Vaddio EasyIP 2.0 Guide to EasyIP Multicast

Introduction to Vaddio EasyIP Multicast video

EasyIP Multicast video distribution on a local network offers significant advantages, particularly in environments where the same video content needs to be delivered to multiple devices simultaneously, such as in educational and house of worship spaces.

In a unicast setup, each device receives a separate stream, which can quickly saturate network bandwidth and cause congestion. To prevent this from happening, the default EasyIP configuration is limited to two streams per EasyIP camera or transmitter.

EasyIP Multicast, on the other hand, sends a single stream to multiple devices, greatly reducing bandwidth usage and enhancing network efficiency. By using multicast, the network can handle a larger number of receivers without a proportional increase in load, ensuring stable and reliable video delivery.

To effectively manage EasyIP Multicast traffic on a local network, a managed network switch with IGMP (Internet Group Management Protocol) is essential. IGMP enables the switch to control and direct multicast traffic by identifying which devices are part of a multicast group and direct traffic, accordingly ensuring that only devices interested (registered) in the multicast stream receive it. This prevents unnecessary data from flooding the network, optimizing performance and efficiency.

Managed switches with IGMP snooping capabilities not only conserve bandwidth but also enhance network security by limiting multicast traffic to authorized devices. In summary, multicast video distribution on a local network, combined with IGMP-enabled managed switches, provides an efficient and scalable solution for high-quality video delivery.

Benefits of EasyIP Multicast for your AV-over-IP design

EasyIP Multicast's main benefit is to make your EasyIP setup more scalable.

The EasyIP Ecosystem before version 2.0 would be limited to unicast streaming only, limiting the number of receivers (EasyIP Mixer, EasyIP Decoder, EasyIP PCC, EasyIP Tx/Rx) that can receive the stream to two.

- Unicast is “regular” network traffic where the traffic is sent from one device to one specific other device at a time.
- In this example Computer A is sending unicast traffic to Computer D. Computer C is sending unicast traffic to Computer B. Only the correct recipient gets the traffic it is supposed to get.

With EasyIP Multicast the number of receivers you can send the video to is only limited by the number of ports on your network switch.

Multicast (on a correctly configured switch)

- Multicast traffic is used to send data to all devices that “subscribe” to that data stream.
- In this example Computer A is sending a video via multicast. Computers C and D subscribe but Computer B doesn’t want this data.

Multicast (on an unmanaged or unconfigured switch)

- If the switch is not configured correctly, multicast traffic is sent through the switch like broadcast traffic.
- In this example Computer A is sending multicast video stream to the network. The switch is not configured for this so that video goes to all the devices at once. In this situation it may not be a problem, or it might depending on how much other traffic is on the network.

Multicast (on an unmanaged or unconfigured switch)

Where multiple streams are present at the same time.

- If the switch is not configured correctly, multicast traffic is sent through the switch like broadcast traffic.
- In this example all four computers are sending multicast traffic. All this traffic goes everywhere

Before enabling EasyIP Multicast on your network

Before enabling multicast video on your network, it's crucial to consider several key factors to ensure smooth and efficient operation. First, verify that your network infrastructure supports multicast protocols like IGMP (Internet Group Management Protocol). This protocol is essential for managing and routing multicast traffic effectively.

- If your switch is unmanaged or does not offer IGMP v2 support, do NOT enable Multicast in your EasyIP product. Doing this can cause serious network disruption.

- If your EasyIP switch is connected to a wider corporate network, do NOT enable Multicast in your EasyIP product without consulting the IT department managing the network. A single EasyIP Camera or Transmitter (like EasyIP Tx/Rx) in Multicast mode has the power to bring down large parts of a corporate network if the network is not properly configured for IGMP multicast. Don't underestimate the Force.

Setting up multicast requires careful configuration of IGMP snooping on switches. This ensures that multicast traffic is only sent to devices that have requested it, preventing unnecessary data from flooding the network. Additionally, while multicast reduces overall bandwidth usage compared to unicast, it's important to monitor and manage bandwidth to avoid congestion, especially during peak usage times.

Finally, familiarize yourself with multicast troubleshooting tools and techniques.

By addressing these factors, you can effectively implement multicast video on your network, ensuring efficient and reliable video distribution.

- Vaddio recommends using Luxul Managed POE+ switches for use with EasyIP, but any properly configured managed switch with IGMP support and configured for handling AV-over-IP should work.

- For guides on how to configure your Vaddio EasyIP switch or Luxul Managed AV switch for EasyIP Multicast, see documents:
    - EasyIP Multicast configuration for Luxul SW series switches
    - EasyIP Multicast configuration for Luxul AMS/XMS switches

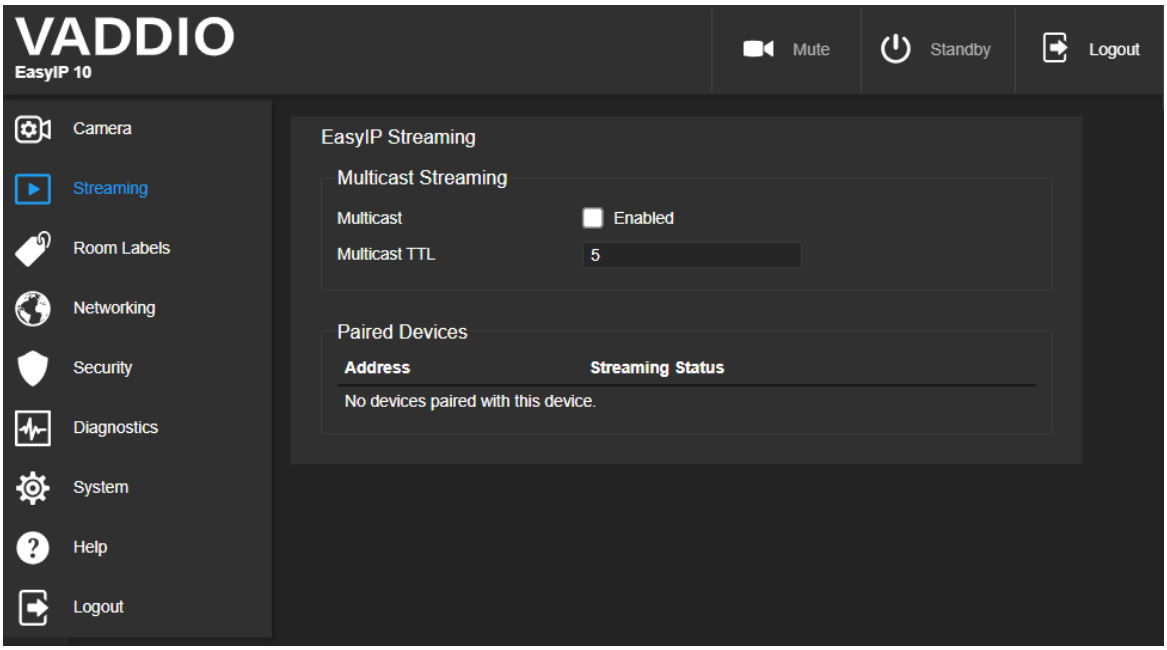
Checklist for a successful installation:

- ✓ Make sure that your switch is properly configured for multicast AV-over-IP streaming.
- ✓ Make sure your switch is not connected to a wider network without consulting with the IT department
- ✓ Update the firmware of all EasyIP video devices to version 2.0.0 (or 100.0.0 for EasyIP Tx/Rx or for future devices) or higher
- ✓ Audio devices do not need to be updated, Dante audio devices support multicast audio natively
- ✓ Enable 'Multicast' in the Streaming settings of the EasyIP Camera or Transmitter if the stream needs to be received by more than two devices.
- ✓ Remember: if your setup does not require multicast, keeping Multicast disabled will make your life Easy-er.

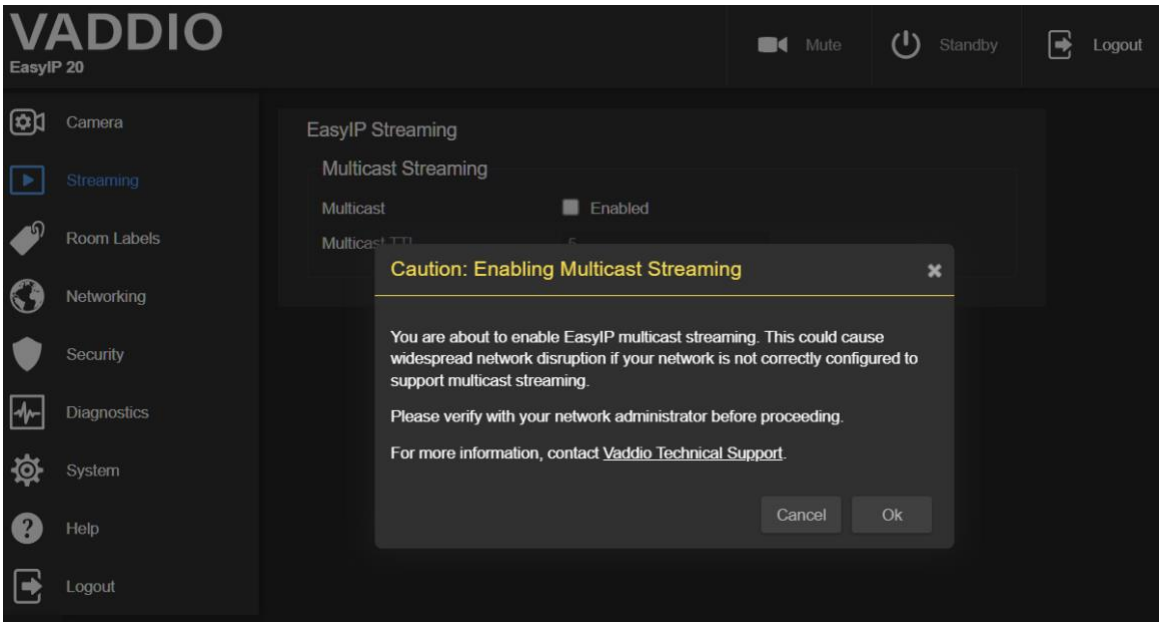
Enjoy your EasyIP Multicast

Multicast settings in Vaddio EasyIP Cameras and Transmitters:

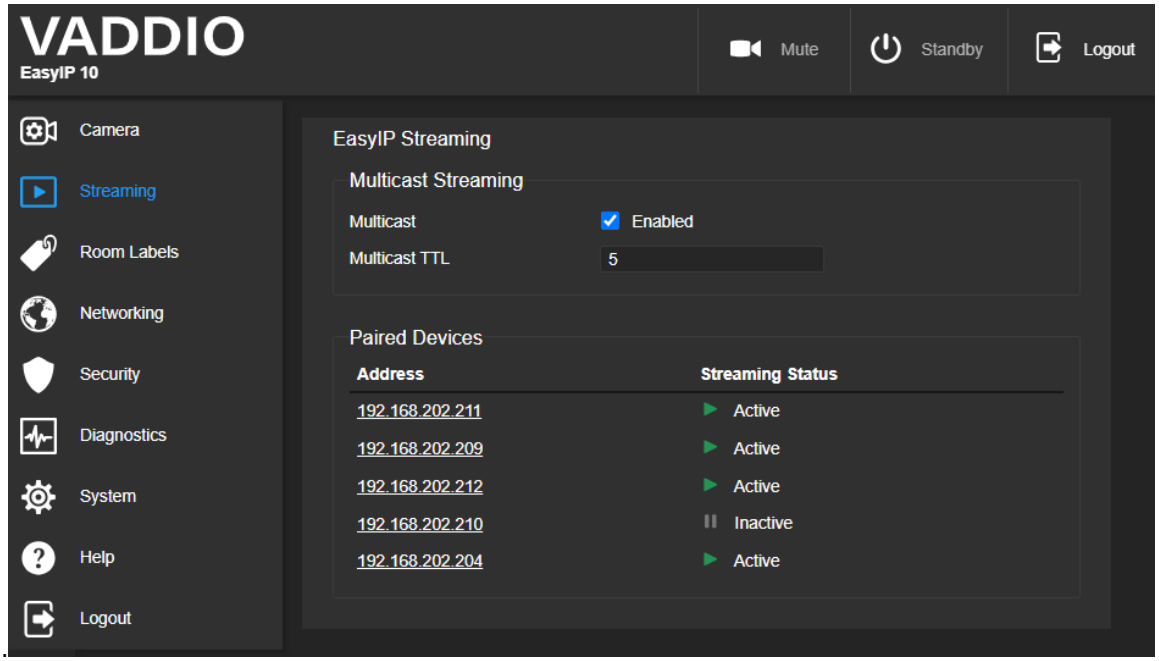
By default, Multicast streaming is disabled on all EasyIP products. In this mode, the behavior of the EasyIP Camera or Transmitter is the same as in previous versions of EasyIP: A single EasyIP Camera can send its video to a maximum of two paired devices.



When you enable the Multicast setting, you will be presented with a warning dialog about the possible network disruption this can cause if you have not yet configured your network switch for multicast use. Proceed with caution.



- Enabling and disabling Multicast will interrupt video for multiple seconds until the EasyIP devices and the network switch have re-negotiated how the video streams on the network.
- If you have more than two receivers paired to your camera or transmitter and you disable Multicast, these devices will stop receiving a video stream. Verify after stopping Multicast that your intended receivers are still displaying the stream correctly.



Multicast TTL (Time-to-Live) controls how far multicast packets can travel across a network. It serves two purposes: preventing packets from looping indefinitely and limiting the scope of multicast traffic. Each router decrements the TTL value by one as the packet passes through. If the TTL reaches zero, the packet is discarded. This mechanism helps manage network traffic by ensuring that multicast packets only reach intended destinations, such as to stay within a local network subnet or across your customers' site.

For typical isolated AV deployments, this value does not need changing from the default value of 5. Check with your network administrator for specific instructions when EasyIP Multicast is enabled on a larger corporate network

In **Paired Devices,** you will find an overview of all the EasyIP receivers that have been paired with your device. It includes a link to the web pages of these devices. Under **Streaming Status,** it will show whether the receiver is paired but not streaming ("Inactive") or paired and actively streaming ("Active") from your device.

Note: Not all EasyIP devices show the Paired Devices overview section at launch. This will be added in a future software update.