

# SONOSAX SX-AD8+ AVB USER GUIDE



*Version 1.0  
January 2026*

## **Audio equipment manufacturer**

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# 1. Introduction

The SX-AD8+ AVB card enables high-performance audio networking over Ethernet, providing 8 channels of low-latency output per unit. The system is fully scalable: by using an AVB-compliant switch, multiple units can be connected to increase your total channel count.

The purpose of this guide is to walk you through the correct configuration of your SX-AD8+ and your MAC to ensure a reliable and robust system for your recordings.

This guide focuses exclusively on macOS, which provides native AVB support. Please note that Windows does not natively support AVB; consequently, Windows-based configurations are not covered in this manual.

## 2. Hardware Requirements

|  |  |
|--|--|
|  A black rectangular AVB extension card with eight ports on the front, each with a green LED indicator. The brand name 'SONOSAX' is on the left and 'SX-AD8+' is on the right. A small antenna is on the top right. | <p>One or more Sonosax SX-AD8+ equipped with an AVB extension card</p>   |
|  A black rectangular adapter with a Thunderbolt connector on one side and an Ethernet port on the other. A black cable connects the two ports.   | <p>One Sonnet Thunderbolt AVB adapter (if your mac doesn't support AVB natively)</p> <p>(Note: Other adapters may be compatible <b>IF</b> they are <b>AVB ready</b>, this guide is for the Sonnet Thunderbolt AVB adapter)</p> |
|  A coiled blue Ethernet cable with RJ45 connectors on both ends.  | <p>One or more <b>CAT 5e</b> (or higher) ethernet cable</p> <p>(CAT 5e is the minimum requirement to ensure stable operation)</p>  |
|  A black horizontal network switch with a power jack on the left, followed by one SFP port and four RJ45 ports.   | <p>Optional: AVB ready ethernet switch<br/>(If you plan to use more than one SX-AD8+)</p> <p>Note: It <b>MUST</b> be compatible with AVB protocol to work correctly)</p>   |

### 3. Firmware Update

This section outlines the firmware update procedure required for the AVB card. This update ensures full compatibility with the latest AVB standard, guaranteeing system stability.

#### Entering Service Mode & Updating the AD8+

Push and keep pressed the knob 8 while applying power to the SX-AD8+. A LEDs animation confirm the service mode: all LEDs become green, then red, then green (or red)

1. Enable the wireless access point by setting the WIFI switch to '1' on the right Side Panel:  

2. Connect to the SX-AD8+ WIFI network. Network name (SSID) is SX-AD8+\_\_SNxxxxx, where xxxxx is the device serial number. No password is required.
3. Launch a web browser and use [192.168.1.1](http://192.168.1.1) as the URL (instead of http://) (Use Firefox to ensure the best stability)

The web interface is shown as below:



Figure 1 SX-AD8+ Bootloader menu

To apply the firmware update, first download the update file on Sonosax website. Once completed, enter service mode, press the “SELECT FIRMWARE FILE” button and select the update file.

**(IMPORTANT:** The update file must be named exactly “AD8P\_UPD.BIN”. Browsers can sometimes rename the file, make sure this exact name is visible)



Figure 2 Firmware Update Section

The “XX” correspond the version number.

If the update file is valid, an “UPGRADE FIRMWARE” button will appear. Firmware update will begin when pressing that button. Wait until the update is completed and reboot the SX-AD8+ in bootloader mode.

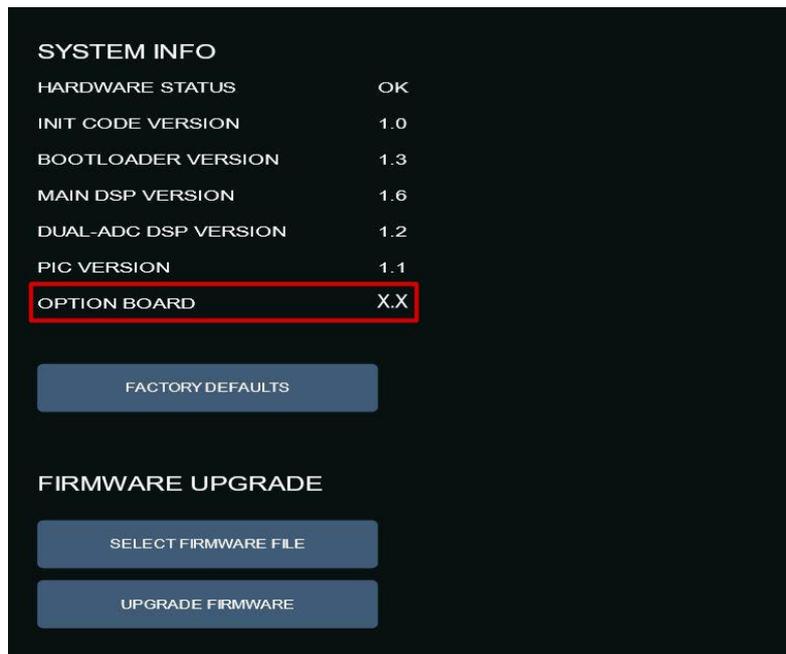


Figure 3 Option Board Software Version

After the update, confirm the installation was successful by checking the firmware version. Navigate to the **OPTION BOARD**; the current version number will be displayed there (see red rectangle below). Next perform a factory reset by clicking on “**FACTORY DEFAULTS**”.

## 4. Hardware Setup

Follow these steps to connect your SX-AD8+ and your computer.

### Single Unit Connection

To connect a single SX-AD8+ directly to your Mac:

1. Thunderbolt Connection: Connect the Sonnet AVB Adapter to a Thunderbolt port on your Mac using the provided Thunderbolt cable.
2. Ethernet Connection: Connect the SX-AD8+ to the Sonnet adapter's RJ45 port using a high-quality CAT5e (or higher) Ethernet cable.

**Note:** Some Macs like the Mac mini or the Mac Pro supports AVB via their RJ45 ports in the back, if this is your case simply connect the SX-AD8+ via RJ45 to the port in the back of your Mac.

### Multi-Unit Configuration (Networked)

If you are using multiple SX-AD8+ units or require a more complex routing setup:

1. Adapter Connection: Connect the Sonnet AVB Adapter to your Mac via Thunderbolt.
2. Network Switch: Connect the Sonnet adapter to a designated port on an AVB-compatible network switch.
3. Unit Integration: Connect each SX-AD8+ unit to the AVB switch using CAT5e (or higher) Ethernet cables.

## 5. Connection Diagram

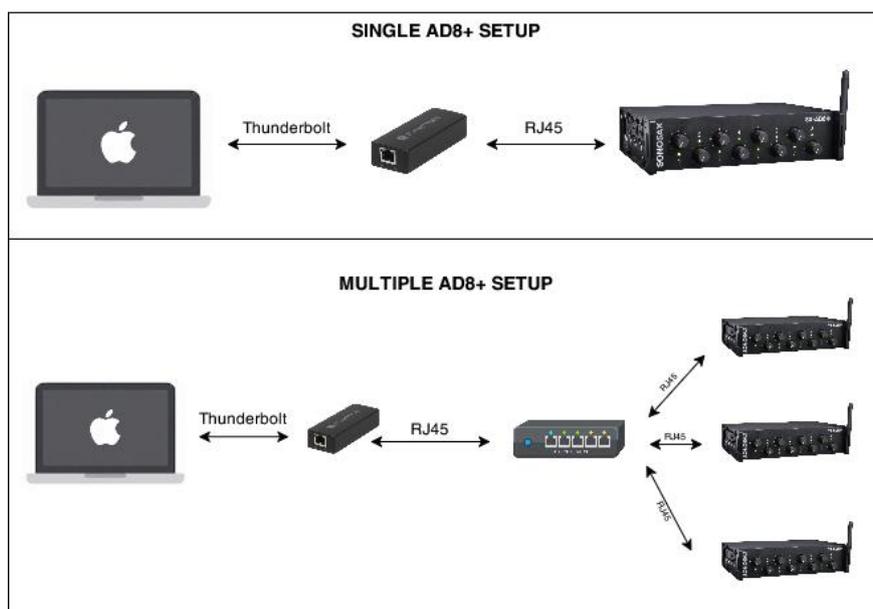


Figure 4 SX-AD8+ AVB Connection Diagram

## Opening the ATDECC Controller

1. Open Terminal: Navigate to **Finder > Applications > Utilities > Terminal** or use Spotlight (n + Space and type 'Terminal')
2. Enter the command: `avbutil --controller` and press **Enter**
3. At the top go to **ATDECC Controller > New ATDECC Controller window**

## Connecting via ATDECC Controller

Connect the Ethernet port to your Sonnet AVB Ethernet interface. Your SX-AD8+ should appear in the ATDECC Controller.

## 6. Setting Up the SX-AD8+ AVB

1. Click on the Ethernet controller (Broadcom NetXtreme Gigabit Ethernet Controller) and tick **Built-in virtual audio entity**
2. A pop-up will appear, tick **Configurable entity model**

Configure it as shown below:

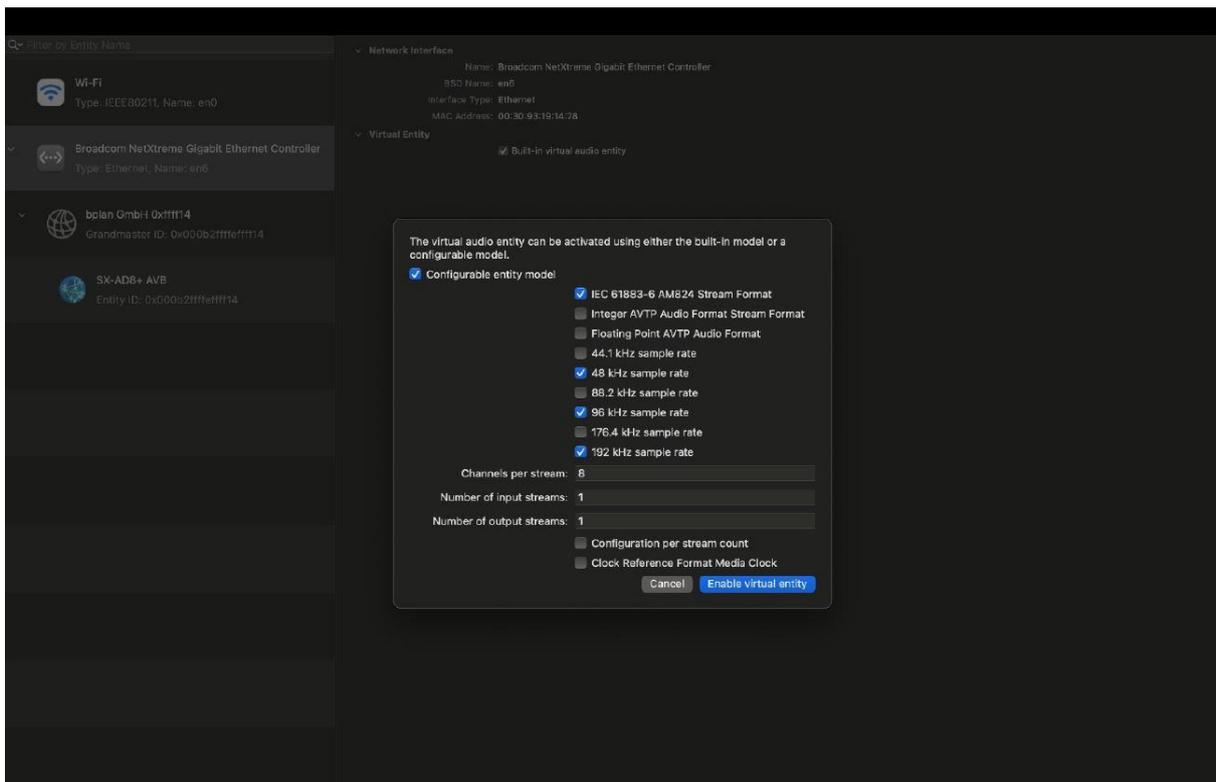


Figure 5 Virtual Entity Configuration Dialog

# Changing Sampling Frequency

The SX-AD8+ can be configured with 3 different sampling frequencies:

- 48 kHz
- 96 kHz
- 192 kHz.

To change the sampling frequency, first stop the stream by deselecting all connections in the AVDECC routing matrix:

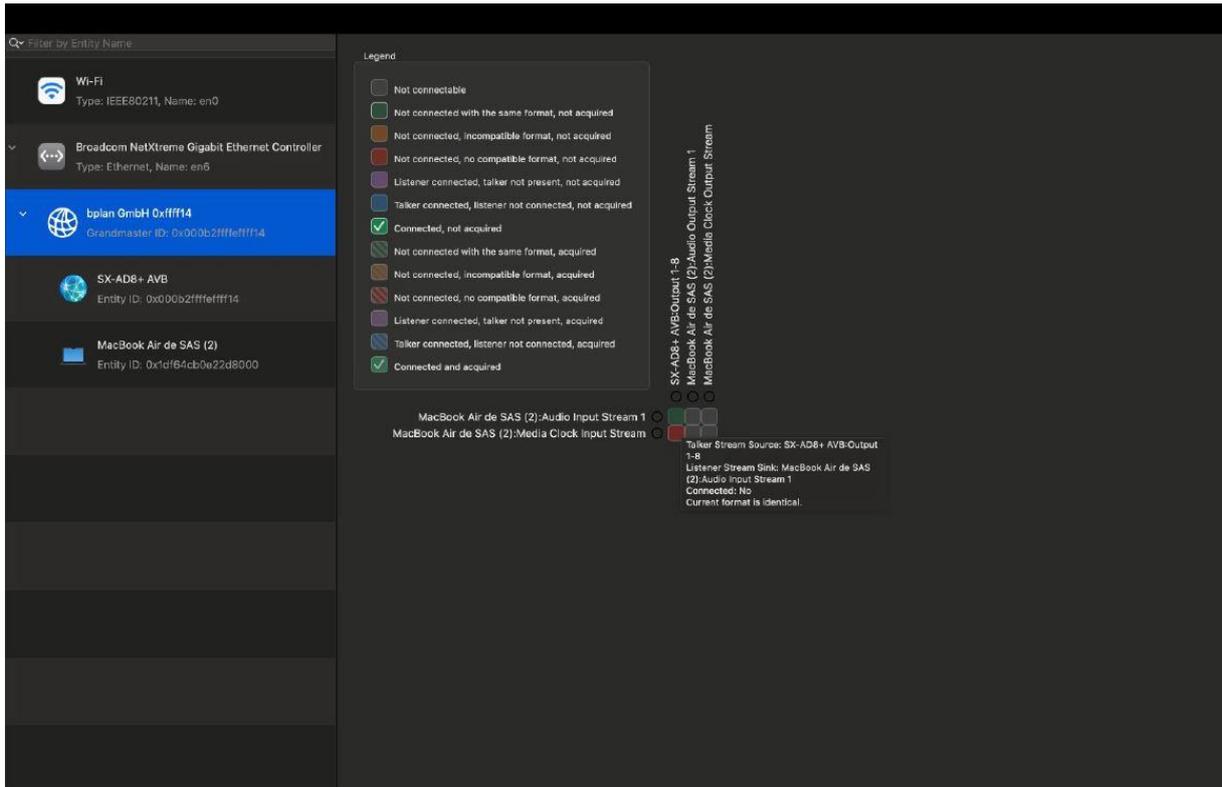


Figure 6 Stream Connection Matrix and Legend

Set the SX-AD8+ sampling frequency and stream format to the desired value:

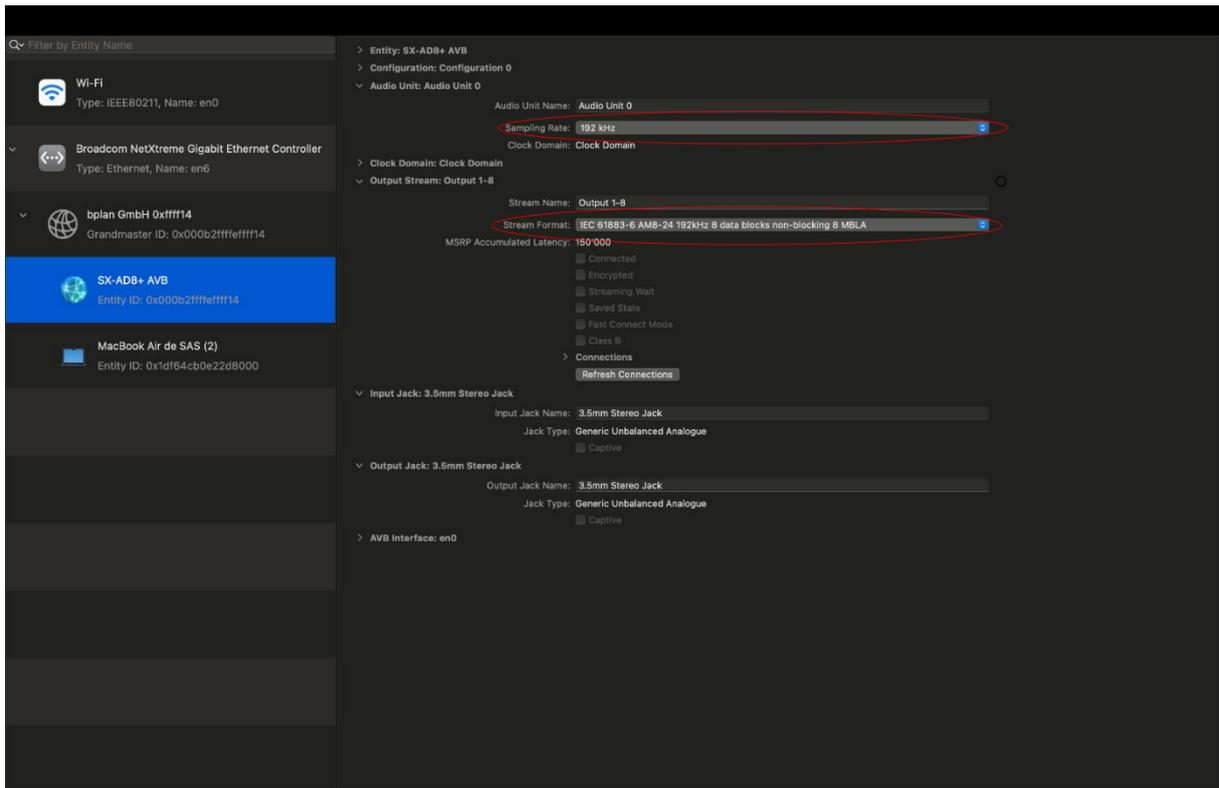


Figure 7 SX-AD8+ Configuration Panel

Set the Virtual Entity sampling frequency and stream format to the same value:

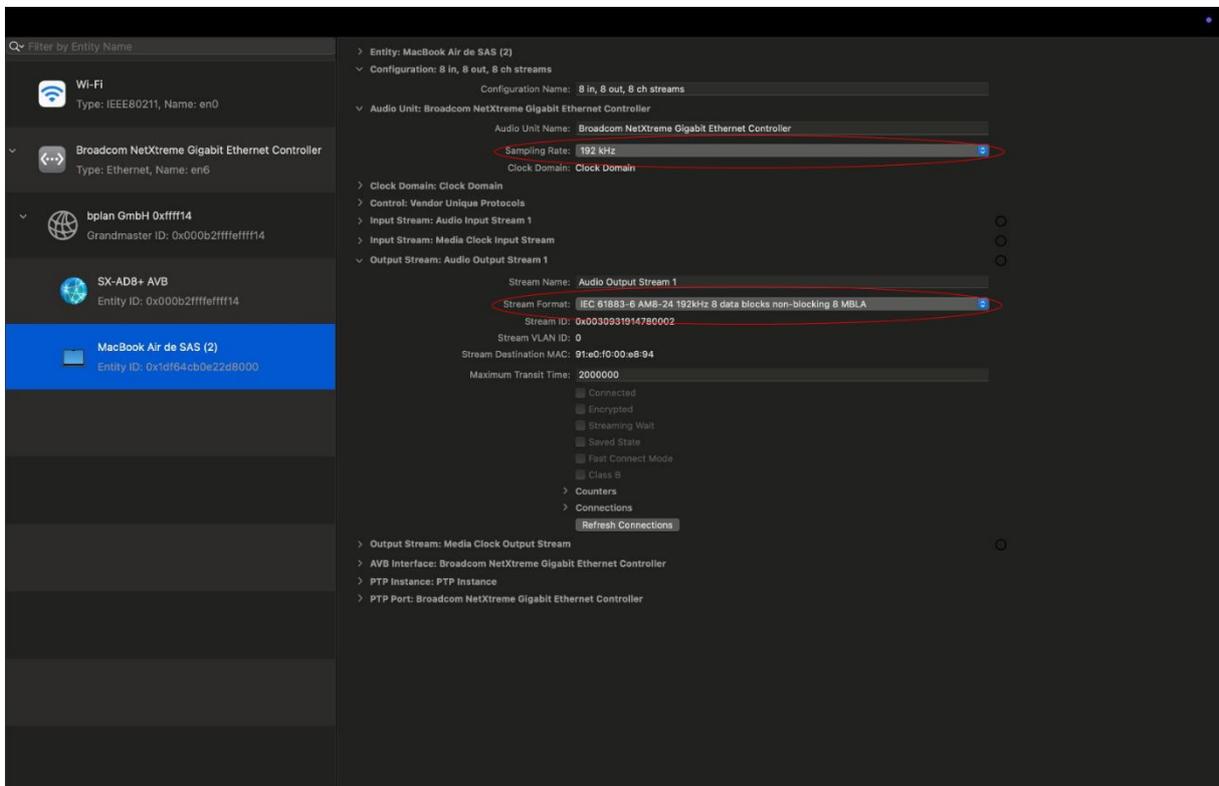


Figure 8 Virtual Entity Configuration Panel

## 7. Applying Changes

1. Unplug and replug the power cord of your SX-AD8+ it will restart with the correct sampling frequency and store it for future reboots.
2. You may need to re-enable the stream in the ATDECC Controller after the device restarts.

**This procedure must be repeated every time the sampling frequency is changed.**

Once these steps are complete, simply route the SX-AD8+ to your Mac using the AVDECC Connection Matrix:

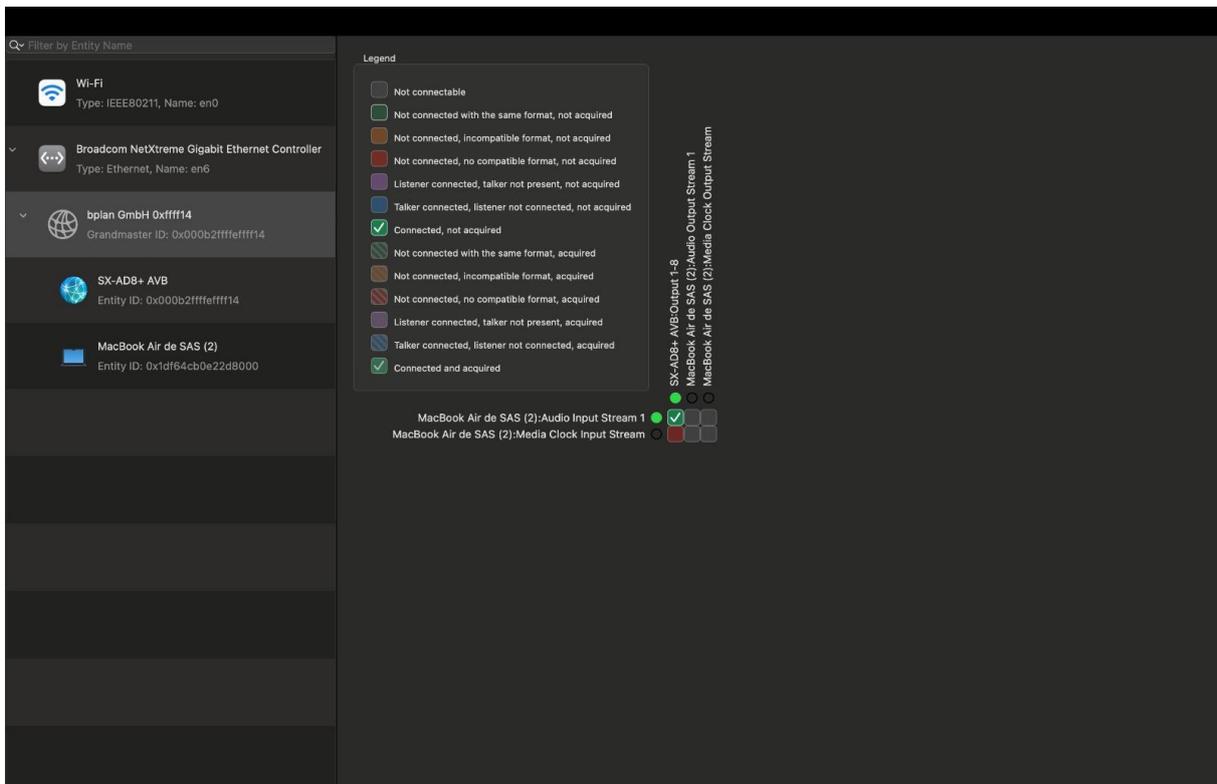


Figure 9 AVDECC Connection Matrix

## 8. Troubleshooting

1. The routing is not possible in the ATDECC connection matrix
  - Make sure that the sampling frequency is the same in the Mac configuration and in the SX-AD8+ configuration.
  - Restart the SX-AD8+.
2. The SX-AD8+ is rooted but there is no signal in my capture software
  - Verify the settings in your capture software.
  - Restart your Mac
  - Restart the SX-AD8+
3. The SX-AD8+ and my Mac are connected but the SX-AD8+ is not visible in the AVDECC controller
  - Verify that you have a green and an orange light on your Sonnet adapter if not try a different cable (CAT5E minimum)
  - Make sure that you are using an AVB compliant switch if you're using multiple devices
  - Make sure that your Apple machine's ethernet port is AVB compatible, otherwise buy a Thunderbolt to AVB card (Sonnet AVB adapter)
  - Restart your Mac
  - Restart the SX-AD8+
4. The SX-AD8+ and my mac are connected, they are rooted in the AVDECC controller, but I get an error while trying to use the system.
  - Reboot your Mac
  - Verify the config of your DAW software
5. When recording I can hear some unwanted noises in the background / I have some audio quality problems
  - Verify that all the sampling frequency in the AVDECC controller are set to the same value
  - If you changed the sampling frequency reboot the SX-AD8+