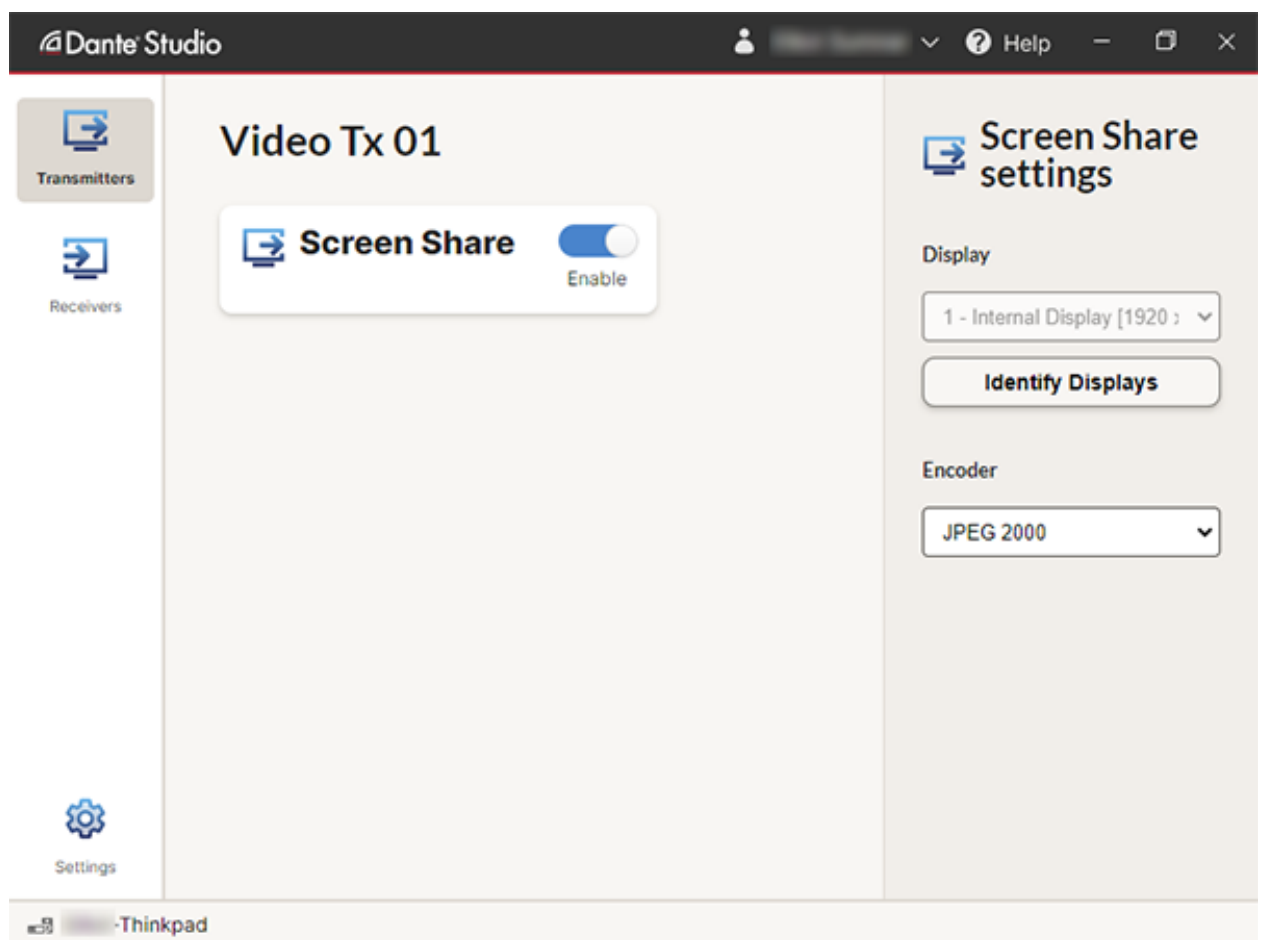




Dante Studio User Guide

For Windows



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About Audinate

Audinate® is the leading provider of professional AV networking technologies globally. Audinate's Dante platform distributes digital audio and video signals over computer networks, and is designed to bring the benefits of IT networking to the professional AV industry. AV-over-IP (AVoIP) using Dante-enabled products ensures interoperability between AV devices and allows end users to enjoy high quality, flexible solutions – typically with a lower total cost of ownership.

About Dante

Dante is the de facto standard digital media networking solution, using standard IP infrastructure to network devices, and making interoperability easy and reliable. It distributes uncompressed, multi-channel digital media via standard Ethernet networks, with near-zero latency and perfect synchronization.

It's the most economical, versatile, and easy-to-use media networking solution, and is scalable from simple installations to large-capacity networks running thousands of channels. Dante can replace multiple analog or multicore cables with a single affordable Ethernet cable to transmit high-quality multi-channel media 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 partners around the world.

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

Revision History

Version	Date	Notes
2.3	1st December 2023	Updates to GPU requirements in Minimum System Requirements
2.2	10th November 2023	Fix typo
2.1	20th July 2023	Updated for Dante Studio v2.1
2.0	14th February 2023	Updated for Dante Studio v2.0
1.2	3rd August 2022	Updated with Screen Capture
1.1	23rd May 2022	Updated Ports list in Firewall Configuration
1.0	19th April 2022	Initial release version

Introduction

About Dante Studio

Dante Studio turns your PC into a Dante-enabled device, allowing Dante video flows to be transmitted and received using the standard Ethernet port. No additional hardware is required.

Version 1.0/1.1 of Dante Studio delivered Dante Video Rx, which can be used with any video application that supports a webcam.

Version 1.2 added the Dante Video Tx and Video Viewer applications.

Version 2.0 was the first commercial version of Dante Studio, with a new user interface (UI) and several new features, including support for sending video from a software transmitter to a Dante AV Ultra hardware receiver, and receiving video from a Dante AV-H transmitter.

Version 2.1 improves the AV-H Rx latency, removes the need to select the codec for Rx, and adds support for annual licenses.

Once you have installed Dante Studio on a computer and connected it to the Dante network, you can use the following features:

- **Screen Share:** Uses the Dante Video Tx solution to capture up to 4Kp60 display on your PC, and transmit it over the Dante network, which can then be received by:
 - Dante AV Ultra Rx
 - Dante Video Rx
 - Dante Video Viewer
- **Dante Video Rx:** Receive a video stream (using applications such as OBS, Microsoft Teams®, Zoom® etc.) from any of:
 - Dante AV Ultra Video Tx*
 - Dante AV-H Tx**
 - Dante Video Tx
- **Dante Video Viewer:** Similar to Dante Video Rx, this is a standalone application which can be used to receive and display a video stream from any Dante AV Ultra Tx or Dante Video Tx

** For example, Bolin Dante AV Ultra cameras, or the Patton FPX6000T*

*** For example, Dante AV-H enabled cameras*

About the Dante Studio Solutions

Dante Studio is a suite of software solutions, which take some basic configuration (network selection) from the Dante Studio UI.

Two of these solutions - Dante Video Rx and Dante Video Tx - effectively act as engines to enable the various features that Dante Studio provides. The third solution, Dante Video Viewer, is a standalone application which presents via its own window.

Dante Video Rx

The Dante Video Rx solution enables Dante Studio to receive packetized Dante video data from the network, originating from remote transmitters such as Dante-enabled hardware cameras, or Dante

Studio Tx . It de-packetizes the video data and presents the video stream for consumption through a Dante Virtual webcam for applications such as OBS or the Dante Studio 'Video Viewer' application.

Note: Video Rx can receive video from a JPEG 2000 source such as Dante AV Ultra, or from an H.264/Advanced Video Coding, ISO/IEC MPEG-4 Part 10 (hereafter denoted as H.264/AVC) source such as Dante AV-H.

Dante Video Tx

The Dante Video Tx solution enables Dante Studio to packetize local video from the PC, and then transmit it onto the Dante network. The packetized video data can then be de-packetized by Dante AV Ultra Rx, or Dante-enabled software applications on the network. In Dante Studio 2.0, the Screen Share feature exposed via the Dante Studio UI uses the Dante Video Tx solution to packetize video for transmission over the network.

Note: The Screen Share feature only supports JPEG 2000 compression, so it will be disabled when the Video RX decoder is switched to the H.264/AVC standard. This is the reason why the receiver de-packetizing the video data coming from the Dante Studio Tx needs to be a Dante AV Ultra receiver.

Dante Video Viewer

Dante Video Viewer is a standalone display application which enables you to see and monitor a Dante video stream from a remote Dante-enabled video transmitter on the network, such as a Dante-enabled camera or software application. Dante Video Viewer uses the Dante Video Rx solution to receive the video from the network, hence it cannot be used to display video when another software application is using the Dante Video Rx at the same time

Before you Install: Important Notes

Dante Controller

You must have Dante Controller installed on a PC on your Dante network to control and route Dante video. It can be installed on the same computer as Dante Studio.

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 Dante Studio in conjunction with a typical video application, such as vMix or OBS. A more powerful computer may be required if Dante Studio is being used with or alongside other applications requiring significant computing resources.

General

Component	Minimum Requirement
Processor	Intel i7 9th generation
Memory	8 Gigabytes of RAM
Network	Standard wired Ethernet network interface (1 Gigabit) or higher Wireless LAN (Wi-Fi) Ethernet interfaces are not supported
GPU	<ul style="list-style-type: none">▪ Nvidia® GTX1660 or better with latest drivers required for AV Ultra▪ Intel GPU 9th gen or later with latest drivers required for AV-H▪ Using Dante Studio with AV Ultra hardware requires an Nvidia GPU for performant decoding of video▪ Using Dante Studio with AV-H hardware requires an Intel GPU for performant decoding of video▪ Performance will be limited with GPUs from alternative manufacturers

Windows

Component	Minimum Requirement
Operating System	Windows 10 and Windows 11 NOTE: Unicode is fully supported except for Dante 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
Video Application	Must support the DirectShow interface. Many common video streaming applications (such as vMix, OBS, Teams, Zoom, Panopto) are supported.

Operating System Updates

Ensure your computer has the latest Windows Updates installed.

Supporting Services

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

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

Resolution Support

- **Dante Video TX** supports capture of one display of resolutions up to 4K, 60 frames per second (fps)
- **Dante Video RX** and **Dante Video Viewer** receive all resolutions supported by Dante AV Ultra Tx or a Dante AV-H Tx, but always scales the video output to 1080p

Firewall Configuration

Configuration for Windows Firewall is automatically handled during installation. If you are using a third-party firewall product, check the following port configurations:

External			
Protocol	Port	Usage	Type
UDP	4322	Dante Studio	Unicast
UDP	16490	Dante Studio Video port	Unicast
UDP	48700,48900,48800	Dante Control and Monitoring (Virtual Webcam)	Unicast
TCP	4461	Video Engine APEC	Unicast
TCP	6444	Clock mapping port	Unicast
224.0.0.230 - 233	8700	Multicast Control and Monitoring	Multicast
239.254.1.1	9998	Logging	Multicast
239.255.255.255	9875	SAP (AES67 discovery)	Multicast
224.0.0.251	5353	mDNS	Multicast
224.0.1.129-132	319,320	Dante Clock Synchronization (PTP)	Multicast and Unicast when using DDM

Internal			
UDP	44440,44455, 44444	Dante Studio Video Control	Unicast
UDP	8000	Dante Domain Manager Device Port	Unicast
UDP	8001	Dante Millau Device Proxy (Internal only)	Unicast
UDP	8002	Dante Lock Server	Unicast
TCP	4778	Dante Studio Websocket	Unicast
TCP	16001	Dante Studio Video Tx	Unicast
TCP	16000	Dante Studio Video Rx	Unicast

For information about other Dante ports, please refer to this FAQ in the Audinate website:

 <https://www.audinate.com/faq/which-network-ports-does-dante-use>

Installing and Uninstalling Dante Studio

Downloading Dante Studio

To download a copy of Dante Studio, go to Audinate's website (www.audinate.com) and navigate to Products > Dante Studio.

Installing Dante Studio

Once you have downloaded the Dante Studio installer, navigate to the directory to where it was downloaded.

To install:

1. Ensure you are logged on to your PC with administrator privileges.
2. Double-click the Dante Studio 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 **Continue** to install.

Uninstalling Dante Studio

You do not usually need to uninstall a previous version of Dante Studio before installing a new version. However, if you should need to uninstall Dante Studio:

1. Click the Windows Start button, and select Settings > Apps.
2. Locate and left-click 'Dante Studio', then select 'Uninstall'.

Starting the Dante Studio UI

The Dante Studio UI enables user interaction with Dante Studio.

By default, Dante Studio will be installed in:

`C:\Program Files\Audinate\Dante Studio\bin\ui`

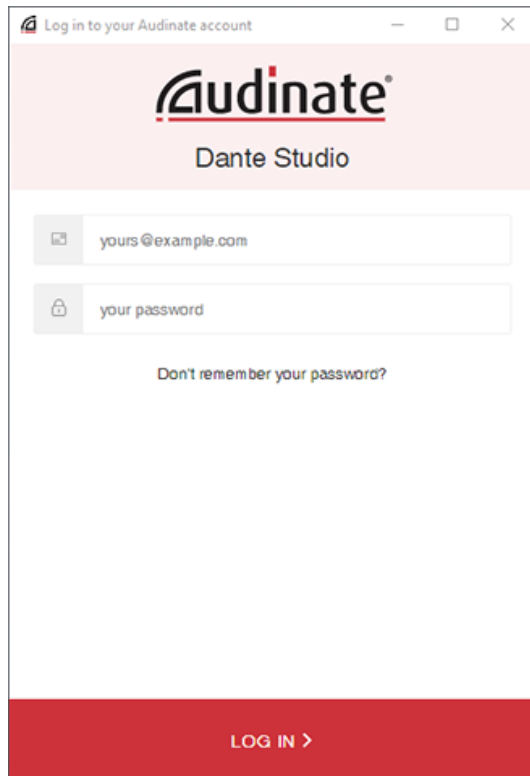
The Dante Studio Control Panel can be started in various ways:

- In the search field in the Windows task bar, type 'Dante Studio' and select the app.
- Hit the Windows key and scroll through the app list to locate Dante Studio.
- Navigate to the directory where Dante Studio is installed, and double-click `Dante Studio.exe`

Logging In and Activating Dante Studio

Dante Studio will not operate until a valid License has been activated. Dante Studio uses a user-based subscription model for licensing. First-time users are initially provided with a 7-day trial license, which converts automatically to an annual subscription at the end of the trial period (unless cancelled in the meantime).

The first time you start Dante Studio, you will be presented with a login screen.

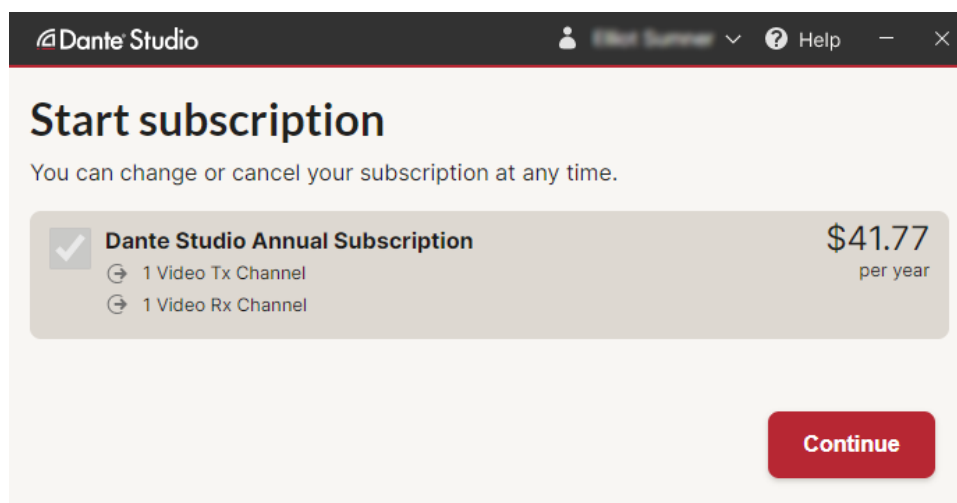


The PC on which Dante Studio is installed needs to be connected to the Internet so that Dante Studio can connect to the Audinate license server to license the software.

You will need an Audinate.com user account to be able to log in to Dante Studio - you can create an account at my.audinate.com/user/register.

Buying a License

Once logged in, first time users will need to purchase a license, by selecting the 'Dante Studio Annual Subscription' plan, as shown below.

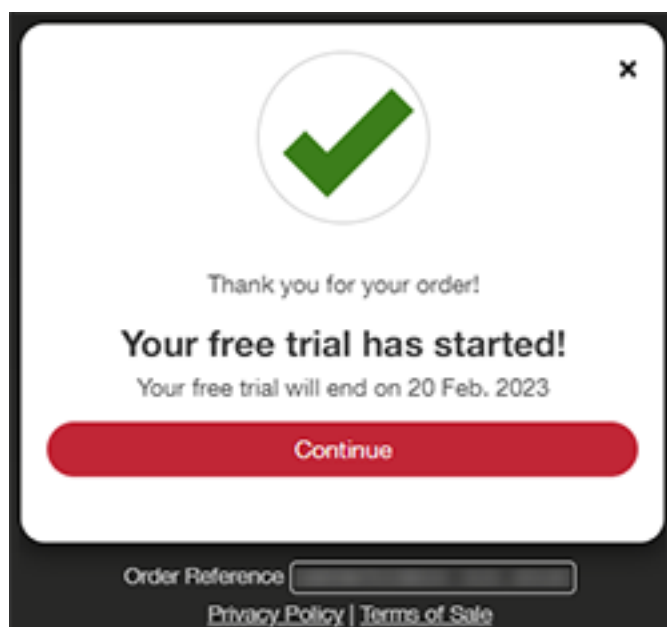


The displayed cost will be displayed in your local currency (above is AUD).

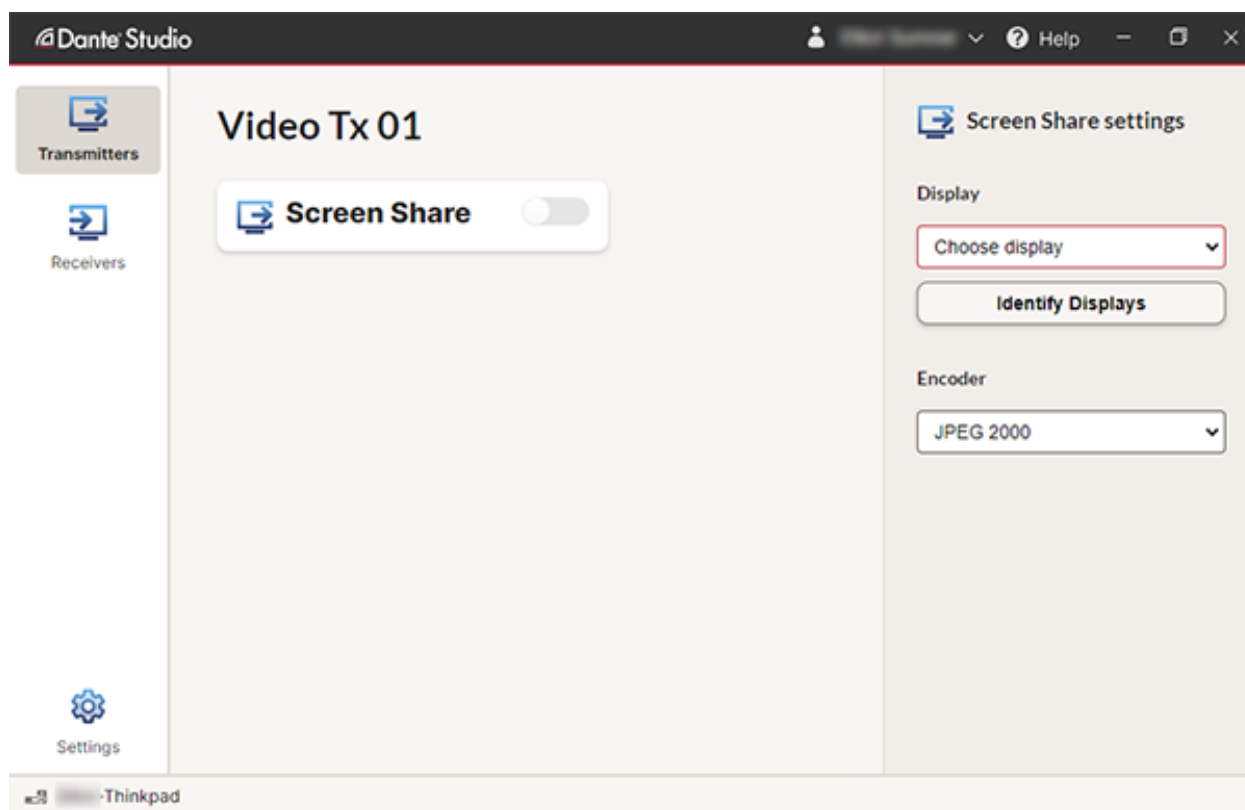
The subscription starts with a 7 day trial period, which automatically converts to an annual subscription after 7 days, unless it is cancelled before the end of the trial period. You will not be charged until after the end of the 7 day trial period.

Click 'Continue' to progress to the payment screen. Enter your payment details to start your free trial.

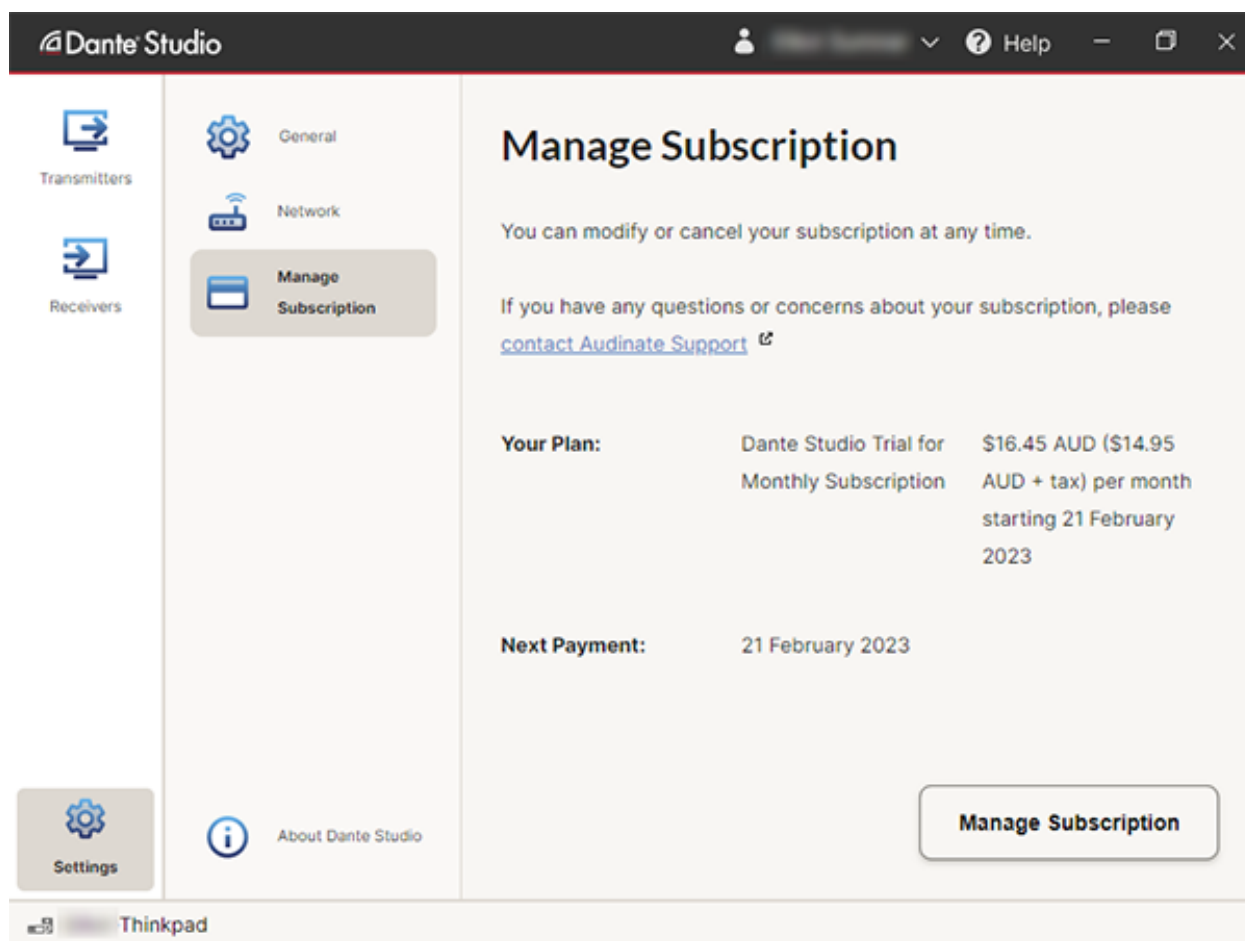
When your payment has been processed, you should be presented with a confirmation screen indicating that your trial has started.



Click 'Continue' to progress to the main Dante Studio UI, where you can begin using the Dante Studio features as shown in the UI depicted in the following image.



Note that you can cancel your Dante Studio subscription at any time via the 'Manage Subscription' tab (available from **Settings > Manage Subscription**). If you cancel your Dante Studio subscription, no further payments will be taken from your nominated payment method.



Configuring Dante Studio using Dante Controller

Settings Available in Dante Controller

Some Dante Studio settings are only configurable via Dante Controller.

Device Name

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

1. In Dante Controller, open the Device View for Dante Studio - either:
 - Double-click the Dante Studio device in the Routing view, or:
 - Use Ctrl + D to open the Device View, and select the Dante Studio device from the drop-down menu
2. Select the Device Config tab.

See the [Dante Controller user guide](#) for more information about configuring Dante devices.

Changing the Device Name

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

To change the Dante Studio device name:

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

Network Status

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

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

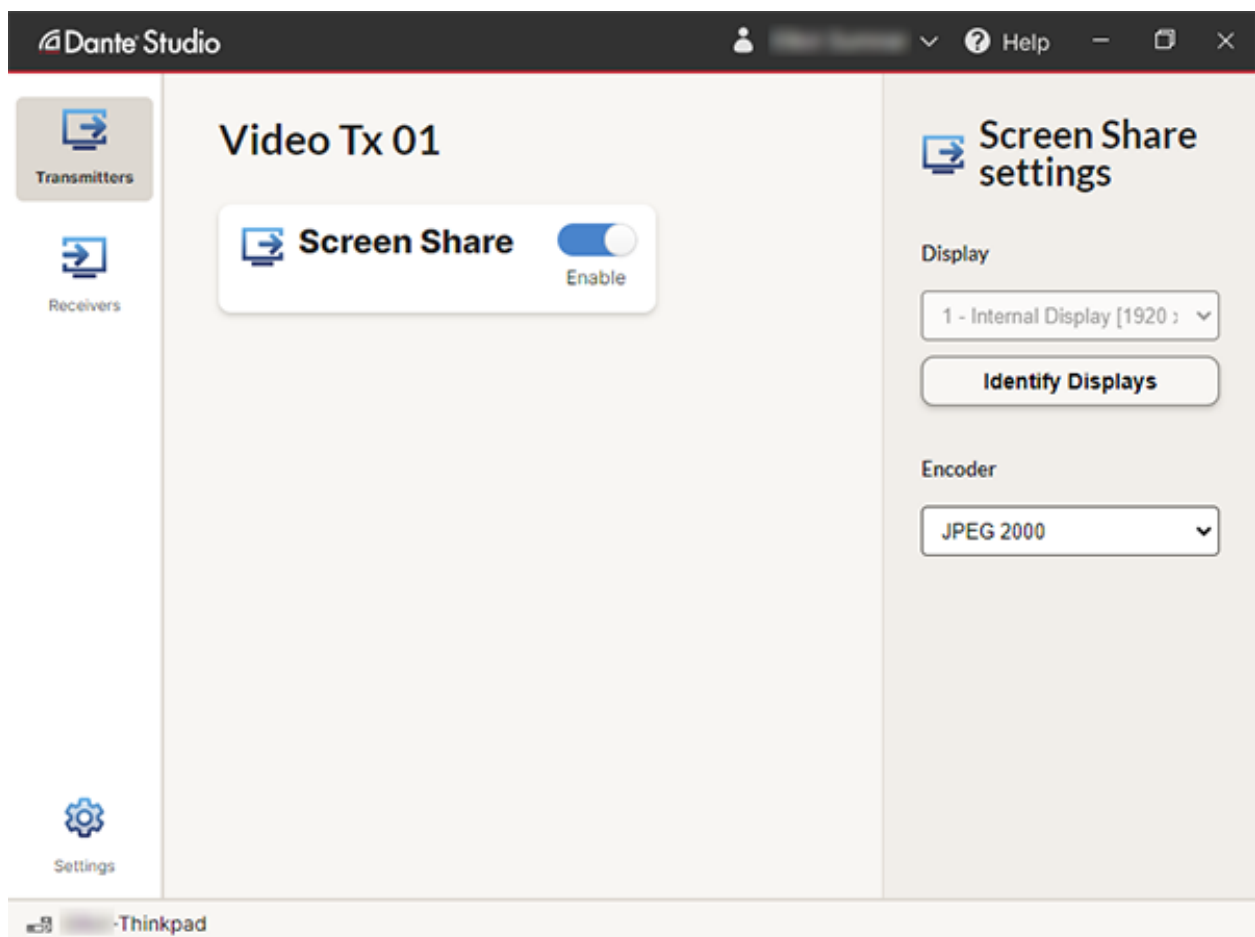
Configuring Dante Studio Using the Dante Studio UI

When you open the Dante Studio UI, you are presented with a window with three tabs: **Transmitters**, **Receivers** and **Settings**. The Transmitters tab is selected by default when the application is opened.

Transmitters Tab

The Transmitters tab allows you to select one of the displays connected to your PC, and transmit the captured video from that display over your Dante network. The video can then be received by either:

- Another instance of Dante Studio (using a virtual webcam in a media application, or the Dante Studio Video Viewer application), or:
- A Dante AV Ultra Rx hardware receiver




To transmit video over the Dante network using Dante Studio:

1. Open Dante Studio, and select the Transmitters tab.
2. Click 'Identify displays' to see the available connected displays from which you can capture video.

3. Choose the display that you would like to capture from the drop-down menu.
4. Click the 'Screen Share' switch to activate screen capture.

To receive video from Dante Studio, use Dante Controller to subscribe a video receiver on the network to the Dante Studio Tx device.

 **Note:** Screen Share does not currently capture the mouse pointer.

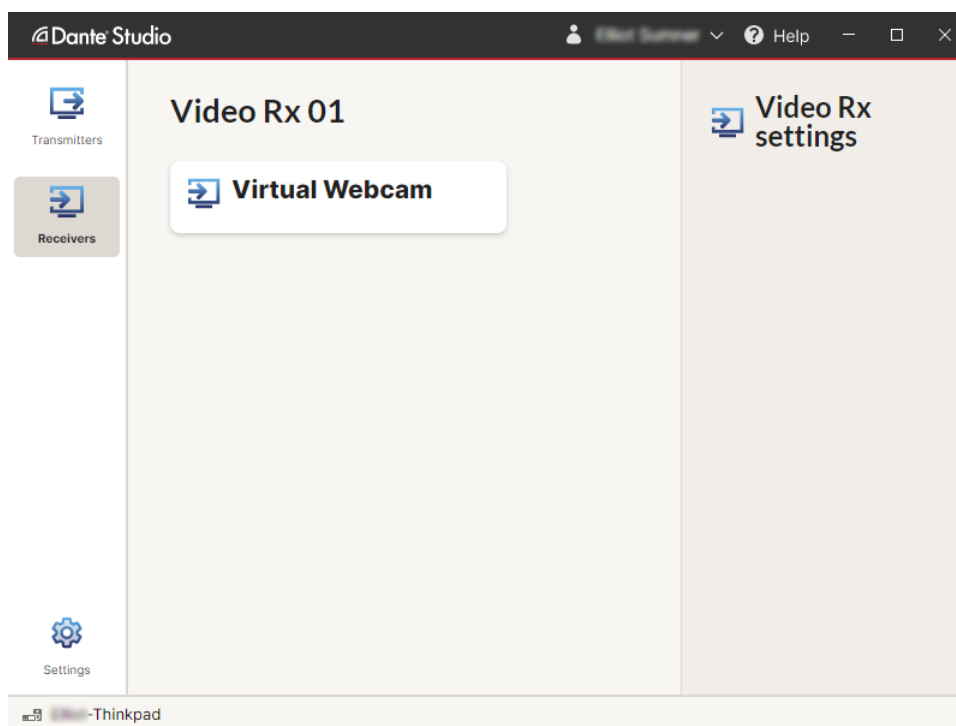
 **Note:** Screen Share currently only supports JPEG 2000 for encoding captured frames.

Receivers Tab

The Receivers tab allows you to receive Dante video from the network.

You can use Dante Controller to subscribe a video receiver (such as OBS, Teams, Zoom, or the Dante Studio Video Viewer application) to a video Tx device to be able to receive video from that device over the Dante network.

Video Rx supports decoding of JPEG 2000 and H.264 video.



Using Dante Studio with a Video Application

Dante Studio uses the Dante Video Rx solution to receive Dante video from the network, and acts in a very similar way to a webcam.

Choosing a Video Application

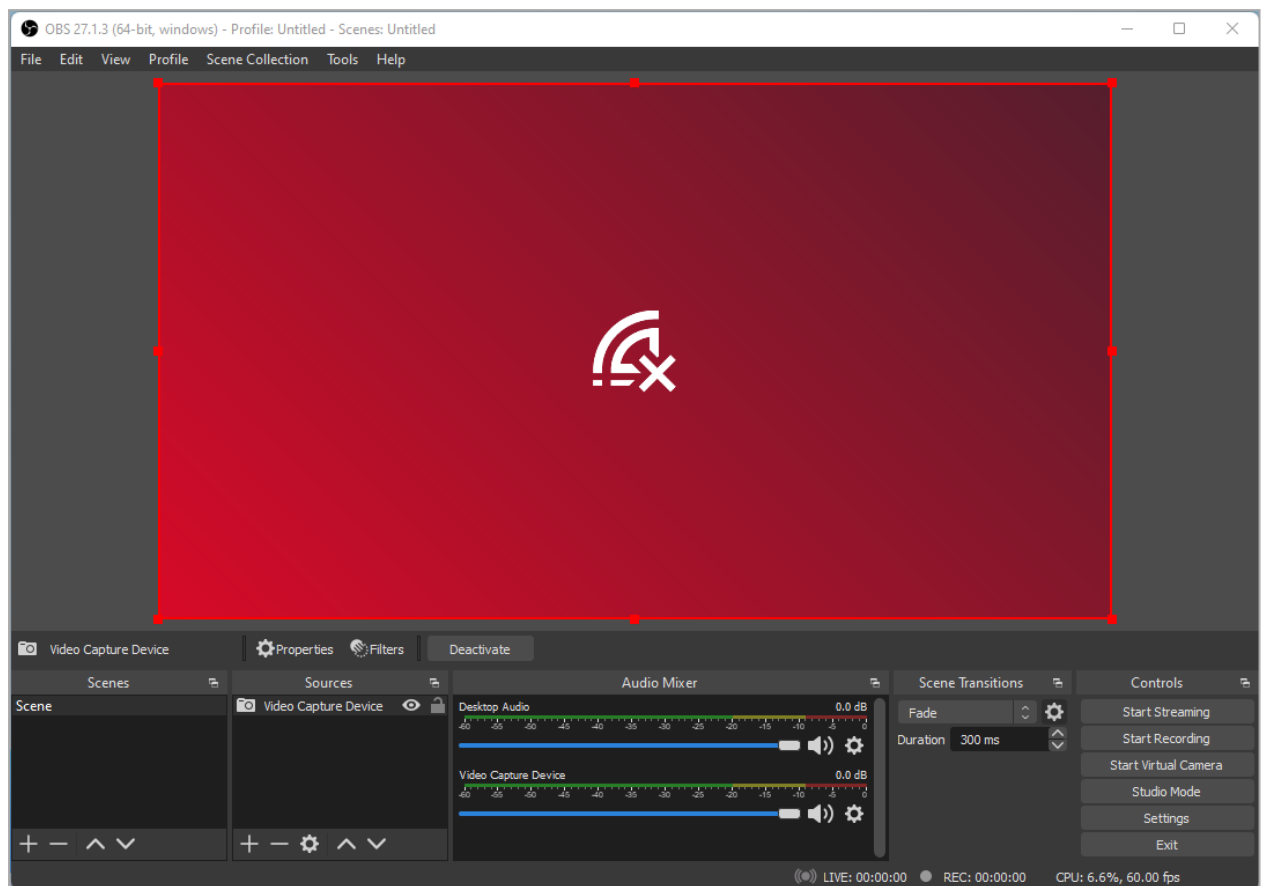
Dante Studio acts like a standard DirectShow application on a PC running Windows.

Choosing Dante Studio as your Video Interface

Video applications generally provide a mechanism for selecting the video source that they will use.

Example: OBS

1. Add a new Video Capture Device, by clicking the plus sign in the Sources panel.
2. Select 'Dante Studio' from the list of devices, and click OK.
3. You can then subscribe Dante Studio to a Dante AV Ultra Tx or a Dante AV-H Tx using Dante Controller, to show the video in OBS.



Using Dante Video Viewer

Dante Video Viewer is a standalone receiver application which enables users to see/monitor the pixels sent from a Dante Video Tx, a Dante AV Ultra Tx, or a Dante AV-H Tx.



To open the Video Viewer application, either:

- Run the `video_viewer.exe` file under `C:\Program Files\Audinate\Dante Studio\bin\`, or:
- Search for the 'Dante Video Viewer' application in the Windows Start menu

i Note: Video Viewer cannot be used simultaneously with Dante Video Rx. If any video applications (such as OBS) are actively receiving a video signal from a software Dante Video Tx source or a Dante AV Ultra Tx or a Dante AV-H Tx, Video Viewer will show an error message.

Tips

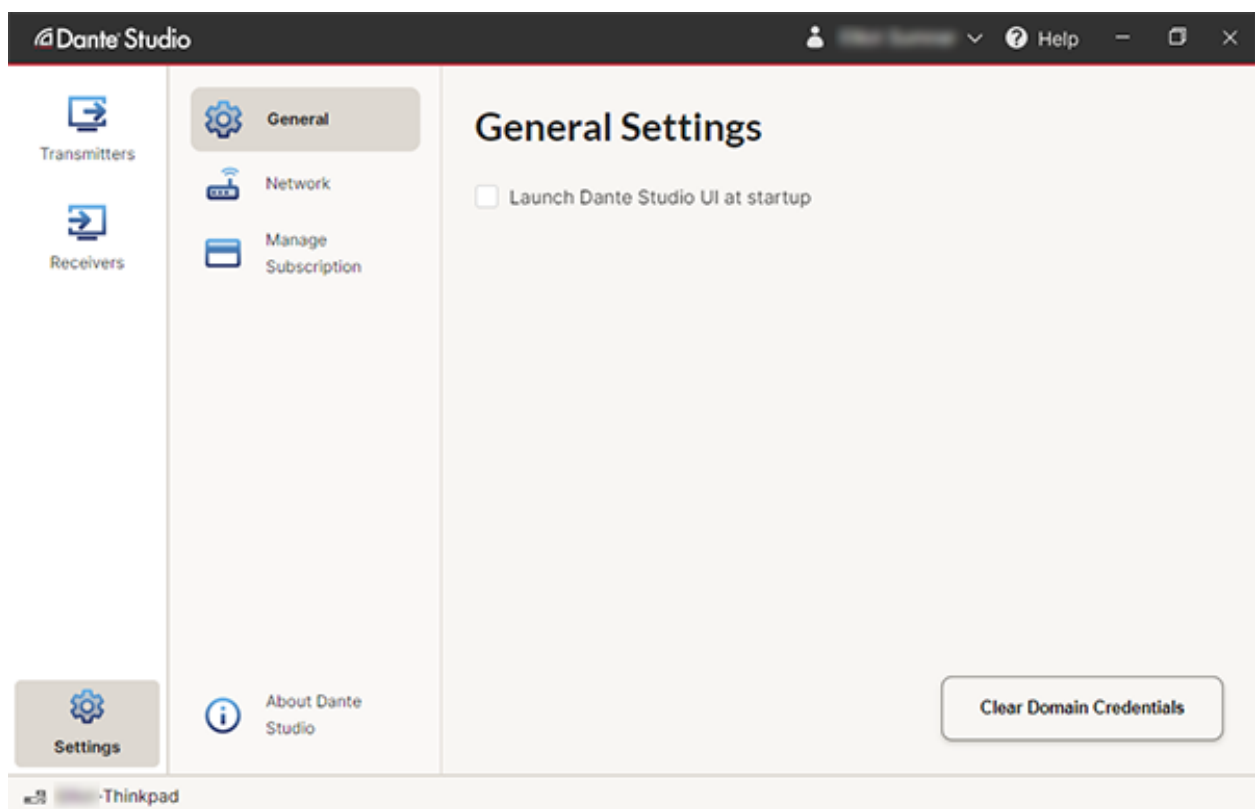
- Video Viewer supports or receives all resolutions that can be sent from a software Dante Video Tx source or a Dante AV Ultra Tx or a Dante AV-H Tx. You can maximise the window by clicking on the square icon in the top right corner. To view pixels in full screen, hit F11 or double-click on the window.
- Video Viewer maintains the aspect ratio of the received video source, so you will see letter-boxing for certain source resolutions.

Settings Tab

General

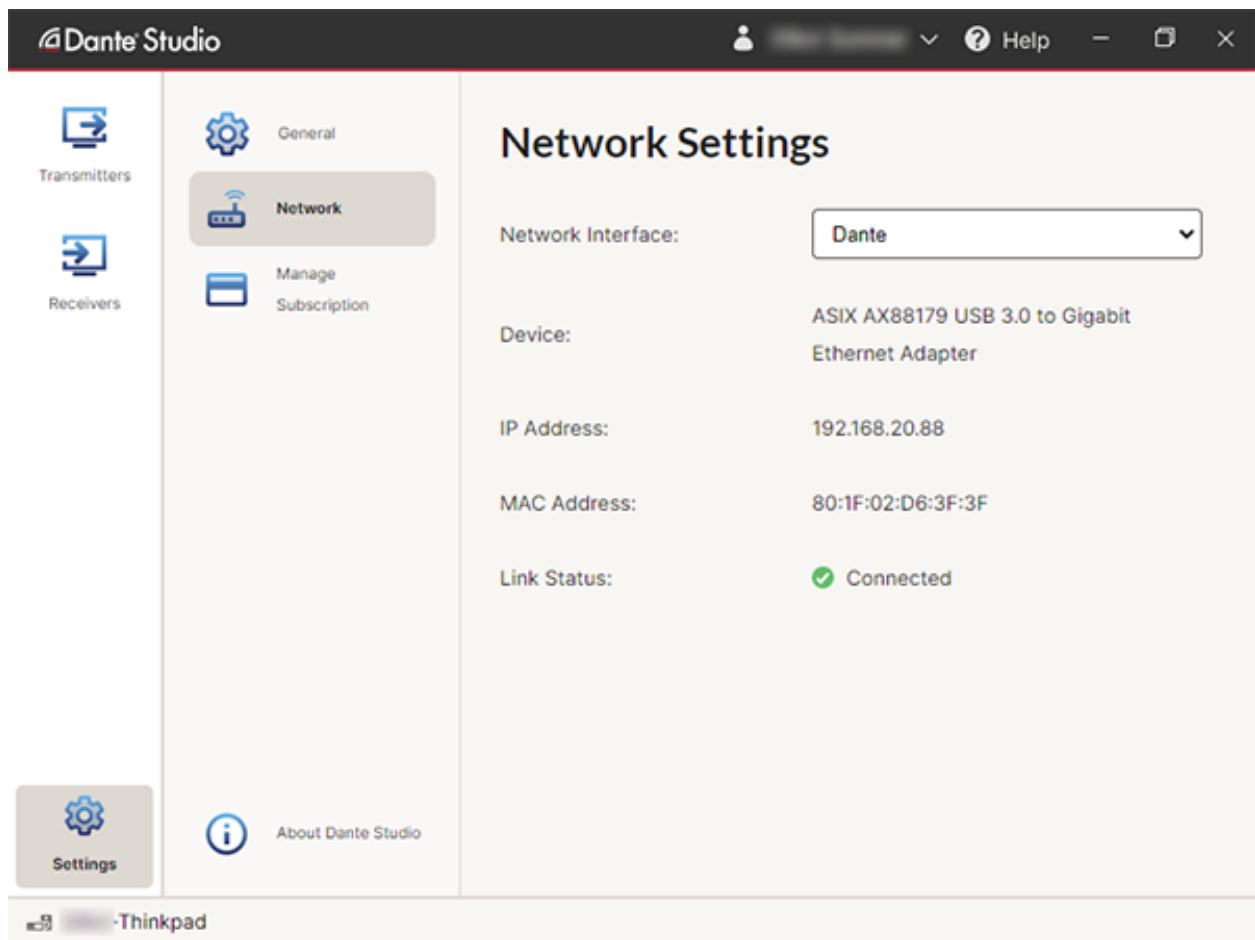
In this tab you can choose to:

- Launch the Dante Studio UI at startup / login of your PC.
- 'Clear Domain Credentials' if Dante Studio is currently enrolled in a domain in Dante Domain Manager (DDM), and you want to manually un-enroll it without logging into DDM. This will allow Dante Studio to operate as an 'unmanaged' device in Dante Controller, and/or be enrolled into a new DDM domain if required.



Network

The Network Interface tab allows you to select the computer's network interface that Dante Studio will use to receive and transmit video. The available entries will all be 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.



Note: Dante Studio does not support wireless, Bluetooth or bridged Ethernet interfaces. Dante Studio on Windows functionally supports high performance USB Ethernet adapters. However, it is the responsibility of the user to test their hardware prior to use.

Note: All Dante applications on the same computer need to have a shared understanding of the primary Dante interface. For example, if you have installed Dante Controller on the same PC as Dante Studio, and a new primary interface is selected from within Dante Controller, Dante Studio will not automatically switch to the newly selected interface - this needs to be done separately via the Dante Studio UI.

Device

The Device field displays the Network device of the currently selected Network Interface.

IP Address

The IP Address field displays the IP address of the currently selected Network Interface.

MAC Address


The MAC Address field displays the MAC address of the currently selected Network Interface.

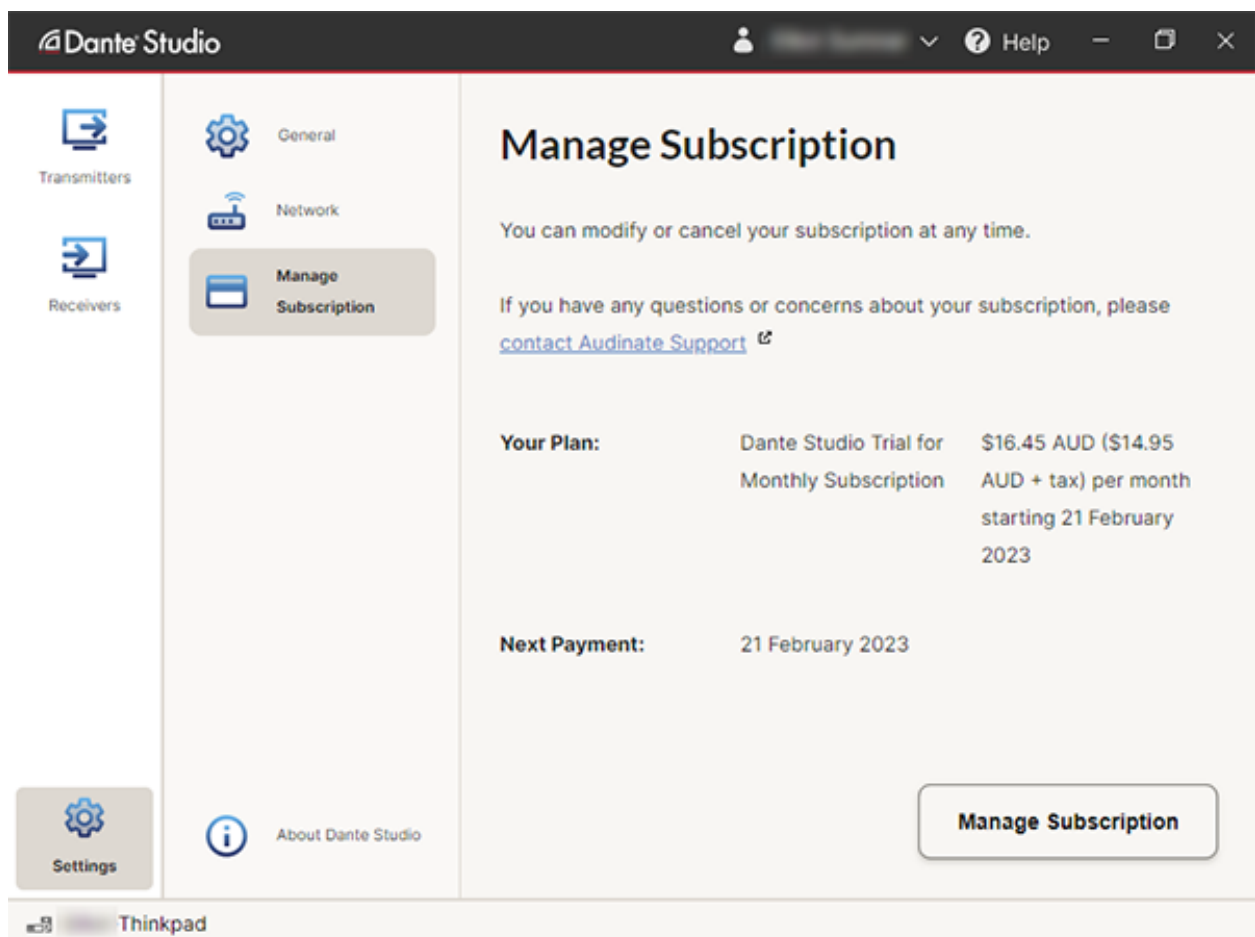
Link Status

The Link Status field displays the current status of the currently selected Network Interface.

Manage Subscription

The Manage Subscription tab displays information related to your most recent subscription payment, and the next upcoming payment date.

 **Note:** The displayed currency will reflect the currency used when the software was initially activated.

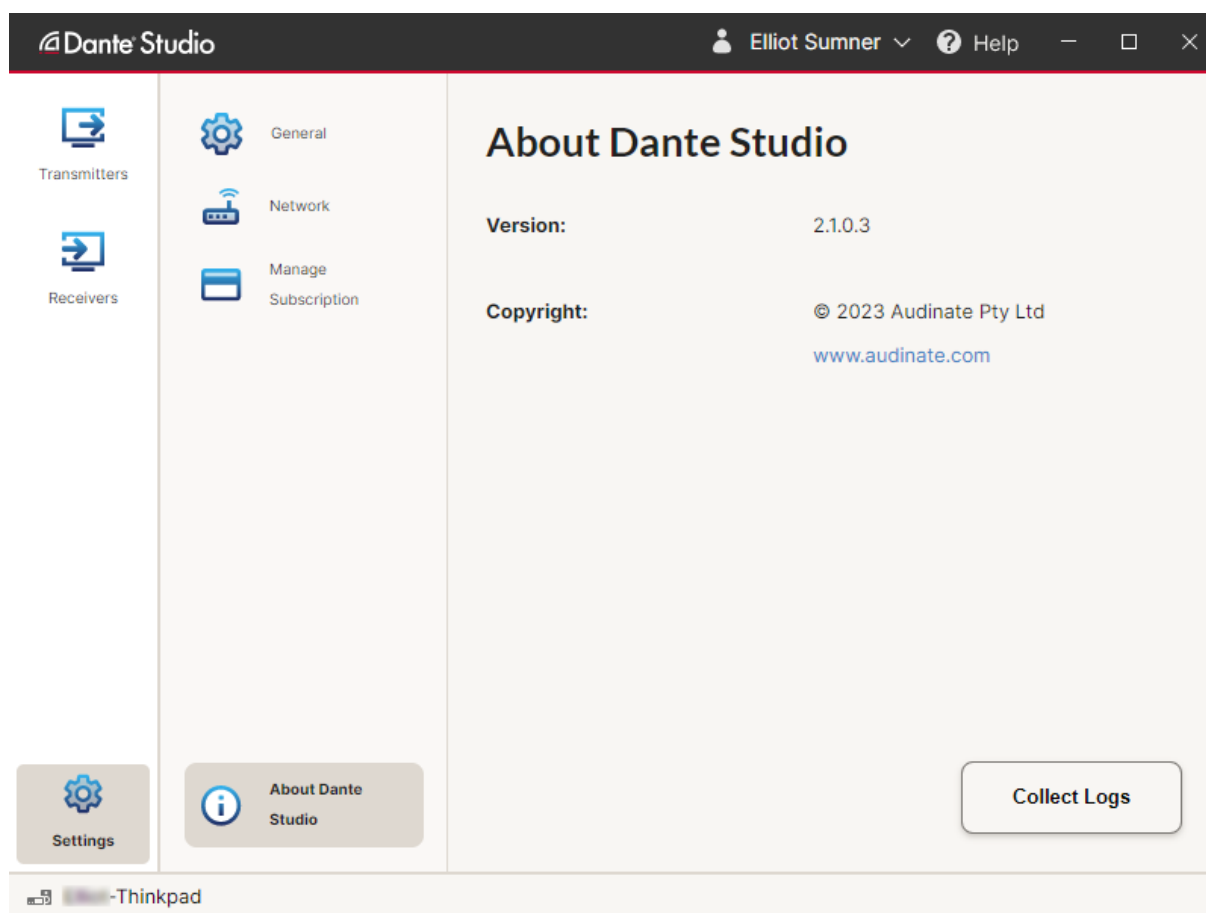


Click the 'Manage Subscription' button at bottom right of the UI to open a webpage in your default browser where you can manage your current subscription, account details and payment details.

About Dante Studio

The About Tab displays:

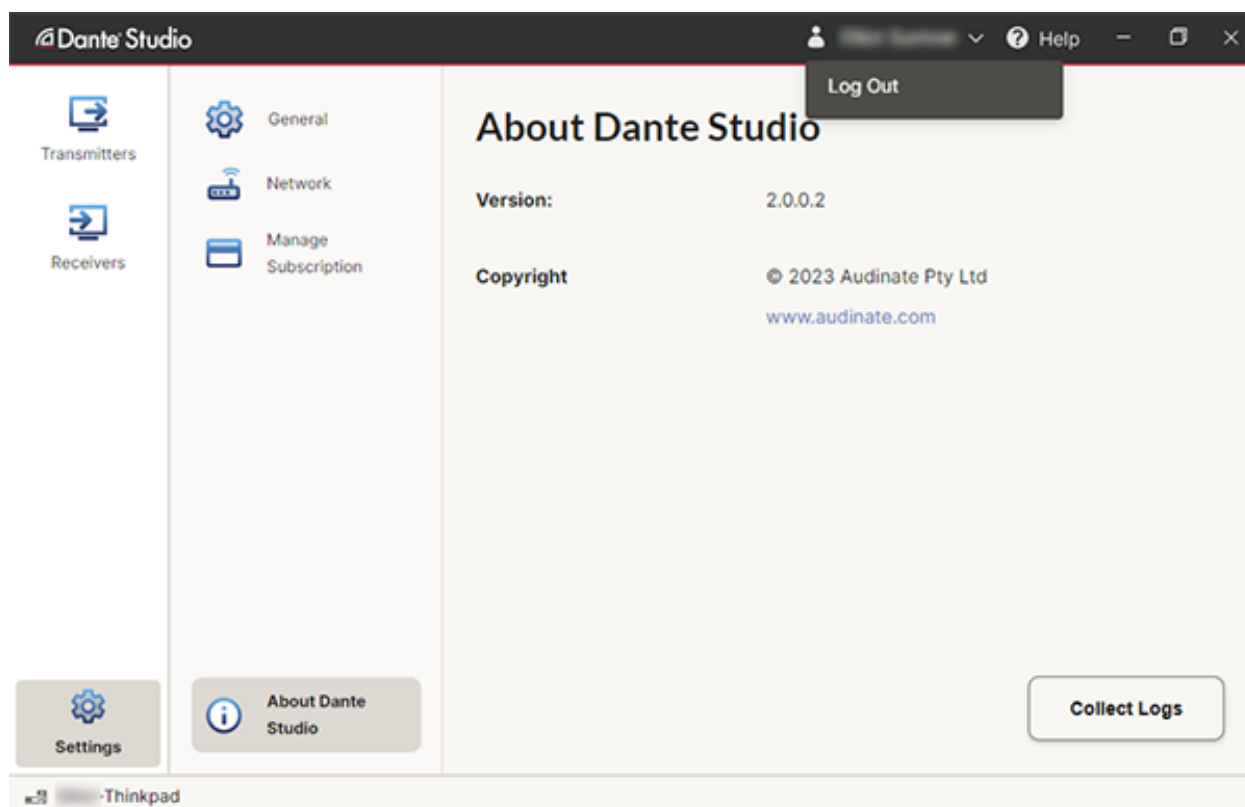
- The version of Dante Studio that you have installed
- A link to the Audinate website
- A 'Collect Logs' button, which will save performance and debugging logs to your PC's desktop. You may be asked to use this feature by Audinate technical support.



Logging Out of Dante Studio

Logging out of Dante Studio will remove the user credentials for the current user that are cached on the PC, and also deactivate any active license on the computer. You should only really need to log out if you want to transfer your Dante Studio license to another computer.

You can log out of Dante Studio via the main screen, by clicking your username:



Or from the initial subscription setup screen (again by clicking your username).

Troubleshooting

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

- If Dante Studio doesn't appear in the routing tab of Dante Controller, but it is listed in the Device Info tab, it is possible the Network Interface is not configured correctly. Please follow the steps in [Network Interface](#).
- As video data occupies high bandwidth, a dedicated network for Dante AV devices is highly recommended.

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