6L components?**

- Highest-quality Cat-5e or better Ethernet (copper), or fiber-optic cables
  - Additional adapters or converters as needed for fiber connections. See the following article on our Knowledge Base for cable specifications and requirements: **Which SFP transceivers are qualified for connecting S6L components?**

Support

If you need help updating or configuring GigaCore switches please contact Luminex. For support resources and contact information, visit **Luminex Support**.

Star Configuration Setup for Luminex GigaCore 10 and GigaCore 26i

Complete all the following configuration steps for the first switch (referred to as switch “A”). After completing all configuration steps for switch A, connect switch B and repeat all configuration steps. Be sure to use the correct addresses and settings described below for each switch.

1. Setup for Using the Web Interface

To setup your computer to be able to configure the switches:

1 Connect a Cat-5e Ethernet cable from your computer to a Management port on the first switch. Management ports can be identified with a blue LED on the switch. (By default, all ports are assigned to the Management group at the factory.)

2 Assign an IP address to your computer / NIC within the same subnet of the IP address of the GigaCore switch (do not use the exact same IP address). Start with the first switch (“A”). After completing all configuration steps for switch A, connect switch B and complete all configuration steps:

Computer guidelines for web access to the switch

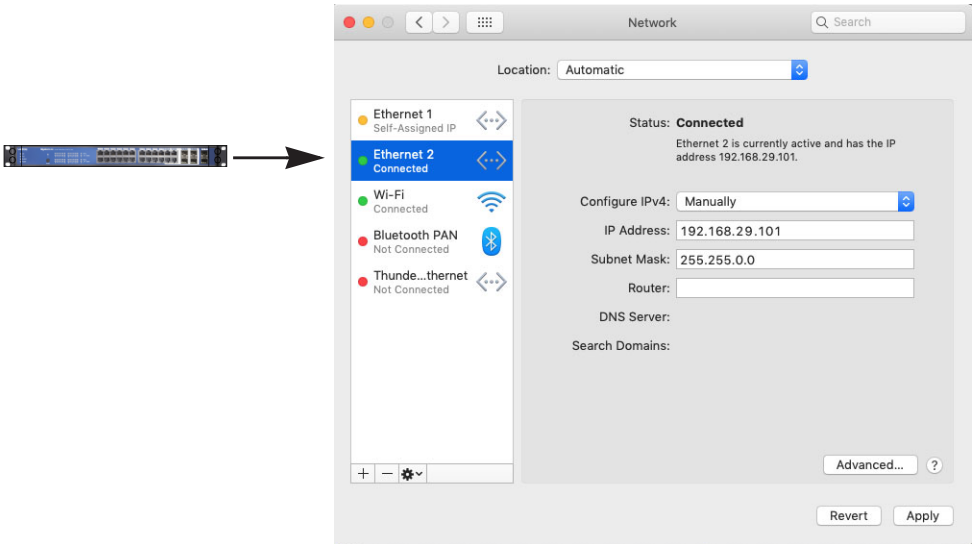
IP	192.168.X.Y	X cannot be 1 or 0 (to avoid conflicts). X can be different, or the same across all switches.
Subnet	255.255.0.0	

Example:

Your switch sticker has IP address 192.168.29.252 (remember, this is an example only).

Example location of switch IP address (Luminex 26i shown)

In your computer's Network control panel, select the Ethernet network interface connected to the switch, choose “Manual” configuration, assign 192.168.29.101 for the IP address and 255.255.0.0 for the subnet, and apply the new settings.



Example settings

Your computer is now ready to communicate directly with the switch.

3 Open a web browser such as Google Chrome and enter the IP address found on the back of the switch to enter its web interface. You will be prompted to enter a login: Use admin in the login field, and leave the password field blank.

4 Proceed to **2. Firmware and Profiles**.

2. Firmware and Profiles

Firmware on all switches must be version 2.8.4 or later to be compatible with VENUE 7.0. For more information, see **Which AVB Network Switches are qualified for connecting S6L components?**

Update Firmware

To update firmware:

1 For the latest firmware, visit the **Luminex Product Downloads** site, scroll to find your model of Luminex switch, then download firmware 2.8.4 (or later, if available).

2 After the download is complete, do the following:

- Extract the .zip file.
- In the extracted folder, locate the Luminex firmware ".tar" file and double-click to extract its contents.

3 In the web interface, select Global located along the left side.

4 Select Firmware.

5 Select Upload firmware.

6 Navigate to and select the v2.8.4 firmware file for your model of Luminex GigaCore switch in the extracted folder. The upload message will turn red to indicate firmware is being updated.

7 After the firmware update completes the switch performs its own soft restart.

Download Switch Profiles

Luminex have made available pre-configured Profiles to import, instead of having to manually configure the hellotime (terminal) and and having to configure the group.

To import a Profile:

1 Download the Profiles from the Luminex Support page. You can download these Profiles by following this link and scrolling to the bottom of the page:
https://support.luminex.be/portal/en/kb/articles/gigacore-switches-and-avid-s6l

2 In the switch web interface, select the Profiles tab along the left.

3 Follow on-screen instructions to Import a Profile.

Refer to the latest Luminex documentation for your switch(es) for instructions on loading Profiles and using the Profile Manager.

For example instructions for manually configuring switches, see **Appendix: Setting Hellotime Manually**.

Connecting S6L Components in Star Configurations with Luminex Switches

VENUE 6.3 and higher supports the optional use of **Luminex 26i AVB switches** and **Luminex 10 AVB switches** to connect S6L Engines and Stage I/O units in a redundant star configuration. Star configurations provide greater flexibility and increased resilience for system connections. Each Stage I/O unit can be connected directly to each switch instead of daisy-chaining in a redundant ring; and units can be powered down, removed, or added without breaking redundancy.

Luminex switches are supported in configurations with two S6L systems connected for I/O Sharing (requires VENUE 6.3 or later) and up to three S6L systems (requires VENUE 7.0 or later).

Depending on the type of switch you are using you can use Ethernet or fiber connections (some adapters might be required). Refer to the documentation for your switch from Luminex for more information (**https://www.luminex.be/products/gigacore/**).

⚠ *Only the following configurations showing Luminex switches in a redundant start network are supported. Do not connect any unsupported devices or deviate from the network topologies shown below. Do not connect the S6L control surface to switches, and if using Pro Tools AVB, do not connect the Pro Tools computer(s) to switches. Pro Tools computers must only be connected to port* **C** *(and* **D** *if using redundant recording) on the S6L control surface.*

Important! Configuring Luminex Switches

If you need help updating or configuring GigaCore switches please contact Luminex (support resources and contact information can be found at **Luminex Support**).

Connecting System Components

Integrating AVB switches into a single- or multi-S6L system (for I/O sharing) is simple. Follow these guidelines and refer to the diagrams on the following pages:

Control Surface to Engine The "console ring" is connected the same as with redundant ring configurations:

- Connect an audio network cable from Network port **A** (use the RJ-45 port for copper, or the SFP port for fiber) on the back of the S6L control surface to Network port **B** on the top-most AVB Network Card of the E6L engine.
- Connect an audio network cable from Network port **A** on the top-most AVB Network card of the E6L engine to Network port **B** on the S6L control surface.
- Local 16 (if any) are connected to the console ring.

Engine to Switches The E6L engine is connected to both of the two separate Luminex switches:

- Connect an audio network cable from Network port **A** on the Master 1 (lowest slot) AVB Network Card of the E6L engine to an AVB-enabled port on switch A.
- Connect an audio network cable from Network port **B** on the Master 1 (lowest slot) AVB Network Card of the E6L engine to an AVB-enabled port on switch B.

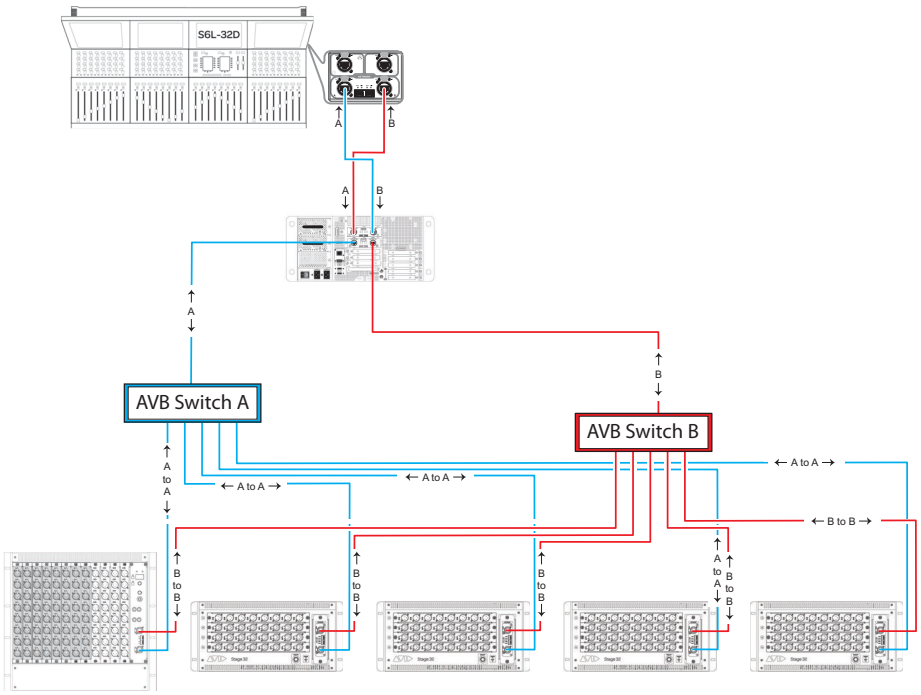
Switches to Stage I/O Stage I/O can only be connected in the "stage ring" up to the same maximum configurations as with other S6L configurations. Each I/O unit is connected to the AVB switches with its own pair of Ethernet cables. Switch A connects to all I/O units' port **A**, and all I/O units' port **B** connect back to Switch B.

- Connect audio network cables from AVB-enabled ports on Switch A to Network port **A** on each Stage I/O unit.
- Connect audio network cables from AVB-enabled ports on Switch B to Network port **B** on each Stage I/O unit.

Two- and Three-S6L Systems for I/O Sharing For I/O sharing, Switch A is connected to port **A** on *all* engines, and Switch B is connected to port **B** on *all* engines.

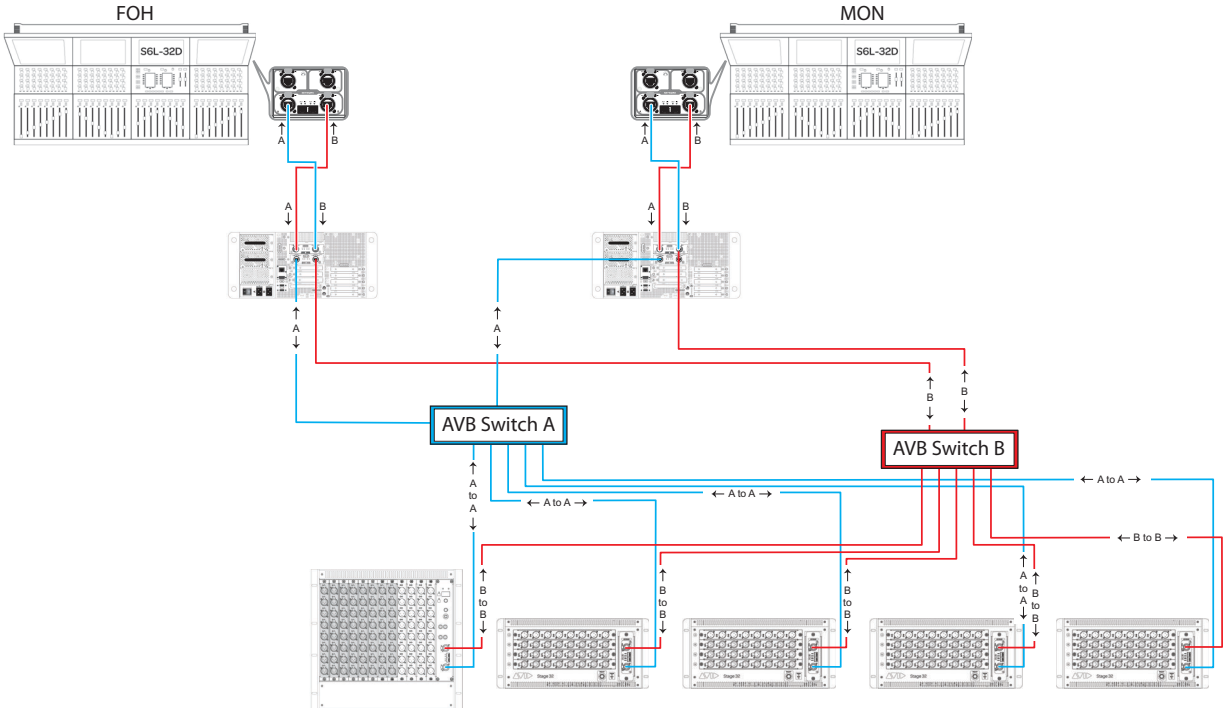
⚠ *Do not connect the two switches directly to each other.*

Single System Redundant Star Configuration



Single S6L system with Luminex switches in a star configuration

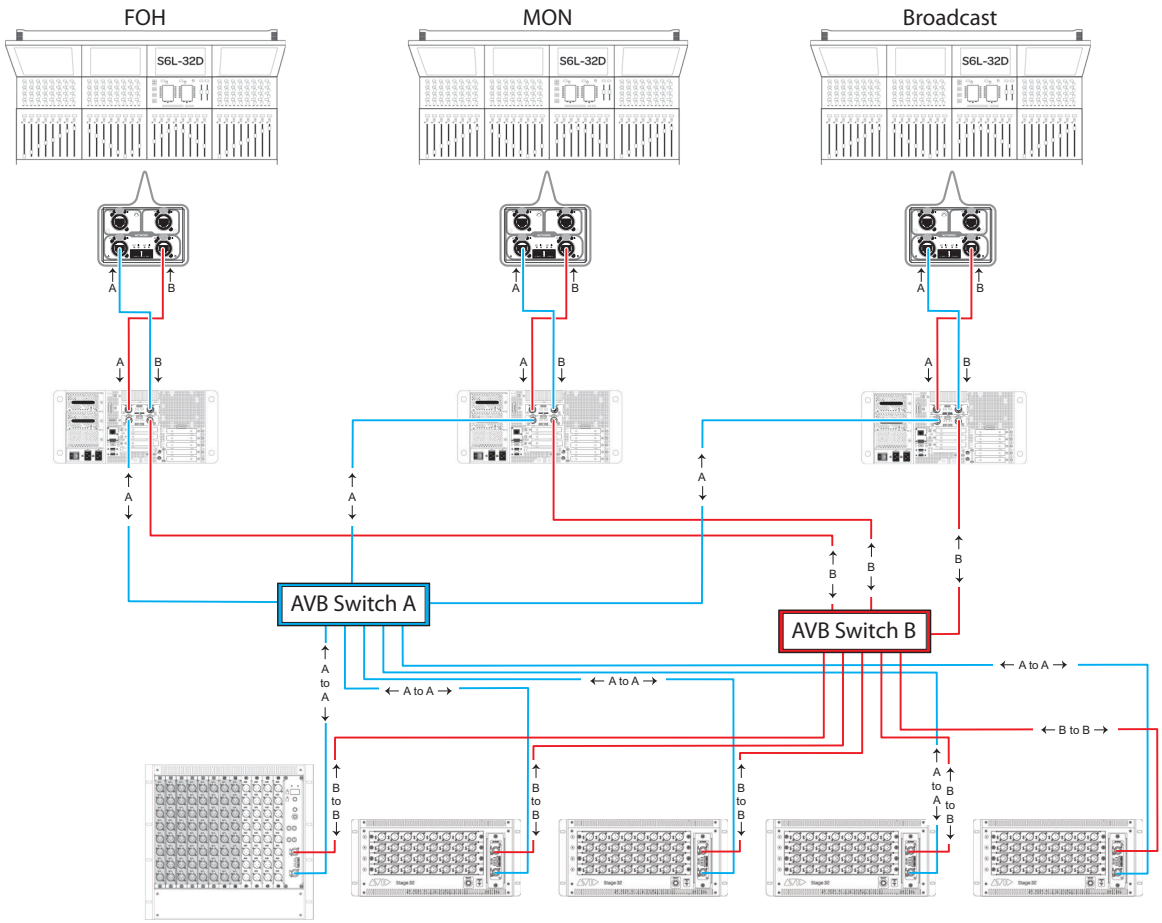
Dual System Redundant Star Configuration with I/O Sharing



Two S6L systems with Luminex switches in a star configuration, I/O sharing

For more information about S6L system installation and connections see the *VENUE S6L Installation Guide.pdf*.

Three System Redundant Star Configuration with I/O Sharing



Three S6L systems with Luminex switches in a star configuration, I/O sharing

For more information about S6L system installation and connections see the *VENUE S6L Installation Guide.pdf*.

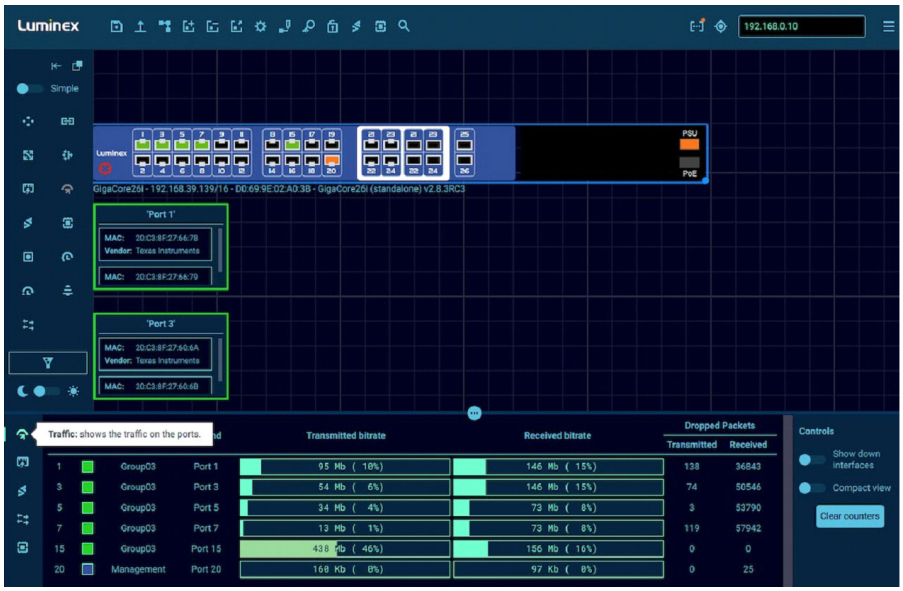
(Optional) Araneo

Araneo is Luminex's switch management software. Though not required for S6L configurations, you can download and install Araneo on a separate computer in order to perform diagnostics and troubleshoot individual switches.

⚠ *If you use Araneo, be sure to keep in mind that when using Luminex switches with VENUE S6L the two switches must never be connected directly to each other, and only one separate computer can be used at a time to run Araneo.*

You can download Araneo from **https://www.luminex.be/products/software/araneo/**

Refer to the documentation for Araneo provided by Luminex for complete information and suggested uses.



Appendix: Setting Hellotime Manually

The following instructions show how to manually configure Luminex switch Hellotime, Groups, and AVB settings.

Luminex have made available pre-configured Profiles to load instead of having to manually configure the hellotime (terminal) and then having to configure the group. You can download these Profiles by following this link:

https://support.luminex.be/portal/en/kb/articles/gigacore-switches-and-avid-s6l

Refer to the Luminex documentation for your switch(es) for instructions on loading Profiles.

To set Hellotime manually:

Hellotime refers to a "hello" message being sent by the switch to ensure network routings are functional. This setting needs to be set to "1" after performing the firmware update, as explained below.

1 Install or launch telnet as described below for your computer operating system.

macOS To run telnet on macOS use Terminal. Before doing so, a one-time installation of *brew* is required.

- Open Terminal (Applications > Utilities > Terminal).
- Paste the following into Terminal:
  /usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
- After installation is complete type the following into terminal:
  brew install telnet

Windows To run telnet on Windows use Command Prompt.

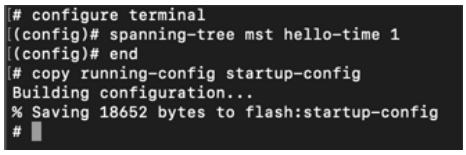
- Go to Start > Window System > Command Prompt.

2 Use telnet to change Hellotime to "1" by doing the following:

Type the following commands into Terminal or Command Prompt in order to run telnet:

- ssh admin@"IP address" (the IP address found on the back of your switch)
- Type `yes` when asked if you are sure you want to continue connecting.
- Press Enter when asked for password.
- With telnet access established, type each of the following individual commands (pressing Return after each line) to change the configuration:

```
configure terminal
spanning-tree mst hello-time 1
end
copy running-config startup-config
```



Example entries in Terminal

3 Repeat these steps for all switches.

4 Proceed to **Groups and AVB**.

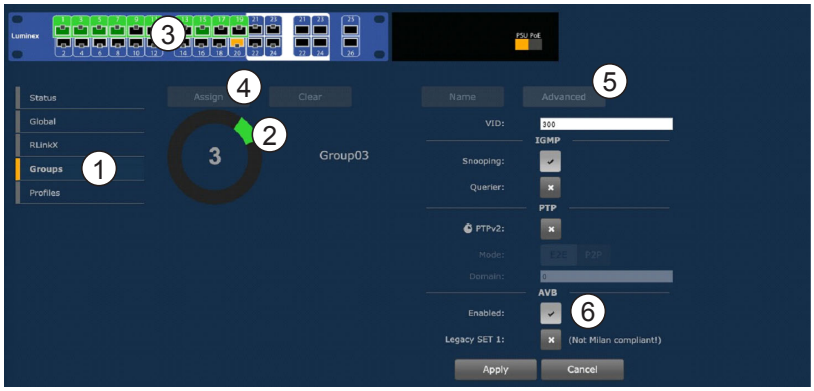
Groups and AVB

Next, modify an available Group on the switch for AVB capability. Observe the following guidelines:

- Only one Group per switch can have AVB enabled. Enabling AVB on another group disables AVB for all other groups.
- The Group you choose to modify cannot be the management or ISL group.

To modify a group (enable AVB) manually:

1. Select Groups.
2. Click and drag the Group color around the black ring to select a Group.
3. To assign ports, click ports shown on the image of the switch.
4. Once selection is complete select Assign.
5. Select Groups, then select Advanced.
6. Click to enable the AVB box Enabled. A check mark indicates yes/enabled. “X” indicates no/not enabled.
7. Repeat these steps for all switches.



After configuring both switches, proceed to the next section for S6L connection diagrams.