AtlasIED Application Note

Routing IED1544ZOP Zone Output Processor Zones to Dante Streams

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Background

By default, the 1544ZOP Zone Output Processor has its internal routing configured so that the four Dante receivers drive the zone DSP processing (EQ, Ambient Analysis, Level Control) and are routed to the four analog outputs. Additionally, the four analog inputs go through some input DSP processing (Compressor and EQ) and are routed to the four Dante Transmitters. That is, the Dante transmitters are configured to use the analog inputs for purposes such as background music or priority audio input (e.g., from fire/evacuation system).

But the routing capabilities of the 1544ZOP are not limited to this. One alternate configuration that may be desirable is to take the zone outputs that go to the analog output and *also* route them back out to the network as Dante transmissions. For example, if the outputs are to drive some self-powered speakers, such as line arrays that have Dante input capabilities. This re-routing can be used to provide the audio to them. Currently, this type of configuration is outside what is provided in GLOBALCOM.IP's System Management Center (SMC). This application note explains how to configure this re-routing using other tools.

Overview of the Setup

The 1544ZOP setup required for this involves the following steps:

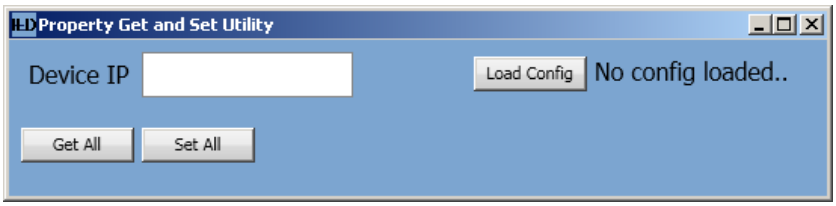
1. Configure the 1544ZOP in SMC as you normally would to set up the zones, ambient analysis, equalization, level, etc.
2. Use SNMP to route zone audio to the Dante Transmitters
3. Determine which Dante Ultimo devices are assigned to which pair or channels. There are two Ultimo chips in the 1544ZOP, one for channels 1 & 2 and the other for 3 & 4. And the Ultimo chips on all the 1544ZOP's in the system have names which are similar.
4. (opt.) Setup up multicast transmission streams on the Ultimo chips
5. Route the Ultimo streams to desired endpoints on the network.

Step 1 is covered by the GLOBALCOM.IP SMC User Manual and online help. This application note starts with Step 2.

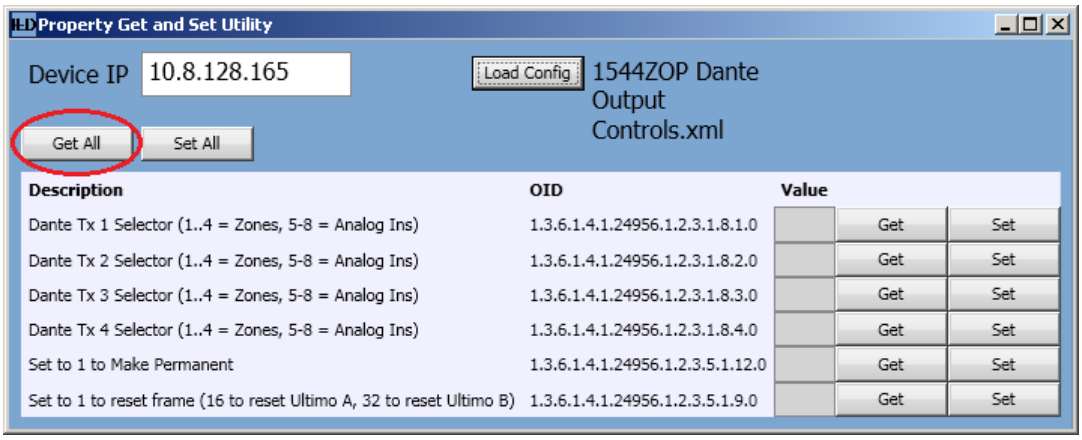
Step 2 – Route Zone Audio to Dante Transmitters

You can instruct the 1544ZOP to route processed zone outputs to the Dante transmitters by setting certain SNMP properties in the device. Each Dante transmitter channel has a selector that can select any of the four analog inputs, any of the four zone outputs, the monitor audio or a 1 kHz test tone generator output. The default configuration from the factory is to have Dante transmitter 1 selector set for analog input 1, transmitter 2 for input 2, etc.

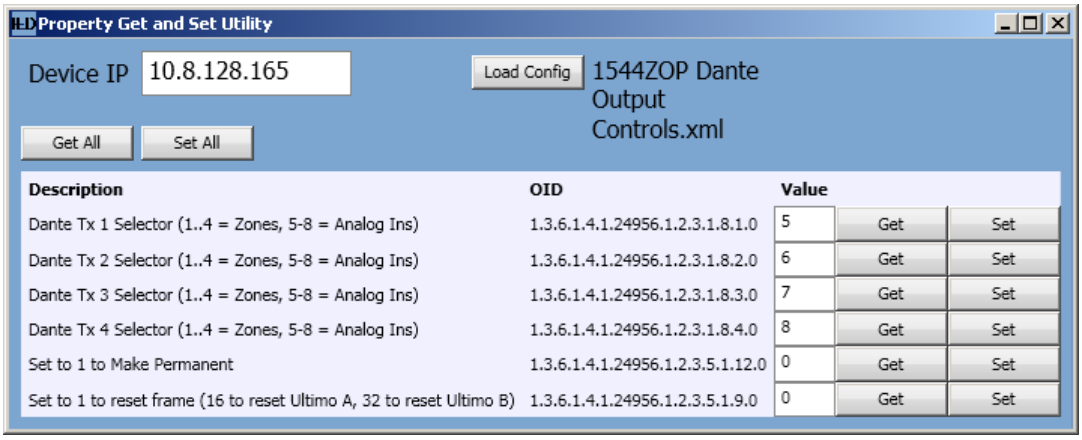
The easiest tool for doing this currently is the SNMPGetSet utility that AtlasIED provides (on GCK controllers it is in C:\IED\Tools\SNMP Power Tools). Running this utility brings up the startup screen as shown below.



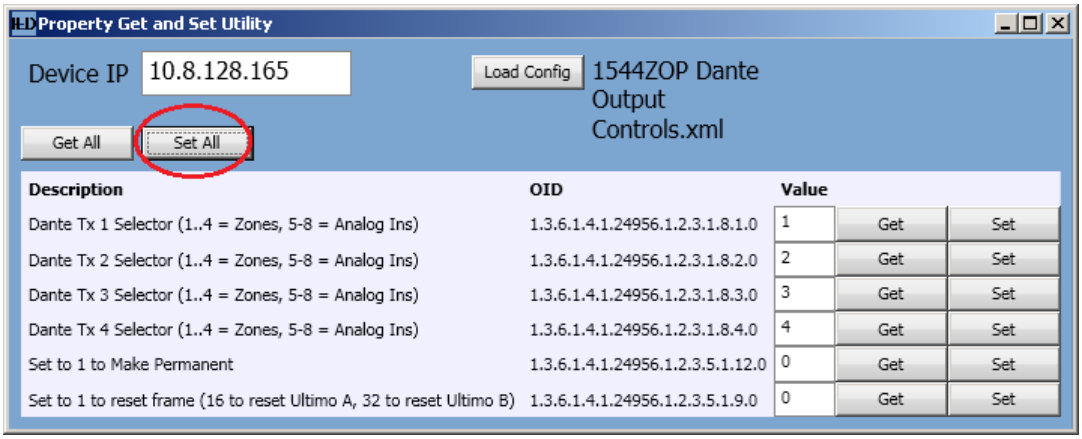
You should fill in the 1544ZOP's IP Address in the edit box on the top left, and then click on the **[Load Config]** button to load an XML file with some SNMP property definitions. This brings up a standard Windows Open Dialog Box. You should find the file: *1544ZOP Dante Output Controls.xml* provided by AtlasIED. If you do not have the file, the contents of this file are listed below. The text shown can be copied to a text editor and saved as this XML file to (re)create it. Once the address is filled in and configuration file loaded, you should see a window that looks something like shown below.



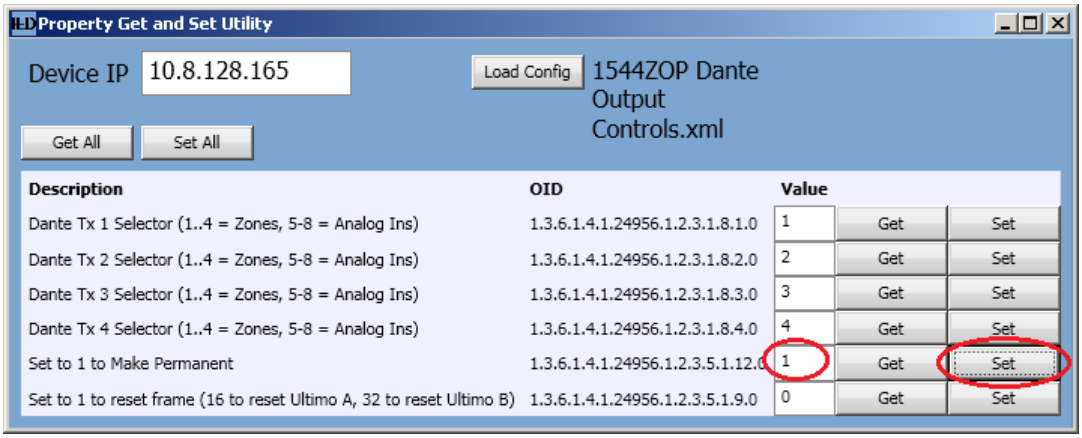
The properties are now listed in the lower portion, with no values have been retrieved yet from the device. You can and should click on the **[Get All]** button to get all the properties at once. Retrieved values will fill in the boxes in the Value column such as shown below.



Assuming you are using all four zones of the 1544ZOP, you should now change the values of the top four properties from 5..8 to 1..4 and then press the **[Set All]** button as shown below.



Now, you should put a 1 in the value for the Make Permanent control property and press the **[Set]** button beside it to tell the 1544ZOP to retain this routing through a reset or power cycle.



At this point, if you have multiple 1544ZOP's to configure, you can simply change the **Device IP** address and go back to the Get All step above. Once you have successfully completed these settings, go on to Step 3.

Contents of the file: *1544ZOP Dante Output Controls.xml* . Copy to a text editor and save.

```
<?xml version="1.0" encoding="utf-8" ?>
<devicePropertiesCollection>
  <Properties>
    <Property>
      <Value>1.3.6.1.4.1.24956.1.2.3.1.8.1.0</Value>
      <Type>Integer</Type>
      <ScalingBits>0</ScalingBits>
      <Description>Dante Tx 1 Selector (1..4 = Zones, 5-8 = Analog Ins)</Description>
    </Property>
    <Property>
      <Value>1.3.6.1.4.1.24956.1.2.3.1.8.2.0</Value>
      <Type>Integer</Type>
      <ScalingBits>0</ScalingBits>
      <Description>Dante Tx 2 Selector (1..4 = Zones, 5-8 = Analog Ins)</Description>
    </Property>
    <Property>
      <Value>1.3.6.1.4.1.24956.1.2.3.1.8.3.0</Value>
      <Type>Integer</Type>
      <ScalingBits>0</ScalingBits>
      <Description>Dante Tx 3 Selector (1..4 = Zones, 5-8 = Analog Ins)</Description>
    </Property>
    <Property>
      <Value>1.3.6.1.4.1.24956.1.2.3.1.8.4.0</Value>
      <Type>Integer</Type>
      <ScalingBits>0</ScalingBits>
      <Description>Dante Tx 4 Selector (1..4 = Zones, 5-8 = Analog Ins)</Description>
    </Property>
    <Property>
      <Value>1.3.6.1.4.1.24956.1.2.3.5.1.12.0</Value>
      <Type>Integer</Type>
      <ScalingBits>0</ScalingBits>
      <Description>Set to 1 to Make Permanent</Description>
    </Property>
    <Property>
      <Value>1.3.6.1.4.1.24956.1.2.3.5.1.9.0</Value>
      <Type>Integer</Type>
      <ScalingBits>0</ScalingBits>
      <Description>Set to 1 to reset frame (16 to reset Ultimo A, 32 to reset Ultimo B)</Description>
    </Property>
  </Properties>
</devicePropertiesCollection>
```

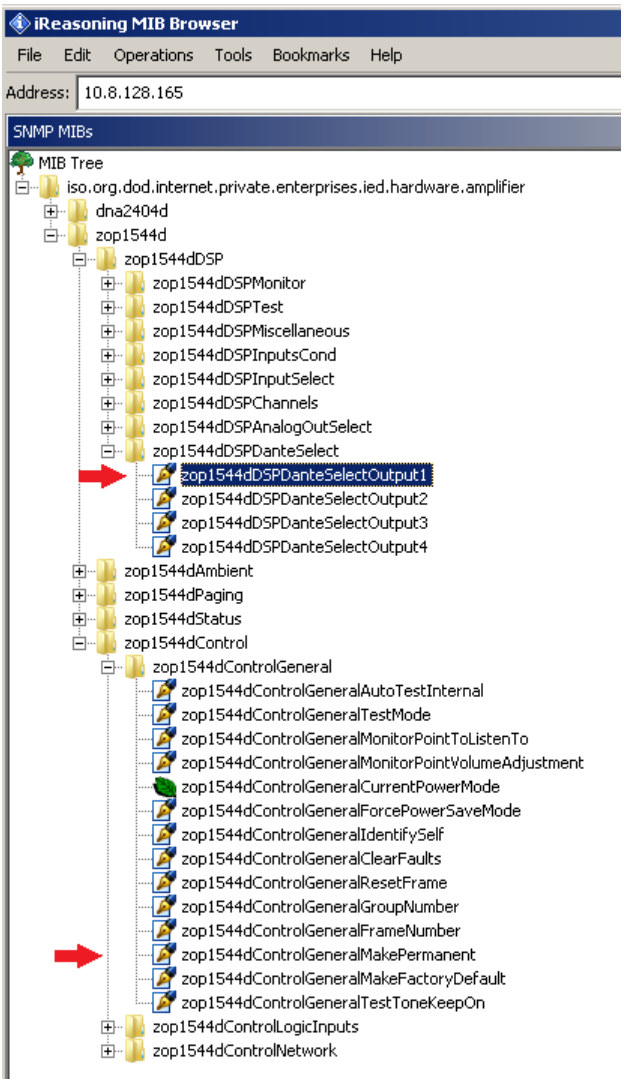
Step 2 Alternate Approach

Alternately, you may use any suitable MIB Browser to access the SNMP properties. You only need to use this approach if you do not have access the SNMPGetSet tool, or you are more familiar/comfortable with a particular MIB Browser tool. If you need a MIB Browser, there are many good options available on the Internet such as the one shown in the figure below, downloadable from:

http://www.ireasoning.com/download.shtml

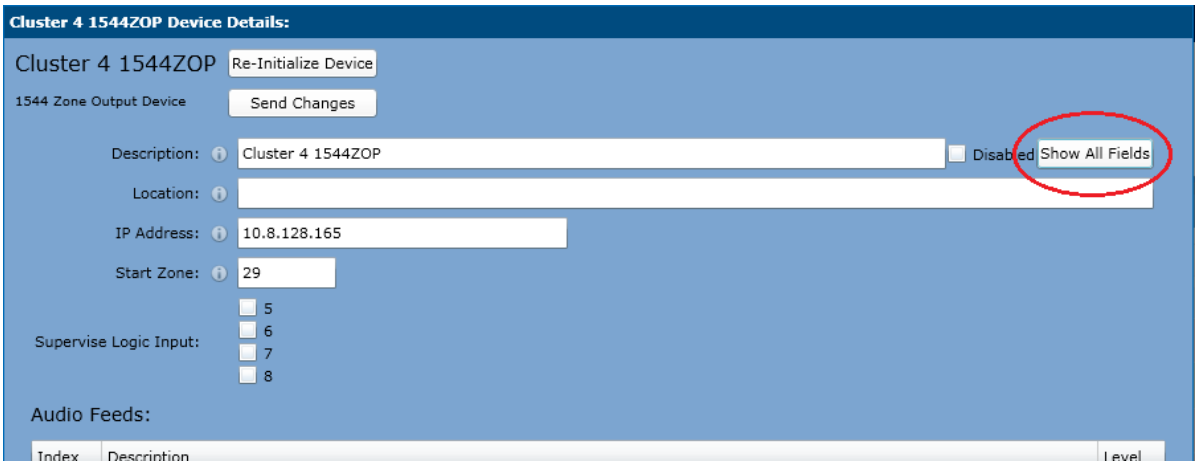
When using this approach, you should know that the Write Community string (similar to a password) is "private" (without the quotes). How to set this string is particular to the MIB browser you are using. You can either use the raw numeric values shown in the SNMPGetSet file contents above or use a MIB file for the device provided by AtlasIED. The relevant properties in the MIB tree that correspond to the properties used in the SNMPGetSet tool approach are indicated by arrows in the tree view shown.

Once you have successfully completed these settings, go on to Step 3.

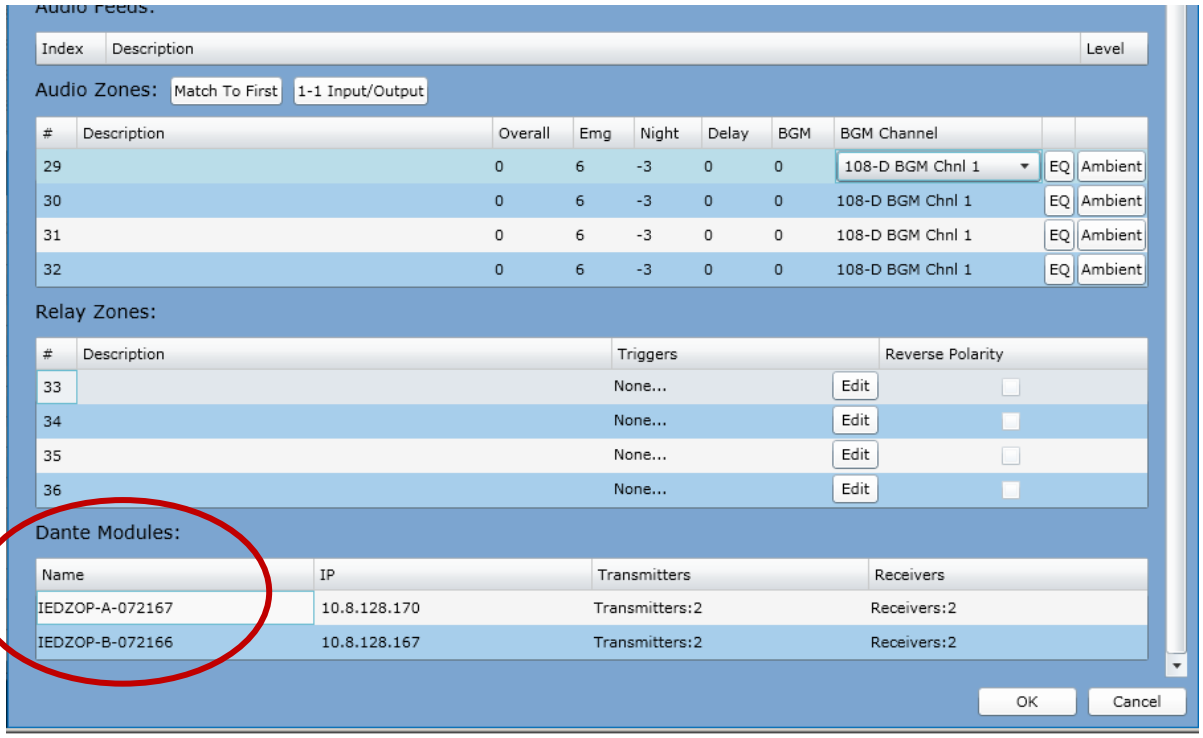


Step 3 – Determine Ultimo Chips

Regardless of the approach used for Step 2, you should next determine which Ultimo chips below to which 1544ZOP device in this step. Each 1544ZOP has two Ultimo chips for handling two channels (transmitters) each. The Ultimos are indicated only by their MAC address, so it is not obvious in the tools from Audinate used in Steps 4 and 5, which Ultimo chip is for which channels. Therefore you should first determine which is which from GLOBALCOM.IP SMC (System Management Center). You should open the 1544ZOP device properties in SMC, and then click on the **[Show All Fields]** button to expand the window.



Now at the bottom of the window, you should see the Dante chips listed. The Ultimo chip with the name starting with "IEDZOP-A-" will always be for channels 1 & 2, and the chip with "-B-" in the name will be for channels 3 & 4. You should note the full names of the chips for later use.

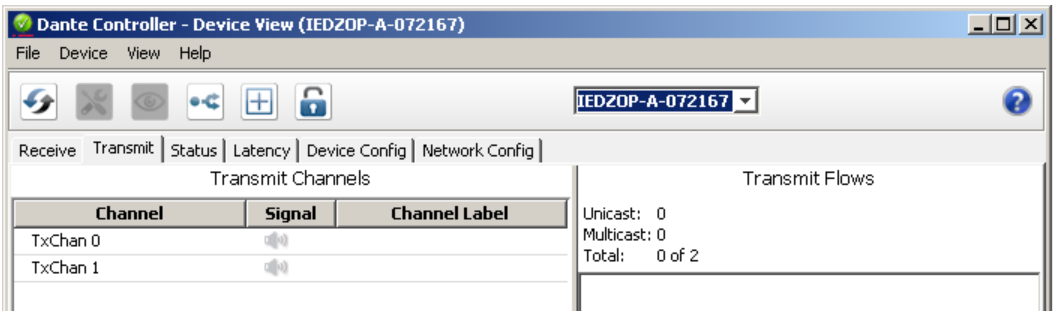


Once you have successfully completed these settings, go on to Step 4.

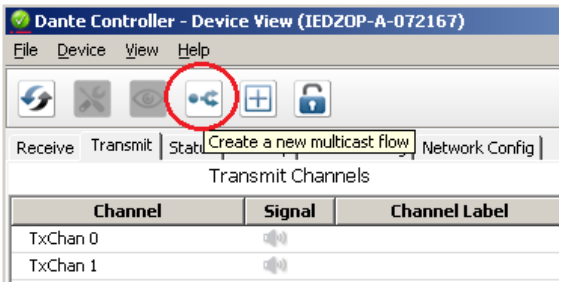
Step 4 – Set up Multicast Streams

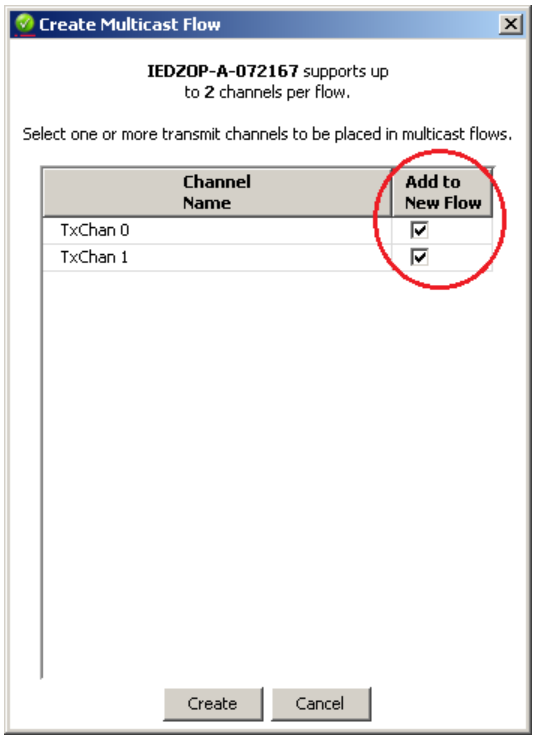
The rest of the configuration is now done using Audinate's Dante Controller software. If you are going to route each 1544ZOP zone to one and only one destination (e.g., powered speaker), then technically this step is not required and you could skip to Step 5. But in the more general case, where you need to send a zone to multiple destinations that cover the area of the zone, then you should first configure the 1544ZOP outputs to have multicast streams.

You should open Dante Controller and locate the first Ultimo chip identified in Step 3, and double-click it to bring up its device window. You should click on the **Transmit** tab to bring up that page, such as shown below.



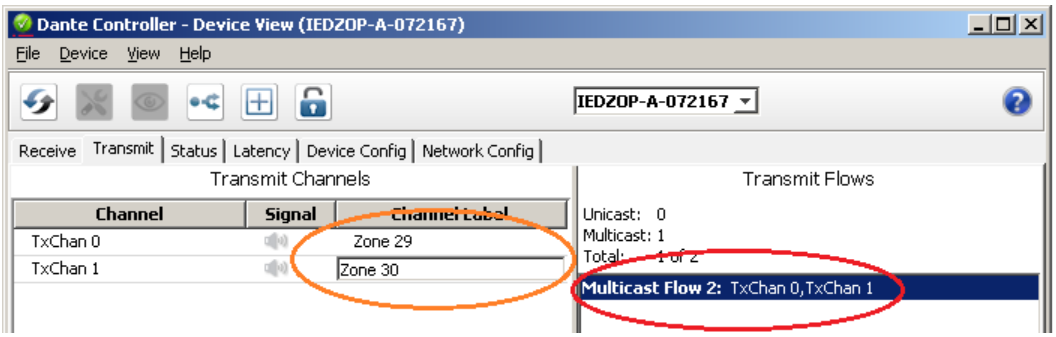
You create a transmit flow by clicking on the fourth button of the six on the top. The flyover help tells you that's what this button is for, as shown.



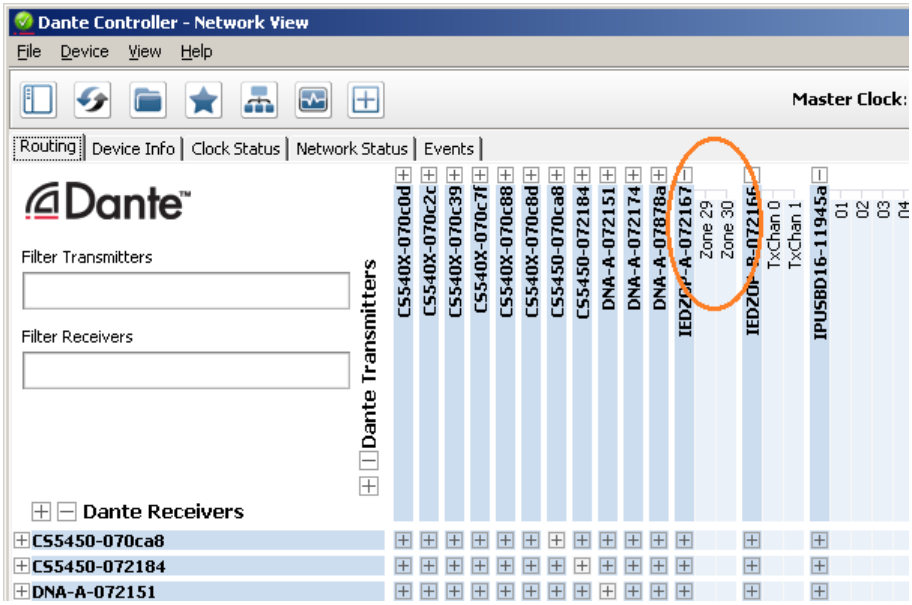


This brings up a window as shown at left. In this window you should check both transmitters as shown, assuming that you need both zones to be distributed. If only one zone needs to be distributed via Dante, you could save a little network bandwidth by excluding that transmitter from the stream being created. After checking the appropriate transmitter channels, click on the **[Create]** button.

When completed, you should see the new flow listed in the box on the right side of the Device window, such as shown below.



It can also be beneficial while in the Device View window to give meaningful names to the transmitter channels by typing then into the Channel Label cells in the grid on the left (orange oval above). These names will then show up in the routing grid on the main page of Dante Controller such as shown below in place of the generic names of TxChan 0 and TxChan 1, possibly making it easier to make the proper routings/connections on that window. Once you have successfully completed these settings, go on to Step 5.



Step 5 – Route Ultimo Streams

Now all you have to do is connect the 1544ZOP transmitters to the appropriate endpoint destinations. This is done by simply clicking on the intersection of a 1544ZOP transmitter and the destination receiver. A check mark in a green circle will appear once the connection is made, as shown below.