MERGING + AES67



RAVENNA/AES67 Virtual Audio Device Guide

V19.03.2020

MERGING +
AUDIO FOR THE NETWORKING AGE

RAVENNA
AES67 built-in

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Overview

The Merging **Virtual Audio Device Standard edition** is free of charge and intended for owners of a Network Interface hardware RAVENNA or AES67 compatible who wish to work under Mac OS.

The **Virtual Audio Device Premium edition** is bundled free of charge for owners of at least Merging Horus, Hapi or Anubis who wish to work under Mac OS. It requires at least one Merging device to be detected over the network

Virtual Audio Device driver

Apple's Audio Drivers (Core Audio) is a standardized audio driver system for all Macintosh computers running on Mac OS X allowing access to all Core Audio compatible audio interfaces

System Requirements

Certified MAC Operating Systems (OS) The Core Audio driver and VAD are qualified under macOS

- Yosemite* 10.10.x: RAVENNA -VAD (Core Audio) v2.0.31254.dmg - Not Supported with v2.1.x
- El Capitan* 10.11.x: RAVENNA -VAD (Core Audio) v2.0.31254.dmg - Not Supported with v2.1.x
- Sierra* 10.12.x: RAVENNA -VAD (Core Audio) v2.0.31254.dmg - Not Supported with v2.1.x
- High Sierra 10.13.x: RAVENNA -VAD (Core Audio) v2.0.36877.dmg and higher
- Mojave 10.14.1 to 10.14.4: RAVENNA -VAD (Core Audio) v2.0.36877.dmg and higher
- Mojave 10.14.5 and 10.14.6: RAVENNA -VAD (Core Audio) v2.1.41964 dmg and higher
- Catalina 10.15.1 and 10.15.2: RAVENNA -VAD (Core Audio) v2.1.41964 dmg and higher
- Catalina 10.15.3 and 10.15.7: RAVENNA -VAD (Core Audio) v 2.1.45186.dmg and higher

** Legacy macOS no longer supported by Apple nor Merging. Works as is.*
macOS BisSur is not yet supported by Merging.

Warning: Users updating to Horus-Hapi firmware v3.9.4 and above must install VAD 2.0.39648 and higher.

Warning: 10Gb Ethernet Adaptors are not certified for VAD usage. Please consider the use of an Apple or Belkin USB-C to ETH adapter if you have such a Hardware Interface.

Notes

Virtual Audio Device Standard edition:

• The latency can be set to 1ms (48-AES67), 4ms (192), 6ms (288), 10ms (480)
Note: effective latency depends on Application buffer size
• The driver can be used as default device and System (alert) device.
• Mac Parental Controls and Security Firewall should be switched OFF

• Numbers of inputs and outputs available • 1fs (44.1kHz / 48kHz) = 64 I/O

Note: The number of I/Os could be less if the application does not support these numbers

Warning: If you encounter issues such as glitches, reduce the IO count, since Performance is dependent on system Performance & Configuration

Recent Macs could be subject to a potential hardware issue http://cdm.link/2019/02/apple-2018-glitch/

Virtual Audio Device Premium edition:

• Requires at least one Merging Network Interface Hardware (Horus, Hapi or Anubis) on your network

• Anubis is supported as of VAD 2.0.39648 and higher

• The latency can be set to 16, 32, 48 (AES 67), 64, 128, 192*, 288* and 480* samples

Note: effective latency depends on Application buffer size

** with version above 2.1.41930.dmg*

• The driver can be used as default device and System (alert) device.

• Mac Parental Controls and Security Firewall should be switched OFF

• Numbers of inputs and outputs available 128 I/O at all sampling rates

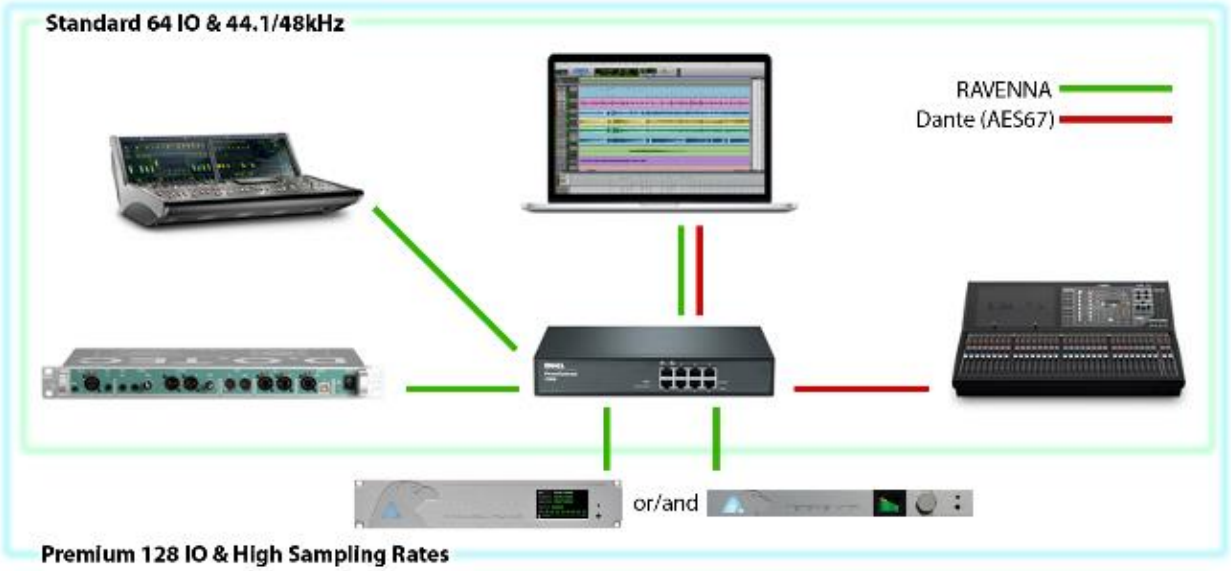
Note: The number of I/Os could be less if the application does not support these numbers

Warning: If you encounter issues such as glitches, reduce the IO count, since Performance is dependent on system Performance & Configuration

RAVENNA/AES67[1] Virtual Audio Device Specifications:

Driver	RAVENNA/AES67[1] Virtual Audio Device	
	STANDARD Edition v2.1	PREMIUM Edition v2.1
Requirements	Any AES67 compatible device	Requires at least one Merging Network Interface connected over the network (e.g. Horus, Hapi or Anubis)
Operating System macOS	Yosemite* 10.10.X - ElCapitan* 10.11.X - Sierra* 10.12.X - High Sierra** 10.13.X - Mojave 10.14.X*** - Catalina 10.15.1/10.15.2***	
Latency	1ms (48-AES67), 4ms (192), 6ms (288), 10ms (480)	16 - 32 - 48 (AES67) - 64 -128 - 192 - 288 - 480 samples
Sampling rate supported	44.1/48kHz	44.1/48kHz, 88.2/96kHz, 352.8/384khz, DSD64, DSD128, DSD256
I/O @ 44.1/48kHz	64 Inputs and Outputs[2]	128 Inputs and Outputs[2]
I/O @ 88.2/96kHz	Not Available	128 Inputs and Outputs[2]
I/O @ 176.4/192kHz	Not Available	128 Inputs and Outputs[2]
I/O @ 352.8/384kHz/DSD	Not Available	128 Inputs and Outputs[2]
MIDI Pre Amps	Not Available	MIDI Pre Amps & Din support
Bundled application	MT Discovery	MT Discovery
[1] SAP implemented in device so no need for a RAVENNA-2-SAP (SIP is not supported)		
[2] The I/O performance will vary with the system configuration.		
* Yosemite, ElCapitan and Sierra are LEGACY. Not supported anymore by Apple nor Merging. Works as is. Older VAD do not support MERGING+ANUBIS		
** High Sierra has been certificed under VAD version 2.0.37039.dmg and higher.Merging now recommends version 2.1.41930 and higher		
*** Mojave 10.14.5/10.14.6 and Catalina 10.15.1/10.15.2 supported. VAD 2.1.41930 and higher recommended. Catalina 10.15.3 and 10.15.4 not yet supported.		
MERGING+ANUBIS is supported as of VAD version 2.0.37039.dmg and higher		
ANEMAN comes as a separate installer and should be installed along the VAD. Download www.aneman.net/#download MERGING+ANUBIS users must use ANEMAN v1.1.8 and higher		
Warning: Recent Mac come with a 10Gb ethernet interface that is not support by RAVENNA today. Using an external adaptor USB-C to ETH is recommeded in such case		

STANDARD version: Free with any RAVENNA/AES67 Hardware compatible device
PREMIUM version: Bundled free for owners of a Merging Network Interface



Installing the Merging Virtual Audio Device

Prerequisites

The Merging **Virtual Audio Device** driver can be installed as a stand-alone driver, at least one Network hardware RAVENNA or AES67 compatible is required for the Driver to be operational.

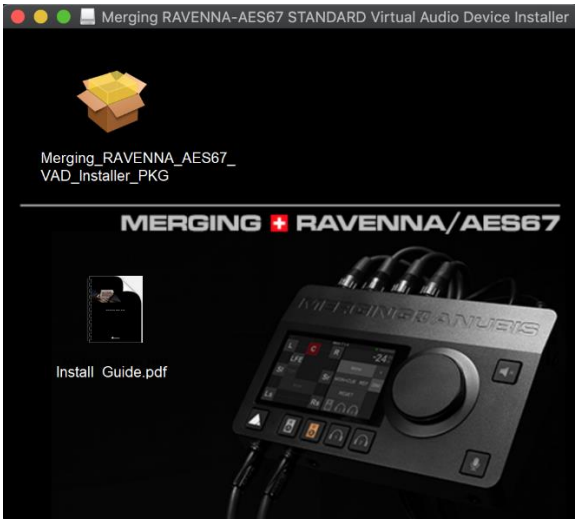
OS

Refer to the System Requirements above

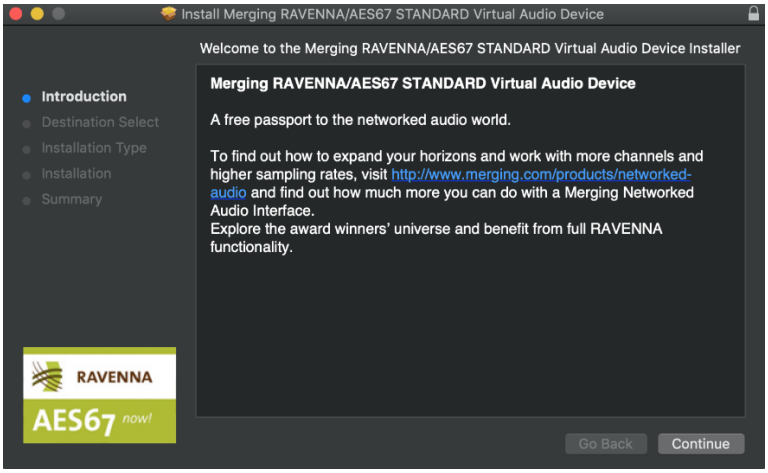
Installation Procedure

1. Download the Merging **Virtual Audio Device** Installer for MAC.
http://www.merging.com/products/networked-audio/downloads

2. Open the Merging_RAVENNA_AES67_VAD_Standard_Installer.dmg file and mouse click on it



3. Click on Continue to proceed with the installation.

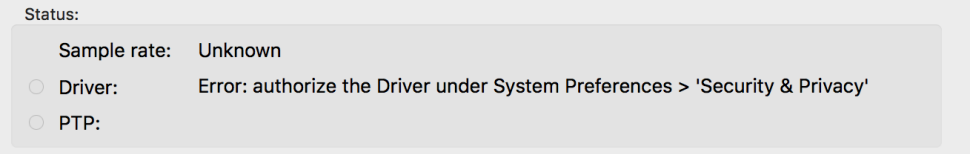


4. Follow the installer instructions. You will be prompted to enter the Administrator password

5. When the install is complete it will display Successful. Click Close to exit.

6. Restart the MAC after the driver installation is completed.

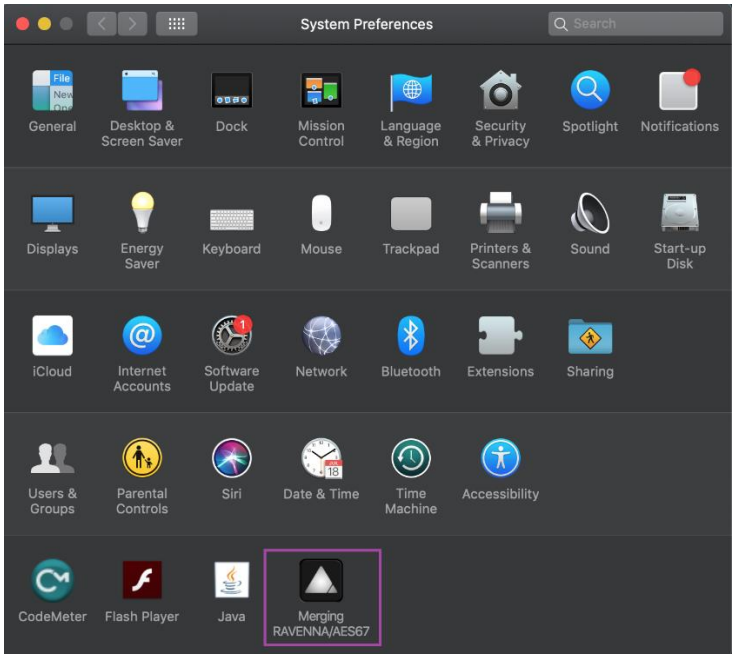
IMPORTANT:
If the Driver is not well authorized a warning should be displayed on the Driver VAD Panel



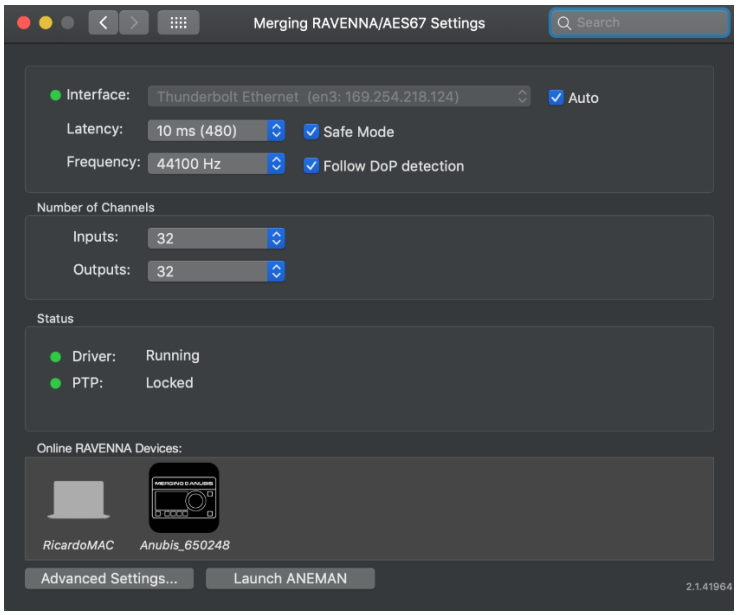
The OS requires you to immediately authorized the Driver by going to the System Preferences>Security& Privacy and Allow the driver if it is listed in the General Settings under “Software Developer”.
The “ALLOW’ button might not be clickable in remote access please connect a mouse locally and have a local access to the mac in order to select the “Allow” option. There is a possibility that this message does not show, that depends on how the macOS update was performed.

Important: As of the latest VAD, the installer no longer includes ANEMAN that is the Merging Audio NEtwork MANager that will allow you to connect, monitor, and manage your networked audio devices.
Please download and install the latest ANEMAN in order to manage and monitor your AoIP devices from www.aneman.net/#download

7. Go into MAC System Preferences, in Other open the Merging RAVENNA icon.



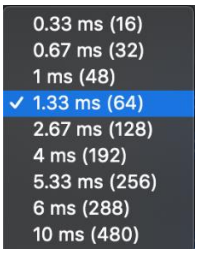
8. Configure the **Virtual Audio Device** Settings:



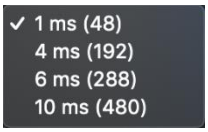
Interface:
Lists all available network ports. Select the network port the Network Interface is connected to.

- Gray: No interface or interface not properly configured, preventing driver to run
- Green: Driver properly running and Interface at 1Gb
- Yellow: Interface at 100Mb
- Red: Potential security issue

VAD Premium Latencies:



VAD Standard Latencies (as of v2.1.42635>):



1.33ms (64 samples). Merging recommended latency

1ms (48 samples) recommended for AES67 compliance (VAD Standard)

16, 32, 48, 64, 128, 192*, 288* and 480* samples (VAD Premium)

** with version above 2.1.41930 dmg and above*

Supported Host Framing: 48 - 64 - 128 samples

Safe Mode:

Depending of the configuration in place enabling this mode will ease up the play engine and could prevent some clicks from occurring

Follow DoP Mode:

Identifies if the data stream provided by the application is DoP in that case the VAD is reconfigured in DSD

Frequency:

Standard: Fixed at 44.1kHz or 48kHz

Premium: 44.1/48kHz, 88.2/96kHz, 176.4/192kHz, 352.4/384 kHz, DSD64, DSD128, DSD256

Number of Channels:

Inputs: • 0,2,8,16,32,40,48,56,64 (Premium goes up to 128)

Outputs • 0,2,8,16,32,40,48,56,64 (Premium goes up to 128)

Status

- Driver:
    - Gray: Driver stuck
    - Green: Driver properly running
    - Red: Potential security issue
- PTP*:
    - Green: PTP locked
    - Yellow: PTP locking
    - Red blinking: PTP unlocked

** PTP support for any domain (not only 0) is supported with VAD premium version 2.0.37746.dmg and above*

Online RAVENNA Devices:
The panel shows an icon for each RAVENNA device online.
• Clicking on the computer icon opens the Advanced Settings RAVENNA pages
• Clicking on the RAVENNA/AES67 Network Hardware icon opens the web browser and loads the Remote Access web pages.

Advanced Settings:
Will open the Advanced Settings pages, this can be useful in order to connect 3rd party hardware IO to the VAD. Refer to our Advanced Settings Guide for more details.
http://www.merging.com/uploads/assets/Installers/ravenna/Merging%20Advanced%20Settings%20guide.pdf

Launch ANEMAN:
Please first download and install the latest ANEMAN from: www.aneman.net/#download
Will open ANEMAN an Audio NEtwork MANager, that will allow you to connect, monitor, and manage your networked audio devices.
Refer to the ANEMAN User Guide installed along the VAD for all details

Note: MERGING+ANUBIS is supported as of ANEMAN v1.1.7 build 39648 and higher

9. Configure the application you wish to use (DAW) so that the I/O connections use the **Virtual Audio Device**

Input or Outputs connections

Virtual Audio Device Standard:
Users should refer to the **Configure Merging and AES67 devices guide** for more details
http://www.merging.com/products/networked-audio/downloads
This guide should also be installed along with your **Virtual Audio Device** driver

Virtual Audio Device Premium:
Users can use ANEMAN or RAVENNA Easy Connect installed along with the Device Driver to perform their IO connections. Refer to the ANEMAN user manual or the Easy Connect guide, installed along the VAD.

Remote MIDI Pre control (for Premium users only)

The Remote PreAmp control are available only with the Virtual Audio Device **Premium** version

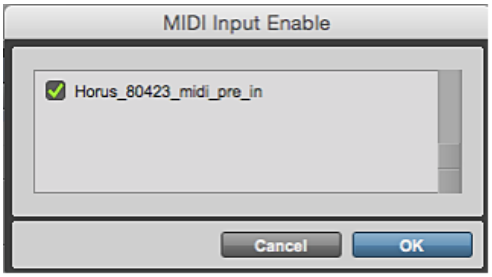
Pro Tools on Mac

Horus / Hapi / Anubis analog preamps can be controlled directly from within Avid Pro Tools running on a Mac. (using Virtual Audio Device Premium). In order to set Pro Tools up for Horus / Hapi / Anubis preamp control follow this procedure:

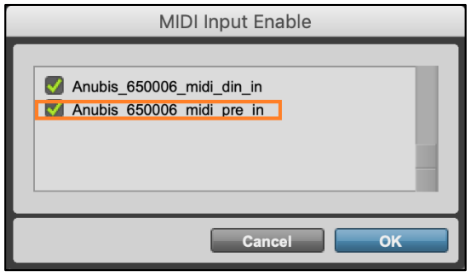
1. Check the Horus / Hapi / Anubis firmware version and update if necessary, to the latest version.
2. Connect Horus / Hapi / Anubis to the system running Pro Tools through the Ethernet port.

Within Pro Tools

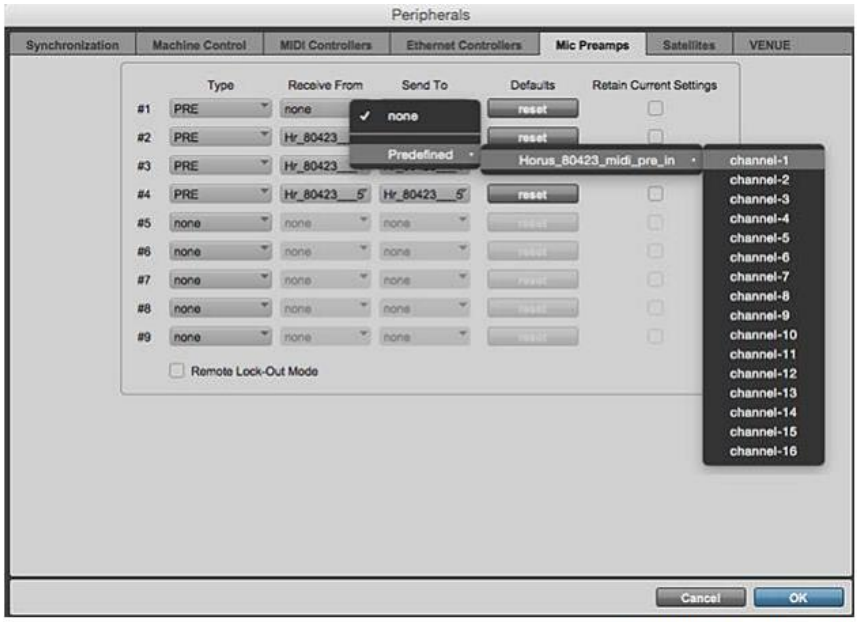
3. Launch Pro Tools and configure to work with RAVENNA Core Audio I/O.
4. Open Pro Tools Setup>MIDI>Input Devices…



Mac MIDI Studio Panel



5. Enable the Merging RAVENNA interface (Horus, Hapi or Anubis).
6. Open Pro Tools>Setup>Peripherals Settings.
7. In the Peripherals panel select the Mic Preamps tab:



Peripherals panel - Mic Preamps tab

8. Select in order:

Type **PRE**
Receive **From Horus_80xxx_midi_pre_in** (or Anubis_65XXXX_midi_pre_in)
Send To **Horus_80xxx_midi_pre_out** (or Anubis_65XXXX_midi_pre_out)

Note:

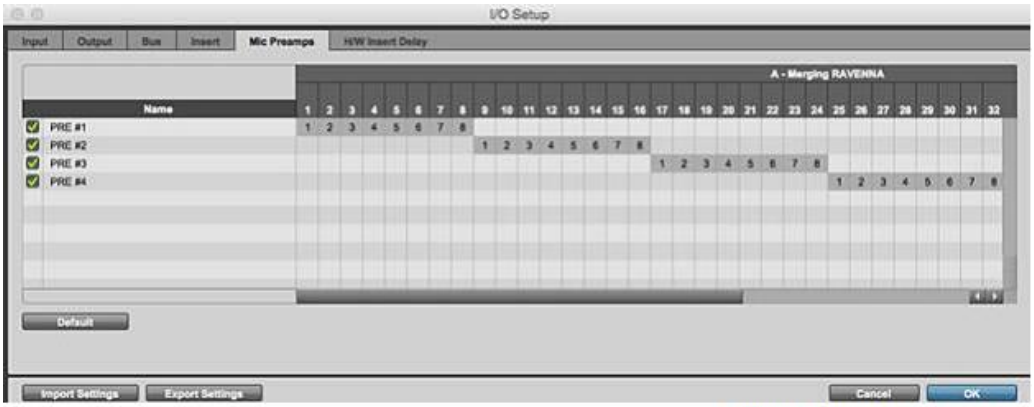
- *For the first AD module Receive From > Channel 1 and Send To Channel 1 must be set (typical: Anubis)*
- *For the second AD module Receive From > Channel 2 and Send To Channel 2 must be set.*
- *For the third AD module Receive From > Channel 3 and Send To Channel 3 must be set.*
- *For the fourth AD module Receive From > Channel 4 and Send To Channel 4 must be set*

Warning: Horus and Hapi users must verify the order of their AD modules as the Channel numbering is based on slot position. Anubis users will typically receive from Channel 1 to Channel 1

9. Click on OK to close the Peripherals panel.

Within Pro Tools

10. Open the Pro Tools **I/O Setup** panel:



Pro Tools I/O Setup - Mic Preamps tab

11. In the **Mic Preamps** tab enable **Horus PRE #1** etc. check the boxes to the left of the entries.
12. Click on OK to close the **I/O Setup** panel.

The Horus, Hapi and Anubis Preamp controls will be available within Pro Tools when the Horus / Hapi / Anubis Preamps are connected to the Pro Tools Mixer Strip Inputs.

Note: Information about the MIDI-Din are available within the RAVENNA Network Guide.
https://www.merging.com/products/interfaces/downloads

Troubleshooting

RAVENNA Core Audio Settings

For proper driver functioning check that the RAVENNA Core Audio panel is showed with all LEDS showing green.

Note: When the interface is shown as available (yellow or green led), the system could take some time to configure the interface (several seconds).

Latency and Clicks

Audible pops and clicks can occur when using some third-party audio interfaces or depending on the speed of the processor. To avoid this problem increase the Hardware Buffer size for the device. You should aim for the lowest possible I/O buffer size value that doesn't introduce clicks, pops, and crackles in the audio. If pops and clicks persists try reducing the IO count in the VAD panel.

Security Firewall

The Mac Firewall can block RAVENNA/AES67communication, we recommend that you turn it off

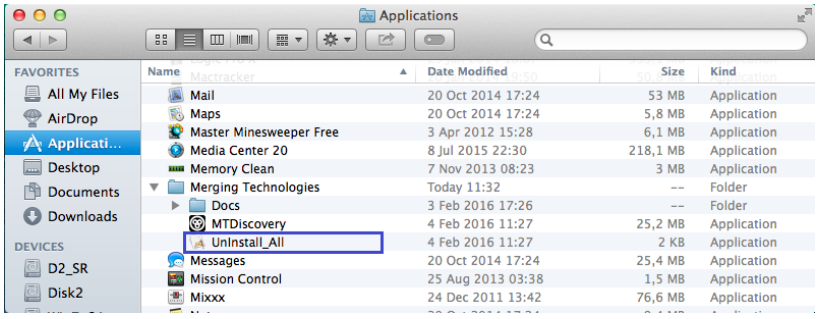


Privacy

We recommend that you disable the Parental control as well

Uninstalling the Merging Virtual Audio Device:

Use the uninstaller to remove the Merging Virtual Audio Device installation cleanly



WARNING: 10Gb Ethernet Adaptors are not certified for VAD usage. Please consider the use of an Apple or Belkin USB-C to ETH adapter if you have such a Hardware Interface.