

ANT-7000E to many ANT-7000D using multicast

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For further help and advice please contact Antrica on:
 Email: support@antrica.com
 Phone: +44 1628 626098 ext 3

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1. Configuration of Multicast for 1:N A/V Transmission

The ANT-7000E and ANT-7000D can be configured to receive/decode at multiple decoders to display same video in different places from one encoder.

For the 1:N multicasting configuration, the multicast IP address will be assigned automatically for the ANT-7000E and ANT-7000D. The first part of 4 parts of IP address delineated by dot will be automatically changed to 227, so 227.xxx.yyy.zzz. The xxx.yyy.zzz is the latter 3 parts of IP address of ANT-7000E.

After changing the system to Multicast mode in the ANT-7000E, the unlimited number of ANT-7000D can be joined to this Multicast streaming once the IP address of the ANT-7000E is set to the Peer IP (field of the System Configuration in the ANT-7000D).

1.1. ANT-7000E setup

If **Multicast** on the Streaming Mode in System Configuration of the ANT-7000E is selected, then it will show that it is running at Multicast Encoder on Local Machine, see Figure 1. This setting of Multicast will assign a multicast IP address automatically to 227 .168.0.171, which was changed first value from 192 to 227 of the Ethernet IP address. So, you don't need to set the multicast IP address with a separate value.

Figure 1 : ANT-7000E System configuration

1.2. ANT-7000D setup

The ANT-7000D systems those want to join to the ANT-7000E encoders multicasting need to set the IP address of the ANT-7000E multicast encoder to the Peer IP(LAN) field. Then, the Peer Machine will show the encoders multicast IP address, a shown in Figure 2

Figure 2 : ANT-7000D System configuration

2. Infrastructure setup details

2.1. IGMP Snooping Function of the L2 Ethernet switch

A switch will, by default, flood multicast traffic to all the ports in a broadcast domain (or the VLAN equivalent). Multicast can cause unnecessary load on host devices by requiring them to process packets they have not solicited. When purposefully exploited this is known as one variation of a denial-of-service attack. IGMP snooping is designed to prevent hosts on a local network from receiving traffic for a multicast group they have not explicitly joined. It provides switches with a mechanism to prune multicast traffic from links that do not contain a multicast listener (an IGMP client).

IGMP snooping allows a switch to only forward multicast traffic to the links that have solicited them. Essentially, IGMP snooping is a layer 2 optimization for the layer 3 IGMP. IGMP snooping takes place internally on switches and is not a protocol feature. Snooping is therefore especially useful for bandwidth intensive IP multicast applications such as IPTV.

2.2. IGMP querier

In order for IGMP, and thus IGMP snooping, to function, a multicast router must exist on the network and generate IGMP queries. The tables created for snooping (holding the member ports for each a multicast group) are associated with the querier. Without a querier the tables are not created and snooping will not work. Furthermore, IGMP general queries must be unconditionally forwarded by all switches involved in IGMP snooping. Some IGMP snooping implementations include full querier capability. Others are able to proxy and retransmit queries from the multicast router.

2.3. Prerequisites for multicasting A/ V over IP network

There must be one or more Multicast routers on the network to transport multicast A/V traffic on the network that the single ANT-7000E and multiple ANT-7000D are working. And all the L2 Ethernet switches on the network between the ANT-7000E and ANT-7000D must support IGMP snooping function. If there is a L2 Ethernet switch that does not support IGMP snooping function, then the multicast A/V traffic will be flooded to every ports that can be resulted in blocking the multicast A/V traffic.

2.4. Multicasting A/V over single sub network

There is one simple solution for replacing an expensive multicast router, if the multicasting is transmitted and received in one sub network. Some of advanced L2 Ethernet switch transmits IGMP query packets through their Ethernet port. If there is no need to multicast IP traffic over the different sub network, then you can use this cheap L2 Ethernet switch. The one sample of this advanced L2 switch that Antrica has tested is the HP's V1910 16G Switch (JE005A) or other L2 switch that supports IGMP querier function