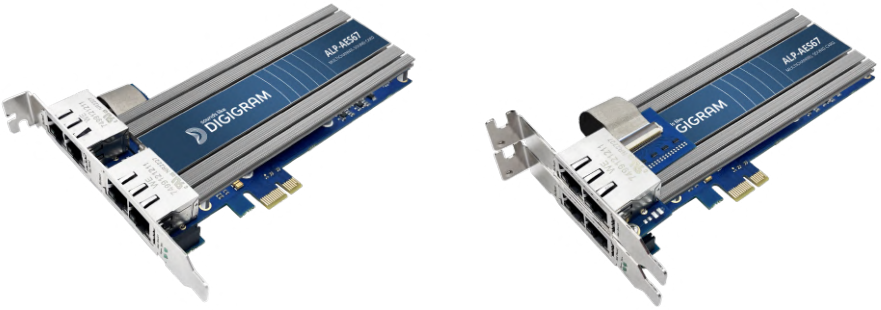
User Manual
ALP-AES67



Professional multi-channel sound card with AES67 connectivity

June, 2024

Author	Date	Status
SBT	04/06/2024	Released

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1 INTRODUCTION

This document describes the installation and use of the Digigram PCI Express ALP-AES67 card under Windows and Linux.

This card is part of the ALP-X professional sound cards range.

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2 IMPORTANT NOTICE

Certifications

The product is currently being certified.

This product has been designed in accordance with the following standards:

- EMC Directive 2014/30/EU.
- FCC Rules Part 15, Subpart B.

To ensure compliance with the standards listed above, the following rules must be followed:

- The cable supplied must not be modified.
- The additional cables used must have their respective shielding connected at each end.

Caution

An electrostatic discharge (ESD) can damage the card components. Take the following precautions to avoid such damage when handling the card:

Connect the card and everything entering into contact with it to the earth potential by providing a conductive surface and discharge paths. Take these precautions as a minimum:

- Unplug all power and signal sources.
- Place the card on an earthed conductive work surface.
- Connect to the earth potential using an anti-static strap or by holding an earthed object.
- Earth all the tools entering into contact with the card.

Given the shortened length of the PCI EXPRESS™ connector and the resulting lack of mechanical stability, we strongly advise against transporting the cards installed in a computer, unless its chassis or case has a device for holding the card firmly in place to avoid material damage.

3 BOX CONTENTS

Thank you for purchasing a DIGIGRAM sound card in the ALP-X range.

The box contains:

- The ALP-AES67 sound card equipped with a low-profile bracket (79.2 mm),
- The expansion card for 2 Eth ports equipped with a low profile bracket (the expansion card can be linked to the main board via the flat ribbon cable).
- a standard height bracket (full height: 120 mm) that can be fitted instead of the low profile one, and that receives the four Eth ports

4 GENERAL CHARACTERISTICS

ALP-AES67 is a low profile PCI EXPRESS™ x1 sound card. It can be inserted into and therefore operate in PCIe® x1, x4, x8 or x16 slots.

4.1 Main hardware characteristics

- Low profile PCIe x1
- Two Gbps Eth ports of the main board (PCIe slot).
- Two additional ports on the expansion board.
- The main board and the expansion board can have their own low profile brackets.
- The main board and the expansion board can use the same standard height bracket.
- Inter-card synchronisation

4.2 Main software characteristics

- 64 playback channels & 64 recording channels at 44.1 and 48 kHz
  32 playback channels & 32 recording channels at 88.2 and 96 kHz
  16 playback channels & 16 recording channels at 176.4 and 192 kHz.
  Simultaneous acquisition and playback in PCM (8, 16 and 24 bit)
- The available Eth ports can be used in switch or redundant mode

- Low latency multi-card and multi-applications drivers
  - Wasapi/DirectSound, and ASIO under Windows
  - Alsa driver under Linux
- "ALP-X Manager" application installed with the Windows driver
- Embedded WEB server for configuration of the network and stream parameters

5 REQUIRED CONFIGURATION

5.1 Required hardware configuration

There are no particular hardware restrictions in terms of PC on using the ALP card and its driver. The PC can have standard height or low profile PCIe card slots.

A PCI EXPRESS™ (PCIe®) x1, x4, x8 or x16 slot must be available to plug in the card.

The processing power and memory required depend mainly on the operating system and the applications used on the PC.

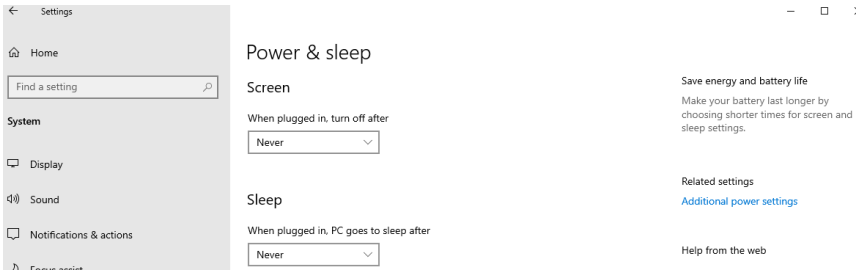
Note: The driver of the card reports to the OS that it does not manage the Sleep mode. As a consequence, the PC should not go to sleep mode.

In case the PC goes to sleep mode under Windows, please proceed as follows to disable the sleep mode.

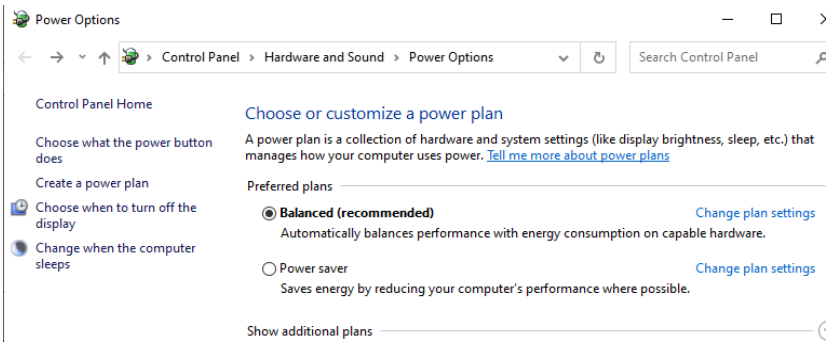
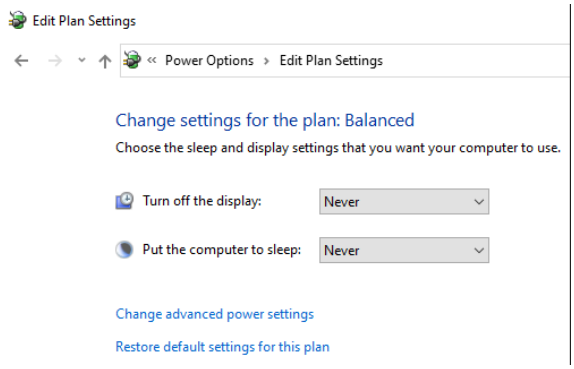
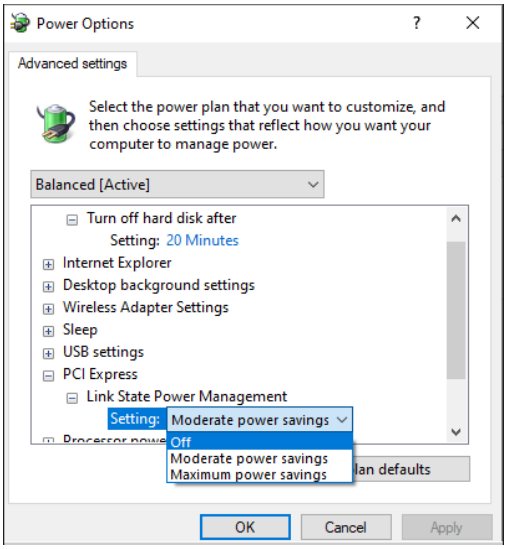
The windows sleep mode for the PCIe bus must be disabled.

Go to Windows Settings, System, and select “Power & sleep”.

Select Never” for the option “Put the computer to sleep”.



On the same window, click on “Additional power settings”.

	Click on “Change plan settings” in front of “Balanced (recommended)”
	Select “Change advanced power settings”.
	Select “PCI Express”, “Link State Power Management”, and select “Off” for the setting. Click on Ok to validate

5.2 Necessary software configuration under Windows

ALP cards operate under Windows from 64-bit versions of Windows 10 from version 20H2.

To use your ALP-X card, you must install the driver included in the installation kit “ALP-X Kit”. Download the latest version from the digigram website from the ALP-AES67 card support page.

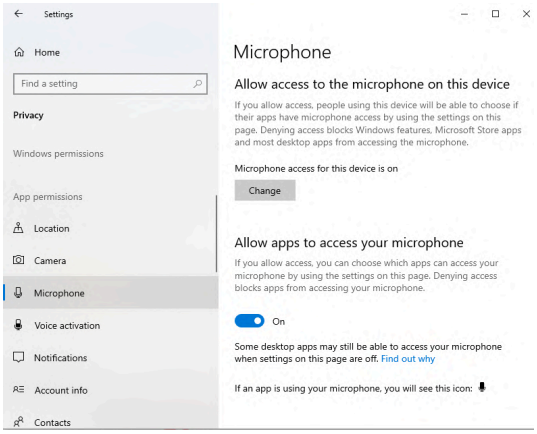
This driver supports all the ALP cards.

The "ALP-X Kit" installer is used to install the following components:

- a 64-bit WDM driver offering the WASAPI and DirectSound application interfaces,
- an ASIO driver (32 bits and 64 bits), with its "ALP-X ASIO Settings" configuration interface. Installing this component is optional,
- the "ALP-X Manager" application, which serves to adjust/view the ALP-X cards settings.. Installing this component is optional.

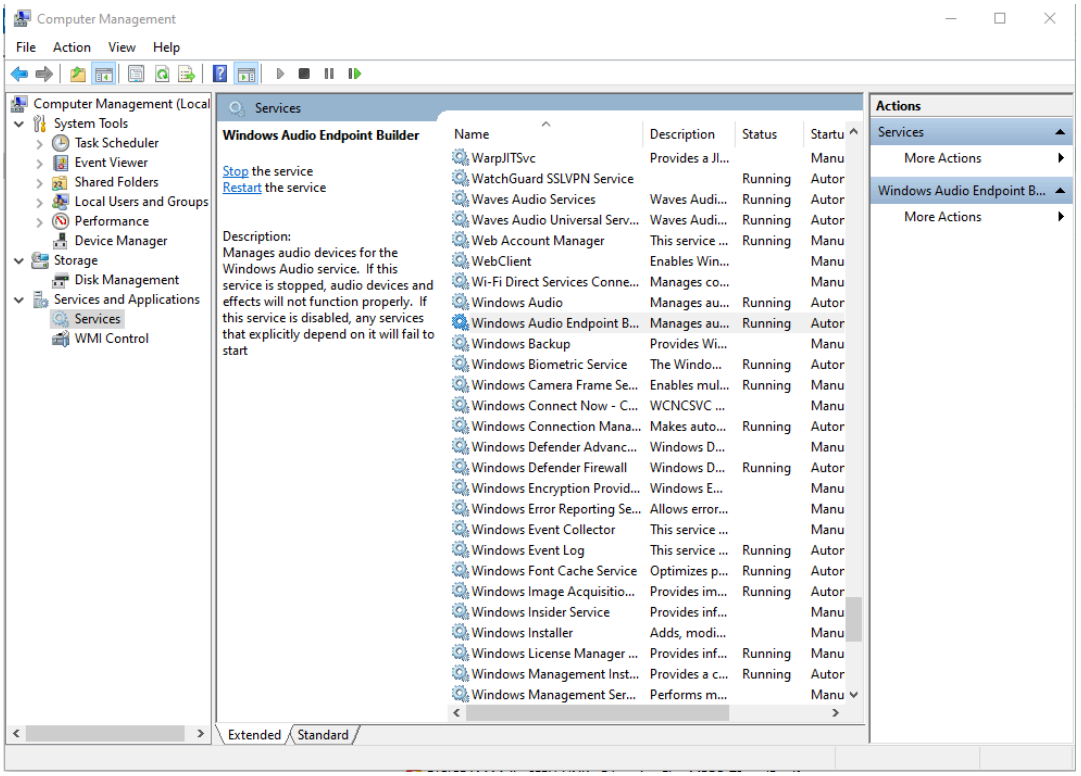
In your Windows system, It may be necessary to allow the applications to access the input audio devices of the sound cards.
Please proceed as follows:

- Go to the Windows Settings, and select ***Privacy***.
- Select “***Microphone***”
- Activate the option “***Allow apps to access your microphone***” as shown here-after:

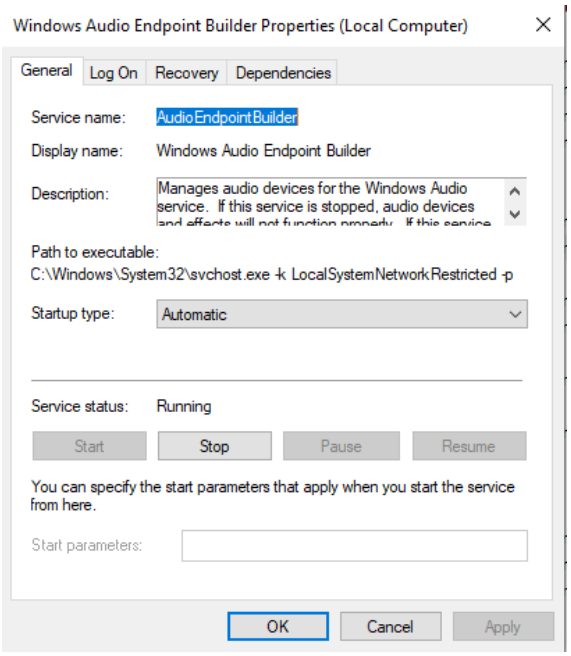


It is also necessary to have the “Windows Audio Endpoint Builder” running under Windows so that the WASAPI audio devices can be used.. On some Windows setups, this service may not be activated by default.

To check this, go to the Computer Management panel, Services, and browse to the line Windows Audio Endpoint Builder.



Double click on Windows Audio Endpoint Builder to display its properties.



From the “Service status” section, if the displayed status is not running, click on Start and then OK. Click on Cancel otherwise.

5.3 Necessary software configuration under Linux

ALP cards are supported under the following Linux distributions, from the mentioned versions:

Ubuntu:

20.04 - kernel 5.15

22.04 - kernel 6.5

Debian

11 - kernel 5.10

12 - kernel 6.1

RHEL 9

kernel 5.14

In case you need to run the driver under another Linux distribution, please contact Digigram to get the source code.

In case you experience issues for compiling / running the driver on your Linux distribution, we propose a service to provide you with the appropriate driver; please contact Digigram.

6 HARDWARE INSTALLATION

Given the shortened length of the PCI EXPRESS™ connector and the resulting lack of mechanical stability, we strongly advise against transporting the cards installed in a computer, unless it features a specific device for holding the card firmly in place to avoid material damage.

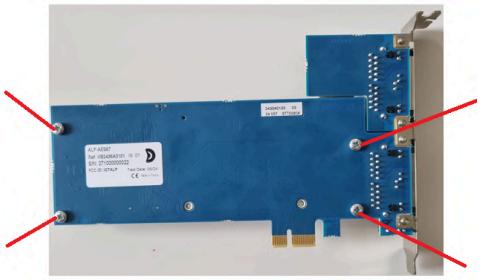
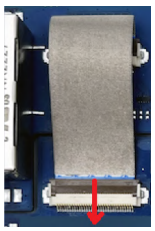
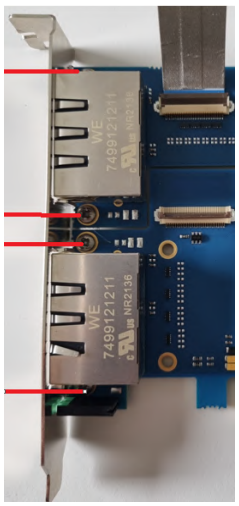
The card must be inserted in the computer before installing its driver.

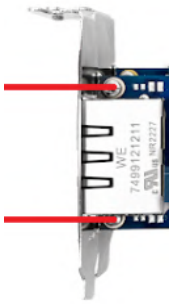
6.1 Preparing the card

Before attaching the card in the computer, make sure the card has the right bracket (low profile or standard profile).

Standard height configurations
By default, the card is delivered with the standard profile bracket mounted.

Low profile configurations
The card can be used with or without the expansion board. The expansion card does not need a PCIe connector, but occupies the slot of a PCIe card, and it can be installed on either side of the ALP-AES67 board.

	On the back of the card, unscrew the 4 screws holding the top radiator in place. Gently remove the radiator.
	Lift up the brown cover of the connector on the main board to remove the ribbon cable from the main board.
	Unscrew the 4 screws, and remove the standard profile bracket, and remove the bracket.

	Install the low profile bracket on the main board, and screw it. If you need to use the expansion board, install the other low profile bracket on it.
	If you need to use the expansion board, gently insert the ribbon cable on the connector (blue section of the ribbon cable face up) and close the clip that holds the connection cable in place.
	Position the radiator on the main board, and screw it on the back of the main board (4 screws).
	On the table, place the expansion board below the main board,

6.2 Installing the card in the PC

Insert the card in the available PCIe slot and press to position it firmly.
In case the card is used with its expansion board, and with low profile bracket,

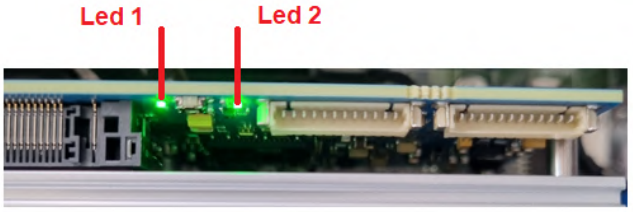
- place the expansion board below the main board,

- place them in the PC (only the main board is inserted a PCIe slot).

Tighten the screw(s) fixing the bracket(s) to the chassis or lock the card(s) using the device provided for this purpose on your computer.
The cards must be firmly attached to the PC chassis.

6.3 Internal LEDs

The ALP card features two internal LEDs on the edge of its mother board, as shown below. The state of these LEDs can be seen when the PC cover is open.



If the card and its on-board firmware are initialised correctly, LED 1 must be lit solid green, and LED 2 must flash every second (1 Hz).
If LED 2 flashes faster (twice per second - 2 Hz), this means that the firmware version that has been uploaded to the card is corrupted, and the card is running the backup factory firmware version. It is then necessary to re-install the appropriate firmware version.

7 SOFTWARE INSTALLATION UNDER WINDOWS

IMPORTANT

To install the software, you must have administrator rights on the computer.

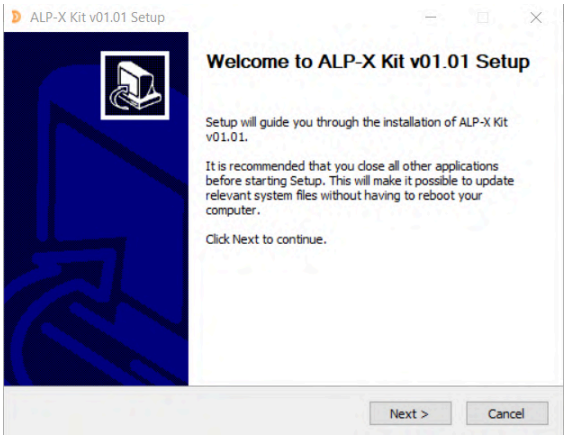
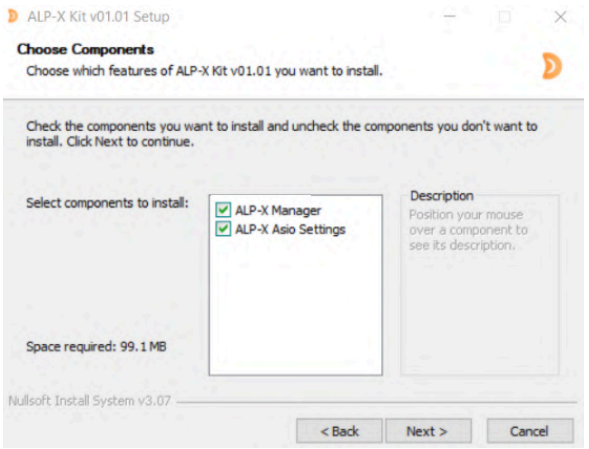
Please visit the Digigram website at www.digigram.com to obtain the most recent driver.

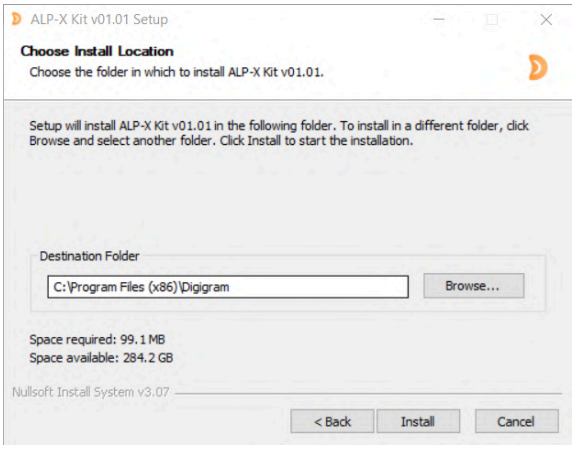
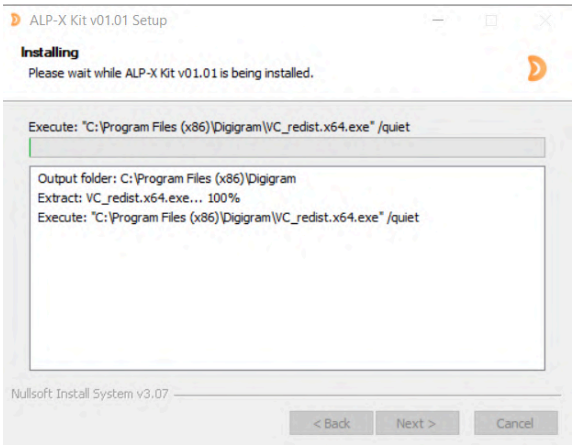
Should you use a specific application developed or installed by a Digigram partner, this may mean using a specific driver version. In this case, confirm with your application supplier which driver version to use.

Any driver downloaded from our website has to be unpacked before installing it. Double click on the downloaded file to start the auto-extraction utility. You can choose the default destination (temporary Windows folder) or select another one.

7.1 Very first installation

- Switch off the computer and insert the ALP card(s) in an available PCIe slot.
- Restart the computer.
- Click on Cancel if the "New device detected" wizard appears.
- Double click on the ALP driver installation file "ALP-X Kit vxx.exe"

	Click on Next to continue with the installation.
	Click on "I agree" to continue with the installation.
	In this window, select the components to be installed in addition to the card driver. • ALP-X Manager: application used to configure the settings of the ALP card(s) installed. Some software programs may have been designed with the ALP card settings controls built in. In this case, it may be recommended not to install the ALP-X Manager application. • ALP-X ASIO Settings: this application is used to configure the ASIO driver

	settings. There is no need to install it if no application reliant on the ASIO interface is used.
	The driver is installed by default in the folder "C:\Program Files (x86)\Digigram\ALP-X". To change this folder, click on Browse and select a new destination. Click on Install to continue with the installation.
	The driver and selected components are being installed.

7.2 Updating the driver version

If you want to install a new driver version, double click on the new driver installation file "ALP-X Kit vxx.exe" (see the detailed procedure in the hereinabove chapter "Very first installation").

7.3 Updating the firmware

The ALP card features two on-board firmware: the "AES67" dedicated firmware, and the board firmware. Updating the firmware can be done from the AVS-Monitor application (see chapter Firmware update procedure). Both firmware can be updated from this application.

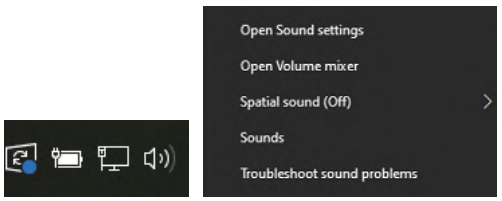
-

7.4 Verifying the card installation

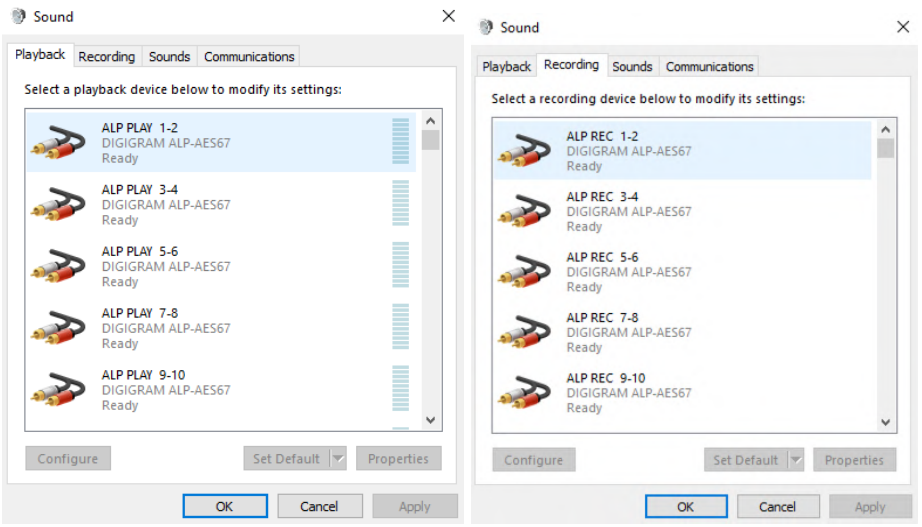
Once the driver and card have been installed as per the process described hereinabove, you can verify that the card is installed correctly and working properly.

7.4.1 Presence of playback and recording devices

The audio devices exposed by the card driver are visible on the Windows Sound panel. To open it, right click on the loudspeaker icon in the Windows taskbar and select "Sounds":



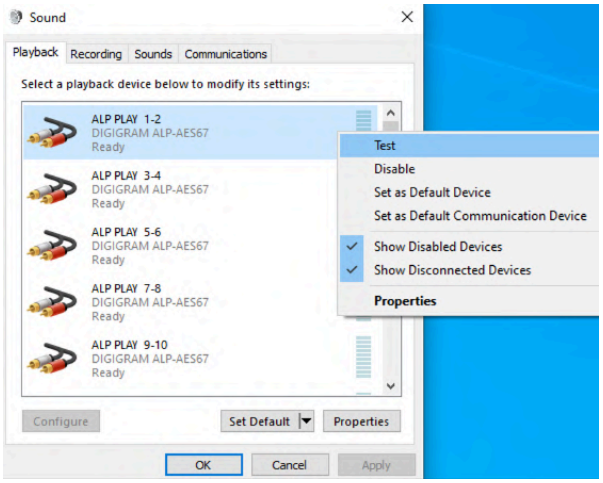
The audio devices exposed by the card driver are visible from the "Play" and "Record" tabs.



If the card devices are not listed in the Windows Sound control panel:

- Make sure that the card is inserted correctly in the PCI slot and screwed to the computer chassis.
- Try to uninstall the **ALP-X Kit** (from the Windows control panel, Applications) and re-install it.

Playback to an output device of the ALP-AES67 can be tested by right clicking on this device and selecting "Test". The VU-meter must then show modulation.



If several cards are installed, their devices have the same names (ALP PLAY and ALP REC), but the name of the card associated with each device differs (different card name, no index for the

first card, and index starting from 2 for the following cards of the same model).
In the example below, the first card in the PCIe slot enumeration order is an ALP-AES67, the second card is an ALP442e, and the third card is an ALP882e.

First card: ALP-AES67	Second card: ALP442e	Third card: ALP882e
ALP PLAY 1-2 *Digigram ALP-AES67* ***ALP PLAY 3-4*** *Digigram ALP-AES67* ... ***ALP PLAY 63-64*** *Digigram ALP-AES67*	***ALP PLAY 1-2*** *Digigram ALP442e* ***ALP PLAY 3-4*** *Digigram ALP442e* ... ***ALP PLAY 7-8*** *Digigram ALP442e*	***ALP PLAY 1-2*** *Digigram ALP882e* ***ALP PLAY 3-4*** *Digigram ALP882e* ... ***ALP PLAY 15-16*** *Digigram ALP882e*

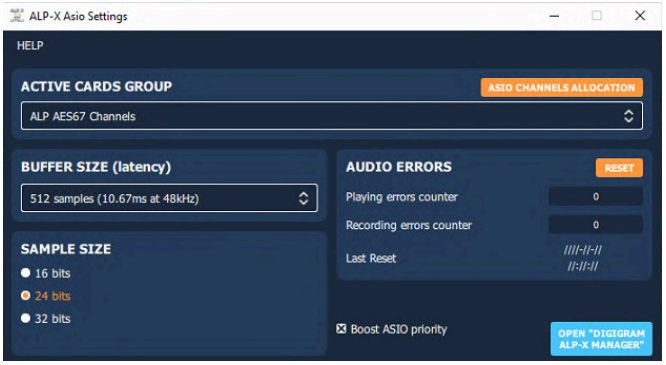
7.4.2 Card detected by the Digigram ALP-X Manager application

The ALP-X Manager application, installed with the driver, is used to control and/or view the ALP card settings via a graphic interface. This application can be launched from the shortcut created on the desktop or from the start menu, Digigram group. The card must appear as below if it and its driver are installed correctly. Note that a maximum of eight ALP cards can be displayed and handled in ALP-X Manager.

7.4.3 Card availability under ASIO

If the ASIO driver for the card has been installed (option to be selected during the installation procedure), then the card must be detected and displayed in the ASIO control panel.
The control panel can be opened from the ASIO-based software application.

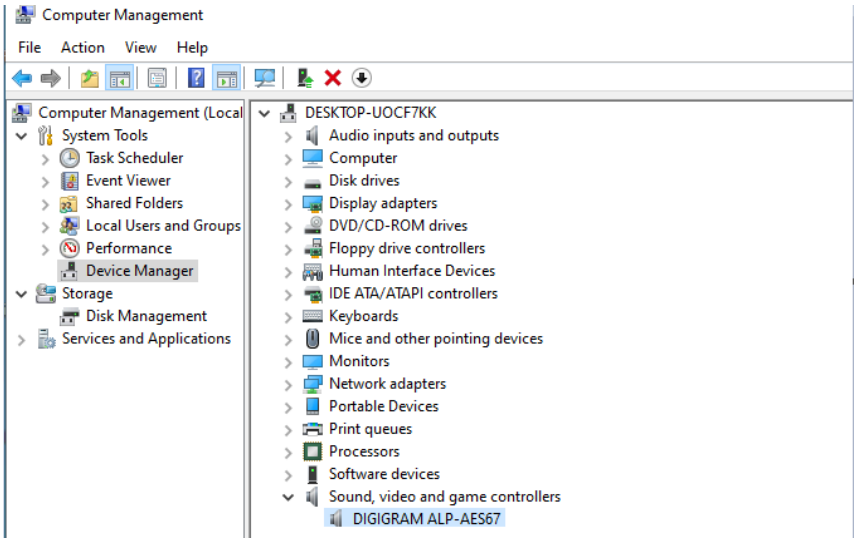
All the present ALP cards must be listed in the "ACTIVE CARDS GROUP" selection list.



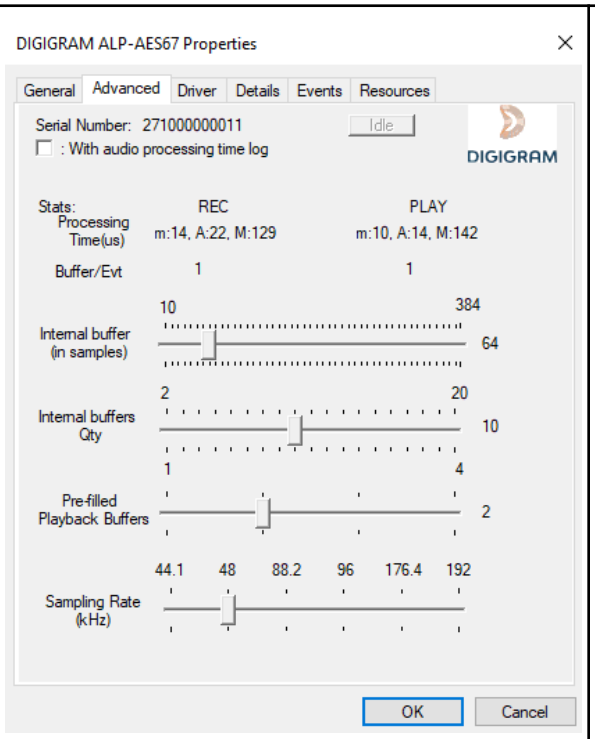
7.5 Adjusting the internal latency of the card

The internal latency of the card is determined by the duration of sample buffers the card exchanges with the PC for playback and recording audio streams. By default, this duration is 32 sampling clock periods (0.67ms at 48 kHz).
The lower the internal latency, the lower the global latency of the card. However, a very low latency may lead to “choppy” audio on slow PCs. In this case it is necessary to increase the internal latency.

The internal latency of the card can be changed by electing the properties of the card, from the Windows Device Manager:



Right click on the ALP card, and select Properties, Advanced. The following window is displayed:



With audio processing timelog:
This option is to be used only for debugging purposes (debugview). Do not activate it unless requested by Digigram technical support.

Stats: These displayed values are only for technical investigation purposes.

Internal buffer: Size of the buffers exchanged between the card and the driver. The size is expressed in samples (ex: at 48 kHz, a value of 48 corresponds to 1ms buffer). Values are from 10 samples to 384 samples. It impacts the latency of the driver.

Internal buffer quantity: Defines the number of buffers used by the driver. This parameter does not impact the latency.

Pre-filled Playback buffers:
This parameter should not be modified. It impacts the latency of the driver.

Sampling rate: Select the sampling rate of the ALP-AES67 card. The ALP-X Manager application must be closed before selecting a new sampling rate value.

Select the new value, and click on “Ok”.

The PC must be restarted.

7.6 Replacing a card

If an ALP card has to be replaced by another one, it is strongly recommended to proceed as follows:

- Turn off the PC.
- Remove the card to be replaced.
- Restart the PC.
- Go to the Windows Device Manager, and select “Sound, video and game controllers”.
  From the “View” menu, select “Show Hidden devices”.
  Select the ALP card that was hidden and select “Uninstall”.
- Turn off the PC.
- Insert the new card.
- Restart the PC.

7.7 Changing the order of installed cards

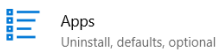
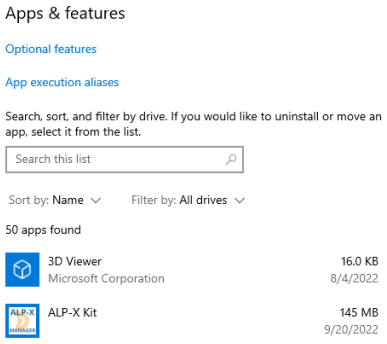
If several ALP cards are installed, and you want to move cards from one slot to another, it is strongly recommended to proceed as follows:

- Turn off the PC.
- Remove the cards to be moved.
- Restart the PC.
- Go to the Windows Device Manager, and select “Sound, video and game controllers”.
  From the “View” menu, select “Show Hidden devices”.
  Select the ALP cards that were hidden and select “Uninstall”.
- Turn off the PC.
- Insert the cards in the appropriate slots.
- Restart the PC.

8 UNINSTALLING THE DRIVER UNDER WINDOWS

Proceed as follows to uninstall an ALP driver version.

Please note that uninstalling a version must be done prior to the installation of another version.

	From Windows Start menu, open the ”Settings” panel
	Click on the “Apps” icon.
	From the list of installed Apps & features, select ALP-X Kit.
	Click on Uninstall. This will remove all the ALP-X … components

9 CONFIGURING THE CARD UNDER WINDOWS VIA THE ALP-X MANAGER APPLICATION

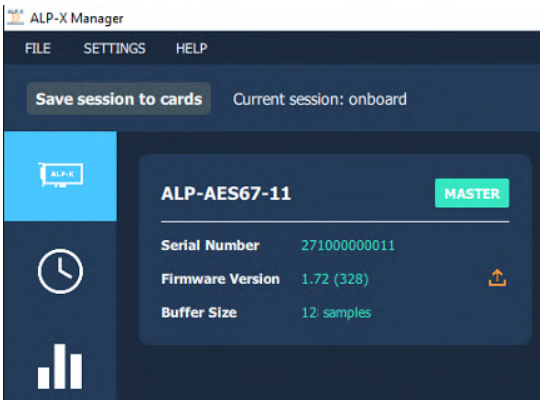
This application can be launched from the shortcut created on the desktop or from the start menu, Digigram group.

9.1 Installed ALP cards

When the application is launched, the window below is displayed and shows all the ALP cards installed in the PC.

If another view is displayed, click on the icon to display the list of ALP cards present and detected.

The following settings are displayed for each ALP card detected:



- its serial number,
- the on-board firmware version,
- the size of buffers exchanged between the driver and the card (see Adjusting the internal latency of the card).

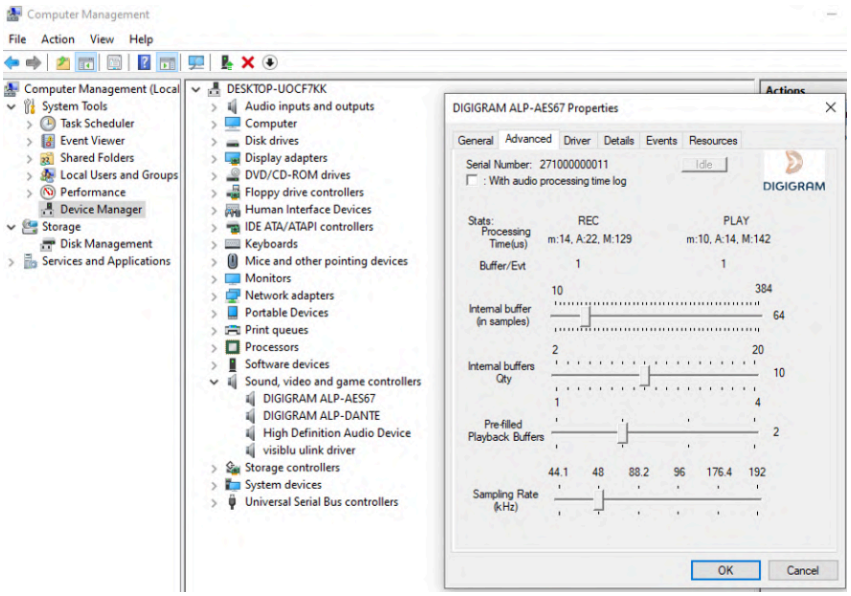
9.2 Sampling clock

The sampling clock of the card is configurable from the Windows Device Manager. The ALP-X Manager application must be closed before changing the sampling clock value.

Open the Windows device Manager, select the item “Sound, video and game controllers”, and right click on your ALP-AES67 card to open its “Properties” control panel. Select the appropriate sampling frequency values.

Select OK to apply the changes. You will be prompted to restart the computer.

Click on the clock icon to display the clock settings of each present ALP card.



9.3 Input and output vu-meters

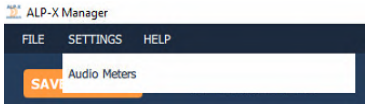
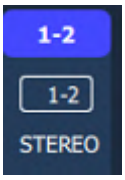
Click on the icon to access the "I/O Monitor" view.

This view displays the vu-meters for all input and output channels.

Input vu-meters reflect the audio modulation received from the AES67 streams routed to the ALP-AES67 card. These are the channels to be acquired from the software application via the recording devices.

Output vu-meters reflect the audio modulation received by the card from each software playback device. Note that the output modulation is displayed even if the AES67 network is disconnected.

The following table lists the various possible settings from the mixer view.

	Vu-meters Each Vu-meter displays the input signal peak-meters in dBfs. Note that there is no clipping information that is reported. As a consequence, **the clipping threshold adjustment that can be found from "Settings-> Audio meters" has no effect.** 
	Click on this icon to display the concerned pair of channels as two mono channel strips.
	Click on this icon to display the concerned pair of channels as one stereo channel strip.
	**Channel strip name** Click on the channel strip name and enter a new name. Note: when a channel strip display is changed from mono to stereo, or stereo to mono, the channel stream name goes back to the default name. As a consequence, it is recommended to keep the display mode used (mono or stereo) when the channel strip names have been changed.

9.4 Firmware update procedure

The ALP-AES67 card on-board firmware may have to be upgraded, and updates can be supplied by Digigram and prove necessary.

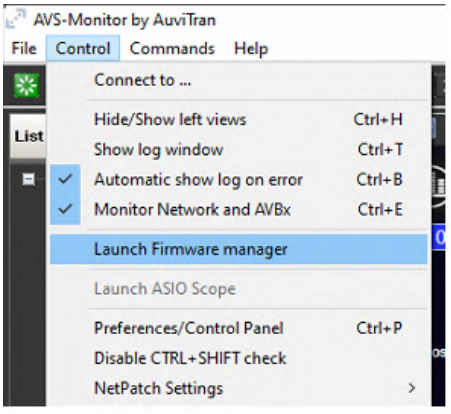
The firmware update has to be done from the AVS-Monitor application, which allows applying a new firmware through the AES67 network. AVS-Monitor is an application from the company Auvitran which is owned by Digigram. It runs under Windows, and accesses the ALP-AES67 card through the AES67 network. As a consequence, the NIC card selected in AVS-Monitor must be connected to the AES67 network.

In case you have not already downloaded this application, click on the button on the right of the "Firmware version" field, as shown on the screen capture below.

AVS-Monitor is constantly updated on Auvitran's WEBsite. It always includes the most recent firmware version for the card. In case the PC running AVS-Monitor is connected to the internet, AVS-Monitor is updated.

When AVS-Monitor is started and the NIC card connected to the AES67 network is selected, AVS-Monitor automatically detects the AES67 products on the network.

To update the firmware of the products, select “Launch Firmware manager” from the “Control” menu.



The Firmware manager application is started.

If the ALP-AES67 card(s) appears with unchecked boxes as shown below, this means that no firmware update is to be done.

If the ALP-AES67 card boxes are checked, then select “Update” on the bottom right of the Firmware Manager window to start the firmware update. Do not shut down the PC hosting the ALP-AES67 card during the firmware update.

A shutdown and restart of the computer hosting the ALP-AES67 card is necessary to take into account the new firmware.

9.5 Creating, saving and loading setting sessions

The current configuration of all settings defined in ALP-X Manager can be saved. Go to the File menu and select "Save session as".

To load a configuration, go to the File menu and select "Open session".

To create a new configuration from blank settings, go to the File menu and select "New session".

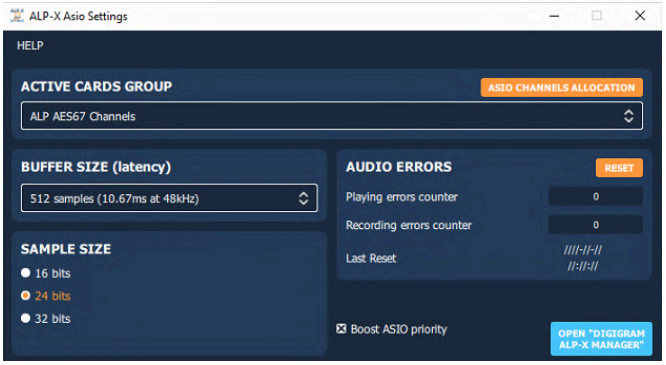
9.6 Keyboard shortcuts

Keyboard shortcut	Action
Session	
Ctrl + S	Save
Ctrl + Alt + S	Save As
Ctrl + N	New
Ctrl + O	Open

10 ASIO CONTROL PANEL for Windows

The ASIO control panel can be started from the Asio application, from the menu allowing for the settings of the audio device and the ASIO configuration.

The ASIO settings are saved per application. The ASIO driver supports multiple simultaneous ASIO applications, provided that they do not use the same channels.



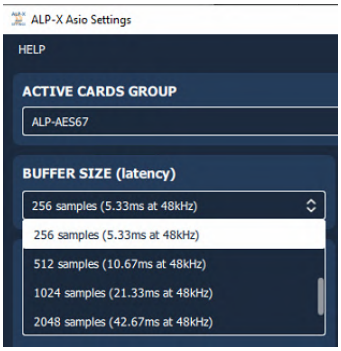
Active cards group/Asio channels allocation

This section is used to select the input channels and output channels that are managed by the ASIO driver and which can therefore be used by any application based on the ASIO interface.

For every card selected from the “ACTIVE CARDS GROUP” list, click on the "ASIO CHANNELS ALLOCATION" button and select the channels to be used under ASIO.

To manage all the installed cards from your ASIO application, select “All ALP Boards” from the list of cards.

A card that is not used under ASIO can be used from a WASAPI or DirectSound application.

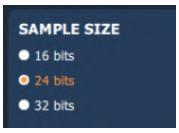
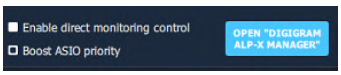


Buffer size (latency)

This section is used to select the size of audio buffers used by the ASIO driver. This size is given as a number of samples and a cross-reference in duration is indicated for a sampling frequency of 48 kHz. The higher the buffer size, the higher the latency.

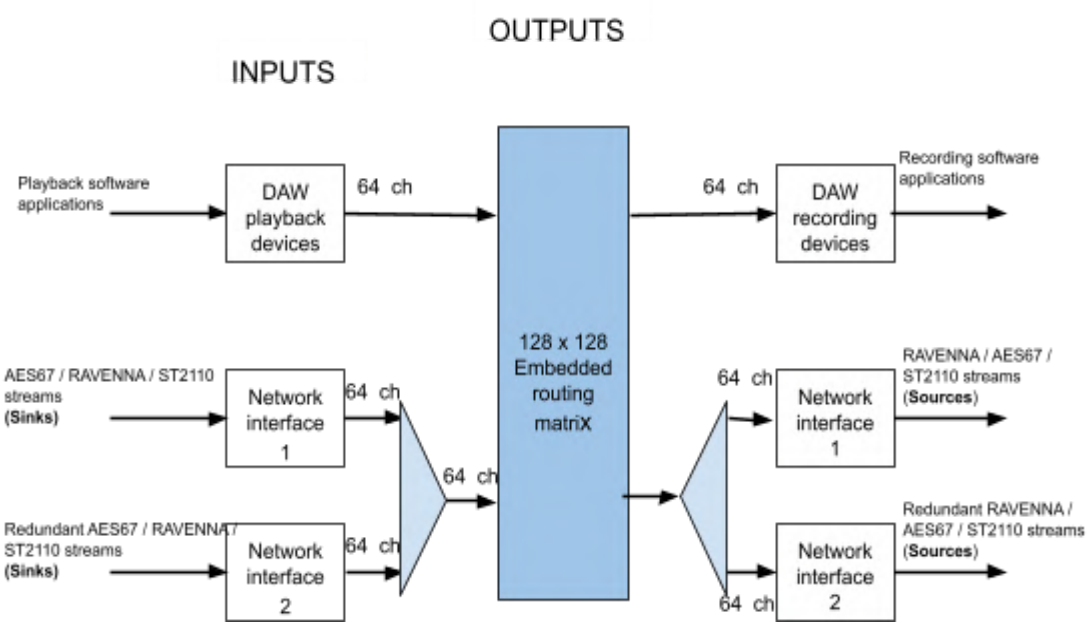
A small buffer size can lead to breaks in audio throughput on a low-powered machine or on a machine with a high processor load.

Buffers sizes followed by the symbol * cannot be selected. A smaller internal buffer size must be selected from the Windows Device Manager, Sound, video and games controllers , ALP-AES67 advanced settings.

<table>
<tr>
<td> 
</td>
<td>Sample size
This setting defines the format of samples exchanged between the application and the card driver.</td>
</tr>
<tr>
<td rowspan="2"> 
</td>
<td>Enable Direct Monitoring Control
This feature has no impact on the ALP-AES67. The hardware monitoring is not supported.</td>
</tr>
<tr>
<td>Boost ASIO priority
This option allows the system to run the ASIO process with high priority, thereby increasing the reliability of this process. Caution, however, this can make other processes unstable.</td>
</tr>
<tr>
<td>
</td>
<td>Audio errors
This section is used to visualise current errors for playback and recording via the ASIO driver. Errors frequently reflect too small an ASIO buffer size for the system's possibilities. Should they occur, then the buffer size needs to be increased until there are no more errors.
Sync status errors reflect clock synchro errors (AES11 external clock, WordClock or inter-card synchro).
Error counters can be reset to zero by clicking on the RESET button.
Lastly, a time counter displays the time elapsed since the last counter reset.</td>
</tr>
</table>

11 ALP-AES67 principles

11.1 Embedded routing matrix



The inputs of the on-board routing matrix are:

- 64 playback channels coming from the software playback audio devices used by the application based on the ALP driver running under Windows or Linux.
- 64 channels coming from the network interface 1 (or interfaces 1 & 2 when they are configured in redundant mode). Audio channels are extracted from the IP streams to be received and which are named “Sinks”.

The outputs of the routing matrix are:

- 64 channels assigned to the software recording audio devices used by the application based on the ALP driver running under Windows or Linux.
- 64 channels assigned to the network interface 1 (or network interfaces 1 & 2 when they are configured in redundant mode). These channels are the audio sources of the AoIP streams published to the network 0. These streams are named “Sources”.

11.2 Clock

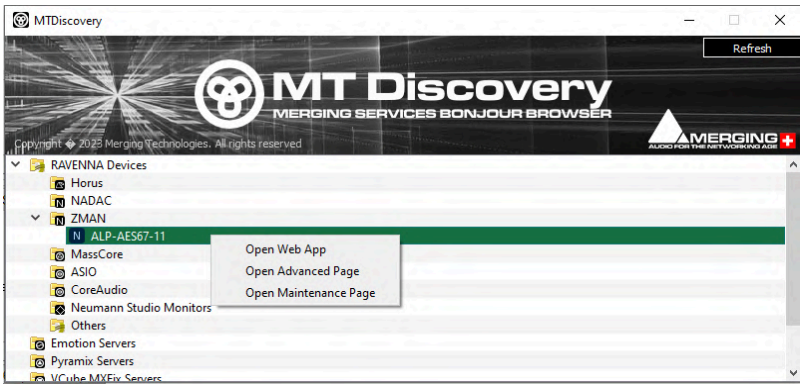
The ALP-AES67 can be slaved to the PTP clock, or master PTP clock on the network.
Slave to PTP clock: the source clock is the PTP clock.
Master PTP Clock: the clock source has to be internal, WordClock, or MADI, and the card is elected as Master PTP on the network if its PTP clock has a higher priority than other potential Master PTP clock units on the network.

CONFIGURATION OF THE AoIP PARAMETERS

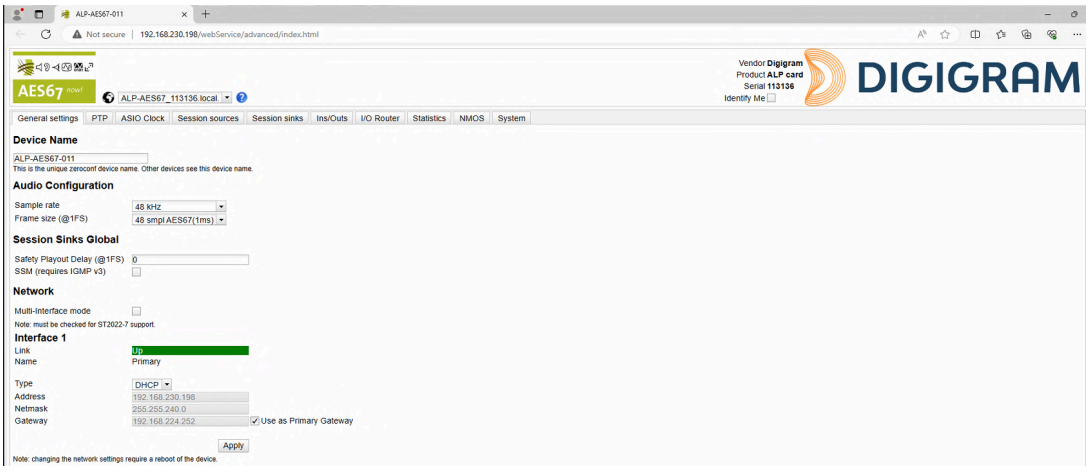
The network parameters of ALP-AES67 can be configured through its embedded WEB server, which is accessible from any of the two Eth ports.

To access the WEB interface of the ALP-AES67 card, connect the PC network interface to the network your ALP-AES67 is connected to.
The ALP-AES67 Eth ports are by default in DHCP mode. In case there is no DHCP service on your network, the ports are in APIPA mode (Automatic Private Internet Protocol Addressing), with the range of IP addresses 169.254.0.0/16

You can use an application such as MT Discovery to detect the card and access its WEB pages:

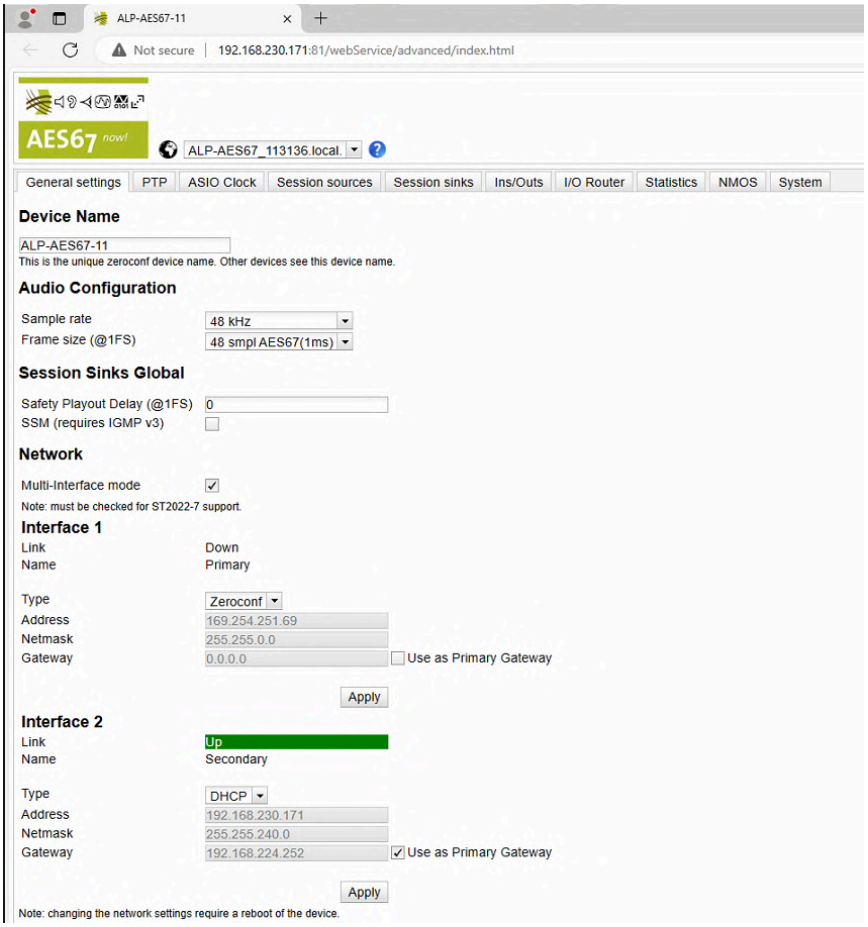


The following page is displayed.



The settings are accessible via different tabs:
General settings, PTP, ASIO clock, Session sources, Session sinks, Ins/Outs, I/O router, Statistics, NMOS, System

12.1 General settings



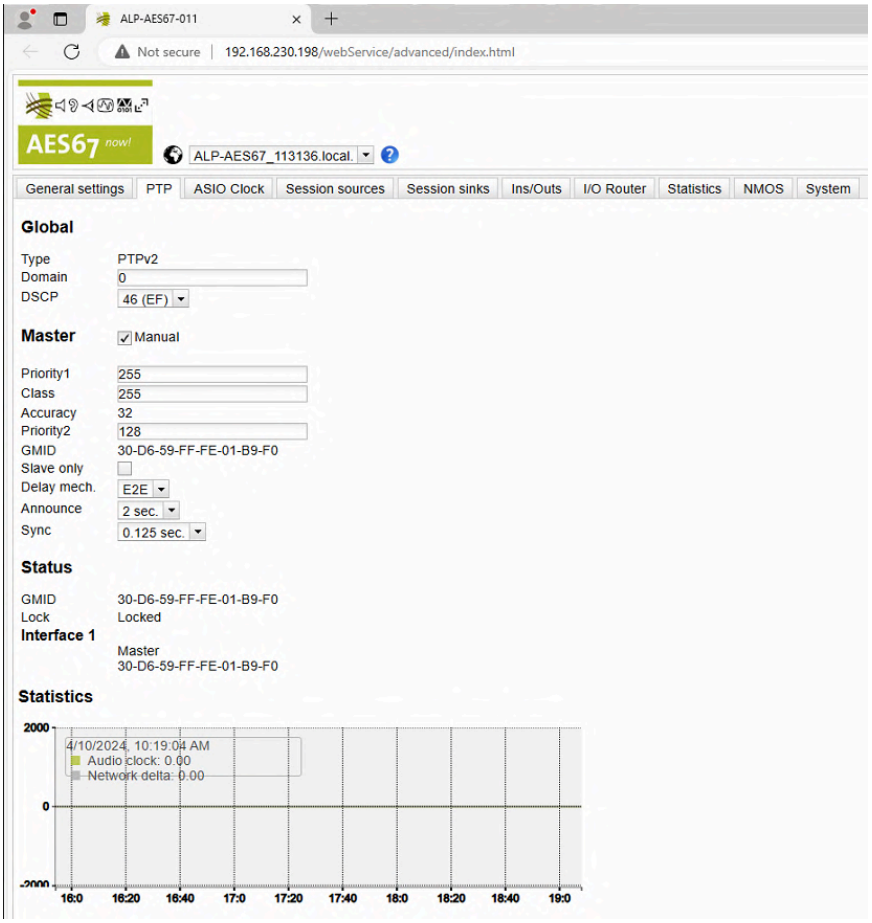
Parameter	Description
Device Name	This is a unique device name. Other devices on the network see this device name. We recommend not exceeding 32 characters.
Audio Configuration	
Sample Rate	Non modifiable. Reflects the current sample rate (44100-48000-88200-96000-176400-192000-352800-384000 Hz) that is set from the ALP-AES67 properties on the driver side.
Frame size (@1Fs)	Current frame size (64 - AES67/48 - 32 -16 - 12 -6). Note that available frame size values may not be available or differ according to the device and/or firmware.
Session Sinks Global	
Safety Playout Delay (@1Fs)	Additional playout delay. The value is described at 1Fs (44.1-48 kHz) in samples. For example, if the value is 10, the additional playout delay will be 20 at 2Fs (88.2-96 kHz), 40 at 4FS (176.4-192 kHz),...
SSM (requires IGMP v3)	Source-Specific Multicast. If you activate this option, make sure your network switch supports and is configured for IGMP V3.

Network	
Multi-Interface mode	Activate / deactivate ST2022-7 mode
Interface 1-2 (Interface 2 is displayed if “Multi-interface mode” has previously been enabled and applied)	
Link	Status
Name	Information only - can't be modified
Type	Defines the type of IP V4 address used (Zeroconf - DHCP- Static)
Address	To be set only if Type is set to Static. Otherwise, these fields display the assigned values.
NetMask	
Gateway	

Reboot is required to apply the changes

.

12.2 PTP settings

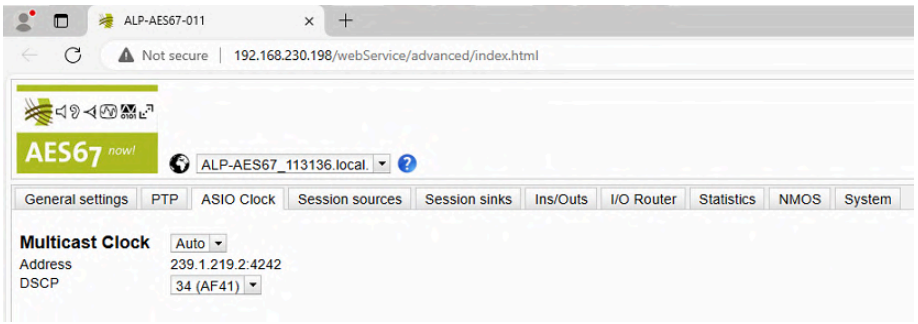


Parameter	Description

Global	
PTP Domain	Allows to define a specific PTP domain, usually when several PTP masters are required in the same network (default value is 0).
DSCP	PTP DSCP. Values: 46-EF : PTP AES67 48-CS6: PTP RAVENNA 56-CS7
Master	
Manual	This checkbox must be checked to modify the PTP settings
Priority 1	Main priority value (1= Highest priority; 255=lowest priority)
Class	Device class. This value should not be modified
Accuracy	Non modifiable
Priority 2	Only used if the other parameters do not allow for the election of a PTP master.
GMID	Non modifiable. Current GrandMasterID (PTP Master)
Slave only	Forces ALP-AES67 to always be PTP slave
Delay Mech	PTP Profile related - E2E or P2P
Announce	PTP announcement interval (1 - 2 - 4 - 8 -16 seconds)
Sync	0.0625 - 0.125 - 0.25 - 0.5 seconds
Status	
GMID	Non modifiable. Current GrandMasterID (PTP Master)
Lock	Shows if the device is locked to PTP (Locked -Locking - Unlocked)
Interfaces 1 & 2	
PTP status	Master : Device is Master Slave : Device is Slave Listening : The interface is not used for synchronization
Statistics	The graph is only active in slave mode. Green curve: shows the audio clock delay vs the current Master PTP clock. Grey curve: shows the network delay vs the current Master PTP clock, before the device synchronisation algorithm.

12.3 ASIO Clock

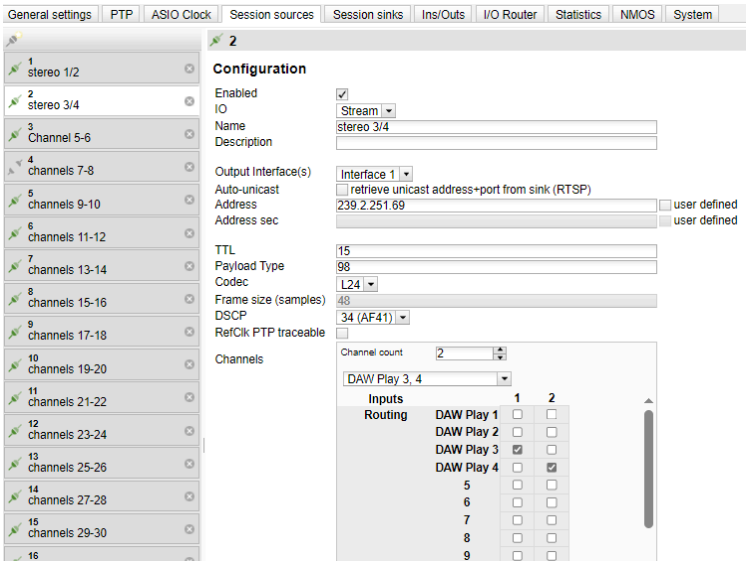
This tab allows setting the parameters of the clock that can be generated for MERGING AUDIO DEVICE software synchronization.
If this software is not used in your system, just disable this feature (Multicast clock = Off).



Parameter	Description
Global	
Multicast Clock	Off, On, Auto Allows to enable/disable the multicast ASIO clock. Auto activates the ASIO clock only on the master PTP device.
Address	Multicast address of the ASIO Multicast Clock
DSCP	Allows setting the ASIO Multicast Clock DSCP value: 34 (Default), 46, 48, 56. When using a switch, make sure that the ASIO Clock DSCP has a high value in the switch DSCP to Queue table

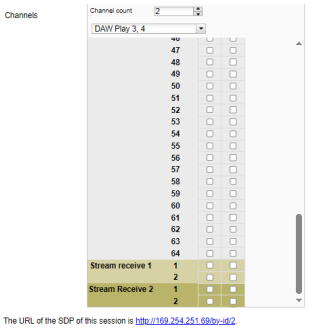
Session sources

This page allows for the declaration of session source instances on the ALP-AES67 (transmitters that generate the IP streams).



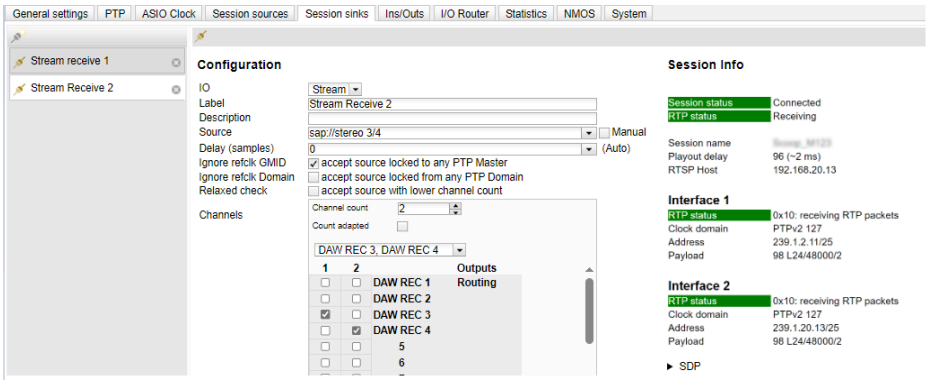
Click on the button to create a new session.

Parameter	Description
Enable	Enables the selected source (active by default)
IO	Non modifiable (Stream)
Name	Source name (63 characters max).
Output interface(s)	Select the network interface (1, 2, or 1&2 in case of ST_2022-7) used for streaming this session.
Auto-unicast	Automatically retrieves the IP address of the sink (listener) for a unicast connection
Address / User defined	Check “user defined” to manually enter or modify the multicast IP address of the generated stream.
Address sec / User defined	Not accessible if only one Eth interface is enabled. Check “user defined” to manually enter or modify the multicast IP address of the redundant stream (ST-2022-7).
TTL	Time to Live (also called Hop Limit) - this value should not be modified
Payload type	RTP Payload type - this value should not be modified
Codec	L24 - L16 - DSD64 - DSD64_32 - DSD128 - DSD128_32 - DSD256 (bit rate). Note that those values are sampling rate dependent;
Frame size (samples)	Frame size of the current source. Reflects the frame size set from the General settings section.
DSCP	Ip audio stream DSCP value (34: RTP AES67 / 46: RTP Ravenna / 26 / 0)
RefClk PTP traceable	This feature is useful when you want to connect a stream through the Internet (e.g. with two PTP Masters (GPS) at each location). It allows making connections with devices locked to different traceable PTP Masters.

	See also “Ignore refclk GMID” - accept source locked to any PTP master on the Session Sinks section below.
Channels	
Channels: Channel count	Number of channels in the stream. The “Channel count” drop down menu allows selecting the number of contiguous channels from the 64 available channels.
Routing table	The routing table allows for the selection of the content of each channel of the stream, among the 128 possible output channels of the ALP-AES67 internal matrix. The first 64 displayed channels are software playback channels. The following channels are the channels received from declared sinks. In the picture above, the channels to be streamed are channels 3 & 4(named DAW Play 3 & DAW Play 4) from the playback application on the PC. Note that the channels can be selected from the sinks receivers, listed after the DAW channels. 
The URL of the SDP of this session is	Allows saving the Session Description into a file (useful for specific third party devices if manual SDP has to be provided). Note : Devices in 2022-7 mode will produce a 2022-7 SDP, containing both interfaces session parameters. If you load such SDP in a non-2022-7 device, only the session parameters from interface1 will be used.

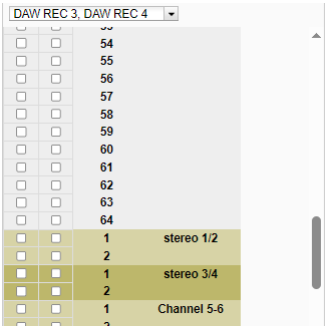
12.4 Session sinks

This page allows for the declaration of session sinks (receiver instances) on the ALP-AES67.



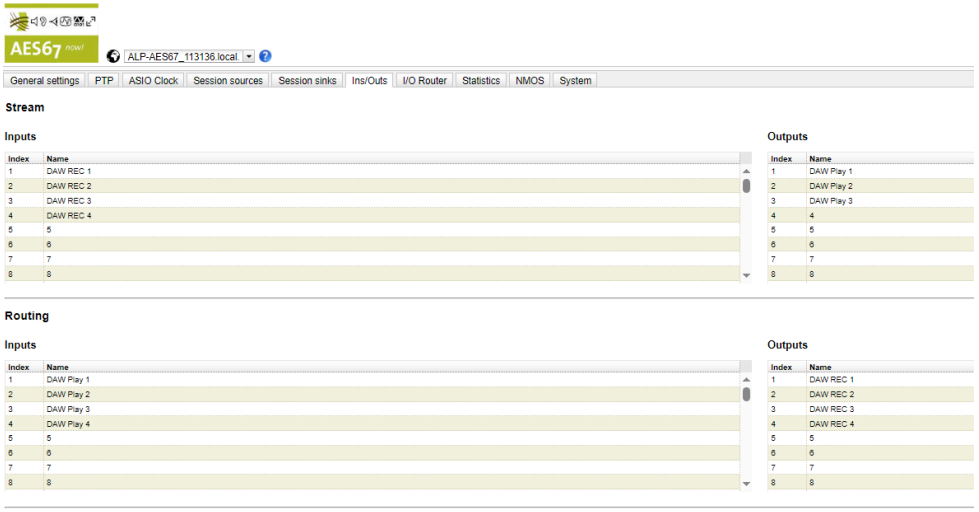
Click on the button to create a new session.

Parameter	Description
IO	Non modifiable (Stream)
Label	Sink name (=receiver name)
Source	Drop down menu to select a source (both sap and bonjour advertised sources are listed).
Source: Manual	Allows to manually enter a SDP
Delay (samples)	Playback delay. 0 is an automatic delay (works with devices based on the AES67 technology from Merging Technologies). If set to 0, and when using devices that are not based on the Merging Technologies technology, the playout delay is calculated based on the value a=framecount in the SDP. In any case, the frames must be time aligned; all devices must run an integer number of frames from time zero (epoch).
Ignore refclk MGID: - accept source locked to any PTP master	This feature is useful when you want to connect a stream through the Internet (e.g.with two PTP Masters (GPS) at each location), it allows making connections with devices locked to different traceable PTP Masters. See also RefClk PTP traceable on the Session Sources page.
Ignore refclk MGID: - accept source locked from any PTP master	This feature is useful when you want to connect a stream through the Internet, it allows for connections with devices locked to different PTP domains.
Relaxed check	Allow connection to a source that has less channels
Channels: Channel count	Number of channels in the stream. The associated drop down menu allows selecting the “Channel count” contiguous channels from the 64 available channels. Received channels can be routed towards the DAW recording channels, or towards the declared source streams listed after the DAW rec devices:

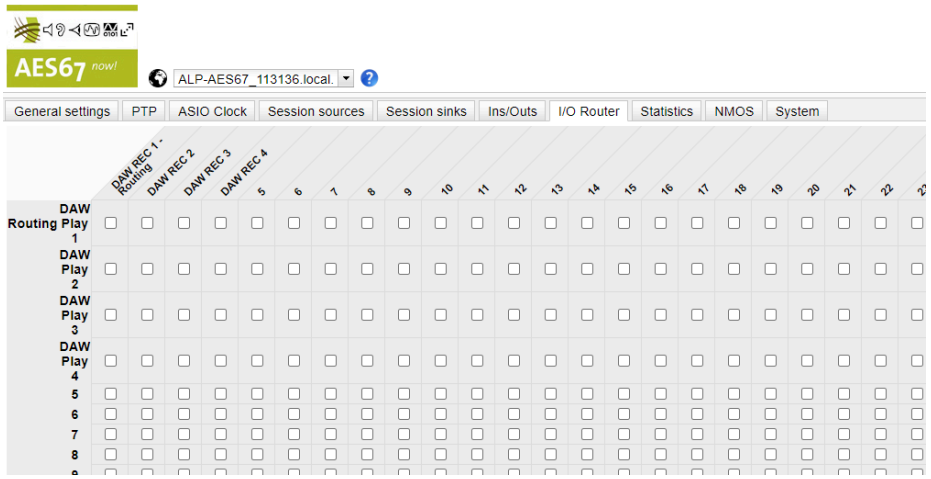
	
Channels: Count adapted	To be used if the number of channels does not match
Session Info	
Session status	Status Initializing / Ready : The Sink has been created, and waiting for the Source information to connect. Status Started : The Sink is trying to connect to the Source. Status Connected : The Sink is connected to the Source. Status : The Sink can't connect to the source, see the error message for details.
Interface 1-2	
RTP Status	Connection status. The displayed value is the sum of the following error value: 0x10 receiving RTP packets 0x01: wrong RTP sequence id 0x02: wrong RTP SSRC 0x04: wrong RTP payload type 0x08: wrong RTP SAC 0x20 stream has been muted 0x40: Horus implementation - an incoming stream is muted 0x80: ST2022-7 mode only - both interfaces are not receiving RTP packets properly → muted Exemple. : Stream muted (0x20) and Wrong payload (4) will be displayed as 0x24
Clock domain	PTP clock type and domain
Address	Multicast IP address of the selected sink
Payload	Payload / Codec / Sampling Rate / Number of channels
SDP	Displays the detailed SDP information on the current stream.

12.5 Ins / Outs

This page allows you to change the name of the Inputs and / or Outputs.



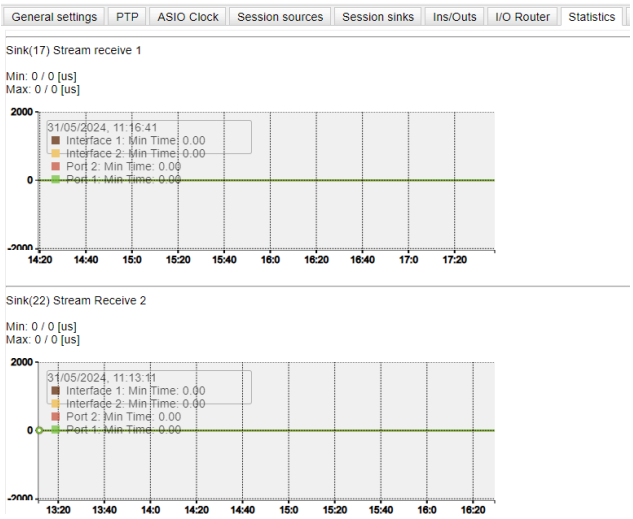
12.6 I/O Router



This page allows configuring the routing from the input channels of the internal matrix to its output channels.
An input channel can be routed to several output channels.
But multiple input channels **cannot** be routed to an output channel (no mixing on the output channel).
The input channels of the matrix are listed vertically on the left. The scroll bar on the right of the page allows scrolling down/up.
The output channels of the mixer are listed horizontally. The scroll bar at the bottom of the page allows scrolling right/left.
To access the input channels coming from the received streams, scroll first down until you see the horizontal scroll bar.

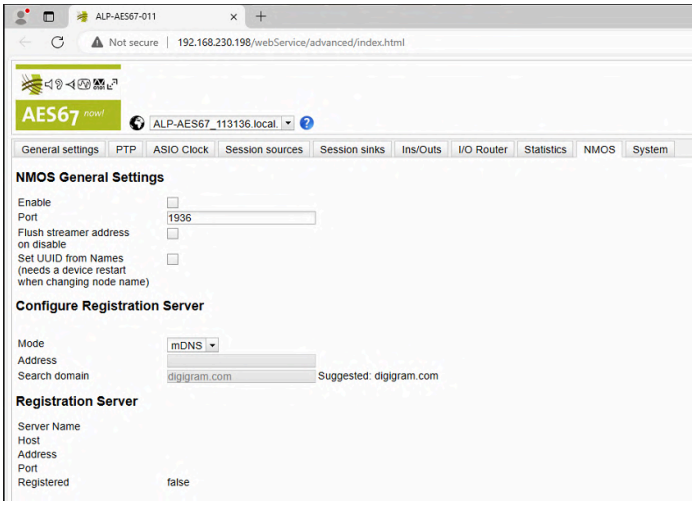
12.7 Statistics

This page gives statistics about the sinks (received IP streams).



12.8 NMOS

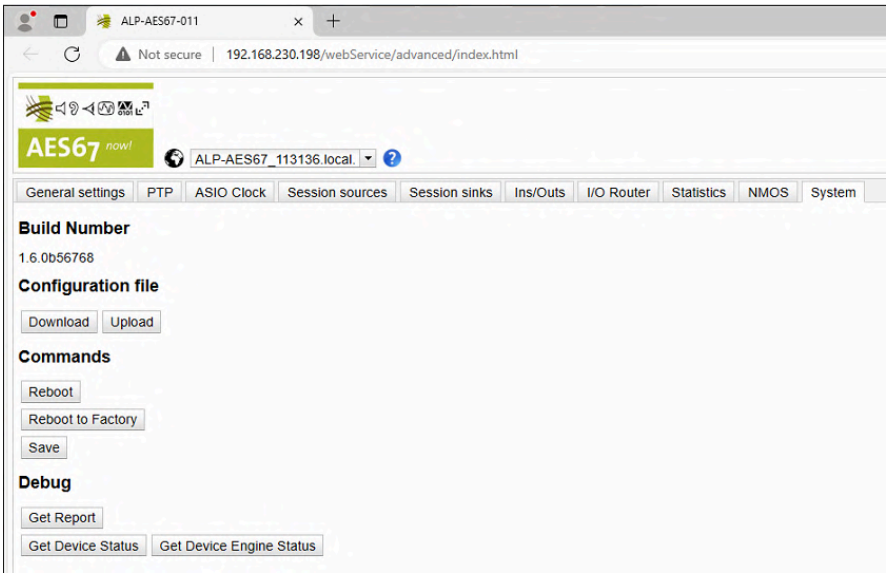
This page allows configuring the NMOS settings for discovery/registration, and for device connection management.



Parameter	Description
NMOS General Settings	
Enable	Enable or disable the NMOS client, following the Port and Registration server configuration. NMOS must be disabled to modify the registration server settings.
Port	ALP-AES67 NMOS communication port
Flush streamer address on disable	Clears the streamer address when the stream is disabled. This option might be useful with some NMOS servers
Configure Registration Server	
Mode	Registration Server communication modes : ● mDNS(Bonjour): Automatic communication to a Registration Server, using Bonjour service (The server needs to advertise with Bonjour Service) ● Search domain: A search domain needs to be supplied. The search domain associated with the primary network interface is shown as Suggested. ● Static Address: The registration server is found using the address given in the “Address” field. This is currently the preferred and most common way to establish communication with a NMOS Registration Server. (Sony NMOS CPP, RiedelNMOS,...)
Address	When Mode is set to Static Address, this allows the user to enter the server IP address and port (<ip address>:<port number>). In other modes, this field only displays information when the communication is established.
Search Domain	When Mode is set to Search Domain, this allows the user to enter a domain (Unicast DNS). In other modes, this field only displays information when the communication is established.
Registration Server (This section provides status information about the Registration Server)	

Server Name / Host	Provided by the Server (with DNS or mDNS). Note that this field may remain empty when Mode is set to static
Address / Port	Server IP address and Port
Registered	True if a registration server can be reached

12.9 System



Parameter	Description
Build number	Current firmware version.
Configuration file	
Download/upload	Save/Load a configuration file (preset)
Commands	
Reboot	Restart the device
Reboot to factory	Restore all settings to factory default, and restart the device
Save	save the current configuration.
Debug	
Get report	Generates a debug report, and saves it on the local computer. If the report is not saved automatically, make sure your web browser did not block the download
Get device status	Displays the device status (SysLog)
Get device engine status	Displays the device engine

13 SPECIFICATIONS

13.1 Configuration

Bus/Format	PCI EXPRESS™ x1 / Low profile (compatible x2, x4, x8, x16)
Dimensions	168 mm × 69 mm x 20 mm
Consumption (+3.3 V/+12 V)	0.4 A / 0.3 A
In operation: temperature/humidity (without condensation)	0°C/+50°C • 5%/90%
Storage: temperature/humidity (without condensation)	-5°C/+70°C • 0%/95%

13.2 Audio characteristics

Sampling frequency	44.1, 48, 88.2, 96, 176.4, 192 kHz (set from Windows Device Manager, ALP-AES67 card properties)
Audio formats supported	PCM: 16, 24, 32 bits

13.3 Connectors

Internal connectors	Inter-card synchronisation
External connectors	4 x Gbps RJ-45 connectors Either located on the standard height bracket, or 2 per low profile bracket (main board, and expansion board). Expansion board may not be connected if the two ports are not required.

13.4 Development environment

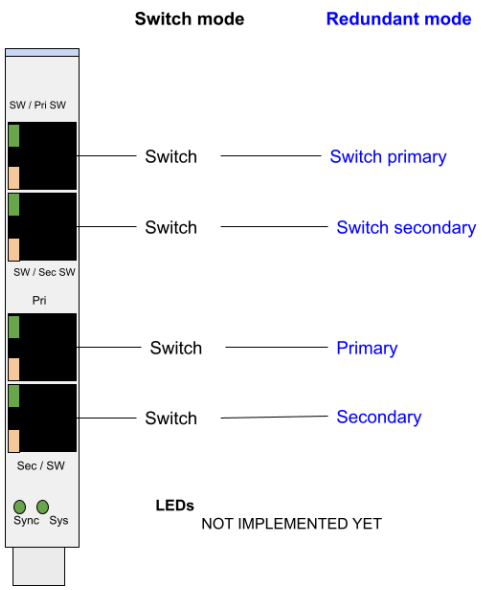
Drivers	Windows: WASAPI, ASIO Linux: Alsa
Operating systems supported	Windows 10 from version 1809 Linux (Ubuntu 20.04, 22.04, ebian 11

14 APPENDICES

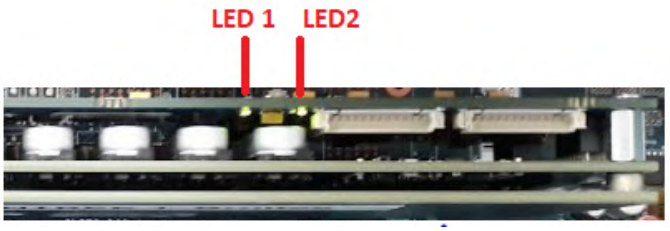
14.1 LEDs

The ALP card has four green LEDs: two LEDs on the PCB (only visible when the PC is open) and two LEDs on the bracket as illustrated in the diagram below.

Bracket LEDs



Internal LEDs



If the card and its on-board firmware are initialised correctly, LED 1 must be lit solid green, and LED 2 must flash every second (1 Hz).
If LED 2 flashes faster (twice per second - 2 Hz), this means that the firmware version that has been uploaded to the card is corrupted, and the card is running the backup factory firmware version. It is then necessary to re-install the appropriate firmware version.

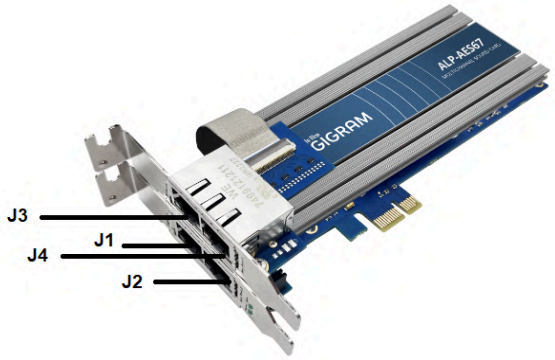
LED	Description	Behaviour
LED 1	Signals when the card is initialised correctly	Solid green lit

LED 2	Signals if the card is running the last updated firmware or the backup factory firmware version.	• Flashes every second: The card runs the last uploaded firmware version (normal behaviour). • If this LED flashes differently, the card runs the backup factory firmware instead of the last uploaded version This last firmware is corrupted in memory and has to be applied again.

14.2 Connectors

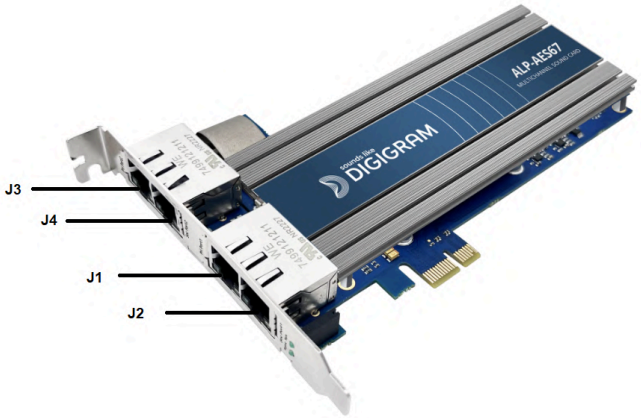
Card equipped with the low profile bracket.

Without the expansion card



With the expansion card (low profile brackets)

Card equipped with the standard profile bracket



Eth connectors

Mode	J1	J2	J3	J4
Switch	Primary	Switch	Switch	Switch
Redundant	Primary	Secondary	Switch Primary	Switch Secondary

Note: Switch and Redundant modes are configured from the ALP-AES67 WEB pages.

Please contact your distributor for all technical support issues

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