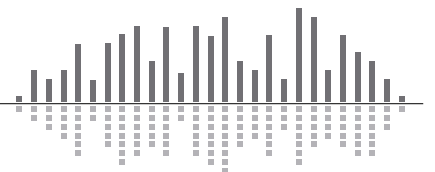


Symetrix White Paper: DVS for Use by the End User



Contents

Overview 1

 Dante Network Considerations 1

 Transmitting Music via Dante into a SymNet System 3

 Receiving Dante Audio from a SymNet System 12

Symetrix White Paper: DVS for Use by the End User

Overview

The DVS (Dante Virtual Soundcard) is an excellent low cost way to provide additional or specified functionality to SymNet system. The DVS turns a personal PC/laptop into a Dante device capable of transmitting or receiving Dante audio through the laptop's LAN port. For the end users and owners of a newly installed SymNet system, the two most popular and beneficial uses for the DVS on a PC/laptop are:

- Transmitting audio, such as music or sound effects, into a SymNet system.
- Receiving Dante audio, for live monitoring or recording, from a SymNet system.

Common uses for the DVS include using an end user's PC/laptop as a:

- music/media server in a restaurant or mall
- sound effect player in a theater
- meeting recorder for a court room or corporate conference room
- multi-track recorder for live performances

Unlike the use of the DVS by an audio integrator who may be temporarily transmitting or receiving audio via the DVS during the commissioning of a SymNet system, an end user of the SymNet system would want the DVS within a facility to provide requested or required functionality in which transmitting or receive audio with the DVS would need to be permanent.

As such, some of the steps for setting up the DVS for the end user will be identical to setting up the DVS for use by the audio integrator for commissioning; however, making the DVS a permanent input or output to the SymNet system will require some additional steps outlined in this document.

In order for an audio integrator to setup a SymNet system and PC/laptop running the DVS for one of the above uses for the end user, requirements for the audio integrator are outlined below.

Necessary items:

- SymNet Composer 1.2 or later installed on the audio integrators computer
- SymNet EDGE, Radius 12x8, Radius AEC, or 3rd party Dante device**
- Dante Virtual Soundcard v3.2.1 or later installed on the end user computer
- Dante Controller installed on the audio integrators computer***

<http://www.audinate.com/>

***note: while the methods discussed in this document can easily be adapted and used with 3rd party Dante hardware, all examples will be demonstrated from within or with SymNet hardware.*

****note: the end user may require the need to matrix or route Dante audio at will, in which case Dante Controller will also need to be installed on the end user's PC/laptop along with the DVS.*

Dante Network Considerations:

If an end user's PC/laptop is to be used solely as a DVS device, such as a recorder or media player, then the end user's PC/Laptop can simply be connected to the Dante network.

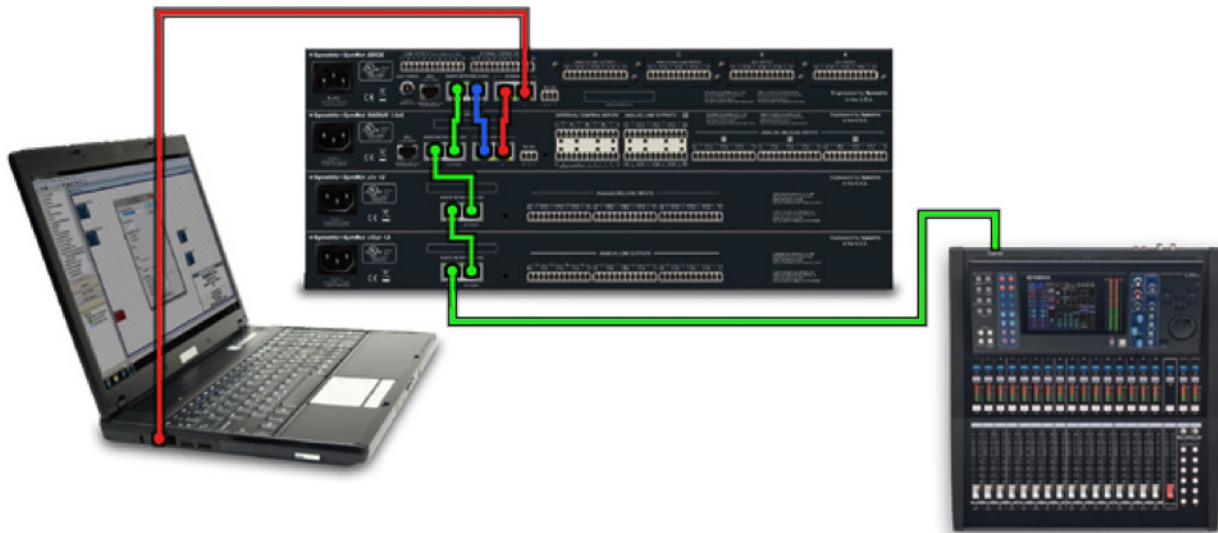
If the end user will be need to have the PC/laptop's DVS integrated with the SymNet system, while at the same time using control software such as SymVue, connect the internet, or any other functions that require being connected to a data network rather than solely to the Dante network, then the PC/laptop will need a connection to both the data/control and the Dante network. The following example and steps outlined assume a data/control connection is needed for SymNet Composer or SymVue running simultaneously on the PC/laptop with the DVS.

Dante Network Considerations

In order to access the control network with the Dante network simultaneously from a PC/laptop, then one of the following methods must be used.

1. LAN port used for DVS, wireless port used for SymNet Composer:
 - a. LAN Port used by the DVS: The laptop's LAN port can be direct connected to a spare SymNet Dante port when the SymNet unit's Dante mode is set to "Switched". Additionally, the laptop's LAN port can plug directly into a 3rd party network switch that comprises the Dante network.
 - b. Wireless Network Connection used by SymNet Composer: A 3rd party wireless access point can be connected to the SymNet unit's Ethernet control ports, allowing the laptop's wireless NIC to be used for SymNet Composer communication with the SymNet system. (note: Dante is not compatible with wireless networks)
2. LAN port used for both DVS and SymNet Composer:
 - a. When the LAN port is used for both the DVS and SymNet Composer simultaneously, the Dante network and control network must be merged. Merging the two networks can be temporary or permanent depending on the needs of the customer and other network considerations. Merging the networks can be done in the following three ways:
 - i. One Network Used for Dante and Control: One Dante port and one Ethernet control port from each SymNet unit is connected to a common network or switch. Connect the laptop running the DVS and SymNet Composer into a spare port on the network or switch.
 - ii. Separate Networks Used for Dante and Control: A separate network switch is used for Dante and Ethernet Control, so a CAT5/6 will need to bridge the two networks. Once the two networks are bridged, connect the laptop running the DVS and SymNet Composer into a spare port on either network switch.
 - iii. SymNet Units are Daisy Chained: Use a short CAT5/6 patch cable to connect one unused Ethernet control port to an unused Dante port. Plug the host PC into the other unused Ethernet port.

WIRING KEY: Dante = GREEN, Ethernet/Control = RED, Dante/Ethernet Control Merger = BLUE



Once the Dante and Ethernet control networks have been merged, the DVS and SymNet Composer or SymVue can both function simultaneously from the same laptop.

Transmitting Music via Dante into a SymNet System:

When an end user's PC/laptop has been set up to play audio into a SymNet system using the DVS, it is important for the audio integrator during the commissioning process to subscribe SymNet permanently to the DVS transmit channels. This ensures that the Dante channels will reconnect even after the PC/laptop running the DVS or SymNet system is power cycled.

There are many reasons, several mentioned in the introduction to this document, for the end user to use the DVS to send audio to a SymNet system. The following steps outline setting up an end user's PC/laptop to use Windows Media Player as a "media player" for streaming music via Dante within a venue, such as a restaurant or mall. The advantage of using Windows Media Player is that it uses the WDM driver, which is supported by the DVS, due to the fact that the WDM driver will sample rate convert 44.1KHz mp3 audio into 48KHz professional audio. SymNet hardware runs at 48KHz and the WDM driver eliminates pitch shift associated with mismatched sample rates between a source and a receiver.

These steps can be modified to work with any other software to be used to send audio into a SymNet system via the DVS, whether using the WDM or ASIO drivers.

Step 1:

Turn on the DVS on the end user's PC/laptop.

- Audio Interface: WDM
note: WDM is selected for use with Windows Media Player. ASIO may be preferred for other applications, wave editors, or DAWs.
- Audio Format: 48KHz, 24 bit
- Dante Latency: 10ms, 6ms, 4ms are the options. This latency setting does not need to match SymNet's selected Dante latency so any of the three options will work.
- Local Area Connection should be selected. If the laptop has more than one LAN port, select the correct one that is connected to the Dante network.

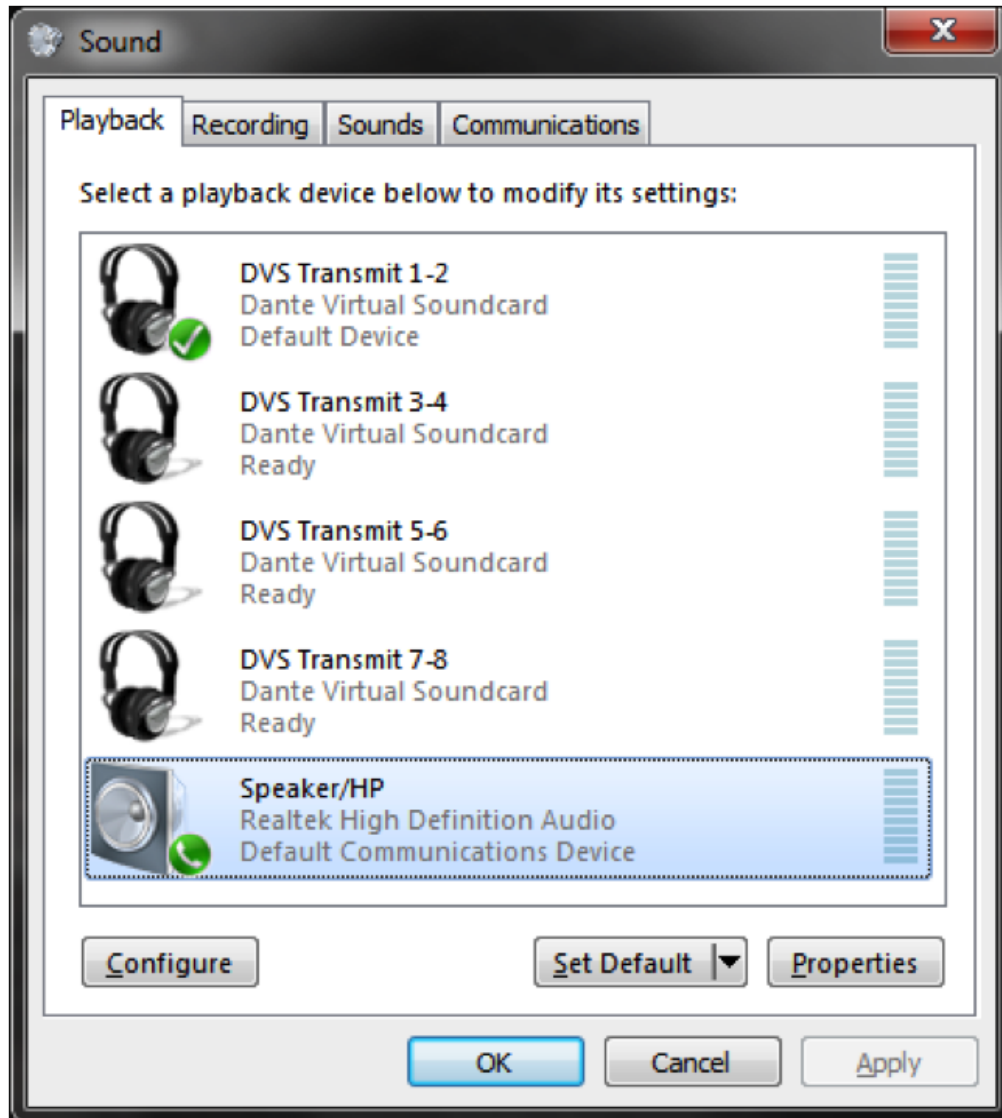


Transmitting Music via Dante into a SymNet System

Step 2:

Configure the laptop to use the DVS for playback.

- Go to Control Panel->Sound
- On the playback tab make sure a pair of DVS Transmit channels are “Set as Default Device”. This example uses “Dante Transmit 1-2”
- A green check indicates the currently selected default device.



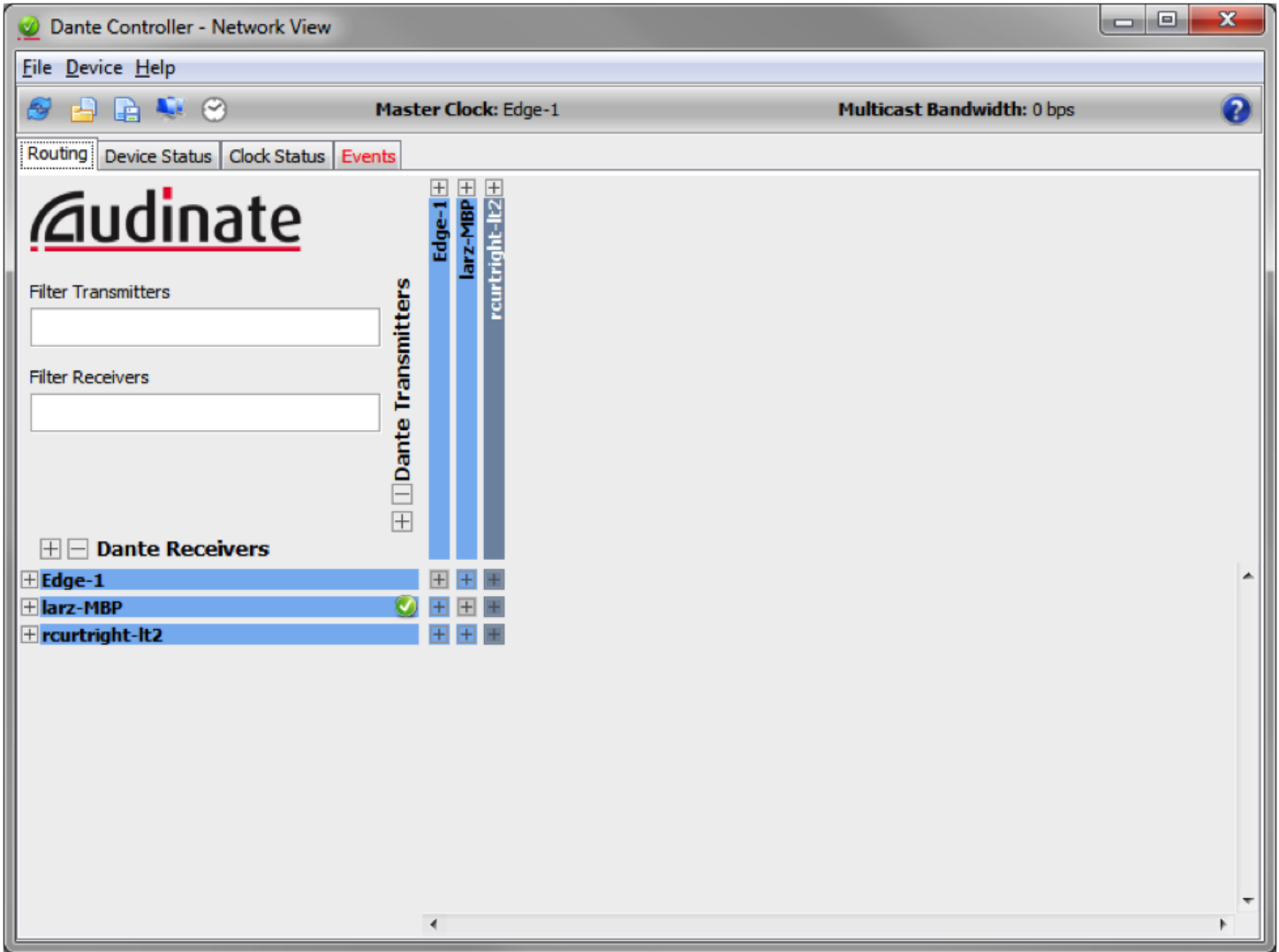
Step 3:

Open Dante Controller located at Start->All Programs->Audinate->Dante Controller.

note: this step can be done from the end user or audio integrators PC/laptop.

Step 4:

The Dante Device Network Name of the PC/laptop running the DVS should be visible on the Routing tab of Dante Controller. In this example the name of the Dante network device is rcurtright-lt2. Write this name down for a later step.



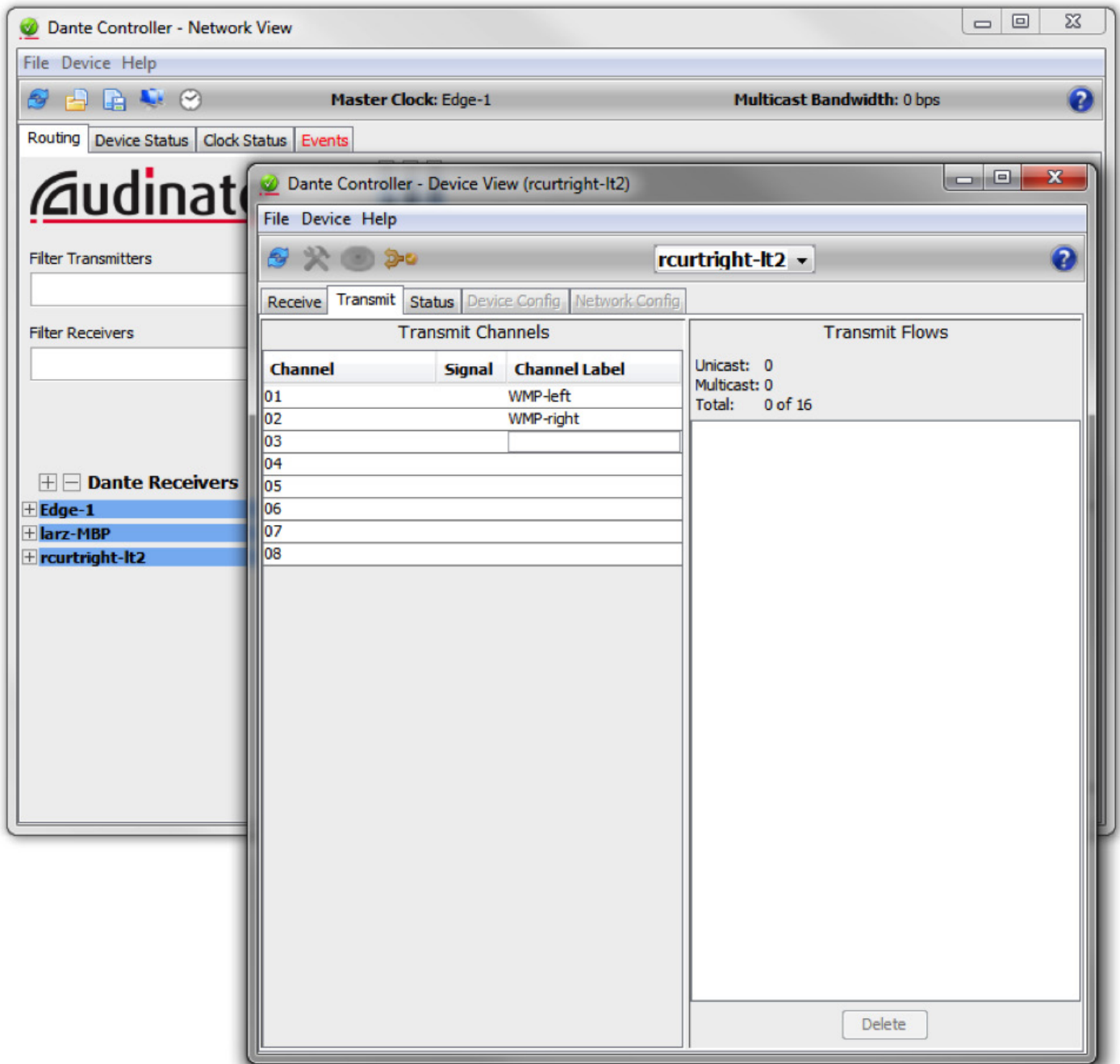
Step 5:

Next, click on the Device Status tab in Dante Controller, then double click on the device name. In this example the device name is rcurtright-lt2. This will launch the Device View in Dante Controller for the DVS running on **rcurtright-lt2**.

Step 6:

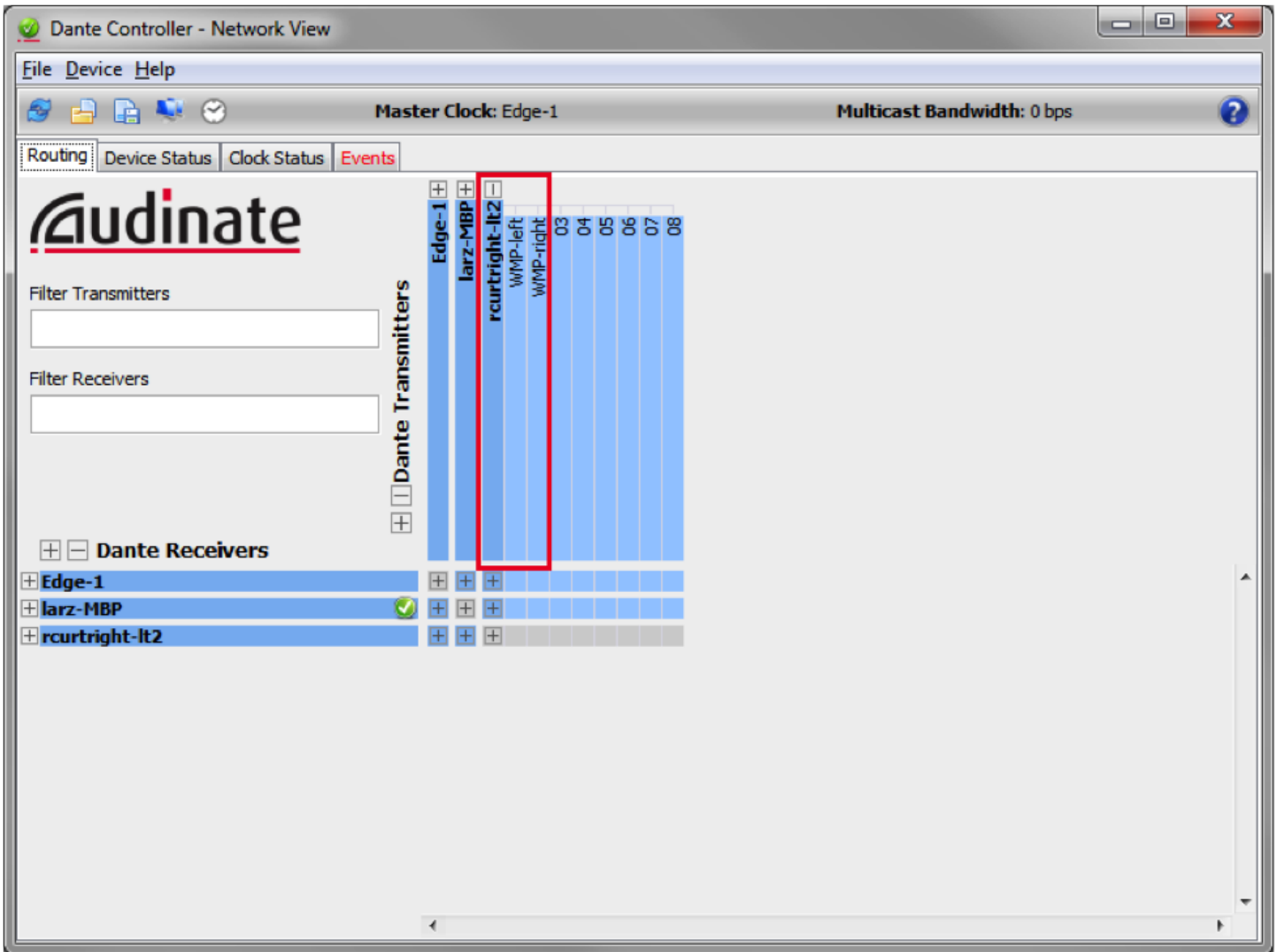
Click on the Transmit tab and then name each “channel label” in which to transmit to the SymNet system via the DVS. Since Windows Media Player is being used as the Dante media player, only 2 channels are needed to carry the stereo signal to the SymNet system. The 2 Dante transmit channels have been named WMP-left and WMP-right.

Transmitting Music via Dante into a SymNet System



Step 7: Close the Device View. On the Routing tab of Dante Controller, expand the DVS PC/laptop in the Dante Transmitters and confirm that the two named channels are now listed. (as shown in red below)

Transmitting Music via Dante into a SymNet System



Step 8:

Open SymNet Composer, locate hardware, and then enter the Design View of the Dante capable SymNet DSP (Edge, Radius 12x8, Radius AEC) by double clicking on the gray SymNet icon in the Site View. This example uses a SymNet Edge.

Note: When double clicking on a SymNet xOut 12, the unit will open directly to xOut 12 Unit Properties where Dante Connections are assigned in the lower Window.

Step 9: Once in the Design View, expand “Dante Transmit and Receive Flows” from the Toolkit and drag a **New Transmit/Receive Flow** into the design.

Transmitting Music via Dante into a SymNet System

Step 10:

A new Dante flow will be created and the Dante Flow Module Properties will pop-up.

- Name: Can be named anything and is used only for organization in SymNet Composer. Does not affect routing.
- Channels in Flow: can be 1-8 channels, although this examples uses 2 for stereo content from Windows Media Player.
- Place Dante Flow Module: set to receive
- Source: check the box for **External Dante Device Network Name** and enter the network device name from step 4. It must be typed exactly as displayed including any special characters or spaces in the name. Example: rcurtright-lt2
- Type: unicast
- Channel names: name both channels with exactly the same names given in step 6 using Dante Controller. Example: WMP-left and WMP-right.

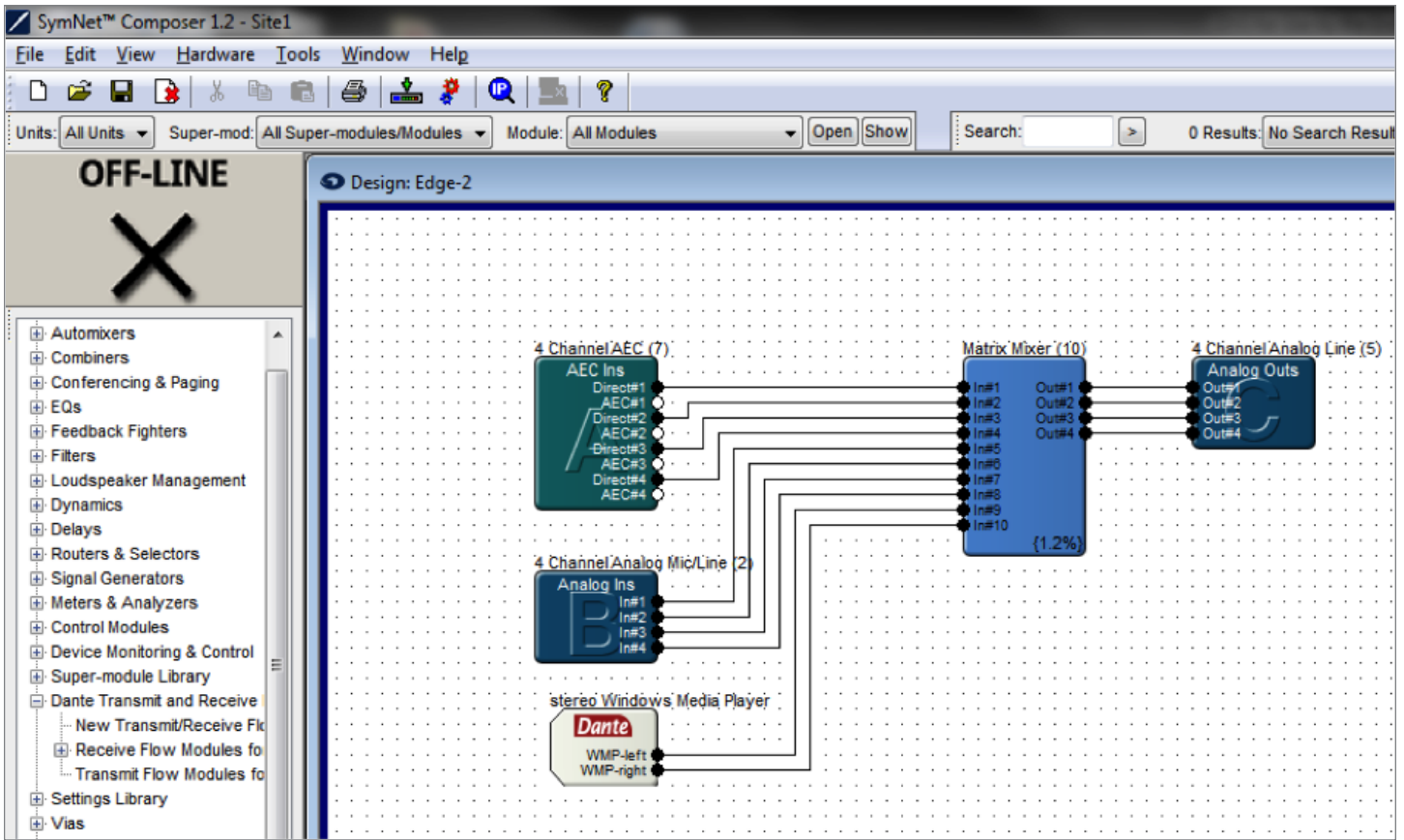
The screenshot shows the 'New Dante Flow' dialog box with the following configuration:

- Name for new Dante Flow: stereo Windows Media Player
- Channels in Flow: 2
- Flow ID: 5
- Place Dante Flow Module: Receive, Transmit
- Source: External Dante Device Network Name: rcurtright-lt2
- Type: Unicast, Multicast
- Channel Names: WMP-left, WMP-right

Step 11:

Wire the Dante flow output into any module input. In this example, the output of the Dante receive flow is connected to the input of a matrix mixer.

Transmitting Music via Dante into a SymNet System



Step 12:

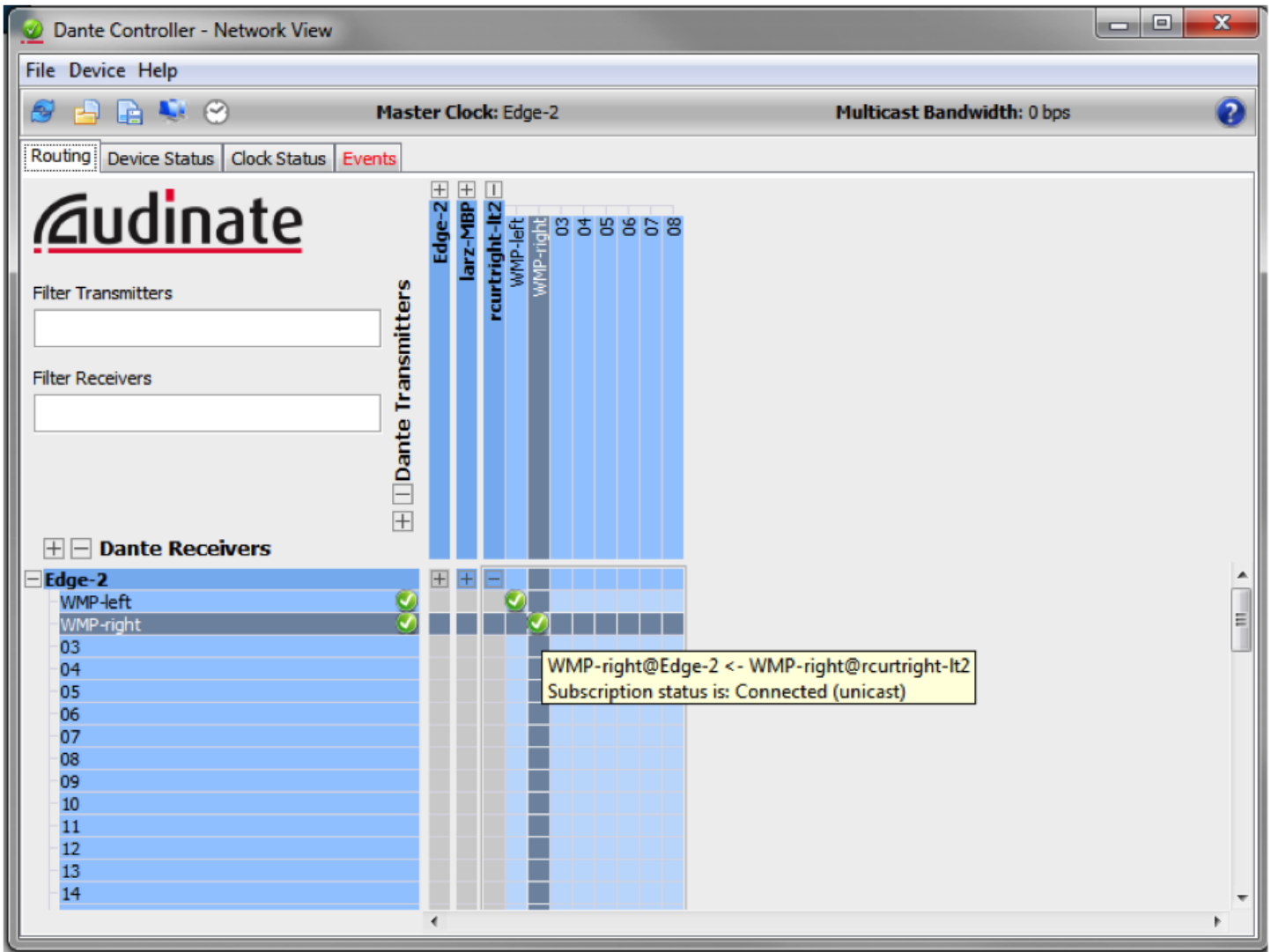
Push the site file to the SymNet system.

Step 13:

In Dante Controller on the Routing tab with Dante Receivers and Dante Transmitters expanded, the SymNet unit under Dante Receivers should now resolve a connection to the DVS transmitted channels. Hover the mouse over the connection point to reveal the channel's routing and connection status.

note: The connection may take 10-20 seconds to resolve, although connection times are typically faster.

Transmitting Music via Dante into a SymNet System



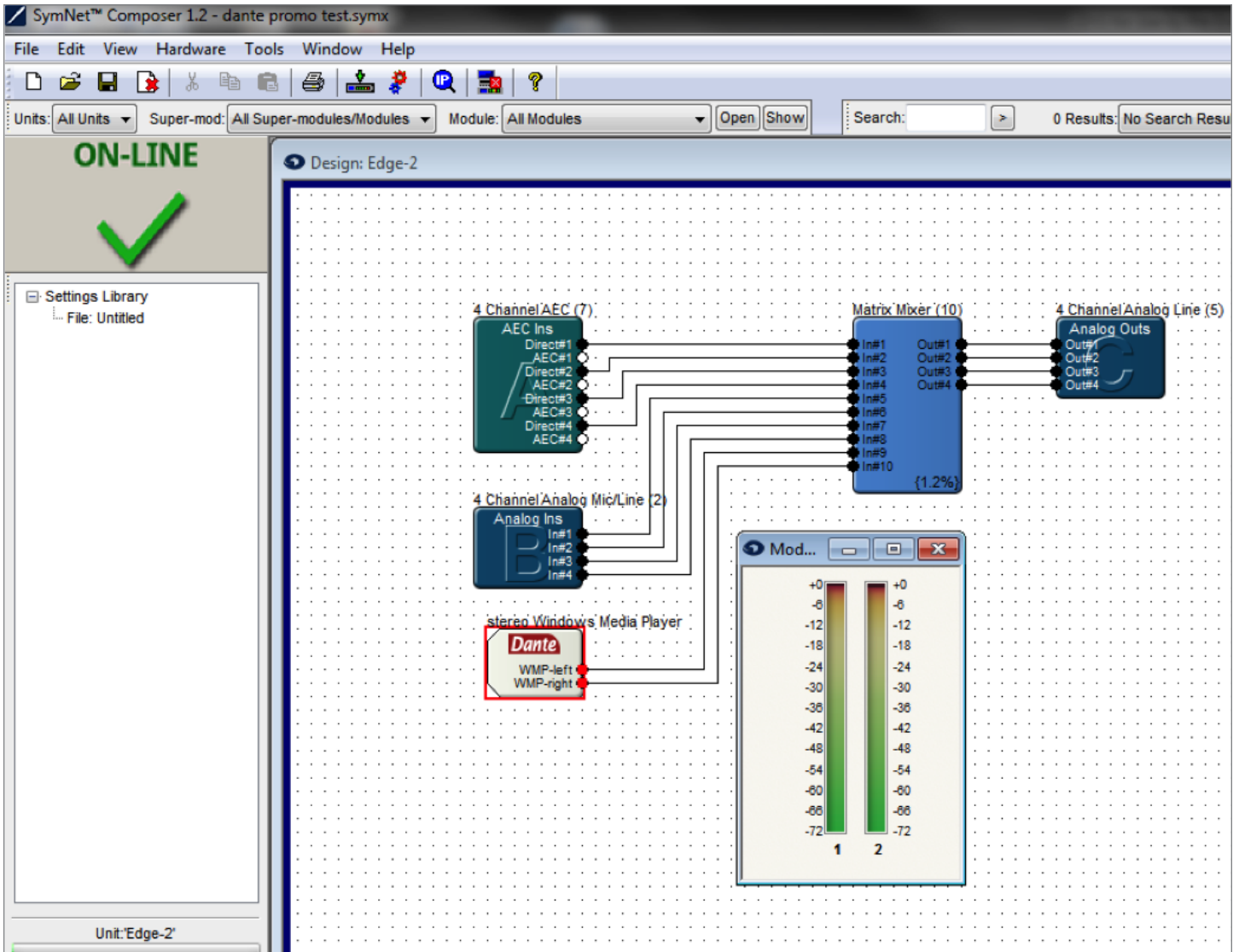
Step 14:

Open Windows Media Player and play an mp3 or playlist.

Step 15:

Check the Dante Flow meters in SymNet Composer to ensure audio is being received from the DVS.

Transmitting Music via Dante into a SymNet System



Step 16:

Power cycle the PC/laptop and the SymNet system to ensure Dante automatically reconnects. The auto-reconnect process may take 2-3 minutes.

Receiving Dante Audio from a SymNet System

Receiving Dante Audio from a SymNet System:

When an end user's PC/laptop has been set up to receive audio from a SymNet system using the DVS, it is important for the audio integrator during the commissioning process, to subscribe the DVS permanently to the SymNet Dante transmit channels. This ensures that the Dante channels will reconnect even after the PC/laptop running the DVS or SymNet system is power cycled.

There are many reasons, several mentioned in the introduction to this document, for the end user to use the DVS to receive audio from a SymNet system. The following steps outline setting up an end user's PC/laptop to receive and record Dante within a venue, such as a courtroom or corporate conference room. This example uses Audacity to record the Dante audio. Audacity can utilize the DVS WDM driver, which will sample rate convert 48KHz Dante audio from SymNet into any Audacity supported sample rate. SymNet hardware runs at 48KHz and the WDM driver eliminates pitch shift associated with mismatched sample rates between a source and a receiver.

These steps can be modified to work with any other software to be used to send audio into a SymNet system via the DVS, whether using the WDM or ASIO drivers.

Step 1:

Open SymNet Composer, locate hardware, and then enter the Design View of the Dante capable SymNet DSP (Edge, Radius 12x8, Radius AEC) by double clicking on the gray SymNet icon in the Site View. This example uses a SymNet Edge.

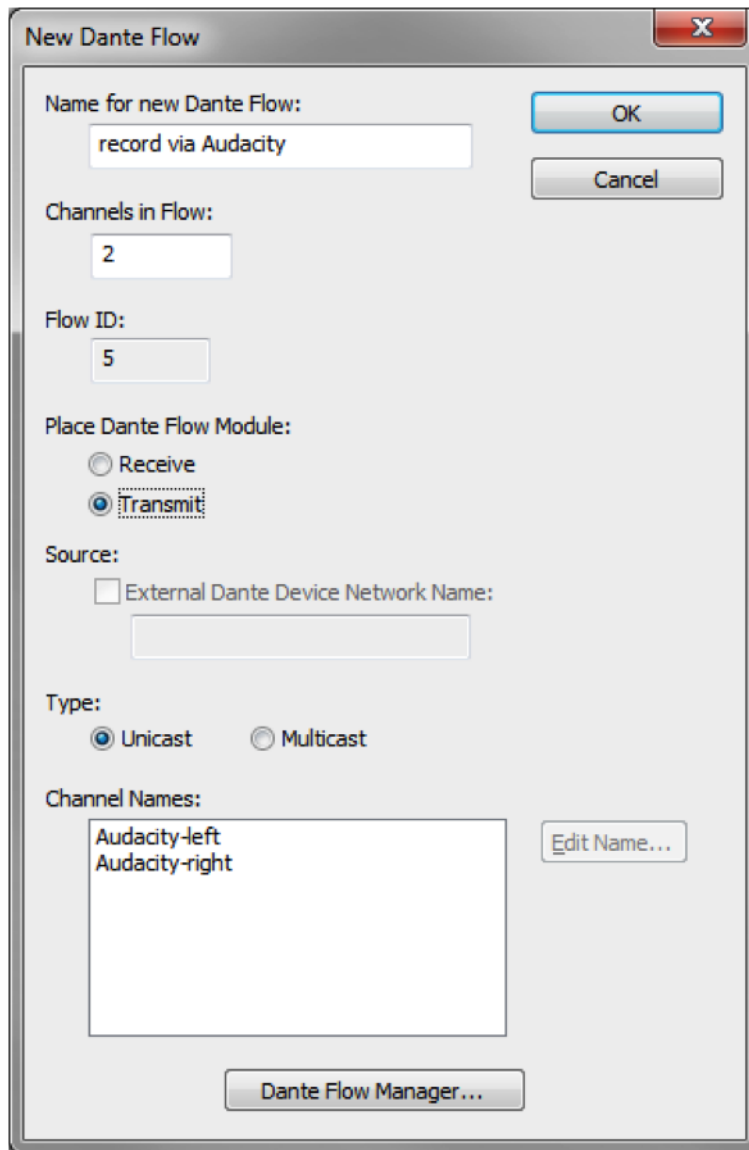
Note: When double clicking on a SymNet xIn 12, the unit will open directly to xIn 12 Unit Properties where Dante Connections are assigned in the lower Window.

Step 2: Once in the Design View, expand "Dante Transmit and Receive Flows" from the Toolkit and drag a **New Transmit/Receive Flow** into the design.

Step 3:

A new Dante flow will be created and the Dante Flow Module Properties will pop-up.

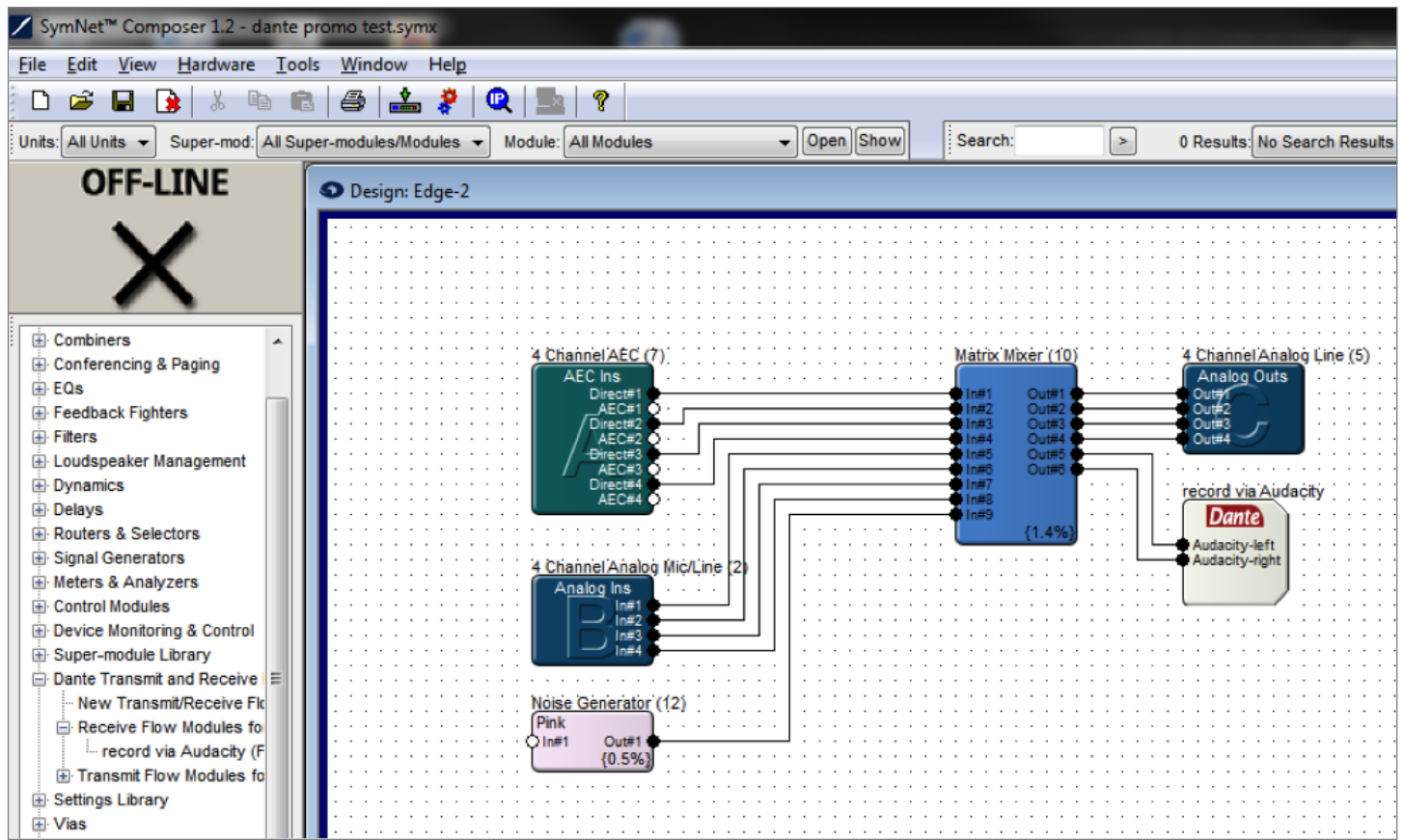
- **Name:** Can be named anything and is used only for organization in SymNet Composer. Does not affect routing.
- **Channels in Flow:** can be 1-8 channels, although this examples uses 2 for stereo recording within Audacity.
- **Place Dante Flow Module:** set to transmit
- **Type:** unicast
- **Channel names:** name both channels with unique Dante channel names.
Example: Audacity-left and Audacity-right.



Step 4:

Wire the Dante flow input to the output of any module. In this example, the input of the Dante transmit flow is connected to the output of a matrix mixer.

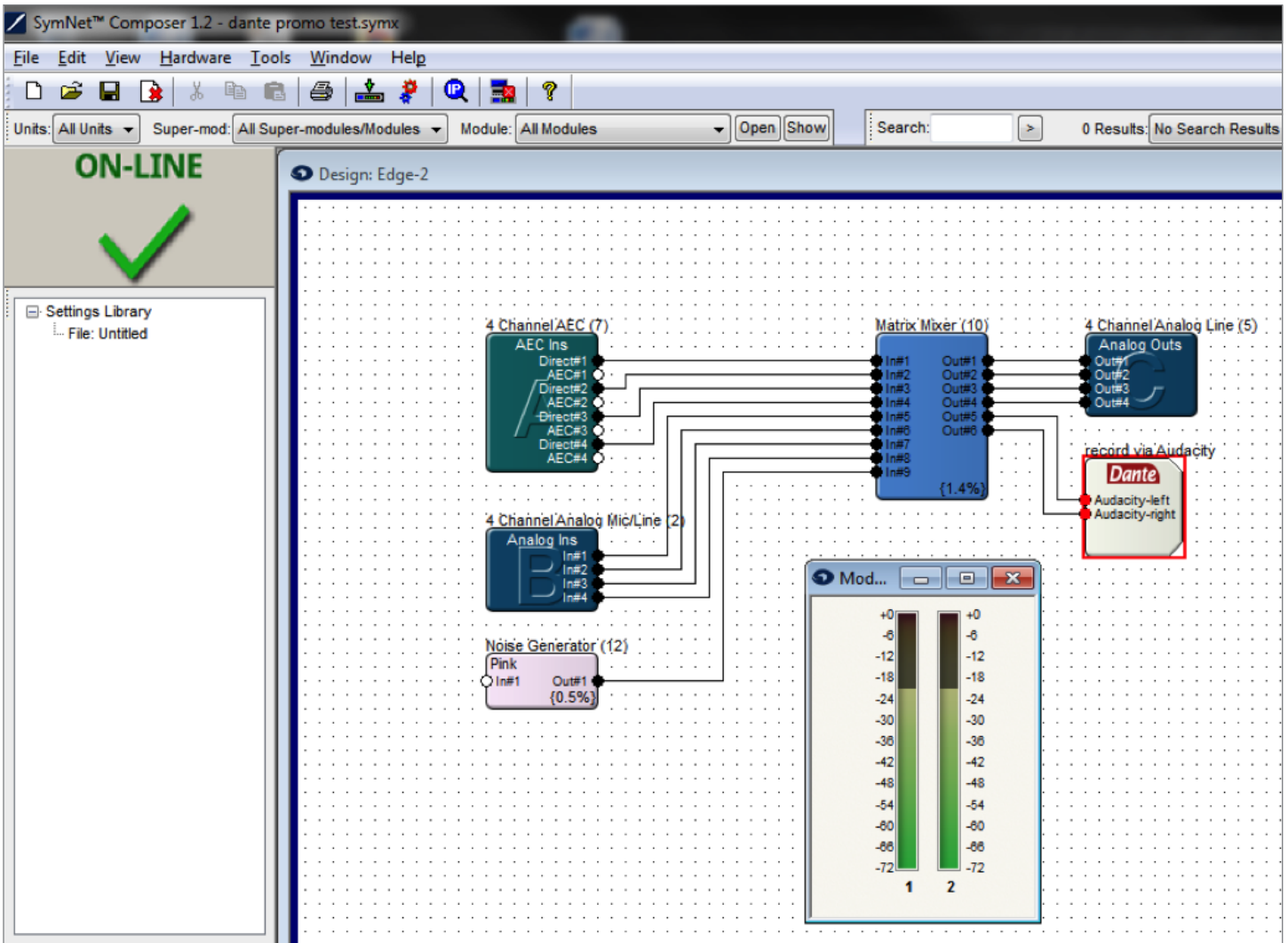
Receiving Dante Audio from a SymNet System



Step 5:

Push the site file to the SymNet system and confirm audio is passing out of the Dante transmit flow by checking the Dante meters.

Receiving Dante Audio from a SymNet System

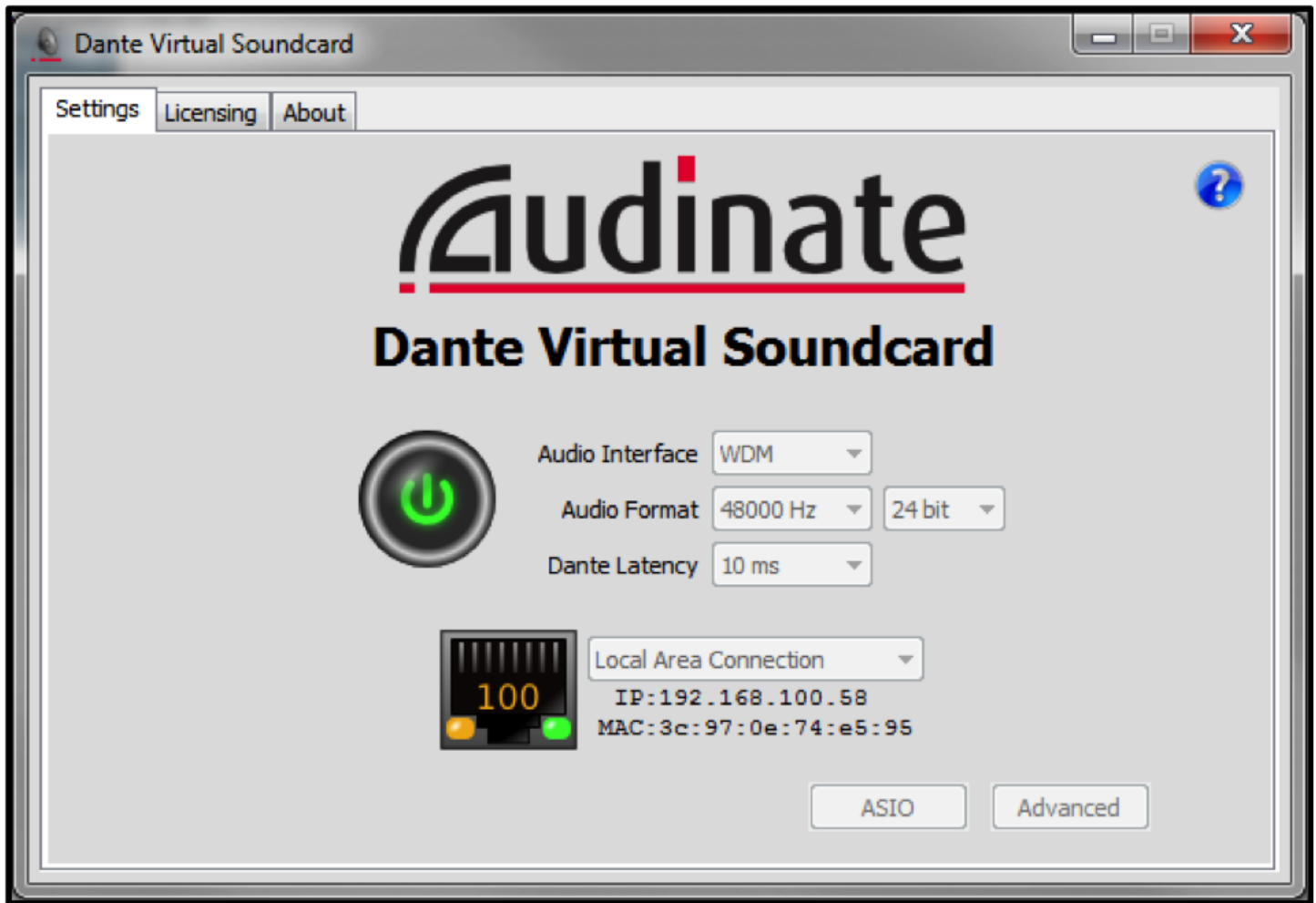


Step 6:

Open the “Dante Virtual Soundcard” with Audio Interface set to “WDM” and audio format at 48 KHz.

Note: The WDM driver is selected in this example because the recording will be done using the freeware, wave editor, Audacity which supports the WDM driver.

Turn on the DVS. A green power icon should indicate that the DVS is running.



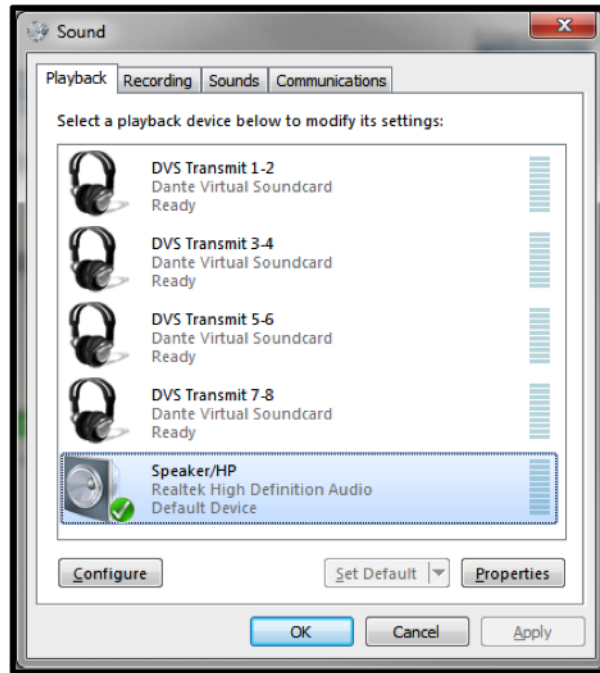
Step 7:

Configure the host PC/laptop to record the DVS:

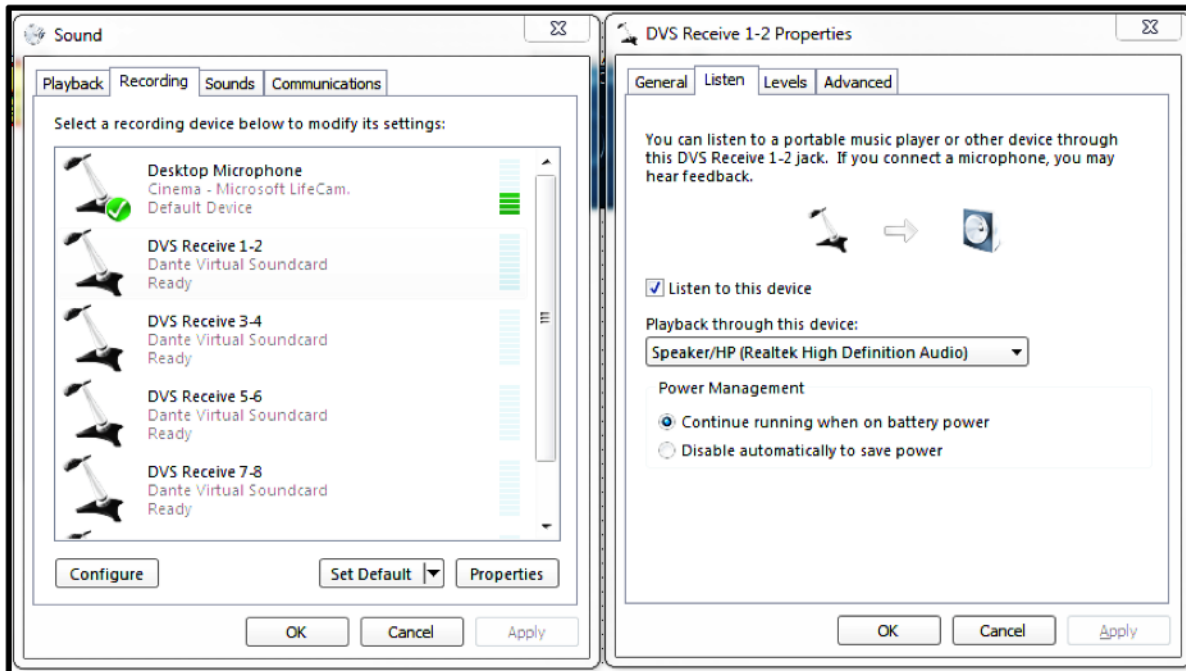
- Go to Control Panel->Sound

Receiving Dante Audio from a SymNet System

- On the “Playback” tab make sure the laptop speakers are the default device



- On the “Recording” tab click on DVS Receive 1-2 and click the Properties button
- On the DVS Receive 1-2 Properties go to the “Listen” tab.
- Click “Listen to this Device” and then click OK.



Step 8:

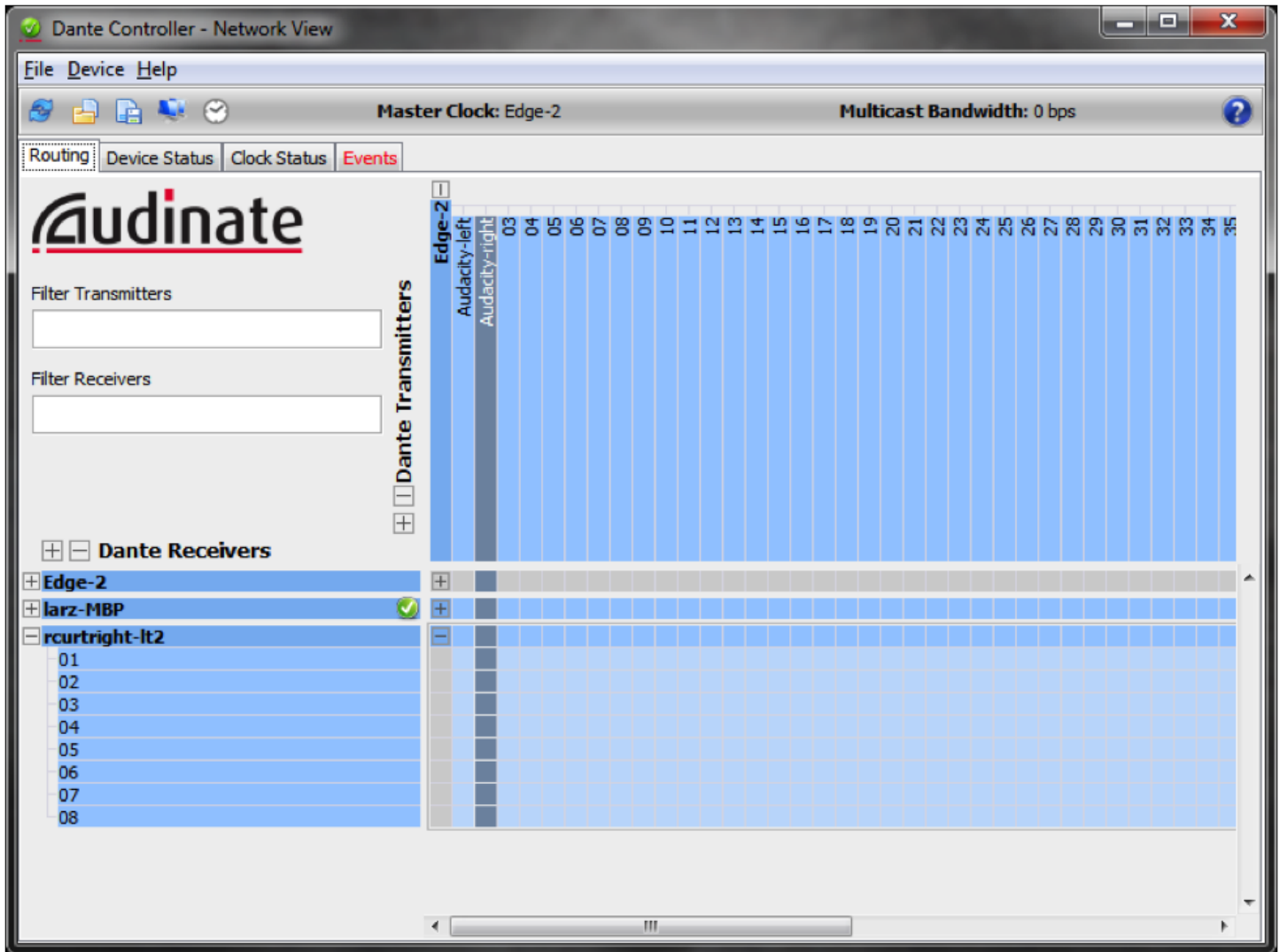
Open Dante Controller located at Start->All Programs->Audinate->Dante Controller.

note: this step can be done from the end user or audio integrators PC/laptop.

Receiving Dante Audio from a SymNet System

Step 9:

On the Routing tab in Dante Controller both the SymNet DSP and DVS PC/laptop should be visible. Expand the SymNet device in the Dante Transmitters and the DVS device in the Dante Receivers. Notice no connections have been made at this time as the Dante transmit channel names do not match the DVS receive channel names.



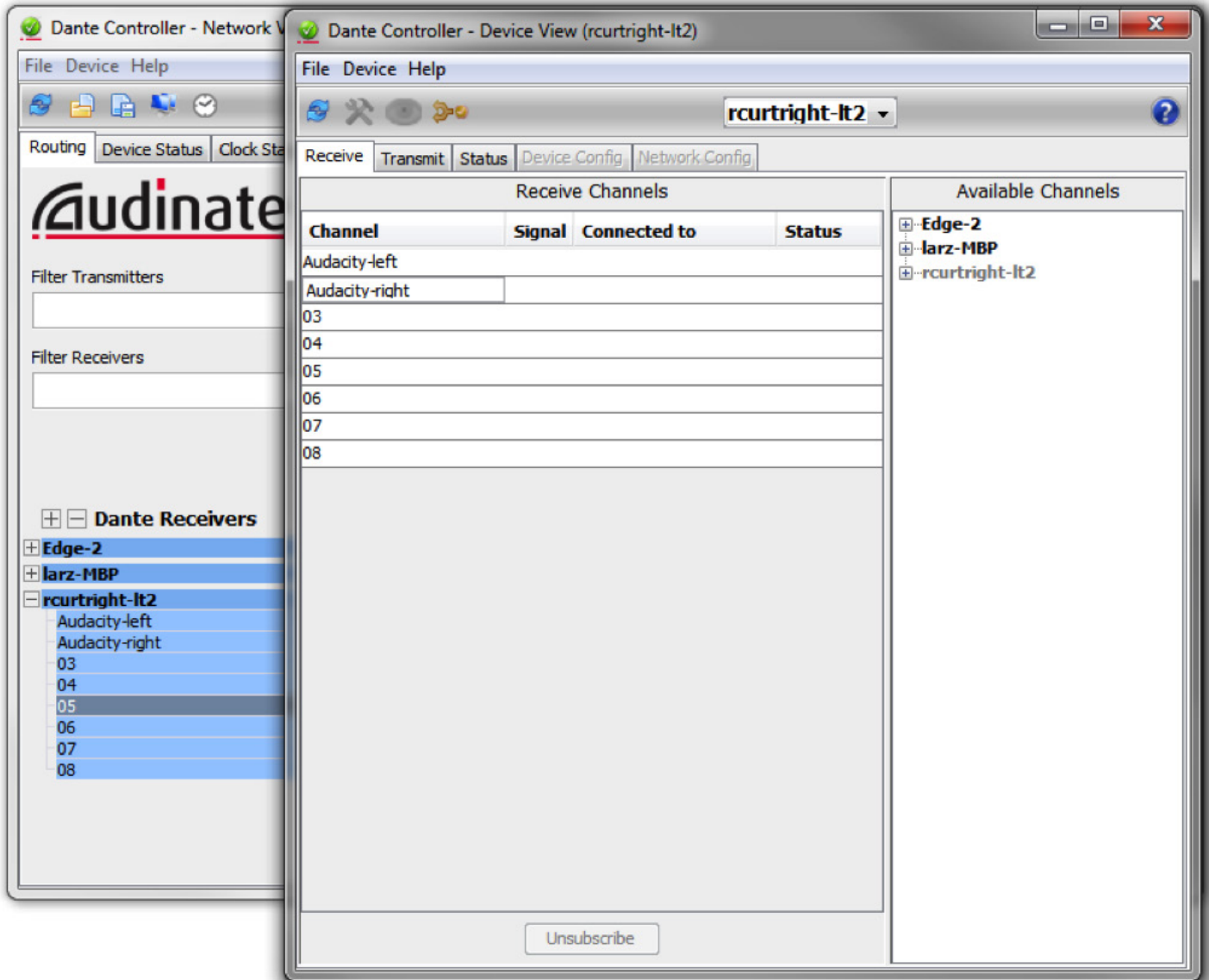
Step 10:

Next, click on the Device Status tab in Dante Controller, then double click on the DVS device name. In this example the device name is rcurtright-It2. This will launch the Device View in Dante Controller for the DVS running on rcurtright-It2.

Step 11:

On the Receive tab of the Device View name Dante channel 1 and 2 to match the SymNet DSP Dante transmit names. Example: Audacity-left and Audacity-right.

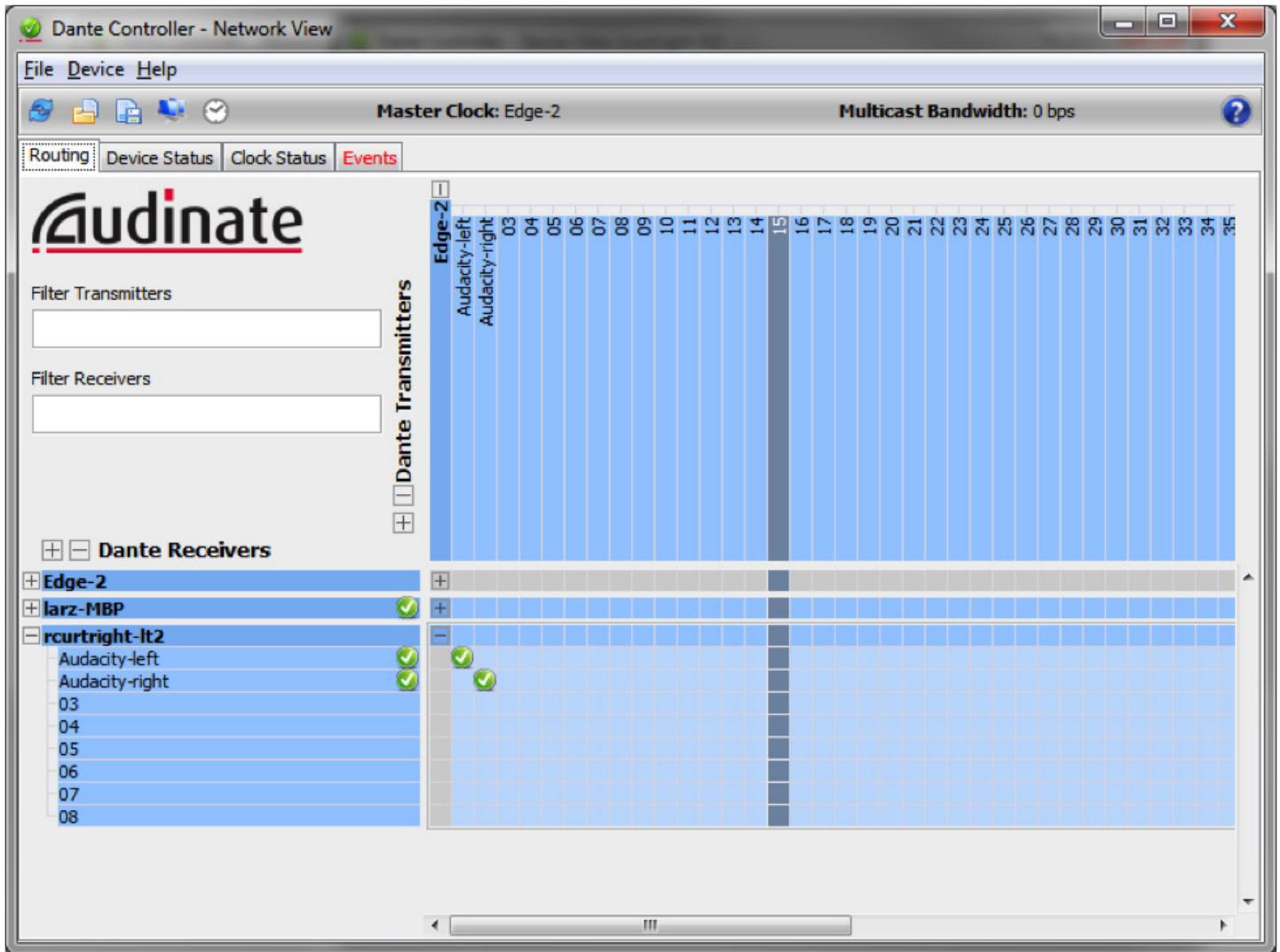
Receiving Dante Audio from a SymNet System



Step 12:

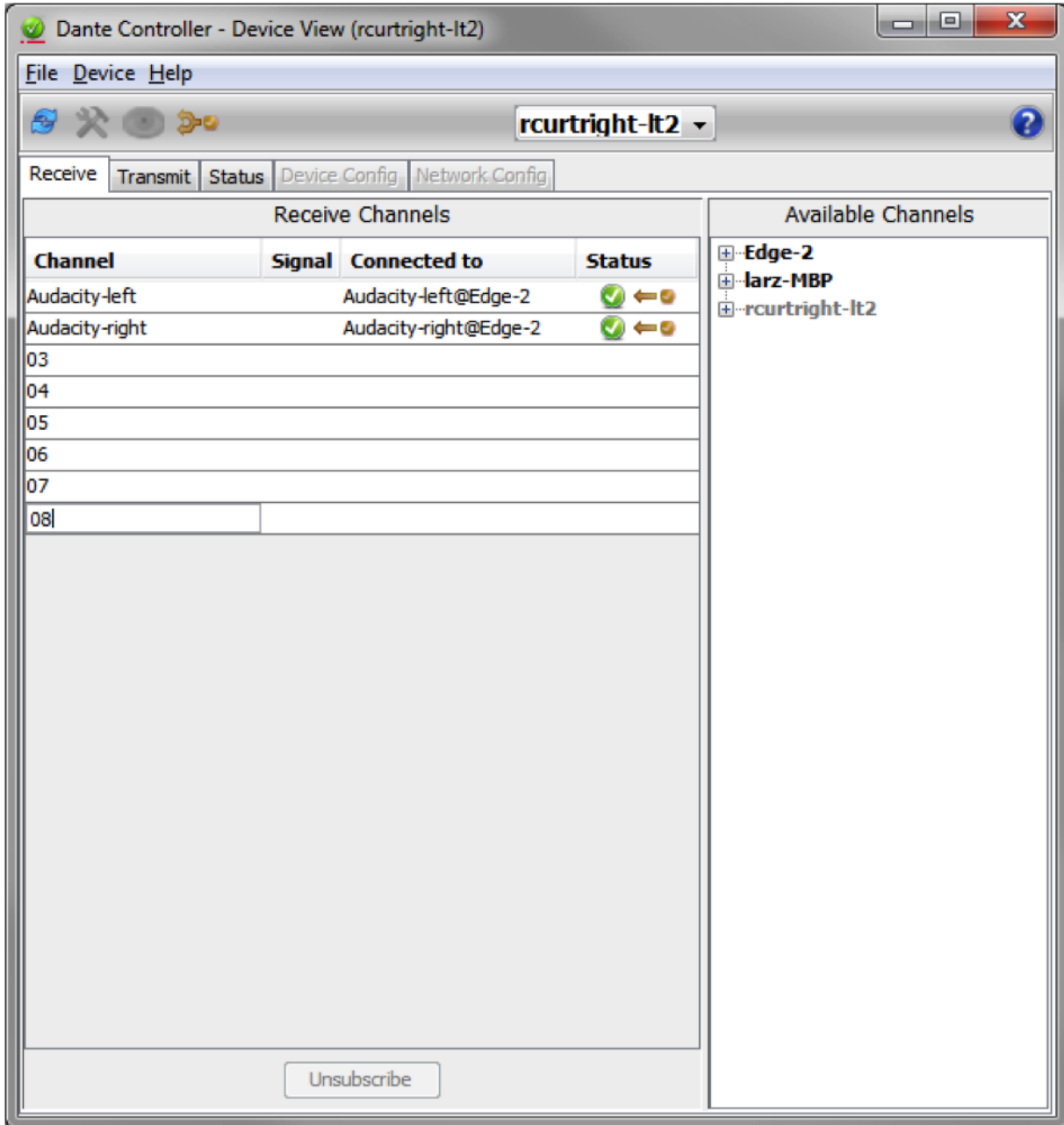
Back on the Routing Tab click the cross points for DVS receive and SymNet Dante transmit channels. Green checks indicate a connection has been made.

Receiving Dante Audio from a SymNet System



Step 13:

In the Device View confirm the DVS Receive channels are subscribed to the SymNet Dante transmit channels.



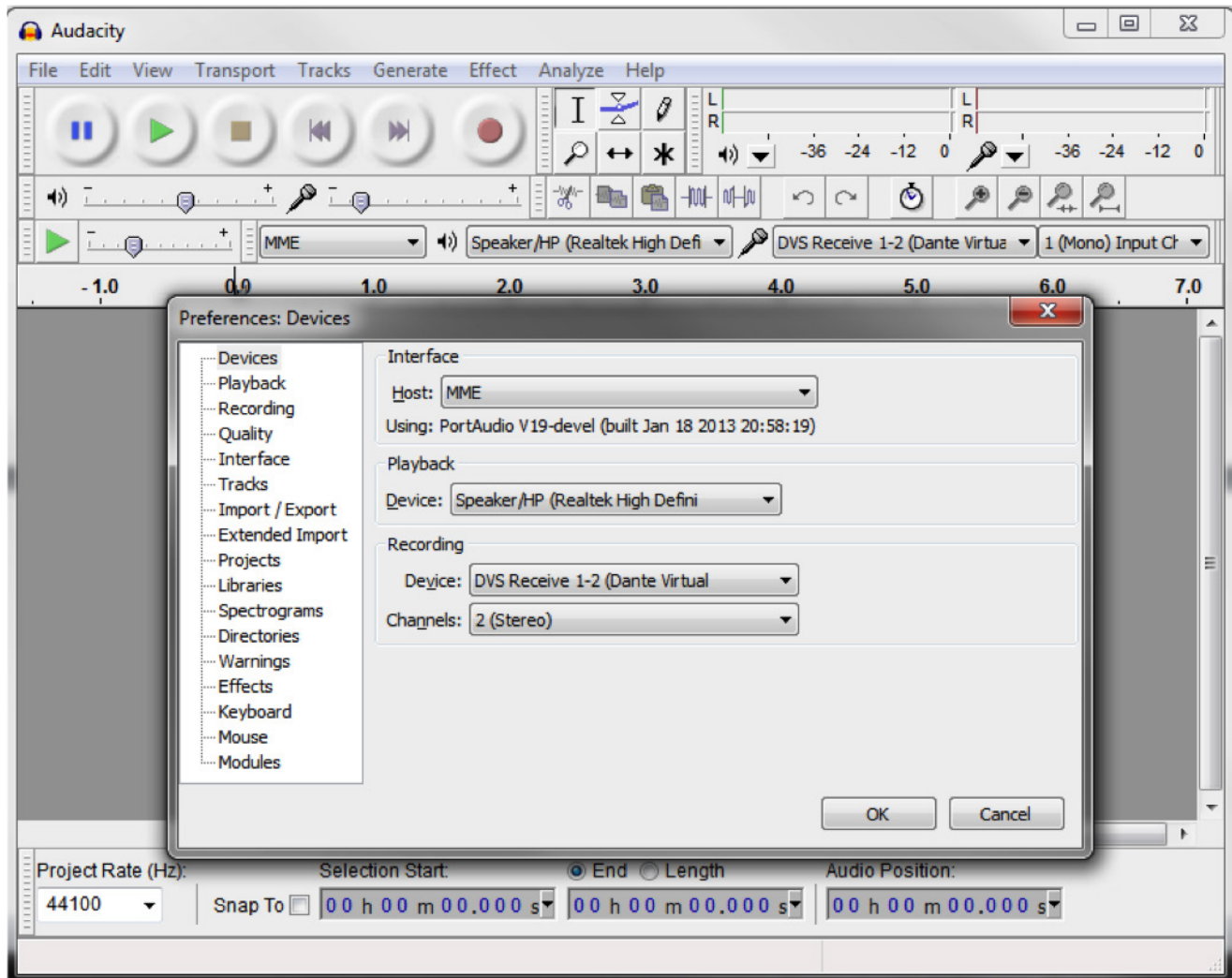
Step 14:

Open the recording software of choice on the DVS laptop and select the appropriate DVS Receive channels as the recording source. As mentioned previously, this example uses the freeware, wave editor, Audacity. <http://audacity.sourceforge.net/>

In Audacity select the Dante channels under Edit->Preferences->Devices.

Now record the DVS audio while simultaneously monitoring via the laptop speakers.

Receiving Dante Audio from a SymNet System



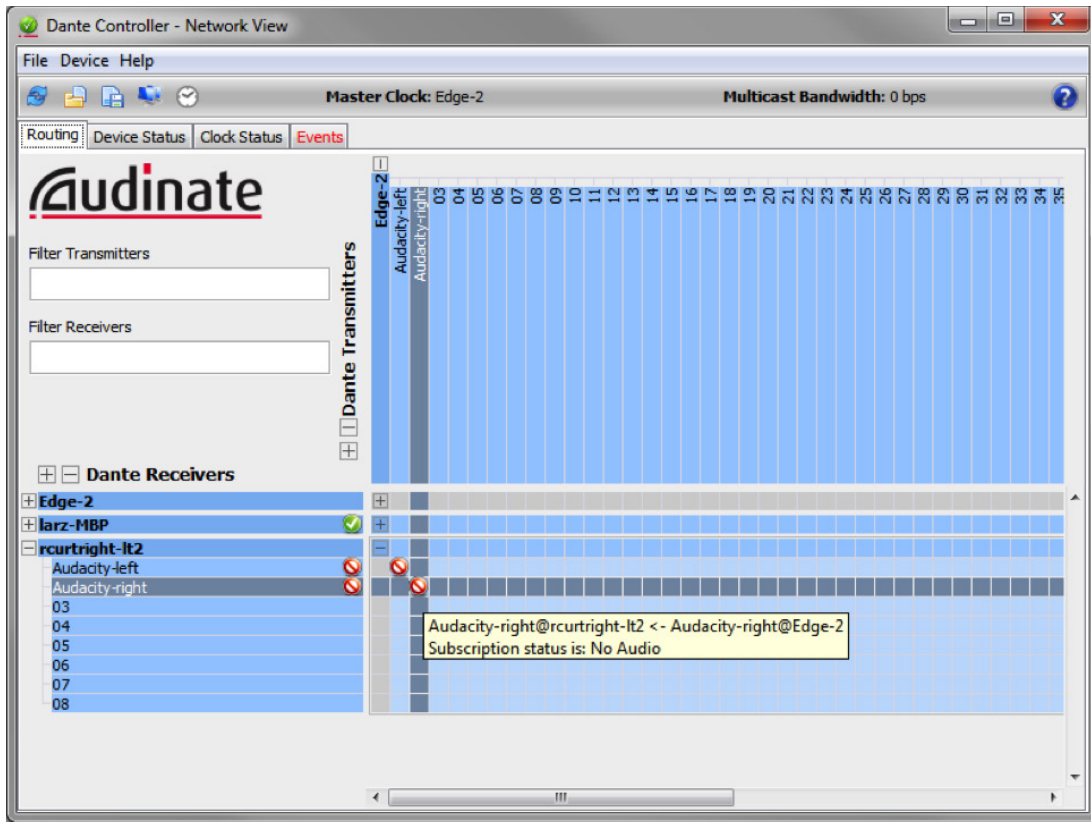
Step 15:

After performing a test recording, power cycle the PC/laptop and the SymNet DSP to ensure the Dante connections will survive a power cycle. The auto-reconnect process may take 2-3 minutes.

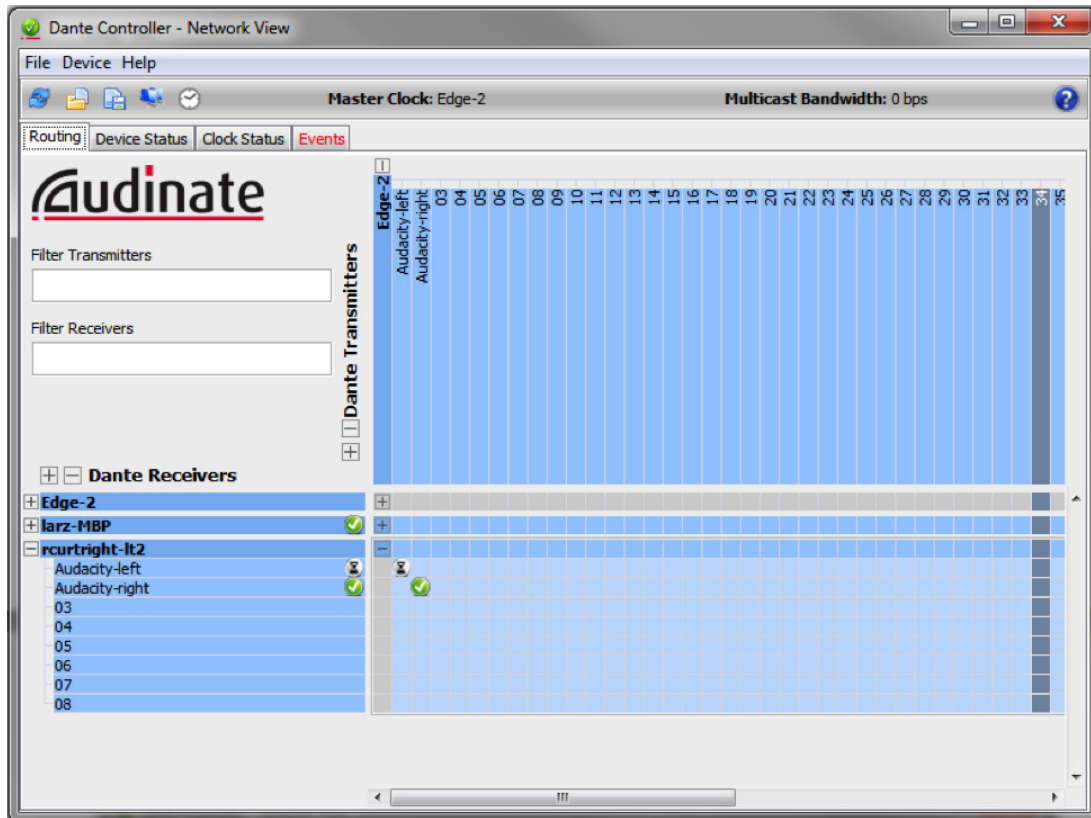
In some cases, the DVS and SymNet may not resolve the connection fast enough for live recording after a unit loses power unexpectedly. In this case, be sure the end user has Dante Controller installed on the DVS PC/laptop and understand how it works. Typically, double clicking one of the cross points that is having trouble resolving will refresh and reconnect both Dante connections.

Before double clicking a Dante Controller cross point after a power cycle:

Receiving Dante Audio from a SymNet System



After double clicking a Dante Controller cross point that is not auto resolving the connection:



Symetrix White Paper: DVS for Use by the End User

© 2013 Symetrix, Inc. All rights reserved. Printed in the United States of America. The information in this document is subject to change without notice. Symetrix, Inc. shall not be liable for technical or editorial errors or omissions contained herein; nor is it liable for incidental or consequential damages resulting from the furnishing, performance, or use of this material. Mention of third-party products is for informational purposes only and constitutes neither an endorsement nor a recommendation. Symetrix assumes no responsibility with regard to the performance or use of these products. Under copyright laws, no part of this brochure may be reproduced or transmitted in any form or by any means, electronic or mechanical, without permission in writing from Symetrix, Inc. If, however, your only means of access is electronic, permission to print one copy is hereby granted. The following are either Trademarks or Registered Trademarks of Symetrix, Inc.: Symetrix, SymNet, SymNet Designer, SymLink and CobraLink. Windows is a Registered Trademark of Microsoft, Inc. Other product names mentioned herein may be trademarks and/or registered trademarks of other companies and are property of their respective owners.

