CONNECTING D-CERNO AE WITH THIRD-PARTY DSP

This functionality is only availabe with the **D-Cerno Advanced** license.

AES67 is a standard and open protocol used by many audio manufacturers. It defines audio transport over IP, created by the AES and IETF groups.

Here, we explain how to setup an AES67 connection between the D-Cerno AE and a DSP.

Network Requirements

In many cases, the D-Cerno AE is not directly connected to the DSP and needs to be integrated into a larger network. Within such a network, suitable switches need to be used and configured correctly. This chapter covers the minimum requirements for such switches:

- 1 Gigabit links are required between end-points
- Switches need to support PTP v1 (for Dante) and PTP v2 (for AES67)
- SAP (Session Announcement Protocol) messages which must be supported
- AES67 uses multicast traffic in the 239.x.x.x/16 range.

Compatible Devices

Compatibility with D-Cerno AE has been validated for the following DSPs.

Vendor	Type	AES67 Type
Biamp	X800	Dante in AES67 compatibility mode
Biamp	DAN-VT4	Dante in AES67 compatibility mode
Q-Sys	Core 110f	Native AES67
Q-Sys	Core Nano	Native AES67
Xilica	Solaro FR1	Dante in AES67 compatibility mode

Devices which have native AES67 can configure the routing inside the DSP itself. However, devices with Dante in AES mode, need to use the Dante controller.

Other devices can be validated upon request.

Note that support will only be provided for the devices listed above.

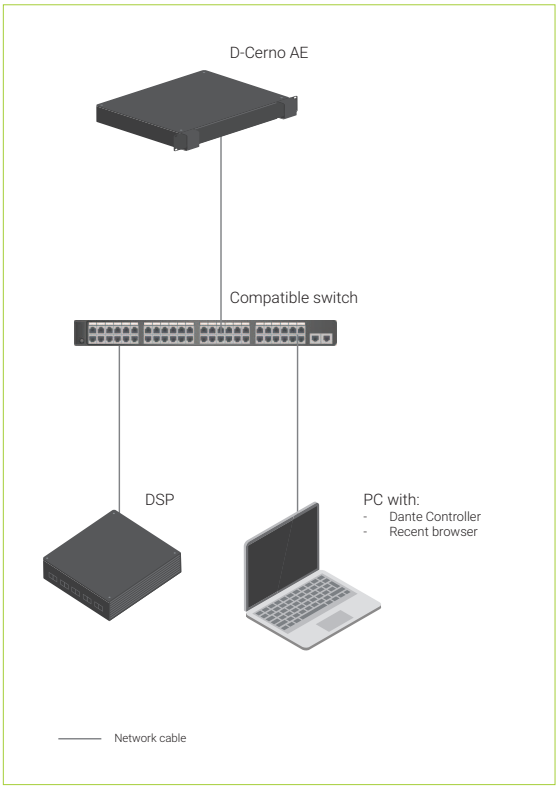
This manual only explains how to connect to a device using "Dante in AES67 mode". For devices with a native AES67 implementation, please refer to the manual of those devices for setting up the AES67 connection.

Prerequisites

This document assumes that the D-Cerno AE is connected to a supported switch together with the DSP and a PC. In many cases, the DSP will need **2 connection points**: one for the configuration and one for the media interface. The PC should be preconfigured with **Dante Controller** and a **recent browser**.

In this document, the Xilica Solaro FR1 is used with Dante in AES67 compatibility mode together with a D-Cerno AE with version 1.3 with the D-Cerno Advanced license installed

All devices should be configured in the same subnet.



Configuration of the Dante Controller

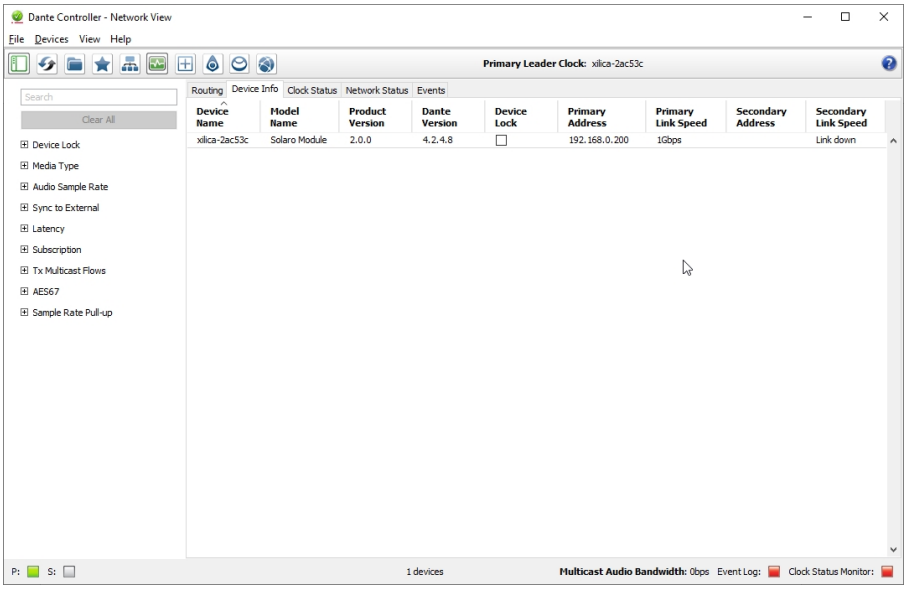
Note that not all Dante cards are AES67-compatible. Please check your card before starting the configuration.

ENABLING AES67 ON THE DSP

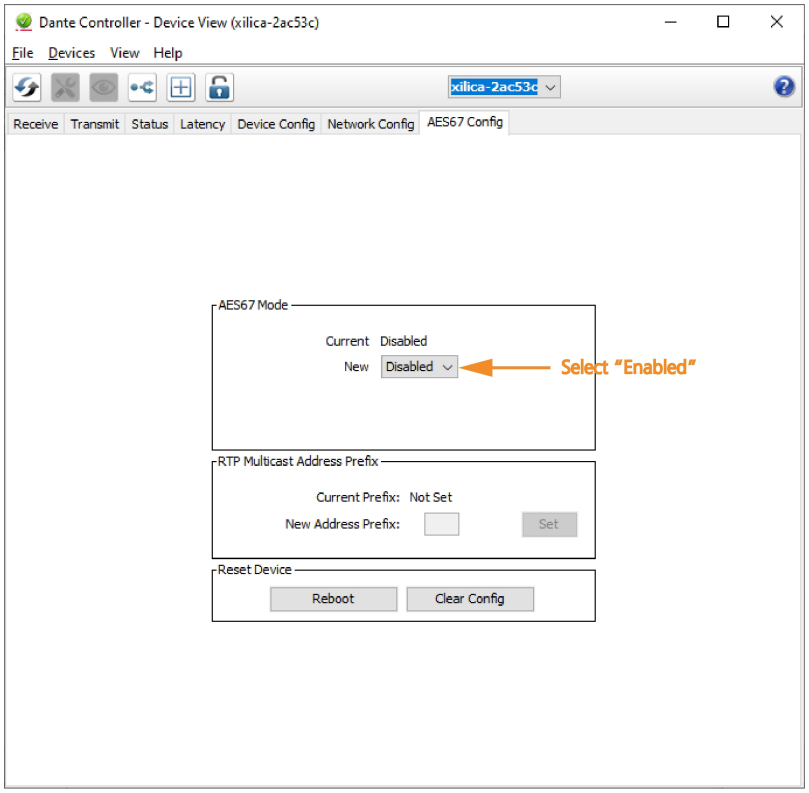
Many brands have AES67 disabled by default on the DSP. To enable this, open the Dante Controller and follow these steps:

1. Click on the **Device Info** tab and double click on your device. The device view opens.

   If the device is in red, the unit is not accessible as the subnets are not matching. Check the network connections.

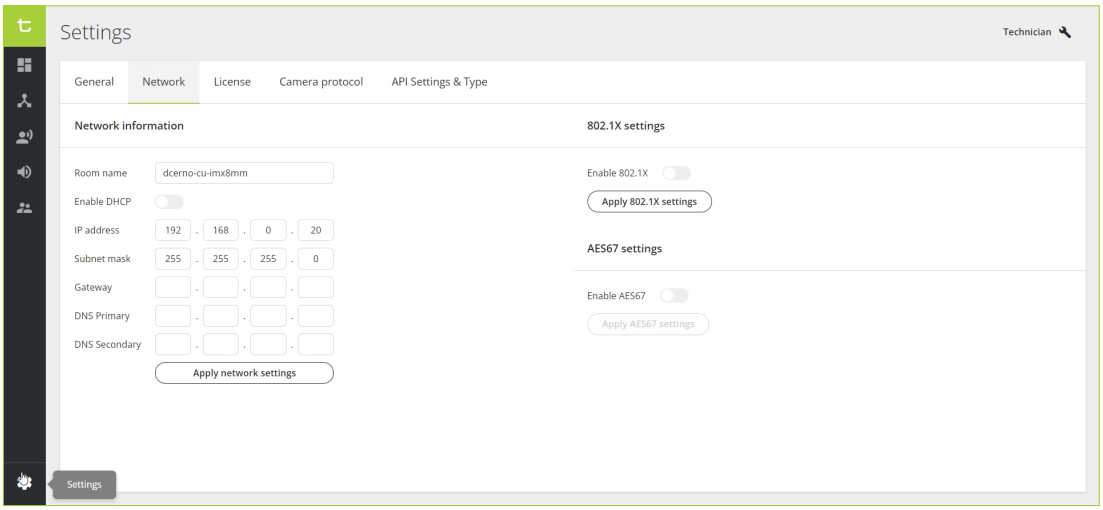


2. In the device view, enable the AES67 mode and click **Yes** to confirm. Then click the **Reboot** button at the bottom and confirm again.

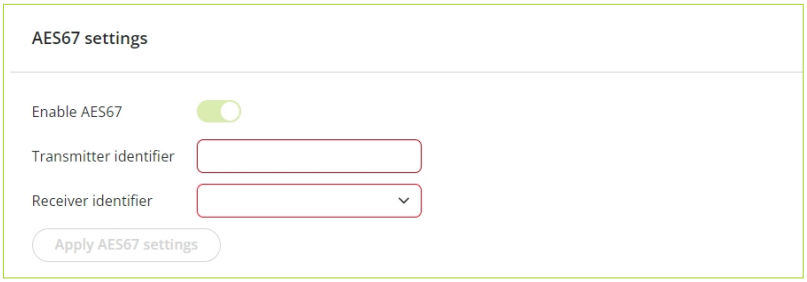


Configuration of the D-Cerno AE Interface

1. Open the D-Cerno AE web server and log in as **Technician**.
2. Click the Settings icon on the bottom left and select the **Network** tab. The following page opens:



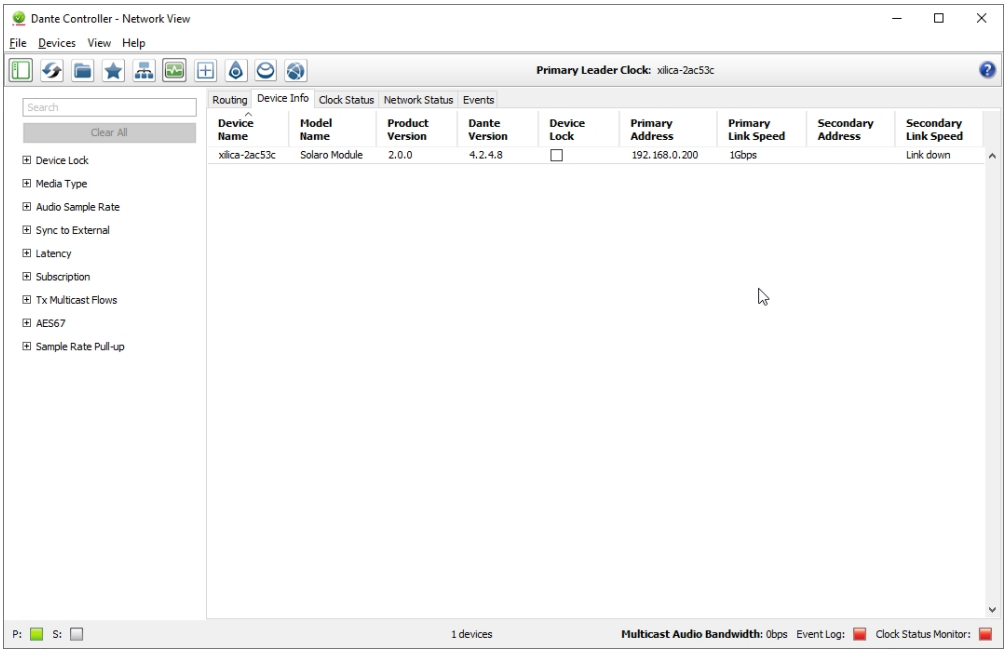
3. Enable the AES67 settings.



4. Fill in the following AES67 fields that are made available:

   - **Transmitter identifier:** this name will be used to identify the D-Cerno AE in the network. Any name can be chosen, but in this example we will use "D-Cerno Test".

   - **Receiver identifier:** this is the name of the network audio stream to which the D-Cerno AE needs to connect to. More information on the format of this filter can be found in the following section.



5. Click Apply AES67 settings to confirm.

MORE ABOUT THE TRANSMITTER AND RECEIVER IDENTIFIERS

Transmitter Identifier

In an AES67 network, each stream of audio data is associated with a **Transmitter Identifier**. This identifier is a unique string that is used to distinguish each transmitter (i.e., source of audio data) in the network.

Receiver Identifier

The filter property in **Receiver identifier** is a string that uses a simplified form of regular expressions (regex) to match patterns. In our system it is used as a filter on receiving AES67 streams. Regular expressions are a powerful tool for matching strings of text, such as particular characters, words, or patterns of characters.

FILTERS

Practically, in the majority of cases, one of the following filters would cover most use cases:

Filter	Explanation
~TesiraForte|Core|xilica|LCAA	This is the default filter used in the D-Cerno AE. This filter will automatically connect to either a Biamp Tesira device, a QSC Core device or a Xilica device. If multiple devices can be found on the same network, the D-Cerno AE will connect to the first device who announces itself on the network .
~Tesira ~Core ~xilica	If you want to make sure the D-Cerno AE connects only to a specific brand, use any of these filters. If multiple devices of the same brand can be found on the same network, the D-Cerno AE will connect to the first device who announces itself on the network .
~xilica-2ac53c	If you want to connect to a specific device, you can fill in the device name (found in Dante Controller). Different vendors add additional characters to identify different streams coming from that device, so add a ~ before the device name. If multiple streams are being transmitted by the same device, the D-Cerno AE will connect to the first announced stream. If you want to connect to a specific stream, the correct stream identifier will have to be captured by network scanning tools.

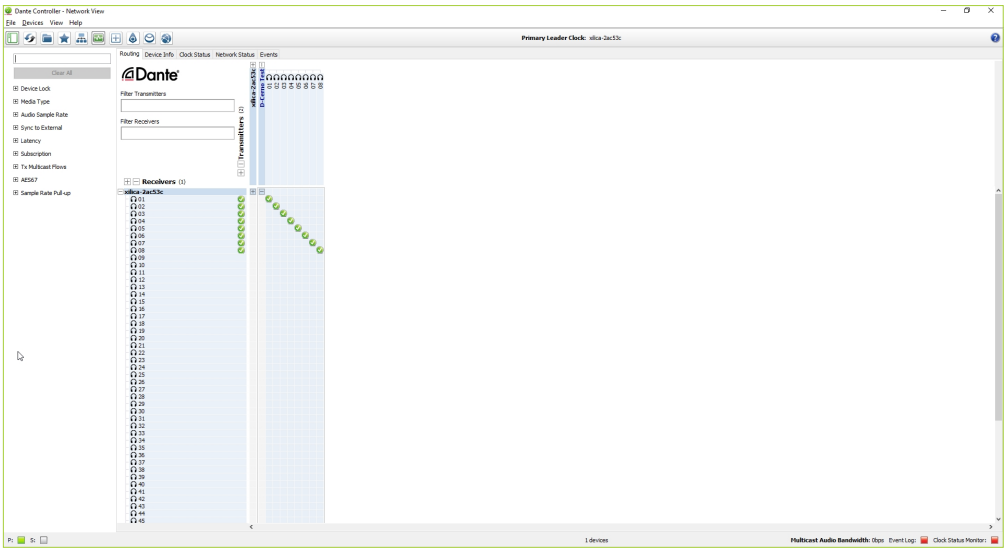
Connecting the Audio Paths

AUDIO PATH FROM D-CERNO AE TO THE DSP

Connecting the outgoing audio path from D-Cerno AE to the DSP is done via making the link in the Dante Controller.

1. Expand the receiver side on the horizontal axis and the D-Cerno AE on the vertical access. If there are multiple D-Cerno AE devices in the same network, make sure you selected the device with the name you configured in a previous step.

2. Click on the desired nodes to make the connection. A green checkmark indicates that the connection has been made successfully.



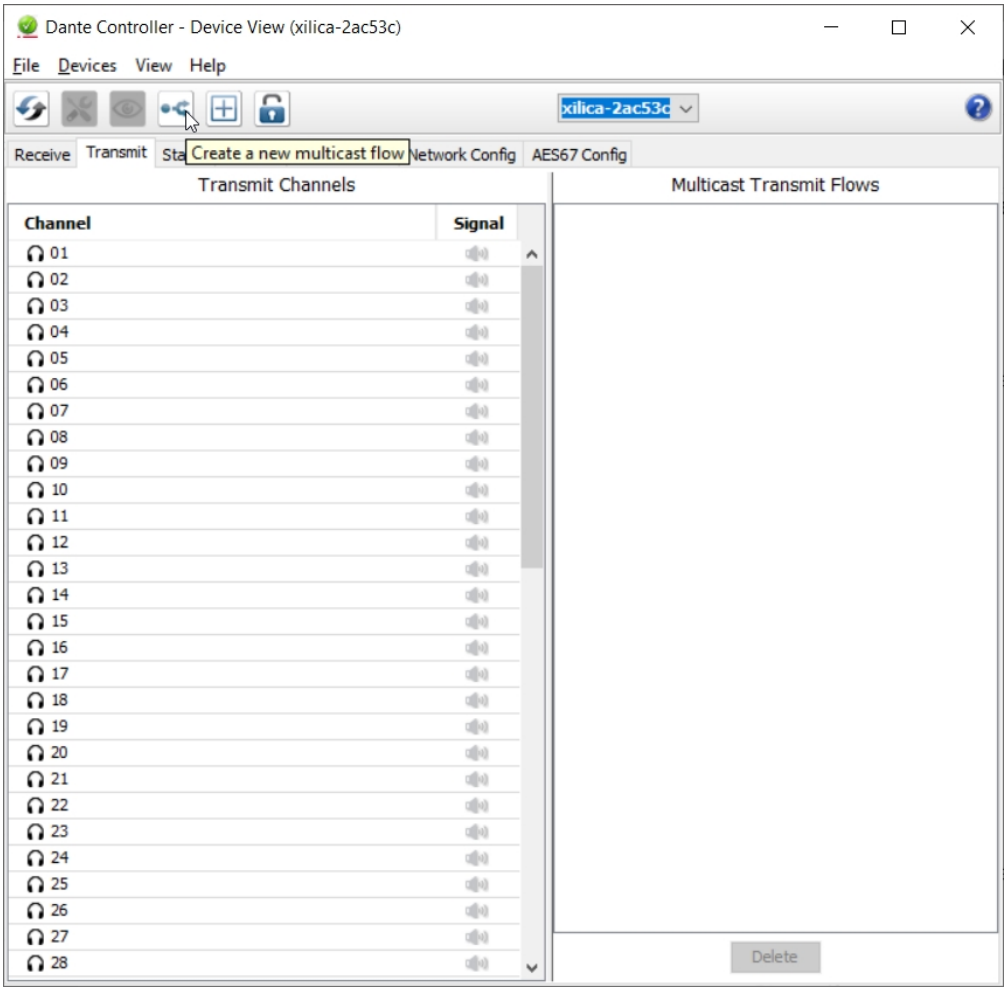
AUDIO PATH FROM THE DSP TO D-CERNO AE

The D-Cerno AE will automatically connect to the DSP with the name configured via the web page. A multicast flow, however, needs to be created via the Dante Controller that defines which audio streams need to go to D-Cerno AE.

Take the following steps to configure this multicast flow:

1. Open Dante Controller, click on the **Device Info** tab and double click on the DSP you want to configure. This opens the **Device View** of that DSP.

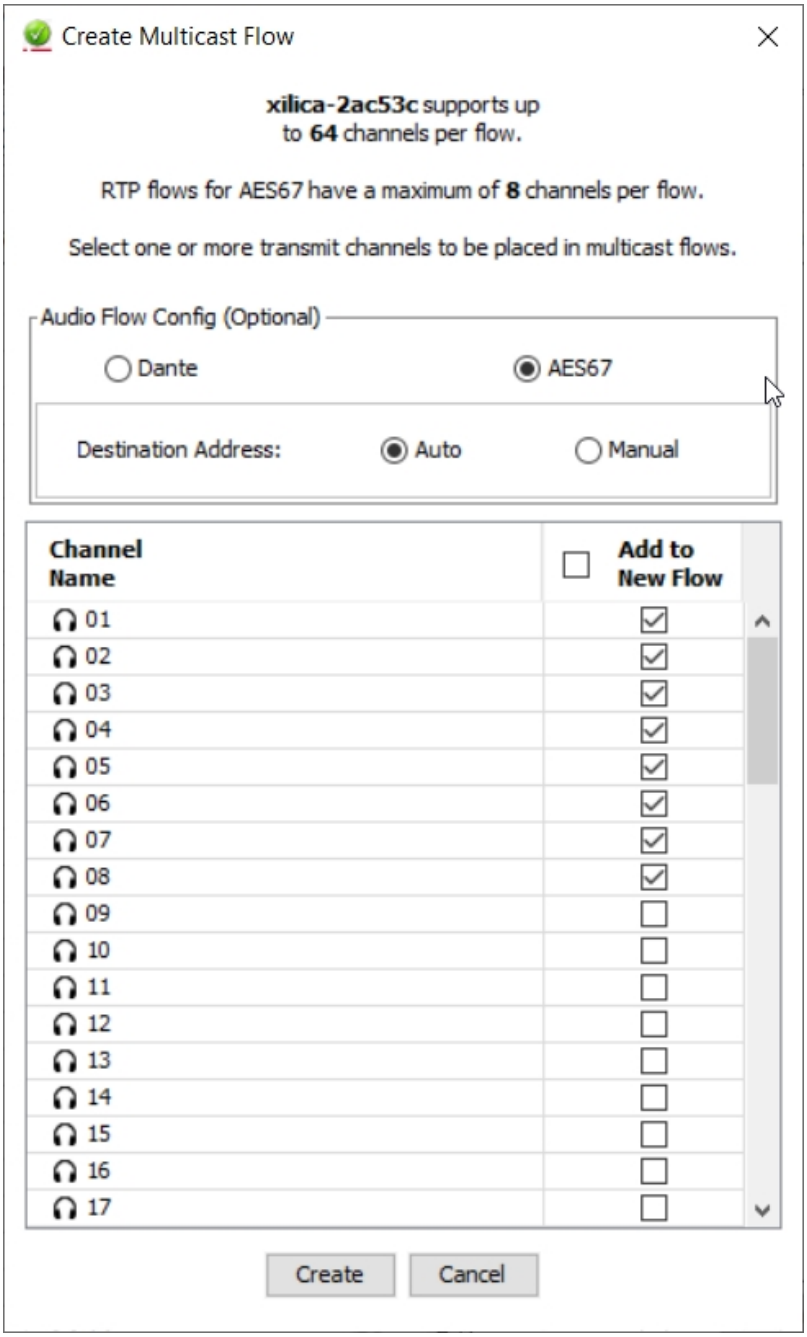
2. Select to the **Transmit** tab and click on the icon on top to create a new multicast flow.



3. Select **AES67** and leave the address on **Auto**.

4. Select the first 8 channels and click **Create** at the bottom.

Up to 8 channels max. can be added. If not all 8 channels are required, a lower number can be selected.



Troubleshooting

This section contains all known issues and limitations with AES67 integration.

LOST CONNECTION / BAD AUDIO QUALITY ON BIAMP DEVICES

Certain Biamp devices can suffer from bad audio quality or lost connection when connected to the D-Cerno AE over AES67. These issues were fixed in version 4.8.1 so it's mandatory upgrade to this version or higher.

BIAMP DSP DESIGN WITH TEC-X DEVICE

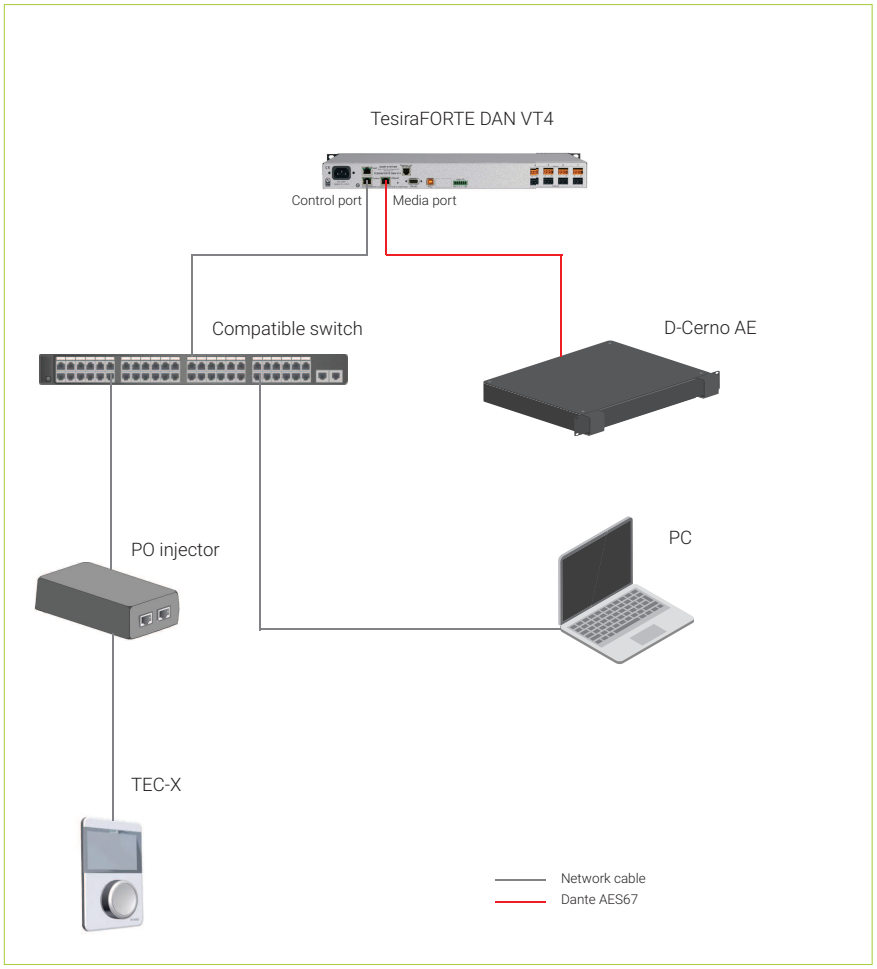
Biamp DSPs can be combined with a TEC-X device which allows the users to control the DSP in a user friendly way.

This device, however, typically connects to the same media ports where you also would connect the D-Cerno AE to, and it has been observed that the communication between DSP and TEC-X has a bad impact on the AES67 communication between D-Cerno AE and DSP.

To remedy this, use the default **Dedicated Control & Media** port mode on the Tesira device, and connect the TEC-X to the control port of the DSP.

This port does not provide POE, so an additional POE adapter will be necessary to power the device.

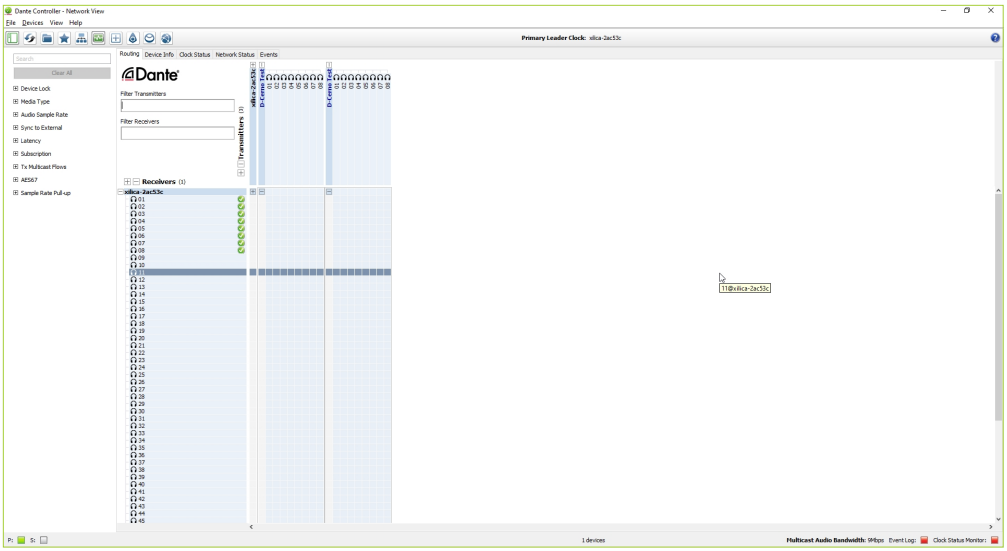
The following diagram can be used to create a working setup:



MULTIPLE DETECTIONS OF D-CERNO AE IN DANTE CONTROLLER

The Dante Controller does not always keep track of previous connections made with AES67, especially when the D-Cerno AE is rebooted while the tool is active.

This can result in a situation as seen in the picture below where you see multiple instances of the D-Cerno AE in the list, or have green check marks on the receiver side but no active nodes.



Even though the checkmarks aren't active in the matrix, the connections will remain active even after a reboot of the D-Cerno AE.

If, however, a change in the connection matrix needs to be made, it's possible to remove the current active connections by going into the device view of the DSP, unsubscribe the connections in the receiver tab, and remake the connections as needed.