Cinegy Cinegize 25

Document version: 513789d

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Preface

Cinegize takes center stage as the game-changer in remote control solutions for one or many PCs or workstations via LAN, Wi-Fi, or Internet, providing the highest quality and lowest-latency access possible.

It is specifically designed to deal with high resolutions, and high frame rates on full-screen, including audio playback while having minimal impact on both the host and client machines.

Cinegize allows the user to easily take command over the connection types, video quality, and latency. It adapts to the nuances of various connections by achieving a latency of around 1 fps.

Cinegize provides remote control without needing additional hardware – a user can leverage the prowess of his discrete or integrated GPU, whether it's NVIDIA, AMD, or Intel. It features the automatic CPU fallback and ensures a seamless experience even when GPU video encoding is not available.

Cinegize ensures AES-256 encryption, providing a secure, peer-to-peer connection with no room for interference.

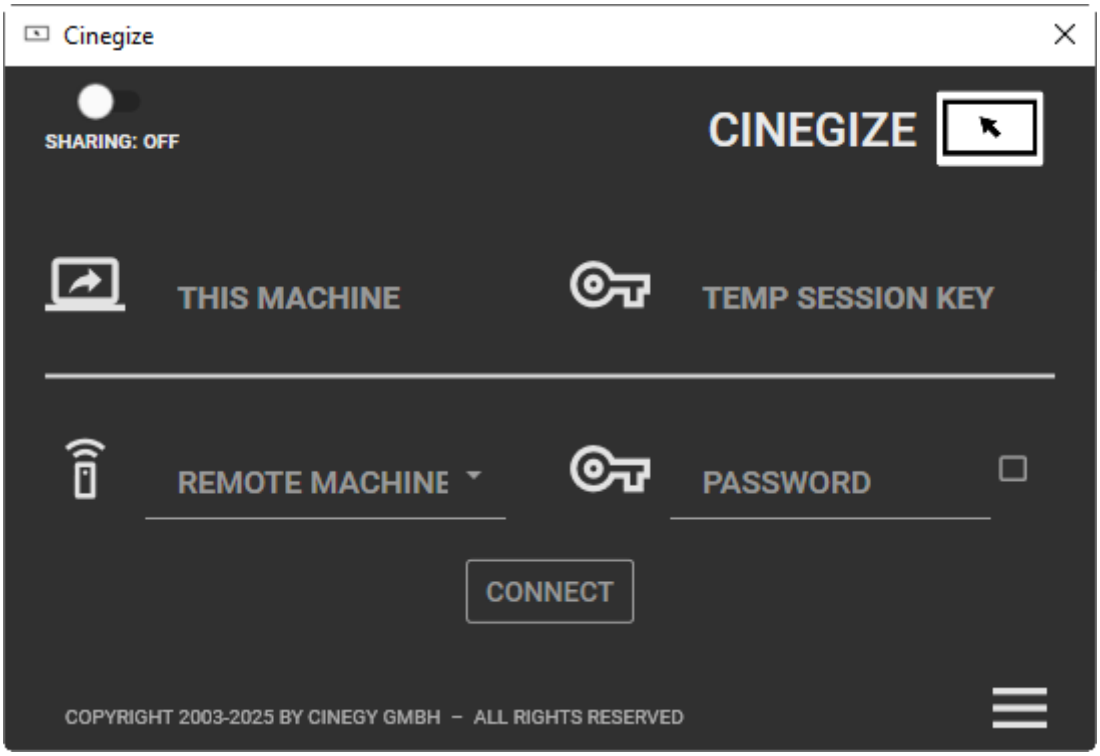
The keyboard/mouse and clipboard integration are realized through a dedicated control channel allowing interactivity with the host.

Once installed, Cinegize is available to all users on the PC. Thanks to the implemented data storage technology, each user operates independently, maintaining a personalized list of recently connected servers, passwords, and settings.

The open standards that are adopted by Cinegize – SRT, RTP, and TCP – break free from proprietary protocols and ensure flexibility and compatibility. More flexibility is provided by optional features such as TURN and STUN servers for WebRTC.

Cinegize transcends resolution restrictions, offering hyper-fast Daniel2 encoding for resolutions beyond 8K and ultra-low latency encoding.

A new virtual display adapter takes remote access with GPU acceleration using VMs, VDI, cloud workstations, or remote PCs without a connected screen.



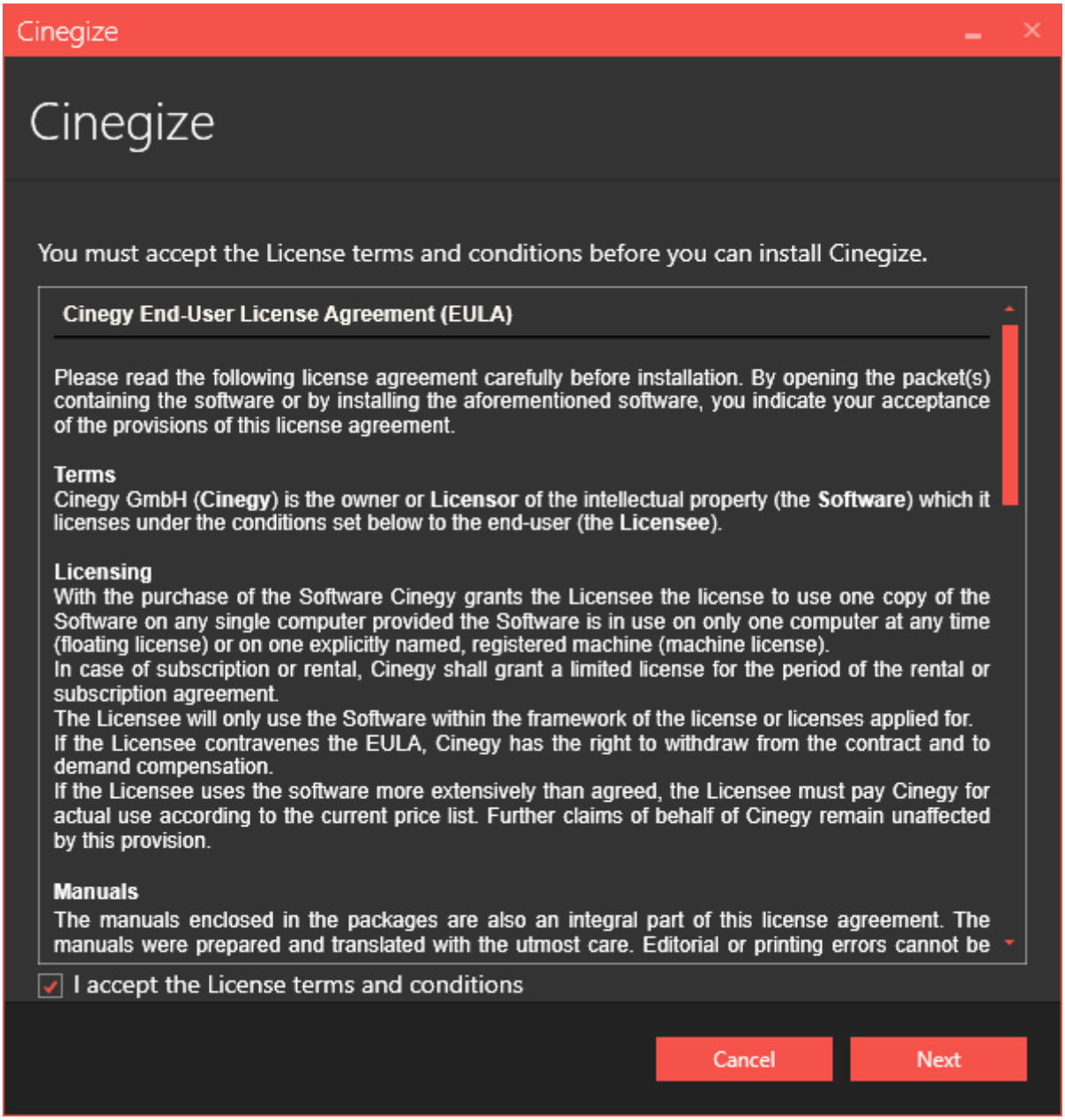
User Manual

Chapter 1. Installation

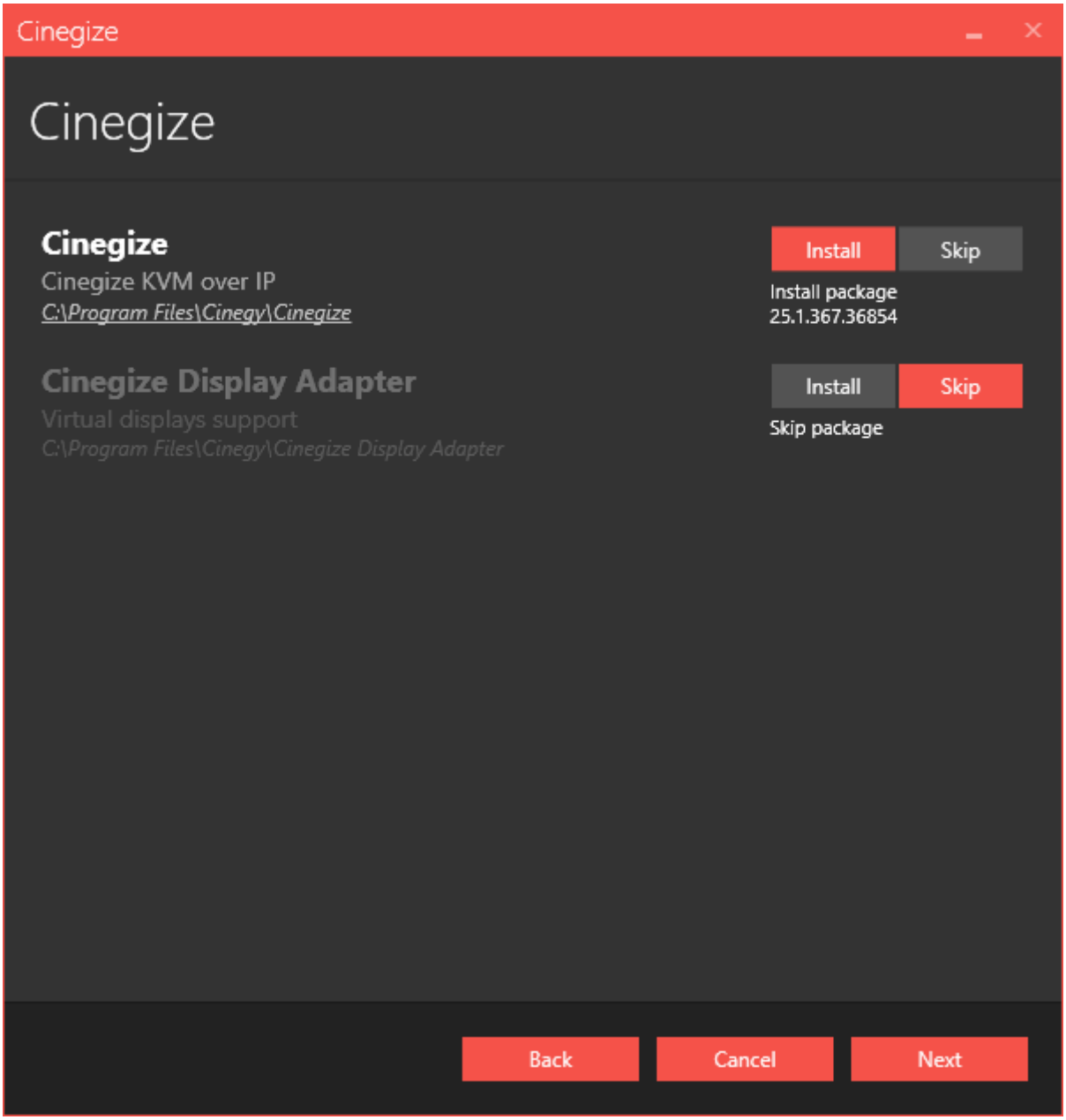
Cinegize is currently in development and is being offered free of charge. Visit the official Cinegize website to explore its key features and download the latest version.

Administrator rights are required to complete the installation. This ensures that during host sessions, the software can provide full access to application windows that require elevated permissions. Additionally, after installation is complete, you can enable the "User Account Control" switcher in **Settings** to prompt for administrator permissions each time Cinegize starts.

To start the installation, run the Cinegize-Installer.exe file. The setup wizard will be launched:



Read and accept the license agreement and press "Next" to proceed with the installation:



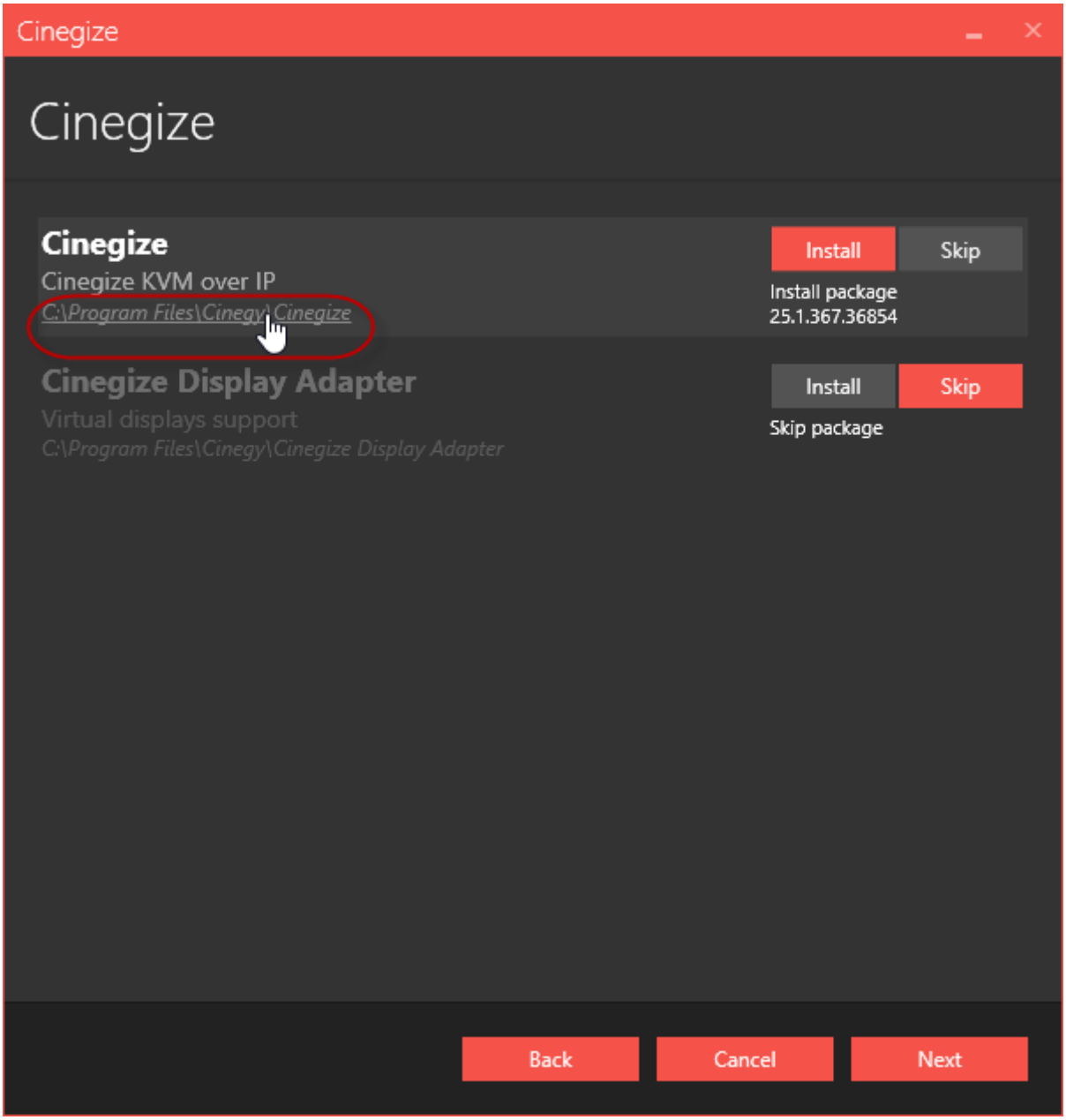
In this step, you can choose to install only Cinegize or include the Cinegize Display Adapter.

By default, the Cinegize Display Adapter installation is skipped. However, a virtual display adapter is essential for use with virtual machines, cloud instances, or VDI scenarios without an attached screen. To enable it, click the "Install" option.

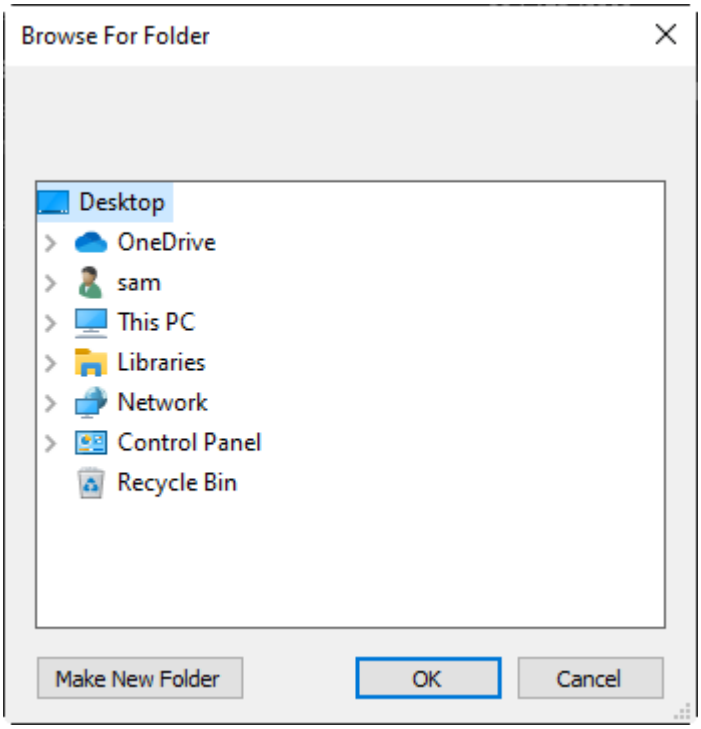
Install Enabled installation of the Cinegize component(s) is indicated by the "Install" option selected and highlighted with red.

Skip Select the "Skip" option to disable the installation of the Cinegize component.

The default installation directory, which is indicated underneath the component name, can be changed by clicking the path:



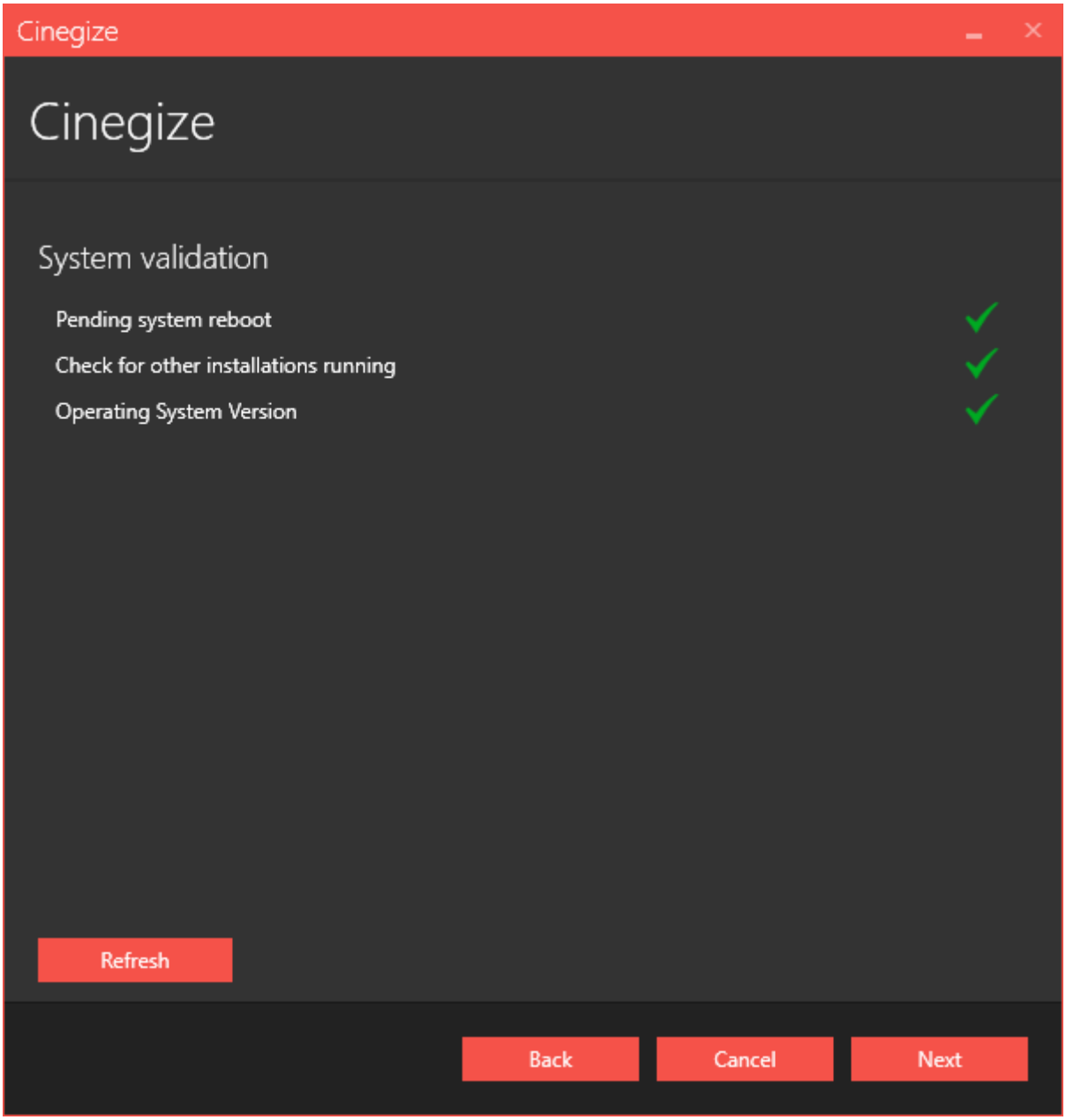
In the "Browse for folder" dialog that appears, select the required folder for your installation:



Make New Folder You can also create a new folder by pressing the "Make New Folder" button and entering a new folder name. Once the folder is selected, press the "OK" button.

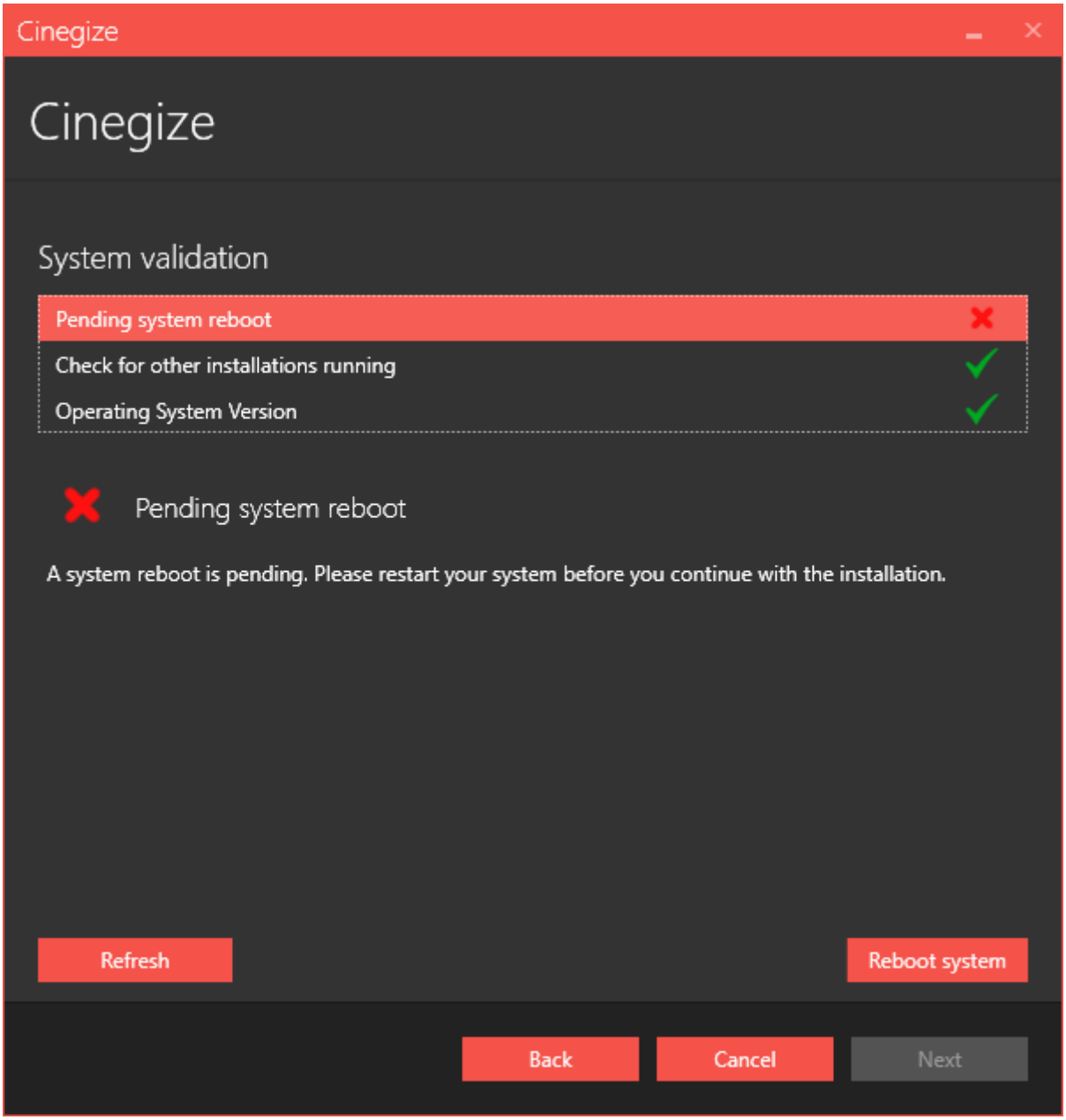
Press the "Next" button to proceed with the installation.

Check whether your system is ready for installation in the following dialog:



The green tick indicates that the system resources are ready, and no other processes may prevent the installation. Clicking the validation entry field displays its detailed information.

If validation reveals that the installation cannot proceed, the corresponding field is highlighted, and a red cross appears along with detailed information about the reason for the failure below.



The explanation differs depending on why the installation cannot proceed.

Refresh — Press the "Refresh" button to have the system recheck installation availability. Once the reason for prevention is excluded, you can proceed with the installation.

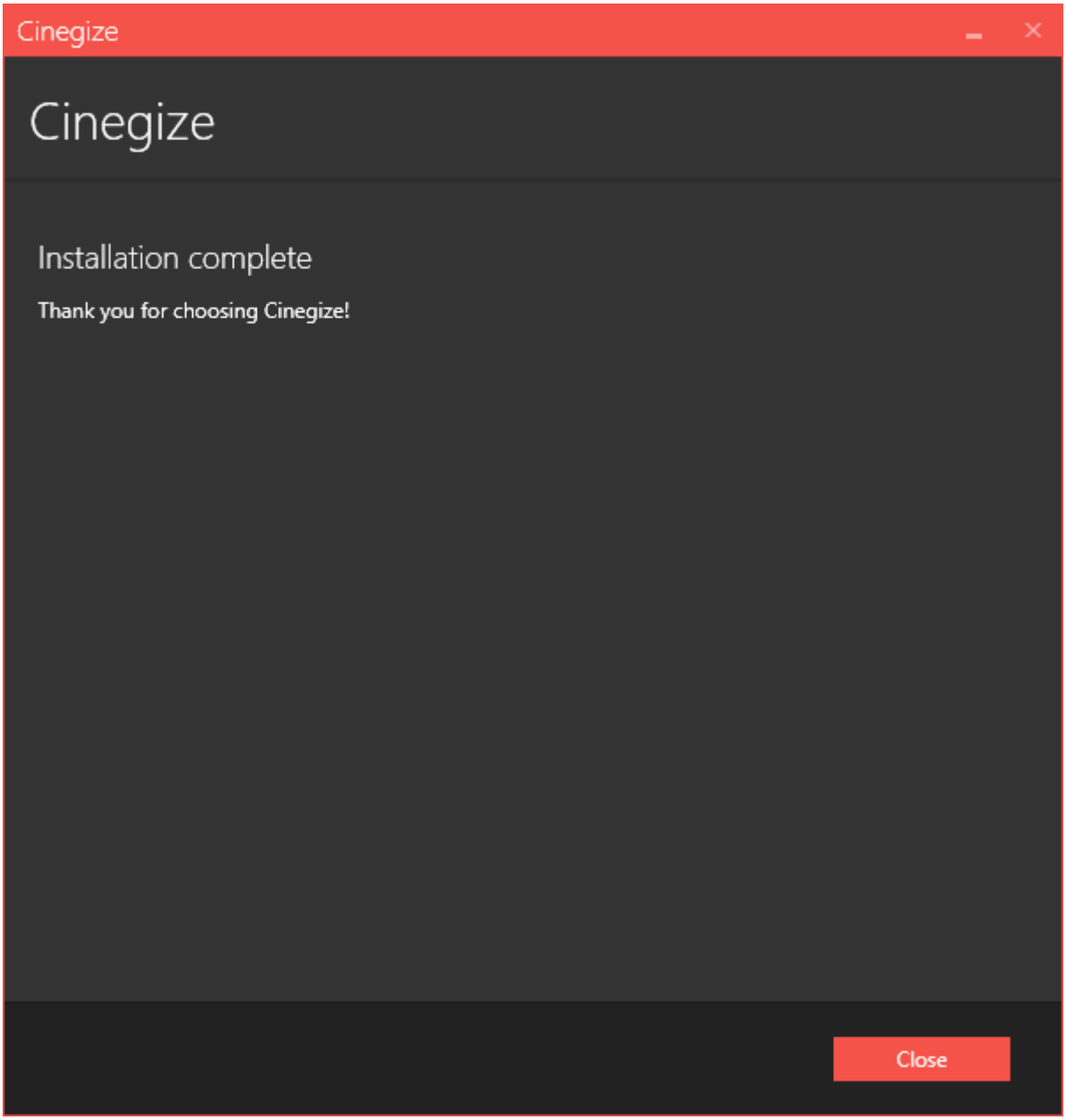
Back — Press the "Back" button to change the installation settings.

Cancel — Press the "Cancel" button to abort and exit the setup wizard.

Next — Press the "Next" button to begin the installation.

The progress bar indicates the progress of the installation process.

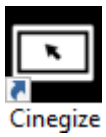
The following dialog informs that the installation has been completed successfully:



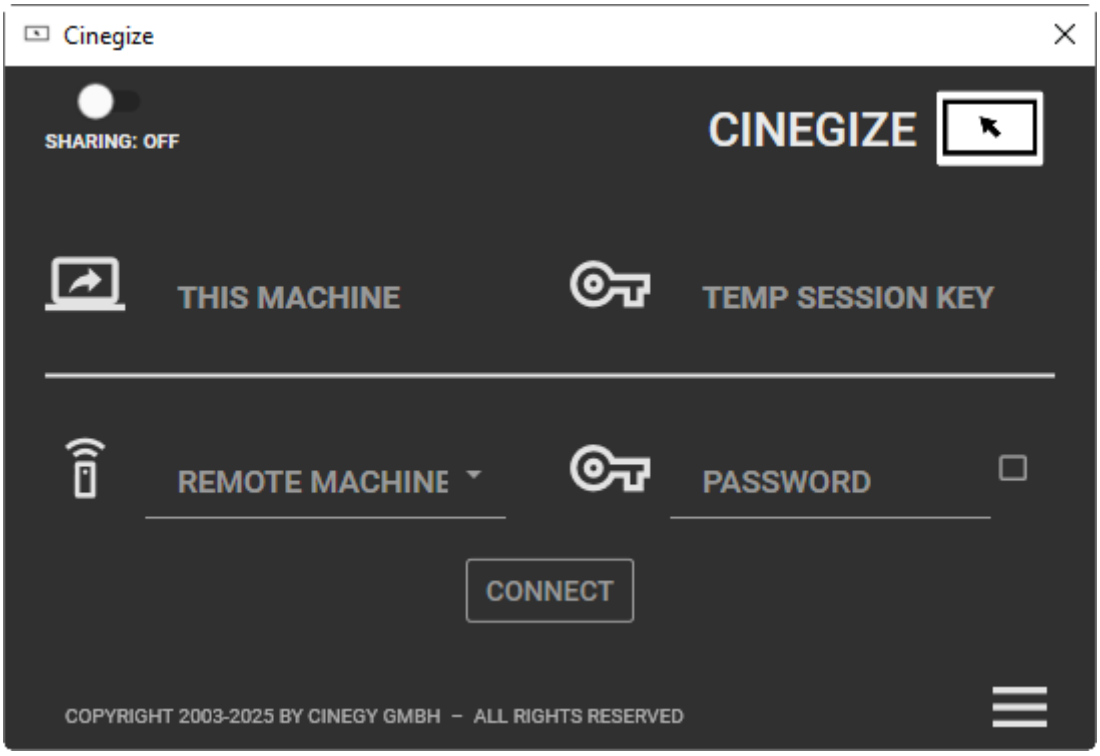
Close Press the "Close" button to exit the setup wizard.

Once installed, Cinegize is available to all users on the PC. Thanks to the implemented data storage technology, each user operates independently, maintaining a personalized list of recently connected servers, passwords, and settings.

Chapter 2. Interface



To launch Cinegize, double-click its icon located on your Windows desktop or go to Start > Cinegy > Cinegize. The application will be launched:



The following controls are available here:

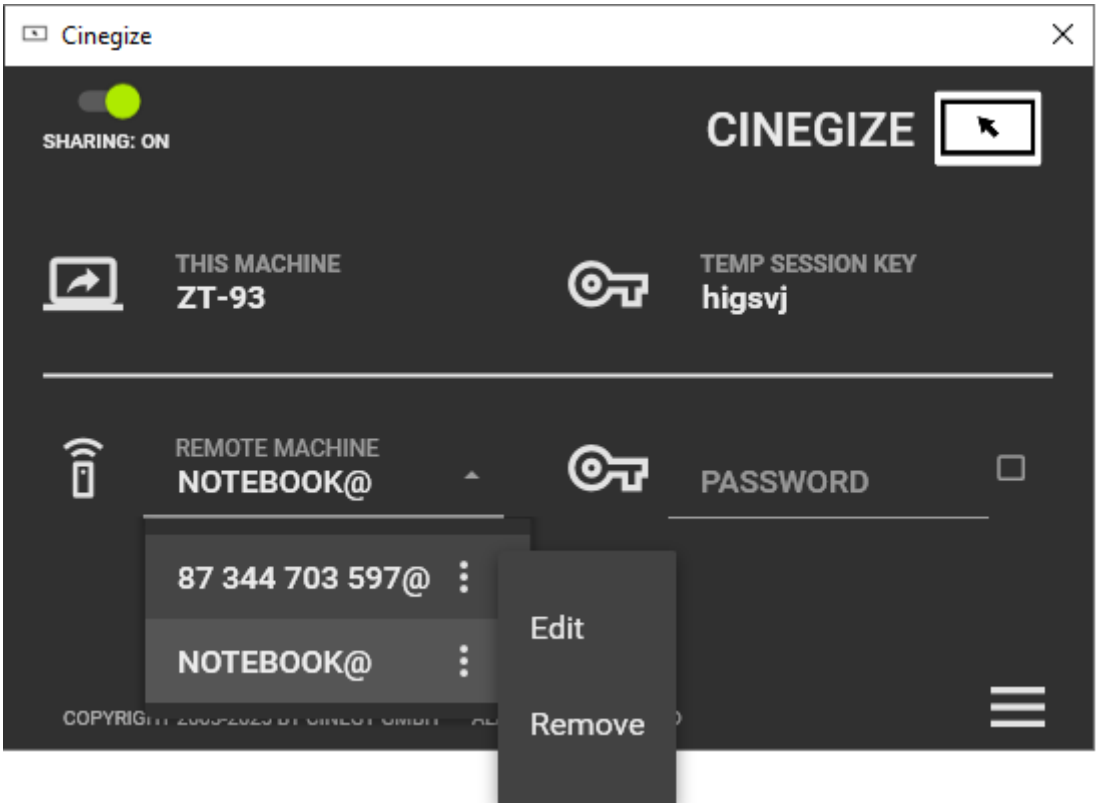
- **Sharing** – in the "On" position, this switcher is used for working in host mode, while client mode requires the switcher to be in the "Off" position.

  Sharing is only supported when Cinegize is running in application mode, so it is disabled in service mode.

  When switching from client to host mode, all active connections will be terminated, and you will be warned about this by a corresponding message.

- **This machine** – indicates the name or IP address of the currently operated machine acting as a host, if the client machine is in the same network. To establish a connection over the Internet, public sharing must be enabled in the settings. In this case, the `@` sign is automatically appended for identification. Additionally, a public alias can be defined to be displayed instead of the machine name or IP address (e.g., `cinegy-server@`).
- **Temp session key** – a randomly generated session key to access the current machine acting as a host.
- **Remote machine** – the IP address or name of a remote machine. If public sharing is enabled, the `@` sign is appended for identification. A public alias can replace the machine name or IP (e.g., cinegy-server@).

  The most recently connected clients are displayed in the drop-down list and can be edited or deleted directly using the "Edit" and "Delete" options in the context menu. The updated settings will be applied to the client without the need to reconnect.



- **Password** – a key to connect to the remote machine in client mode. This can be either a temporary key valid for the current Cinegize session or a long-term key specified for service mode. Select the checkbox to save the password for future connections.

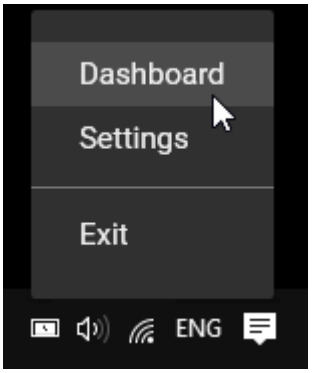
Press this button to open the Cinegize configurator.

Refer to the **Settings** article for details on how to set up Cinegize.

2.1. System Tray

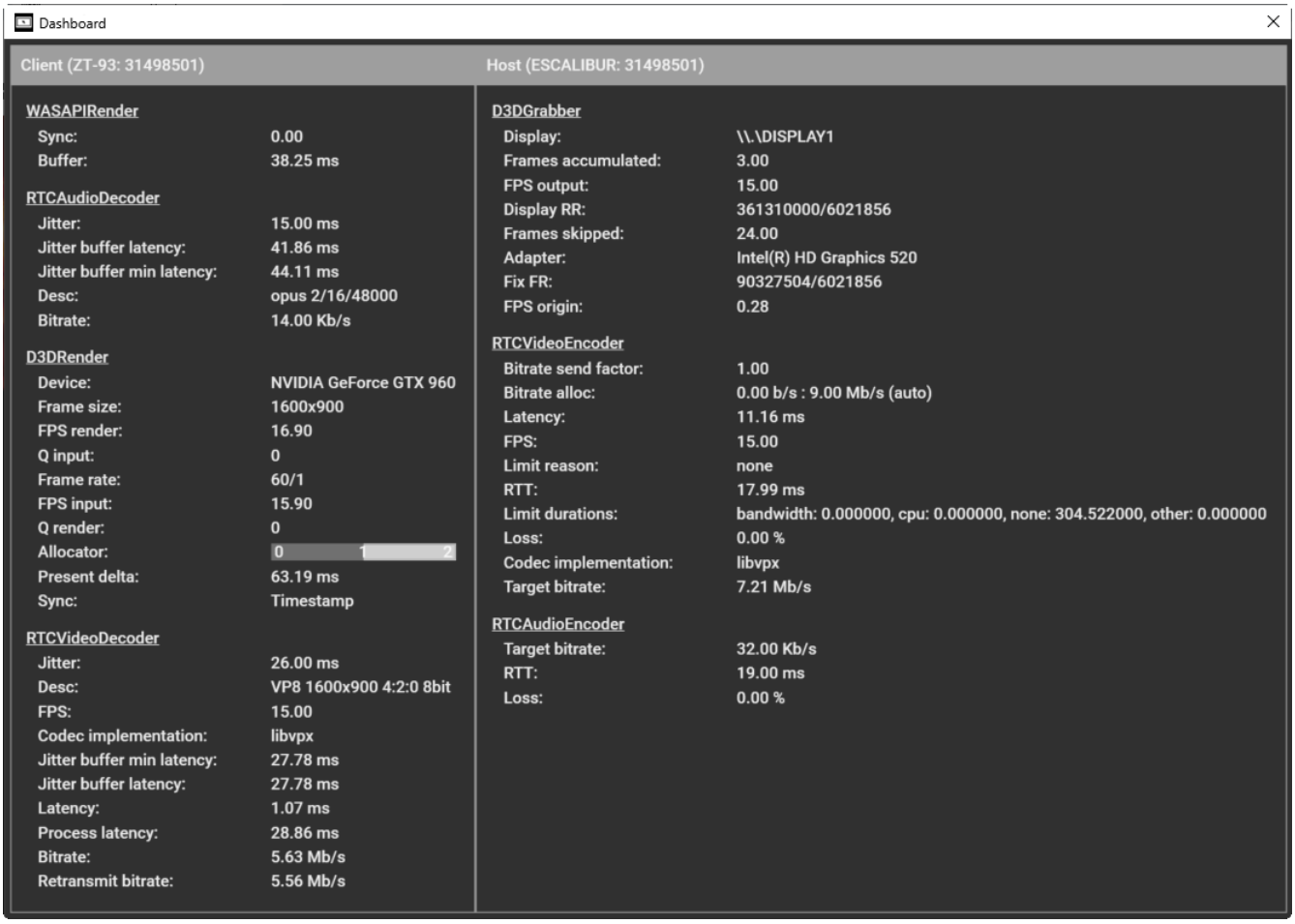
Once Cinegize is launched, the application icon appears in the notification area of the taskbar and remains there, even if the application is minimized to the system tray using the ✕ button.

Right-clicking on the system tray icon opens the following menu:



Dashboard

Use the "Dashboard" command to open the window displaying detailed information about the current settings of both the client and the host after establishing a connection:

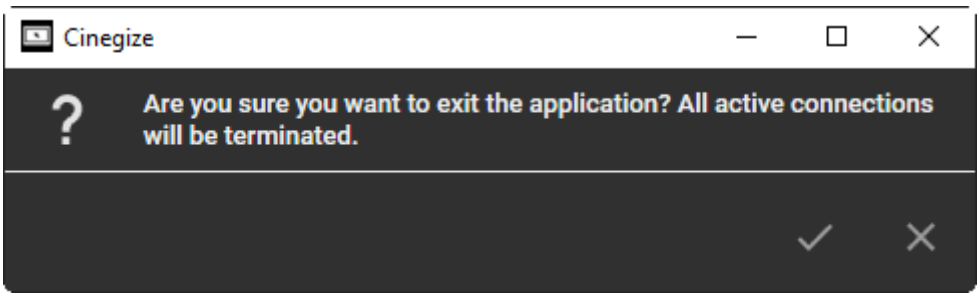


Settings

The "Settings" command navigates to the "Settings" menu when the current settings need to be changed.

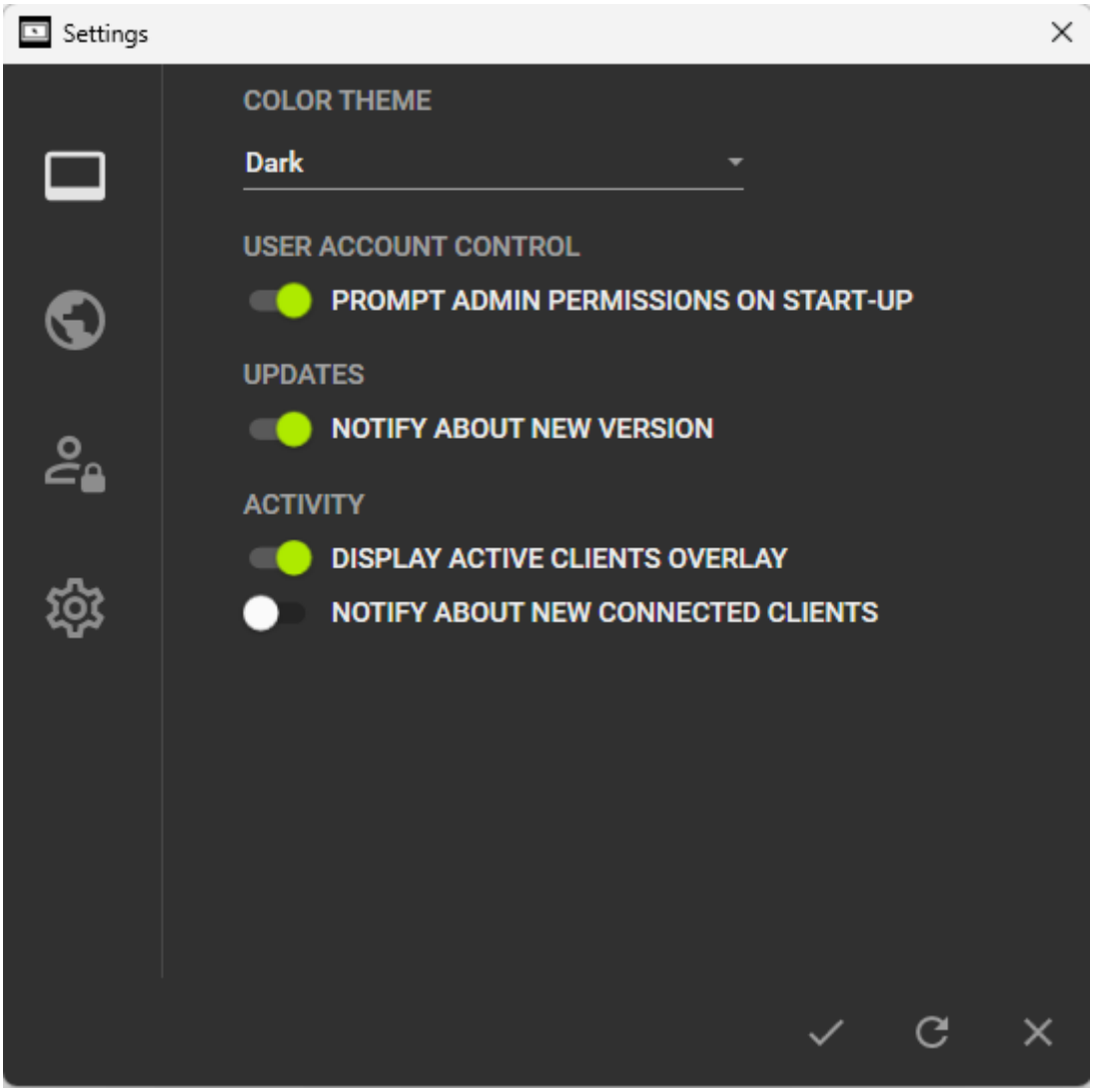
Exit

The "Exit" command prompts to close the application with the following confirmation message:



Chapter 3. Settings

To open the configurator, press this button. The following "Settings" dialog appears:



The "Settings" menu is split into the following configuration groups: general settings, public sharing settings, access control, and advanced settings.

In the lower right corner of each tab, there is a set of buttons:

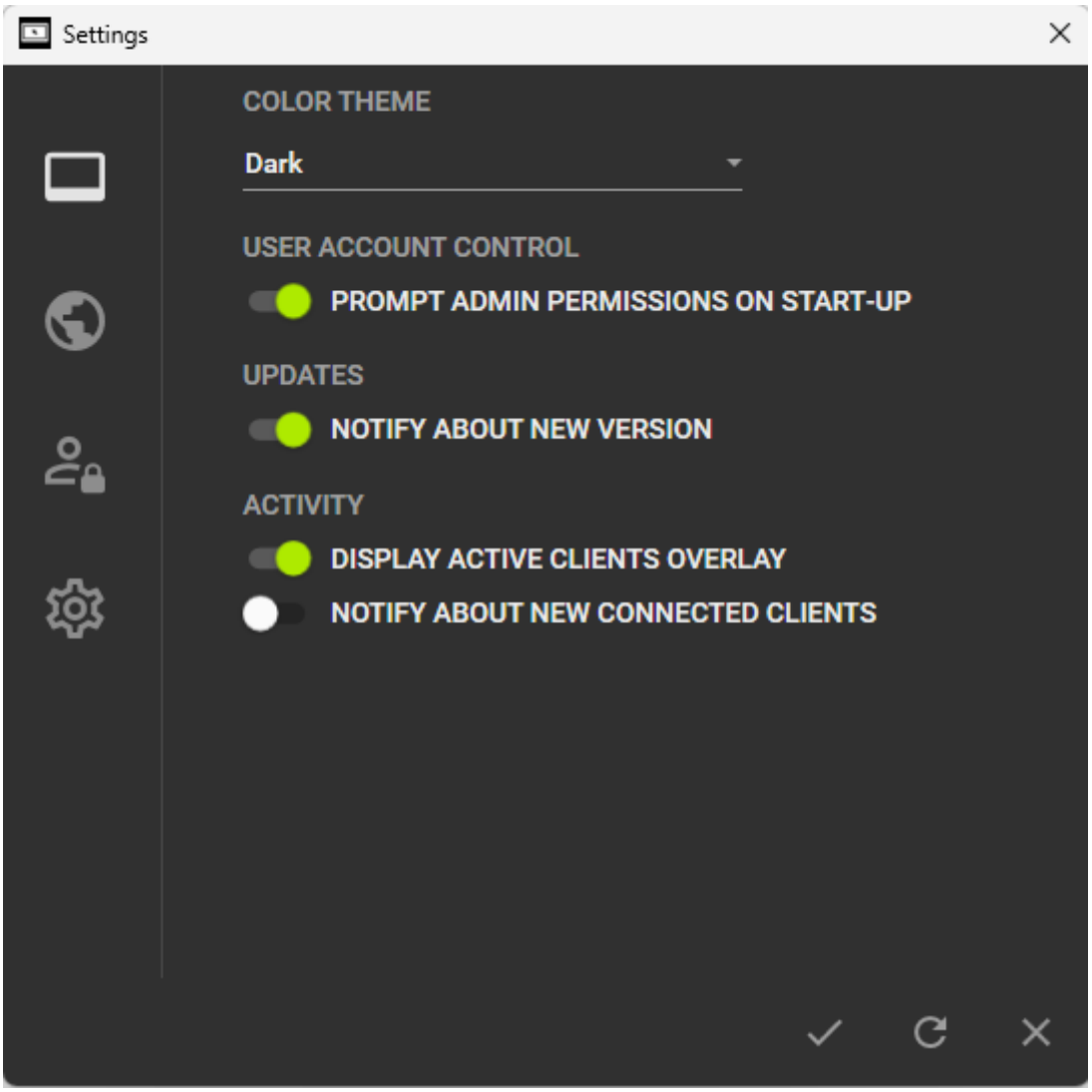
To apply the changes, press the "Apply" button.

To discard the changes, press the "Discard" button.

After finishing the Cinegize setup, click the checkmark to apply the changes, then click the "Close" button to close the window.

Cinegize configuration settings and log files are stored in the following location: *C:\ProgramData\Cinegy\Cinegize*.

3.1. General Settings



- **Color theme** – select the "Dark" or "Light" application color theme.
- **User account control** – activate this switcher to have the application ask for administrator permissions at startup to manage lock and login screens and change service settings. Administrator rights ensure that all host sessions allow full access to applications running with administrative privileges.
- **Updates** – activate this switcher to automatically check if a new version of Cinegize is available and, if so, offer to update the software.
- **Activity** – the "Display active clients overlay" switcher controls the display of active clients overlay. If the "Notify about new connected clients" switcher is enabled, a push notification appears whenever a new client connects to the host machine.

3.2. Public Sharing Settings

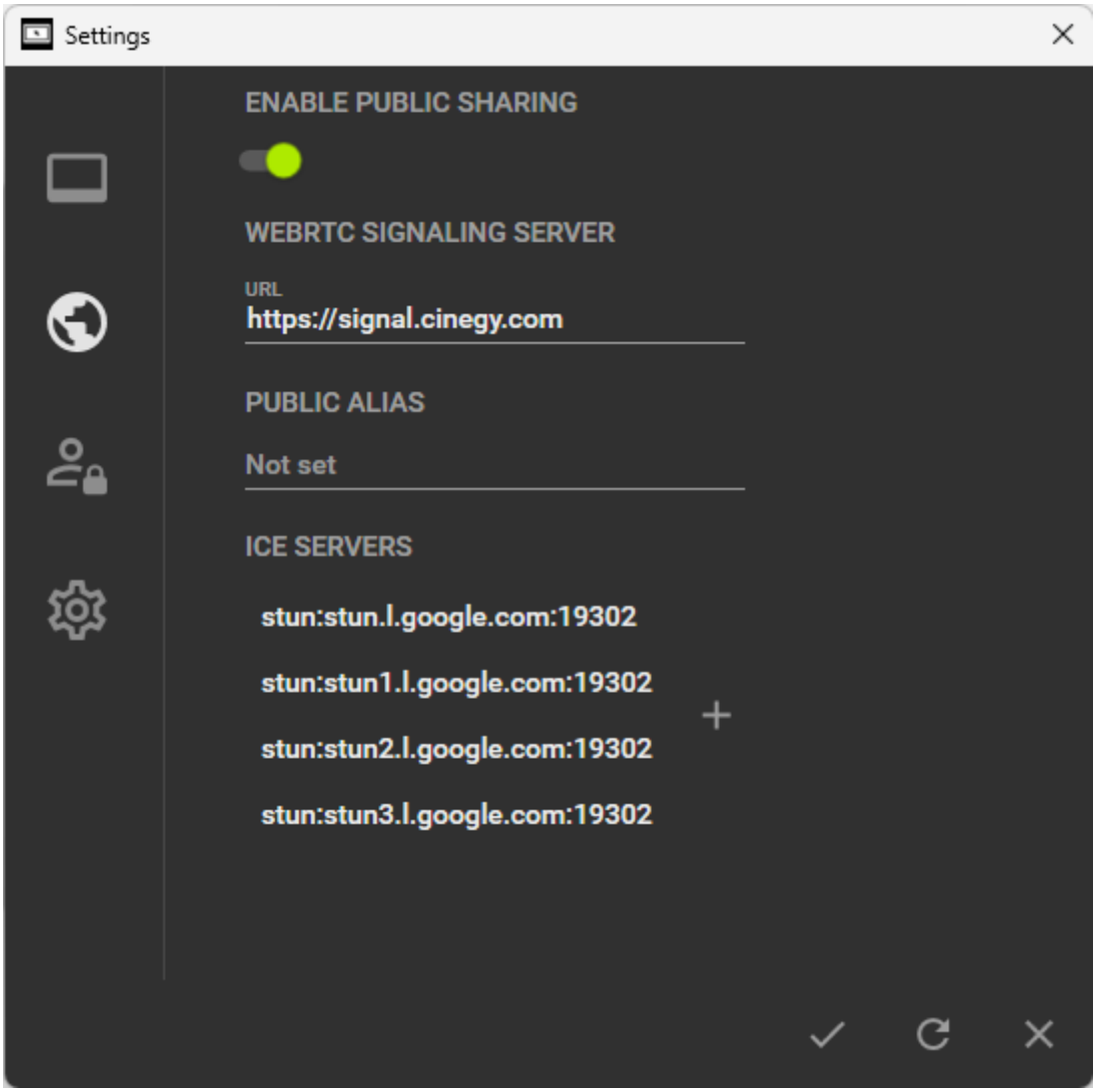
Cinegize enables operation over public networks by registering the host machine with the integrated WebRTC signaling server.

For establishing connections, it utilizes STUN (Session Traversal Utilities for NAT) and TURN (Traversal Using Relays around

NAT) protocols.

STUN helps determine the public IP address and NAT type, allowing direct peer-to-peer connections when possible. If direct communication is blocked by firewalls or strict NAT, TURN relays data through a server, ensuring reliable real-time communication, including high-quality video streaming, for remote connections from anywhere.

Enable public sharing on the client and host machines by using the corresponding switcher:

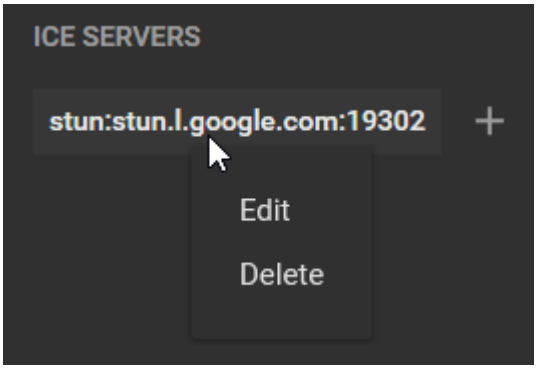


You can use the default WebRTC signaling server specified in the "URL" field or enter a custom URL for the server used in your workflow.

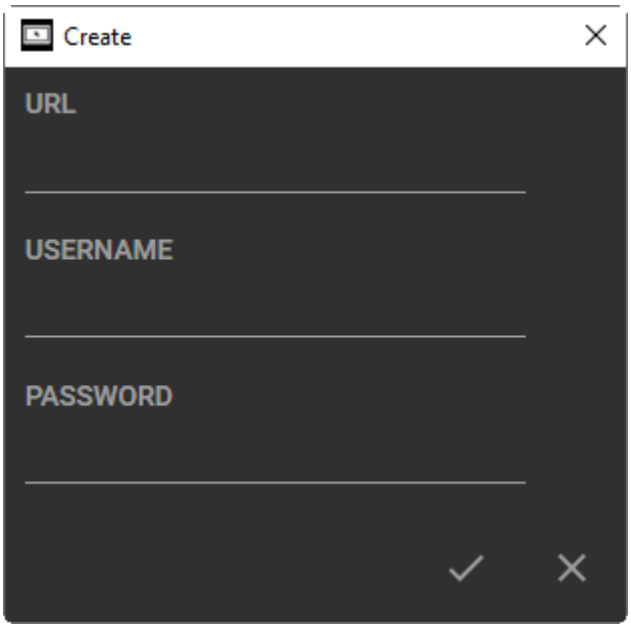
In the "Public alias" field, you can optionally define a custom name for the current machine to be used instead of its IP address for remote connections. The @ sign will be automatically appended to the name (e.g., cinegy-server@).

A list of default ICE servers is provided below, directing to Cinegy's signaling STUN servers, which are available for evaluation purposes.

To modify the existing ICE server configuration or remove it, use the "Edit" or "Delete" command from its context menu:

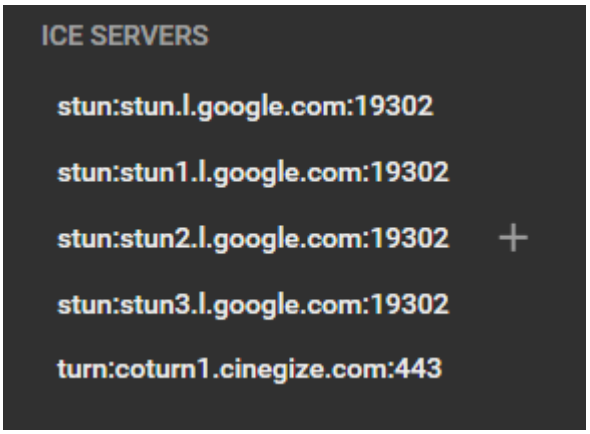


To add a new ICE server, click the + button and specify the URL address of a new ICE server in the dialog box that appears:



Optionally, you can define the username and password for using this server.

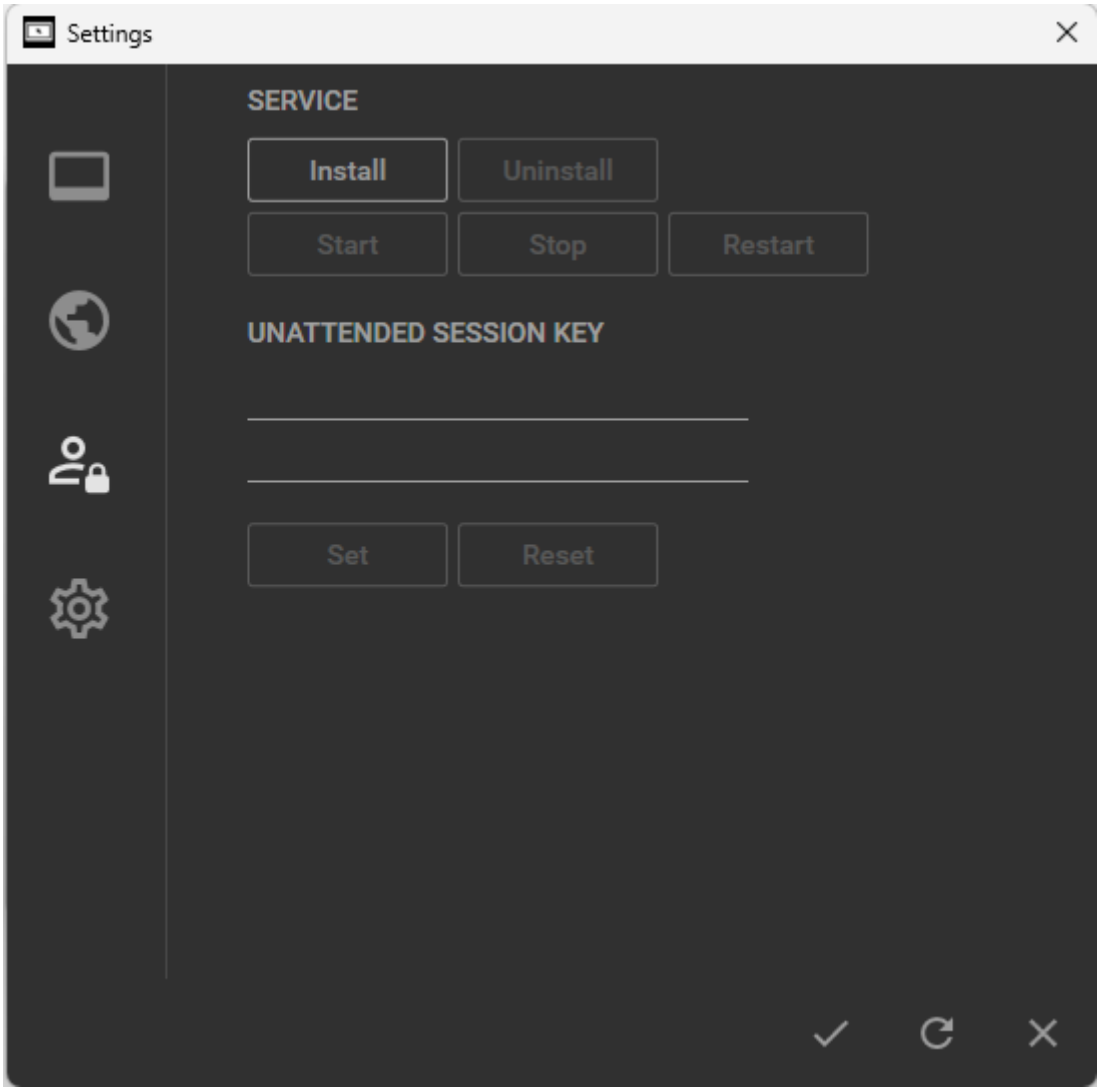
If a connection via the STUN protocol is not possible, you can configure a TURN server for data transmission. At least one TURN server must be configured on either the client or the host side to enable this functionality.



3.3. Access Control

For routine and systematic connections, Cinegize can operate as a Windows service. This mode provides automatic hosting after machine startup.

To manage the Cinegize service, the user must have administrator rights, and Cinegize must be launched using the "Run as administrator" command.

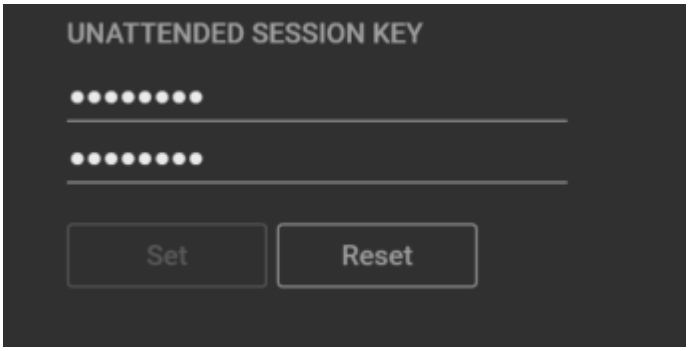


On the host machine, in the "Service" tab, press the "Install" button to install the Cinegize service as a Windows service. Then press the "Start" button to start the service.

When Cinegize functions as a Windows service, it can be managed (started, stopped, or restarted) through both its internal interface and standard Windows service management utility.

Refer to the **Windows Service Mode** paragraph for details on operating Cinegize as a Windows service.

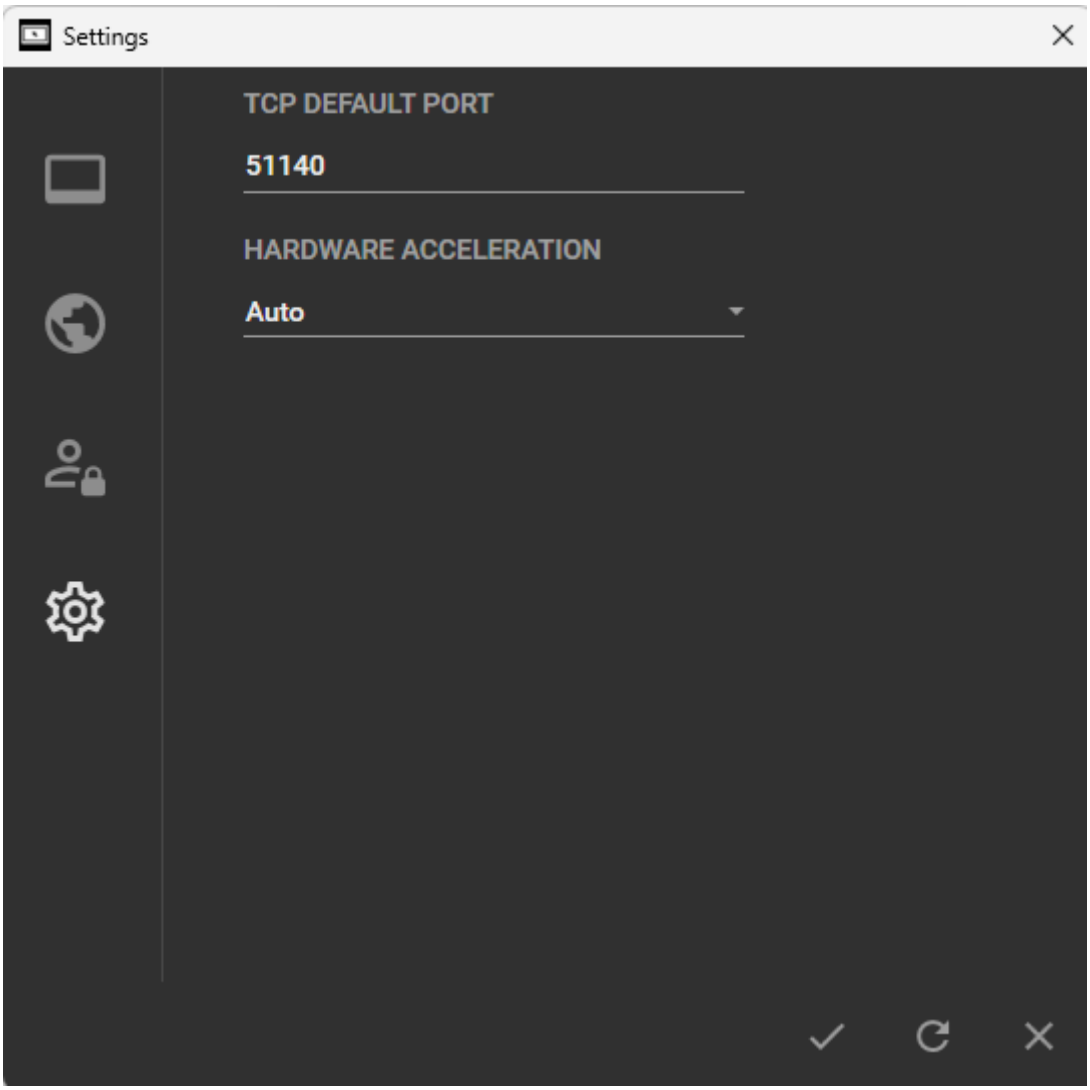
In the "Unattended session key" field, set a personal password for unattended access when Cinegize operates as a Windows service in host mode. Then press "Set" to apply the specified password.



The service should be restarted after settings modification.

3.4. Advanced Settings

In this tab, you can define your network configuration:



The TCP port specifies the listening port on the host for incoming connections, while the client uses this port to connect. It applies when connecting to a remote machine by name or IP address but is ignored when using a public alias. The port can also be explicitly defined on the client for a specific host: `machine_name/IP:port`.

By default, the "TCP default port" is set to 51140. This value can be changed manually but must be open in Windows Firewall and match on both client and host machines.

To optimize the performance of Cinegize, you can select the preferred stream decoding method from the "Hardware acceleration" drop-down list. Choose either the CPU or one of the supported GPUs for decoding. Alternatively, selecting the "Auto" option allows Cinegize to automatically determine the most appropriate decoding method.

Chapter 4. Operating

Cinegize is the logical step of standard software replacing proprietary hardware. It is replacing traditional, high-end, hardware-based KVM-over-IP solutions or expensive VDI solutions, which fail to do high-end graphics and video.

Cinegize provides the same high-quality experience you have using a high-end 3D modeling or video editing workstation being sat physically in front of a directly connected monitor, but being remotely connected via the local network running the Cinegize client software on an ordinary Windows PC.

This is not using H.264 or HEVC hardware compression with its known issues and problems but an advanced massive parallel processing video codec designed to run on GPUs natively (please visit the **Cinegy's Daniel2 website** for more information). Resolutions like UHD, 8K, or 16K are not a problem for Cinegize, no matter what color depth or frame rate.

Cinegize provides synchronization of plain text copied to the clipboard between client and host machines.

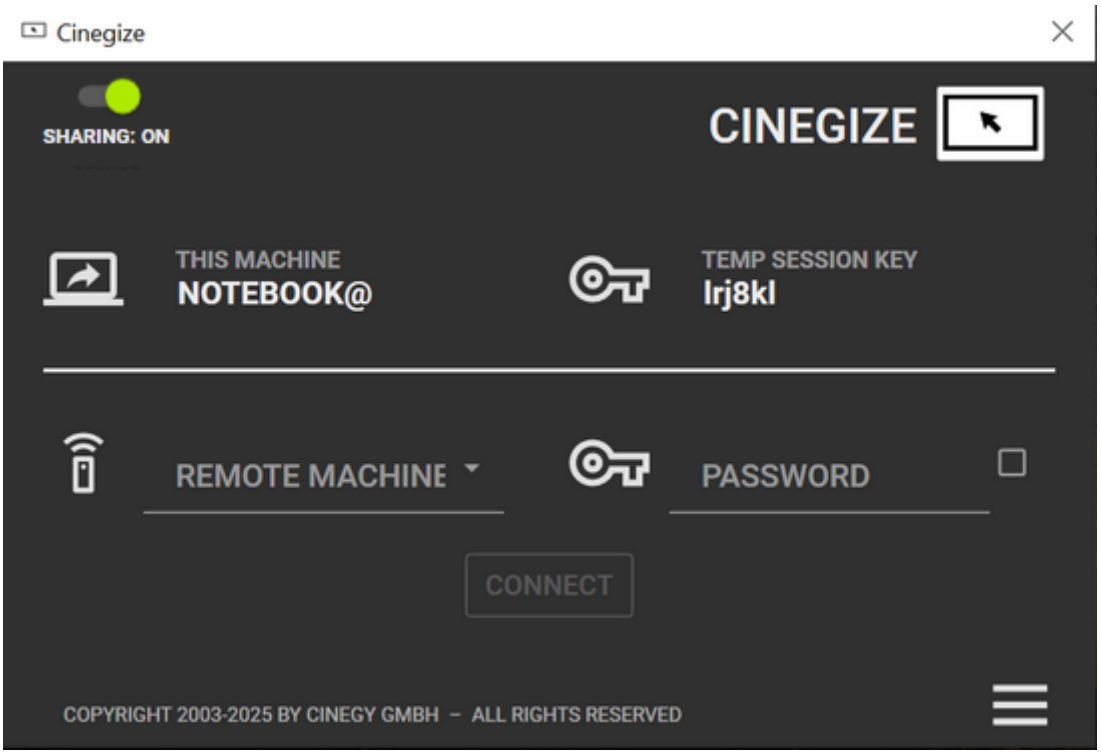
4.1. Setup

Cinegize can operate in two modes: as a host and as a client.

Host Mode

To enable host mode, turn on the "Sharing" switcher.

In the corresponding fields, you will see the IP address or name of the current machine acting as a host, along with the temporary session key required for the client machine to connect.



The @ symbol appended to the machine identifier indicates that public sharing is enabled, and if defined, the specified alias will be displayed instead of the machine name or IP address.

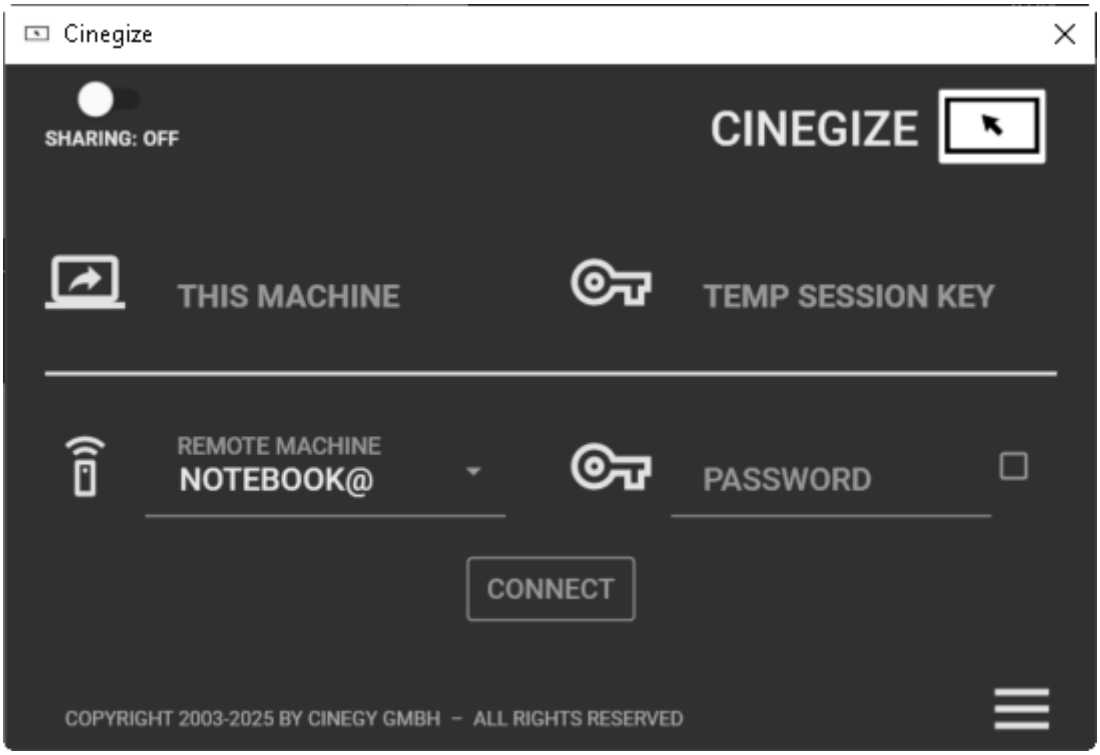
Client Mode

Ensure that the "Sharing" switcher is set to "Off" to operate in client mode. There is no need to install and run the Cinegize

service for this mode.

If Cinegize is running as a Windows service, switching to client mode will not be possible until the service is stopped.

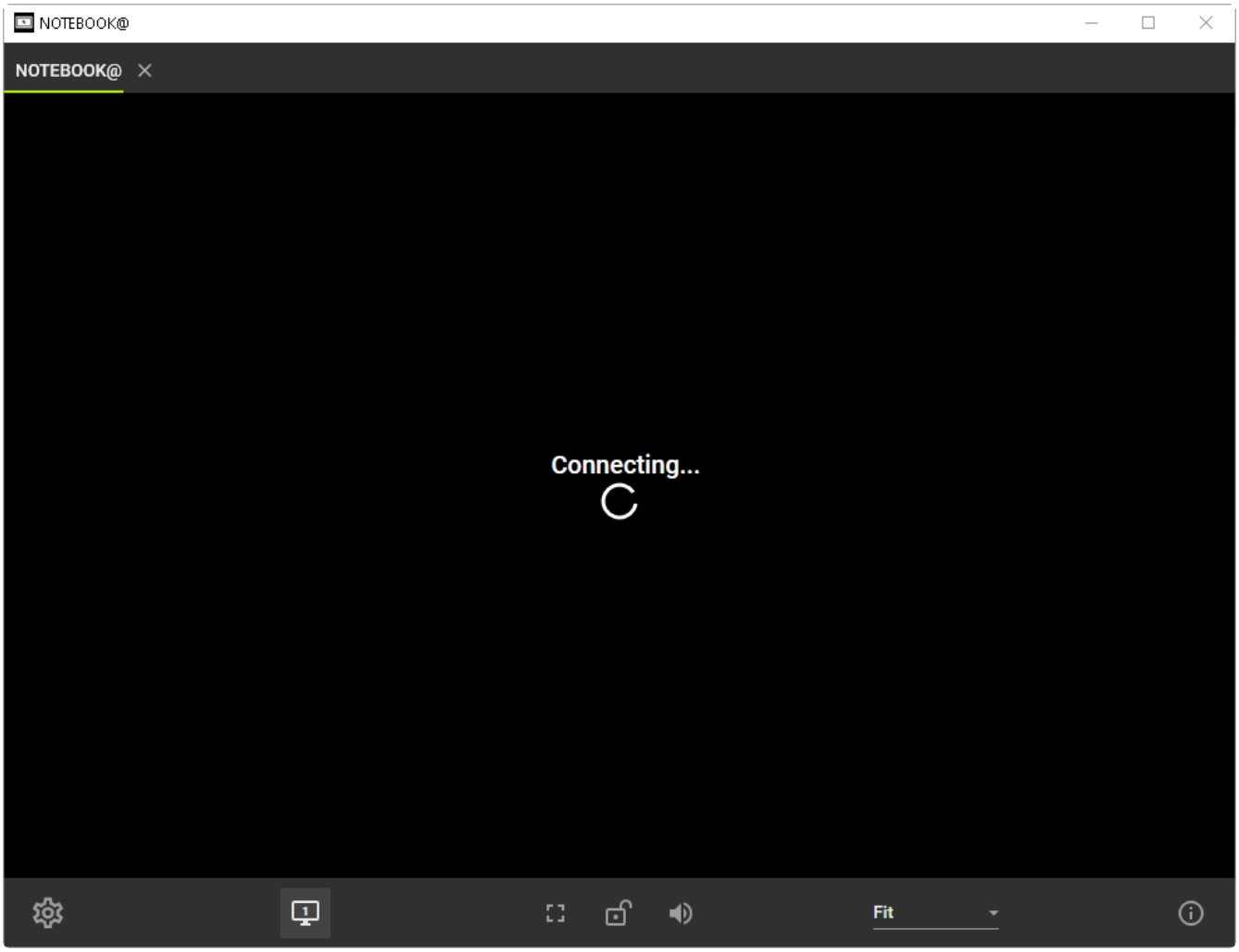
In the corresponding fields of the main window, enter the remote host machine's name or IP address along with the password generated on the host machine:



4.2. Connection

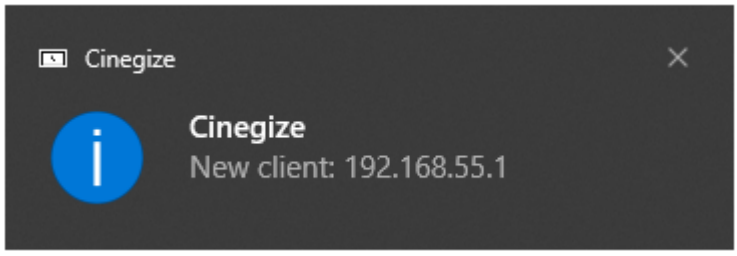
CONNECT After specifying the host credentials on the client machine, click the "Connect" button.

The connection process will be displayed in a separate window:



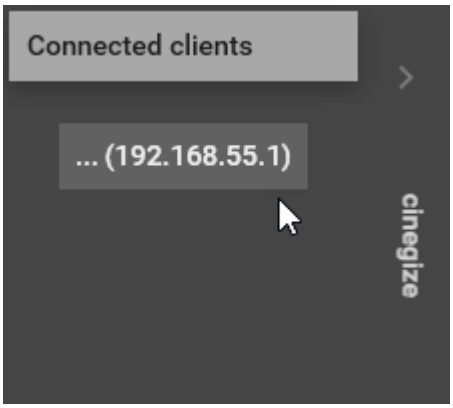
If no connection can be established, an appropriate error message is displayed, indicating the reason for the failure.

When the "Notify about new connected clients" switcher is enabled on the host machine, a push notification will be displayed each time a new client connects to the host machine.

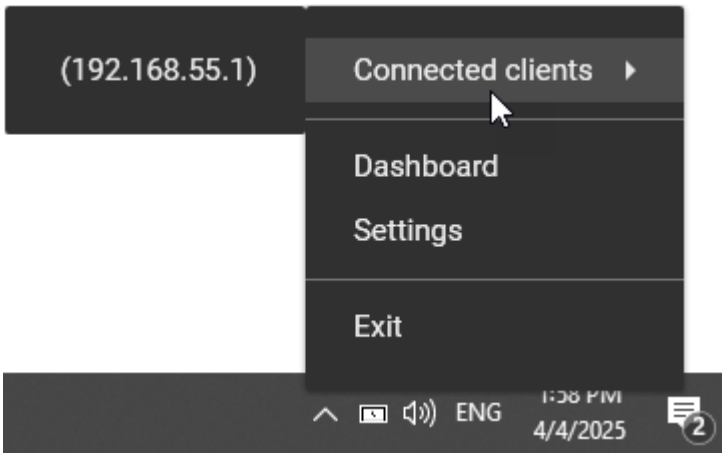


The "Cinegize" panel will appear on the right side of the host machine's desktop:

Click the < icon to expand the window and view information about the connected client:



Additionally, a list of connected clients is displayed in the tray context menu.

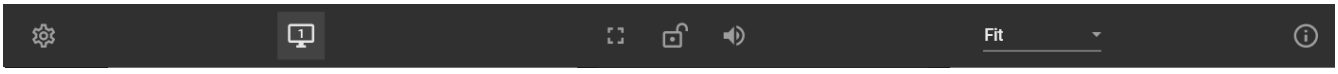


If a poor connection to the host is detected, this is indicated by a flashing red icon located in the upper right corner of the window.

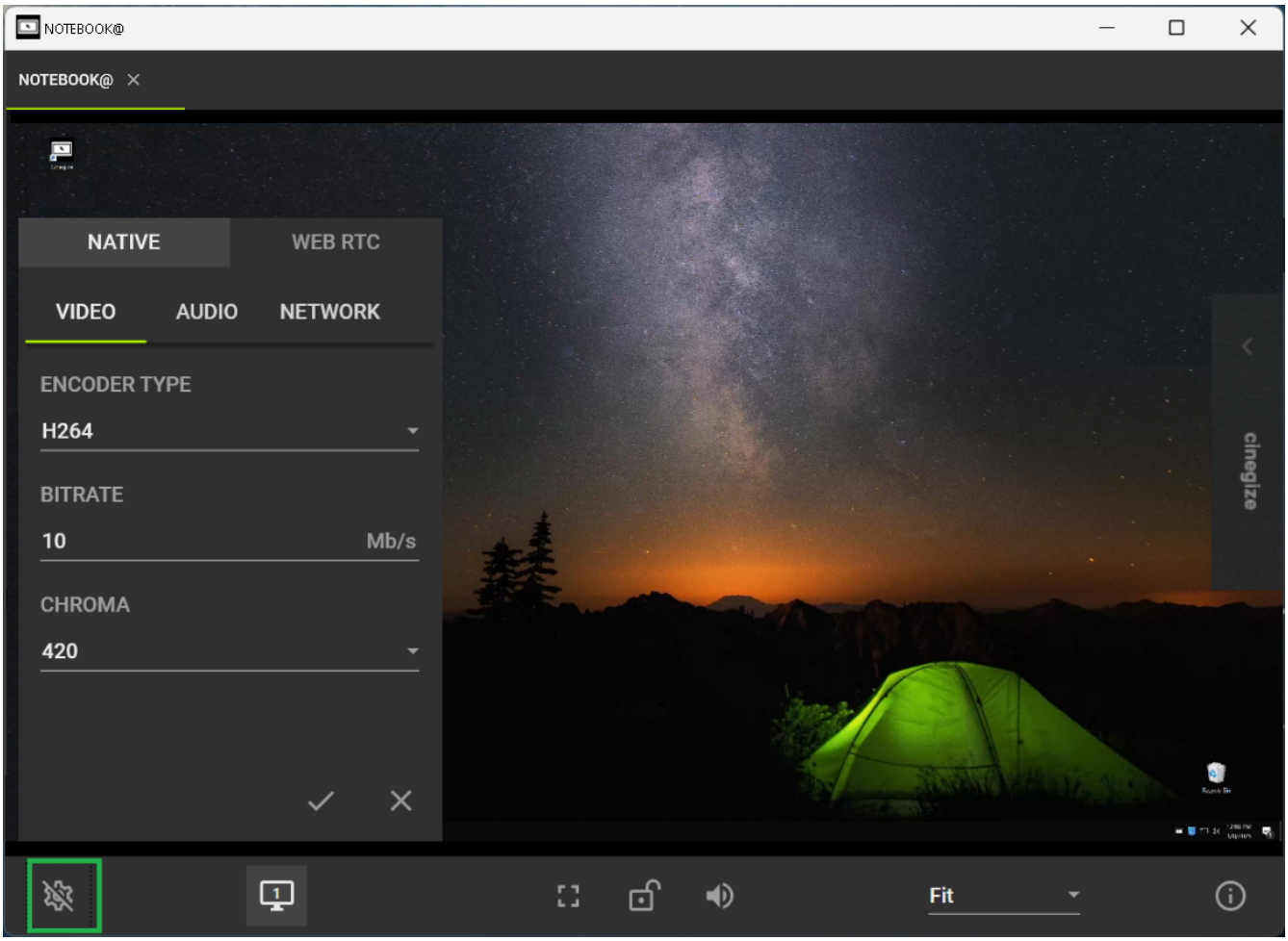
Detailed information on the performance of Cinegize is available in the log files stored in the following location: *C:\ProgramData\Cinegy\Cinegize*.

Connection Settings

The connection settings and client console window controls are located at the bottom of the window:



Use this button for quick access to the settings of the current connection. The following configurator appears:



You can reconfigure video and audio quality parameters of the current session in real time, as well as adjust the network configuration on the client machine, with changes taking effect immediately without the need to restart the connection.

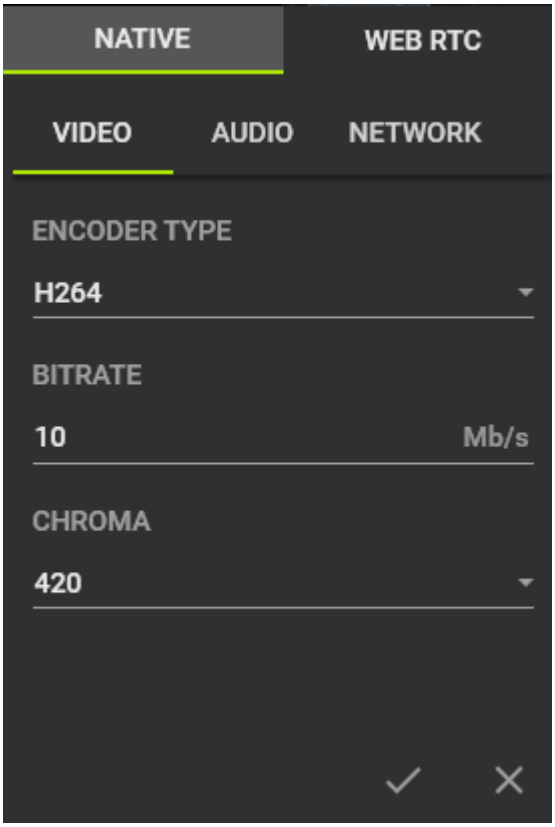
Cinegize supports two types of media pipe: Native and Web RTC.

Native Media Pipe

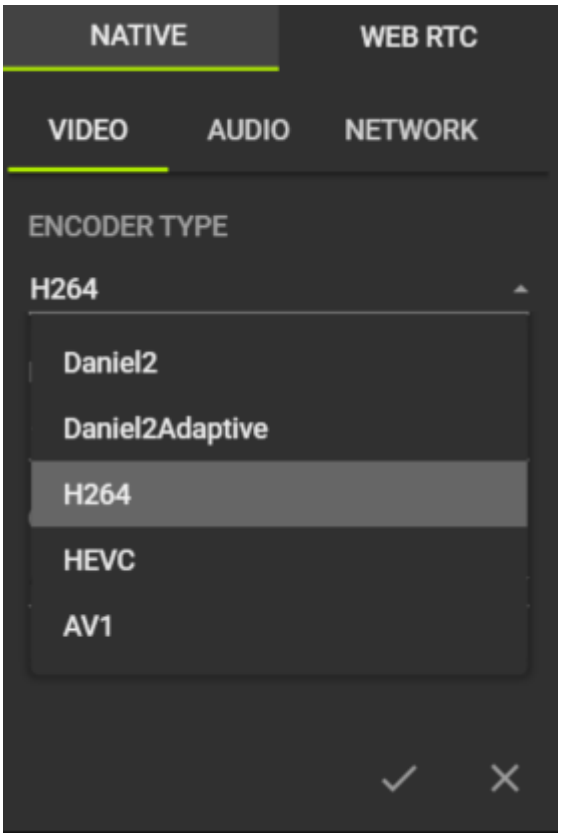
In the "Native" pipeline, encoding is carried out by Cinegy's Cinecoder.

Video Settings

In the "Video" tab, you can adjust stream settings, including the video encoder type, bitrate, and chroma parameters:

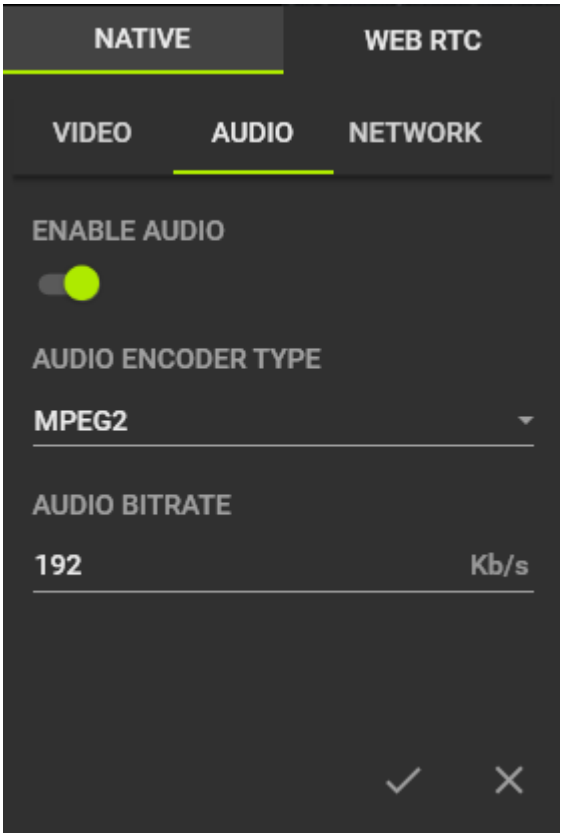


The following encoder types are supported for the "Native" pipeline:



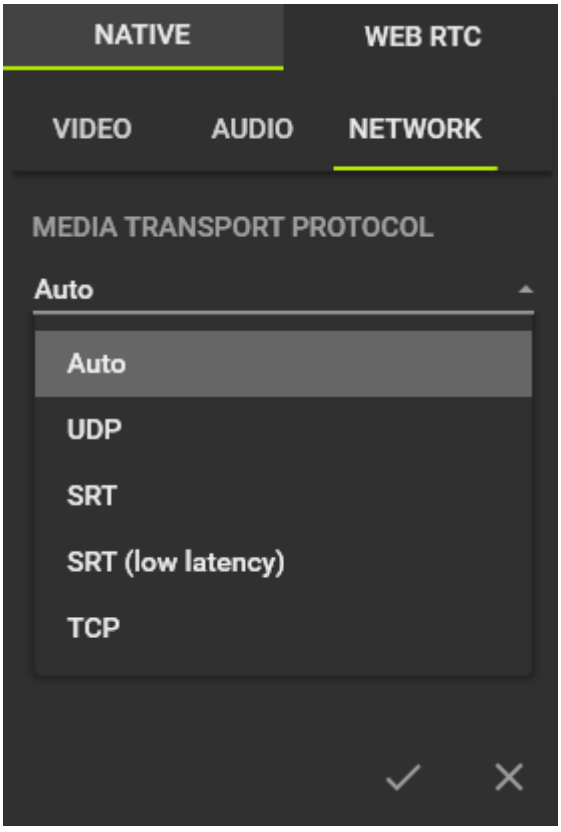
Audio Settings

In the "Audio" tab, you can enable or disable the audio of the stream. When enabled, you can select the audio encoder type and specify its bitrate:



Network Settings

The "Network" tab allows you to manually select the stream protocol type or leave it set to "Auto" for automatic detection among UDP, SRT, and SRT (low latency) protocols.



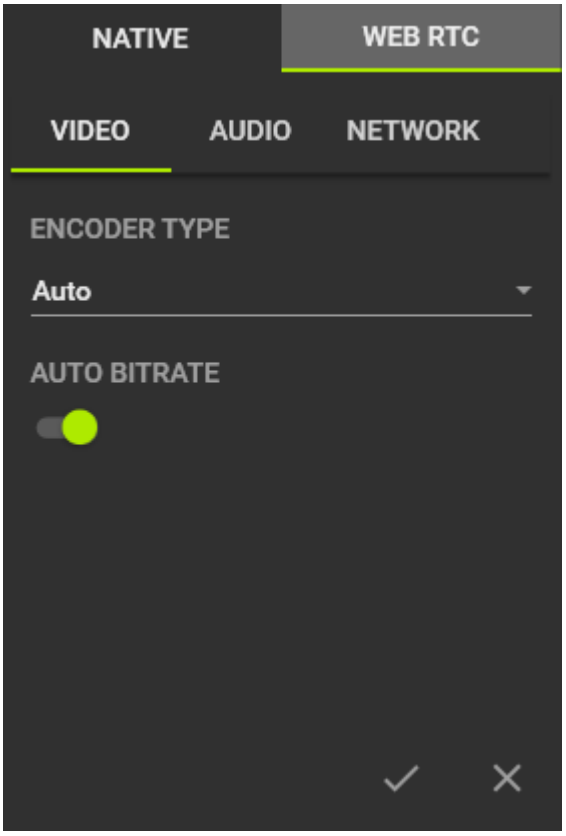
The TCP protocol is not part of the automatic protocol selection but can be chosen manually. It may serve as an alternative to UDP, particularly in local networks or when handling high-bitrate streams.

Web RTC Media Pipe

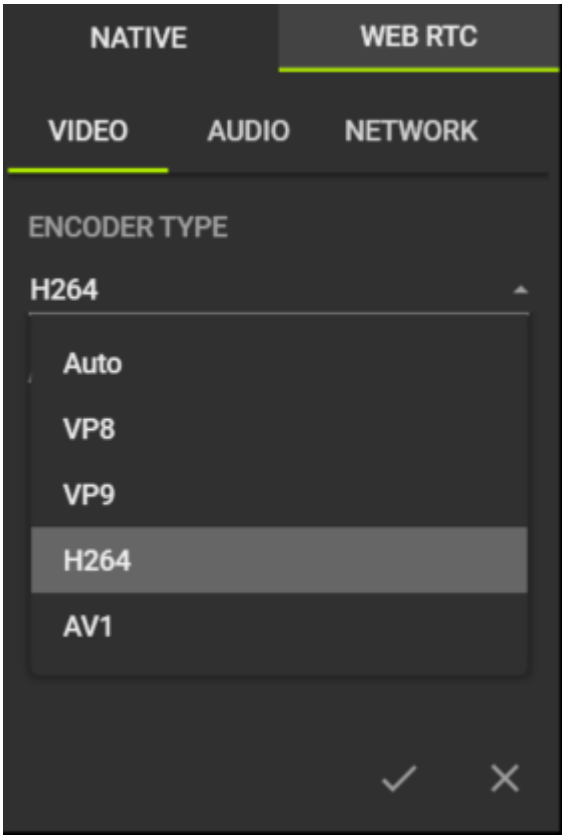
Web RTC (web real-time communications) is an open-source technology designed to organize the transfer of streaming data between browsers or other applications supporting it using point-to-point technology. It is available for connection via the Internet when using a public alias.

Video Settings

The Web RTC protocol allows you to manually select the video encoder type and set the bitrate range, or leave them set to "Auto". In "Auto" mode, the video settings are automatically adjusted based on network quality.

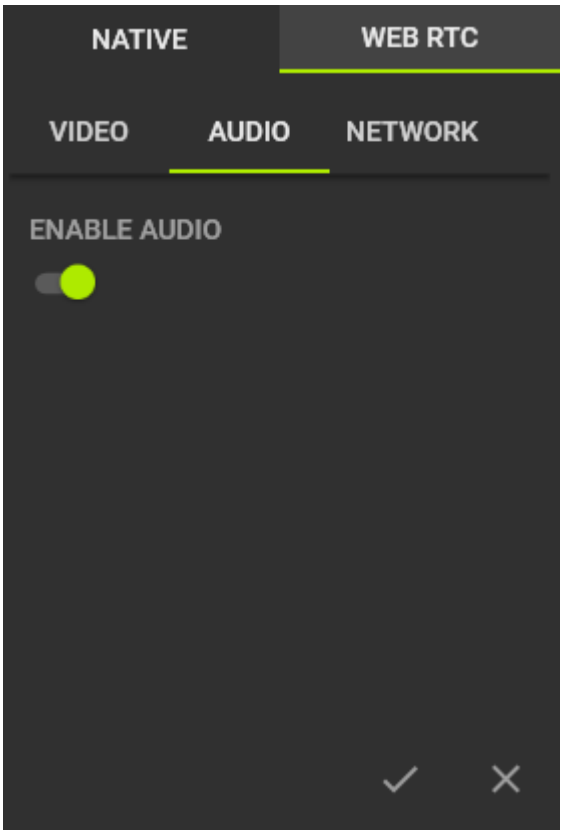


The following encoder types are supported for the "Web RTC" pipeline:



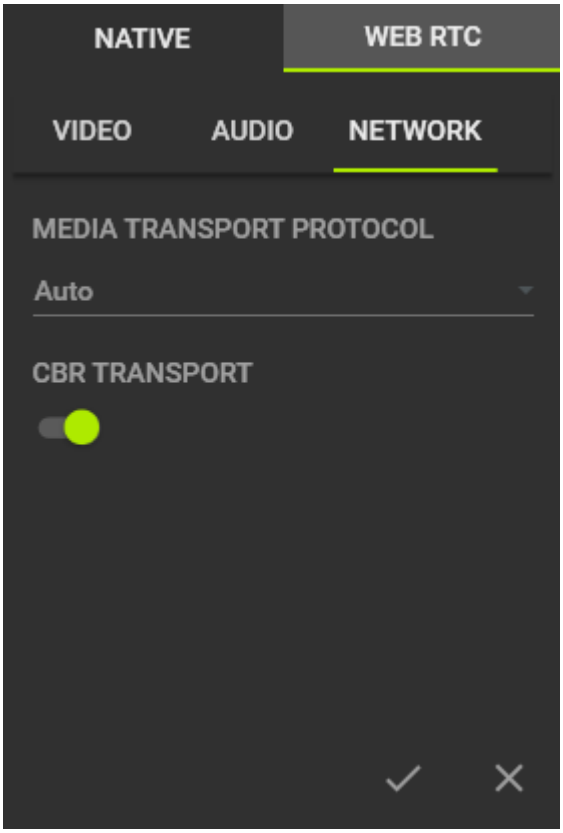
Audio Settings

In the "Audio" tab, it is possible to enable or disable the stream audio.



Network Settings

The "Network" tab allows you to manually select the stream protocol type or choose "Auto" to have it determined automatically.



The "CBR transport" switcher allows you to control the support of constant automatic bitrate and framerate reduction depending on network quality. It's preferable if there is a problem getting video and audio data from the remote machine.

Refer to the **Settings** section for more details about connection configuration.

Display and Interaction

One or more monitor icons are displayed here. The number of icons corresponds to the number of monitors on the host machine. Clicking on the icons allows switching between monitors.

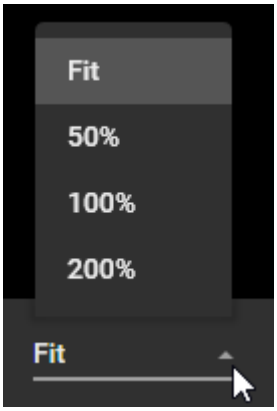
Use this button to expand the application window to full screen. You can also switch between normal mode and full-screen mode using the `AltGr+F` keyboard shortcut.

In full-screen mode, you can access the connection controls through the toolbar, which becomes available when hovering the mouse pointer over the top of the window.

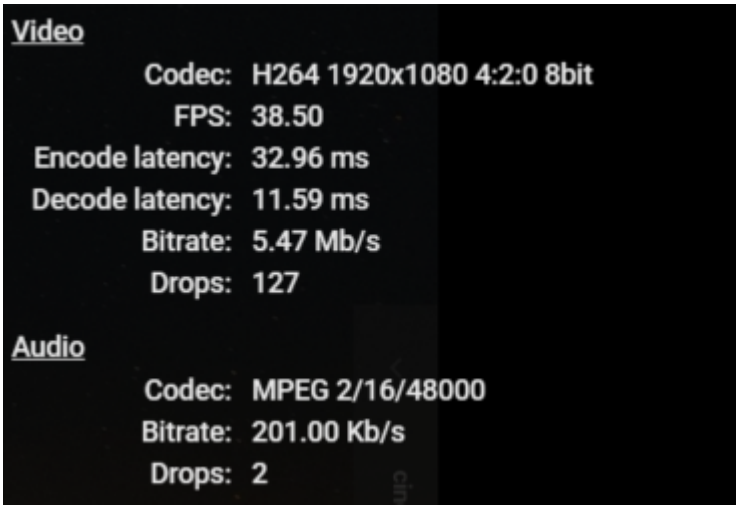
This button sends the `Ctrl+Alt+Del` command to the host machine to unlock its console. You can also use an alternative key combination `Ctrl+Alt+Ins`.

This button provides access to the volume slider, which allows you to change the volume level of your stream by moving the slider with your mouse.

You can easily adjust the display scale of the application by selecting the desired scale from the "Fit" drop-down list in the lower left corner:



Press this icon to display a pop-up window with actual stream data (such as framerate, bitrate, etc.):



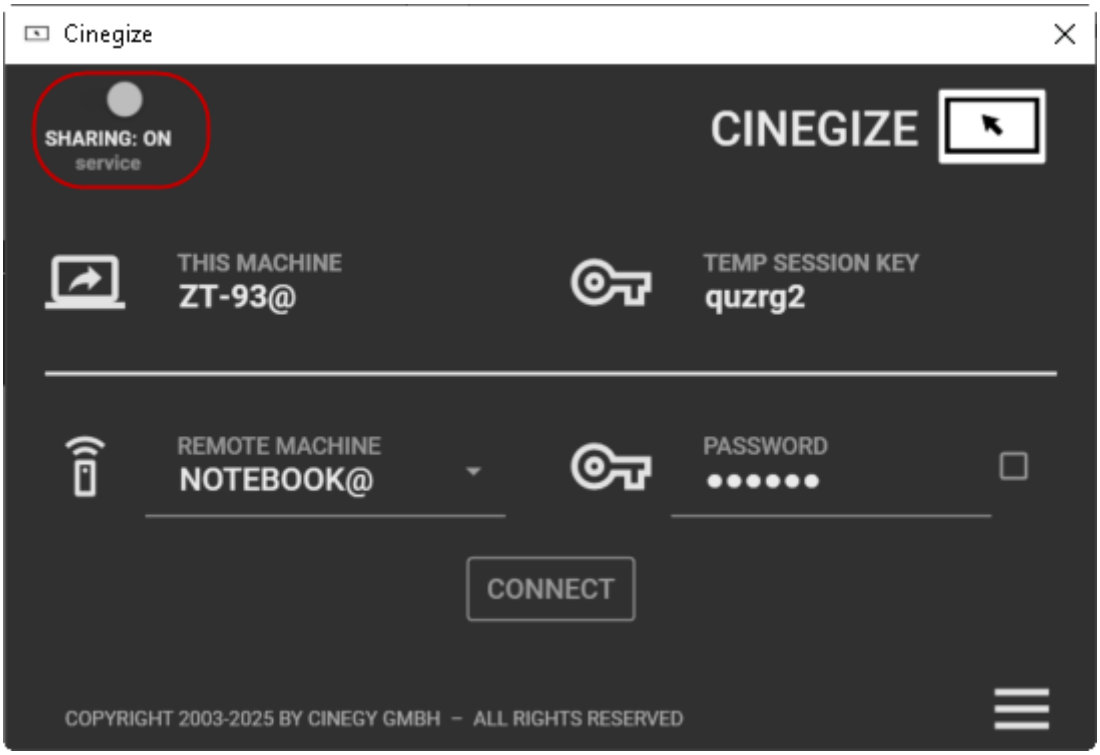
The shortcut for this action is `AltGr+I`.

4.3. Windows Service Mode

This mode enables automatic hosting upon machine startup.

To use this mode, install and start the Cinegize service as described in the **Access Control** paragraph.

When the Cinegize service starts, Cinegize automatically switches to host mode, allowing the user to connect to the login screen remotely as if physically present. The operator can use a personal password for unattended access.



In this scenario, Cinegize service will automatically start as a host when the machine boots. This allows the user to connect to the login screen remotely, as if he were physically sitting in front of the machine. The operator can use a personal password for unattended access.

This setup is ideal for providing remote access to a virtual workstation hosted in a LAN-connected data center or for using centralized equipment physically isolated from the operator workstation.

System Recommendations

Cinegize was designed with the express goal of meeting exacting quality capabilities and, at the same time, having a minimal impact on the host. Using the massively parallel Daniel2 codec allows ideal optimization running on GPU as well as modern multi-core CPUs with features such as AVX. Since any desktop remoting software is not an end goal alone, keeping the load added by this function as small as possible is a critical benefit of Cinegize.

.1. Software Only

Cinegize is intended to work on 64-bit versions of Windows 10, Windows 11, Windows Server 2019, and Windows Server 2022.

Cinegize can run on machines equipped with any modern GPU from AMD, NVIDIA, or Intel.

No additional hardware is needed – just the power of your graphics card, preferably a recent NVIDIA card. On the client side, an integrated graphics card will do.

The minimal supported NVIDIA driver version is 456.81. We recommend that you perform the process of updating the NVIDIA drivers only upon stopping Cinegy applications. For detailed instructions on installing an NVIDIA driver, please refer to the NVIDIA Drivers installation article.

Daniel2 GPU encoding and decoding are supported by NVIDIA video boards that have CUDA Compute Capability 3.5 and higher. If the NVIDIA video board has the CUDA Compute Capability of an earlier version, then use Daniel2 CPU encoding and decoding.

The required hardware largely depends on the video resolution to be played back at each machine running Cinegize.

Video is transmitted with light-weight compression including rapid error recovery, offering a bandwidth efficiency of up to 20:1 compared to uncompressed. Cinegize requires a cabled LAN connection between sender and receiver with minimal network packet loss, operating at 1 Gbps speed for up to UHD60 4:4:4 mode.

8K (7680x4320) resolutions at high-quality mode require 5 Gbps or higher network speeds.

Cinegize utilizes the GPU to compress or decompress in real time the video output where it is created, thus offloading the CPU.

The minimum requirements to install and/or run are Windows 10 64-bit (Enterprise, Home, or Pro), 4GB of RAM, a suitable CPU (dependent upon the host resolution and quality intended for transmission), and preferably a recent NVIDIA graphics card, which can be used to offload the encoding or decoding using NVIDIA's CUDA.

Users of NVIDIA Quadro GPUs can benefit from the NVIDIA Capture SDK (NVFBC) features available, allowing a further reduced host PC load.

Cinegize also runs without GPU acceleration, creating minimum CPU load.

.2. Disclaimer

Cinegize is an early beta version, and access is provided at no cost pending release. This release is not meant for production use but only for evaluation and demonstration purposes.

.3. No Damage

Cinegy refuses any responsibility for any damages resulting from the use of Cinegize. For the avoidance of any doubt, Cinegy refuses any liability for any damage resulting from the use of its Cinegize beta software.