# Dante 101

Audio Networking

What is Dante

- Dante is an audio (now video) networking system created by Audinate.
- The system consists of hardware and software packages designed to facilitate the transfer of audio and video over a standard computer network, using standard networking hardware.
- Dante systems (w/o DDM) use mDNS (Bonjour) for discovery and cannot cross subnets; all devices must be on same ip subnet.
- Dante systems (w/o DDM) uses zero-config and apipa and do not necessarily need DHCP or static IPs to be defined.
- Dante systems do not require STP cabling, but many devices are configured with ethercon connectors.
- 1 Gbps connection can handle 512 bi-directional 24 bit/48 khz dante channels

Dante Domain Manager (DDM)

- DDM allows logical grouping of dante devices into domains to provide security and ease of configuration and management.

- Dante systems with Dante Domain Manager use standard DNS for discovery and can send audio across different networks (subnets).

- Each network requires a clocking source as well as subnet leader clocks.

- DDM is a virtualized application server (linux) and can run in most virtual server environments.

- DDM uses a web interface and can be used on desktops and laptops as well as tablet devices.

Dante Components

- The Dante network components begin with A-D and D-A encoding/decoding hardware.

- These components typically come in the form of an add-on card for your audio mixer or a stage box. These devices are connected to the computer network then the audio routes are made using the Dante Controller Software.
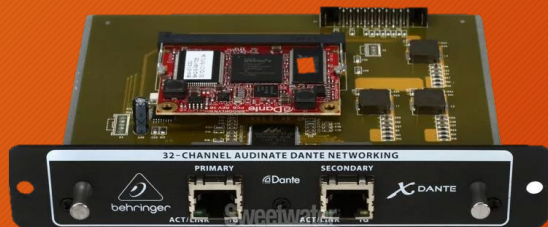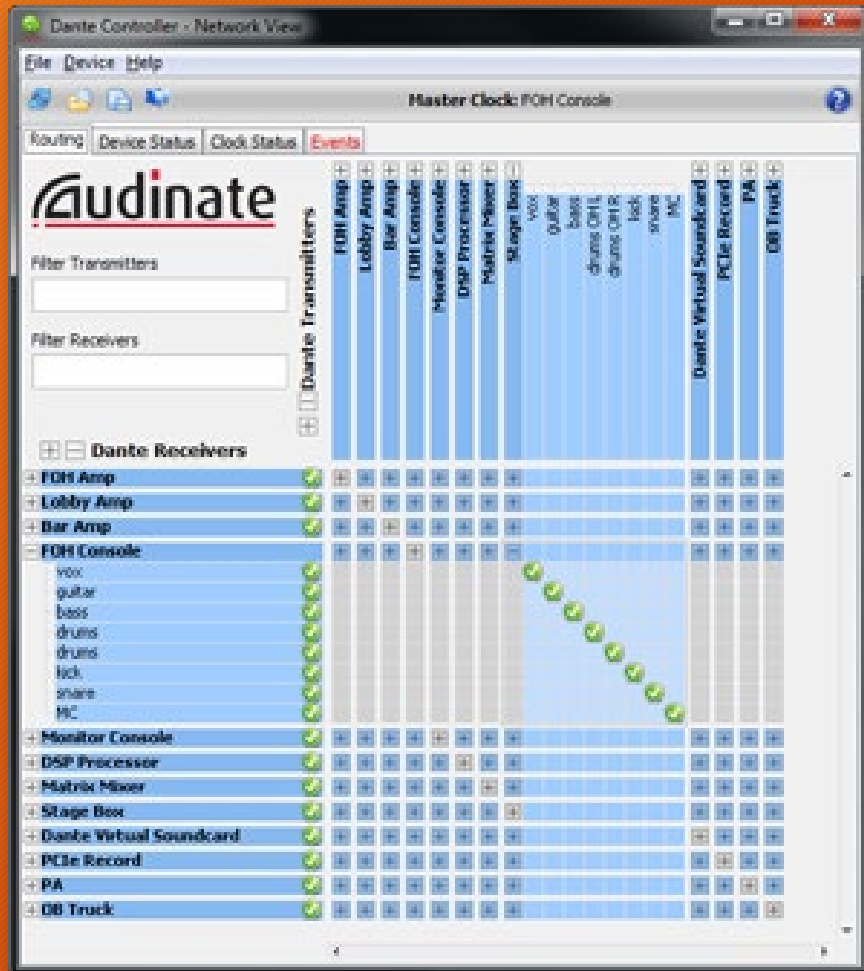
Dante Components

- Dante devices can have single or dual network ports available
- The secondary network port can be configured for (HA) High-Availability redundancy or providing a control port for device management.
  - Shure ULXD dante ports
  - Redundancy or Shure Control
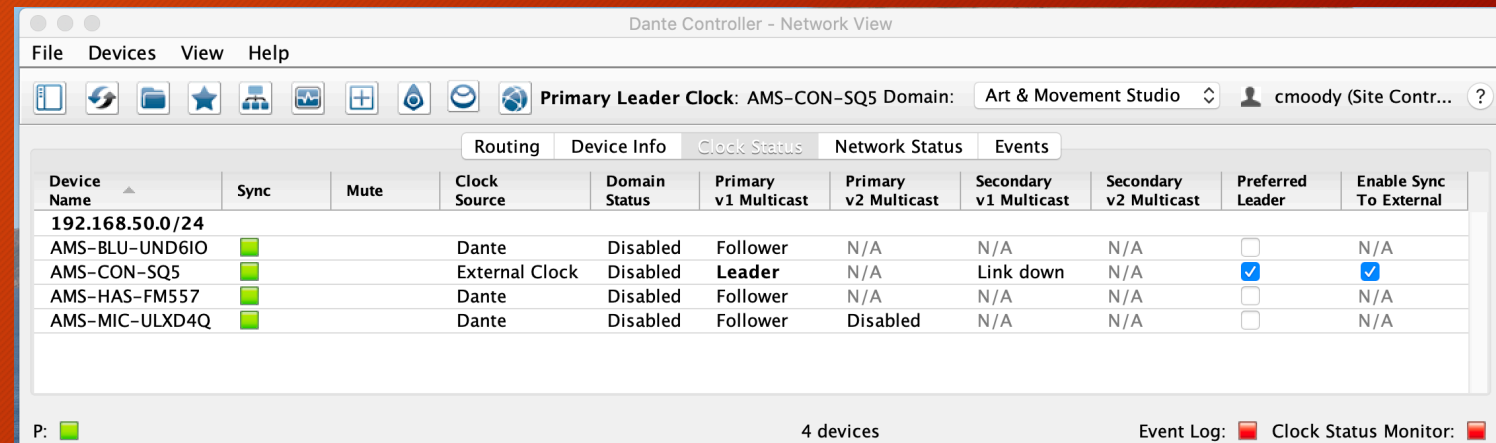
Dante Controller

- Dante Controller allows static routes (subscriptions) to be made between Transmitters and Receivers.
- A transmitter can send to multiple receivers (up to 3 using unicast and more with multicast)
- Once subscriptions are established, they are committed to the transmitter and receiver's memory, Dante Controller does not have to remain open.
- Subscriptions are retained when equipment is powered off.
- Successful subscriptions are shown with green check mark.
- A subscription with an orange triangle means one of the devices (transmit or receive) has been removed from the network, When the device is reconnected the subscription will show a green check mark again.

Dante Controller – Clock Status

- All digital audio systems require a clocking source.
- The master or leader clock is elected automatically in a dante system.
- You can choose a clock leader if you prefer: "Preferred Leader"
  - This is typically your audio consoles' dante card
  - This card can receive external clocking from your audio console:
    - "Enable Sync to External"
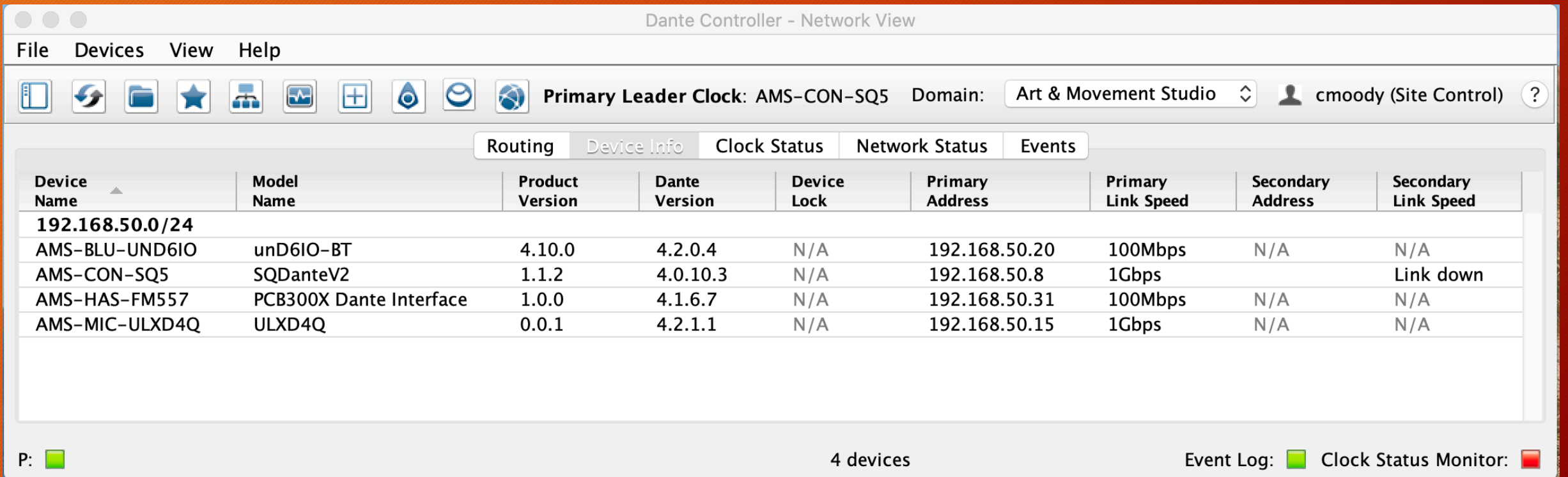
Dante Controller – Network View

File   Devices   View   Help

Primary Leader Clock: AMS-CON-SQ5 Domain: Art & Movement Studio   cmoody (Site Contr... ?

Routing | Device Info | Clock Status | Network Status | Events

Device Name	Sync	Mute	Clock Source	Domain Status	Primary v1 Multicast	Primary v2 Multicast	Secondary v1 Multicast	Secondary v2 Multicast	Preferred Leader	Enable Sync To External
192.168.50.0/24										
AMS-BLU-UND6IO	🟩		Dante	Disabled	Follower	N/A	N/A	N/A	☐	N/A
AMS-CON-SQ5	🟩		External Clock	Disabled	**Leader**	N/A	Link down	N/A	☑	☑
AMS-HAS-FM557	🟩		Dante	Disabled	Follower	N/A	N/A	N/A	☐	N/A
AMS-MIC-ULXD4Q	🟩		Dante	Disabled	Follower	Disabled	N/A	N/A	☐	N/A

P: 🟩   4 devices   Event Log: 🟥 Clock Status Monitor: 🟥

Dante Controller – Device Info

- The Device Info tab gives you model and product versions as well as IP addressing and network link speed info

Dante Controller – Network View

File   Devices   View   Help

Primary Leader Clock: AMS-CON-SQ5   Domain: Art & Movement Studio   cmoody (Site Control)

Routing   Device Info   Clock Status   Network Status   Events

Device Name ▲	Model Name	Product Version	Dante Version	Device Lock	Primary Address	Primary Link Speed	Secondary Address	Secondary Link Speed
192.168.50.0/24								
AMS-BLU-UND6IO	unD6IO-BT	4.10.0	4.2.0.4	N/A	192.168.50.20	100Mbps	N/A	N/A
AMS-CON-SQ5	SQDanteV2	1.1.2	4.0.10.3	N/A	192.168.50.8	1Gbps		Link down
AMS-HAS-FM557	PCB300X Dante Interface	1.0.0	4.1.6.7	N/A	192.168.50.31	100Mbps	N/A	N/A
AMS-MIC-ULXD4Q	ULXD4Q	0.0.1	4.2.1.1	N/A	192.168.50.15	1Gbps	N/A	N/A

P: ◻   4 devices   Event Log: ◻   Clock Status Monitor: ◻

Dante Controller – Network Status

- The network status tab gives you primary and secondary link status information as well as network bandwidth consumed and latency.

Dante Controller – Device View - Receive
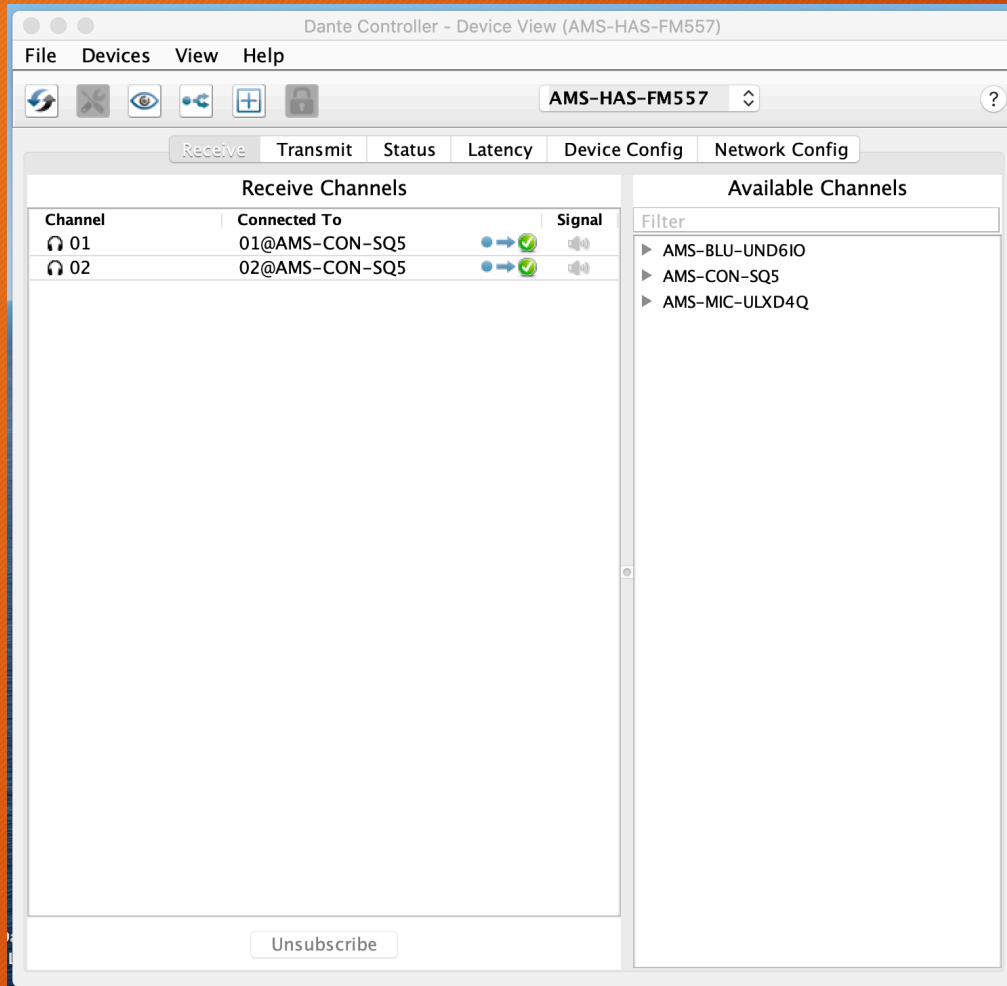
- The Device View has multiple tabs for viewing and configuring your dante device.
- The Receive and Transmit tabs display subscription information

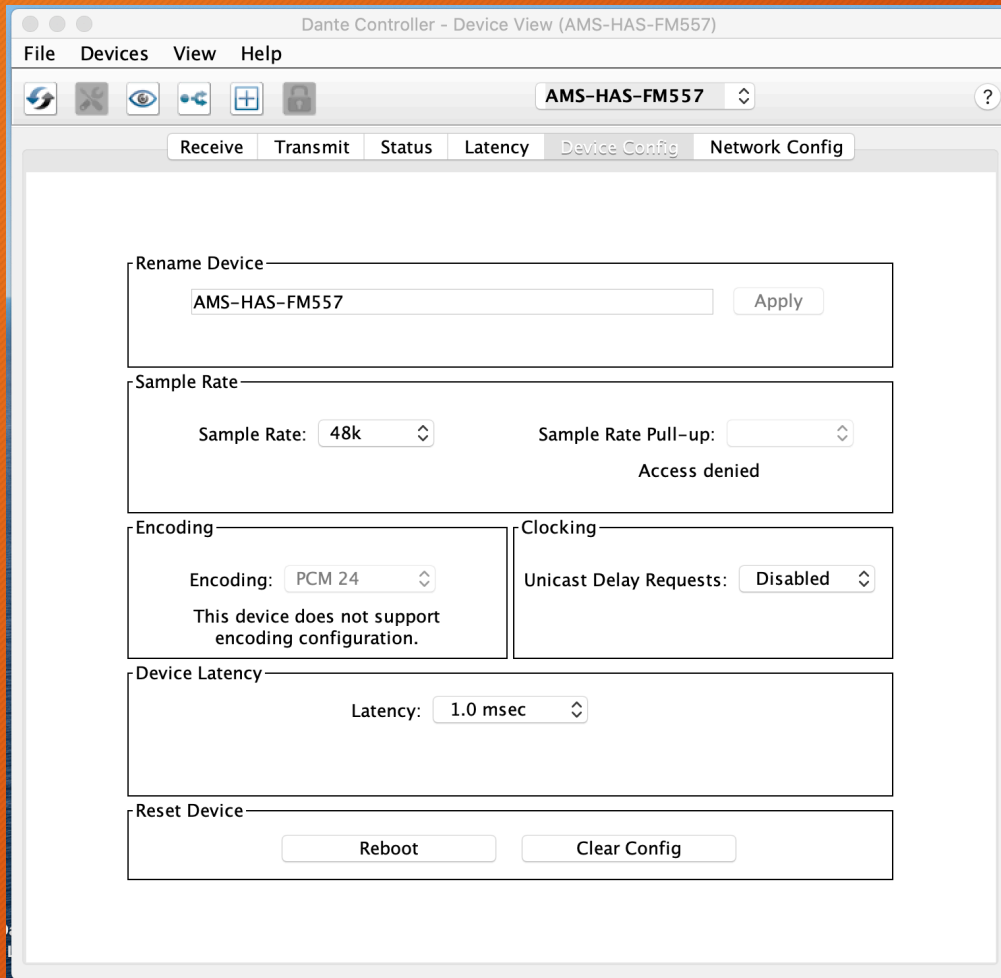# Dante Controller – Device View - Status

- The Device View Status tab displays model and firmware information about your dante device as well as network interface information

Dante Controller – Device View - Latency
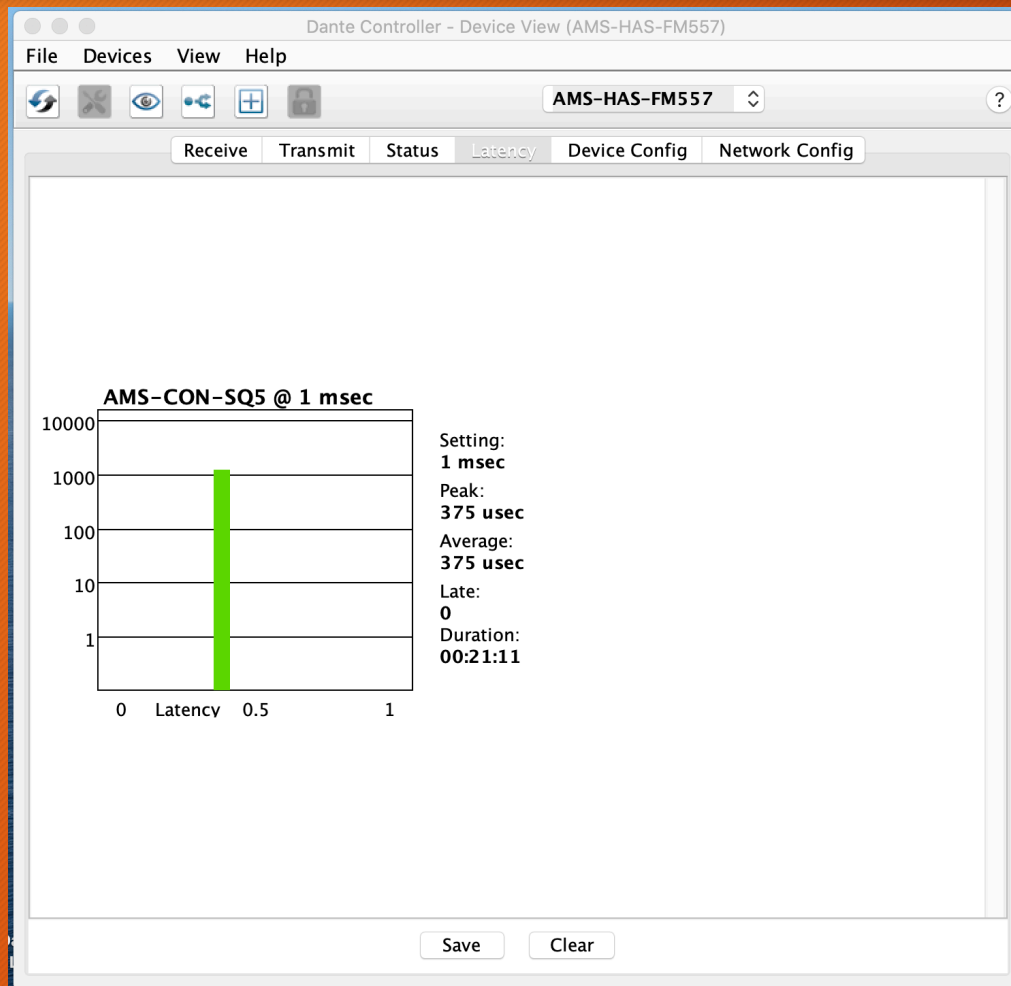
- The Device View Latency tab displays current latency settings as well as network utilization information

Dante Controller – Device View – Device Config

- The Device View Device Config tab allows configuration changes to your dante device including renaming the device, changing the sample rate, PCM encoding, latency as well as the ability to reboot the device
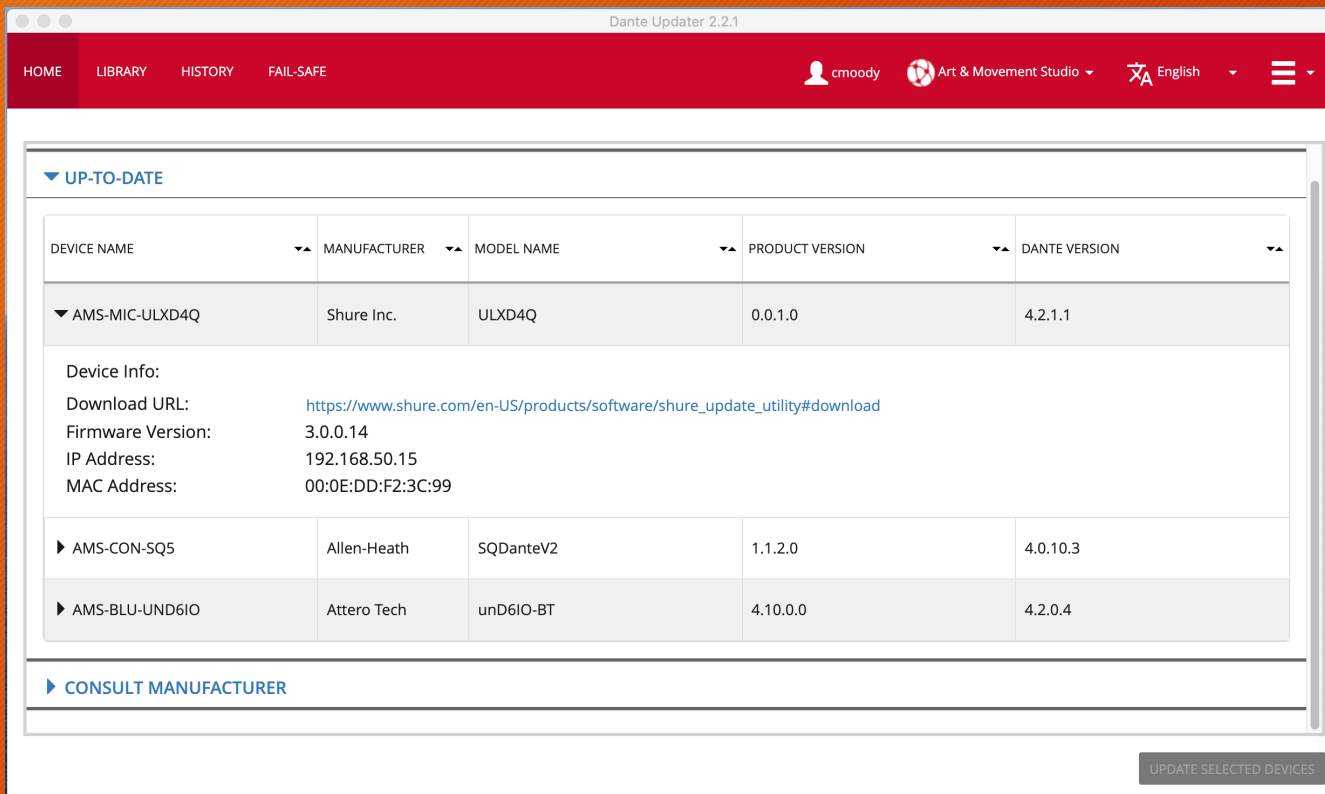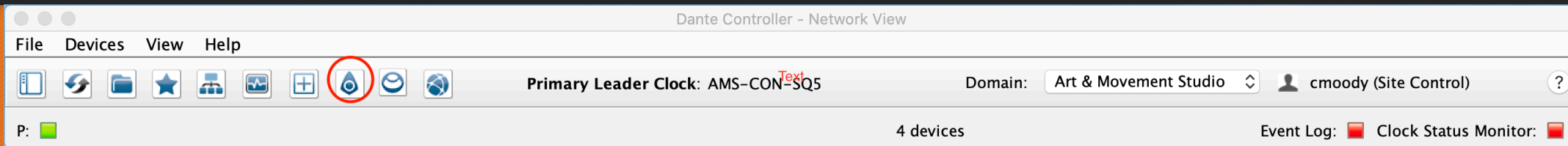
Dante Controller – Device View – Network Config

- The Device View Network Config tab allows configuration of the dante redundancy (secondary) port as well as setting static IP address information or setting the ports to DHCP.

Dante Controller – Dante Updater

The Dante Updater Button in the menu bar brings up the Updater window that displays the currently installed firmware versions and allow for updates if available.

Dante DEMO

Thanks for Joining Us!

Chris Moody

- Director IT/AV and Innovation
- cmoody@faylib.org

Resources

- Dante Certification Program:
  - https://www.audinate.com/learning/training-certification/dante-certification-program
- Dante Downloads:
  - https://www.audinate.com/products/software
- Yamaha Guide for Dante switch config – Cisco SG300
  - https://usa.yamaha.com/products/contents/proaudio/docs/dante_network_design_guide/301_setting_sg300.html