

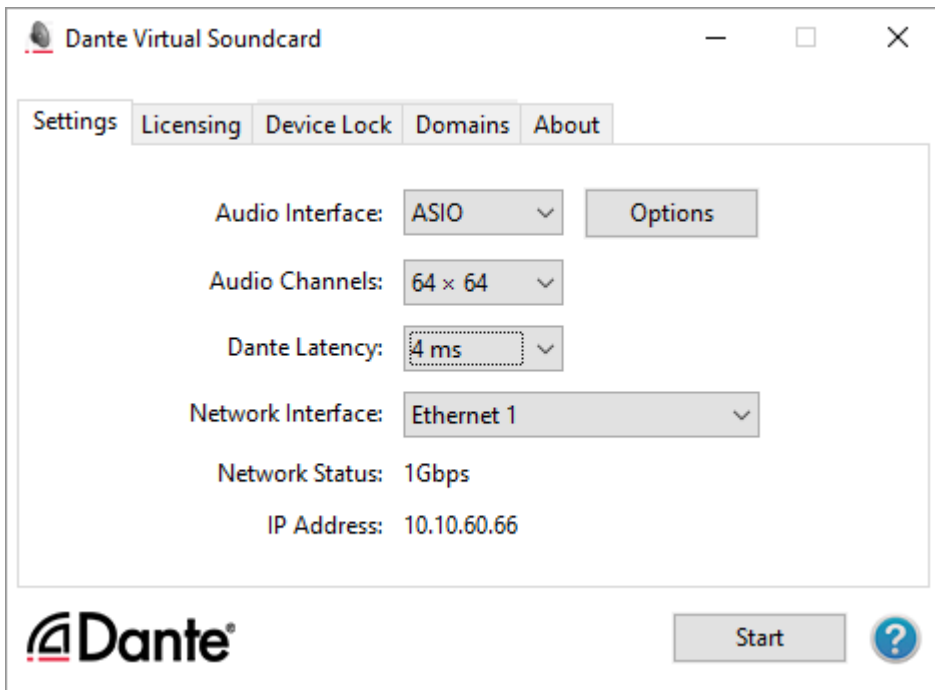


Dante Virtual Soundcard

User Guide

For Dante Virtual Soundcard software version 4.0.x.

For Windows, Windows Server and OS X



Document version: 1.1

Document Name: AUD-MAN-DanteVirtualSoundcard_4.0.x-v1.1.pdf

Published: 24th July 2018



Copyright

© 2018 Audinate Pty Ltd. All Rights Reserved.

Audinate®, the Audinate logo and Dante® are registered trademarks of Audinate Pty Ltd.

All other trademarks are the property of their respective owners.

Audinate products are protected by one or more of US Patents 7747725, 8005939, 7978696, 8171152, European Patent 2255541, Chinese Patent ZL200780026677.0, and other patents pending or issued. See www.audinate.com/patents.

Legal Notice and Disclaimer

Audinate retains ownership of all intellectual property in this document.

The information and materials presented in this document are provided as an information source only. While effort has been made to ensure the accuracy and completeness of the information, no guarantee is given nor responsibility taken by Audinate for errors or omissions in the data.

Audinate is not liable for any loss or damage that may be suffered or incurred in any way as a result of acting on information in this document. The information is provided solely on the basis that readers will be responsible for making their own assessment, and are advised to verify all relevant representation, statements and information with their own professional advisers.

Software Licensing Notice

Audinate distributes products which are covered by Audinate license agreements and third-party license agreements.

For further information and to access copies of each of these licenses, please visit our website:

www.audinate.com/software-licensing-notice

Contacts

Audinate Pty Ltd

Level 1, 458 Wattle Street
Ultimo NSW 2007
Australia
Tel. +61 2 8090 1000

Postal address

Audinate Pty Ltd
PO Box 855
Broadway NSW 2007
Australia

Audinate Inc

1200 NW Naito Parkway
Suite 630
Portland, OR 97209
USA
Tel: +1.503.224.2998
Fax: +1.503.360.1155

info@audinate.com
www.audinate.com

European Office

Audinate Ltd
Suite 104
Werks Central
15-17 Middle St
Brighton, BN1 1AL
United Kingdom
Tel. +44 (0) 1273 921695

Asia Pacific Office

Audinate Limited
Suite 1106-08, 11/F Tai Yau Building
No 181 Johnston Road
Wanchai, Hong Kong
澳迪耐特有限公司
香港灣仔莊士敦道181號
大有大廈11樓1106-8室
Tel. +(852)-3588 0030
+(852)-3588 0031
Fax. +(852)-2975 8042

Contents

Copyright	1
About Audinate	5
About Dante	5
About Dante Virtual Soundcard	6
What's New in version 4.0.x	6
v4.0.x	6
v3.10.x	6
Before you Install: Important Notes	7
Dante Controller	7
Minimum System Requirements	7
General	7
Windows	8
Mac OS X	8
Operating System Updates	8
Supporting Services	8
Firewall Configuration	8
Installing Dante Virtual Soundcard	10
Downloading Dante Virtual Soundcard	10
Installing Dante Virtual Soundcard on Windows	10
Installing Dante Virtual Soundcard on Mac OS X	10
Uninstalling Previous Versions	11
Windows	11
Mac OS X	11
Starting the Dante Virtual Soundcard Control Panel	12
Windows	12
Mac OS X	12
Obtaining a Dante Virtual Soundcard License	13
Obtaining a License ID	13
Entering a License ID	13
Configuring Dante Virtual Soundcard	15
Settings Available in Dante Controller	15
Changing the Device Name	15
Locking Dante Virtual Soundcard	15
Changing the Sample Rate	15
About sample rate pull-up/down	16
Changing the Encoding	16
Supported Audio Formats	16
Changing Settings in Windows	17
Start / Stop	18

Audio Interface	18
ASIO	18
WDM	19
Options	19
Audio Channels	20
Dante Latency	20
Network Interface	21
Network Status	21
Changing Settings in OS X	21
Start / Stop	22
Audio Channels	23
Dante Latency	23
Network Interface	24
Network Status	24
Licensing Tab	24
Device Lock Tab	25
About Device Lock	26
Locking Dante Virtual Soundcard	26
Unlocking Dante Virtual Soundcard	27
Domains Tab	27
Clear Domain Credentials	28
About Tab	28
Using Dante Virtual Soundcard with an Audio Application	30
Important Notes	30
Choosing an Audio Application	30
ASIO for Windows	30
WDM for Windows	30
Core Audio Mac OS X	30
Choosing Dante Virtual Soundcard as your Audio Interface	30
Choosing DVS as your Audio Interface - Windows	31
ASIO	31
WDM	31
Windows Audio Shared Mode	31
Choosing DVS as your Audio Interface - OS X	32
Troubleshooting	36
Possible Messages on Startup	36
Possible Messages During Operation	36
Possible Messages During Licensing	37
Further Dante Troubleshooting	38
Index	39

About Audinate

Audinate® was founded with a vision to revolutionize professional and commercial audio for the 21st century. Audinate's award winning Dante® audio over IP networking solution is the worldwide leader and used extensively in the professional live sound, commercial installation, broadcast, public address, and recording industries.

About Dante

Dante audio networking utilizes standard IP networks to transmit high-quality, uncompressed audio with near-zero latency. It's the most economical, versatile, and easy-to-use audio networking solution, and is scalable from simple installations to large-capacity networks running thousands of audio channels. Dante can replace multiple analog or multicore cables with a single affordable Ethernet cable to transmit high-quality multi-channel audio safely and reliably. With Dante software, the network can be easily expanded and reconfigured with just a few mouse clicks. Dante technology powers products available from hundreds of leading audio partners around the world.

For more information, please visit the Audinate website at www.audinate.com.

About Dante Virtual Soundcard

Dante Virtual Soundcard is a software application that turns your PC or Mac into a Dante-enabled device, allowing Dante audio traffic to be transmitted and received using the standard Ethernet port. No additional hardware is required.

The latest version of Dante Virtual Soundcard supports the Core Audio (Mac OS X), Steinberg ASIO (Windows), and WDM (Windows) audio interfaces, and can be used with any supporting audio application.

Once you install Dante Virtual Soundcard on a computer and connect it to the Dante network, you can:

- Start and stop the application
- Lock and unlock the application
- Change the device latency (the minimum latency a receiving device should apply before playout)
- Select the number of audio channels available
- Select your preferred Ethernet network interface
- Change the audio sample rate, audio encoding bit depth and device name (using Dante Controller)

On Windows, you can also:

- Select ASIO or WDM mode
- View and set ASIO-specific options

What's New in version 4.0.x

v4.0.x

- Support for [Dante Domain Manager](#)

Previous versions

v3.10.x

- [Device Lock](#): The Device Lock Tab allows you to lock and unlock Dante Virtual Soundcard.
- The HTML user guide now resides online - only the PDF version is installed locally.

Before you Install: Important Notes

Dante Controller

You must have Dante Controller installed on a PC or Mac on your Dante network to control and route audio. It can be installed on the same computer as Dante Virtual Soundcard.

Dante Controller software can be downloaded from the Audinate website: www.audinate.com

Please refer to the Dante Controller User Guide for installation and operation instructions.

Minimum System Requirements

The tables below list the minimum system specifications your computer should meet to be able to use the Dante Virtual Soundcard in conjunction with a typical audio application such as Steinberg’s Cubase. A more powerful computer may be required if the Dante Virtual Soundcard is being used with or alongside other applications requiring significant computing resources or disk I/O transfers.

Disclaimer: It is possible that your computer may meet the requirements below but suffer from some other individual performance limitation related to its particular hardware. Please seek the advice of your computer support team.



Note: The Dante Virtual Soundcard does not support virtual machines - it must be installed on a computer with a standard Windows or Mac OS X operating system.

General

Component	Minimum Requirement
Processor	Dual core CPU
Memory	1 Gigabyte of RAM
Network	Standard wired Ethernet network interface (100Mbps or Gigabit). On OS X, official Apple USB to Gigabit and Thunderbolt to Gigabit network adaptor cables are supported. A Gigabit (1000Mbps) interface is required for channel counts above 32x32 @48kHz. Wireless LAN (Wi-Fi) Ethernet interfaces are not supported.
Storage / Disk	As is the case with any application of this type, higher transfer rates are required for recording and playing back large numbers of audio tracks to and from disk. Disk speeds of 7200rpm and above are recommended for more than 16 channels of record / playback from disk.

Windows

Component	Minimum Requirement
Operating System	Windows 7 (SP1), 8.1, or 10, Server 2012 R2 NOTE: Both UTF-8 and Unicode are supported EXCEPT for host or device names; the DNS standard does not support Unicode for these.
Windows Drivers	System drivers must be of the performance standard expected by the Windows Logo Program
Audio Application	Must support the ASIO audio device interface for multi-channel recording / playback, or support WDM (Windows Driver Model) audio.

Mac OS X

Component	Minimum Requirement
Operating System	Mac OS X 10.11.6, 10.12.6 and 10.13
Audio Application	Any audio application using the standard Core Audio interface to a sound card (e.g. iTunes, Cubase, Nuendo, Logic)

Operating System Updates

Ensure your computer has the latest Windows or Apple Updates installed.

Supporting Services

Dante Virtual Soundcard relies on supporting services for automatic Dante device discovery and for Dante device control and monitoring. These services must be installed and running for Dante software and devices to function properly.

On OS X, Dante Virtual Soundcard relies on the Apple Bonjour service for device discovery. Bonjour is installed as part of OS X, and runs automatically as a background service.

On Windows, Dante Virtual Soundcard uses the Audinate 'Dante Discovery' service for device discovery. Dante Discovery is installed and started automatically when you install Dante Virtual Soundcard.

On OS X and Windows, Dante devices and software use the Audinate 'ConMon' service for control and monitoring. ConMon is installed and started automatically when you install Dante Virtual Soundcard.

Firewall Configuration

Firewall configuration for Windows Firewall and Mac OS X built-in firewall is automatically handled during installation, and on system boot (every time the Dante Virtual Soundcard services start).

The Dante Virtual Soundcard communicates over UDP using the following ports:

- Dante Clock Synchronization: 319, 320
- Dante Audio Routing: 4440, 4444, 4445, 4455

- Dante Control and Monitoring: 8001, 8002, 8700-8708, 8800, 38700, 38702, 38800, 38900
- Dante Multicast and Unicast Audio: 4321, 14336 - 14600

If you are using a third-party firewall product, use the port information provided above to configure it accordingly.

Installing Dante Virtual Soundcard

This section overviews the installation and operation of Dante Virtual Soundcard.

Downloading Dante Virtual Soundcard

Dante Virtual Soundcard is available for download from Audinate's website.

To download a copy of Dante Virtual Soundcard:

1. Go to Audinate's website: www.audinate.com.
2. Navigate to **Products > Dante Virtual Soundcard**.
3. Under 'Download', choose your operating system.
4. Click the red download button.

This will take you to the appropriate DVS release page for your operating system.

Click the link under 'File downloads' to download the DVS installer.

Installing Dante Virtual Soundcard on Windows

Once you have downloaded the Dante Virtual Soundcard installer file, navigate to the directory where you have downloaded it.

To install:

1. Ensure you are logged on to your PC as an administrator.
2. Double-click the icon for the Dante Virtual Soundcard installer.
3. Read the license text, and if you accept the terms of the agreement, click the 'I Agree...' checkbox.
If you do not accept the terms, click **Close** to terminate the installation.
4. Click **Install**.
5. Acknowledge / accept any Windows security warnings that are displayed.



Note: If you are upgrading to a new version of Dante Virtual Soundcard, you do not need to uninstall the previous version first. If you do uninstall the previous version before upgrading, you will need to re-enter your license key to activate the software.



Note: If you have Dante Virtual Soundcard selected as the default audio interface in Windows, upgrading to a new version of Dante Virtual Soundcard will reset the selection to an alternative interface, and you will need to reselect Dante Virtual Soundcard following the upgrade.

If you already have the latest version of Dante Virtual Soundcard installed, running the installer again will allow you to repair or uninstall the application.

Installing Dante Virtual Soundcard on Mac OS X

To install Dante Virtual Soundcard on Mac OS X:

1. Double-click the Dante Virtual Soundcard .dmg file.
2. A drive icon will appear on your Desktop Finder window. Double click it to open.
3. Double-click the Dante Virtual Soundcard.pkg. This will run the installer.
4. Read the license text, and if you accept the terms of the agreement, click **Agree**.

If you do not accept these terms, click **Disagree** to terminate the installation.

Uninstalling Previous Versions

You do not usually need to uninstall a previous version of Dante Virtual Soundcard before installing a new version.

However, if you should need to uninstall Dante Virtual Soundcard:

Windows

- To uninstall via the Windows Control Panel: **Start > Control Panel > Add or Remove Programs**
- To uninstall via the Audinate uninstaller: **Program files / apps > Audinate > Dante Virtual Soundcard > Uninstall**

Mac OS X

To uninstall previous versions of the Dante Virtual Soundcard, please use the Uninstall tool available in the new .dmg file.

Starting the Dante Virtual Soundcard Control Panel

The Dante Virtual Soundcard Control Panel enables user interaction with Dante Virtual Soundcard.

Windows

By default the Dante Virtual Soundcard will be installed in:

`C:\Program Files\Audinate\Dante Virtual Soundcard\`

In 64-bit Windows, it will appear under `C:\Program Files (x86)`

The Dante Virtual Soundcard Control Panel can be started in various ways:


- Windows 7: **Start > Programs > Audinate > Dante Virtual Soundcard > Dante Virtual Soundcard**; or
- Windows 8.1 or 10: **Windows key / menu > All apps > Audinate > Dante Virtual Soundcard**
- Navigate to the directory where it is installed, and double-click the Dante Virtual Soundcard icon:



Mac OS X

The Dante Virtual Soundcard application will be installed in the Applications folder.

To start the Dante Virtual Soundcard Control Panel:

- Navigate to the Applications folder, and click the Dante Virtual Soundcard icon: 


Obtaining a Dante Virtual Soundcard License

Dante Virtual Soundcard will not operate until a valid License ID has been entered and activated.

The first time you start the Dante Virtual Soundcard Control Panel, you will be presented with the Licensing screen.

Obtaining a License ID

You are required to register with Audinate at www.audinate.com and provide an email address to obtain a valid License ID for Dante Virtual Soundcard.

 **Note:** If you have purchased a Dante product that entitles you to a free or discounted copy of Dante Virtual Soundcard, details of how to obtain this will be provided in the documentation accompanying your product.


If the machine on which you are installing Dante Virtual Soundcard is connected to the Internet, click the **Get a License** button to be taken directly to the Audinate website.

Entering a License ID

Once you have obtained a License ID, it can be entered in the Licensing tab. The **Activate** button is not enabled until a correctly formatted License ID has been entered into the dialog box.

You can paste the entire license ID directly into the first text field on the licensing screen, or enter the license manually using the keyboard.

Click **Activate** to register the installation with the Audinate servers.

 **Note:** Ensure that your computer has access to the Internet during this step.

Once this step has been completed, a “Licensed to ...” message will appear, and the software is ready for use. The Control Panel will appear as shown below:

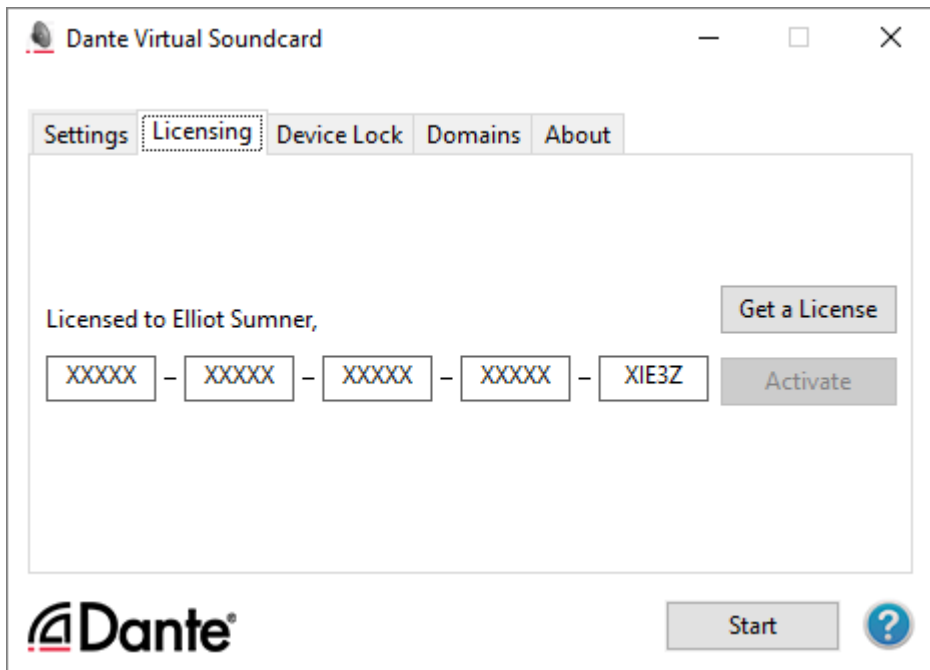


Figure 1 - Dante Virtual Soundcard Licensing Screen - Licensed (Windows)

If you are using a trial license the Control Panel will appear as shown below:

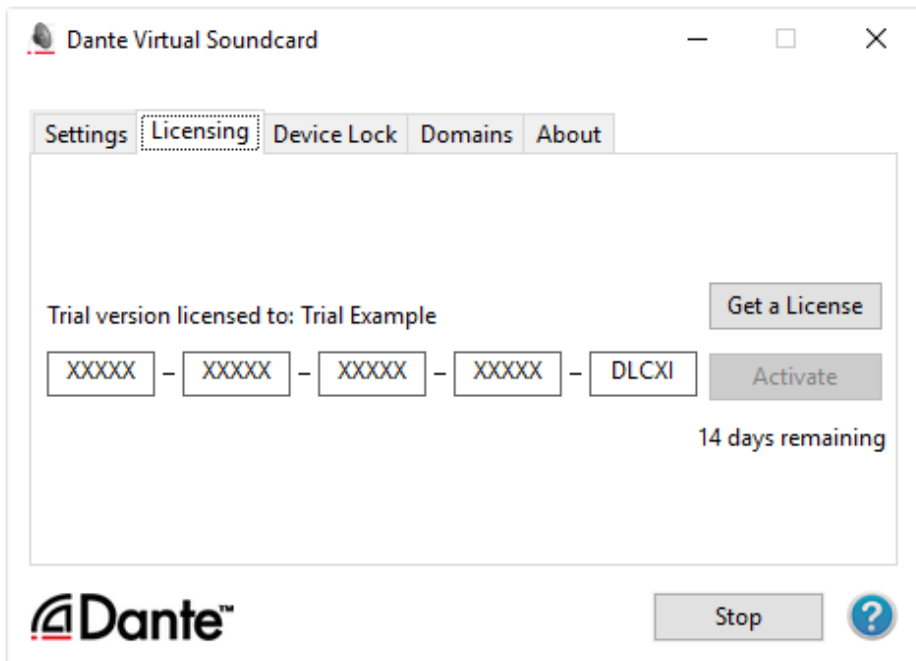


Figure 2 - Dante Virtual Soundcard Licensing Screen - Trial License (Windows)

In order to continue to use the Dante Virtual Soundcard after the trial period has expired, you will need to purchase a full license.

Configuring Dante Virtual Soundcard

It is important to understand that the Control Panel that is displayed when you start the application is a means of configuring and controlling Dante Virtual Soundcard, it is *not* the Dante Virtual Soundcard itself. The actual Dante Virtual Soundcard runs as a background process.

When you open the Dante Virtual Soundcard Control Panel, you are presented with a window with four tabs: Settings, Licensing, Device Lock and About. The **Settings** tab is selected by default when the application is opened.

Settings Available in Dante Controller

Some Dante Virtual Soundcard settings are only configurable via Dante Controller:

- Device Name
- Sample Rate (and sample rate pull-up/down in Windows)
- Encoding (audio bit depth)

To change these settings, use the Device Config tab of the Device View in Dante Controller.

To open the Device View > Device Config tab:

1. Completely quit out of any audio applications (such as DAWs) that are using Dante Virtual Soundcard. Connected applications may prevent new settings from taking effect.
2. Ensure Dante Virtual Soundcard is running.
3. In Dante Controller, open the device view for Dante Virtual Soundcard - either:
 - Double-click the Dante Virtual Soundcard device in the routing view, or:
 - Use Ctrl + D (command + D for OS X) to open the device view, and select the Dante Virtual Soundcard device from the drop-down menu.
4. Click the Device Config tab.

See the Dante Controller user guide for more information about configuring Dante devices.

Changing the Device Name

By default, Dante Virtual Soundcard will appear in Dante Controller with the same name as the computer on which it is installed.

To change the Dante Virtual Soundcard device name:

1. In Dante Controller, open the Device Config tab for Dante Virtual Soundcard.
2. In the Rename Device field, enter the new device name and click **Apply**.

Locking Dante Virtual Soundcard

You can lock and unlock Dante Virtual Soundcard [from the control panel](#), or remotely using Dante Controller. Refer to the [Dante Controller user guide](#) for information about locking Dante devices remotely.

Changing the Sample Rate

To change the sample rate and sample rate pull-up/down (Windows only) for Dante Virtual Soundcard:

1. In Dante Controller, open the Device Config tab for Dante Virtual Soundcard.
2. Use the Sample Rate drop-down menus to set the required sample rate and pull-up/down.

Note: Changing the sample rate will interrupt audio.

Note: Increasing the sample rate in Dante Controller may reduce the channel count ('Audio Channels') setting on Dante Virtual Soundcard, if the channel count setting is not supported at the new sample rate. Subsequently decreasing the sample rate, however, will not restore the channel count setting to its previous value.

About sample rate pull-up/down

Sample rate pull-up down allows you to adjust the sample rate to account for frame rate conversion in video.

Note: Supported on ASIO and OS X only.

Note: Applying pull-up/down places the device in a dedicated clock domain, so it will only be able to sync with other devices with the same sample rate and pull-up/down.

Changing the Encoding

The encoding value is the audio bit depth.

To change the encoding setting:

1. In Dante Controller, open the Device Config tab for Dante Virtual Soundcard.
2. Use the Encoding drop-down menu to set the required bit depth.

Note: Changing the encoding setting will interrupt audio.

Supported Audio Formats

The supported audio formats are shown below.

Audio format	Supported values		
	ASIO (Windows)	WDM (Windows)	Core Audio (OS X)
Sample rate	<ul style="list-style-type: none"> ■ 44.1 kHz ■ 48 kHz ■ 88.2 kHz ■ 96 kHz ■ 176.4 kHz ■ 192 kHz 	<ul style="list-style-type: none"> ■ 44.1 kHz ■ 48 kHz ■ 88.2 kHz ■ 96 kHz 	<ul style="list-style-type: none"> ■ 44.1 kHz ■ 48 kHz ■ 88.2 kHz ■ 96 kHz ■ 176.4 kHz ■ 192 kHz

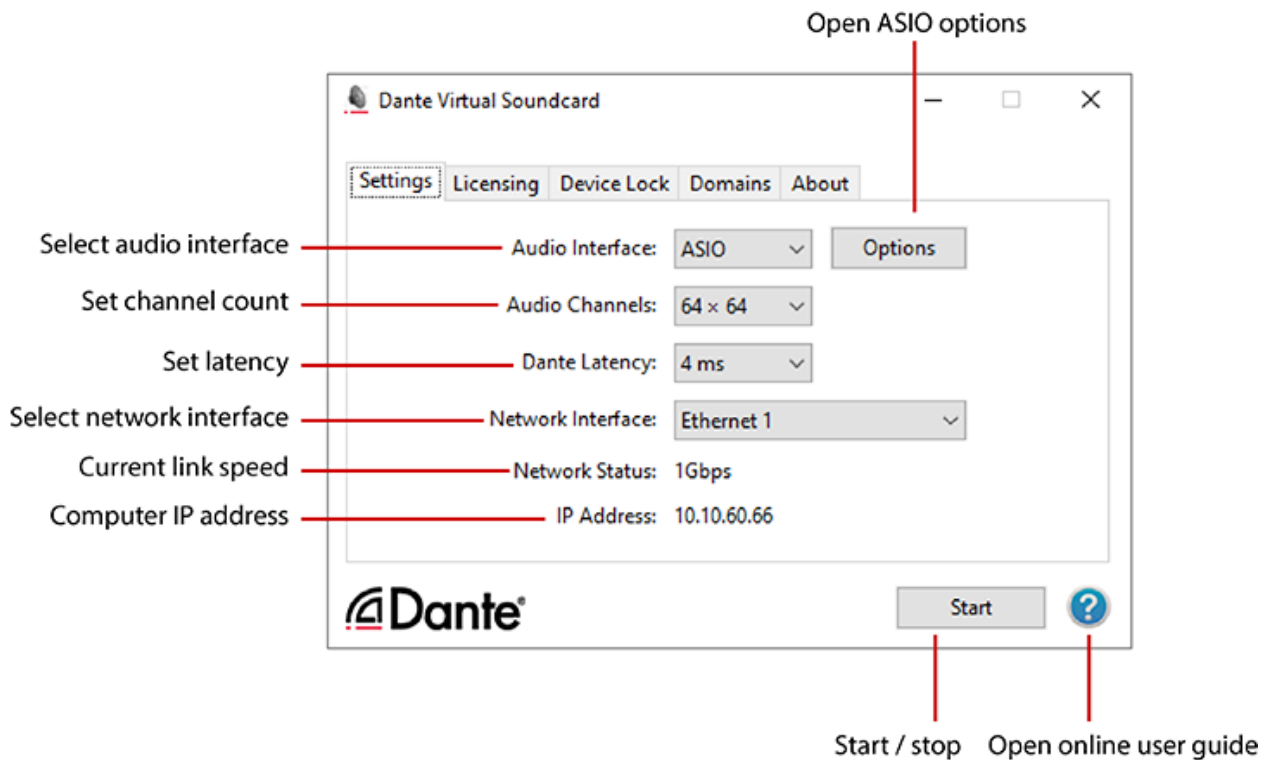
Audio format	Supported values		
	ASIO (Windows)	WDM (Windows)	Core Audio (OS X)
Bit depth	<ul style="list-style-type: none"> ■ 16 bit ■ 24 bit ■ 32 bit 	<ul style="list-style-type: none"> ■ 16 bit ■ 24 bit ■ 32 bit 	<ul style="list-style-type: none"> ■ 16 bit ■ 24 bit ■ 32 bit

Changing Settings in Windows

The Settings tab is the first screen you see when you open the Dante Virtual Soundcard Control Panel.

Note: Most settings cannot be changed while Dante Virtual Soundcard is running, or when an ASIO application is connected.

Note: Settings cannot be changed when [device lock](#) is active.



To change settings:

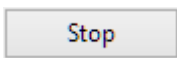
1. Completely quit out of any audio applications that are using the Dante Virtual Soundcard.
2. Ensure device lock is inactive.
3. Stop Dante Virtual Soundcard.
4. Change your Dante Virtual Soundcard settings.

- 5. Restart Dante Virtual Soundcard.
- 6. Restart your audio application/s.

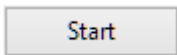
Note: The device name and audio format (sample rate and bit depth) must be set in Dante Controller, while Dante Virtual Soundcard is running. You should quit out of any connected applications before changing the device name or audio format.

Start / Stop

The Start / Stop button in the Settings Tab indicates whether Dante Virtual Soundcard is currently running, and can be used to toggle the running state.



Button shows 'Stop': Dante Virtual Soundcard is currently running



Button shows 'Start': Dante Virtual Soundcard is currently stopped

Click the button to toggle the running state of Dante Virtual Soundcard.

Important: If you are recording via Dante Virtual Soundcard, stop the recording *before* you stop Dante Virtual Soundcard. Stopping Dante Virtual Soundcard during a recording can lead to driver instability issues.

Note: Dante Virtual Soundcard can be either on or off (running or stopped) when the Dante Virtual Soundcard Control Panel is started. It will always be in the state it was in when the Control Panel was last closed. If the computer is power cycled, Dante Virtual Soundcard will resume in the state it was in when the computer was powered off.

When Dante Virtual Soundcard is running, it will be visible in Dante Controller. By default, the device name shown in Dante Controller will be the same as the name of the computer on which it is running.

Most Dante Virtual Soundcard settings can only be changed while it is stopped.

Audio Interface

Use the Audio Interface drop-down menu to switch between ASIO and WDM audio engines. Dante Virtual Soundcard must be stopped before you can change the Audio Interface.

ASIO

In ASIO mode, Dante Virtual Soundcard supports audio applications that use ASIO audio, for example Steinberg Cubase or Nuendo, Avid Pro Tools and Ableton Live.

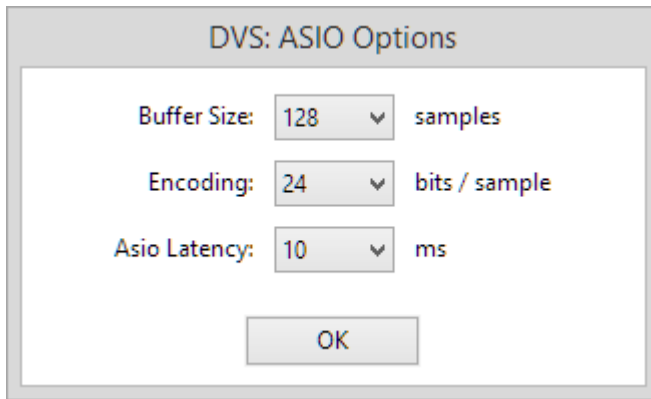
In ASIO mode, the [Options](#) button is enabled.

WDM

In WDM mode, Dante Virtual Soundcard supports audio applications that use WDM audio, for example iTunes for Windows, Windows Media Player and Skype.

Options

This button is only available in Dante Virtual Soundcard for Windows, in ASIO mode. The OS X version of Dante Virtual Soundcard uses Core Audio, and has no related user-configurable settings.




The ASIO options supported by Dante Virtual Soundcard are shown below.


Setting	Description	Allowed values
Buffer Size	Size (in audio samples) of the ASIO buffer used when transporting audio between Dante Virtual Soundcard and the audio application. Computers with poor scheduling performance will need to use a higher setting. By default, the Buffer size is set to 128 samples.	32, 64, 128, 256, 512, 1024, or 2048 samples
Encoding	Default: 24 bit. The bit depth required by the audio application being used with Dante Virtual Soundcard. Some audio applications may not support the Dante network's native 24-bit, and will need a different bit depth set at the ASIO interface. If the ASIO bit depth does not match the Dante Virtual Soundcard bit depth set in Dante Controller, all received audio is truncated or padded to the value the application supports, and vice versa.	16, 24 or 32 bits
ASIO Latency	Latency to insert before transmitting audio from the ASIO buffer on to the Dante network. This compensates for the variability in computer scheduling. By default, the ASIO latency is set to 10ms.	1, 2, 3, 5, 10 and 20ms


Audio Channels

Use the Audio Channels drop-down menu to set the number of transmit and receive Dante audio channels available and advertised on the network. This enables the number of channels shown in Dante Controller (and any connected audio application) to be limited, if required. The maximum number of channels supported depends on the interface type and the selected audio format.

 **Important:** The number of Dante audio channels that can be reliably handled by Dante Virtual Soundcard is dependent on the network speed and sample rate. The maximum recommended number of channels is shown in the table below.

Network speed	Max Channels @ 48kHz / 24bit	Max Channels @ 96kHz / 24bit	Max Channels @ 192kHz / 24bit
100Mbps	32x32	16x16	8x8
1000Mbps (Gigabit)	64x64	32x32	8x8

 **Note:** A Gigabit network is recommended for best performance.

 **Note:** For recording and playing back more than 16 audio tracks to and from disk, disk speeds of 7200rpm and above are recommended.

Dante Latency

The Dante Latency drop-down menu allows you to set the device latency (time before payout).


A Dante device receiving audio from Dante Virtual Soundcard will use this value (unless the receiving device only supports higher latencies). The latency compensates primarily for computer scheduling jitter, as well as delay variations encountered in the network.

Supported values are:

- 4ms
- 6ms
- 10ms

Latencies above 4ms are not supported at sample rates of 176.4 kHz or 192 kHz when transmitting to hardware devices running Dante firmware v3.7.x or earlier. In order to enable these latency settings for the higher sample rates, upgrade your Dante device firmware to v3.8.x or above. Please contact your device manufacturer for information about Dante firmware upgrades.

As a rule of thumb, 4ms can be used where Dante Virtual Soundcard is running on a high-spec computer with low scheduling jitter. Computers with poor scheduling performance may need to use the 10ms Dante Latency setting.


 **Note:** If the Dante Latency setting is set too low to compensate for network delay variation and computer scheduling jitter, there is a risk of intermittent loss of audio.


Network Interface

The Network Interface drop-down menu allows you to select the computer's network interface that Dante Virtual Soundcard will use to transmit and receive Dante audio.

The available entries will be all the wired Ethernet network interfaces currently enabled on the machine. For machines with only one Ethernet network interface enabled, there will only be one option available.

The IP address of the currently selected interface is displayed below the Network Status field.

 **Note:** Dante Virtual Soundcard does not support wireless, Bluetooth or bridged Ethernet interfaces. On OS X, official Apple USB to Gigabit and Thunderbolt to Gigabit network adaptor cables are supported. USB is not supported on Windows.

 **Note:** All Dante applications on the same computer have a shared understanding of the primary Dante interface. For example, if you have installed Dante Controller on the same PC as Dante Virtual Soundcard, and a new primary interface is selected from within Dante Controller, Dante Virtual Soundcard will automatically switch to the newly selected interface, and begin operating on that interface.


Network Status


The Network Status value indicates the link speed of the computer's Ethernet network interface that is currently in use by Dante Virtual Soundcard. It can have the following values:

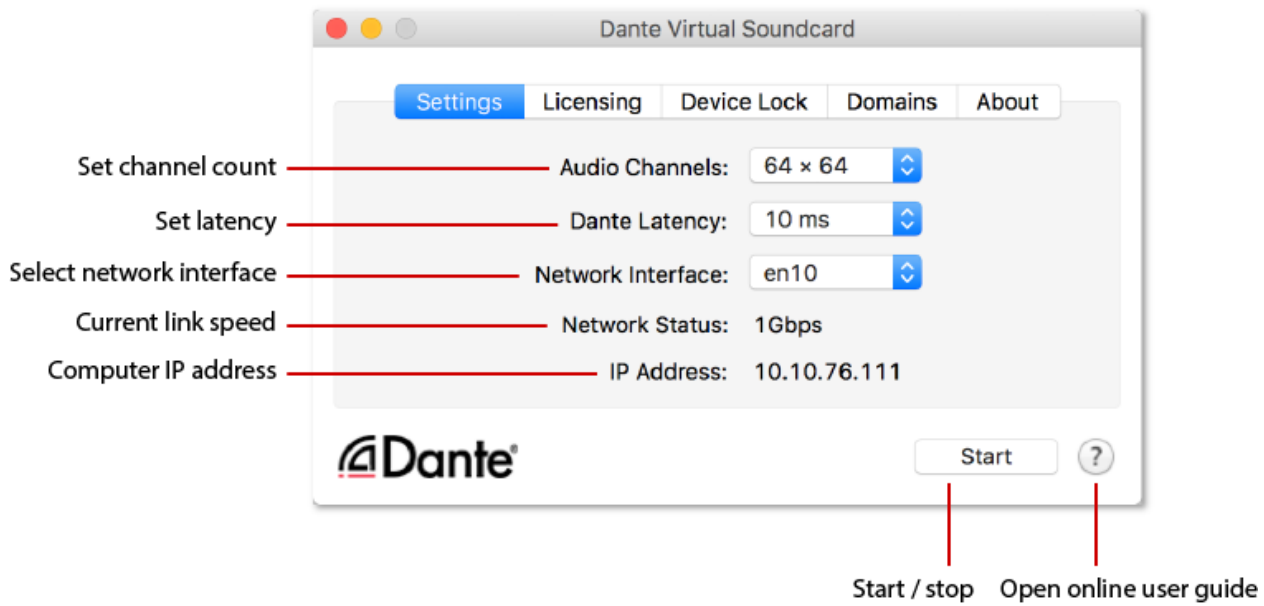
- 1Gbps (1 gigabit per second)
- 100Mbps (100 megabits per second)
- N/A (no Ethernet network detected)

Changing Settings in OS X

The Settings tab is the first screen you see when you open the Dante Virtual Soundcard Control Panel.

 **Note:** Settings cannot be changed while Dante Virtual Soundcard is running.

 **Note:** Settings cannot be changed when [device lock](#) is active.



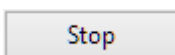
To change settings:

1. Completely quit out of any audio applications that are using the Dante Virtual Soundcard.
2. Ensure device lock is inactive.
3. Stop Dante Virtual Soundcard.
4. Change your Dante Virtual Soundcard settings.
5. Restart Dante Virtual Soundcard.
6. Restart your audio application/s.

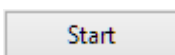
Note: The device name and audio format (sample rate and bit depth) must be set in Dante Controller, while Dante Virtual Soundcard is running. You should quit out of any connected applications before changing the device name or audio format.

Start / Stop

The Start / Stop button in the Settings Tab indicates whether Dante Virtual Soundcard is currently running, and can be used to toggle the running state.



Button shows 'Stop': Dante Virtual Soundcard is currently running



Button shows 'Start': Dante Virtual Soundcard is currently stopped

Click the button to toggle the running state of Dante Virtual Soundcard.

Important: If you are recording via Dante Virtual Soundcard, stop the recording *before* you stop Dante Virtual Soundcard. Stopping Dante Virtual Soundcard during a recording can lead to driver instability issues.

Note: Dante Virtual Soundcard can be either on or off (running or stopped) when the Dante Virtual Soundcard Control Panel is started. It will always be in the state it was in when the Control Panel was last closed. If the computer is power cycled, Dante Virtual Soundcard will resume in the state it was in when the computer was powered off.

When Dante Virtual Soundcard is running, it will be visible in Dante Controller. By default, the device name shown in Dante Controller will be the same as the name of the computer on which it is running.

Most Dante Virtual Soundcard settings can only be changed while it is stopped.

Audio Channels

Use the Audio Channels drop-down menu to set the number of transmit and receive Dante audio channels available and advertised on the network. This enables the number of channels shown in Dante Controller (and any connected audio application) to be limited, if required. The maximum number of channels supported depends on the interface type and the selected audio format.

Important: The number of Dante audio channels that can be reliably handled by Dante Virtual Soundcard is dependent on the network speed and sample rate. The maximum recommended number of channels is shown in the table below.

Network speed	Max Channels @ 48kHz / 24bit	Max Channels @ 96kHz / 24bit	Max Channels @ 192kHz / 24bit
100Mbps	32x32	16x16	8x8
1000Mbps (Gigabit)	64x64	32x32	8x8

Note: A Gigabit network is recommended for best performance.

Note: For recording and playing back more than 16 audio tracks to and from disk, disk speeds of 7200rpm and above are recommended.

Dante Latency

The Dante Latency drop-down menu allows you to set the device latency (time before payout).

A Dante device receiving audio from Dante Virtual Soundcard will use this value (unless the receiving device only supports higher latencies). The latency compensates primarily for computer scheduling jitter, as well as delay variations encountered in the network.

Supported values are:

- 4ms
- 6ms
- 10ms

Latencies above 4ms are not supported at sample rates of 176.4 kHz or 192 kHz when transmitting to hardware devices running Dante firmware v3.7.x or earlier. In order to enable these latency settings for the higher sample rates, upgrade your Dante device firmware to v3.8.x or above. Please contact your device manufacturer for information about Dante firmware upgrades.

As a rule of thumb, 4ms can be used where Dante Virtual Soundcard is running on a high-spec computer with low scheduling jitter. Computers with poor scheduling performance may need to use the 10ms Dante Latency setting.



Note: If the Dante Latency setting is set too low to compensate for network delay variation and computer scheduling jitter, there is a risk of intermittent loss of audio.

Network Interface

The Network Interface drop-down menu allows you to select the computer's network interface that Dante Virtual Soundcard will use to transmit and receive Dante audio.

The available entries will be all the wired Ethernet network interfaces currently enabled on the machine. For machines with only one Ethernet network interface enabled, there will only be one option available.

The IP address of the currently selected interface is displayed below the Network Status field.



Note: Dante Virtual Soundcard does not support wireless, Bluetooth or bridged Ethernet interfaces. On OS X, official Apple USB to Gigabit and Thunderbolt to Gigabit network adaptor cables are supported. USB is not supported on Windows.



Note: All Dante applications on the same computer have a shared understanding of the primary Dante interface. For example, if you have installed Dante Controller on the same PC as Dante Virtual Soundcard, and a new primary interface is selected from within Dante Controller, Dante Virtual Soundcard will automatically switch to the newly selected interface, and begin operating on that interface.

Network Status

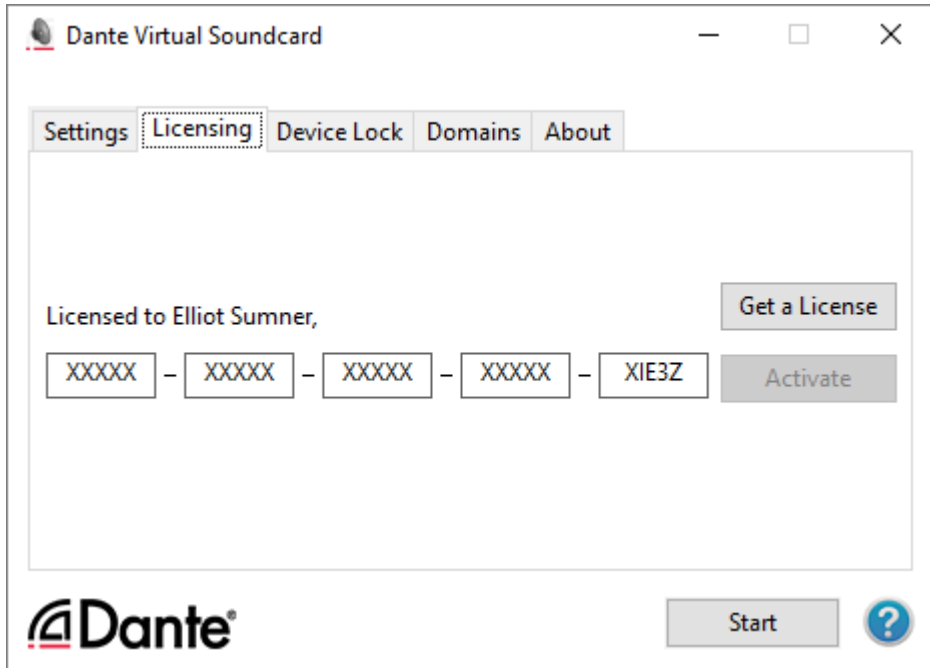
The Network Status value indicates the link speed of the computer's Ethernet network interface that is currently in use by Dante Virtual Soundcard. It can have the following values:

- 1Gbps (1 gigabit per second)
- 100Mbps (100 megabits per second)
- N/A (no Ethernet network detected)

Licensing Tab

The Licensing Tab allows you to see the status of the license you have, and if necessary allows you to enter a new license key and re-activate the Dante Virtual Soundcard. If you have a trial license, it will

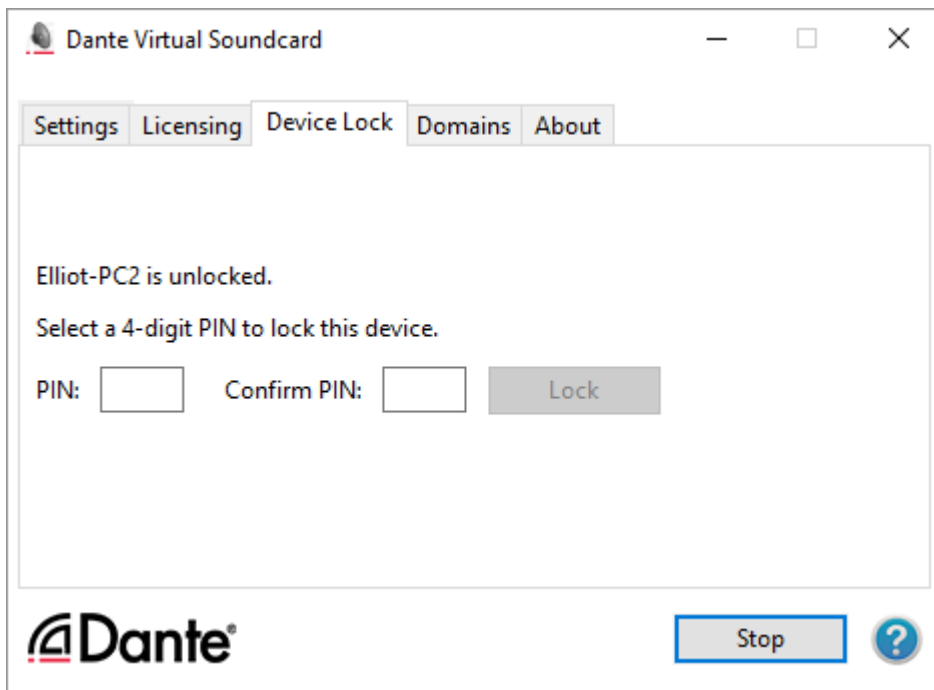
display the number of days remaining before the trial license expires.



See [Obtaining a Dante Virtual Soundcard License](#) for more details on the use of this tab.

Device Lock Tab

The Device Lock Tab allows you to lock and unlock Dante Virtual Soundcard.



About Device Lock

Device Lock is a Dante feature that allows you to lock and unlock supported Dante devices using a 4-digit PIN (Personal Identification Number).

When a device is locked, audio will continue to flow according to its existing subscriptions, but it cannot be configured or controlled over the network - its subscriptions and configuration settings become read-only. When Dante Virtual Soundcard is locked, you cannot use the control panel to change its settings.

To configure or control Dante Virtual Soundcard when it has been locked, you must first unlock it directly using the control panel, or remotely using the PIN with which it was locked.

Locking Dante Virtual Soundcard

You can lock Dante Virtual Soundcard from the control panel using the Device Lock tab, or remotely using Dante Controller.

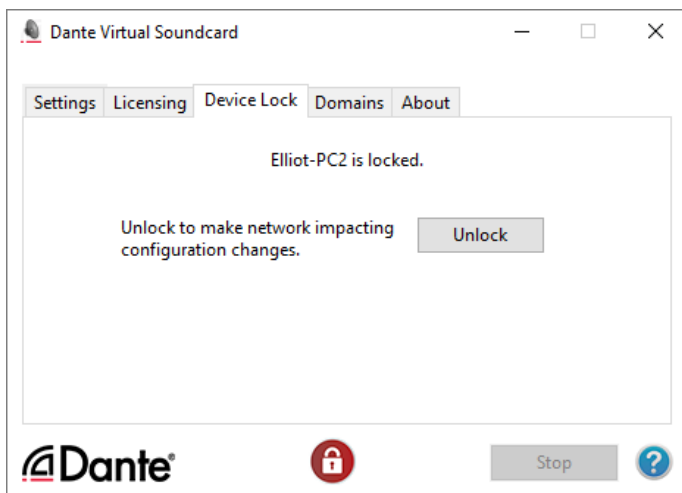
Refer to the [Dante Controller user guide](#) for more information about locking Dante devices remotely.

To lock Dante Virtual Soundcard directly from the control panel:


1. Select the Device Lock Tab.
2. Enter a 4-digit number in the PIN field.
3. Re-enter the PIN in the Confirm PIN field.
4. Click **Lock**.

The controls in the Settings Tab will become inactive, and you will be unable to remotely configure Dante Virtual Soundcard or change its subscriptions using Dante Controller.

When Dante Virtual Soundcard is locked, a red padlock icon is displayed in the Device Lock Tab:



You can also easily identify locked devices in Dante Controller.

 **Note:** You cannot lock Dante Virtual Soundcard when it is [enrolled in a domain](#).

Unlocking Dante Virtual Soundcard

You can unlock Dante Virtual Soundcard directly from the control panel (using the Device Lock tab), or remotely using Dante Controller.

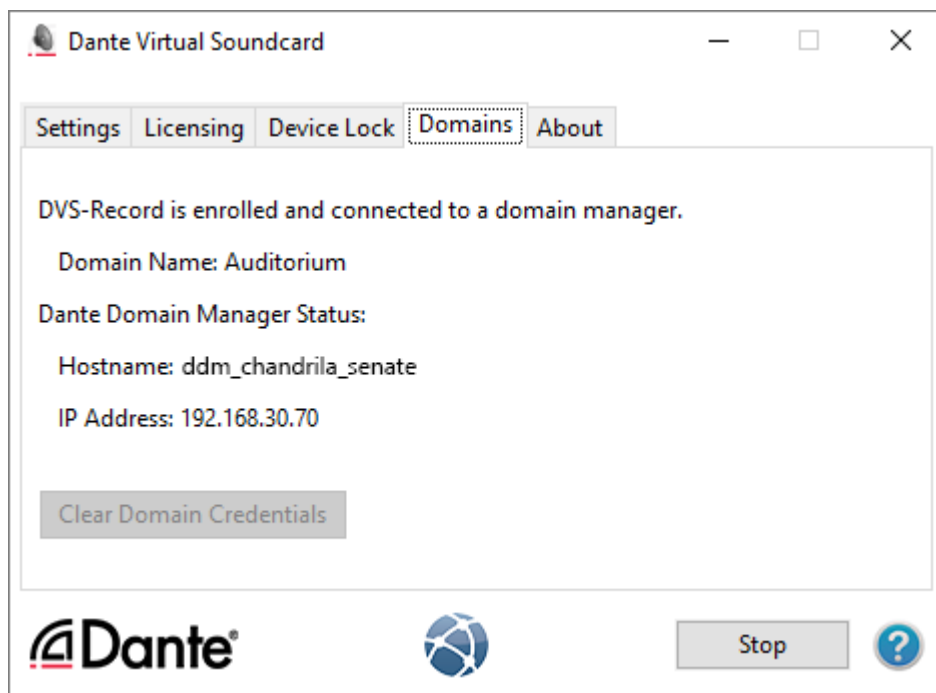
Refer to the [Dante Controller user guide](#) for more information about unlocking Dante devices remotely.

To unlock Dante Virtual Soundcard directly from the control panel:

1. Select the Device Lock Tab.
2. Click **Unlock**.

Domains Tab

When Dante Virtual Soundcard is enrolled in a Dante Domain Manager (DDM) system, the Domains tab displays the domain name and information about the DDM server.



When Dante Virtual Soundcard is enrolled, a domain icon is displayed at the bottom of the control panel on all tabs.

Refer to the Dante Domain Manager user guide for more information about Dante domains and enrolling devices.

 **Note:** You cannot [lock](#) Dante Virtual Soundcard when it is enrolled in a domain.

If the DDM server is unavailable, a warning icon is displayed at the bottom of the control panel:



Clear Domain Credentials

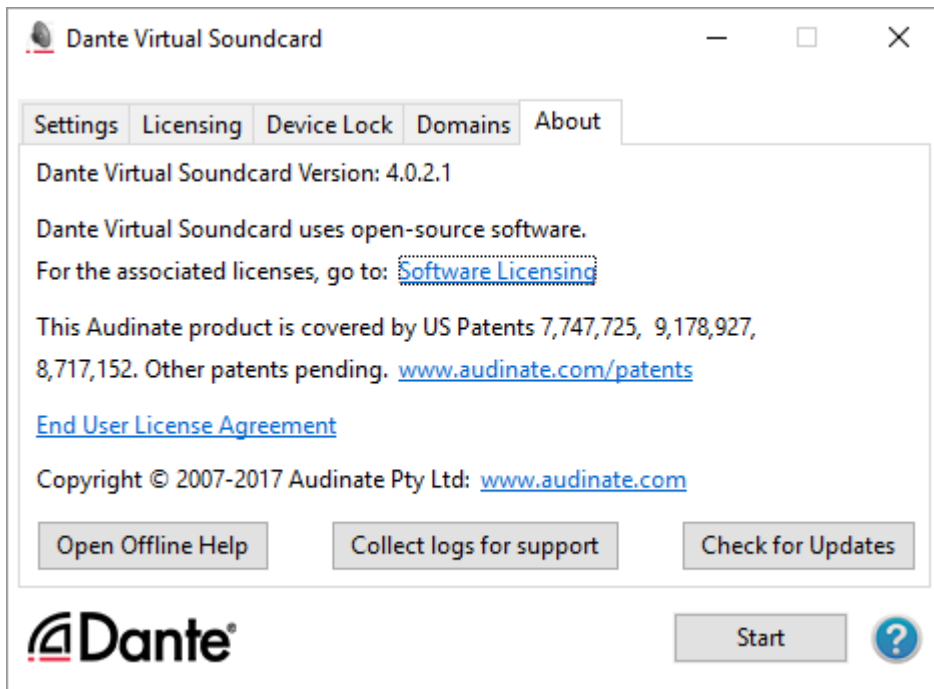
When Dante Virtual Soundcard is enrolled in a domain, it stores information locally about the domain and DDM server, so that it can automatically rejoin its domain when it is restarted. The Clear Domain Credentials button removes this information.

Use Clear Domain Credentials if you have moved the Dante Virtual Soundcard computer to a different network, or uninstalled DDM, without first un-enrolling Dante Virtual Soundcard from its domain. This will ensure that Dante Virtual Soundcard can be automatically discovered when it is next connected to a DDM network.

About Tab

The About Tab displays:

- The version of Dante Virtual Soundcard that you have installed
- A hyperlink to open-source licenses relevant to the software (for reference only)
- Patent information
- A hyperlink to the end user license agreement
- A hyperlink to the Audinate website



Note: On OS X / macOS, some options are available from the application menu instead.

The About tab also allows you to:

- Open offline help. The offline help is a locally-installed PDF of the user guide, which may not be the latest version - use the help button





- to view the latest online HTML version of the user guide (requires an Internet connection).
- Collect logs for support. You should not use this feature unless instructed to do so by Audinate Technical Support.
 - Check for updates. If a new version is available, you can download it to your hard drive and install it from there.

Using Dante Virtual Soundcard with an Audio Application

Important Notes

Dante Virtual Soundcard acts in a very similar way to a hardware soundcard.

 **Note:** Make sure that you start Dante Virtual Soundcard with the settings you require *before* you start your audio application.

 **Note:** Digital Audio Workstations (DAWs) treat Dante Virtual Soundcard like any other ASIO (Windows), WDM (Windows) or Core Audio (Mac OS X) device. For support information about using audio devices (including Dante Virtual Soundcard) with your DAW, please use the support services provided by the manufacturer of your DAW.

Choosing an Audio Application

Dante Virtual Soundcard acts like a standard Core Audio device in a Mac OS X machine, and like an ASIO or WDM sound device in a PC running Windows.

ASIO for Windows

In ASIO mode, Dante Virtual Soundcard is compatible with audio applications that support the ASIO standard. This is the interface preferred by most pro audio Windows applications, such as Cubase, Pro Tools and Ableton Live.

WDM for Windows

In WDM mode, Dante Virtual Soundcard supports common audio applications available for Windows, such as Windows Media Player, iTunes and Skype.

Core Audio Mac OS X

The Core Audio interface is used by almost all audio applications available for Mac OS X. This allows you to use Dante Virtual Soundcard with applications ranging from professional audio applications such as Logic, to media players such as iTunes.

Choosing Dante Virtual Soundcard as your Audio Interface

Audio applications generally provide a mechanism for selecting the sound card that they will use. Before configuring the application to use Dante Virtual Soundcard as its audio interface, make sure you have

started Dante Virtual Soundcard with the required settings (and in Windows, with the correct interface mode selected - ASIO or WDM).

Choosing DVS as your Audio Interface - Windows

ASIO

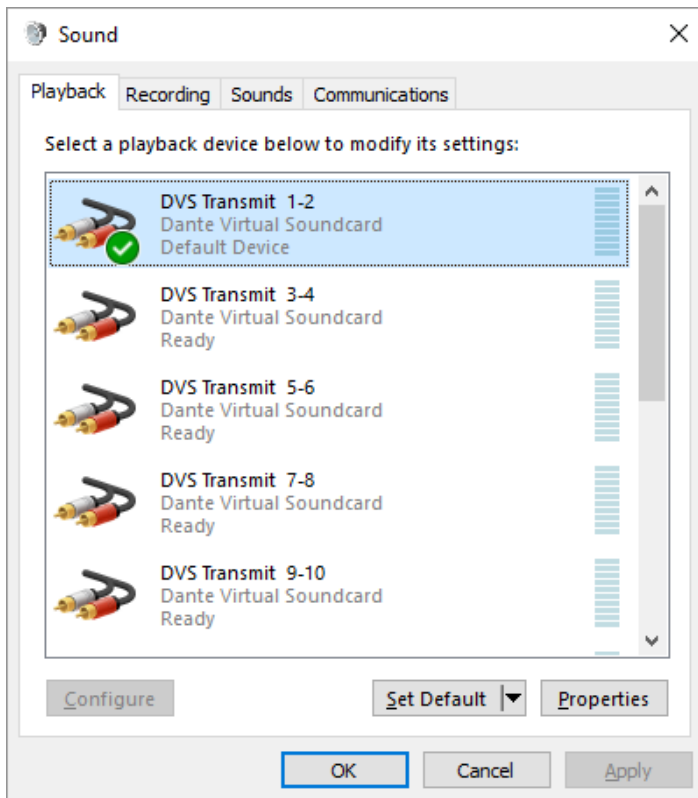
Select and configure Dante Virtual Soundcard as your audio interface from within the audio application. It should appear as 'Dante Virtual Soundcard' in the list of available soundcards. Note that if 'Dante Virtual Soundcard' does not appear in the list of available soundcards, it is either not running, or not operating correctly.

Use the [Options](#) button to configure options such as buffer size, latency and channel count.

WDM

Dante Virtual Soundcard supports 16 channels (8 stereo pairs) in WDM mode. Each stereo pair appears as an independent selectable audio device in any relevant Windows and supporting application dialogs.

How Dante Virtual Soundcard appears in the Windows 10 Sound Playback options



Windows Audio Shared Mode

Windows allows applications to share audio interfaces.

If applications with differing sample rates share an audio interface, their sample rates are automatically brought into line by Windows, so it can mix the audio streams. This will result in sample rate conversion on one of the audio streams, which can adversely affect audio quality.

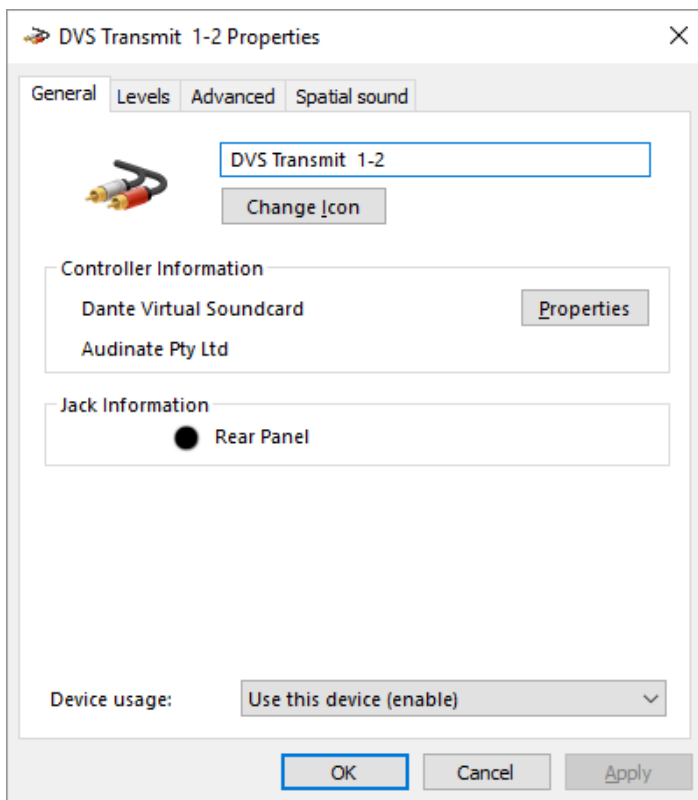
To prevent Windows performing sample rate conversion on Dante Virtual Soundcard audio, the 'Shared Mode' default format for all Dante Virtual Soundcard channels must match the sample rate currently selected on the Dante Virtual Soundcard control panel.

In **Windows 7**, the default shared mode format for the device is automatically updated when the audio format Dante Virtual Soundcard is adjusted in Dante Controller, so you should not have to adjust it manually.

In **Windows 8.x and Windows 10**, you will need to manually specify the default shared mode format for the device.

1. Open the Windows Sound options dialog (**Start > Control Panel > Sound**).
2. With the Playback tab selected, double-click the 'DVS Transmit 1-2' entry in the interface list.

The 'DVS Transmit 1-2 Properties' dialog is displayed.



3. Select the Advanced tab.
4. Set the Default Format to the required setting.
5. Click OK.
6. Repeat for all Dante Virtual Soundcard stereo pairs.
7. Repeat again for the Recording tab.
8. Click OK.

Choosing DVS as your Audio Interface - OS X

You will need to set Dante Virtual Soundcard as the system's default soundcard in order to use applications like iTunes. More sophisticated audio applications such as Logic allow you to select the soundcard from within the application itself.

For applications which allow a soundcard to be selected, choose 'Dante Virtual Soundcard' from the list of available soundcards for both input and output. Note that if 'Dante Virtual Soundcard' does not appear in the list of available soundcards, it is either not running, or not operating correctly.

For applications which do not have a mechanism to select a soundcard from within the application, the System Preferences panel must be used to configure the default sound output and input settings as shown in the following screens:



Figure 3 - Configuring Sound on Mac OS X - System Preferences

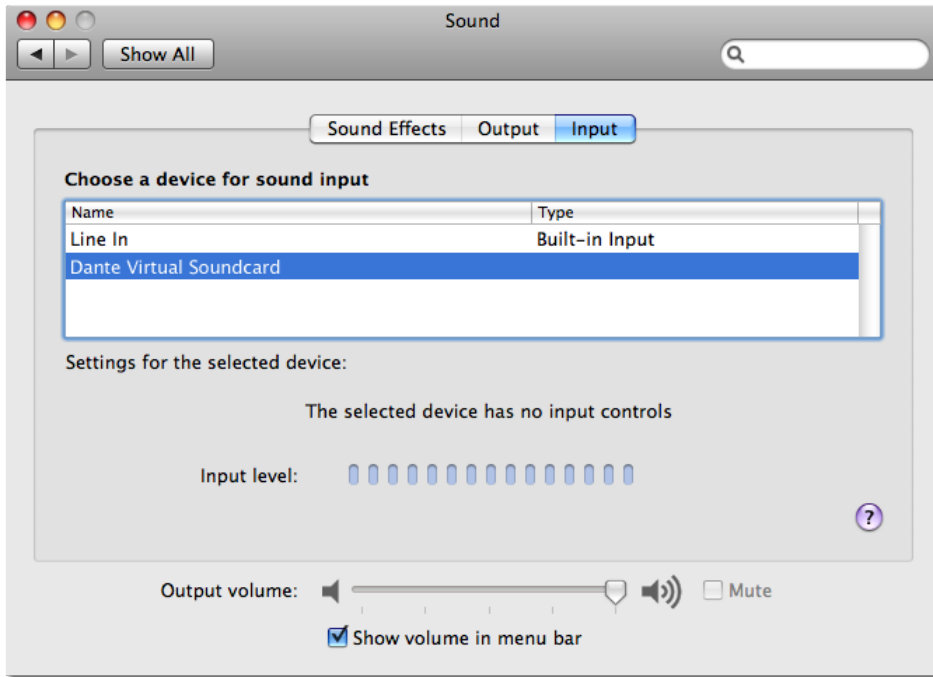


Figure 4 - Configuring Sound on Mac OS X - Input

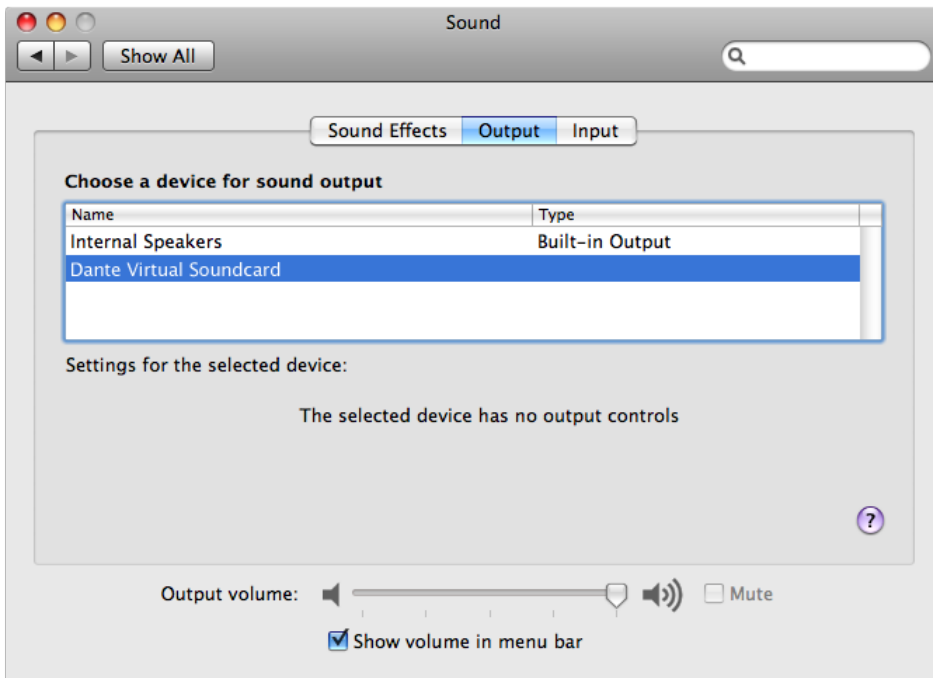


Figure 5 - Configuring Sound on Mac OS X - Output

The system sound effects should be sent to the built-in speakers rather than Dante, so that they don't interfere with the audio travelling over the network:

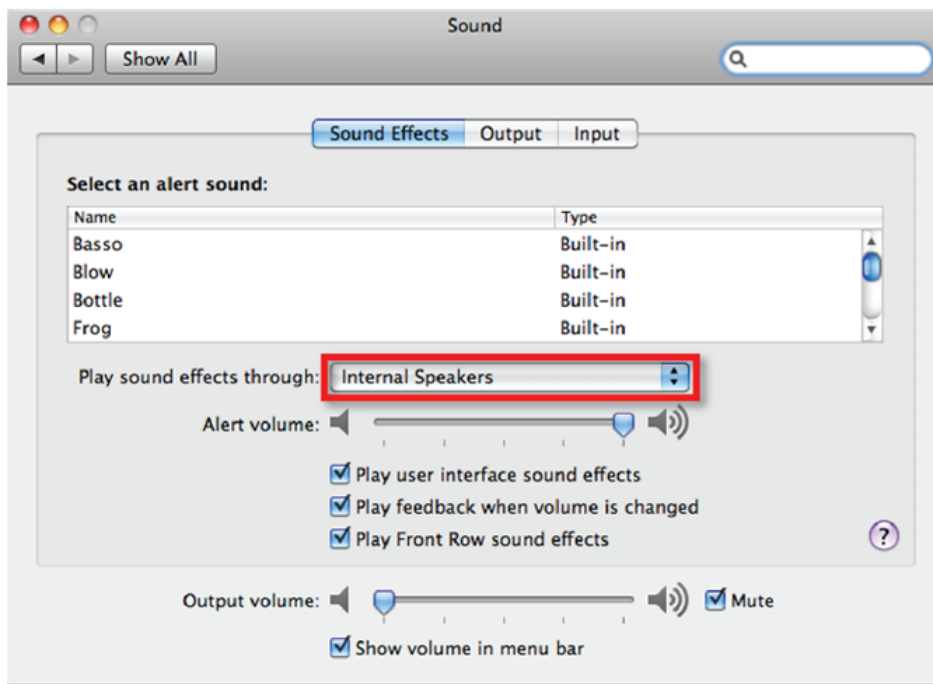


Figure 6 - Configuring Sound on Mac OS X - Internal Speakers

Troubleshooting

Possible Messages on Startup

Error Message	Meaning & Actions
System clock has gone backwards since DVS was last run	<p>Meaning: The standard licensing mechanism used in Dante Virtual Soundcard checks whether the system clock has been set backwards to detect deliberate attempts at license fraud.</p> <p>Action: If you still have a valid Dante Virtual Soundcard License ID, you can uninstall Dante Virtual Soundcard, then reinstall and use your License ID to reactivate.</p>
The DVS Manager service is not available, please try again in a few minutes	<p>Meaning: On some computers, system services may take a long time to start when the computer is rebooted and you may be able to log in and open the Dante Virtual Soundcard Control Panel before all required services are available.</p> <p>Action: To resolve this, please wait a few minutes to allow the services to start and try again. The Dante Virtual Soundcard Control Panel should then start normally.</p>
Dante Virtual Soundcard has detected that Dante Via is currently active on this computer. Please stop Dante Via before launching Dante Virtual Soundcard. (1280)	<p>Meaning: Dante Virtual Soundcard and Dante Via cannot be used simultaneously.</p> <p>Action: Stop Dante Via before starting Dante Virtual Soundcard.</p>

Possible Messages During Operation

Error Message	Meaning & Actions
The DVS Manager service is not available, please try again in a few minutes	<p>Meaning: On some computers, system services including the DVS Manager service may not recover from a System Suspend or Hibernate.</p> <p>Action: To resolve this, please exit Dante Virtual Soundcard and restart.</p>

Error Message	Meaning & Actions
<p>Connecting to the DVS Manager. Please wait...</p>	<p>Meaning: The Dante Virtual Soundcard Manager service is stopped or unavailable, and the control panel is attempting to reconnect to it.</p> <p>Action: If automatic reconnection doesn't occur within 15 seconds, restart the Dante Virtual Soundcard Manager service, or exit and restart Dante Virtual Soundcard.</p>

Possible Messages During Licensing

Error Message	Meaning & Actions
<p>The licensing server couldn't be found</p>	<p>Meaning: Dante Virtual Soundcard could not find the IP address of the Audinate Licensing Server. Likely to be caused by local network DNS failure or Proxy settings.</p> <p>Action: Wait and try again in case the issue is temporary. If the problem persists please talk to your local IT support staff.</p>
<p>Communication error while contacting server</p>	<p>Meaning: Dante Virtual Soundcard could not make a network connection to the Audinate Licensing Server. Likely to be due to either network or local proxy settings.</p> <p>Action: Wait and try again in case the issue is temporary. If the problem persists please talk to your local IT support staff.</p>
<p>DVS is not licensed for use via terminal server</p>	<p>Meaning: Dante Virtual Soundcard is not supported and will not activate on a Windows PC with Terminal Services (Remote Desktop) running.</p> <p>Action: Deactivate Terminal Services on the PC.</p>
<p>DVS is not licensed for use on virtual machines</p>	<p>Meaning: Dante Virtual Soundcard is not supported and will not activate if it is installed on a Virtual Machine.</p> <p>Action: You will need to install Dante Virtual Soundcard on a computer with a standard Windows or Mac OS X operating system install.</p>
<p>The license server has no knowledge of license ID xxxx...</p>	<p>Meaning: The License ID that has been entered is not a known Dante Virtual Soundcard License ID.</p> <p>Action: Check to make sure a valid Dante Virtual Soundcard License ID has been entered, and not a different product serial number.</p>

Error Message	Meaning & Actions
The license has been activated too many times	Meaning: A Dante Virtual Soundcard License can only be activated a limited number of times, and this activation limit has been exceeded.

Further Dante Troubleshooting

The [Dante Controller User Guide](#) and the [Dante FAQs](#) contain further information regarding troubleshooting issues you may be experiencing with Dante software and network configuration and operation.

On Windows, if you are experiencing latency problems or dropped audio (especially at higher sample rates), you may need to adjust Flow Control and Interrupt Moderation for your network adaptor. See www.audinate.com/faq/how-can-i-tune-windows-pc-best-audio-performance for more information.

Index

A

About Tab 28
 ASIO 30
 ASIO Latency 19
 Audio Channels 20, 23
 Audio Formats 16
 Audio Interface 30

B

Bit depth 17
 Bonjour 8
 Buffer Size 19

C

Changing Settings in OS X 21
 Changing Settings in Windows 17
 Choosing an Audio Application 30
 Clear Domain Credentials 28
 Configuring Dante Virtual Soundcard 15
 ConMon 8
 Connecting to the DVS Manager 37
 Control and monitoring 8
 Core Audio 30

D

Dante audio channels 20, 23
 Dante Controller 7
 Dante Discovery 8
 Dante Via 36
 Dante Virtual Soundcard as your Audio Interface 30
 Dante Virtual Soundcard License 13
 Device Lock 26
 Device Lock Tab 25
 Device Name 15
 Domains Tab 27
 Downloading Dante Virtual Soundcard 10
 Dropped audio 38

E

Encoding 16, 19

F

Firewall Configuration 8
 Flow Control 38

I

Installing Dante Virtual Soundcard on Mac OS X 10
 Installing Dante Virtual Soundcard on Windows 10
 Installing the Dante Virtual Soundcard 10
 Interrupt Moderation 38

L

Latency 20, 23
 Latency problems 38
 License ID 13
 Licensing Tab 24
 Locking 26
 Locking Dante Virtual Soundcard 15

M

Maximum Channels 20, 23
 Memory 7

N

Network Interface 21, 24
 Network Status 21, 24

O

Operating System 8
 Options 19
 OS X 21

P

PIN 26
 Ports 8
 Possible Messages During Licensing 37
 Possible Messages During Operation 36
 Possible Messages on Startup 36
 Processor 7
 Pull-up/down 15

S

- Sample rate 16
- Sample Rate 15
- sample rate conversion 31
- Settings Available in Dante Controller 15
- Shared mode 32
- Shared Mode 31
- Start / Stop 18, 22
- Starting the Dante Virtual Soundcard Control Panel 12
- Storage 7
- Supported Audio Formats 16
- Supporting Services 8
- System Requirements 7

T

- The DVS Manager service is not available 36
- Troubleshooting 38

U

- Uninstalling Previous Versions 11
- Unlocking 27

W

- WDM 30-31
- Windows 17
- Windows Drivers 8