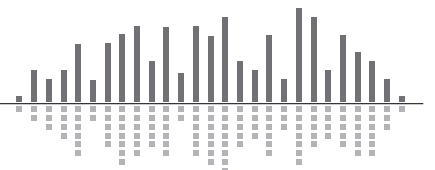


# Symetrix White Paper: DVS for Use by the Audio Integrator



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## Symetrix White Paper: DVS for Use by the Audio Integrator

### Overview

The DVS (Dante Virtual Soundcard) is one of the most versatile and useful tools for commissioning a SymNet system. The DVS turns a personal laptop into a Dante device capable of transmitting or receiving Dante audio through the laptop's LAN port. When commissioning a SymNet system the two most popular and beneficial uses for the DVS on an audio integrators laptop are:

- Transmitting test tones or music via Dante into a SymNet system for mic or room tuning.
- Receiving Dante audio for monitoring or recording when troubleshooting noise or audio anomalies.

Both of the above uses have common requirements that are outlined below.

Necessary items:

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

### Dante Network Considerations:

For most audio integrators using the DVS during commissioning, it will be desirable to have the DVS and SymNet Composer both functioning at the same time from within the same laptop. In order for the laptop to transmit or receive Dante audio while at the same time as be online with SymNet Composer, 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.

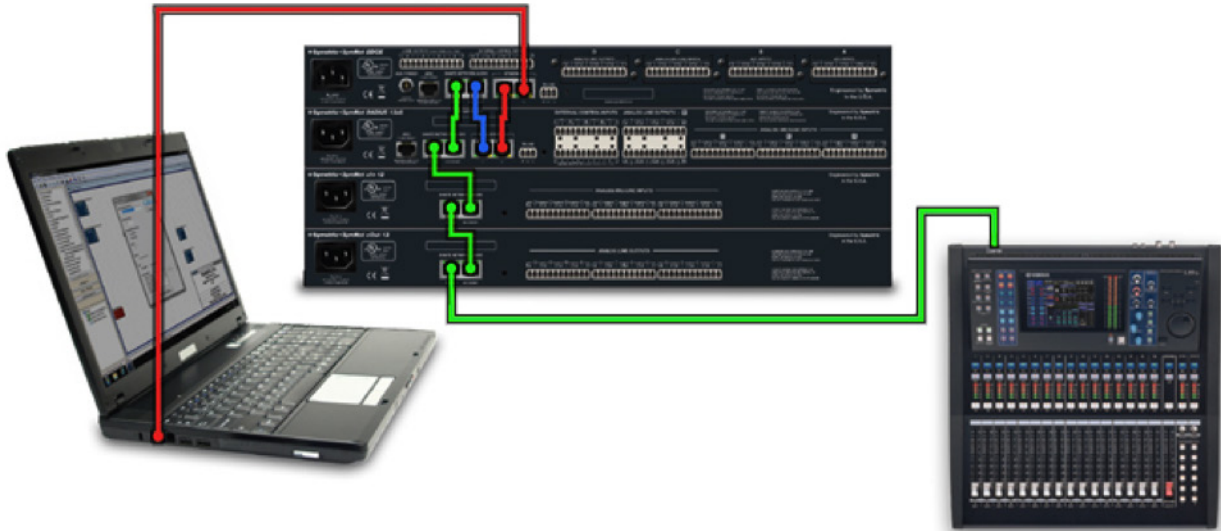
Merging the two networks can be temporary or permanent depending on the needs of the customer and other network considerations. Merging the networks can be done in the following three ways:

- 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.

# Transmitting Music via Dante into a SymNet System

- 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 can both function simultaneously from the same laptop.

It is also worth noting that if separate laptops are used, one for the DVS and one for SymNet Composer, then merging the Dante and Ethernet control networks would not be necessary.

## Transmitting Music via Dante into a SymNet System:

When tuning loudspeakers in a venue during commissioning, it is often beneficial to play familiar music out of the local reinforcement. Playing familiar music out of loudspeakers often times allows the audio integrator to effectively tune a room without the use of sophisticated room tuning software by relying on “what a trained ear hears” in the room to make EQ adjustments.

Regardless of content and purpose, sending audio from the laptop via the DVS is easy and does not require physically wiring any music source into the SymNet DSP I/O.

The following steps demonstrate how to transmit music from Windows Media Player into the SymNet system via the DVS.

# Transmitting Music via Dante into a SymNet System

## Step 1:

Turn on the DVS.

- 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”



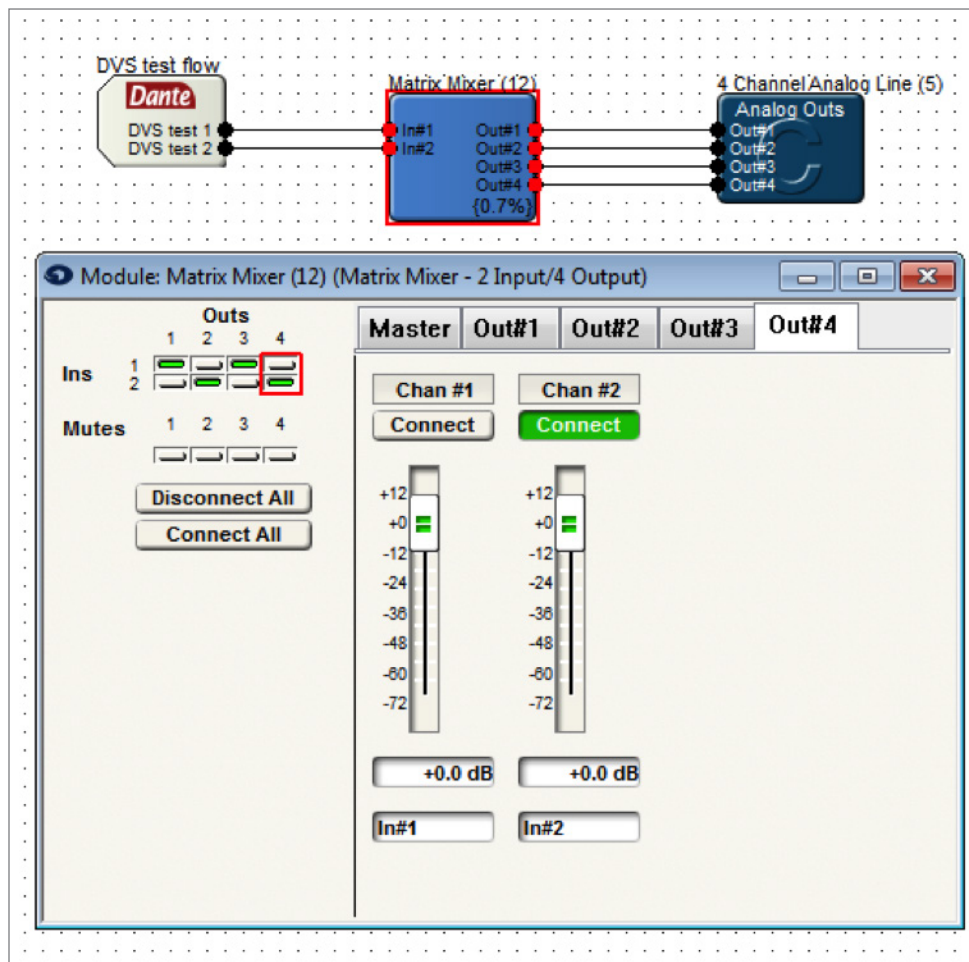
- A green check indicates the currently selected default device.

# Transmitting Music via Dante into a SymNet System

## Step 3:

Add a 2 channel Dante flow to the SymNet design.

- Connecting the 2 Dante channels to a matrix will allow for routing the music to any output. Remember to engage the cross point routing in the matrix.
- Name both channels unique names. This example uses “DVS test 1” and “DVS test 2”.
- **NOTE:** Since the cross points will be used temporarily for room tuning, the Dante receive flow does not need to include the “External Dante Device Network Name” as Dante Controller will be used to create the cross point connections.
- Push the updated SymNet site file to the hardware.

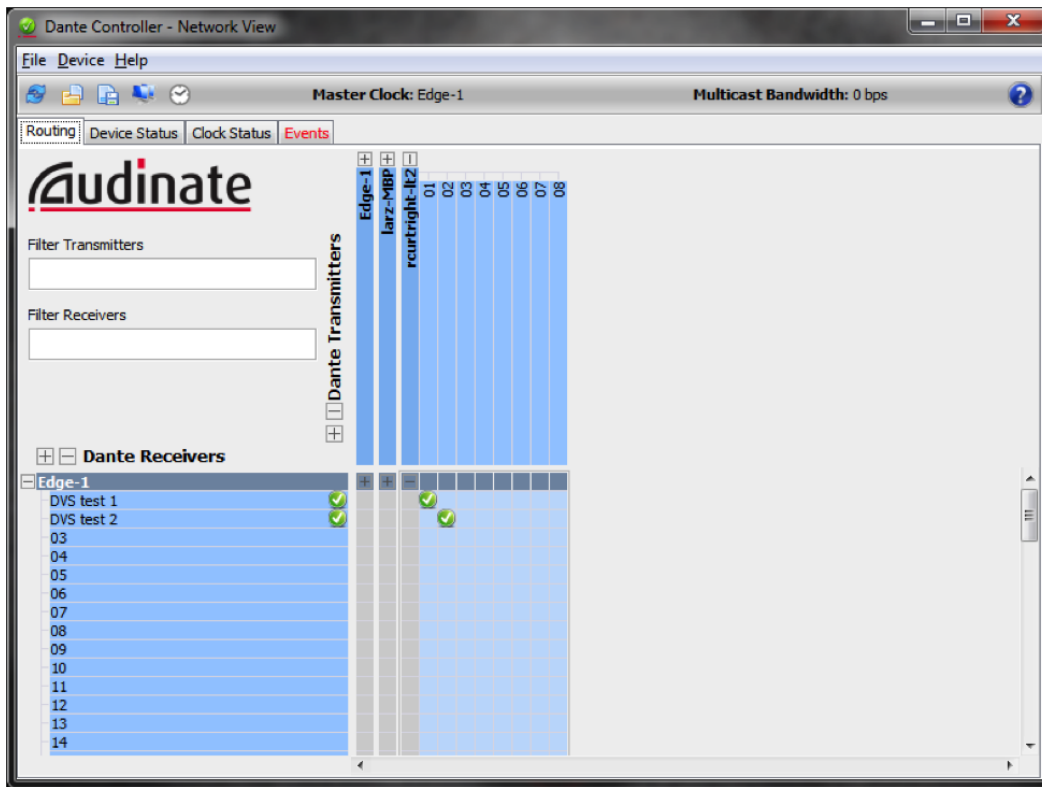


*Note: The above SymNet design is simplified for this example.*

# Transmitting Music via Dante into a SymNet System

## Step 4:

Open Dante Controller and click the cross points for the DVS Transmit channels to the two named receive channels in the SymNet DSP. Green check indicate the routing is complete.

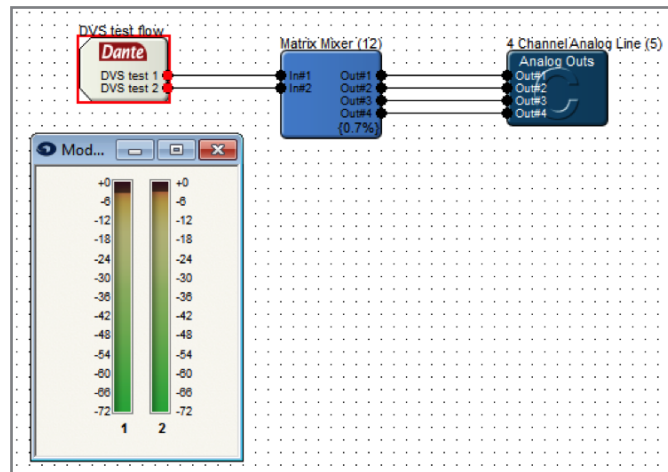


## Step 5:

Open Windows Media Player and play any supported sound file, wave, mp3, etc

## Step 6:

Check the SymNet Composer 2 channel Dante flow for signal by double clicking on the Dante flow module to launch its respective audio meters.



## Step 7:

Use the matrix in the SymNet site file to route music to the appropriate zones and loudspeakers.



# Receiving Dante Audio for Monitoring or Recording

## Receiving Dante Audio for Monitoring or Recording:

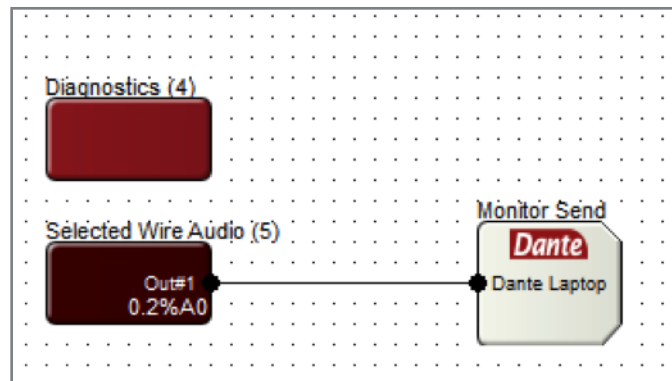
When commissioning a SymNet system, it can be extremely helpful to monitor any point in the SymNet signal path with the laptop's onboard speakers. It may also be extremely helpful when troubleshooting to have the ability to record audio on the laptop.

The following steps demonstrate how to receive audio on a laptop using the DVS, monitor any point in the SymNet signal with the laptop's onboard speakers, and record the monitored audio with 3rd party recording software.

### Step 1:

In SymNet Composer create a one channel, Dante Transmit Flow and wire its input to the output of the “Selected Wire Audio” module. Also name the Flow and the channel. In the example, the Dante Flow is entitled “Monitor Send” and the channel name is “Dante Laptop Monitor”.

*Note: Both the Selected Wire Audio and Diagnostic modules are located under the 'Ins' modules of the DSP.*



### Step 2:

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. Additionally, using the WDM driver means that the laptop PC can sample rate convert if needed, so that audio is not pitch shifted when monitoring live.*

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

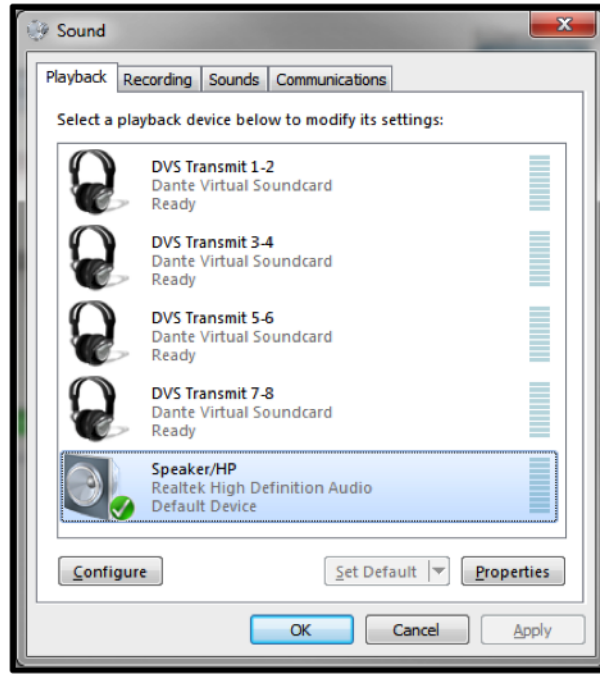


# Receiving Dante Audio for Monitoring or Recording

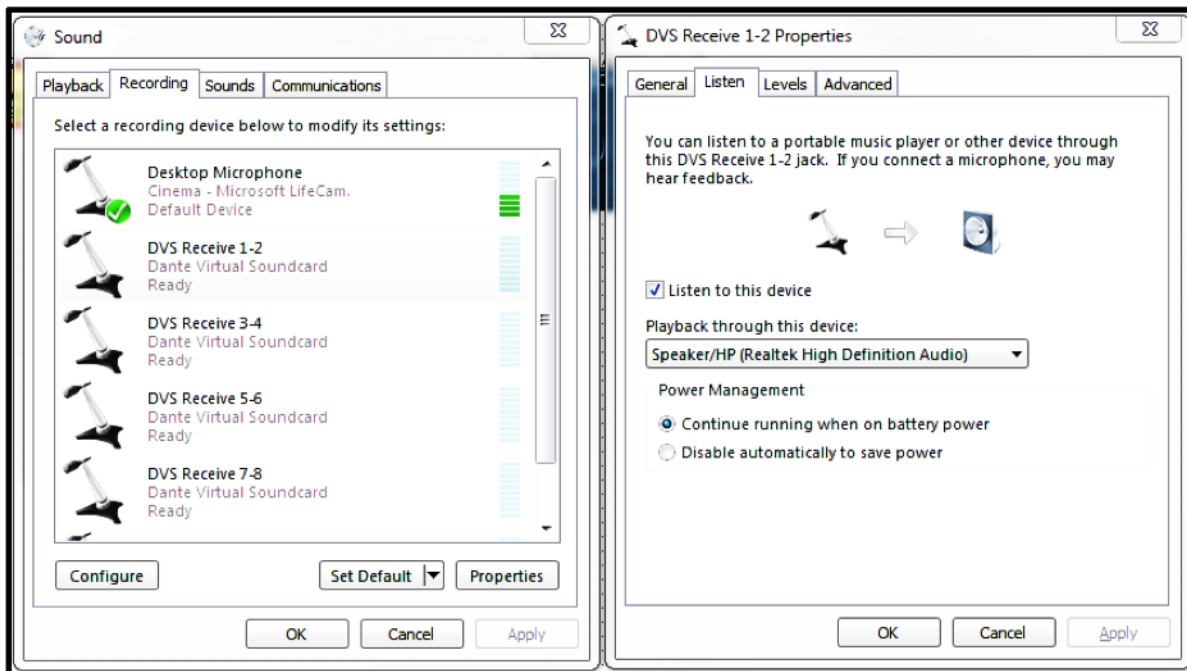
## Step 3:

Configure the host PC/laptop to use the DVS:

- Go to Control Panel->Sound
- 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.

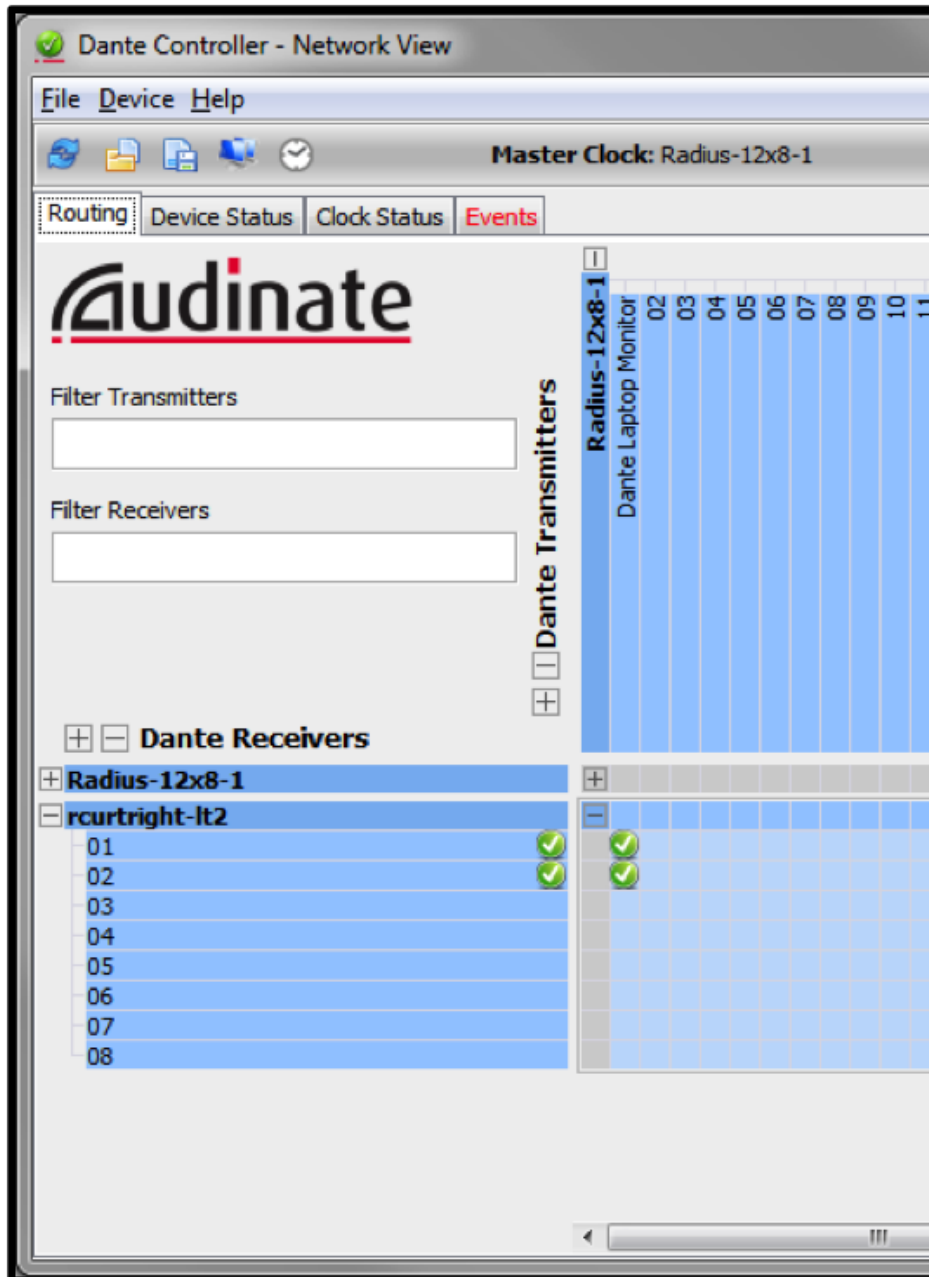


# Receiving Dante Audio for Monitoring or Recording

## Step 4:

### Open Dante Controller:

- Expand the “laptop network name” under Dante Receivers. Example: rcurtright-lt2
- Expand the Radius or Edge unit under Dante Transmitters.
- Click the cross points for the laptop DVS channel 01 and 02 so they receive audio from the DSP transmitter’s channel “Dante Laptop Monitor”.
- When the cross points get a green check, the Dante audio should now be received and played from the laptop speakers.

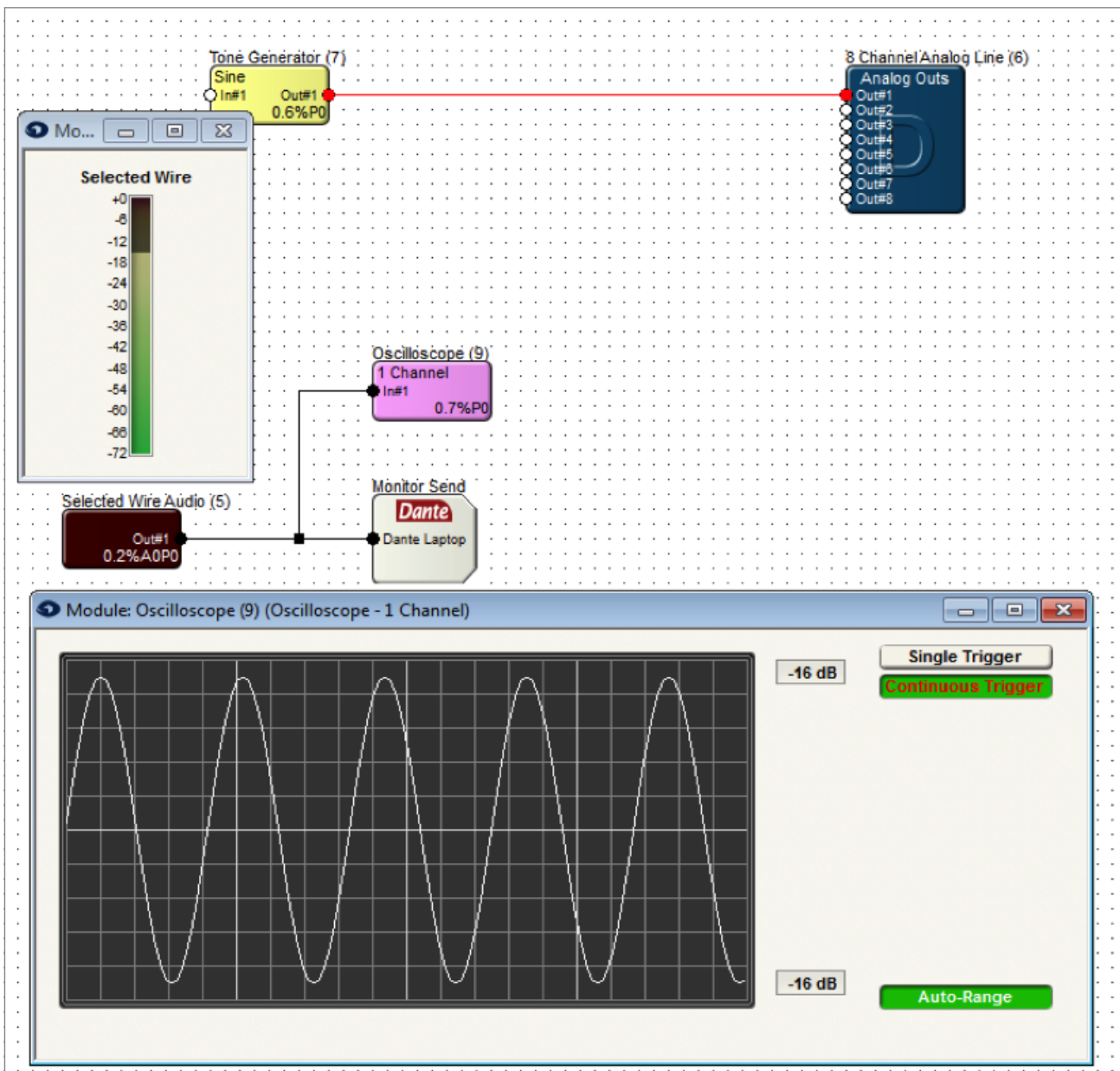


# Receiving Dante Audio for Monitoring or Recording

## Step 5:

Return to SymNet Composer and click on any wire to “select it” so that the wire turns red. Now the output of the “Selected Wire Audio” module will be the audio on the red selected wire, which will enter the Dante Transmit Flow “Monitor Send”. The audio then travels across the Dante network to be received by the DVS where the selected wire audio will play out of the host computer’s laptop speakers. Start testing, click, probe, monitor!

Hint: Place an Oscilloscope, found under “Meters and Analyzers” in SymNet Composer, in line with the Dante Transmit Flow. This creates the added benefit of viewing the selected wire audio on a scope while at the same time monitoring with the host computer speakers.

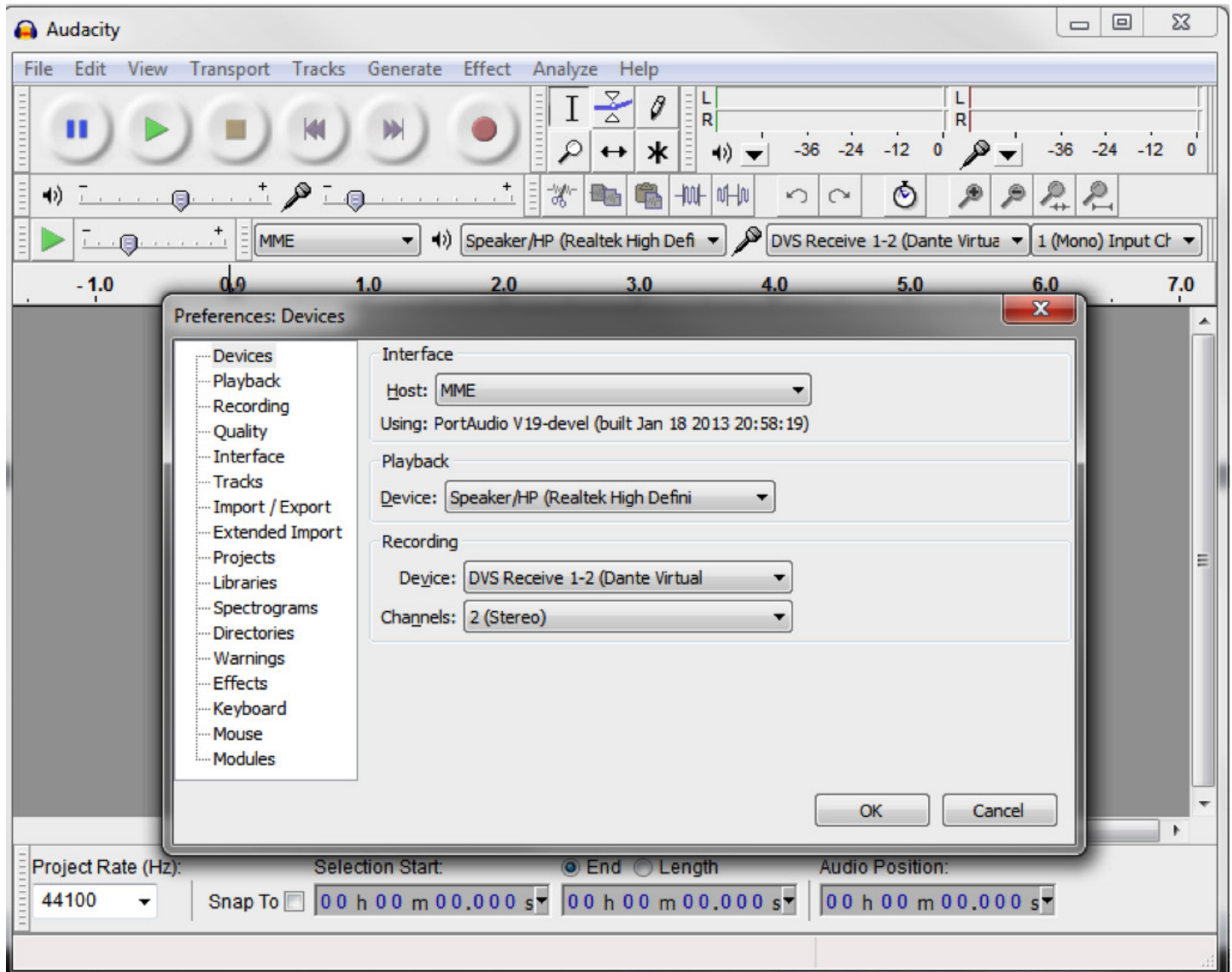


# Receiving Dante Audio for Monitoring or Recording

## Step 6:

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/>

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



# Transmitting and Receiving Audio via DVS Simultaneously

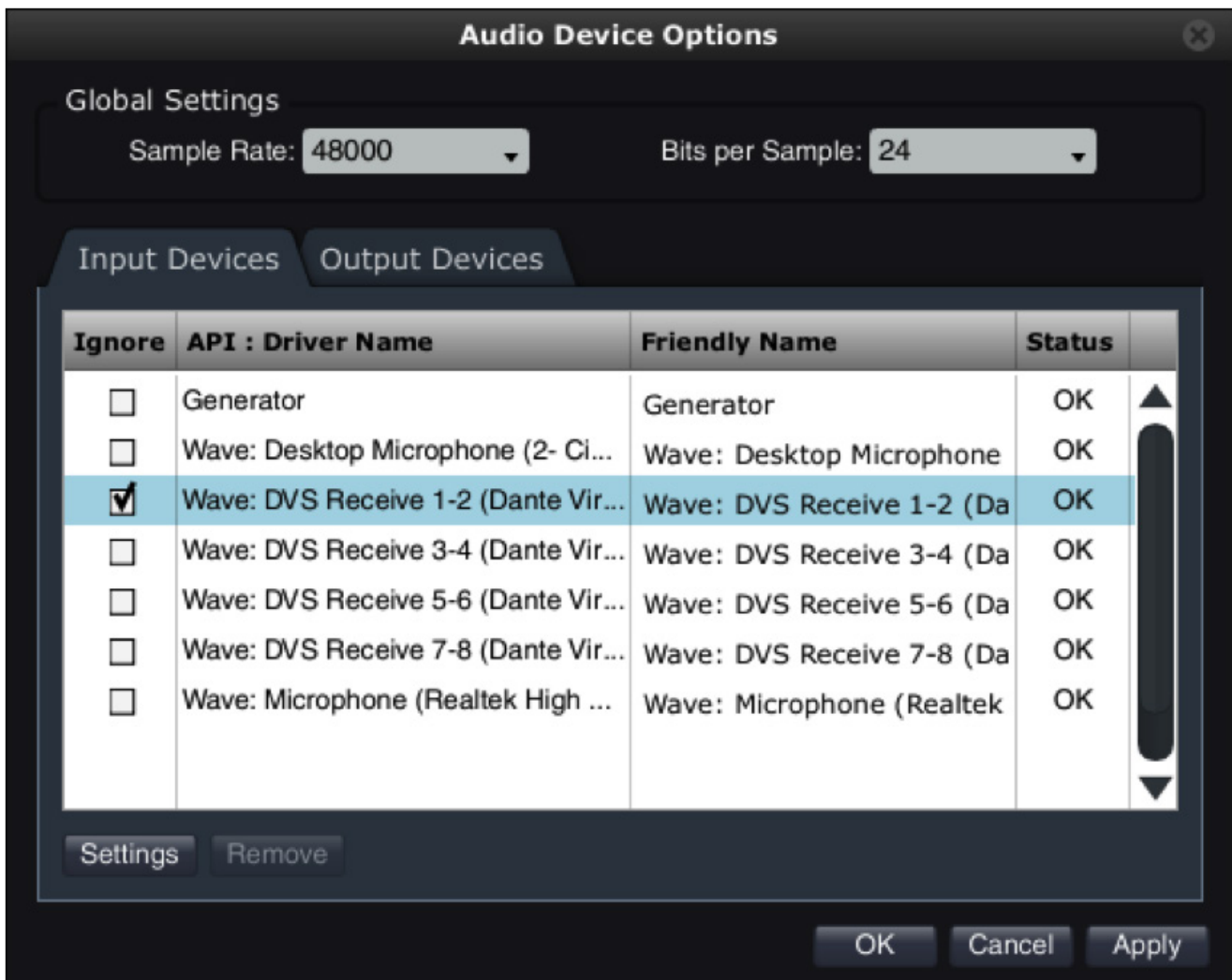
## Transmitting and Receiving Audio via DVS Simultaneously:

As an audio integrator commissioning a SymNet system, it may be desirable to simultaneously transmit and receive audio via the DVS. An example of this would be during room or microphone tuning using Smaart v7 by Rational Acoustics LLC. For more info on Smaart v7 follow this link: <http://www.northernsound.net/rational-acoustics/index.html>

The first steps for transmitting and receiving audio simultaneously via the DVS would be exactly the same as the two methods outlined in this document. Once a transmit and receive Dante flow has been created and pushed to SymNet, then Dante Controller can be used route the audio to and from the DVS.

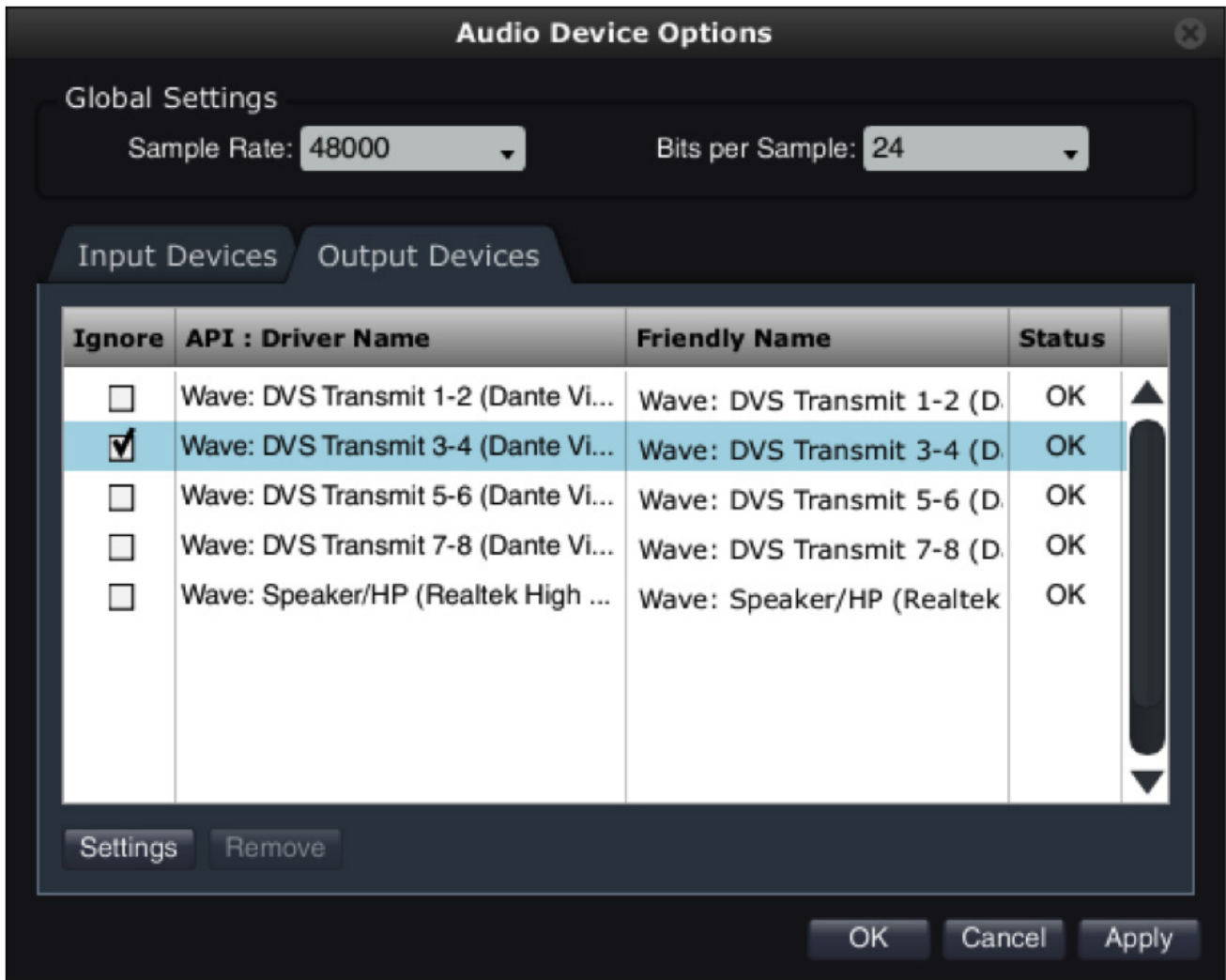
Then in Smaart v7 simply select the correct DVS channels for transmitting the test tones to SymNet and for receiving the returned SymNet audio to analyze with Smaart v7. Do this by opening the Audio Device Options under the Options dropdown menu in Smaart v7. Although not necessary, to avoid confusion it is recommended to use separate channels for transmitting and receiving.

Transmitting Smaart test tones to SymNet with DVS channels 1-2:



# Transmitting and Receiving Audio via DVS Simultaneously

Receiving SymNet audio to analyze with Smaart via DVS channels 3-4:



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