



Using AES67 To Connect Comrex Access To WheatNet IP

Prerequisites

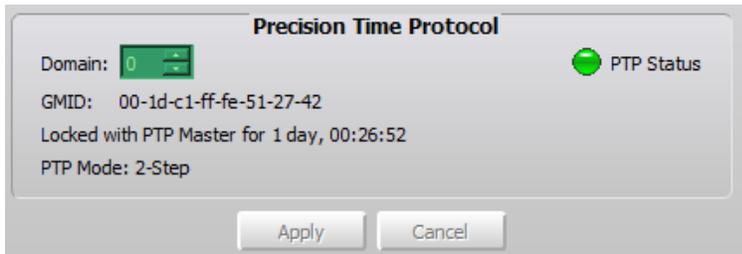
You will need:

- A Precision Timing Protocol (PTP) v2 clock source on your WNIP Local Area Network. Blades do not generate PTP, but they can lock to it. Comrex codecs running version 4.5p2 or higher can be set to generate PTP clock, or you can use an external PTP source. Consult the Access manual if you want to use it to generate the clock.
- A license in WheatNet Navigator to enable the PTP clock function. When you go to the **Info** tab in Navigator and set the external timing source to PTP-AES67 in the Clock Master Info section, you will be prompted to obtain the license key. Send the license seed to activation@wheatstone.com and the support department will send you a key to paste into the box to activate the feature. There is no charge for this license key.
- The Comrex device and Wheatnet System must be set to the same sample rate (44.1 or 48k)

Click on the drop down and select AES67 PTP as your clock reference. If this is the first time you've enabled AES67 PTP, you will be prompted to apply for a license; copy the seed key information and forward it to techsupport@wheatstone.com as mentioned previously.

If you have installed and are running a PTPv2 master clock, Navigator will detect it and show its status here. Note that if you have not installed a PTP master clock or WNIP cannot see it then AES67 devices will not work. This status indicator is also useful when your system is running to alert you; it will turn red and issue an alarm if PTP is lost.

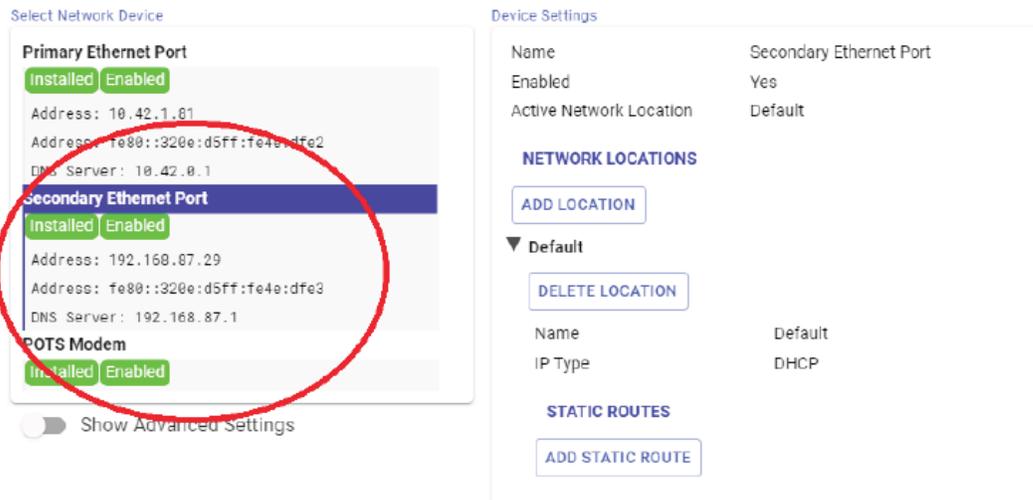
When your WheatNet-IP system has locked to the PTP clock, the PTP Status indicator will turn green:



The Domain setting should be left at zero.

On the Access web page, go to the Network Manager section and change the secondary Ethernet port to static (DHCP is default). Follow the instructions in the Comrex manual to set the address of the secondary port to an address in the range of your WNIP network.

Network Manager



Once your Access is on the WNIP LAN and can lock to the PTP clock, the Comrex and your Clock Master Blade will be locked to the same clock source and the rest of your Blades will be locked to the Clock Master Blade's metronome, so everything will be time aligned.

So if you have a green light on the PTP section in Navigator's info page and a "Locked" message on the Access, we are ready to proceed.

▶ PTP Clocking

Locked
GUID: (00-1D-C1-FF-FE-16-E8-66)

Key Concepts

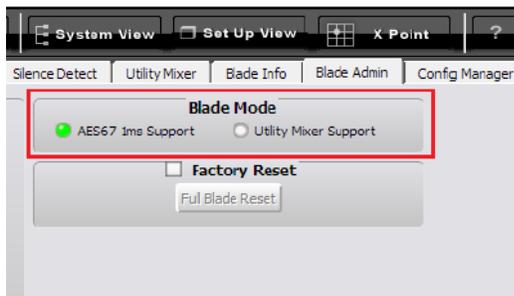
AES67 is at its core a timing protocol – it is a way to ensure that Audio over IP equipment from different manufacturers will send packets at the same rate and in a common format. There is no common discovery protocol, therefore it is necessary to manually enter the following information and enter it on both ends of the wire:

- The multicast address of the audio stream
- The UDP port of the audio stream
- The packet rate
- The payload type

You will enter the information of the Comrex outputs into Navigator as sources, and you will enter the information from Navigator for the WheatNet sources that will feed the codec as inputs to the Access.

Wheatnet-IP defaults to a .25ms packet rate, while the Comrex runs at 1ms. So we have to send the Access a stream it can support. The Access defaults to a payload type of 98 and we use payload type 100, so we need to tell the Blade it's going to receive a payload type 98. We will account for these items in the steps ahead.

If you have a Blade 3 system, you will need to turn off at least one utility mixer on any blade to turn it into an AES67 translation blade. Go to the Blade Admin tab and choose AES67 1ms support. Each blade set for AES67 1ms Support will create up to 8 1ms streams from any 8 sources on the system.



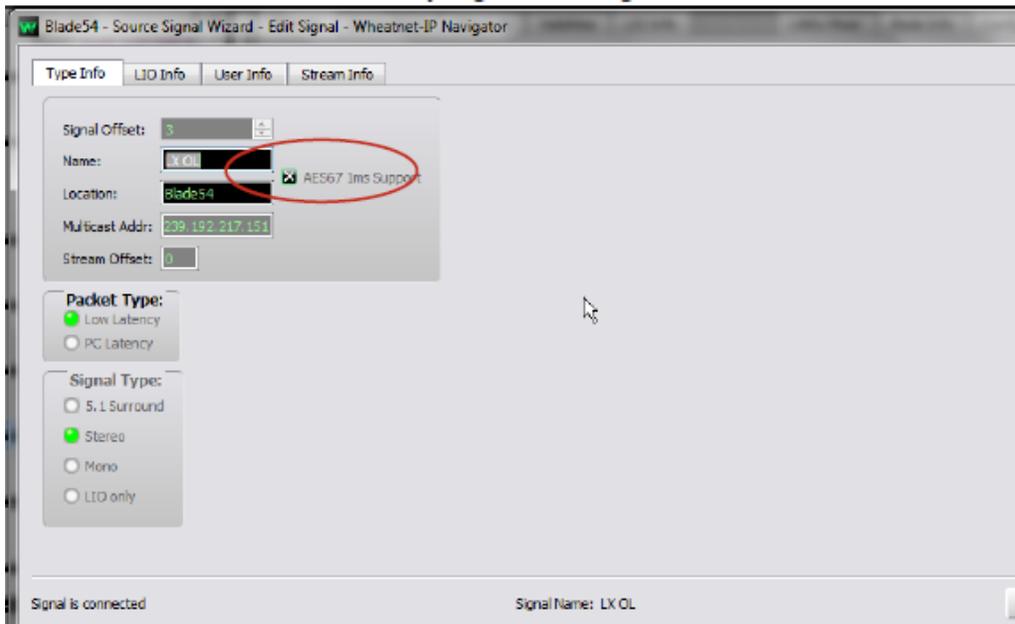
Blade 4 systems are capable of creating 1ms translations without turning off a utility mixer.

Creating The Outputs To The Codec

Usually, you will send mix minus or bus minus feeds to codecs. The Comrex will need a 1ms stream that is stereo, and on many consoles that source is mono. So, we will use a utility mixer to both translate the stream to stereo and to 1ms. This also will give you the flexibility to change the routes to the codec within Navigator either manually or via Salvos, which is handy when different studios share a codec.

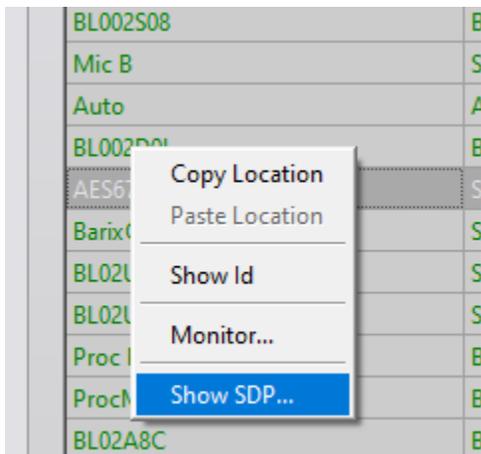
1. Route the mix minus or bus minus you wish to feed to the codec to utility mixer input 1. Turn its B volume slider down and keep the A volume slider up. Turn the input on.
2. Route another mix minus or bus minus to utility mixer input 2. Turn its A volume slider down and keep the B volume slider up. Turn the input on.
3. Turn on the A and B master faders
4. Rename the A and B outputs of the utility mixer as desired on the Sources tab of the blade.
5. While editing each source, turn on 1ms AES 67 support.

Repeat with each desired bus minus/mix minus. For program or aux buses that are already in stereo, you can just go to the source tab in the console blade, click on the bus and click Edit, then turn on 1ms AES67 support.

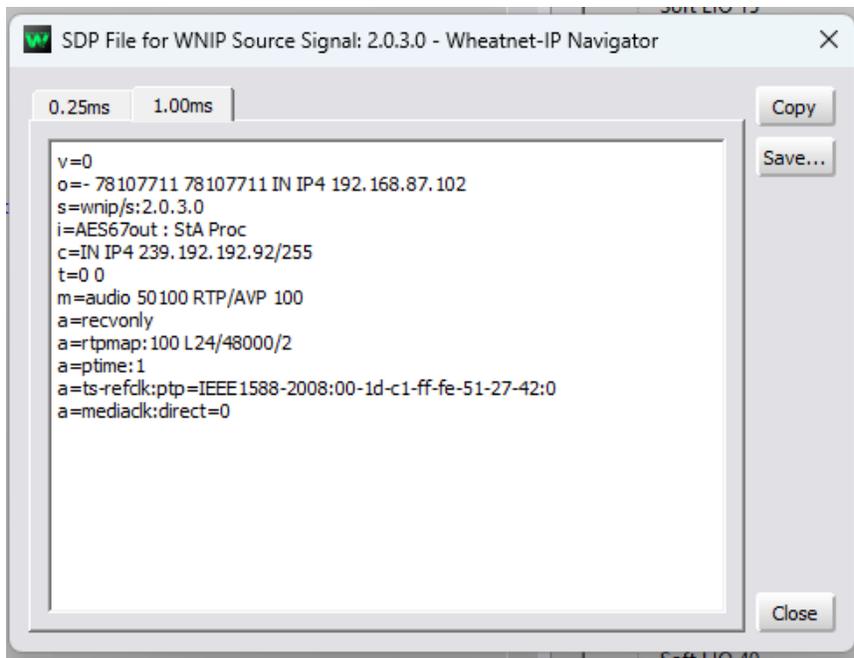


Entering the WheatNet-IP Streams into the Access

Click on the blade of the desired source, then right click on the desired source name. Choose Show SDP.

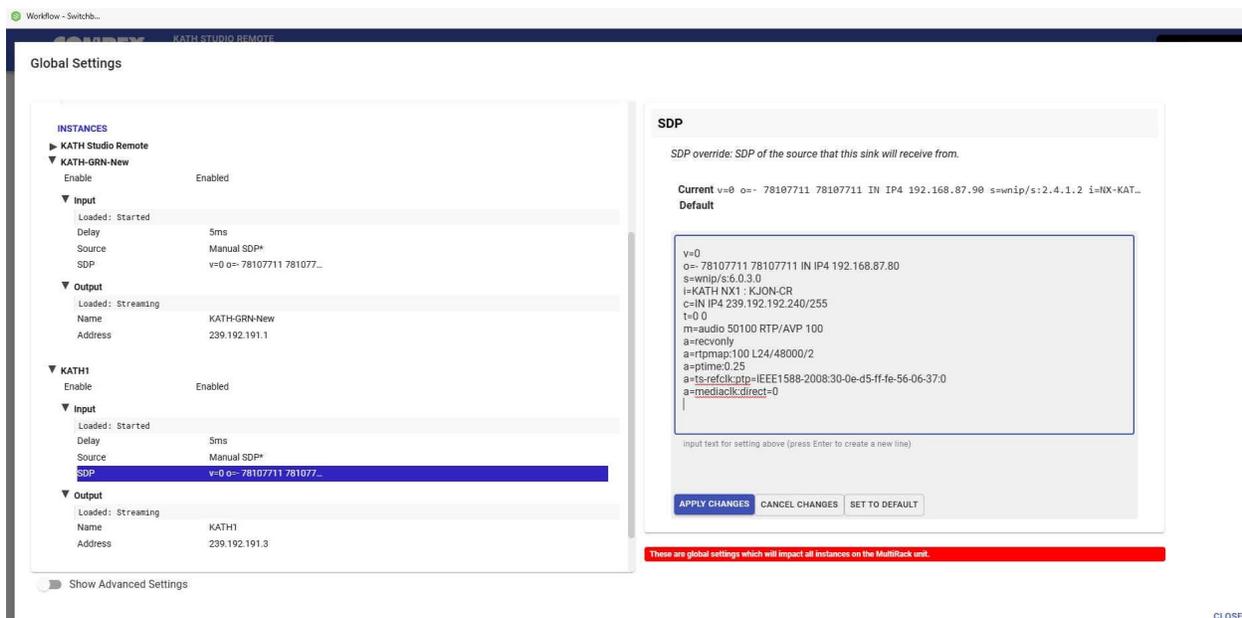


A window with the SDP file will appear. There will be a tab for 0.25ms and another for 1.00ms. Click on the 1ms tab. This file contains all of the relevant information about the stream coming from the Blade that the Access needs: its multicast address, UDP port number, payload type, and packet timing.



Highlight all of the text and copy it.

In the Access web UI, go to Global Settings and open up the desired instance.



Click on the SDP line, which will open up the current SDP settings on the right. Delete the text in this window (if any) and paste in the SDP info you copied from Navigator. As it reloads the information it will briefly error out and then show that it is connected to the WNIP stream. Repeat with the other instances.

Creating The Comrex Output Streams to Wheatnet

You will need to create a unique multicast IP address for each codec in the Access. Any valid multicast IP address will do as long as it does not conflict with the range that Wheatnet IP dynamically assigns or in the range that the Comrex might have reserved.. The range of addresses Wheatnet uses is defined on the Info tab of Navigator. The default is 239.192.192.0 and above. The valid range of multicast addresses used for local networks is 239.0.0.0 to 239.255.255.255, so you could choose an address between 239.0.0.0 and 239.192.191.254 and not conflict with the WheatNet-IP address pool.

Since different manufacturers will use different portions of that wide range of possible addresses, it is best to plan out your addressing scheme, so as you add more AES67 devices you don't overlap. Keep a spreadsheet that you can refer to as you add new equipment in the future.

On the Access, when you turn on AES67, it will create an address automatically for each codec. In the Access AES67 settings, go to Outputs and look at the address that the Comrex selected.

OUTPUTS

▼ Weather Studio: output 1

streaming	
Name	Weather Studio: output 1
Address	239.69.87.29

If the Access chose an address that's outside of the Wheatnet-IP address pool, you don't need to change anything here. If it conflicts with something, find a valid Multicast address that is in the clear, then Apply on the webpage. Disable and re-enable AES67 on the access for it to begin transmitting on the new address. Otherwise, hang on to that address for the next step.

Entering The Comrex Access Stream Information into Navigator

Device	IP Address	Host Blade	Id
AES67D1	192.168.87.60	AURA8	1

First, create an AES67 Device in the system.



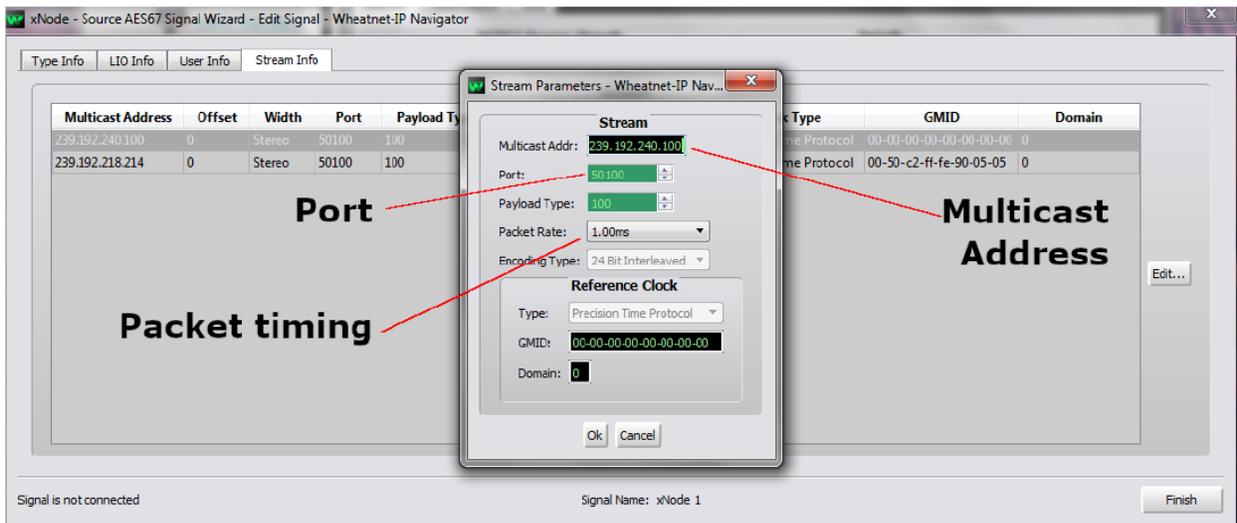
1. In Navigator, click on the Devices tab, then click on the AES-67 Devices Tab.
2. Click Add.
3. Enter the name of the device. (ie "Access NX")
4. Enter the IP address of the Comrex (this is the address of the Access, not the multicast address.)
5. Choose a Host Blade. This can be any blade on the system.

This will create an AES67 "Blade" in the system dock.

Now, we can create our sources. For this step we will need to refer to the streams from the Comrex Access.

In Navigator, click on the AES-67 device that you created in the System dock, and then click on the Sources tab. Click Add.

Name the source. This is what will appear on the console. Then click on the Stream Info tab.



Enter the multicast address from the Access, and UDP port number **5004**. Set the packet timing to **1ms**. The Payload Type should be set to **98**. This will match up with what the Access is transmitting. Click Ok, then click Finish.

Your source is now created and it can be routed to a console. Test audio in both directions.

More information about setting up AES67 is found in the final appendix of both the Blade 3 and Blade 4 manuals. As always, contact us at Wheatstone support if you need further assistance at (252) 638-7000 or techsupport@wheatstone.com.