

Infinium® Network Guide

TECHNICAL BULLETIN

Network Architecture and Deployment Models

Model 1: Single transmitter direct connection

A transmitter can be connected directly to a controller's Dante port when only one transmitter is needed. The controller provides PoE power as well as audio and control signals through one single category (CAT) cable. This configuration is possible when the audio inputs are analog. In case of Dante inputs, the transmitter and controller must be connected to a switch. The controller network control port can be connected directly to a computer via a link local connection. Alternatively, the controller network control port can be connected to a larger network via a switch.

- A single transmitter with a direct connection to the controller is the easiest set-up for installations requiring one transmitter and utilizing analog audio.
- This set-up can also be used for bench testing or validation before a full network installation.

Model 2: One or two transmitters on a local AV network

For one or two transmitters, a simple local AV network can be used. A managed switch is preferred because it allows the installer to disable EEE and validate multicast behavior.

- Controller Dante port and transmitters must be on the same network.
- Use consistent addressing and avoid unnecessary routing between controller and transmitters.
- Leave room for growth by choosing switches that support IGMP snooping, an IGMP querier, and QoS settings.

Model 3: Three or more transmitters

When more than two transmitters are subscribed to a controller, enable multicast transmit flows for both controller transmit channels in Dante Controller. This prevents the controller from creating too many separate unicast flows and improves scalability.

A single controller can manage approximately 100 transmitters on the same network, with a hard cutoff of 150 transmitters. If the project requires more transmitters, divide the deployment into logical sections using VLANs and plan controller placement accordingly.

Network Requirements

- It is recommended that controller Dante interface and managed transmitters are on the same network/VLAN for controller management and Dante subscriptions.
- Controller control interface may be on the same network or a separate management network for web GUI access.
- Controller/transmitter communication uses port 39030 for infrequent unicast messages
- Transmitter advertisement uses multicast group 229.254.50.123 on port 9000. This traffic is limited to a status message (less than 500 bytes) every 15 seconds on average.
- Disable IEEE 802.3az/Energy Efficient Ethernet (EEE) on switches carrying Dante audio or product traffic.
- If transmitters or controllers are enrolled in Dante Domain Manager or locked in Dante Controller, controller-based setting and management of Dante parameters may be unreliable. Unlock or validate the Dante management state during commissioning.
- A single controller can manage up to approximately 100 transmitters on the same network, with a hard cutoff of 150. If your use case requires more transmitters, it is recommended to section them off with a VLAN.
- IGMP snooping and an IGMP querier are recommended for reliable multicast/Dante operation. Switches should forward unregistered or unknown multicast traffic.
- To have the most reliable audio experience, tailor the network's QoS settings to prioritize Dante traffic. Recommendations for QoS settings are available on the Dante website: <https://support.getdante.com/hc/en-gb/articles/5508296234399-How-does-Dante-use-DSCP-Diffserv-priority-values-when-configuring-QoS>
- IEEE 802.1X is not supported currently; support is considered for a future release.

Dante Multicast Flows

When routing audio from a single controller (BA C1) to three or more transmitters (BA T1s), ensure that Multicast Flows are enabled in Dante controller. To enable multicast, open the application Dante Controller. Then:

1. Go to Device Info.
2. In the window that appears, double click your controller's Dante name.
3. Click on the Transmit tab.
4. In the Multicast Transmit Flows sidebar, click Add.
5. Under Add to New Flow, select the checkboxes for both channels.
6. Click Create.

Cybersecurity Measures

- The controller network control port can be used to configure the controller and transmitter by authorized users. Users must authenticate with a username and password in the web GUI.
- For programmatic access to the controller, an API key must be utilized. See the API documentation for more details on generating an API key and available HTTP commands.
- The controller Dante port is expected to be connected to a network with access limited to only authorized individuals.
- Encryption can be enabled for the transmitter Auracast broadcasts, providing AES-128-CCM encryption for the audio streams. Listeners must enter a 6-digit numeric passcode to connect to the Auracast channel. This provides one million possible passcodes.

Troubleshooting

Symptom	Likely area to inspect
Transmitters do not appear in the controller interfaces or cannot be managed	Same VLAN/network placement, controller Dante port, port 39030, multicast advertisement path, IGMP behavior.
Audio unstable or intermittent	EEE/IEEE 802.3az, QoS, Dante clocking, switch congestion, cabling, overloaded multicast/unicast flow configuration.
Works with one or two transmitters but not more	Dante multicast transmit flows may not be configured for both controller transmit channels.
Settings do not apply reliably	Dante Domain Manager enrollment, Dante Controller lock state, firmware mismatch, network isolation.