

May 2014

Recommendations for using Yamaha Dante Consoles with SymNet

Among the hundreds of manufacturers that have adopted Dante as their networked audio bus of choice, Yamaha and SymNet stand out as early adopters and trendsetters for developing and standardizing products based around the Dante protocol.

As such, both Symetrix and Yamaha have come up with some recommendations for integrating Dante when commissioning or setting up a Dante network.

This tech tip will cover recommendations from both manufacturers, their differences when applicable, and a brief troubleshooting guide should problems arise.

Yamaha Recommendations:

Setup:

The Yamaha and SymNet factory default Dante mode is “daisy chain”, or Switched mode as it is called in SymNet. This means all Dante ports, Yamaha and SymNet, can be daisy chained together for the initial setup and no 3rd party network switch need be used.

If a 3rd party network switch will be used for Dante, connect the primary port of each Yamaha and SymNet unit into the 3rd party network switch. Once the DSP and Yamaha have been programmed correctly, all Dante subscriptions should connect automatically after a site file push or power cycle, which can be verified with Dante Controller. If for some reason the subscriptions do not reconnect, then 1) the subscriptions may not have been created correctly, or 2) the 3rd party network switch may be at fault and its settings should be confirmed as optimized for Dante. If problems persist, troubleshooting steps should be taken.

Troubleshooting subscriptions:

<http://www.symetrix.co/wp-content/uploads/2013/08/SymNet-Specifics-for-Dante-Subscriptions-3rd-Party-Dante-Sources-and-Real-time-Dante-Matrixing.pdf>

Troubleshooting Network Switch Settings:

<http://www.symetrix.co/wp-content/uploads/2013/01/2012-11-Know-it-Use-It-Troubleshoot-it-Dante.pdf>

Also like Symetrix, Yamaha recommends switching to Redundant mode only after verifying all units in the system pass Dante via the Primary port and that all units are reporting their current Dante mode as “Redundant”. Symetrix makes the same Dante setup recommendations in the following tech tip:

<http://www.symetrix.co/wp-content/uploads/2013/04/2013-2-02-Setup-Dante-in-5-Minutes-Time-or-Less.pdf>

Yamaha CL and QL Series:

The Yamaha CL Series consoles (e.g., CL3) can be setup to two available options for how Dante patching/routing is controlled. There is a “Dante patch by console” and a “Dante patch by Dante controller”.

If Dante patch by console is selected, then the Yamaha runs many processes that normally are handled by Dante Controller to allow the Yamaha console to control the Dante routing for devices that are mounted in the console’s I/O Rack. Do not mount SymNet devices into the console’s I/O Rack because it will result in unwanted Dante Patch changes to SymNet devices when “Dante patch by console” is selected.

To be safe, Symetrix recommends the Yamaha Dante setup should be set to “Dante patch by controller”.

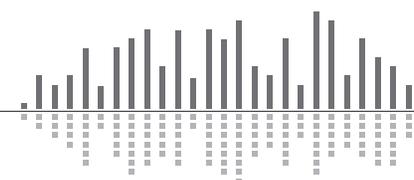
To do this, on the Yamaha CL Series console go to:

Setup / Dante setup /

And select: **Dante patch by controller.**

Then use SymNet Composer and, when applicable, Dante Controller for all routing changes in the Dante network.

Be aware that Dante Patching and Dante Patch Recall through the CL console will not be available.



May 2014

Note 1: This White Paper on Dante subscriptions should be consulted before using Dante Controller to change SymNet Dante routing:

<http://www.symetrix.co/wp-content/uploads/2013/08/SymNet-Specifics-for-Dante-Subscriptions-3rd-Party-Dante-Sources-and-Real-time-Dante-Matrixing.pdf>

Network Switch:

As of the writing of this tech tip, Yamaha does not officially recommend any particular brand or model of network switch for Dante. That being said, Yamaha has successfully used the Cisco SG300 in a variety of Dante applications and provides detailed instructions for setting up the SG300 to use with Dante here on their website:

http://www.yamahaproaudio.com/global/en/training_support/selftraining/dante_guide/index.jsp

The Yamaha SG300 setup guide covers the following topics:

- Preparing to Configure a Network Switch
- Disabling Energy Efficient Ethernet (EEE)
- Constructing a Virtual Local Area Network (VLAN)
- QoS Settings (Prioritizing the clock synchronization)
- Multicast Settings
- Setting Multiple Switches (Copying settings)

Note 2: Symetrix agrees with Yamaha that setting up a network switch correctly for Dante is necessary for reliable Dante operation and also does not recommend a particular brand or model of switch, nor does Symetrix provide setup instructions for a particular model. Symetrix follows Audinate's lead by stating that any network switch can work with Dante, but some features on some switches will allow for larger and more reliable Dante operation.

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:

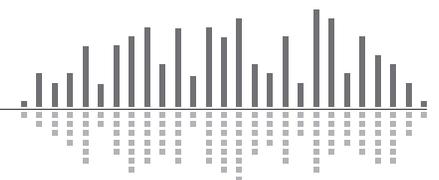
- Gigabit ports for inter-switch connections
- Quality of Service (QoS) with 4 queues
- Diffserv (DSCP) QoS, with strict priority
- A managed switch is also recommended, to provide detailed information about the operation of each network link: port speed, error counters, bandwidth used, etc.

Additionally, both Yamaha and Symetrix recommend turning off all EEE features of the network switch to prevent low power operation from impacting audio performance.

Troubleshooting a Yamaha / SymNet Dante connection:

If experiencing Dante failures between a Yamaha console and a SymNet DSP, check the following:

- 1) Ensure that SymNet Dante subscriptions (those channels SymNet is to receive from the Yamaha) are setup using SymNet Composer. See **Note 1** for clarification. SymNet Composer 2.0 adds a "Dante Browse" feature to make creating the Dante receive flows easily from 3rd party hardware simple, quickly, and intuitive. If Dante Controller is used to patch Dante audio into a SymNet DSP, these subscriptions will be temporary and will be lost after a site file is pushed or the SymNet DSP is power cycled.
- 2) If the Yamaha is a CL Series console, ensure that the Yamaha Dante Setup is set to "Dante patch by controller". Be aware that Dante Patching and Dante Patch Recall through the CL console will not be available in this mode.



May 2014

- 3) Yamaha SG300 Setup Guide recommends turning on IGMP Snooping when multicast Dante is being used. Typically Dante will not be affected negatively by this switch feature. However, Symetrix has seen a case or two in which the IGMP Snooping caused instability. So, if multiple SymNet units are showing as “clock master” and IGMP Snooping is enabled in the 3rd party network switch, turn off IGMP Snooping on the network switch and power cycle all SymNet units and the network switch. If turning off this feature solves the problem, then leave it turned off, otherwise IGMP Snooping can be left enabled as per the Yamaha recommendation.

