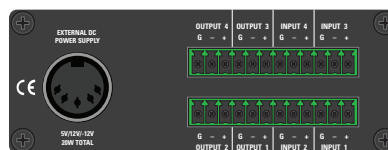
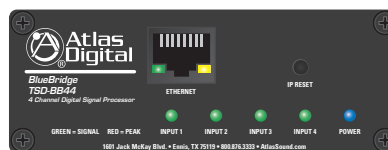
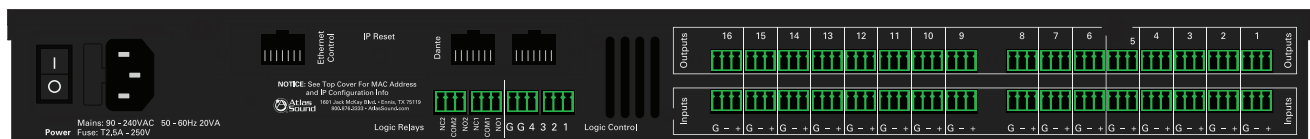




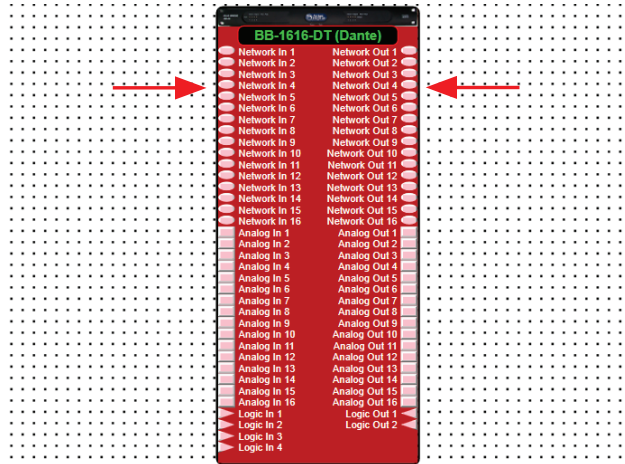
BlueBridge Dante Reference Guide



The intent of the “Working With Dante’ Reference Guide” is to get the designer familiar with configuring Dante’ routing and signal flow inside of the BlueBridge Designer Software and ultimately passing signal on the BlueBridge DSP Hardware Platform.

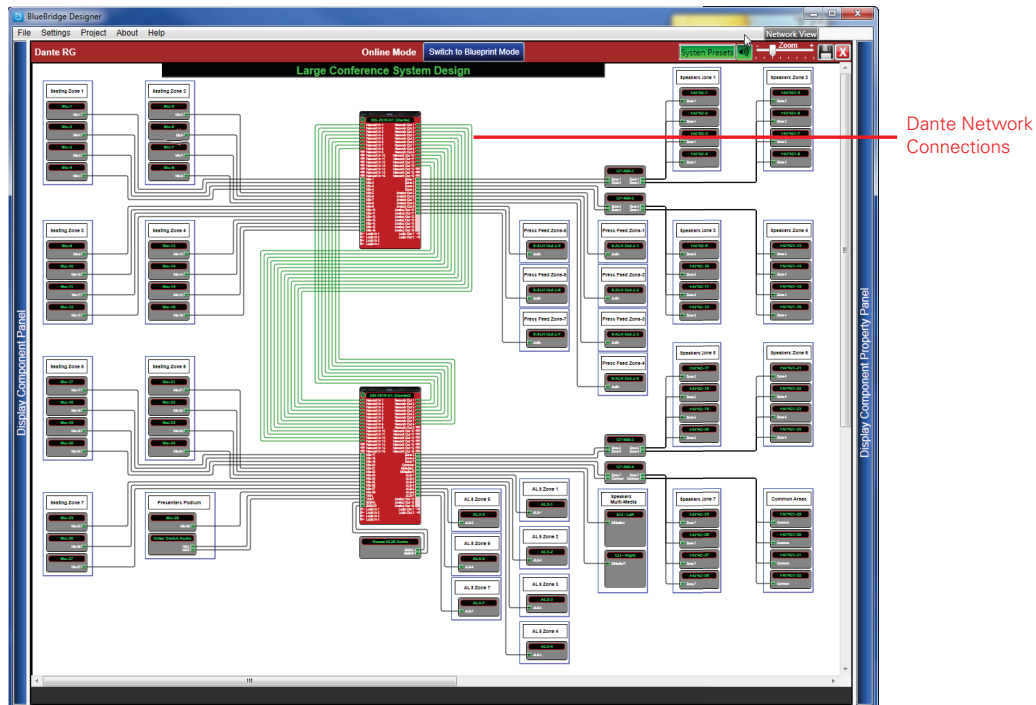
To create a Dante’ network exclusively using BlueBridge DSP hardware, no other software is needed to control network audio signal flow, however it is recommended that Dante’ Controller Software is downloaded and available for the project as the Dante’ Controller software adds additional tools for completing a successful project. The Dante’ Controller software is available from Audinate at www.audinate.com.

To create a Dante’ network that includes BlueBridge DSP and Third party hardware the use of Dante’ controller software is needed. BlueBridge DSP Hardware with the Dante option is identified by the available 16X16 Network I/O nodes. (See Fig.1)



(Fig.1)

An example of a typical Conference Center Design utilizing two BB-1616-DT devices on an exclusive Dante’ network: (Only BlueBridge devices in the Dante’ network design) (See Fig.2)
The Dante’ wiring is represented by the “Red” wiring. Analog wiring is in Black.



(Fig.2)

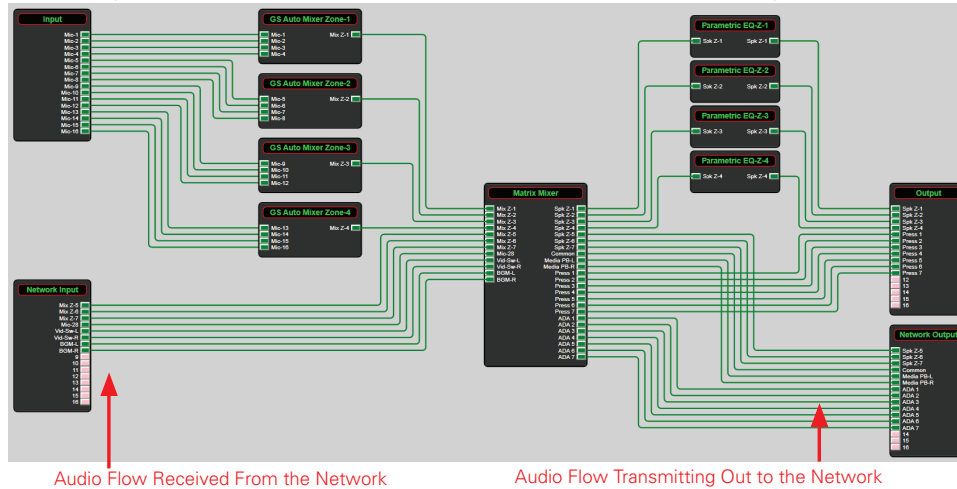
A brief description of this audio design BluePrint:

Inputs: 27 conference table microphones broken out into 7 zones (mix-minus), 1 podium microphone, stereo audio from video switcher in podium, and background music from facility.

Outputs: 7 zones of distributed ceiling speakers, stereo main speakers for media playback, 7 zones of press feeds, and 7 zones of assisted listening/translation.

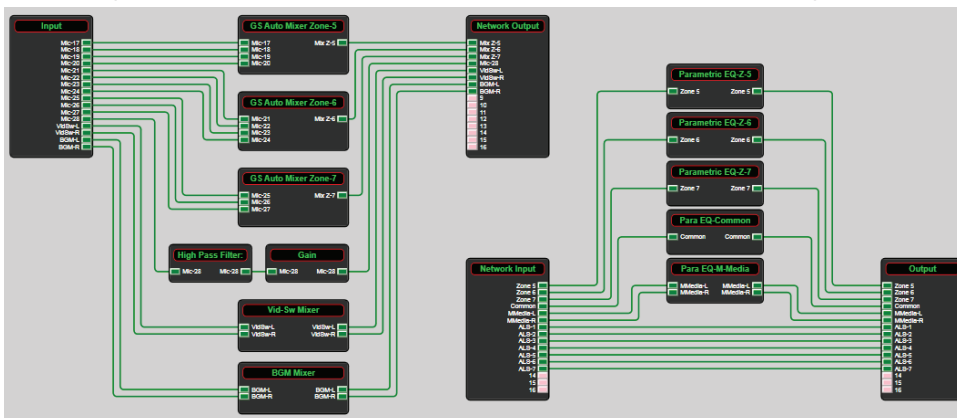
Dante network will provide audio transport function between the two BlueBridge DSP units.

Example of the internal configuration inside the first BB-1616-DT or "Unit 1": (See Fig.3)



(Fig.3)

Example of the internal configuration inside the second BB-1616-DT or "Unit 2": (See Fig.4)



(Fig.4)

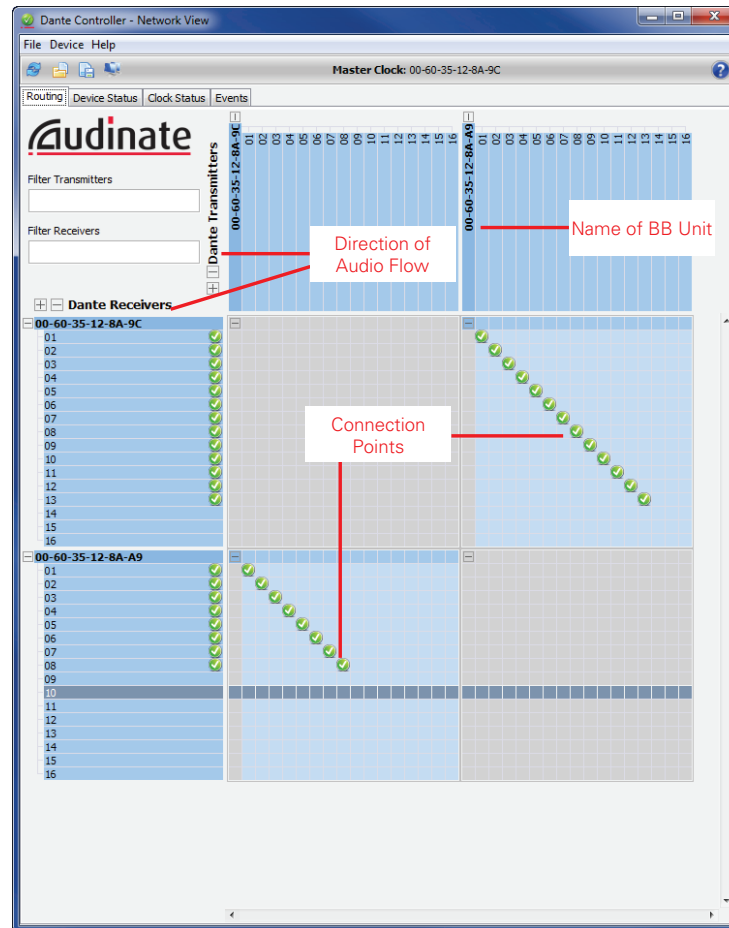
Follow the signal flow on the Network I/O blocks: The Network Output shown in the Unit 1 design flows through the Unit 2 Network Input, while the Network Output of the Unit 2 design flows through the Unit 1 Network Input.

All Dante connections are made in BlueBridge Designer and there is no need to use the Audinate "Dante' Controller" software.

The Dante controller can still be used if needed. It is equipped with many useful functions. It is equipped with an Event Log, Clock Status to set the Master clock, Device Status including IP addresses, and Routing. The Routing function allows for cross point connecting of the entire Dante audio network. (See Fig.5)

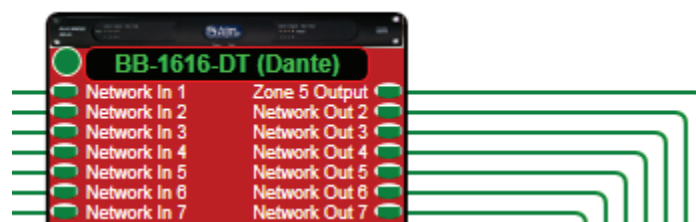
For a complete understanding of the Audinate Dante Controller, refer to: www.audinate.com.

Please Note: If routing changes are made on the Dante Controller software, the BlueBridge Dante' network will revert back to the original settings if there is a power cycle event. In other words, if there are routing changes that need to be permanent, the changes need to be reflected in the wiring of the Blueprint.



(Fig.5)

It is very helpful to label the Network I/O to keep track of the signal flow in the design. (See Fig.6)
(Refer to the Designing a Project Reference Guide for labeling example)

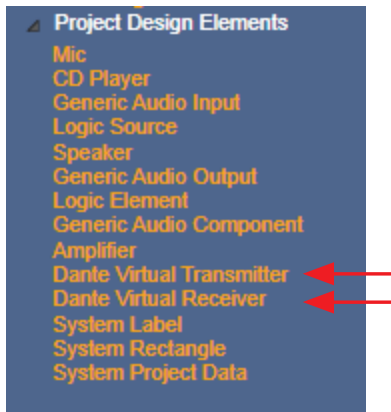


(Fig.6)

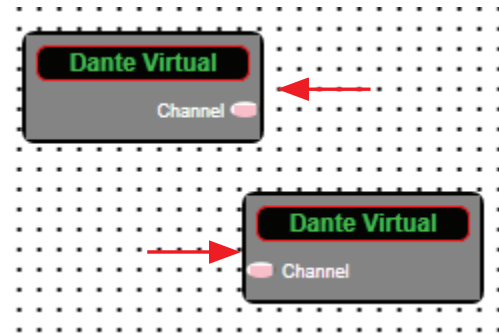
Creating a Dante' Network that includes BlueBridge DSP and other third party Dante devices:

Creating a design with other Dante hardware requires the use of Dante Virtual Transmitters and Receivers that can be found in the Project Design Element of the Component Libraries (See Fig.7). These Receiver and Transmitter Blocks represent the network signal paths of the third party Dante enabled hardware.

To add a network audio path from a third party hardware, select, drag and drop either a Dante Virtual Transmitter and or Receiver on the design grid of the Blueprint (See Fig.8).



(Fig.7)

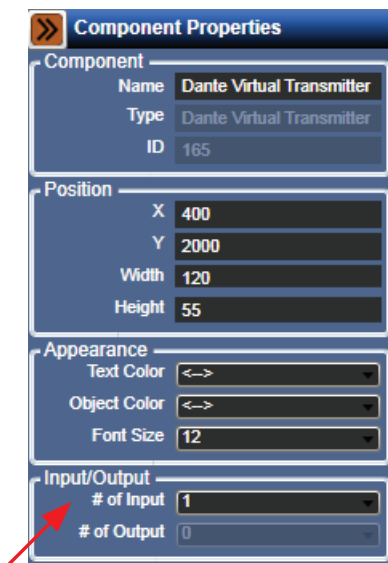


(Fig.8)

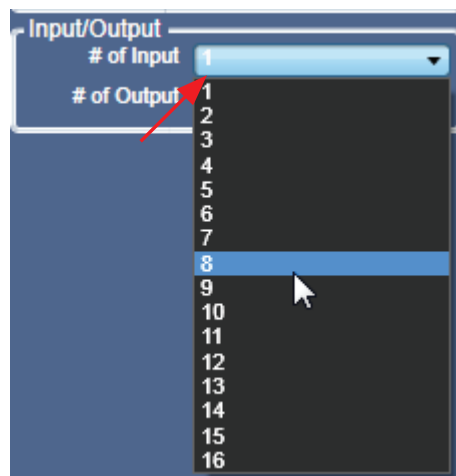
Adjust the number of Network Inputs or Outputs needed on the Dante Virtual Block to represent the third party hardware's function in the design. This is done in the "Input/Output" section of the Component Properties pane on the BlueBridge Designer software (See Fig.9).

Choose the number of channels needed for the design with the drop down menu bar (See Fig.10)

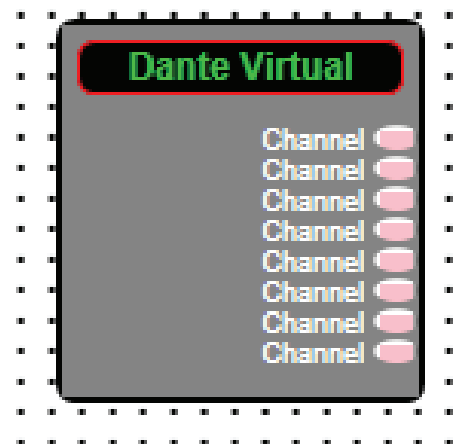
The Dante Virtual Transmitter or Receiver Block will come up as a very basic block with the generic name and representation of channels (See Fig.11).



(Fig.9)



(Fig.10)

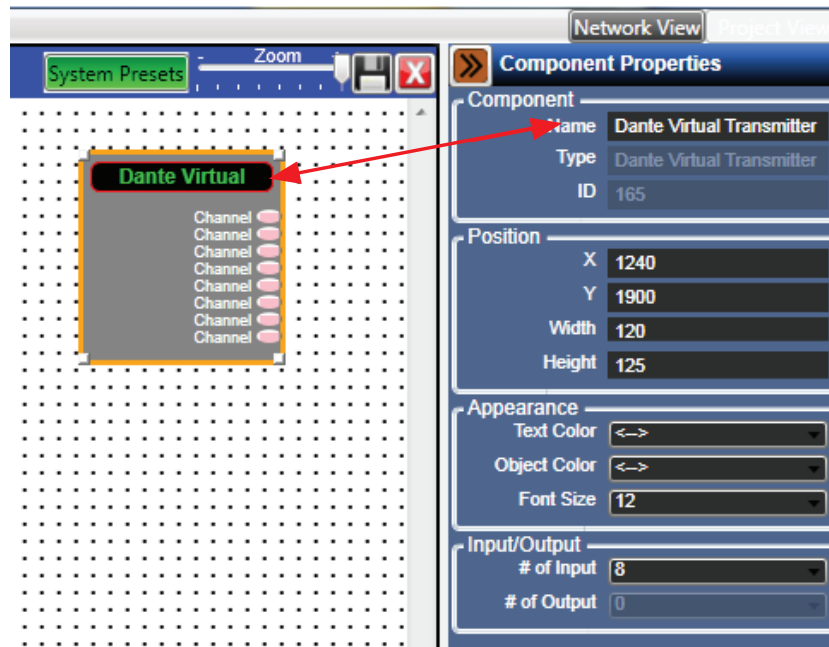


(Fig.11)

The Dante Virtual Transmitter or Receiver MUST be properly named and the channels MUST be named. The naming scheme needs to match exactly with the names/channels that populate in Audinate's Dante Controller Software (See Fig.15).

Naming is done in the Component Properties pane, the same as naming any other Processing Block (See Fig.12).

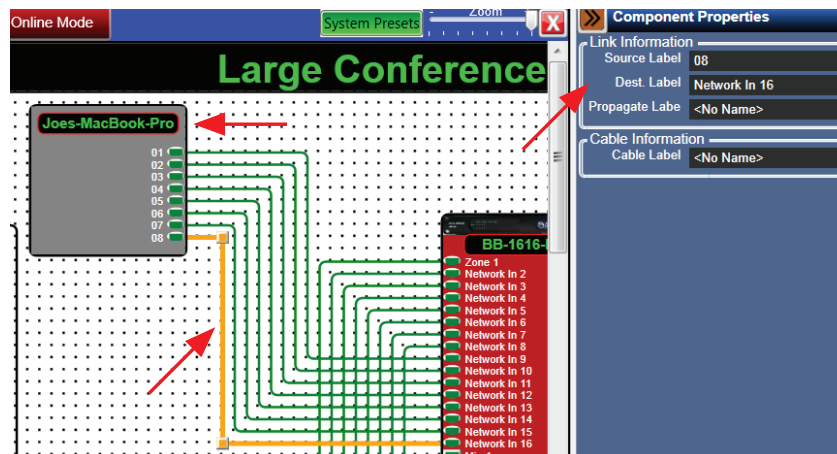
(Please refer to the designing a project reference guide for more details)



(Fig.12)

(For the example a Dante Virtual Sound Card running on a Mac computer was used.)

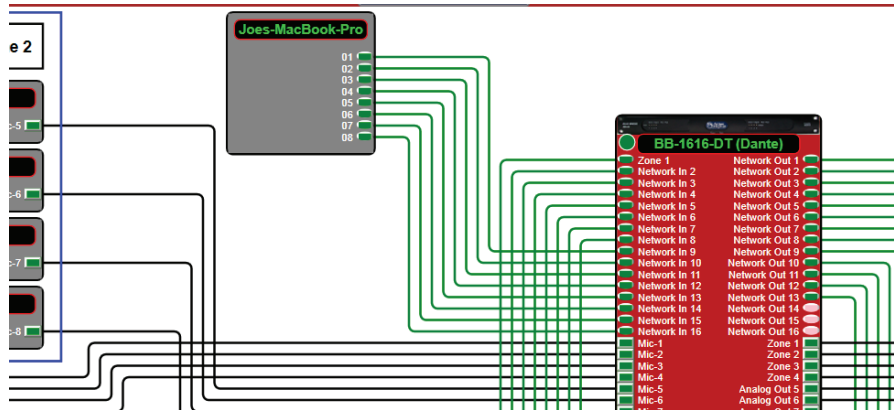
Naming the Channel is done by selecting the wire and changing the name in the Link Information (See Fig.13). Only change the "Source Label" on a Dante Virtual Transmitter, and change the "Destination Label" on a Dante Virtual Receiver.



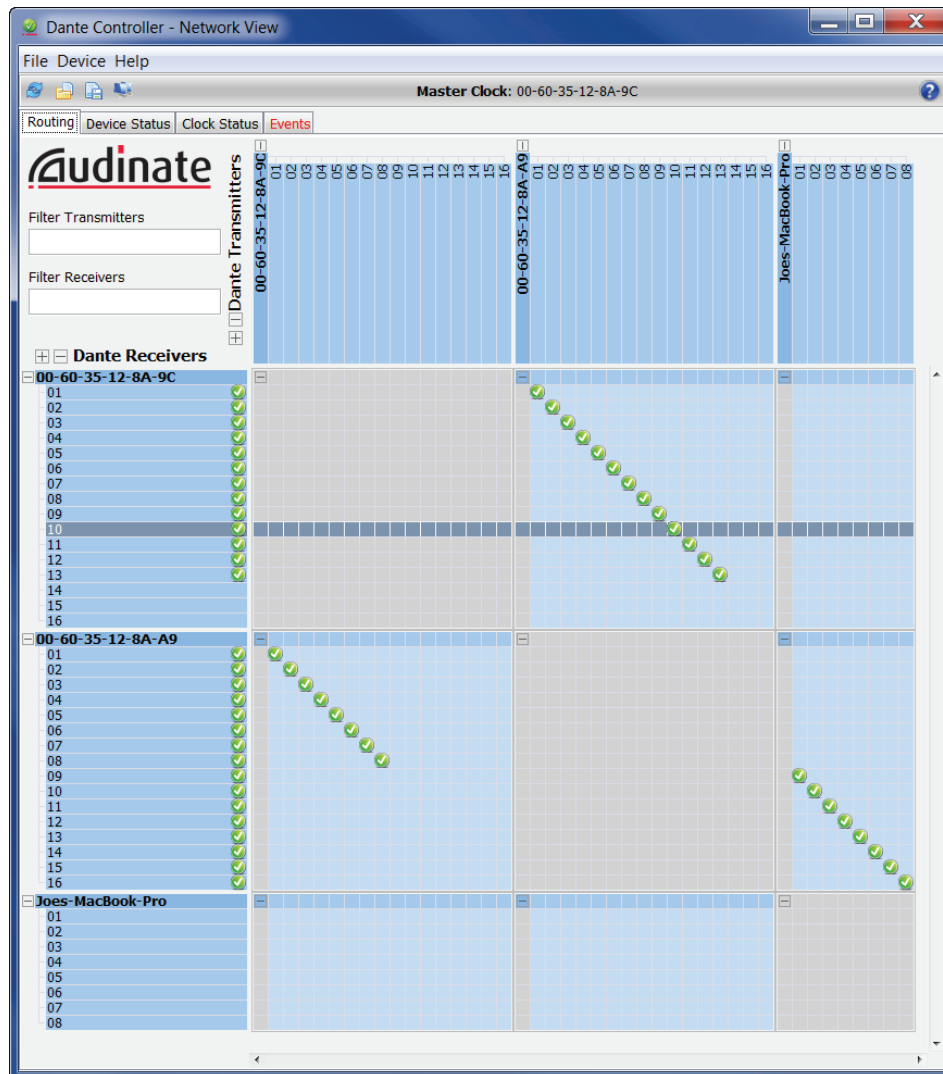
(Fig.13)

Figures 14 and 15 show the BlueBridge Designer software on On-Line Mode and the Dante Controller software running simultaneously.

Notice the Identification of the hardware on the network, the channel names, and the connection points (See Fig.15). Pay attention to the designation of Dante Transmitters and Dante Receivers. This is where most connection mistakes are made due to confusion in signal flow.

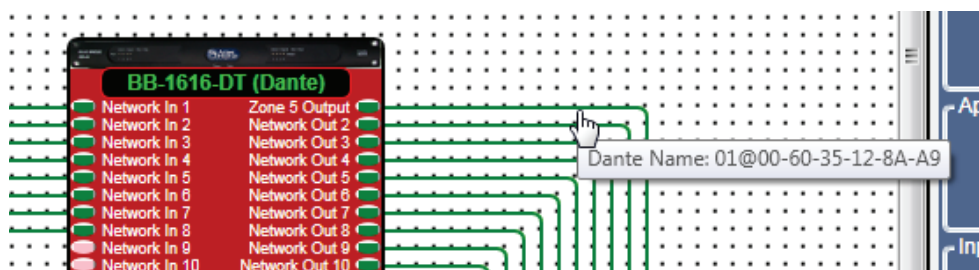


(Fig.14)



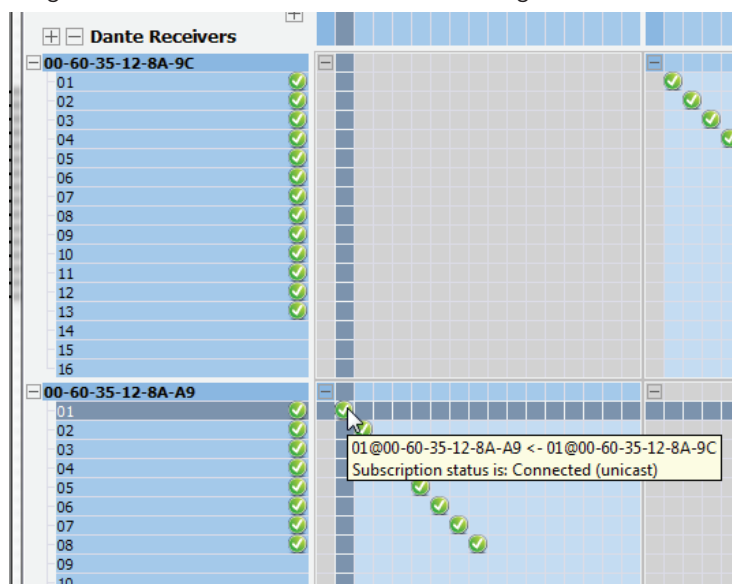
(Fig.15)v

For more confirmation of the Network Flow the cursor can be directed over a network wire in BlueBridge Designer and the Dante Name will appear (See Fig.16). This example shows the Dante channel name is "01" and it is being Transmitted by 00-60-35-12-8A-A9 that is the designated name/MAC address for the BlueBridge BB-1616-DT transmitting the network audio signal.



(Fig.16)

The same can be done at the Dante Controller software (See Fig.17). This example is showing the name of the receiving hardware with a "<" representing the network flow from the transmitting hardware.



(Fig.17)

Important things to consider concerning Dante' use:

Please take the time to visit the Audinate website to get an understanding of the Dante platform.

Here are a few simple rules to follow, when designing a network of Dante-enabled devices.

Wherever possible use gigabit links, and always use gigabit links between switches. If your Dante-enabled devices have gigabit-capable interfaces then connect them using gigabit links. Enable QoS on your Ethernet switches when using 100Mbit/s devices.

Switches that should be used when using Dante enabled hardware:

Dante provides high performance audio networking on off-the-shelf Ethernet switches. Here is a non-exhaustive list of switches that have been used successfully with Dante:

- Linksys: SRW224G4, SRW2024, SRW2016, SRW2008, SRW208G, SLM2008, SLM2024
- Dell: PowerConnect 2708, PowerConnect 5324
- HP ProCurve: Various models including ProCurve 3500 series, ProCurve 2600 series
- Cisco: Various models including Catalyst 3750 series, Catalyst 3560 Series



Important features when purchasing a switch:

Dante makes use of standard Voice over IP (VoIP) Quality of Service (QoS) switch features, to prioritize clock sync and audio traffic over other network traffic. VoIP QoS features are available in a variety of inexpensive and enterprise Ethernet switches. Any switches with the following features should be appropriate for use with Dante:

- Gigabit ports for inter-switch connections
- Quality of Service (QoS) with 4 queues
- Diffserv (DSCP) QoS, with strict priority

A managed switch is also recommended, to provide detailed information about the operation of each network link: port speed, error counters, bandwidth used, etc.

For a complete understanding of the Audinate Dante Platform refer to: www.audinate.com