

# Dante Troubleshooting

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# Dante Troubleshooting

In this session we will be covering:

- Several real world troubleshooting scenarios
- An overview of top issues and how to resolve them.
- Tips and techniques to use when analyzing or troubleshooting a Dante network.

# Before We Begin...

- It is recommended in general that you ensure all your Dante devices are using the latest firmware.
- And that you are using the latest version of Dante Controller.



- You're in charge of the audio system for a week long sports festival.
  - The numerous Dante enabled mixing consoles, DSP, speaker processors, and switches are supplied by a rental company.
    - It's gear you've worked with before, except for the switches
  - The equipment is set-up, connected and powered on.
  - All of the devices appear as they should on the network.
    - You begin routing some audio.
  - You immediately notice that audio is intermittent throughout the system.

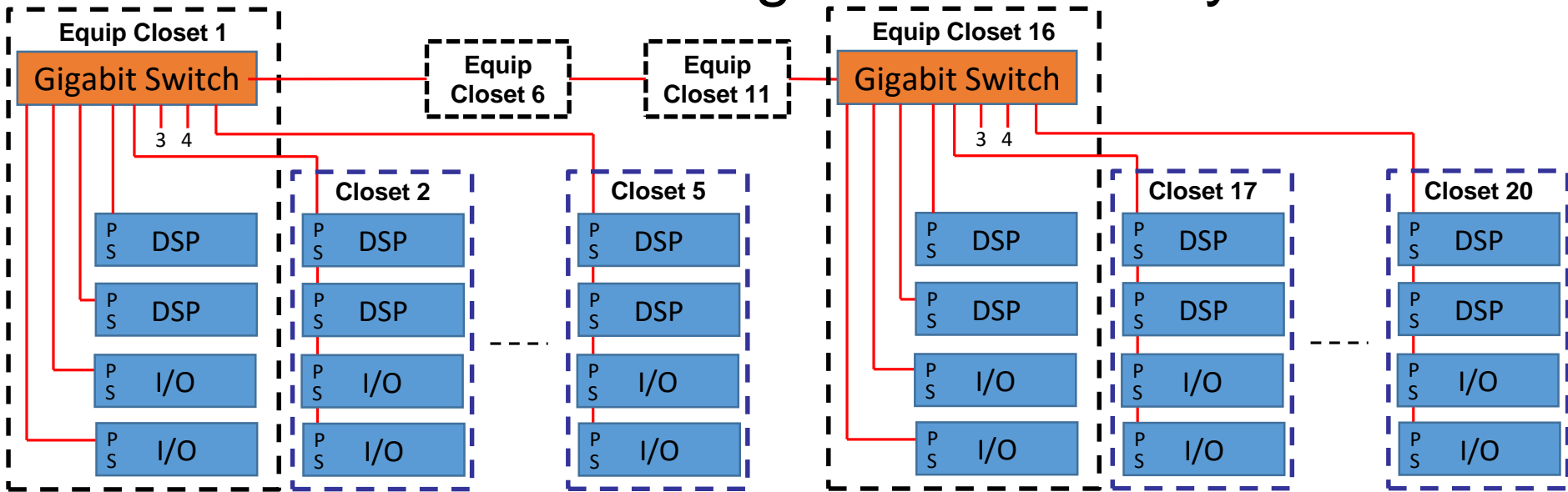
**What should you do?**

- You check the Clock Status tab find:
  - Multiple devices are appearing as the master clock for the system.
- You can perform a test:
  - Connecting several of the devices in a “daisy-chain” configuration
  - These work fine, so you suspect the switch settings.
- You check the configuration of the switches.
  - Finding that the previous user had blocked all multicast traffic.
  - Preventing the Dante PTP clock from functioning properly
- You correct the setting(s) and the Dante network clocks properly.

# Troubleshooting Examples

## Scenario 2

- A recent Dante installation has 20 equipment closets located throughout the facility.



- Room combining is an everyday occurrence with this system.
  - Typical of the audio systems used in Hotels & Conference/Convention Centers.
- Your client is complaining of intermittent noise and/or distorted audio.

**What should you do?**

- You determine certain room combines and overflow combinations can trigger the noise.
- In Device View in Dante Controller you check the latency settings for each of the devices.
  - They are set to the default value of 1ms
- The number of switch hops that occur in certain room configurations well exceeds the default latency setting.
- You change the latency settings for the devices to 2ms.



- Your bringing a system online in a facility which contains many Dante devices
  - Around 30% of the devices use Brooklyn II (Gigabit)
  - The remaining devices all use Ultimo (100Mbps).
  - The audio distribution needs of the facility require the use of numerous multicast Dante flows.
  - The system has been running for several days.
  - It is passing audio but occasionally sounds distorted in certain coverage areas.

**What should you do?**

- You look at the Multicast Bandwidth usage on the Status Bar in Dante Controller
  - It says that you have 90 Mbps of multicast traffic on the network.
- A majority of the Dante equipment being used is has 100Mb ports (Ultimo)
  - The amount of multicast traffic is nearing the capacity of the 100Mb Dante interfaces.
  - Running out of bandwidth.
- You turn on IGMP snooping to manage the multicast traffic.
  - Leaving you with plenty of headroom for the Ultimo devices.

- You've been using the same 200' length of CAT-5e cable
  - For connection between the stage and FOH mixer for gigs.
- You used it the night before
  - It worked for at a smaller event (24Rx and 12Tx).
- Today its being used at a larger event.
  - 256 x 256
- But you are having problems connecting all of the channels

**What should you do?**

- The cable appears to be good
  - After all, it worked yesterday
- You disconnect the cable and plug in a spare.
  - All channels are working properly.
- You determined that the bandwidth of the cable was compromised.
  - It worked for lower channel counts (requiring less bandwidth) but did not function at higher channel counts.

# Overview: Dante Troubleshooting FAQs

- Many Dante issues are very simple to resolve.
- These issues tend to fall into one of the following categories:
  - Connectivity
  - Dante Controller - devices not appearing properly.
  - Audio artifacts or distortion on certain devices
  - Loss of audio / Audio muting

# Connectivity & Device Appearance

- Check that the network cable is plugged in
  - And that the activity lights are flashing (fairly rapidly).
- Check that the correct network interface is selected.
  - Using the 'interface selection' button in the toolbar of Dante Controller:
- Check that your network interface has the correct IP address.
  - Or that it is set to DHCP
- If there are two different wired network interfaces on your computer:
  - Ensure that they are in different subnets – or disable the unused network interface.

# Connectivity & Device Appearance

- Check that you have no Antivirus software installed or firewall active
  - Please see Dante controller user guide for details of how to safely configure a firewall for use in a deployed network.
- If an item/feature is greyed out:
  - It is because that Dante enabled device you are using does not support changing that feature
  - Or the feature is unavailable in that Dante enabled device.
    - For further information, contact the device manufacturer's technical support, or visit the support pages of their website.

# Audio Artifacts and Distortion

- Probably caused by the input not being synchronous to Dante. Either:
  - 1 - Set the input source to clock to Dante (in most consoles this is a card slot option).
  - 2 - Set Dante to slave to external word clock on this device (external being external to the Dante Network – it is not normally a visible cable).
- Can also be caused by bandwidth limitations caused by network traffic on 100Mb nodes.



# Loss of Audio / Audio Muting

- Typically caused by clock issues.
- Dante will mute the audio of a device if it loses sync.
  - Any muting of audio will be listed in the Event Log.
  - Once synced, it will un-mute.
- Use the Clock Status Monitor to analyse the performance history of all the Dante devices on the network.

# Tips & Techniques

- Audio professionals' typically have acquired various test tools and devices over the years.
  - Especially if your in the field service department
  - Things that make troubleshooting and commissioning audio systems easier
- For analog systems, you might have in your kit:
  - Impedance meter
  - Cable tester
  - Signal generator
  - Telephone Butt-Set
  - Spare microphone
  - Spare cables & adapters
  - DMM
  - Laptop computer

# Tips & Techniques

- For networked audio systems, you might have in your kit:
  - Your laptop
  - A long CAT-5e cable
  - Not much else.



# Tips & Techniques

- Some things to add to your toolbox:
  - A spare Gigabit switch
    - To quickly determine where the problem resides
      - In the switch configuration
      - Or the equipment
    - 4 or 8-port
  - Various lengths of network cable.
  - Dante Virtual Soundcard or Dante Via loaded on your computer.
  - A small Ultimo-based I/O device is very handy to have.

# Tips & Techniques

- Work smarter, not harder
  - Bring the system up several devices at a time
    - It's easier to detect any issues (if they appear)
  - For rentals and installations:
    - Do an initial configuration at the shop
    - Not always possible, but it saves time in the field.

# Tips & Techniques

- Work smarter, not harder
  - For redundant networks:
    - Bring the primary network online first
    - Get it 100% functional
    - Make sure all of the devices (that have primary and secondary) are set to redundant mode.
    - Then begin work on the secondary.
  - Do not assume every store bought cable is good.

# Q & A



# Thank You!

