



RAVENNA

AES67 *now!*

Configure Merging and AES67 devices

Configure Merging and AES67 devices

AES67 interoperability with Non-Merging interface

When the Audio Engineering Society ratified the X-192 groups findings, the outcome was the AES67 proposal for interoperability of devices transmitting real-time audio streams on networks. AES67 is completely compatible with RAVENNA networks and manufacturers announcing that they are delivering AES67-ready devices means that they are in fact delivering RAVENNA compatible ones.

The RAVENNA protocol is able to automatically provide the source description (SDP) to the target, but in AES67 with non-Merging interfaces that are not compatible with ANEMAN, it needs to be done manually, as it is not standardized, all manufacturers tend to do it in their own ways. For details on ANEMAN devices compatibility, see [ANEMAN user manual](#) – Plugins section.

Notes:

- *Merging Products are supporting AES67 in multicast*
- *MassCore and VAD (CoreAudio) supports AES67 and the RAVENNA ASIO driver supports AES67 as of v11.0*

1. Configuring devices in AES67 mode:

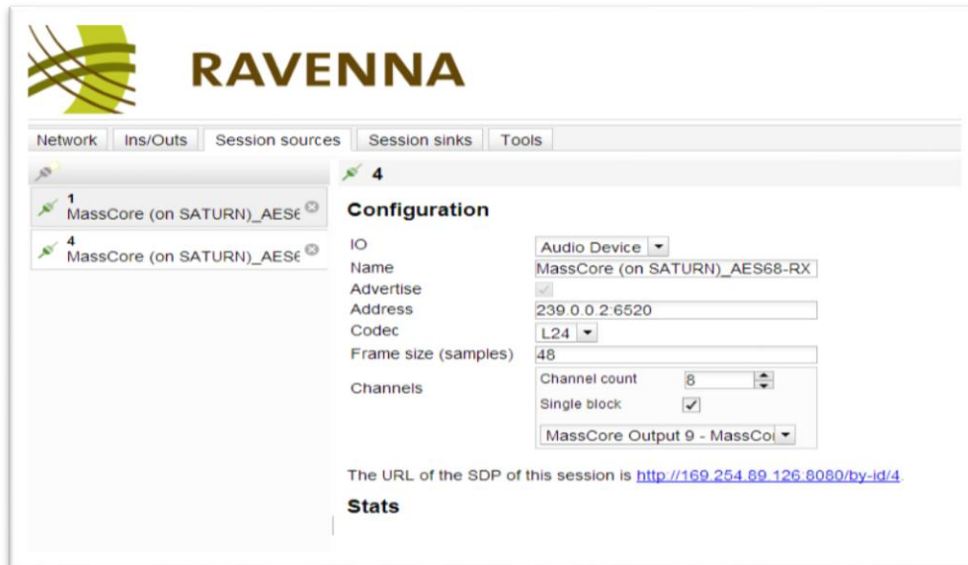
- Horus/Hapi:
 - Launch MT Discovery to open the Horus/Hapi Web Access or go on device screen
 - Go to Setup>System page
 - Set “Latency” to AES67 (48 smpl)
- MassCore:
 - From VS3 Control Panel, set “Latency” to AES67 (4ms)
- RAVENNA Virtual Audio device (Mac CoreAudio):
 - From RAVENNA CoreAudio Panel, set “Latency” to 48 smpl (AES67)
- RAVENNA ASIO Driver (PC):
 - From RAVENNA ASIO Panel, set “Latency” to 48 smpl (AES67)

2. Creating sources (on the transmitter):

- From the MT Discovery go to the advanced WebAccess pages of Horus/Hapi (open advanced) MassCore/CoreAudio (open) e.g. http://Horus_80001/advanced/index.html
- Select the “Session sources” tab
- Create a Source by clicking on the little connection cable icon (top left), fill your parameters (description on how to create a Source manually is available in the Merging Advanced settings Guide)
- Download the SDP file describing this source by clicking on the blue link at bottom right of the page. This will be important in order to configure the non-Merging AES67 device

Notes:

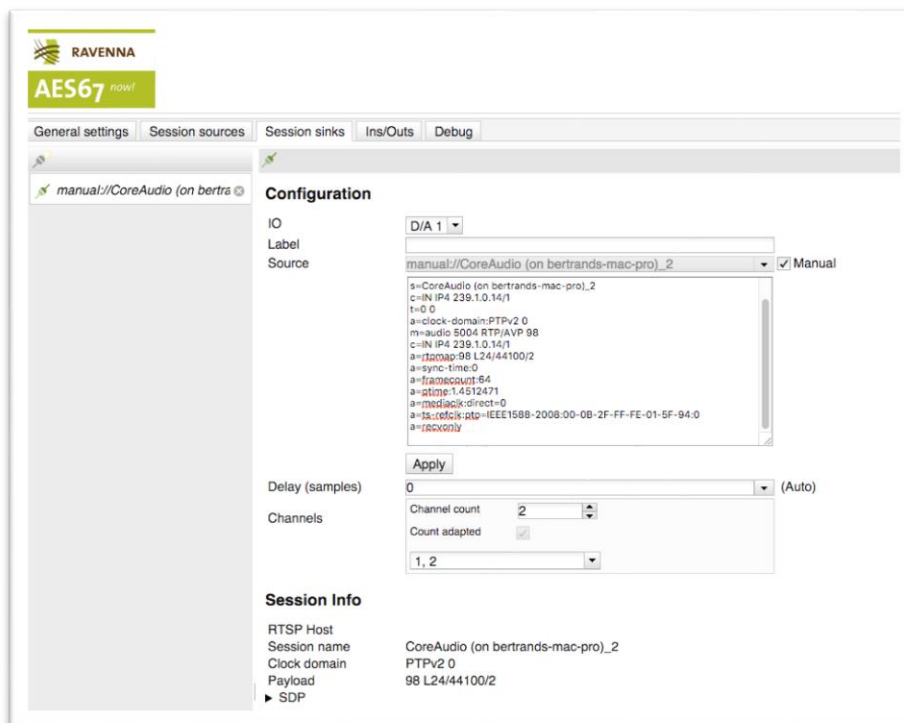
- *If the target needs a specific port it is possible to specify the port for the address accordingly (e.g. 239.1.40.12:6520).*
- *The port end number must be even (0, 2, 4, 6, 8)*



c)

Creating sink (receiver):

- From the MT Discovery Browser go to the advanced WebAccess pages of Horus/Hapi (open advanced) MassCore/CoreAudio (open) e.g. http://Horus_80001/advanced/index.html
- Select Session sinks tab
- Create a Sink by clicking on the little connection cable icon (top left)
- Configure the sink:
 - Select the source:
 - RAVENNA: select the source from the combo box
 - For AES67: you have to click on Manual and provide the SDP description



SDP file Specification Information:

v=0 ; protocol version
o=- 1 0 IN IP4 169.254.89.126 ; device(session creator/owner) IP
s=Test1 ; session name
t=0 ; time the session is active
a=clock-domain:PTPv2 0
m=audio 5678 RTP/AVP 98 ; port:5678 payload type:98
c=IN IP4 239.1.40.64 ; stream dest IP
a=rtpmap:98 L24/48000/8 ; payload type:98 , codec:L24, SR:48000, 8 channels
; RAVENNA
a=sync-time:0
a=framecount:1-48 ; samples per frame [1..48]
; AES67
a=ptime 1.0 ; packet time
a=mediaclk:direct=0
a=ts-refclk:ptp=IEEE1588-2008:00-0B-2F-FF-FE-01-38-83:0
a=recvonly
a=maxptime 1.0 ; max packet time

Note: when a=rtpc:xxxx is present and xxxx != 0 then MassCore and RAVENNA CoreAudio driver send RR and SR.

Configure MERGING and third party DANTE devices in AES67 mode

We will demonstrate how to configure a Merging Hapi and third party Dante device for both inputs and outputs. The same procedure can be applied to any Merging RAVENNA/AES67 device.

1. You can transmit audio from the Dante device to Merging Hapi
2. You can transmit audio from Merging Hapi to the Dante device

Notes

- Dante device must be AES67 capable, please consult Audinate website for details. Dante Virtual Sound card is not AES67 capable.
- Dante devices only supports 48 kHz in AES67 mode currently.
- Maximum number of streams for Dante in AES67 mode is 32.
- Merging products AES67 compatibility details can be found [on this page](#).

Setup

We connect all following network devices on the same network switch:

- One Merging Hapi - firmware V3 or above required.
- One Dante device - AES67 capable.
- A computer with Dante Controller and ANEMAN installed.
- Prerequisite: Some devices require that you remotely enable their AES67 mode, either from Dante Controller or from their remote access application

Audio transmission from a Dante supporting AES67 to a Merging device Hapi (or Horus)

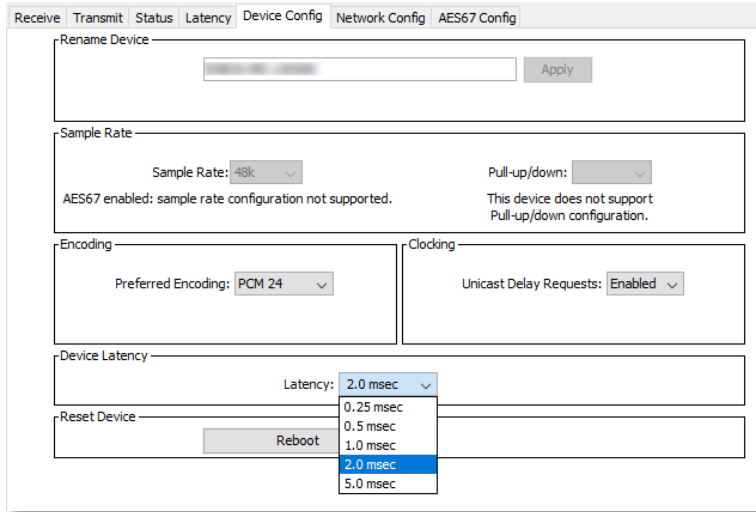
1. Create AES67 Flow

- a. Go in the *Device > Device View* page in Dante Controller
- b. Select your Dante device.
- c. Go in the AES67 Config tab
- d. Set the AES67 mode to Enabled. **A reboot is required if it was disabled.**

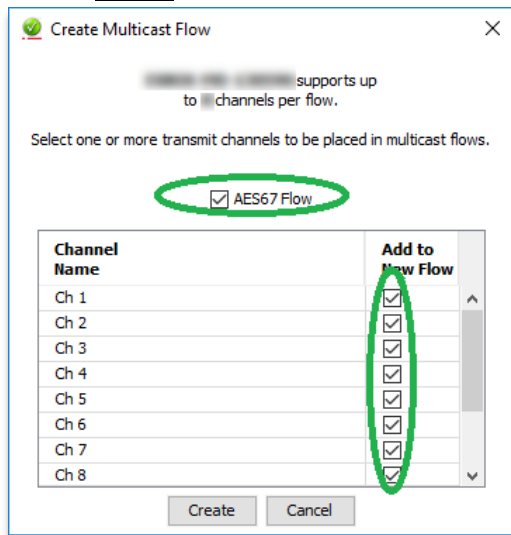
Make sure the *Multicast Address Prefix* is set to 239.69.xxx.xxx

The screenshot shows the 'AES67 Config' tab in the Dante Controller interface. It is divided into three sections: 'AES67 Mode', 'Tx Multicast Address Prefix', and 'Reset Device'. In the 'AES67 Mode' section, the 'Current' status is 'Enabled' and the 'New' status is also 'Enabled' with a dropdown arrow. In the 'Tx Multicast Address Prefix' section, the 'Current Prefix' is '239.69.XXX.XXX' and there is a 'New Address Prefix' input field with a 'Set' button. In the 'Reset Device' section, there is a 'Reboot' button.


- e. Go now in the *Device Config* tab.
Set the *Latency* to **2** or **5msec** (AES67 recommended value is 3 msec)



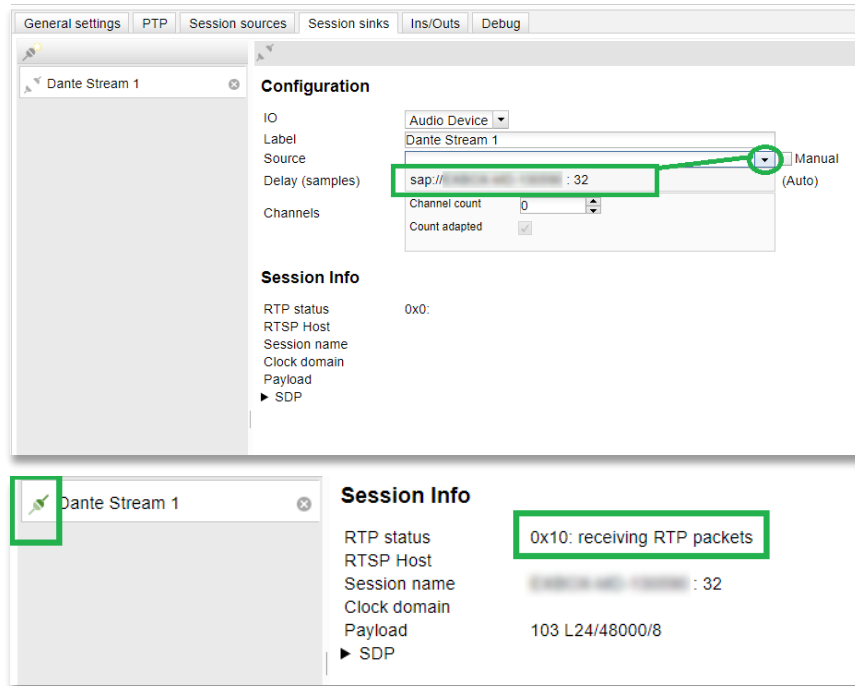
- f. In the *Device* drop down menu, select *Create Multicast Flow*
- g. Tick the *AES67 Flow* box, and select the channels you need to transmit.
Click on *Create* once done.



2. Connect Merging Hapi to Dante AES67 flow

- a. Open Merging device advanced page. Either via ANEMAN / MTDDiscovery -> *Open Advanced* or directly using device name. For the device **hapi_90007** the url is http://hapi_90007.local./advanced/index.html
- b. On the *Session sinks* tab, create a session sink (receiver) using the icon at the upper left corner 
- c. Select the desired IO module.
- d. Click on the arrow next to the "Source" field, you will get a list of the currently available SAP sources.
- e. Select your Dante stream.
The stream will now connect, the connection icon in the left column will turn green.

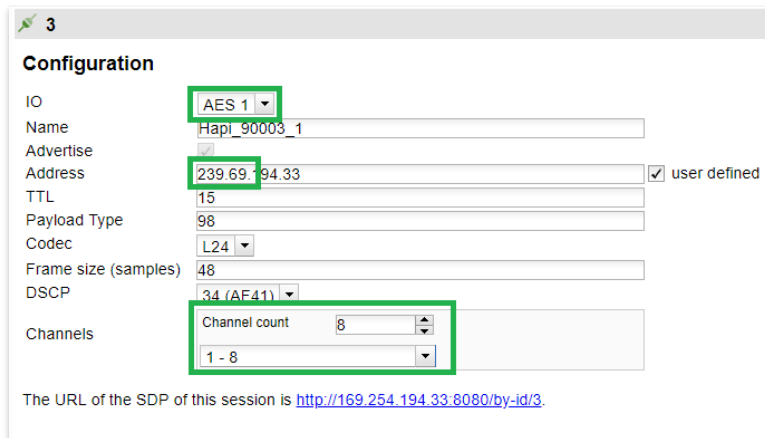
Depending on the device version, a *RTP Status* will be displayed, it will change to *receiving RTP packets*.



Audio transmission from Merging Hapi (or Horus) to Dante device

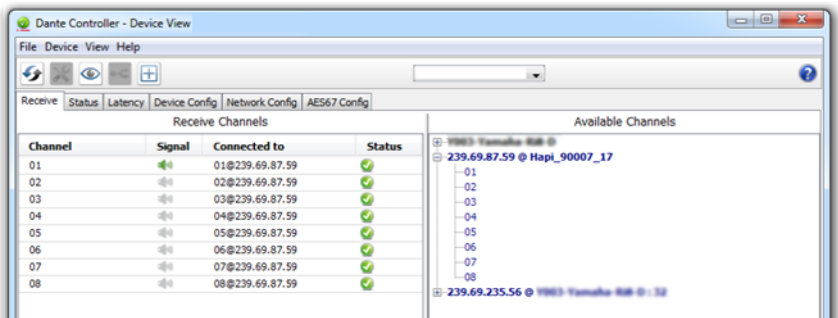
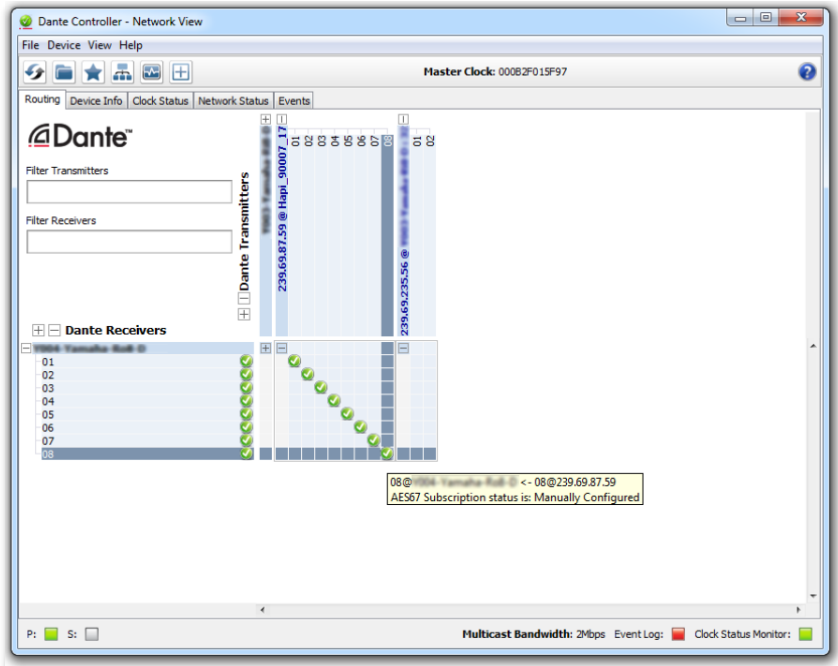
1. Create Merging Hapi (or Horus) AES67 flow

- a. Open Merging device advanced page.
- b. On the Session sources tab, create a session source (transmitter) using the icon at the upper left corner.
- c. Select the desired IO module.
- d. Make sure the multicast address ("*Address*" field) of Merging device is using the Dante multicast prefix. Default is **239.69.xxx.xx**.
- e. Set the required number of channels (Channel count) (Codec must be L24 and Frame size 48)



2. Connect Dante to AES67 flow

- a. Open Dante Controller
- b. Merging Device should appear in the Dante transmitter list
- c. Connect inputs and outputs as desired



Troubleshooting

1. Merging Transmitter doesn't appear in the Dante transmitter list

- a. Make sure the devices are correctly connected to the same switch
- b. Make sure Merging device multicast address has same prefix as the one in the Dante controller

2. No Audio

- a. Make sure the switch is Gigabit
- b. Make sure devices are operating using the same sampling rate. Merging device Sample rate is available under the general settings of the advanced page or directly in the device setup menu.
- c. Make sure you have ticked the AES67 Flow when you created the Dante Multicast Stream.
- d. Latency performance issue :
Go in *Dante Controller > Device view > Latency* tab.
The latency value displayed should be green all time. If that is not the case, go in Dante Device Config tab and increase the Late.
- e. PTP Clocks :
Make sure you only have 1 PTP Master and the other devices are slaves and synced on it.
See *Dante Controller > Clock Status* and *ANEMAN PTP* tab.