Symetrix White Paper:
Connect the Shure Dante Series Wireless Receiver to Symetrix Dante Hardware

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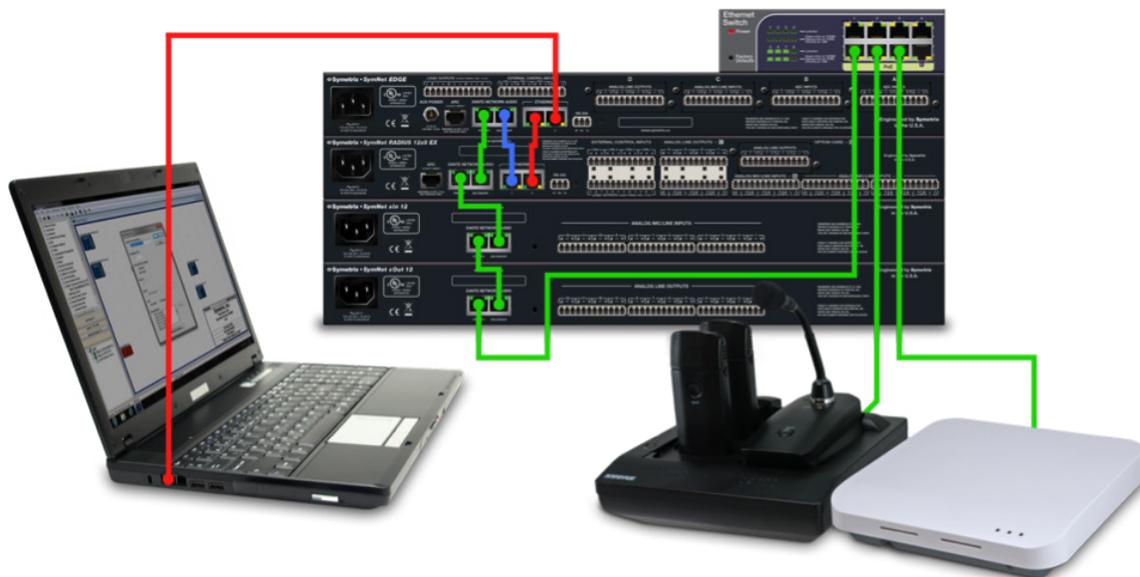
Overview

Dante is the most interoperable digital audio bus on the planet. Setting up Dante connections between hardware from different manufacturers is straight-forward and can be performed with very little time and effort.

The Shure ULXD series of wireless receivers has several options with Dante capabilities. Integrating them with a Symetrix system saves costly analog wiring by allowing all wireless receivers to send Dante audio to the Symetrix system over off-the-shelf, gigabit, Ethernet networks or switches. For more info on Shure Dante receivers:

http://www.shure.com/americas/products/conferencing-discussion/microflex-wireless-systems

http://www.shure.com/americas/products/wireless-systems/ulxd-systems/ulxd4d-dual-channel-digital-wireless-receiver
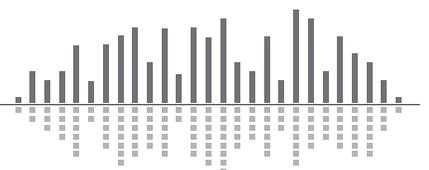
Microflex:

Necessary items:

- Symetrix Composer 3.0 or later installed on the host computer (Composer 5.3 or later required for MXWAPT2)
- Symetrix Edge, Radius 12x8, Radius 12x8 EX, Radius AEC, any DSP from the Prism line, or xOut 12**
- MXWAPT2, MXWAPT4, or MXAPT8 Microflex Wireless Dante Microphone System

**note: The xOut 12 requires having a Symetrix DSP present for programming. Once programmed, the xOut 12 can function as a standalone Dante receiver for analog break-out applications.*

Recommended Items:

- Dante Controller Software installed on the host computer

  http://www.audinate.com/

Subscribe Symetrix DSP Hardware to Dante Transmitted from the Shure MXWAPT:

These steps outline the procedure used in a Symetrix Edge or Radius for creating permanent Dante subscriptions to a Shure MXWAPT2, MXWAPT4 or MXAPT8 Microflex Wireless Dante-enabled microphone systems. These steps can be easily modified for use with any of the Shure Dante-capable products.

Step 1:

The Shure MXWAPT need to first be configured with the Shure Web Device Discovery software and then can be programmed and controlled with Composer 5.3. Click here to download Shure Web Device Discovery software:

http://www.shure.com/americas/products/software/utilities/shure-web-device-discovery-application

Step 2:

Put the PC, MXWAPT, and Charging Station (microphones must be docked in the Charging Station to receive a channel assignment from Shure) on a common isolated switch (no LAN or Internet connection).

Note: that the MXWAPT requires Class 0 PoE. Shure recommends the Cisco-¬SG200-¬08P switch. A suitable PoE injector should also suffice.

Step 3:

Once all devices are connected and powered up, they should default to link-¬local addressing within a reasonable amount of time, typically 30 seconds to a minute.
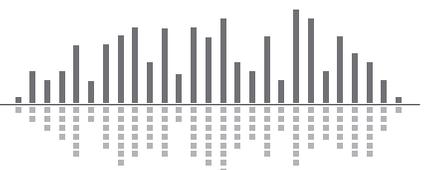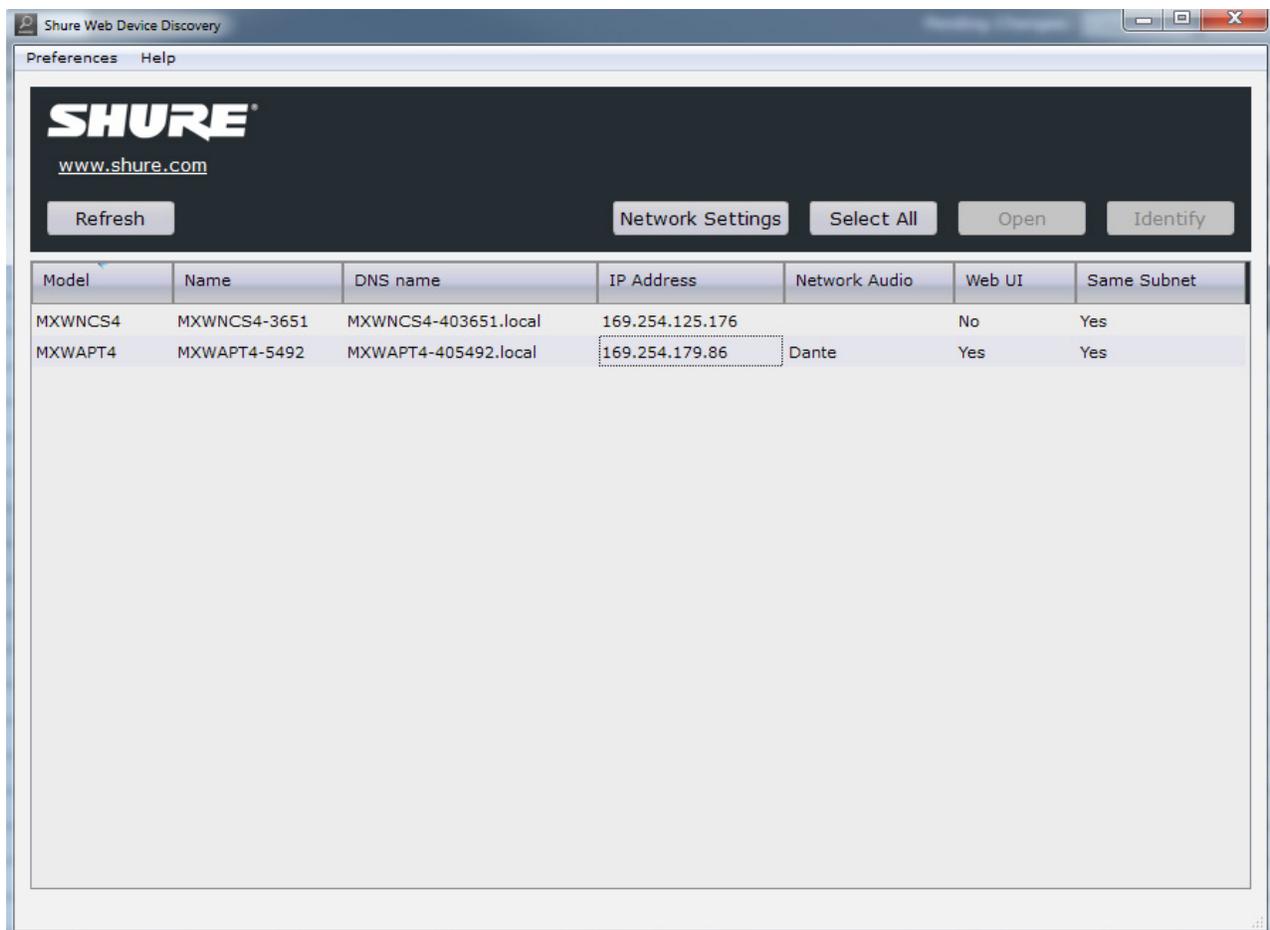
Step 4:

Using the Shure Web Device Discovery software, launch the applicable MXWAPT's web administration interface. Within this interface, the following actions must be performed before use with Composer:

    i. Set the MXWAPT's Control Interface to static IP.

        a. Click on the Utility tab.

        b. For Group 1, click the "Edit" button in the Device Properties column.

        c. Underneath the Control column, select "Manual (Static) IP Mode".

        d. Fill in the IP Address, Subnet Mask and Gateway fields with the appropriate IP information and click "Add Updates".

        e. Repeat for any additional Groups.

ii. Link a Charging Station to an MXWAPT.

a. Click on the Configuration tab.

b. For Group 1, select an Access Point Transceiver from the drop down menu circled in yellow. If you are unsure which APT you are dealing with, use the ID button to locate it.

c. For Group 1, select a Charging Station from the drop down menu circled in red. If you are unsure which Charging Station you are dealing with, use the ID button to locate it.

d. For Group 1, click the Link button which the red arrow is pointing to.
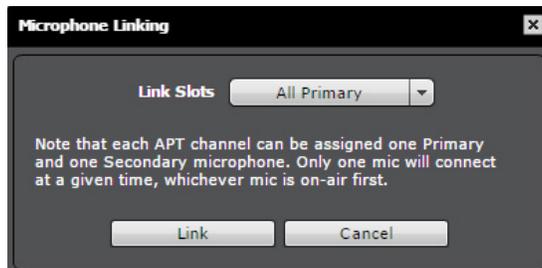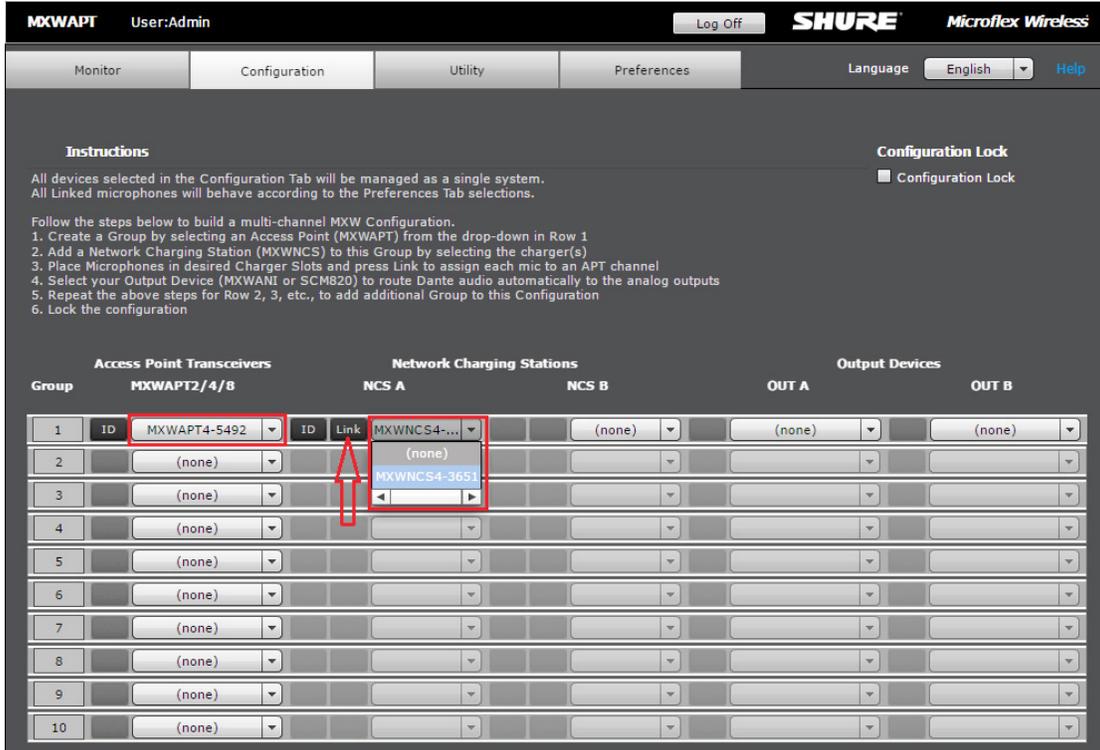
You should be presented with a similar message shown below:


e. Repeat for any additional Groups.
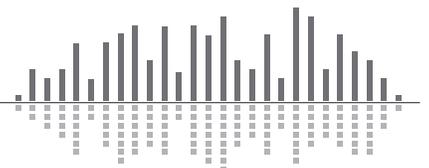
iii. Configure the transmitter buttons and LEDs for remote use.
  a. Click on the Preferences tab.
  b. For each transmitter type intended for use with Composer, set its Active/Mute LED Behavior to "External LED Control"as circled in yellow.
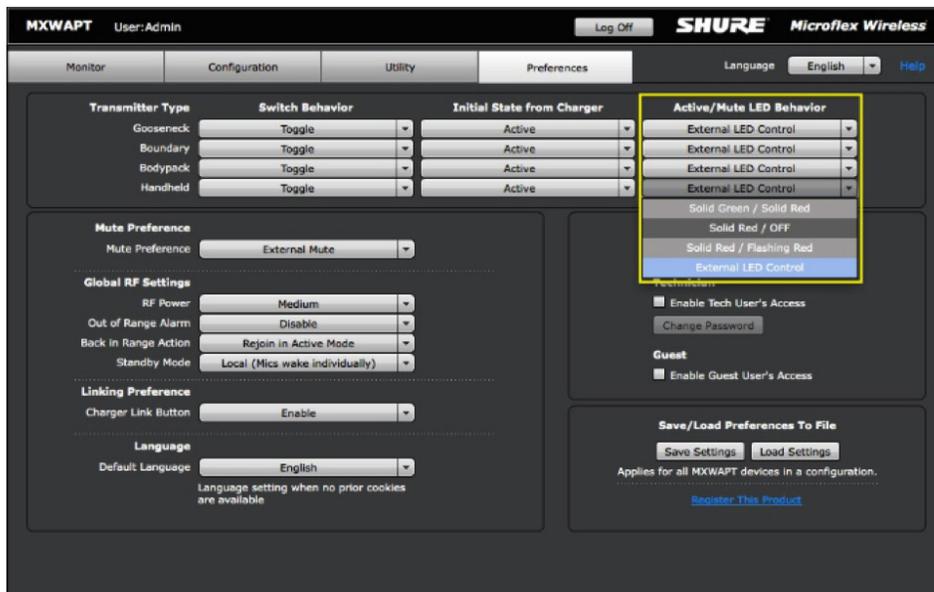
  c. Now set the Mute Preference to "External Mute" as circled in red. This is especially important for mics used in AEC systems as you will get the best performance muting in DSP post-AEC as opposed to muting at the mic.
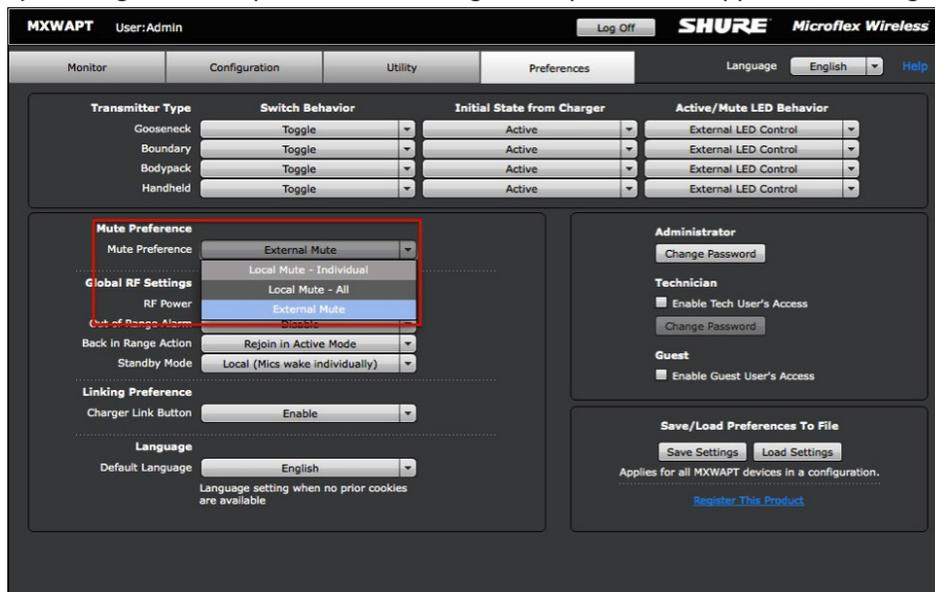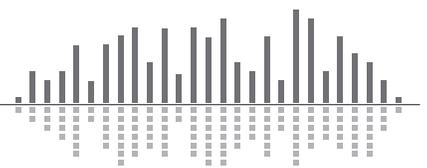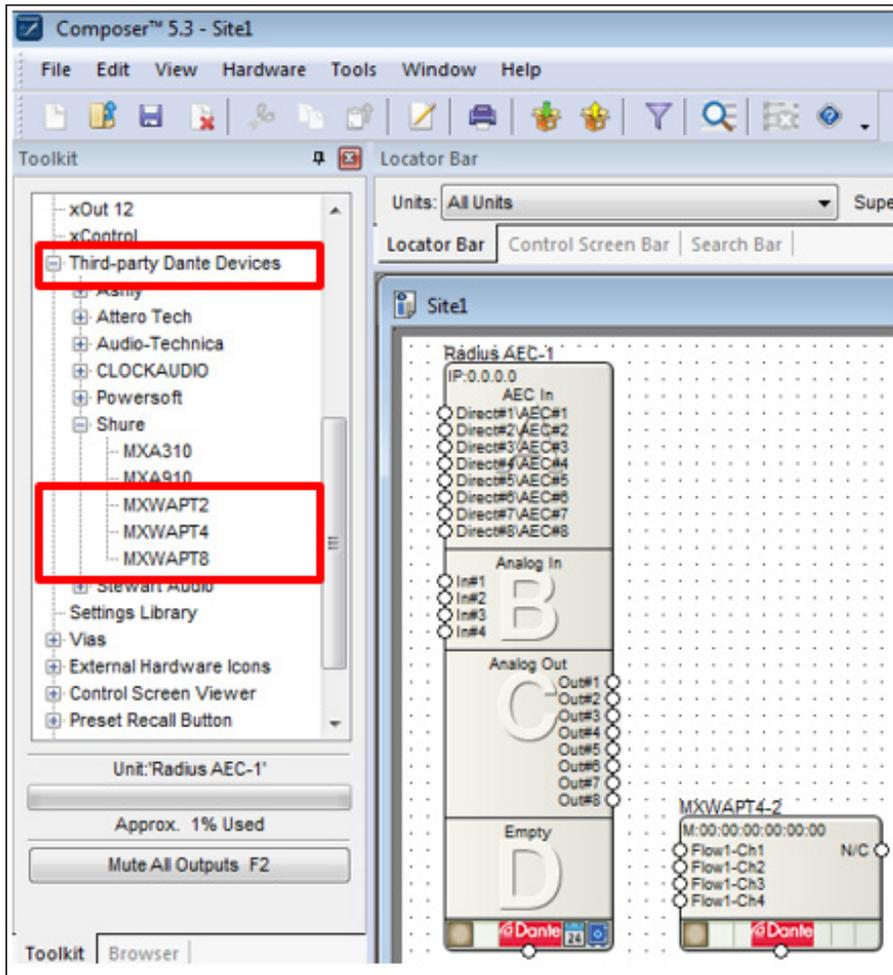

After you have completed these steps, place the Shure APT and Charging Station on the AV or Corporate LAN, or add the Symetrix units to the Shure LAN to continue system configuration.
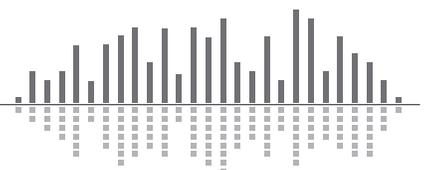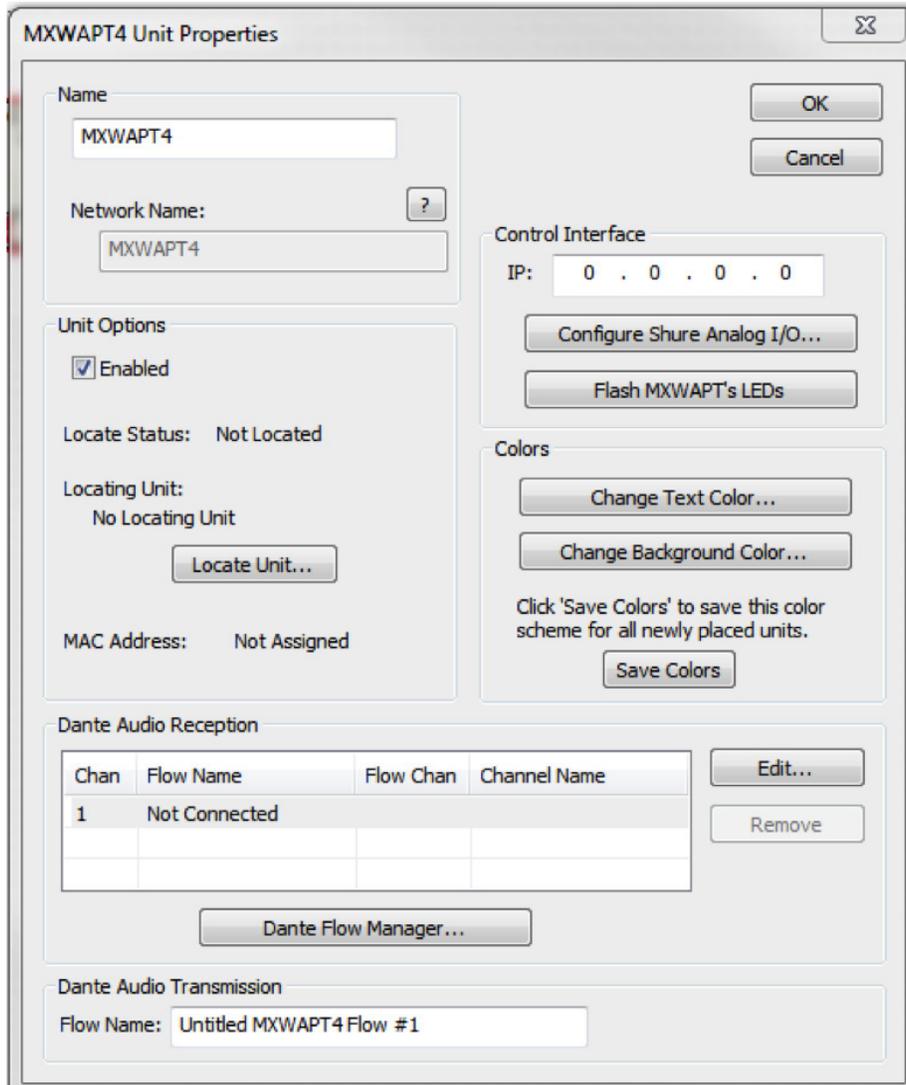
Step 5:

A Shure MXWAPT2, MXWAPT4, and/or MXWAPT8 can be added to the design view.

Step 6:

Right-click on the unit icon in the Site View and choose "Unit Properties..."


Step 7:

Check Enabled box

Note: When the enabled box is checked, the unit must be physically present on the network for a Push of the site file to the hardware. When the enabled box is unchecked, a X will appear on the unit icon in the Site View, and the unit will not be required to be physically present for the Push of the site file.

Step 8:

Click Locate Unit button and locate the MXWAPT.

Step 9:

The control IP address of the MXWAPT should auto-populate in the Control Interface field.
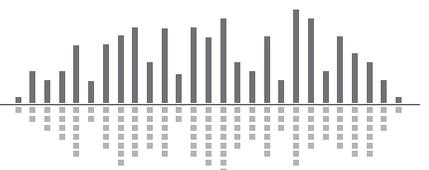
Step 10:

Click Flash MXWAPT's LEDs to send a flash command to the unit to confirm communication. All LEDs on the front of the unit will flash.
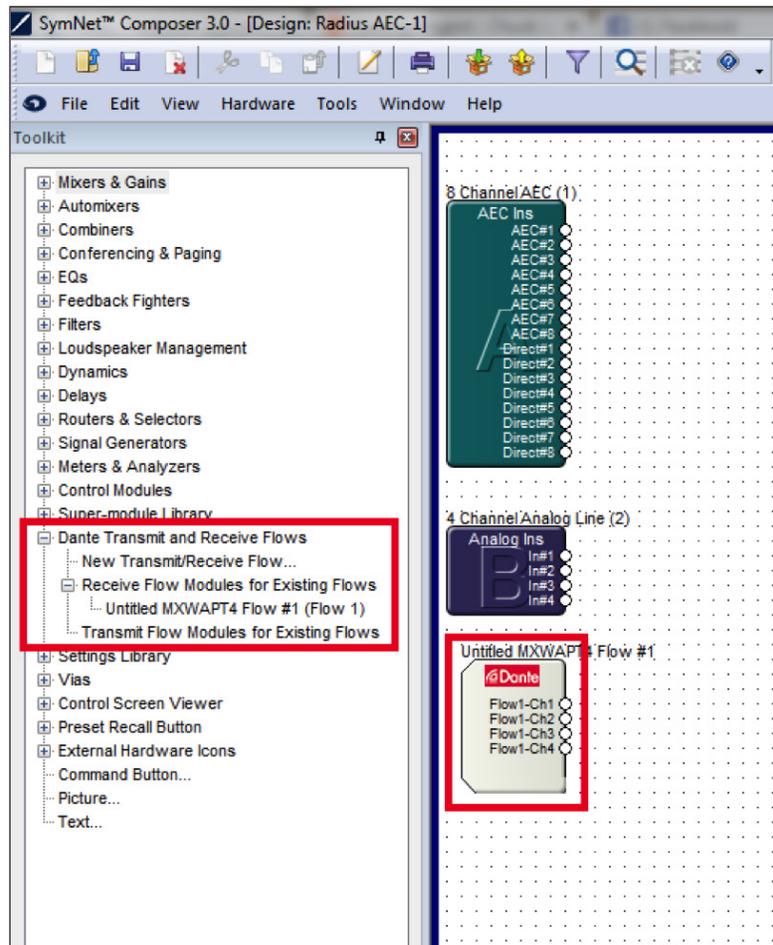
Step 11:

Assign a unique unit name for each unit in the design based on the unit's purpose or location. Composer will always append a unique numeric identifier to this name.

Step 12:

Click OK to close Unit Properties, and then double click on the DSP to enter the Design View.

Step 13:

Drag in a Dante Receive Flow from Tool Kit>Dante Transmit and Receive Flows>Receive Flow Modules for Existing Flows
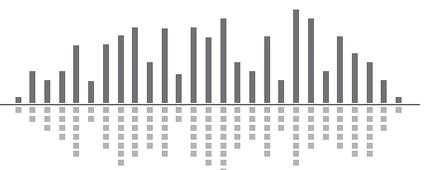

Step 14:
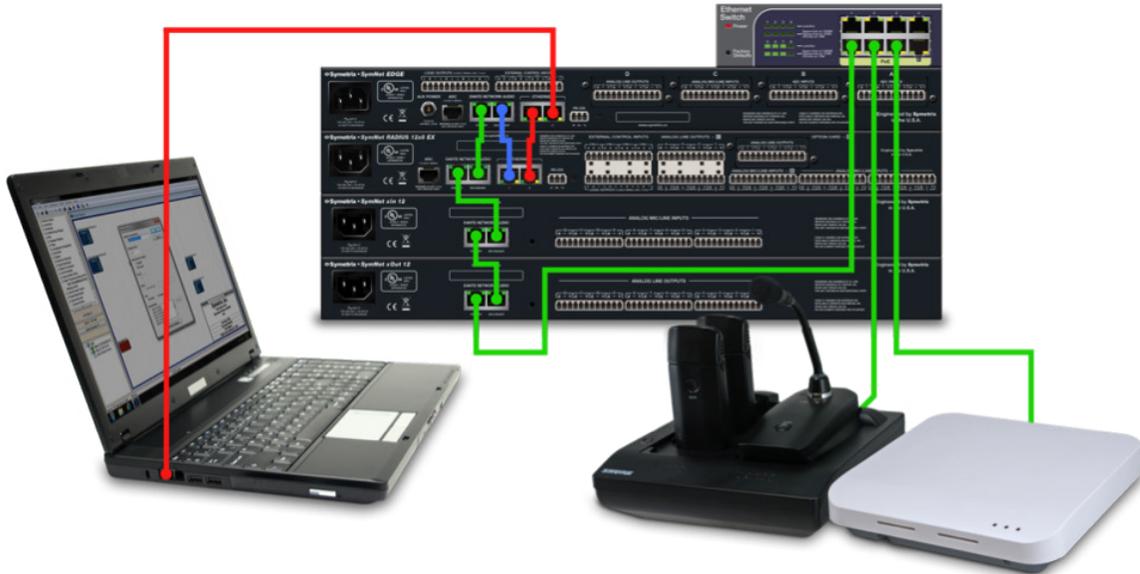
Wire the receive flow with the desired signal path.

Step 15:

Push site file to go on-line.
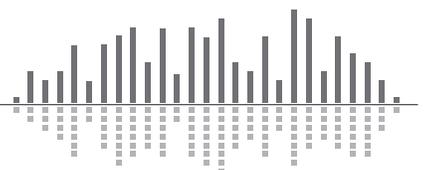
ULXD

Necessary items:

- Symetrix Composer 2.0 or later installed on the host computer
- Symetrix Edge, Radius 12x8, Radius 12x8 EX, Radius AEC, any DSP from the Prism line, or xOut 12**
- Shure ULXD Dante enabled wireless receiver

**note: The xOut 12 requires having a Symetrix DSP present for programming. Once programmed, the xOut 12 can function as a standalone Dante receiver for analog break-out applications.*

Recommended Items:

- Dante Controller Software installed on the host computer

  http://www.audinate.com/

Subscribe Symetrix DSP Hardware to Dante Transmitted from the Shure ULXD4D:

These steps outline the procedure used in a Symetrix Edge, Radius, or Prism for creating permanent Dante subscriptions to a Shure ULXD4D Dante-enabled wireless receiver. These steps can be easily modified for use with any of the Shure Dante-capable products.

Step 1:

Open Composer, select locate hardware (Ctrl+Shift+L), and then enter the design view by double clicking on the gray Edge, Radius 12x8, Radius 12x8 EX, Radius AEC, or Prism icon.

Step 2:

In the Toolkit expand "Dante Transmit and Receive Flows" and drag a New Transmit/Receive Flow into the design.
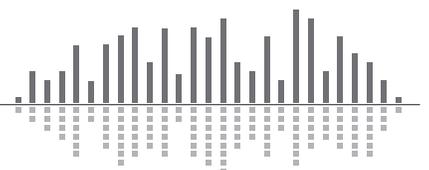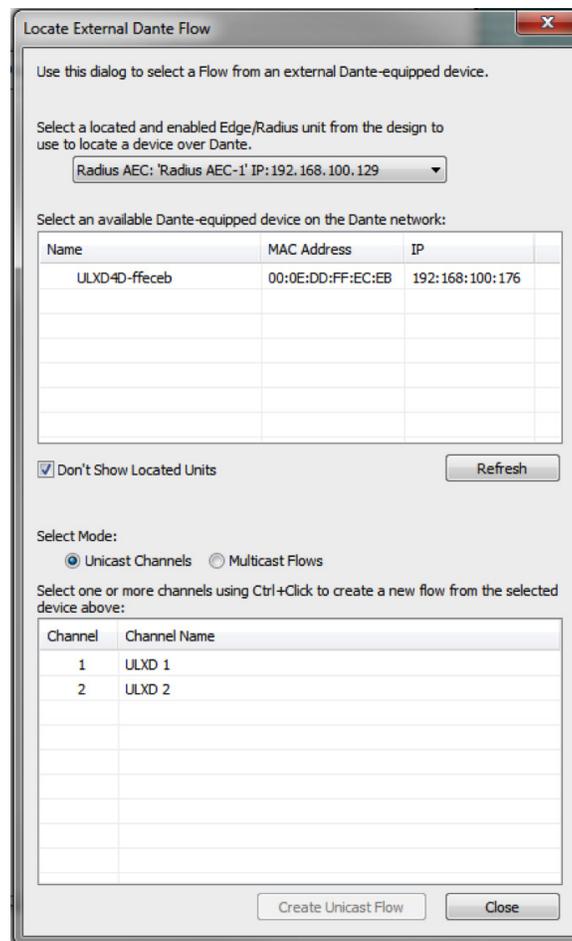
Step 3:

Right-click on the Dante Flow and select "Dante Receive Flow Module Properties".

Step 4:

Make sure "Receive" is selected under "Place Dante Flow Module", then click "Browse" button.

Step 5:

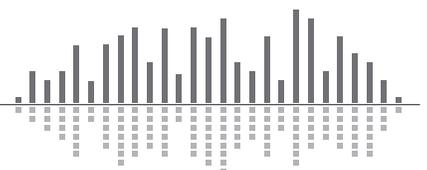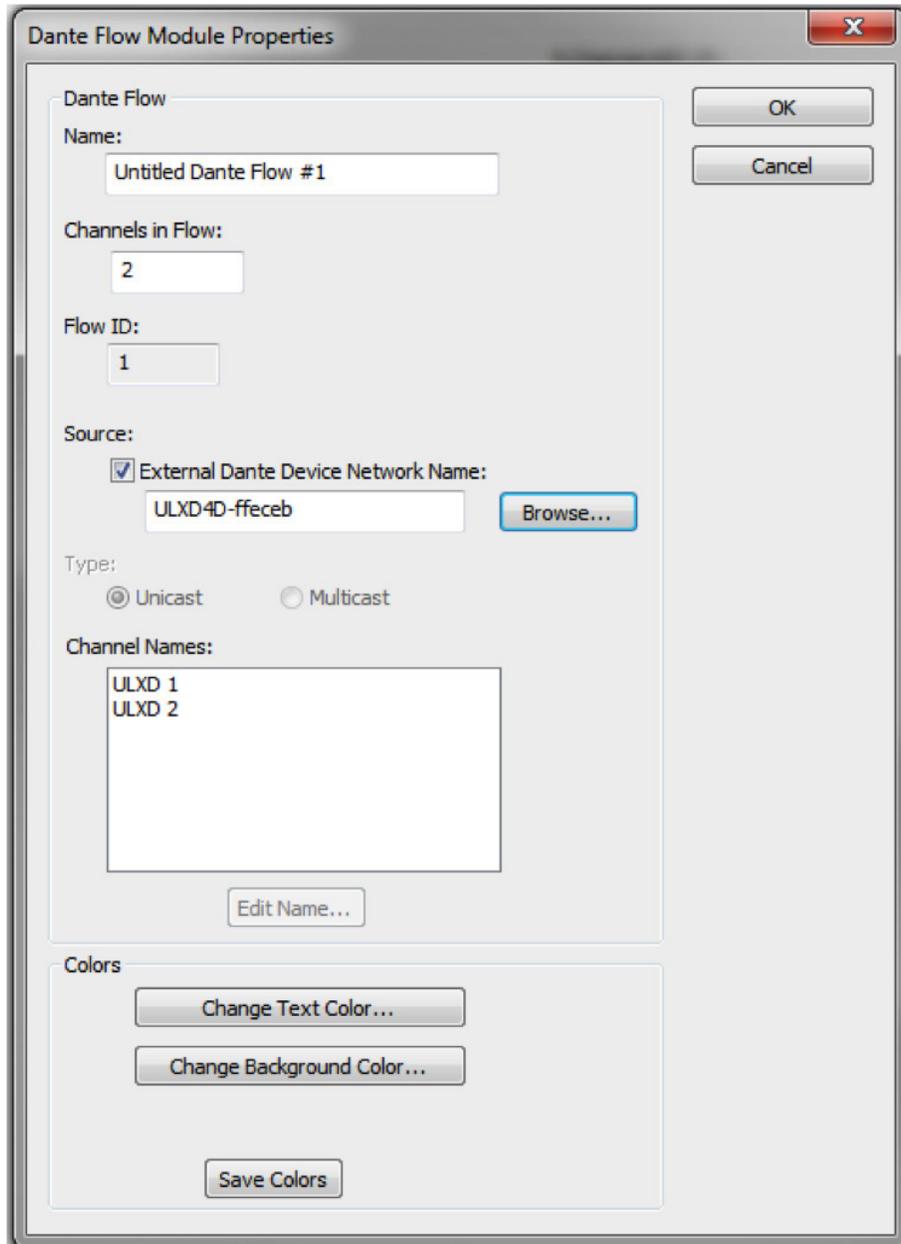Locate the ULXD on the Dante Network.

Step 6:

Select channels to be created and the click "Create Unicast Flow".

Step 7:

Click OK in the Dante Flow Module Properties window, the receive flow will created.

Step 8:

Wire the Dante modules outputs into any module input or analog output. In this example the Dante module is wired into the AEC Aux signals #3 and #4 of the 8 Channel AEC Input module of the Radius AEC. The Shure ULXD4D audio passes through the AEC algorithm and exists echo free from AEC Ins #3 and #4 (highlighted in yellow).
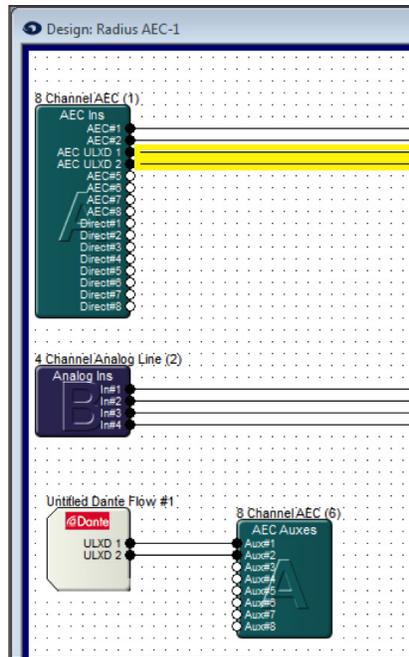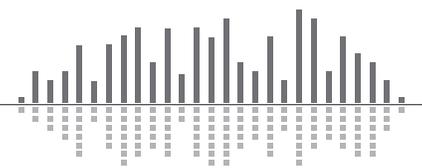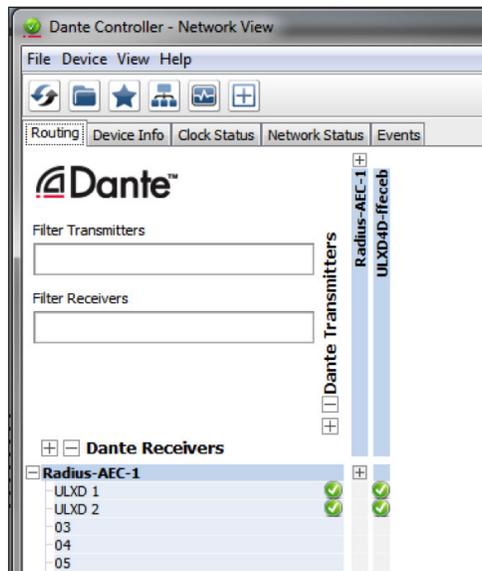

Step 9:

Push the Composer site file to the Symetrix hardware.

Step 10:

In Dante Controller on the Routing Tab, expand Dante Receives and Dante Transmitters, the Symetrix DSP should now show a Dante connection to the Shure ULXD4D.

Subscribe Symetrix xOut 12 Hardware to Dante Transmitter from the Shure Dante receivers:

The Symetrix xOut 12 can be used as a stand-alone Dante receiver; however it requires first being programmed by Composer through a Symetrix Edge, Radius or Prism. Once programmed, the xOut 12 will continue to receive Dante audio from a 3rd party source even after the Symetrix DSP is removed from the system.

Using an xOut 12 as a standalone Dante receiver is also known as creating a Dante digital snake.

These steps outline the procedure used in a Symetrix xOut 12 for creating a permanent Dante subscription to any of Shure's Dante-capable products.

Step 1:

Open Composer, select Edge, Radius 12x8, Radius 12x8 EX, Radius AEC or Prism, and add to site view.

Step 2:

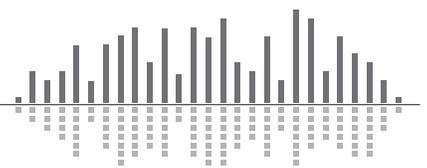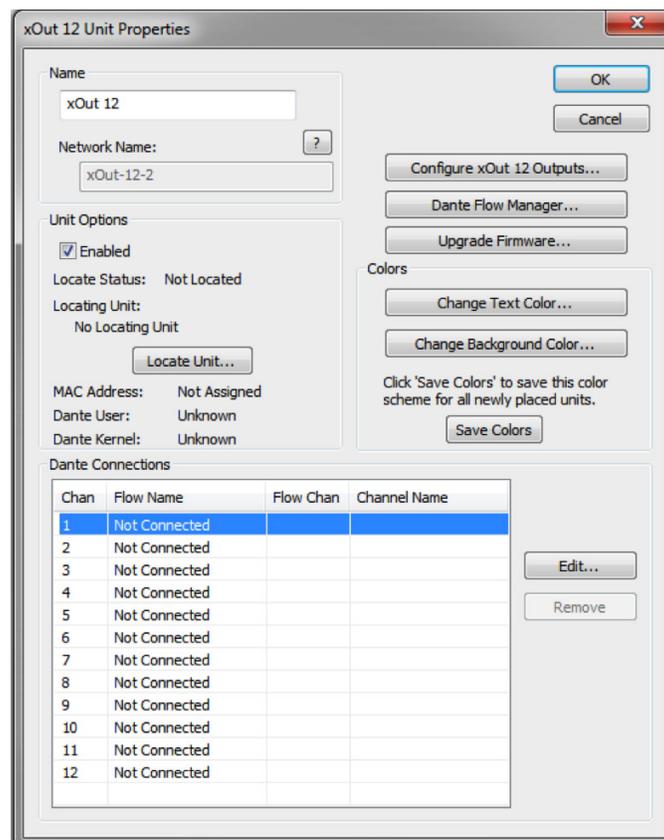Add an xOut 12 to the site view.

Step 3:

Create a Dante receive flow described above for MXWAPT or ULXD (this example uses ULXD).

Step 4:

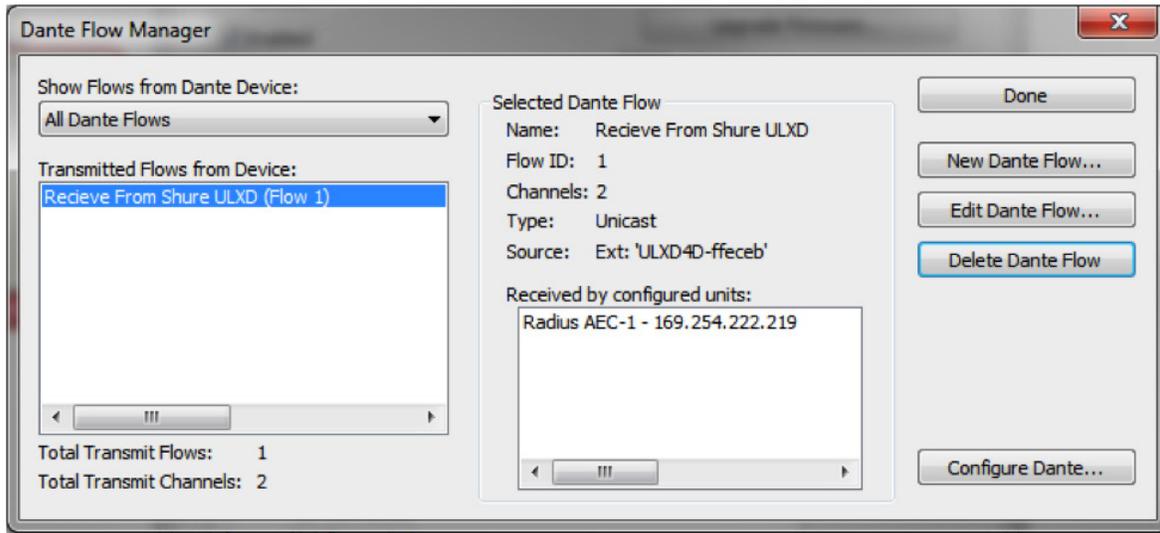Double click the xOut 12 to open Unit Properties.

Step 5:

Double click channel 1.

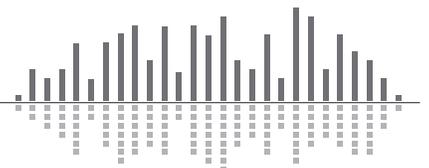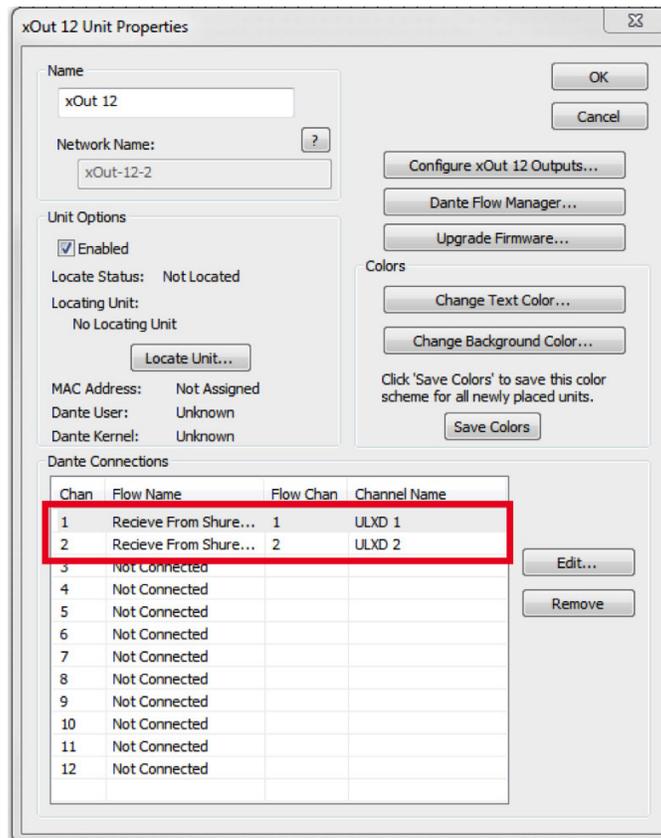**Step 6:**

Select the receive flow from the Shure Dante receiver.

Step 7:

Dante flow connections will be created, click OK.
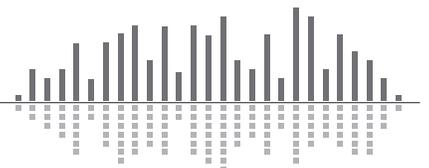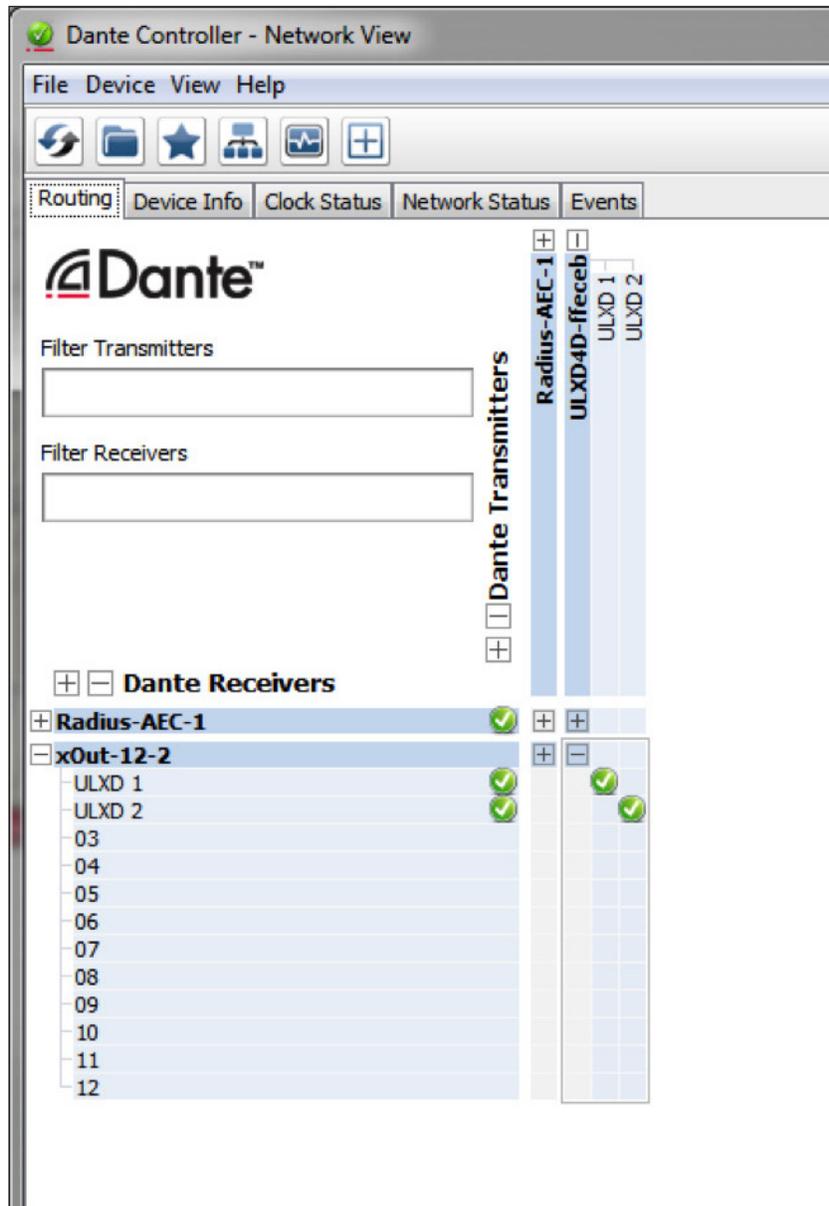
Step 8:

Open Composer, select locate hardware (Ctrl+Shift+L), and locate both the DSP and xOut 12.

Step 9:

Push the Composer site file to the Symetrix hardware.

Step 10:

In Dante Controller on the Routing Tab, expand Dante Receives and Dante Transmitters, the Symetrix xOut 12 should now show a Dante connection to the Shure ULXD4D.
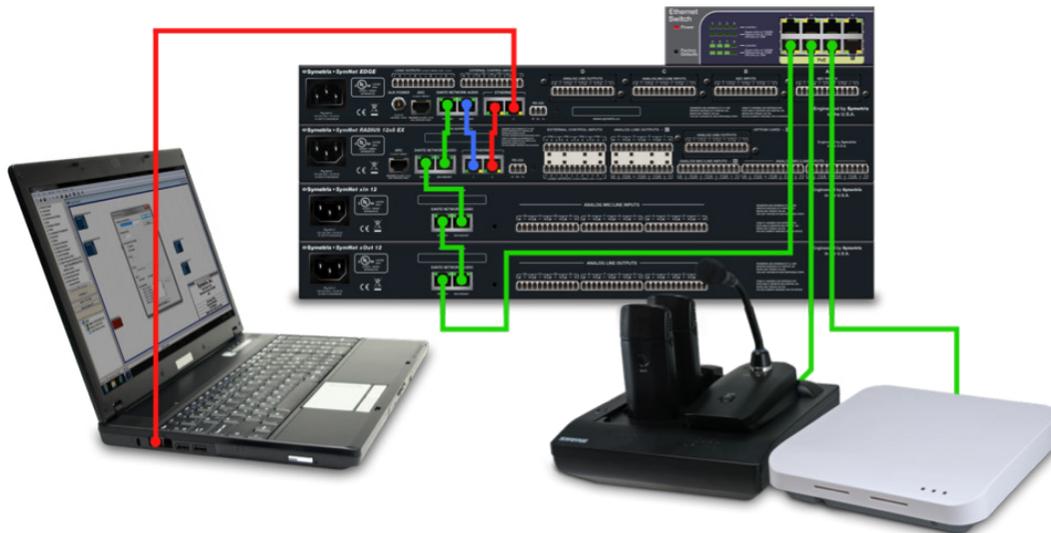
Dante Network Considerations:

During commissioning of a system with the Shure ULXD Dante enabled wireless receiver and a Symetrix device, most audio integrators will want to have both the Dante Controller Software and Composer running at the same time from the same laptop. In order for the laptop to run the Dante Controller Software and simultaneously be online with Symetrix hardware via Composer, one of the following methods must be used.
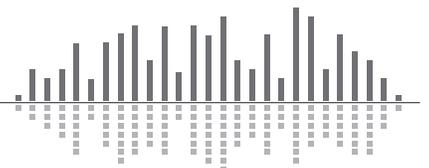
1. LAN port used for both Dante Controller and Composer:

   a. When the LAN port is used for both Dante Controller and 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 any of following three ways:

      i. One Network Used for both Dante and Control: One Dante port and one Ethernet control port from each Symetrix DSP unit (note: xOut 12 has only Dante ports) is connected to a common network or switch. Connect the laptop running Dante Controller and 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 cable is necessary to bridge the two networks. Once the two networks are bridged, connect the laptop running Dante Controller and Composer into a spare port on either network switch.

      iii. Symetrix 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, Dante Controller and Composer can both function and communicate with hardware simultaneously from a single laptop's LAN port.

One additional consideration is that if the Ethernet control network is DHCP and it is merged with a daisy chained, direct connected Dante network, all Dante ports will receive a DHCP IP address. In most cases this is nothing to worry about, as long as there are spare DHCP IP addresses within that particular subnet. Once the control and Dante network merge has been removed the Dante ports will revert back to their direct connect IP addresses.

Using Dante Controller, it is also possible to assign static IP addresses to the Dante ports. Be aware that 172.x.x.x addresses are reserved for redundant operation for the secondary port and should not be assigned statically to the primary Dante ports. Doing so may cause the Dante ports to become unresponsive. Instead use class A (10.x.x.x), class B (169.254.x.x), or class C (192.168.x.x) IP addresses when assigning static IP addresses to the primary Dante ports.
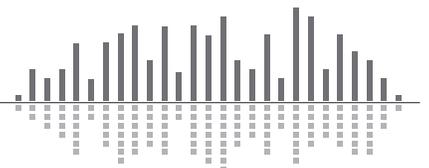
2. Laptop's LAN port used for Dante Controller and the laptop's wireless port used for Composer:
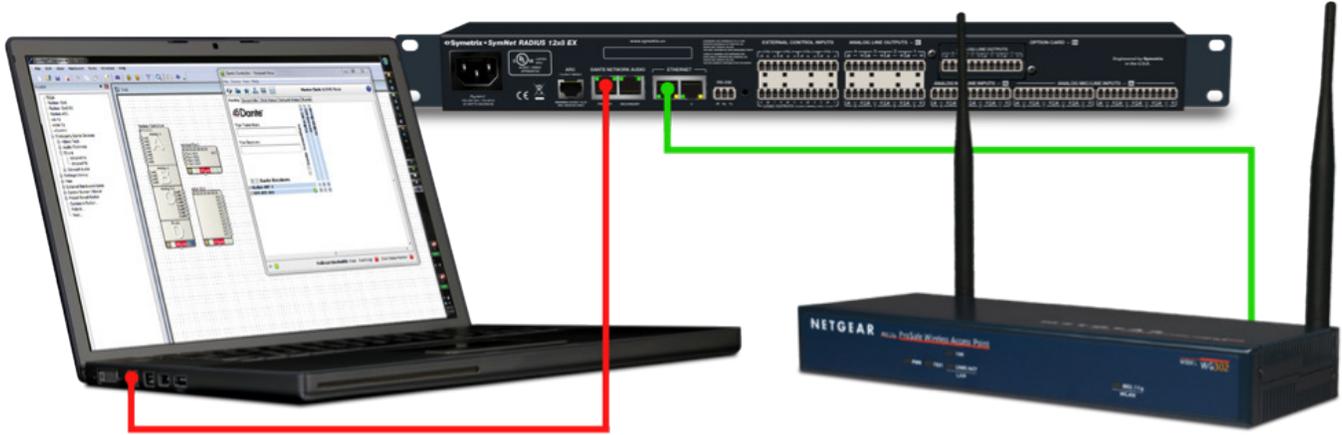
a. LAN Port used by Dante Controller: The laptop's LAN port can be direct connected to an available Symetrix Dante port when the Symetrix unit's Dante mode is set to "Switched". Additionally, the laptop's LAN port can plug directly into a third-party network switch that connects the Dante network ports.

b. Wireless Network Connection used by Composer: A third-party wireless access point can be connected to the Symetrix unit's Ethernet control ports, allowing the laptop's wireless NIC to be used for Composer communication with the Symetrix system.

(*Note: Dante is not compatible with wireless networks so don't try to connect to your Dante network over wireless*)

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

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