# Player

## User Manual

Contents

## Preface

Thank you for your attention and use of the media player as a professional video console server software. With its powerful timeline module, you can easily manage the broadcast control process. The innovative program management module makes switching simpler and more flexible. Multiple synchronous outputs can easily achieve all the effects that need to be displayed, such as LED special-shaped splicing, projection fusion, creative display, etc.

## Player main function modules

**Timeline mode**

Precise time control, powerful program special effects and material arrangement are more suitable for live program performance control.

**Special effects**

Supports program fade-in and fade-out special effects, providing diversification for picture display and effect realization.

**Virtual screen**

Enables the construction of complex LED screens (such as arbitrary angle rotation, splicing, etc.), providing an extremely convenient way for innovative LED display applications."

**Slicing function**

Allows for the arbitrary segmentation and recombination of polygons, achieving LED irregular stitching and creative displays.

**Support NDI capture**

Enables multi-channel 1920x1080 screen capture with extremely low latency and higher image quality.

**Support video console, matrix control, keyboard trigger**

Enables precise synchronization of playback and video console switching by sending switch commands on the timeline.

**Support 4K capture card**

Enables real-time capture and output of 4K presentations/cameras.

**Powerful video decoding and 2D /3D rendering capabilities**

Player is the core non-editing rendering engine, which provides real-time high-performance 2D/3D graphics rendering. It supports OpenGL and DirectX. The supported formats cover almost all current video formats. More than 30 video encodings including sequence frames can be played smoothly.

**Ultra-large video resolution support**

Player supports ultra-large resolution (4K, 8K) video and image decoding. Point-to-point display can be realized on any resolution LED display screen.

**User-friendly operation**

The multi-channel output from a single host, combined with the user-friendly unified stage management mode, timeline editing mode, and intuitive operation interface, allows technicians with no basic knowledge to quickly get started. This enables flexible display screen layouts and unleashes creative potential.

**Multi-timeline pre-editing mode**

Player supports multi-timeline playback, allowing independent control of programs on each timeline. It also supports pre-editing of programs without affecting the currently output program.

**Support timecode**

Simultaneously supports LTC and NTC triggers for play, pause, stop, and other functions. Achieves synchronized triggering with audio, video, lighting, lasers, and other devices.

## Player operating environment

Stable operation is supported on genuine Windows 7 and above 64-bit systems, with the recommendation to use genuine Windows 10 or above for optimal performance.

## Player operating mode

To ensure the normal operation of Player, please set your computer and output screen to extended mode. You can switch by pressing [Microsoft key + P], and in extended mode, designate the display as the main monitor, while the LED/LCD screen or projection is set as the extended display. The software has two operating modes, namely, the all-in-one mode and the online mode.

**All-in-one mode**

In the single-server usage mode, both the software operation interface and video signal output occur on the same server. This allows for software operation, material effects editing, and output control, as well as displaying video images on the output device. In the all-in-one mode, Player operates without the need for network data transmission, avoiding the impact of network errors on the software. Additionally, Player can provide real-time preview of captured camera signals, achieving real-time preview, editing, and rendering output. This capability is particularly suitable for scenarios with fewer output channels.

**Online mode**

In online mode, one server can function as the control terminal to operate and control other servers, while the remaining servers, excluding the control terminal, serve as display terminals for signal output. Within the same online environment, the number of display terminals can be adjusted as needed to meet the requirements for output display.

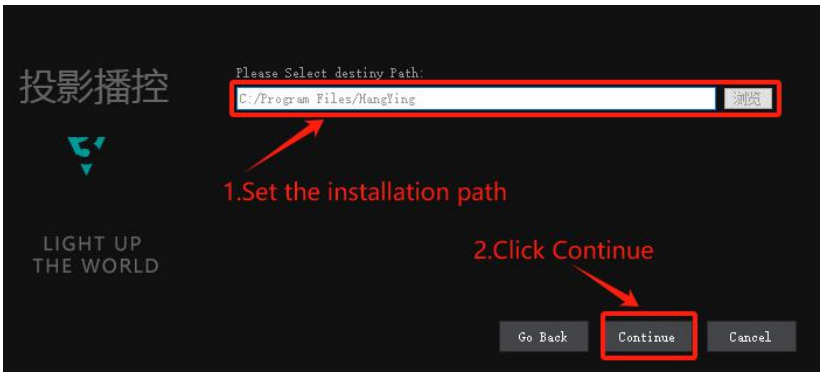
## Installation and debugging methods

### Install Player software

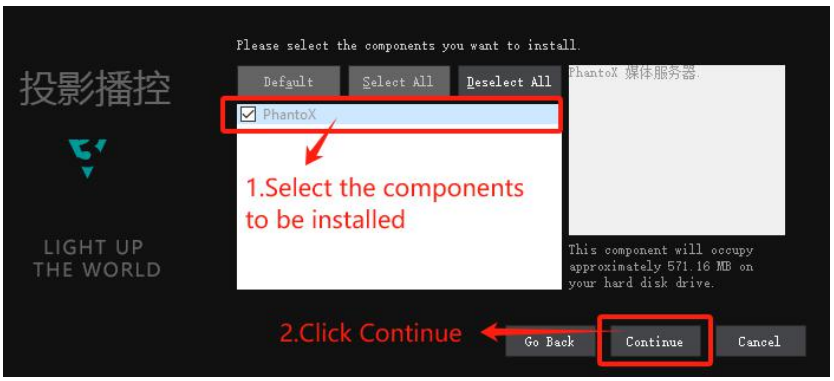
1. Double-click the software installation package to install.


2. Click Continue.

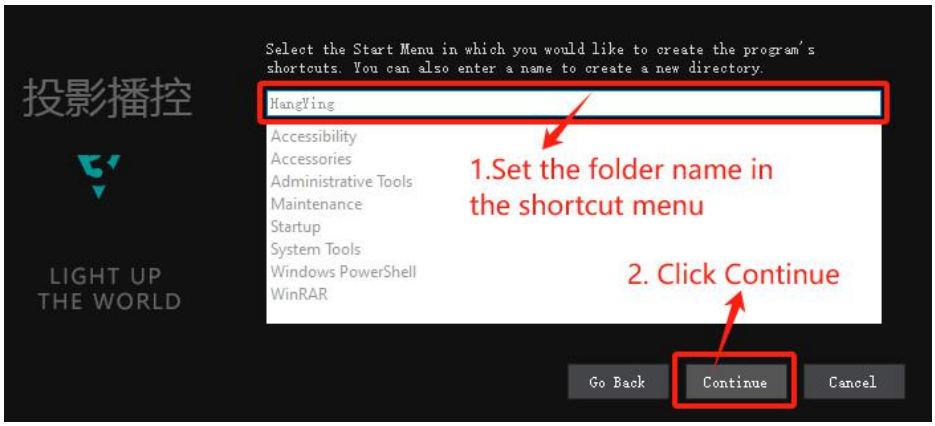

3.Set the installation path and click Continue.



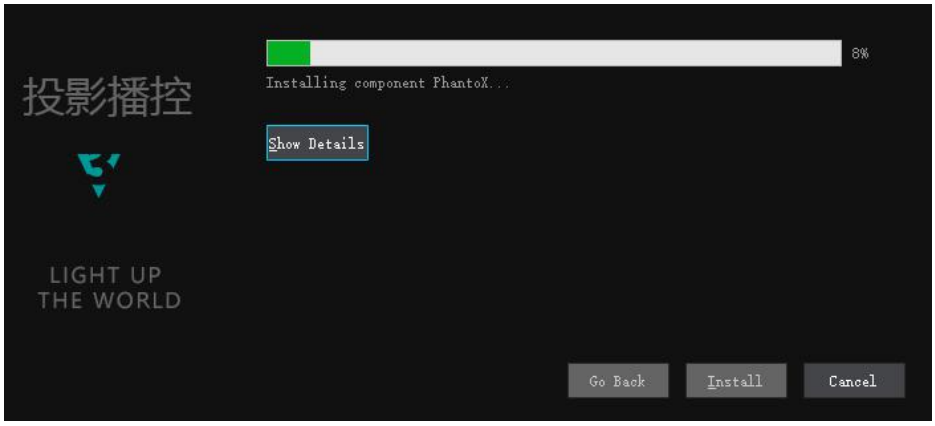

4. Select the components to be installed and click Continue.



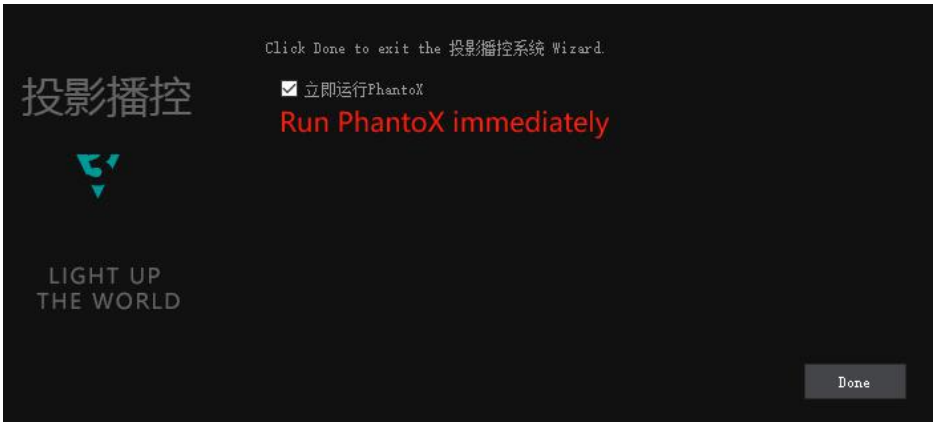

5. Set the folder name in the shortcut menu and click Continue.




6. Click Install.



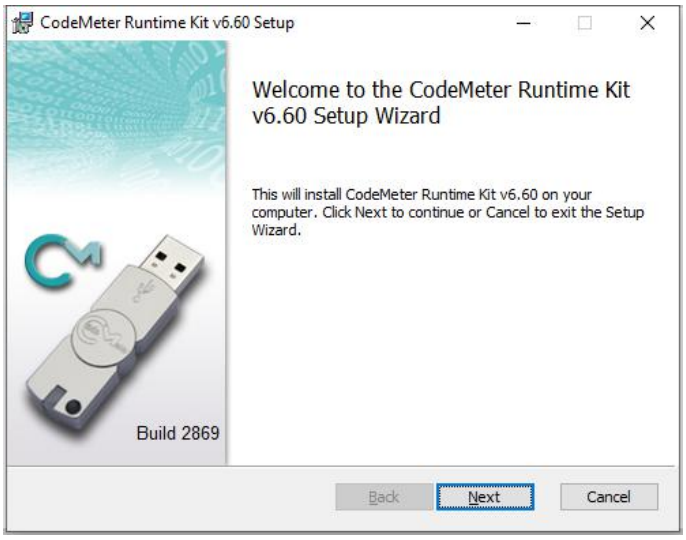

7. Click Finish to end the installation.



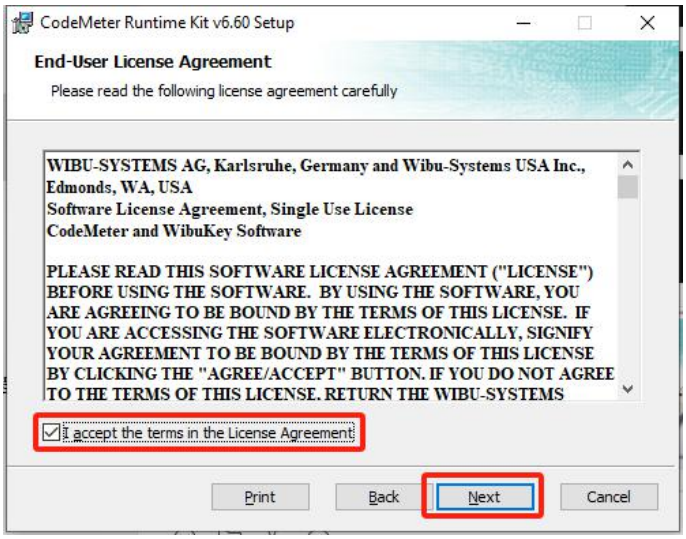

**Install encryption lock program**

1. Double-click to open the encryption lock program software and install it.

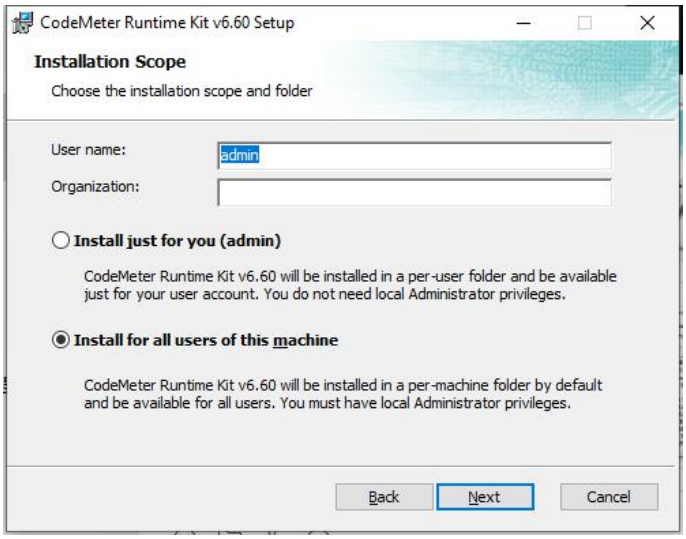

2. Click Next to continue the installation.



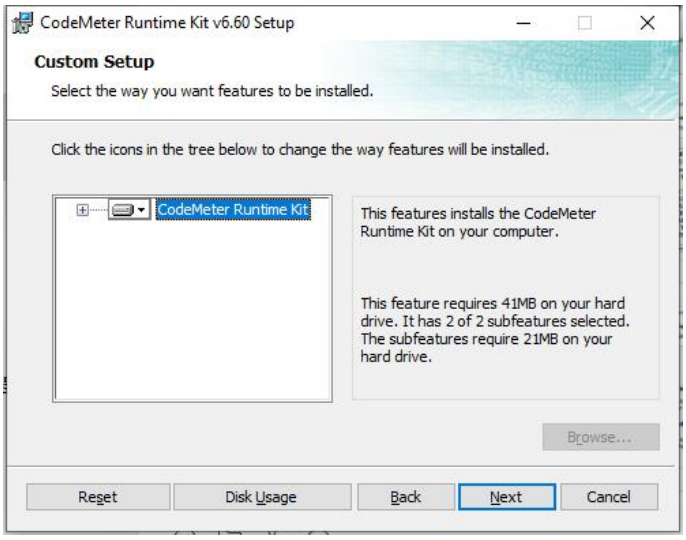

3. Check "I accept the terms in the license agreement" and click Next.



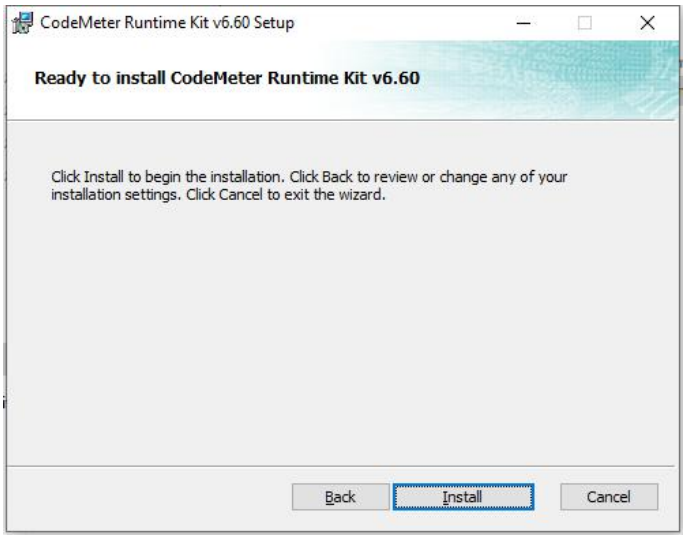

4. Click Next.




5. Click Next.

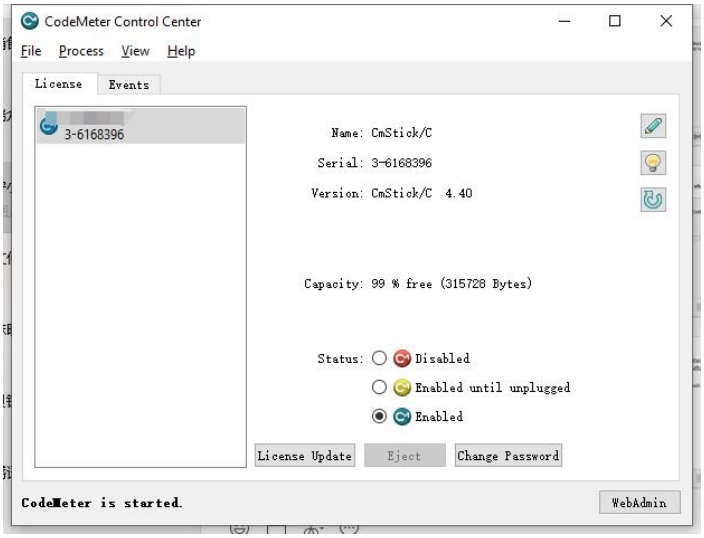



6. Click Install.




7. Click the Finish button to exit the Setup Wizard.

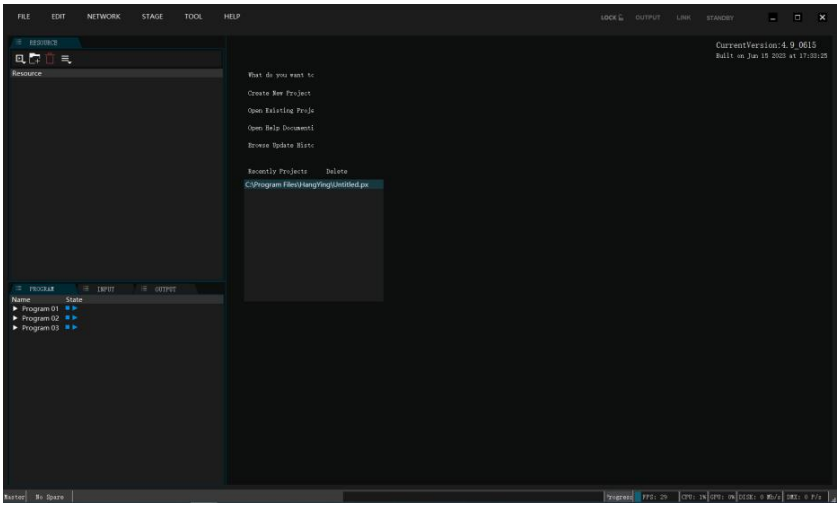

8. Encryption Lock Control Center




## Software introduction

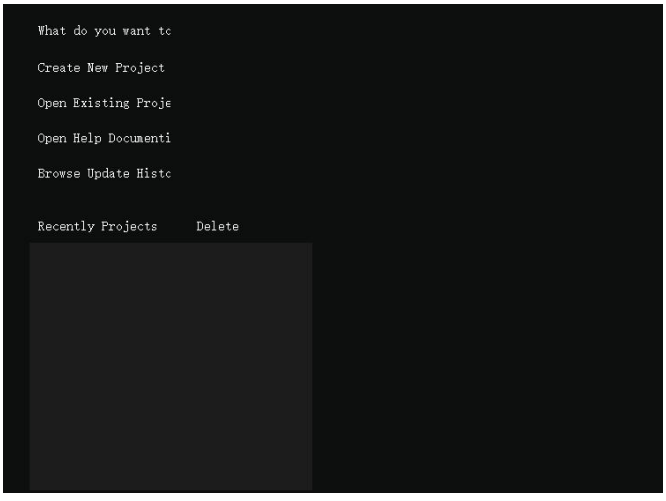
### Operation interface

1. Open the software and enter the operation interface.

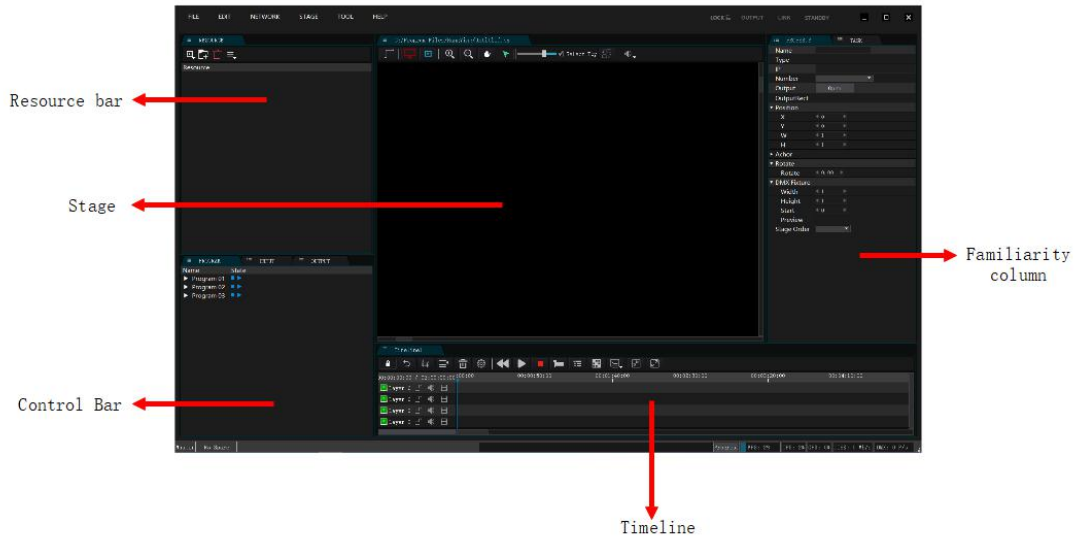


The initial interface of the software can open saved projects or create new projects, delete projects and other operations.

2. Enter the software operation interface by creating a new program or opening an existing project.



3.Interface introduction




Menu Bar

Document

(1) **New project**: Create a new project and specify the storage path.

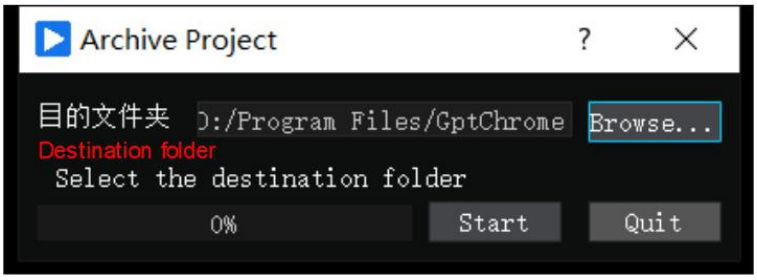
(2) **Open project**: You can open a project through the "Open Project" and "Recently Opened Projects" menus.

(3) **Open recent projects**: Open recently used projects.

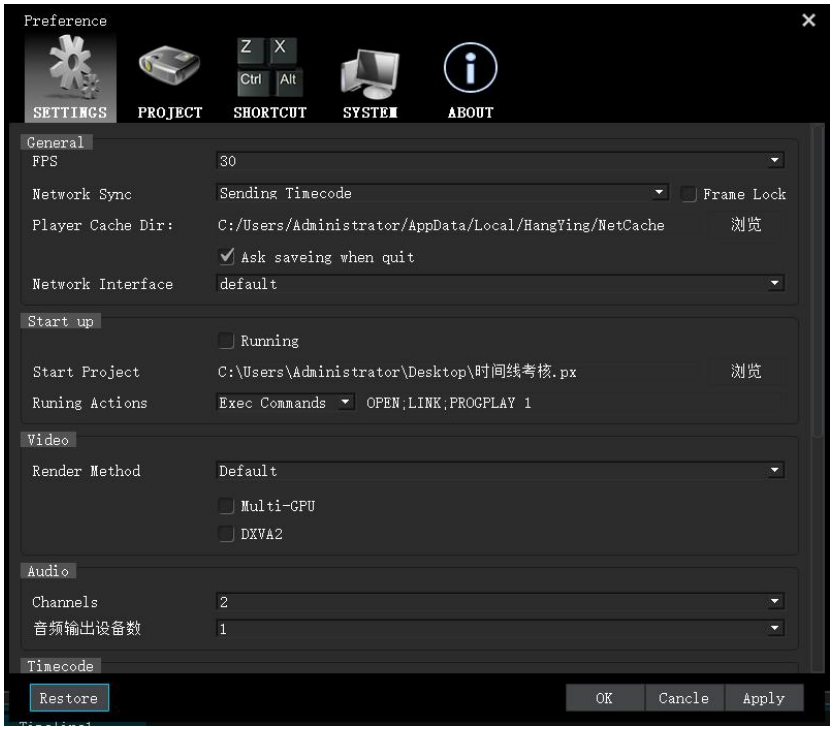
(4) **Save project**: Save the current project file.

(5) **Save as**: Save the project to the specified location for storage.

(6) **Project packaging**: According to the prompts, select the specified folder to copy all the files of the project, including media materials, to the specified folder. The project can be opened directly on another server.




(7) **Settings**: Player's setting options. Enter the settings page to set the program or project.




**Program settings**

**Frame rate**: The default is 30, ensuring smooth and synchronized video playback. It is recommended to set the frame rate above 25.

**Network synchronization:** Synchronization mode in Online mode, the default setting is to send time code synchronization.

**Local startup settings:** By default, the machine does not start up and does not automatically fluctuate. Users can turn on the startup and automatically play specified items.

**Display cache:** the display-side material storage directory in Online mode.

**Rendering method:** Vertical synchronization rendering can be turned on or off. It is turned off by default.

**Hardware decoding:** Check to enable hardware decoding. Note that depending on the encoding format, some formats may not support hardware decoding. Videos that do not support hardware decoding may display a black screen or distorted images after enabling hardware decoding.

**Time code:** Supports the output and input of LTC time code, users can choose settings according to their needs.

**Picture playback time:** the duration of the picture material on the timeline, the default is 10 seconds.

**Standby fade duration:** The fade-in and fade-out duration of standby and resume playback, the default is 1 second.

**Timeline length:** The length of the timeline, the default is 3 hours, the maximum is 23 hours, 59 minutes, 59 seconds.

**Automatic saving:** For multimedia non-linear editing software, due to the numerous user operations, some improper operations will inevitably cause the program to crash or become unresponsive. At this time, it is very troublesome if the project is not saved. Therefore, this software has an auto-save function and is turned on by default. Users can set the auto-save interval.

**Lock screen password:** the password to unlock the software after it has been locked can be entered by clickin LOCK . To unlock, you will need to input the previously set password..

**Fade in/out:** A gradual brightness effect when switching programs, adjustable duration with a default of 1 second.

**Virtual screen optimization:** Optimize virtual screen performance.

**File transfer strategy**

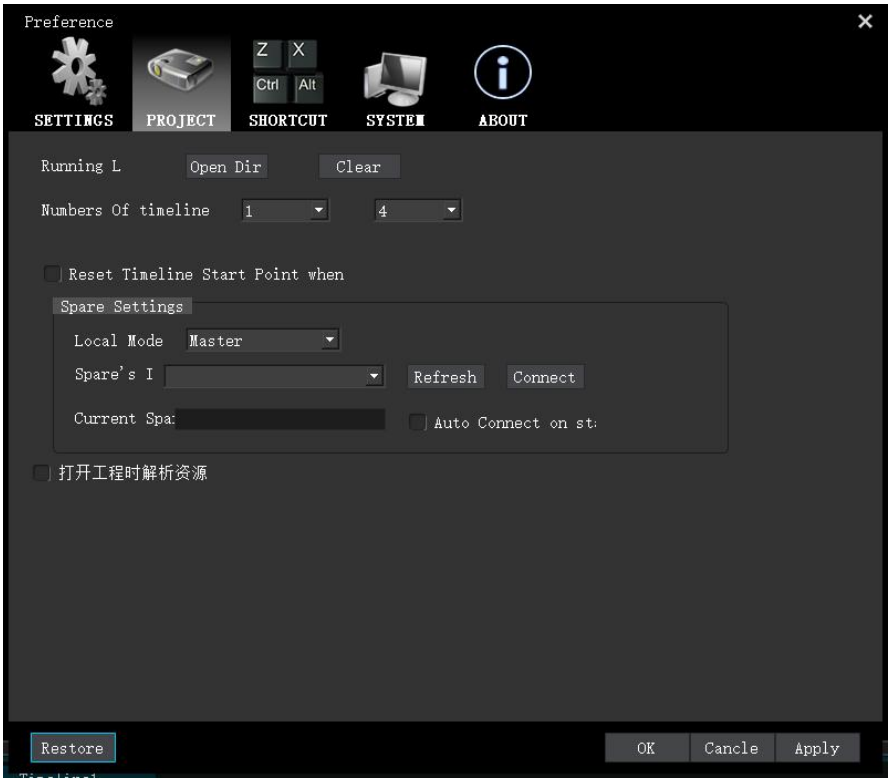
In Online mode, the control terminal will transmit the materials to the display server. The software has three transmission modes.

**General transfer:** transfer all the materials added on the timeline to the display server.

**Complete transfer:** transfer all materials in the resource bar and timeline to the display server.

**Minimum transfer:** Only the materials needed for the display are transmitted.

**Project settings**




**Run log**

**Open Contents**: Click to open the contents where the software running log is stored. The running contents is stored in the system user's Document\ AppData \Local\ HangYing \log

folder.

**Clear Logs**: Click to clear all log files.

**Timeline and number of layers**

**Number of timelines**: The number of timelines can be set to up to 6.


**Number of layers**: The number of project layers. The default is 4 layers, which can be set by yourself.

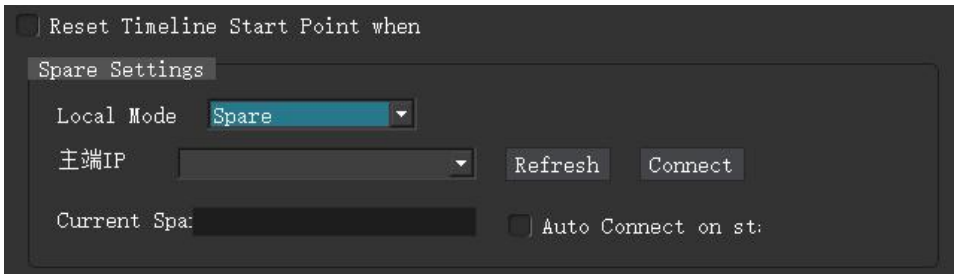

**Reset timeline when opening a project**: If checked, the number of timelines and layers will be restored to the default state when the project is opened. It is not recommended to check it for already set projects, and it is not enabled by default.

**Active and backup settings**

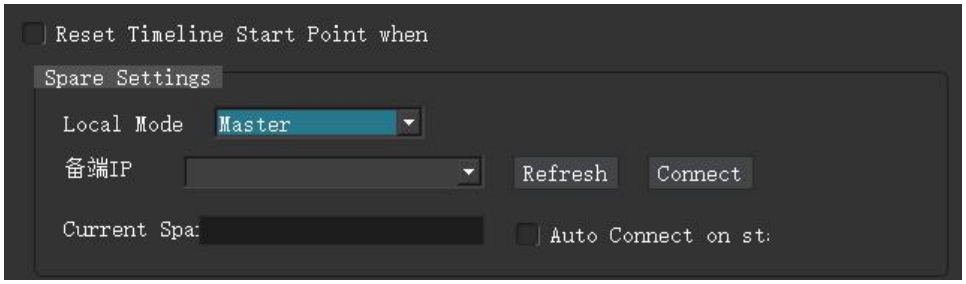
Supports device active and standby modes, and the active and standby devices can be switched at will.

**Local working mode**: You can choose the main or backup mode, and set the two hosts to different fixed IPs. At the same time, the IP addresses need to be in the same network segment. For example, the host IP is set to 192.168.1.2, and the backup IP is set to 192.168.1.3. One host is set as the primary server, and the other host is set as the backup server.

**Primary IP**: In the standby mode, this displays the IP address of the primary host.




**Standby IP**: When used as the primary host, this displays the IP address of the backup host.




**Shortcut key**


**Lock Software**: CTRL+ALT+L

**Open All**: CTRL+ALT+O

**Link**: CTRL+L

**Standby**: CTRL+B

**Move to Stage Origin**: CTRL+SHIFT+O

**Effect Transform**: ALT+P

**Effect Scale**: ALT+S

**Effect Rotate**: ALT+R

**Effect Alpha**: ALT+O

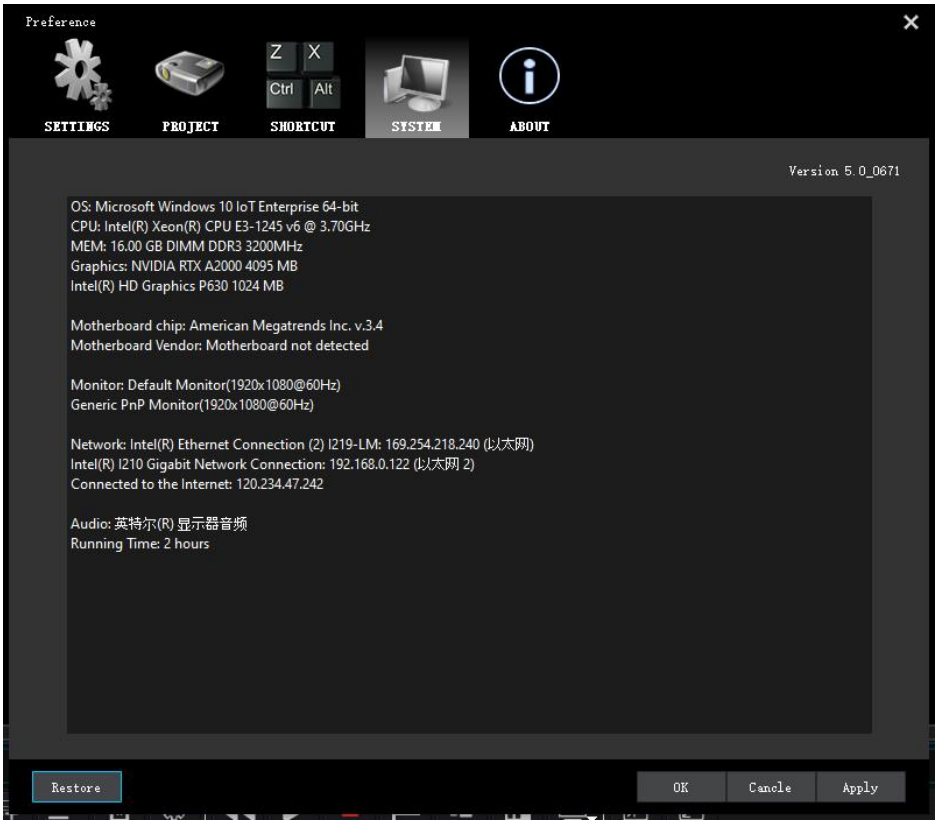
**Effect Feather**: ALT+F

**Add Command Play**: CTRL+P

**Add Command Pause**: CTRL+SHIFT+P

**Add Command Jump**: CTRL+J

**System information**




This section displays information about the system, including the operating system, processor, memory, graphics card, and other details.

**Edit**

**Undo**: Go back to the previous step, useful for undoing mistakes (Shortcut: CTRL+Z).

**Redo**: After undoing, redo the undone operation (Shortcut: CTRL+Y).

**Copy**: Copy program materials on the timeline (Shortcut: CTRL+C).

**Cut**: Cut the program material on the timeline, (shortcut key CTRL+X).

**Paste**: Paste program materials copied or cut from the timeline to a specified position (Shortcut: CTRL+V).

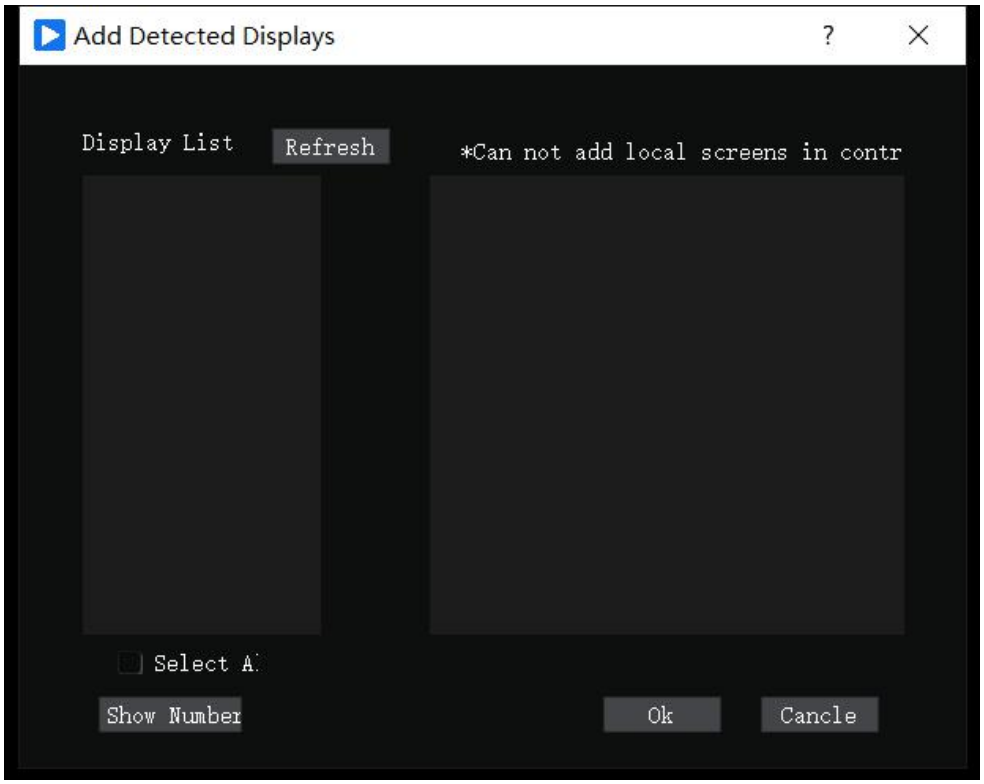
**Select all**: Choose all program materials on the timeline and stage (Shortcut: CTRL+A).

**Select remaining**: Choose all remaining unselected materials (Shortcut: CTRL+E).

**Stage**

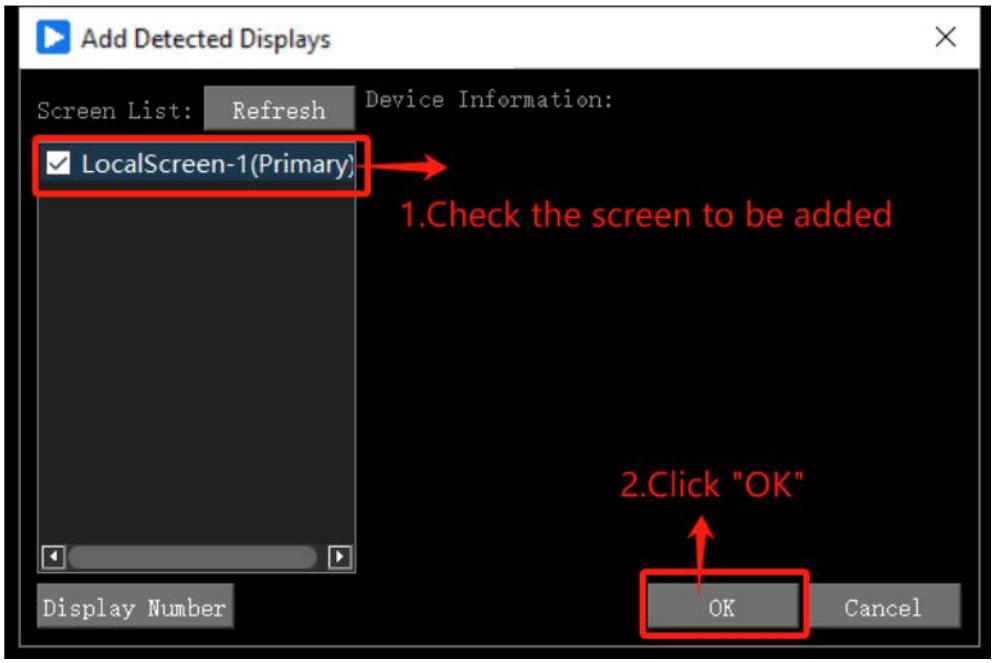
**Add screen**: Add a local screen (all-in-one mode) or a network screen (Online mode).

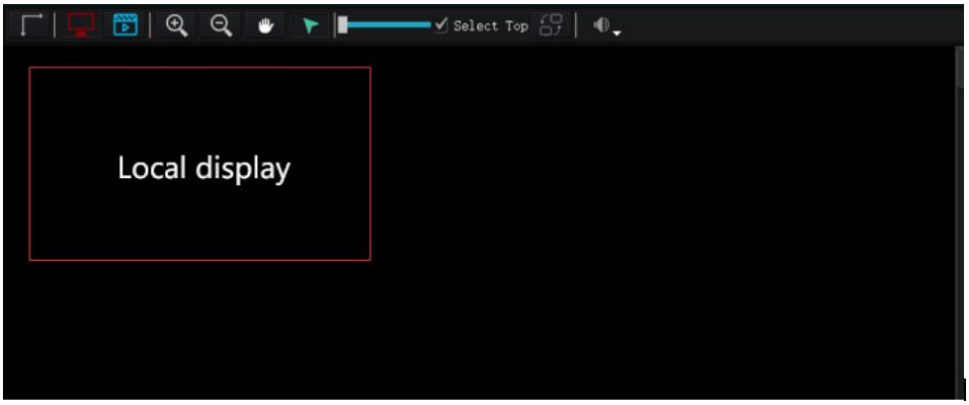
**Detected Screens**: Displays all screens connected within the system including local and network.



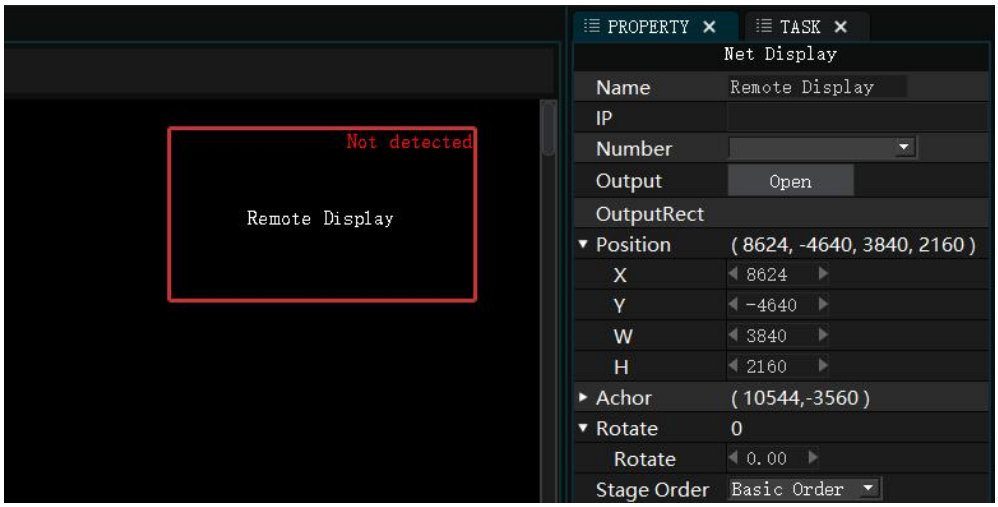

**Show screen number**: Click the Show Number button on the detected screen tab, and the screen connected in the system will display the pigeon number, which can be used to quickly locate the screen position.


**Add screen to the stage**: Check the screens you want to add from the list and click "OK" to add them to the stage.

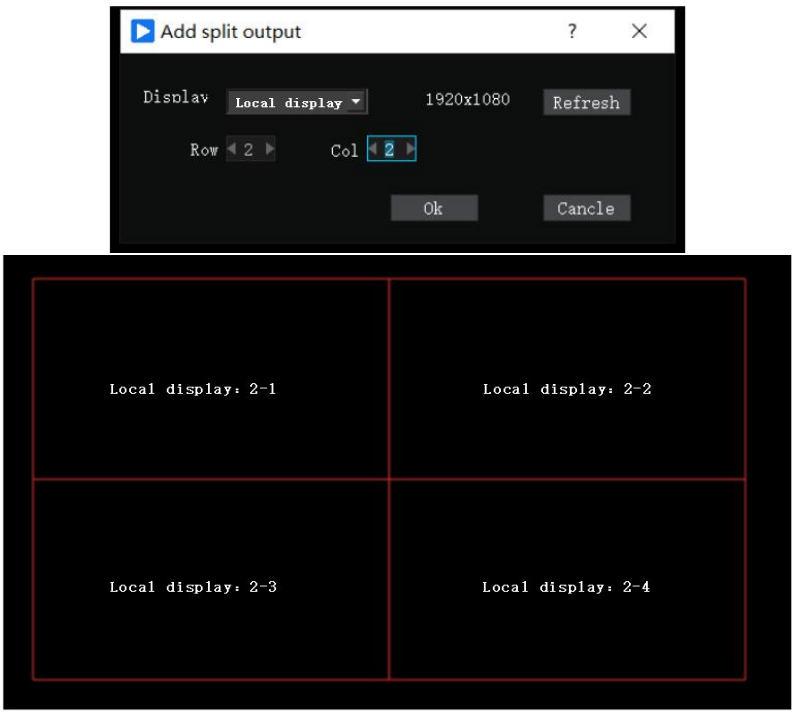



**Add custom screen**: Add a custom network screen with a resolution of 1920*1080. After adding, you can customize the screen information.

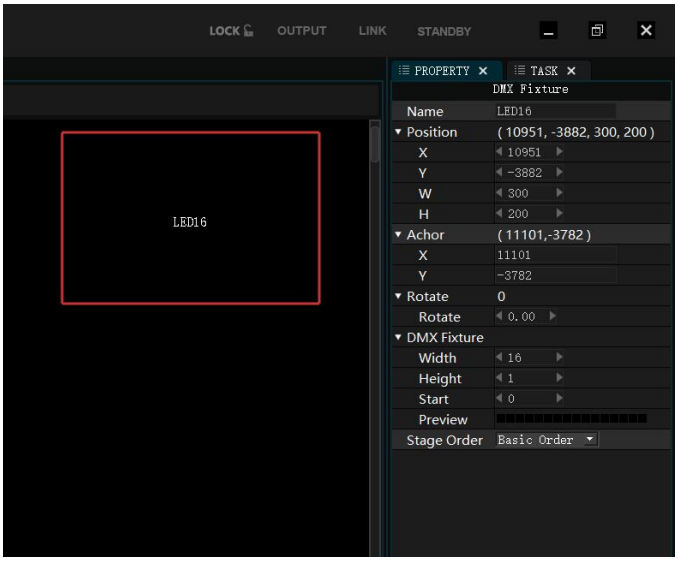



**Add split output**: split a screen into 2*2 or 4*4 mode output, each area can output different content.




**Add virtual screen**: The virtual screen collects and plays the programs in stage management in real time. The virtual screen can be used directly as material to realize functions such as camera splicing, camera close-ups, live broadcast interception, and special-shaped screen playback. Add the virtual screen to the stage, as shown below:


**Adding DMX lamps**: DMX converts video signals into DMX512 lighting signals and outputs them through the network port to the DMX receiving device for display.



**Rendering quality**: Supports three rendering mode adjustments: normal, picture, and wireframe.

**Normal rendering**: Use the normal rendering mode when the server performance is sufficient, and the playback screen can be previewed on the software in real time.

**Picture mode**: Selecting picture mode can improve playback smoothness when the server performance is slightly insufficient.

**Wireframe mode**: When server performance is insufficient, wireframe mode can be turned on to increase the output rendering frame rate.

**Network**

**Display Restart**: All connected display servers' restart.

**Display terminal shutdown**: All connected display server shut down.

**Online update**: The display end updates programs and materials while connected.

**Real-time update**: After checking, the display and control side are updated in real time.

**Manage display terminal**: You can manage the startup actions and cache cleaning of the display terminal.

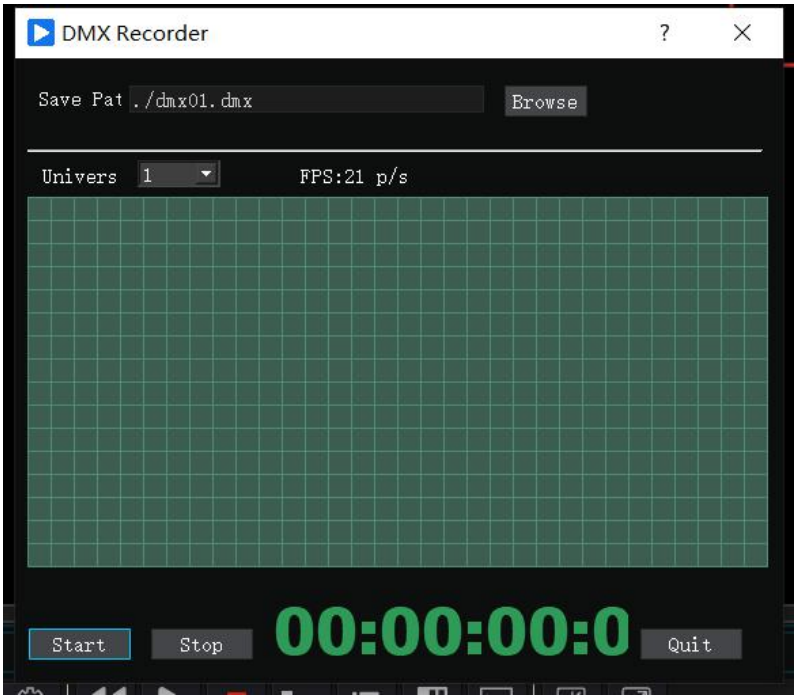
**Power On, No Startup**: The display does not start at startup.

**Power On, No Playback**: The server is powered on and the display is automatically started.

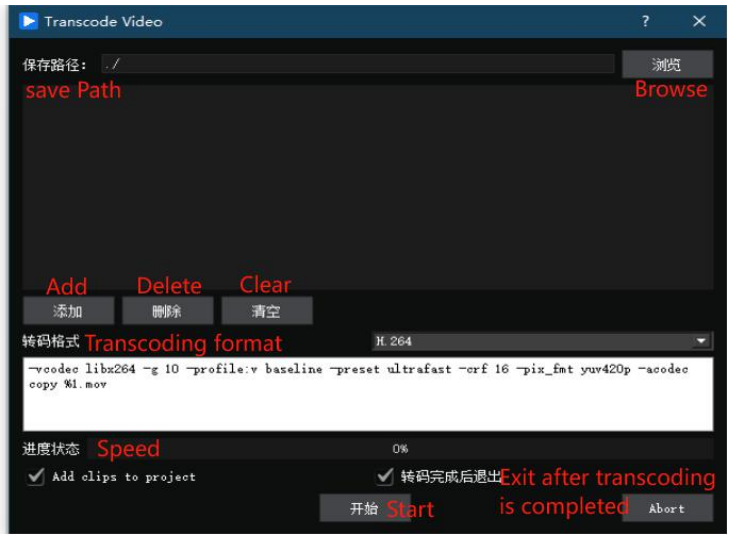
**Power On, Playback**: The server starts up the display and automatically starts playing the project.

**Tool**

**DMX recording**: Record DMX signals into DMX files and save them to the specified directory.



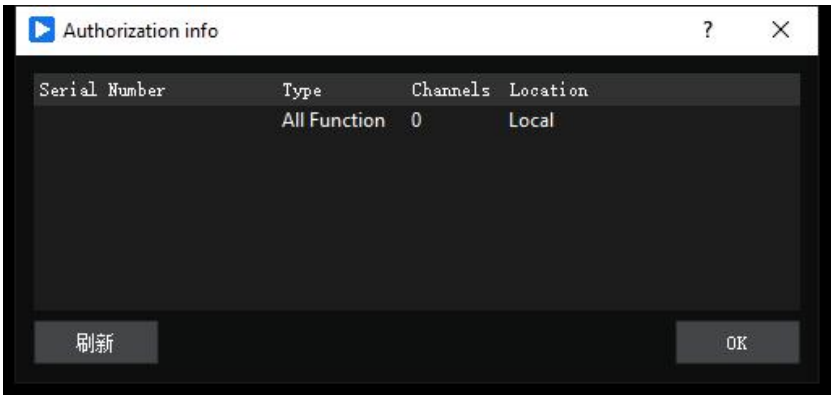

**Transcoding tool**: Video format conversion, supports H.264 or HAP encoding conversion.




**Help**

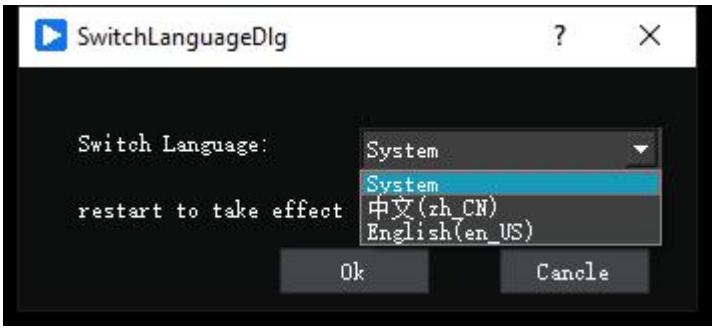
**User Manual**: Click to open the user manual file.

**Authorization information**: Displays encryption lock authorization information, including version and channel number.




**Display FPS**: Check to display the current rendering FPS frame rate audio and video delay rate.


**Language conversion**: The software supports Chinese and English languages and follows the system display by default. Users can specify the language.

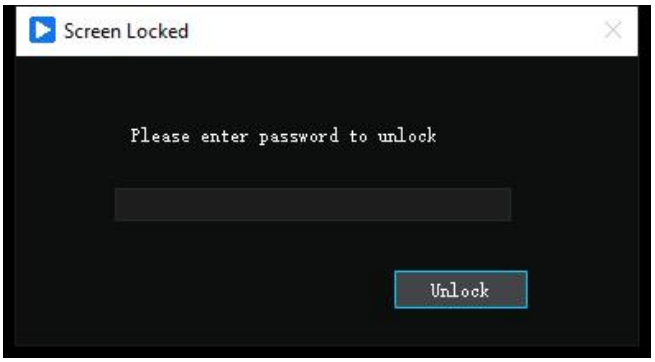



## Control menu

**LOCK**: Lock the software interface after opening.

**LOCK closed state**: When the software is not locked, the icon state is LOCK .

**LOCK activated state**: software lock status icon status is LOCK , and the program has been locked dialog box pops up.




**OUTPUT**: OUTPUT means that the port is open for output, but the video screen will not be output at this time.

**OUTPUT closed state**: When OUTPUT is off, the icon is gray OUTPUT. The LED display now displays the system desktop.

**OUTPUT activated state**: When OUTPUT is activated, the icon is a red and white OUTPUT gradient. At the same time, the LED display screen displays black and white grids and screen information. (As shown below)


**LINK**: Connection refers to connecting to a display device. Once the connection is successful, the edited material screen will be projected to the display device, provided that the connected display screen has been added to the software and all Display of connections. You can also connect or disconnect by clicking the connection button in the upper right corner of the stage.

**LINK closed state**: When L INK is off, the icon is gray LINK.

**LINK activated state**: When LINK is activated, the icon is white and green gradient LINK color, if OUTPUT is also activated at this time, the connection is successful, and the materials on the stage will be projected to the LED/projection in real time.

**STANDBY:** Click standby, and the standby layer or black screen on the timeline will be displayed. In this state, the program will continue to play without stopping.

**STANDBY closed state**: When the STANDBY button is off, STANDBY the system outputs normally.

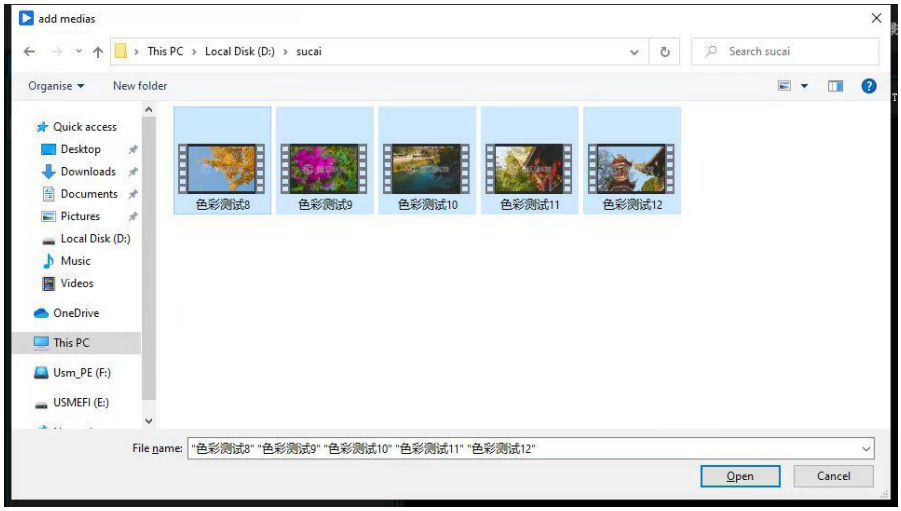
**STANDBY activated state**: When the STANDBY button is activated STANDBY , at this time, the system outputs a black screen, but the playback will not stop.

## Add media assets

### Add media

Media resources include video, audio, and picture multimedia resources. Click in the software resource column icon or right-click in the original column and select Add Media menu Add Media.

Browse to the media storage path in the pop-up dialog box, select the media to be added and click Open. (As shown below)




After clicking to open, you can see the media we added in the resource bar of the software. (As shown below)


### Add subtitles

By using this feature, you can add text to the resource bar and perform various adjustments like other media elements. You can change the font style, size, color, subtitle background color, scrolling method, and more for the entered text. You can either edit the text directly in this section or paste the desired text to be displayed. Ultimately, the software will generate subtitles based on the settings. Additionally, you can set the width

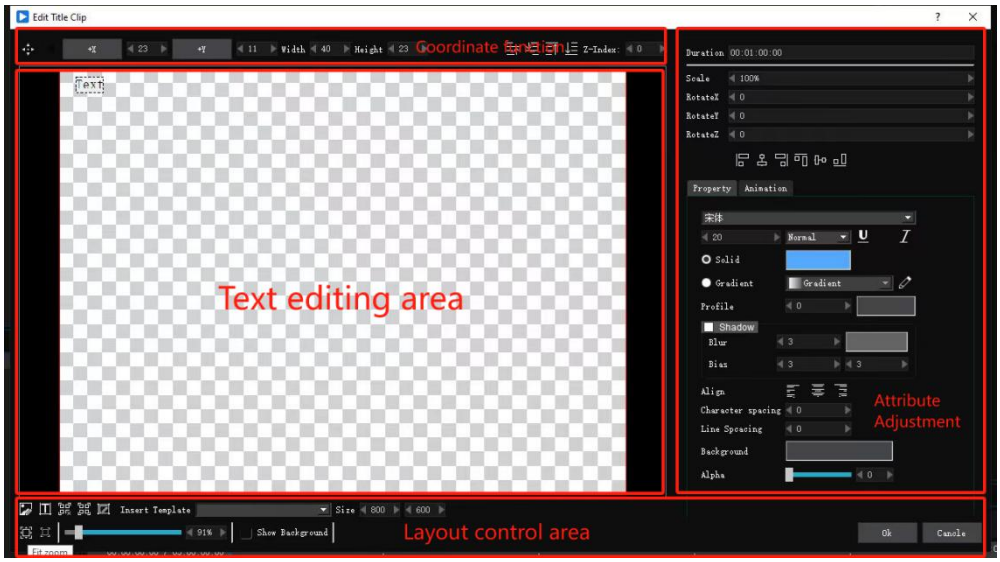
and height of the subtitles.

1. Click in the resource bar icon or right-click the blank space in the resource bar and


select the Add Subtitles menu 

.

2. Edit subtitles in the pop-up subtitle editing area.




3. Description of **subtitle editing function**

**Drag text**: After clicking the button in the subtitle production window, you can drag the text in the editing area.

**Add text**: After clicking the button in the subtitle production window, click the left mouse button anywhere in the text editing area to add text.

**Adjust text coordinates**: Select a subtitle and set the coordinates in the + X and + Y parameters to change the coordinates of the subtitle. Click the X and Y coordinate buttons to switch between positive and negative coordinates.

**Display date**: Select a time style template in the insert character template to insert real-time date display.

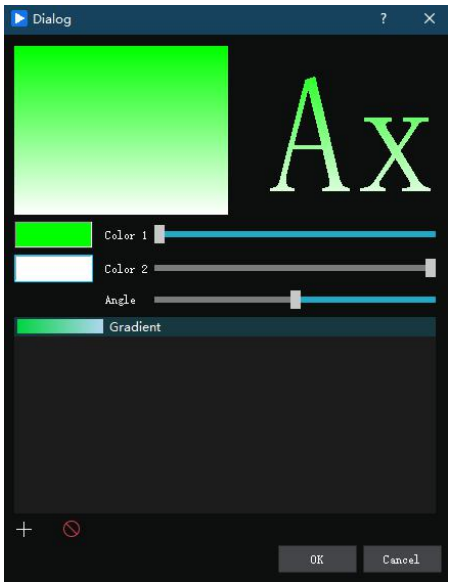
**Display weather: Select** % Weather in the insert character template to insert a weather display, which can only be displayed in text currently.

**Font and size**: Select a subtitle and set the font and font size in the property bar to adjust the text size.

**Text color**: Select a subtitle and set a color in the solid color column in the property bar to change the color of the subtitle.


**Subtitle gradient co** 

in the property bar to set the subtitle color gradient.




**Set subtitle shadow**: Select a subtitle, check the Shadow option in the property bar and set the shadow color.


**Subtitle alignment**: Select a subtitle and set the alignment properties in the property bar. It supports three options: left alignment, center alignment, and right alignment.

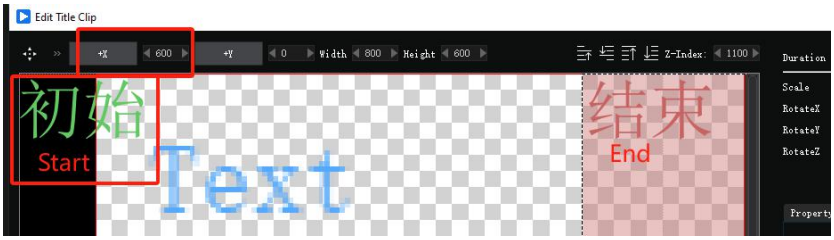

**Subtitle background and transparency**: Adjust the Background color and transparency sliders in the property bar to adjust the background color and transparency.


**Rolling subtitles settings**: Click 

Options in the property bar and click 

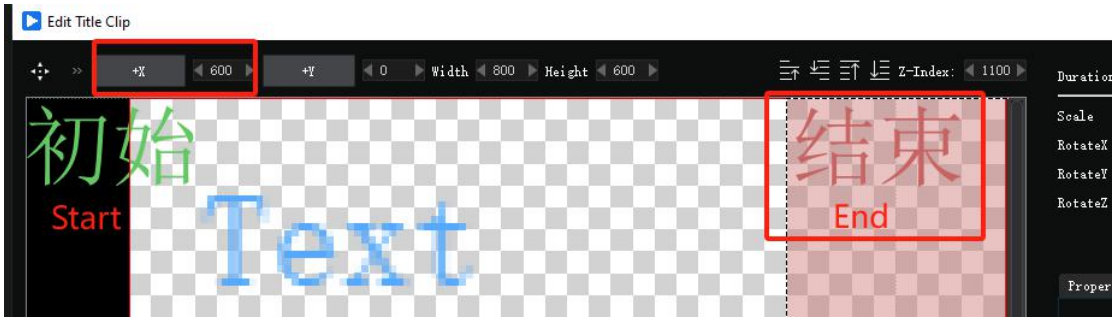
the button.

Now you see the word "Start" in the text editing area, click on the word "Start" and set the X coordinate to the negative number of the subtitle width.



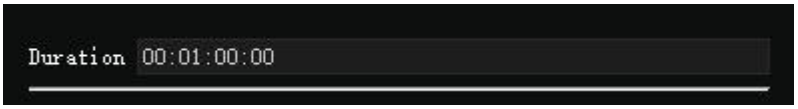

Click 

again button. At this time, the word "End" can be seen in the text editing area. Click the word "End" to set the X coordinate to a positive number of width.




Finally, click "OK," and you will have subtitles scrolling from right to left. If you want the text to run in the opposite direction, simply reverse the coordinates for the start and end points in the settings.

**Subtitle scrolling speed**: The scrolling speed refers to the movement speed of subtitles on the screen. The system controls the movement speed of subtitles by controlling the duration of the subtitles and the width of the screen. Control the movement speed of the subtitles by setting the duration of the subtitles. The longer the duration, the smaller the screen width, and the slower the movement speed of the subtitles, and vice versa.




**Add live video (capture card)**

1. Click in the resource bar icon or right-click the blank space in the resource bar and select Add Live Video menu.

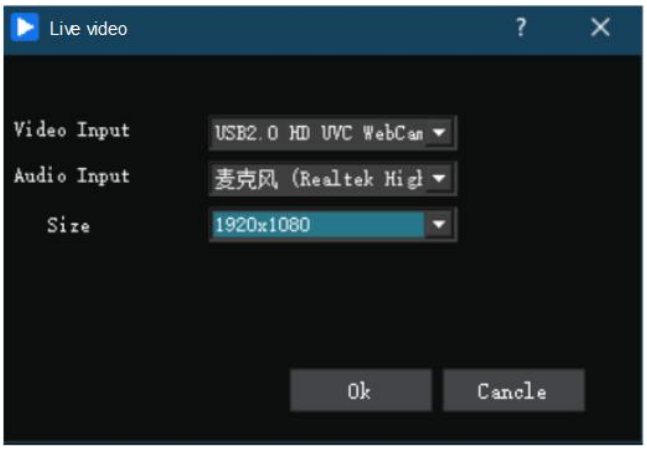

2. In the pop-up window, select the capture card device to be added and click OK to add the live video to the resource bar.


**Add capture card (sound)**

Through this function, live video with audio can be added to the system for use.

1. Click in the resource bar icon or right-click the blank space in the resource bar and select Add Capture Card (Sound).


2. In the Add Capture Card window, select the device to be added and select the audio format. Click OK to add the live video with sound to the resource bar.

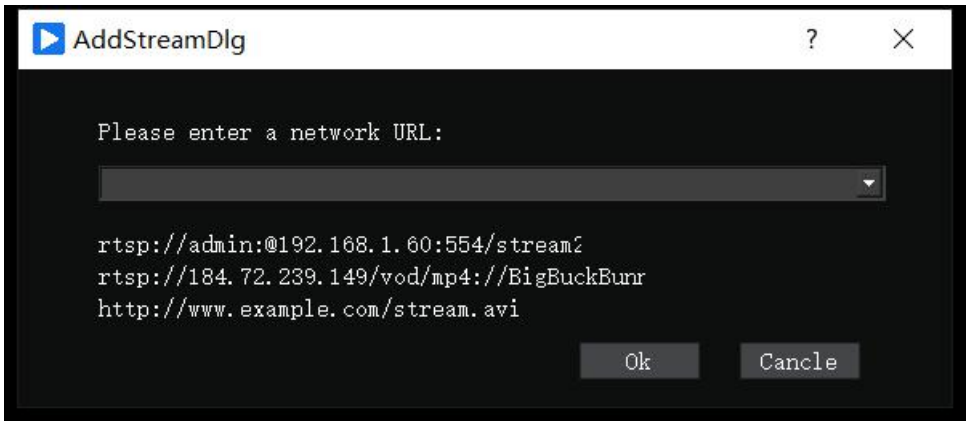



**Add network stream**

By adding the network streaming function, network streaming media on the Internet or local cameras, surveillance and other network streams can be added to the system for use.

1. Click in the resource bar icon or right-click the blank space in the resource bar and select Add to add a network flow.


2. Enter the address of the streaming media in the Add Network Stream window and click OK.



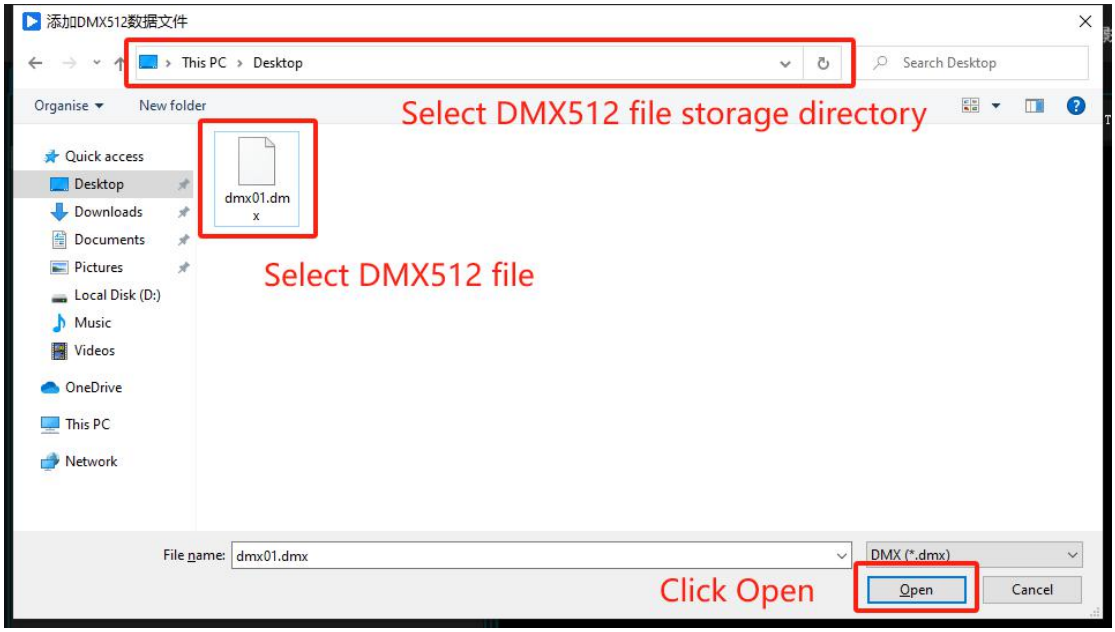

Note: Streaming media only supports absolute media addresses or network streaming signals, and does not support videos from Tencent Video, Youku and other websites.

**Add DMX512**

By adding the DMX512 function, the recorded DMX512 files can be added to the resource bar and played through the system.

1. Click in the resource bar icon or right-click the blank space in the resource bar and select Add DMX512. 


2. Browse to the DMX512 file in the pop-up add window and click to open.



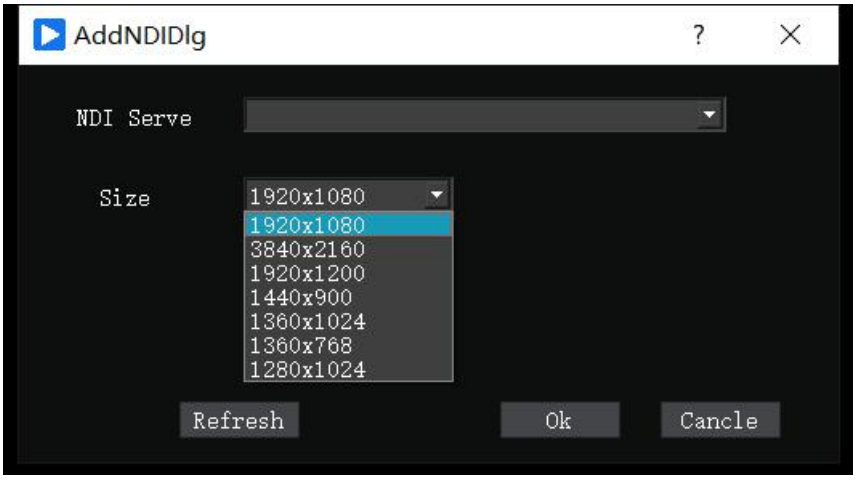

**Add NDI**

Ensure that the capturing computer/device and the receiving computer are on the same local area network. Use the following command to add an NDI (Network Device Interface) network screen. NDI employs digital high-definition Ethernet transmission technology, achieving transmission effects equivalent to SDI. Compared to coaxial cable transmission, NDI transmission is more stable, has stronger anti-interference capabilities, and allows for real-time bidirectional transmission of audio, control signals, and video simultaneously. After adding the NDI network screen, include it in the timeline or program management

window, where it can be used directly as source material.

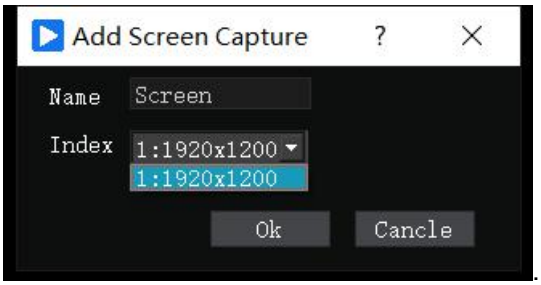
1. Click in the resource bar icon or right-click the blank space in the resource bar and select Add NDI. 


2. Select the NDI server in the Add NDI interface, set the resolution, and click OK to add the NDI device to the resource bar.




**Add screenshot**

Using this function, you can add the local screen to the resource bar. The effect is equivalent to NDI capture, and the local screen can be shared to the large-screen display in real time.



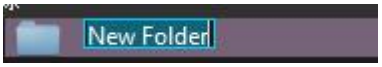

**Add folder**

Dragging media materials into folders can help you organize the media resources in the material library. Materials can be dragged to add to folders or remove them.

Click in the resource bar icon or right-click the empty space in the resource bar and select Add Folder.

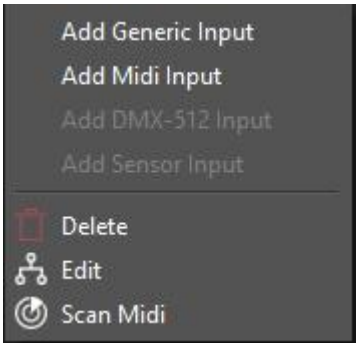

**Rename folder**

Renaming folders can help you organize classified materials. Move the mouse to the folder that needs to be renamed, right-click, and select the rename menu to enter the rename folder window.



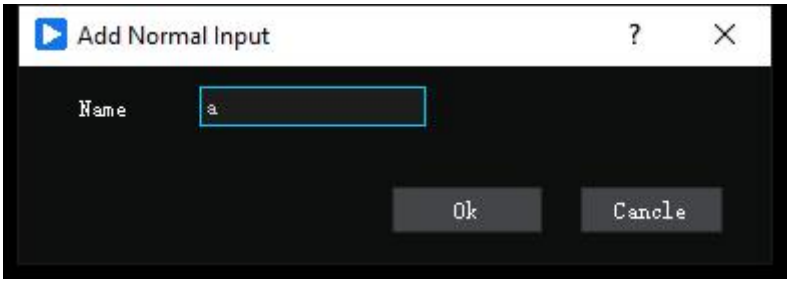

## Input signal

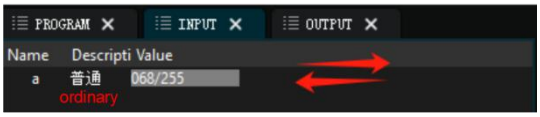
Player supports external signal control playback. Right-click the blank area of the signal input field to pop up the add menu. Click the corresponding option to add the corresponding input.




**Add normal input**

Click the Add Common Input option to add a common input, set the name and click OK.

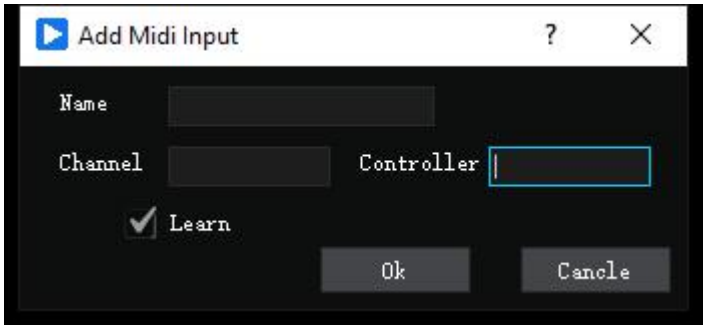



Normally input values can be set by clicking or sliding with the mouse.

**Add MIDI input**

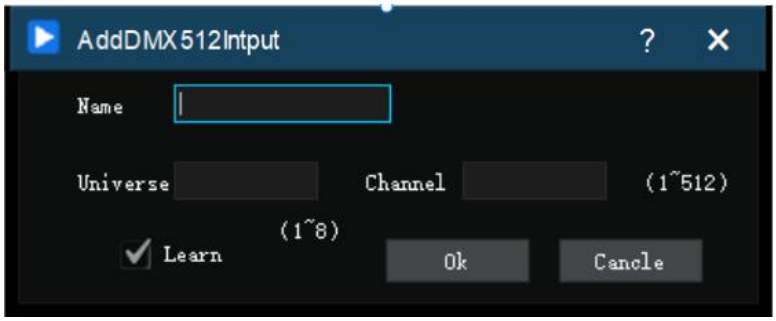
Adding MIDI input will introduce a keyboard knob or slider, check "Learn" and enter the name, channel and controller name.



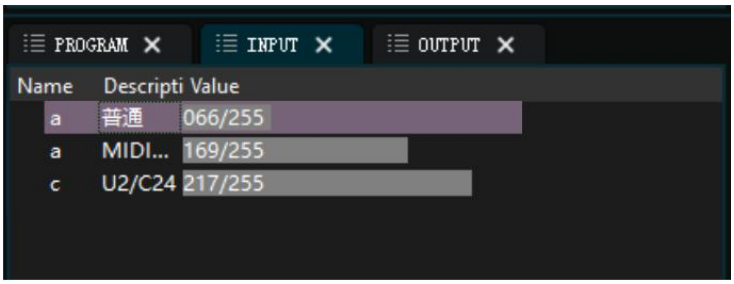

After setting is complete, move the controller and pay attention to the bar indicator in the input box to confirm normal operation.


**Add DMX input**

To add DMX input, you can use the DMX console to control the program playback and stop. Check "Learn" and enter the name, domain and channel.

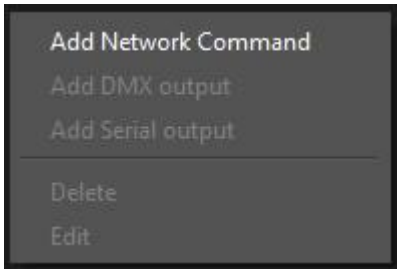



After completing the settings, operate the corresponding channel range on the DMX console to make its values change. Simultaneously, observe the corresponding channel status in the software to confirm that the settings are correct.




## Output signal

The Player broadcast control system supports network signal output and DMX signal output. The network signal output supports TCP /UDP protocol and supports multiple command formats. The signal command can be placed on the timeline for automatic triggering. DMX signal can be used for synchronized broadcast control.




**Add network output**

Add a network command signal output and set the name, protocol, target IP, port and command name.


Command name: Add a name to the network command.

TCP Short Connection: Establishes a connection for sending commands once, disconnecting after completion.

TCP Long Connection: Establishes a connection upon opening the software and remains in a connected state.

UDP: Broadcasting protocol, where devices within the same local area network will receive commands issued by the system.

IP: IP address of the device receiving commands.

PORT: Port of the device receiving commands.

ASCII Character Display: Displays commands in plaintext.

Hexadecimal Display: Converts characters to hexadecimal format.

Connect: Click to connect to the set IP; if successful, a connection success message will be displayed.

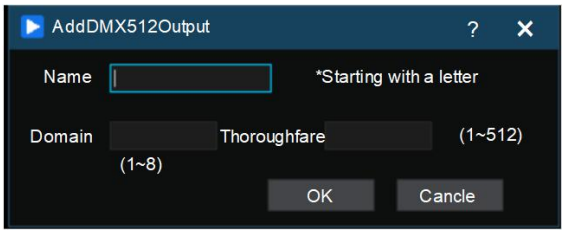
Test Send: Tests if the command is correct; use this function to assess the command's operational status.

OK: Saves the configured network command settings and closes the editing window.

Cancel: Discards the settings and closes the editing window.

**Add DMX output**

Use this function to set a DMX command, and place the command on the timeline to trigger to send a fixed value DMX signal.



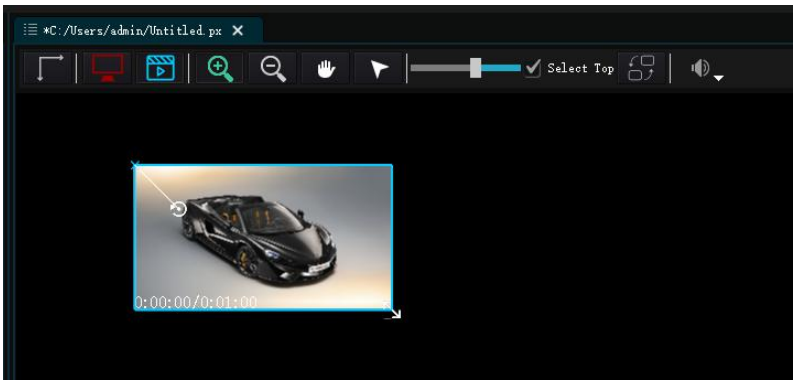

Name: Set a name starting with a letter.

Domain: Domain corresponding to DMX

Channel: A domain of DMX has 5 to 12 channels, set a channel value to trigger the device.

## Stage

All added windows, timeline assets, and screens are displayed on the Stage. In screen mode, the screen can be moved freely; in media mode, materials can be moved freely.




**Return to stage origin**

The stage origin refers to the intersection point of the X, Y, and Z axes on the stage, commonly referred to as the 0.0.0 point. To return to the stage origin, click the button above the stage or right-click on an empty space on the stage and select the "Return to Stage Origin" option from the menu.

**Select screen**

In the stage, you can only select the screen in screen mode and click button to switch to screen mode for screen editing operations.

**Select material**

In Stage Red, materials can only be selected in media mode, click button to switch to media mode for material operations.

**Stage zoom**

Click button , the color of the button will turn green . Move to the stage area and click the left mouse button to zoom in on the stage.

**The stage shrinks**

Click the button and the button color will turn green . Move the mouse to the stage area and click the left button to shrink the stage.

**Pan**

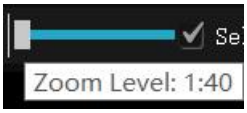
Click the button and the button color will turn green. Move the mouse to the stage area and hold down the left mouse button to pan the stage.

**Choose**

Click the button and the button color will turn green. At this time, you can use the mouse to select the materials on the stage or the screen for editing.

**Adjust zoom**

The screen and materials on the stage are scaled and displayed at a certain ratio. We can adjust the zoom ratio to adapt to the size of the stage. Moving the slider on the zoom ratio can quickly adjust the zoom ratio.




**Overall volume**

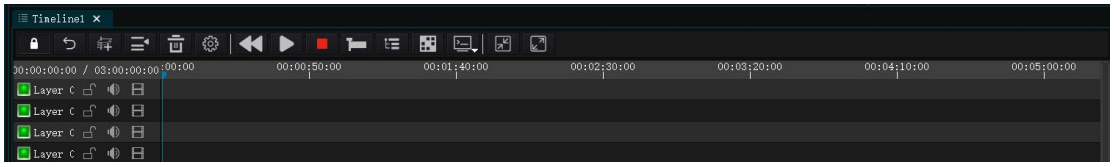
Click the button to adjust the overall volume output, which controls the global playback volume.

**Synchronous output**

Player is a real-time synchronous output broadcast control system. In multi-machine Online mode, if individual or partial screens are not synchronized, you can click the button to manually synchronize.

## Timeline

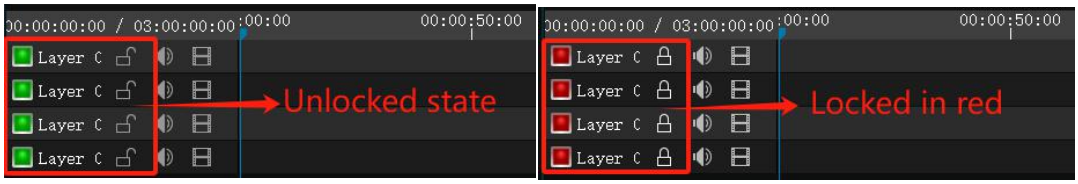
The timeline module is the core module of the Player broadcast control system. Video editing, command triggering, and network command control all need to be completed on the timeline.




**Timeline function button**

**Lock timeline**

Click the button to lock all layers in the current timeline, click again to unlock.




**Layers**

A layer is the location where media is placed on the timeline. Pictures on different layers can be superimposed. At the same moment, the priority of the upper layer is higher than that of the lower layer, unless the transparency of the layer is adjusted or it is It is a

material with a transparent channel.

**Add layer**

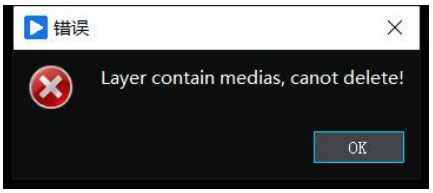
Click on the timeline button  to add layers. Layers cannot be added in the wired output state.

**Insert layer**

The difference between inserting a layer and adding a layer lies in the fact that adding a layer adds a layer at the very top, while inserting a layer adds a layer above the selected layer. Click the button  above the timeline to insert a layer. Note that inserting a layer is not available in the connected output state.

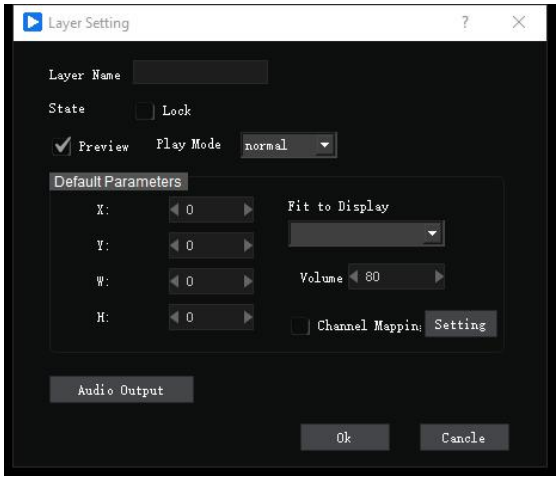
**Delete layer**

Use this function to delete redundant layers on the timeline. Click Delete Layer  above the timeline. Click the button to delete the selected layer. The layer cannot be deleted in the connection output state, and the layer cannot be deleted when it contains media.




**Layer settings**

Click the layer settings button  or double-click the layer name to open the layer settings dialog box.




**Layer name**: The default name is not numbered, and the layer name can be customized.

**Layer status**: When checked, the layer is locked. It is not locked by default.

**Preview**: The preview screen on the stage. After canceling, the preview cannot be done on the stage.

**Play mode**: Default normal mode, can be set to standby or always play.

**Default Geometric Position of Materials**: the coordinate position of the material on the stage after it is added to this layer. It can be preset to add materials later without having to go to the stage to adjust the coordinates.

**Adapt to screen**: After being bound to the screen, the material added to this layer will automatically match the bound screen.

**Lock a single layer**: Click the button on the current layer to lock it. Once locked, the media on this layer cannot be edited. Click again to unlock.

**Muting a Layer:** Click the button on the layer you want to mute. The layer will be muted, and clicking again will unmute it**.**

**Layer on standby**: Click the button on the layer you want to put on standby. The screen of this layer will output as black. Click again to remove it from standby.

**Go back to the previous point in time**

Click the button to return to the last position where playback started and pause at that position.

**Play**

Click the button to start playing all layers of the current timeline.

**Stop**

Click the button to stop all layers in the current timeline.

**Cursor**

**Cursor following**

When the button state is , after selecting media material on the timeline, there is no need to manually move the timeline cursor to the material position. The cursor will automatically follow, allowing for quick access to the material's timeline position. Additionally, without manually moving the cursor, you can click play to preview the material in real-time.

**Cursor does not follow**

When the button status is , the cursor is in the non-following state. At this time, after selecting media materials on the timeline, the cursor will not follow the mouse, and the cursor needs to be moved manually. At this time, operating the materials on the timeline will not affect the program playback.

**Find related resources**

When you need to quickly locate a media on a layer in the resource bar, you can select the media on the layer and click button to quickly locate the media in the resource bar.

**Positioning layer media on the stage**

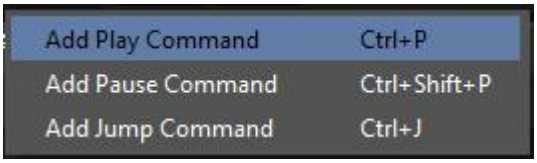
When you need to quickly locate the position of the media on the layer on the stage, you can click button to quickly locate media on the stage.

**Control commands**

The P layer media broadcast control system supports a variety of command controls. Play control commands can be added to the timeline to realize program loops, automatic switching of programs, and end of playback after completion.

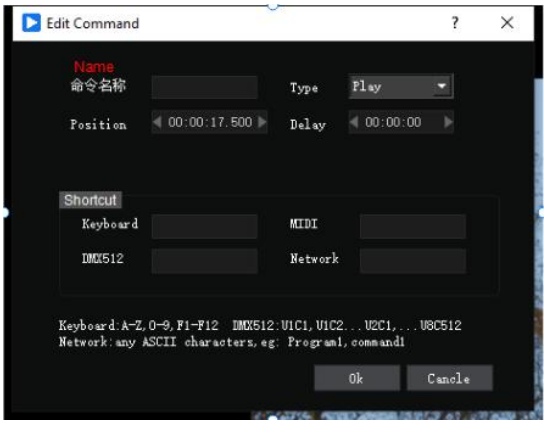
**Add control command**

Click button or right-click in the blank space of the timeline to add playback control commands. The playback control command types include play, jump, and pause.




**Play command**

After adding a play command, the play command icon appears on the timeline. This command can be freely moved along the timeline, and all layers share the same command at a specific time point. Double-clicking the play command with the mouse will take you to the play command editing page.




**Command name**: The name of the broadcast control command, generally used in conjunction with the jump command. You can set 0 - 9 or A - Z to be case sensitive.

**Type**: The type of play command defaults to play and does not need to be changed. Player broadcast control system commands can change the command type by editing the type.

**Position**: The position of the command on the timeline. You can drag it on the timeline to set it or edit the precise page settings.

**Delay**: The command takes effect after a delay after being triggered. Generally, it takes effect immediately. Can be set to more practical needs.

**Play command shortcut keys**

**Keyboard**

Set a keyboard-triggered shortcut key for quickly switching programs on the keyboard. You can set 0-9 or A -Z to be case-sensitive.

**MIDI**

MIDI is an external control device. The P layer playback control system supports external MIDI signals to control playback or pause.

DMX512: DMX512 is a lighting signal. The Player broadcast control system can use the DMX512 signal to play or stop synchronously with the lighting system.

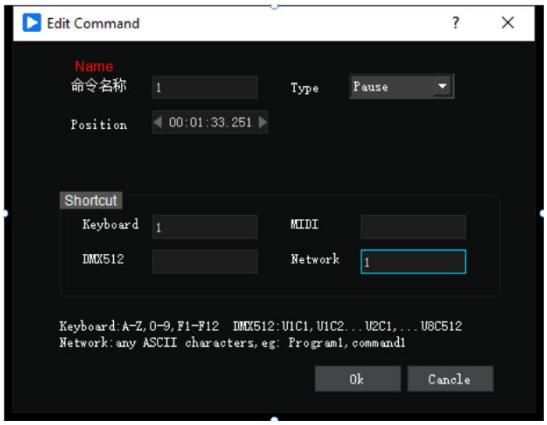
**Network**

The Player broadcast control system supports TCP / UDP protocol network control, and a Network shortcut key can be set to be used together with network control commands. For details of the command, please refer to the central control command description.

Under normal circumstances, the three setting shortcut keys of name, Keyboard, and Network are the same. In special circumstances, users can also set different shortcut keys by themselves.

**Pause command**

After adding the pause command, a pause command icon  will appear on the timeline. The command can be moved freely on the timeline. All layers share the same command at the same time point. Double-click the play command to enter the playback and pause editing page.




**Pause command shortcut key**

**Command name**: The name of the pause command, generally used in conjunction with the jump command. You can set 0 -9 or A -Z to be case sensitive.

**Type**: The type is paused and no changes are needed.

**Position**: The position of the command on the timeline. You can drag it on the timeline to set it or edit the precise page settings.

**Delay**: The command takes effect after a delay after being triggered. Generally, it takes effect immediately. Can be set to more practical needs.

**Keyboard**

Set a keyboard-triggered shortcut key for quickly switching programs on the keyboard. You can set 0-9 or A -Z to be case-sensitive.

**MIDI**

MIDI is an external control device. The Player playback control system supports external MIDI signals to control playback or pause.

DMX512: DMX512 is a lighting signal. The Player broadcast control system can use the DMX512 signal to play or stop synchronously with the lighting system.

**Network**

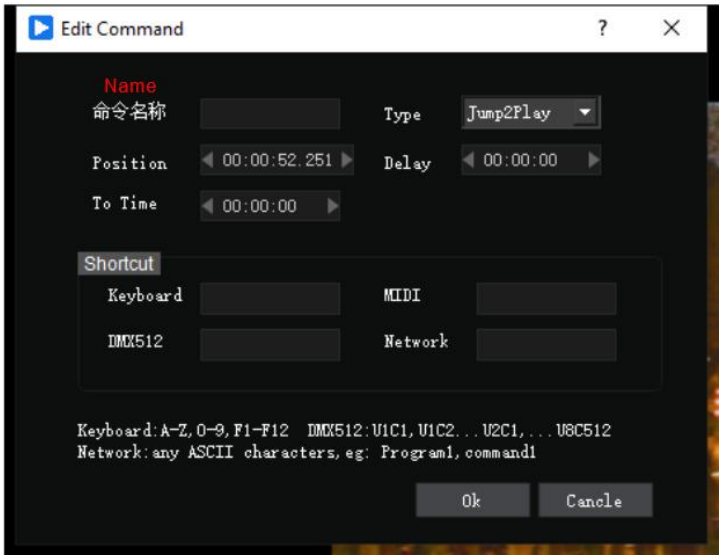
The Player broadcast control system supports TCP / UDP protocol network control, and a Network shortcut key can be set to be used together with network control commands. Under normal circumstances, the three setting shortcut keys of name, Keyboard, and Network are the same. In special circumstances, users can also set different shortcut keys by themselves.

**Jump command**

**Add jump command**

After selecting to add a jump command, the jump command icon appears on the timeline. Double-clicking the jump command icon opens the command editing page. Jump commands come in three types: jump and play, jump and pause, and jump to command.

**Play after the jump**




**Command name**: The name of the jump command. Generally, you don't need to set a name for the jump command. The jump command is a command that is automatically triggered on the timeline.

**Type**: Play after jump, this type jumps to a certain point in time and then starts playing from that point in time.

**Position**: The position of the command on the timeline. You can drag it on the timeline to set it or edit the precise page settings.

**Delay**: The command takes effect after a delay after being triggered. Generally, it takes effect immediately. Can be set according to actual needs.

**Keyboard**

Set a keyboard-triggered shortcut key for quickly switching programs on the keyboard. You can set 0-9 or A -Z to be case-sensitive.

**MIDI**

MIDI is an external control device. The P layer playback control system supports external

MIDI signals to control playback or pause.

DMX512: DMX512 is a lighting signal. The Player broadcast control system can use the DMX512 signal to play or stop synchronously with the lighting system.

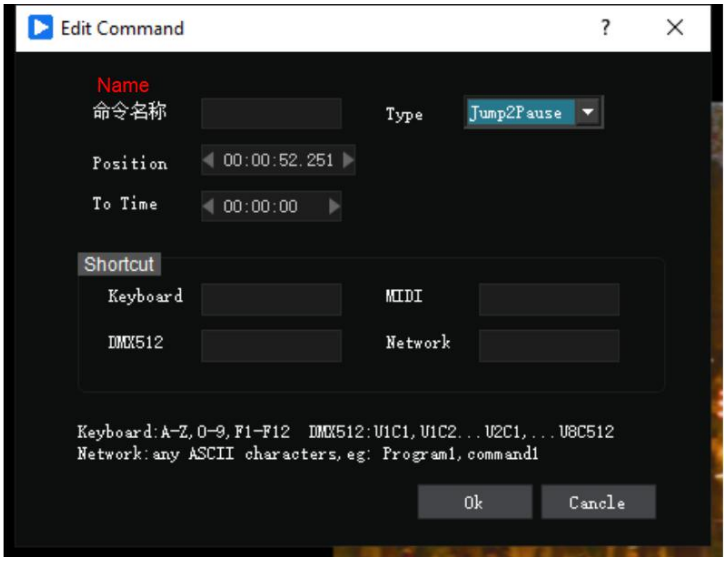
**Network**

The Player broadcast control system supports TCP / UDP protocol network control, and a Network shortcut key can be set to be used together with network control commands. For details of the command, please refer to the central control command description.

Under normal circumstances, the three setting shortcut keys of name, Keyboard, and Network are the same. In special circumstances, users can also set different shortcut keys by themselves.

**Pause after jump**

Pause after selecting jump within the type (as shown below)




**Command name**: The name of the jump command. Generally, you don't need to set a name for the jump command. The jump command is a command that is automatically triggered on the timeline.

**Type**: Pause after jump. This type jumps to a certain point in time and then pauses playback until the user manually plays it.

**Position**: The position of the command on the timeline. You can drag it on the timeline to set it or edit the precise page settings.

**Delay**: The command takes effect after a delay after being triggered. Generally, it takes effect immediately. Can be set to more practical needs.

**Keyboard**

Set a keyboard-triggered shortcut key for quickly switching programs on the keyboard. You can set 0-9 or A -Z to be case-sensitive.

**MIDI**

MIDI is an external control device. The P layer playback control system supports external

MIDI signals to control playback or pause.

DMX512: DMX512 is a lighting signal. The Player broadcast control system can use the DMX512 signal to play or stop synchronously with the lighting system.

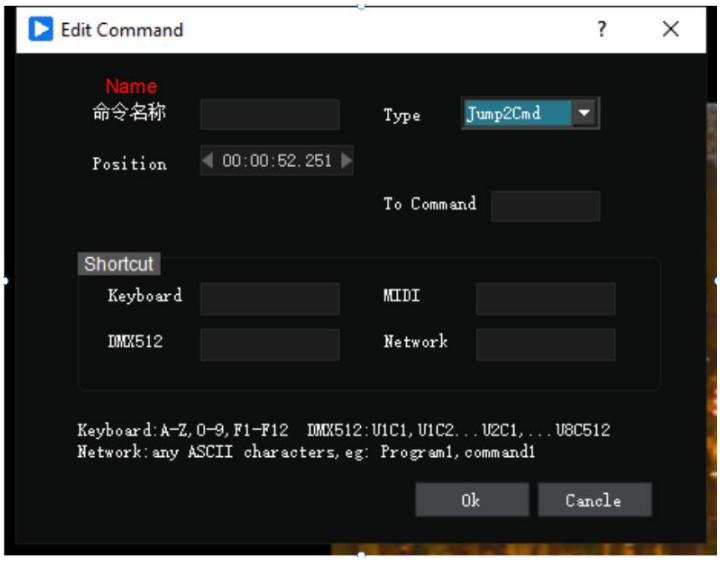
**Network**

The Player broadcast control system supports TCP / UDP protocol network control, and a Network shortcut key can be set to be used together with network control commands. For details of the command, please refer to the central control command description.

Under normal circumstances, the three setting shortcut keys of name, Keyboard, and Network are the same. In special circumstances, users can also set different shortcut keys by themselves.

**Jump to command**

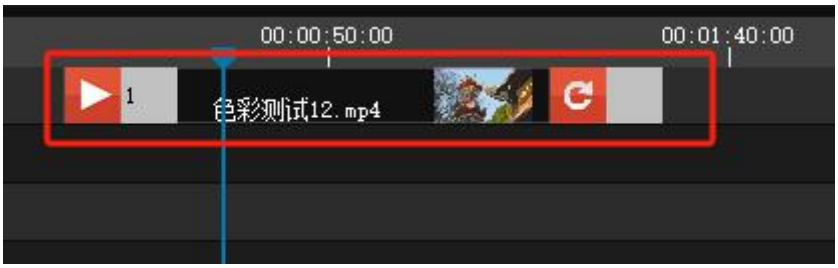
Type selection to jump to command (as shown below)




**Command name**: The name of the jump command. Generally, you don't need to set a name for the jump command. The jump command is a command that is automatically triggered on the timeline.

**Type**: Jump to command, this type jumps to a certain point in time and then pauses playback until the user manually plays it.

**Jump to command**: Fill in the name of the command to jump to, which can be a play command or a pause command. Use this function in conjunction with the play command to achieve loop playback of the program. As shown in the figure below, the name of the play command is 1, the jump command type is jump to command and the jump command parameter is filled with 1, then the player will loop between play command 1 and the jump command.




**Keyboard**

Set a keyboard-triggered shortcut key for quickly switching programs on the keyboard. You can set 0-9 or A -Z to be case-sensitive.

**MIDI**

MIDI is an external control device. The Player playback control system supports external MIDI signals to control playback or pause.

DMX512: DMX512 is a lighting signal. The Player broadcast control system can use the DMX512 signal to play or stop synchronously with the lighting system.

**Network**

The Player broadcast control system supports TCP / UDP protocol network control, and a Network shortcut key can be set to be used together with network control commands. For details of the command, please refer to the central control command description.

Under normal circumstances, the three setting shortcut keys of name, Keyboard, and Network are the same. In special circumstances, users can also set different shortcut keys by themselves.

**Zoom timeline**

**Zoom into timeline**

Click button to enlarge the timeline scale until it reaches a maximum of 1: 1.

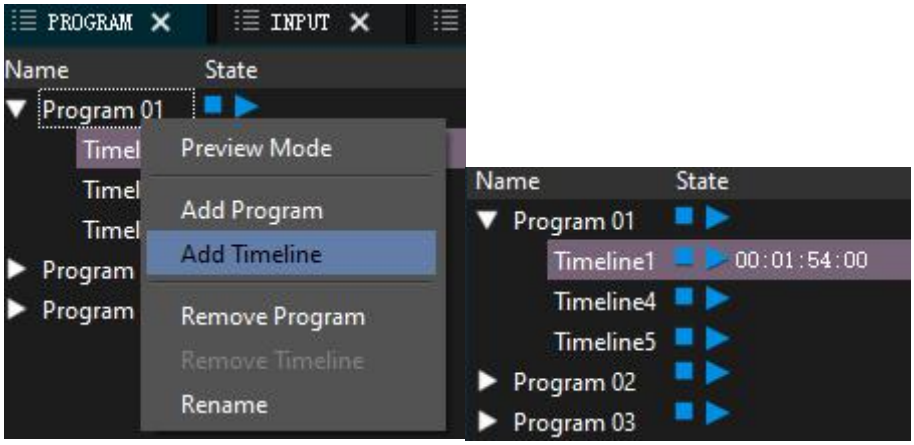
**Zoom out timeline**

Click button to zoom out of the timeline until everything fits on the screen.

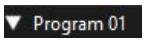
**Multiple timelines**

**Add timeline**

Click the button ▼ Program 01 , then choose "Add Timeline" from the right click menu to add a timeline. It is advisable not to add more than 6 timelines each time.



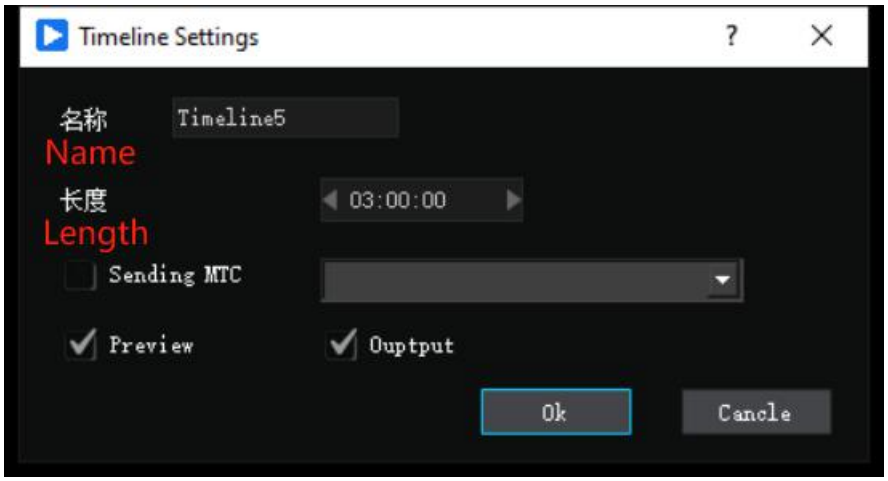

**Delete timeline**

Click the button 

, then select "Delete Timeline" in the dropdown menu. The timeline to be deleted is the one selected by the mouse, and it can only be deleted if there are no media files on the timeline. Each operation deletes one timeline.

**Timeline settings**

Right-click on a blank space in the timeline and select Timeline Settings to enter the settings page. (As shown below)




**Send MIDI timecode**

MIDI timecode of this timeline, and you can select the output device (if it exists).

**Preview**

Preview screen on stage.

**Output**

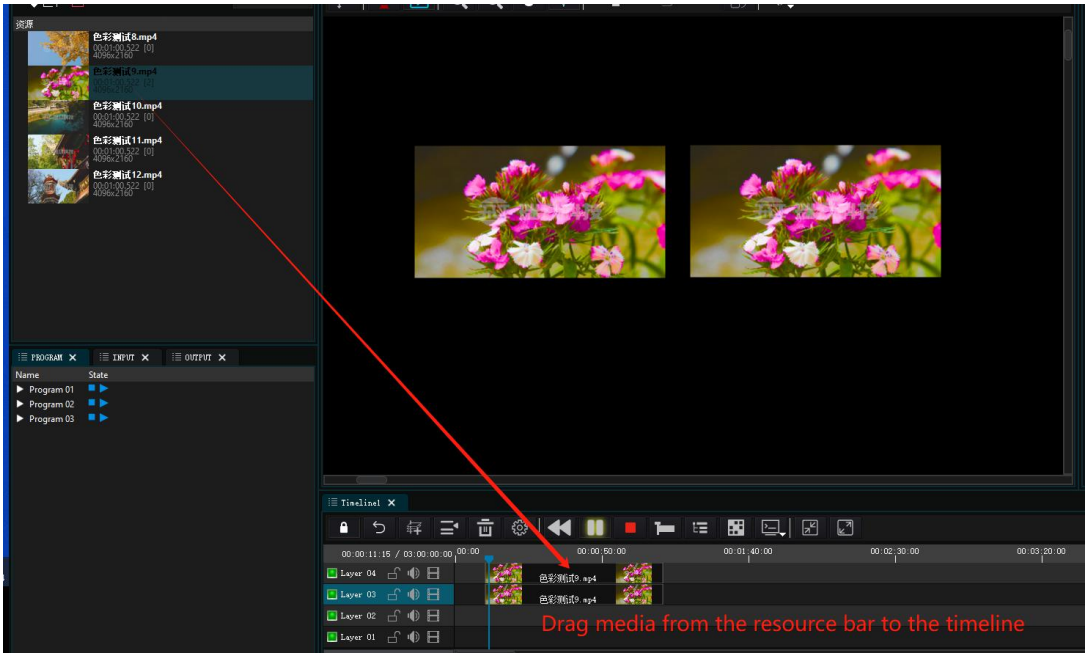
The time is spent on media output to the screen.

The preview and output functions can be used for pre-editing operations, editing the program without affecting the content output.

**Add media to timeline**

trol system adopts a drag-and-drop method to add media to the timeline. After adding the media to the resource panel, you can use the left mouse button to select the media you want to add. Then, hold down the left mouse button and drag the media to any position on

the timeline.

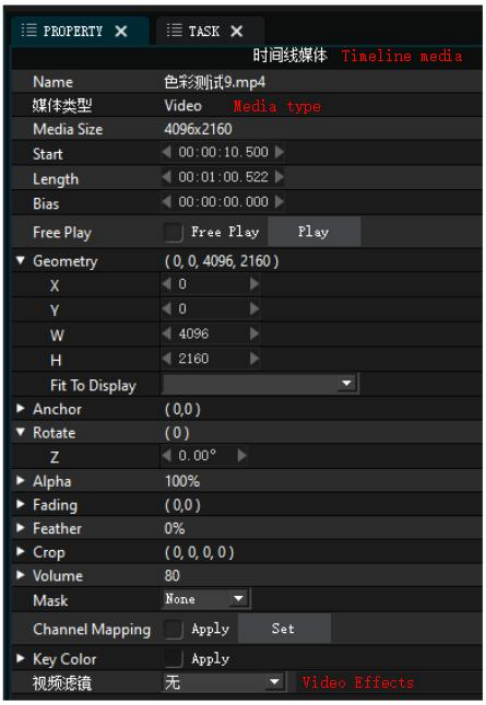



## Attributes

The attribute panel of the Player broadcast control system is located at the top right of the software. The attribute panel can display screen attributes and media attributes. When a screen is selected, the panel displays the corresponding screen attributes, and when media is selected, the attribute panel displays media information.

Media properties

When the media is selected, the property bar displays the properties of the current media, and the media parameters can be adjusted according to actual needs.




**Name**: The name of the current media.

**Type**: The type of current media. Such as: videos, pictures, audios, capture cards, etc.

**Start**: The position of the current media on the timeline.

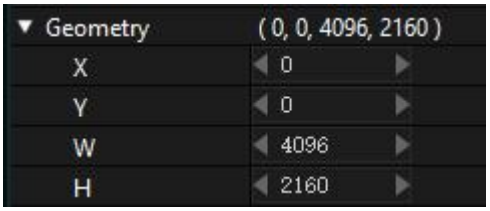
**Length**: The duration length of the current media.

**Bias**: It allows you to set the start playback time for the current media. For example, if you have a 1-minute video, by default, it starts playing from the first second. However, if you set a playback offset of 30 seconds, the first 30 seconds will be skipped, and the video will start playing from the 31st second when you play it.

**Free play**: After checking, the media is not controlled by the timeline and can be freely played and paused using the adjacent play button.

**Material size**: The resolution of the current material, which cannot be edited.

**Geometry** (Scaling): X and Y represent the coordinate positions of the media on the stage, while width and height can be adjusted according to the actual situation. For example, if the screen size is 3840*2160 and the media size is only 1920*1080, you can adjust the width and height to scale the media to fit the screen.

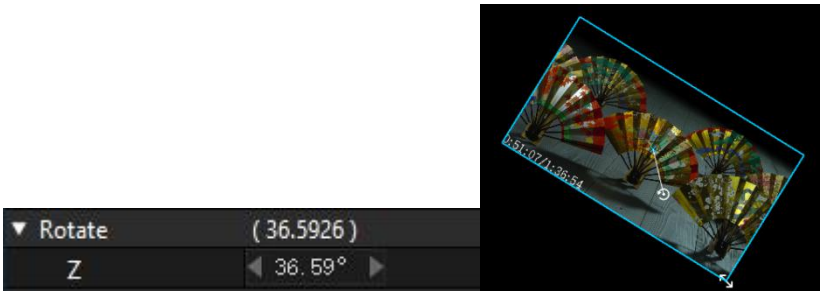



**Fit to display**: Quickly adapt to the screen in the system. Click the drop-down list to select the screen to be adapted. After adaptation, the media and the screen will automatically match and play full screen.

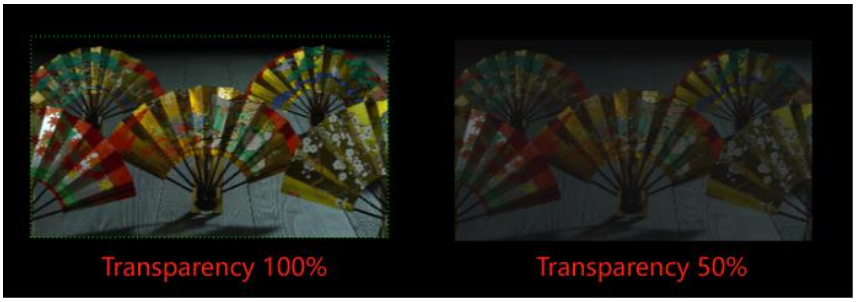

**Anchor**: The anchor point is a center point of the media on the stage. The default position is 0, 0 in the upper left corner. The function of the anchor point is that when you scale or rotate the media, the media will be scaled or rotated around the anchor point.


Anchor point is in the upper left corner  Anchor point in the middle

**Rotate**: Rotate the material by inputting an angle for rotation. You can also use the mouse to manipulate the anchor point for rotation. Supports 360-degree rotation.

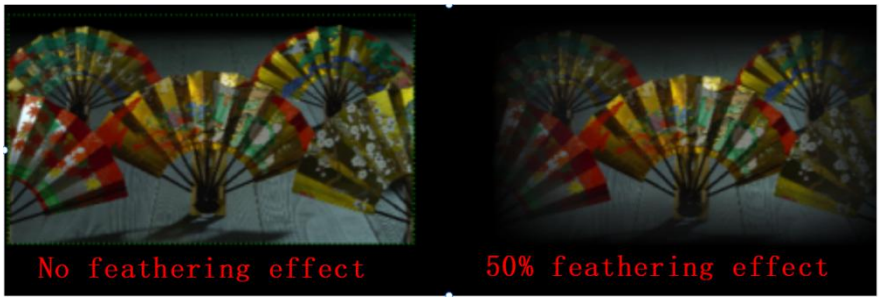



**Alpha**: Setting this parameter will make the current material appear transparent. The lower the value, the more transparent it will be.

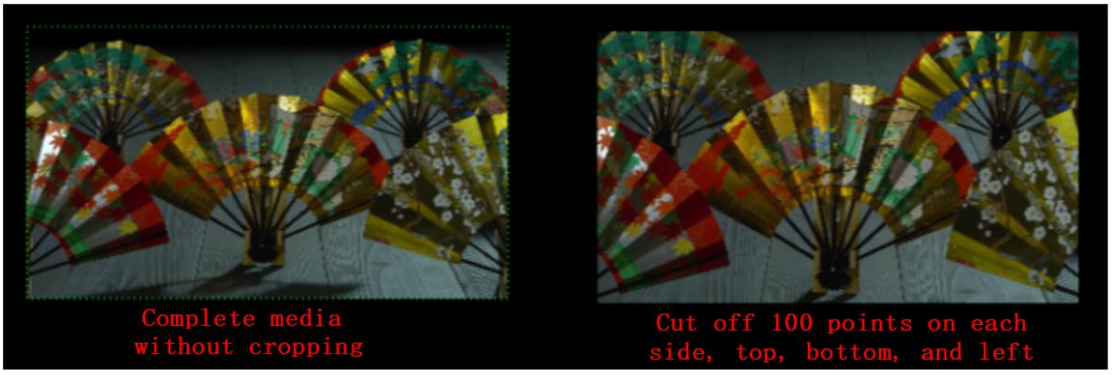



**Fading**: Set the fading effect when switching programs. After setting, program switching will not appear stiff. You can just set the duration according to your preference.


**Feather**: Set the media edge feathering effect. The lower the value from 0 to 100%, the more obvious the effect will be.

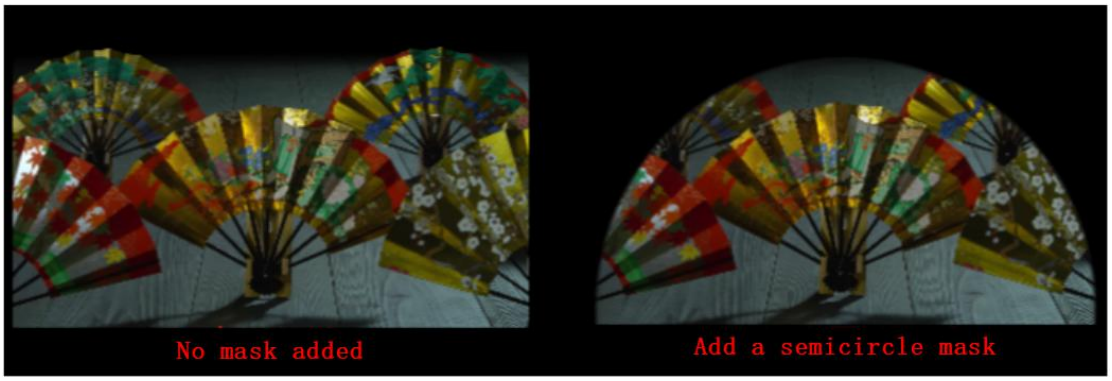



**Crop**: Crop the current media and cut off the unnecessary parts on the top, bottom, left, and right sides of the media. The unit of cropping is points.




**Volume**: Set the volume of the media individually.


**Mask**: Add a mask effect to the media, with built-in circular, heart-shaped, diamond-shaped masks, etc. Currently, custom masks are not supported.

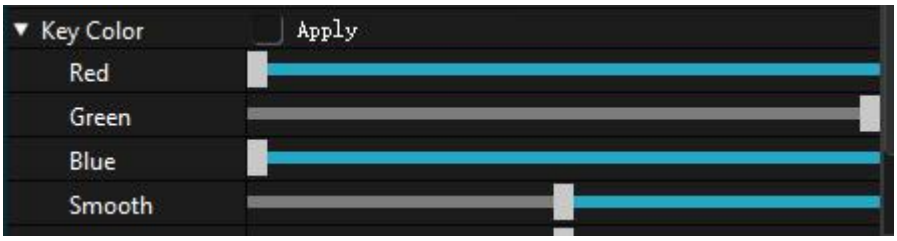



**Channel Mapping**: The Player broadcast control system supports multi-channel mapping. The audio of different layers can be mapped to different channel outputs through settings. 8-channel audio can be output independently using a 7.1 sound card.

1. Check Enable in Channel Mapping. 

2. Click Settings to enter the setting page and specify a channel to output audio.

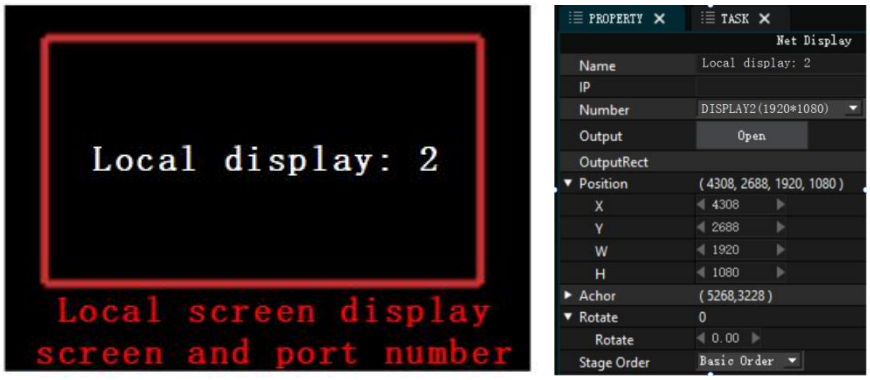

**Key color**: Cutout refers to subtracting a specific color to a transparent color. Users set corresponding parameters according to their needs to achieve the desired effect.




**Screen Properties**

**Local Screen**

The local screen is connected to the output port of the local machine except for the main display in all-in-one mode. As shown in the figure, the name of the local screen will be displayed in the middle of the local screen by default, with the port number appended. The name can be changed.




Name: The name of the screen, which can be modified according to the situation.

Type: The screen type is divided into local screen and network screen. The two types cannot be switched.

Serial number: The output port number corresponding to the screen. Changing this will change the output order.

Output range: The output size of the screen. Generally, the output will be as large as the screen resolution.

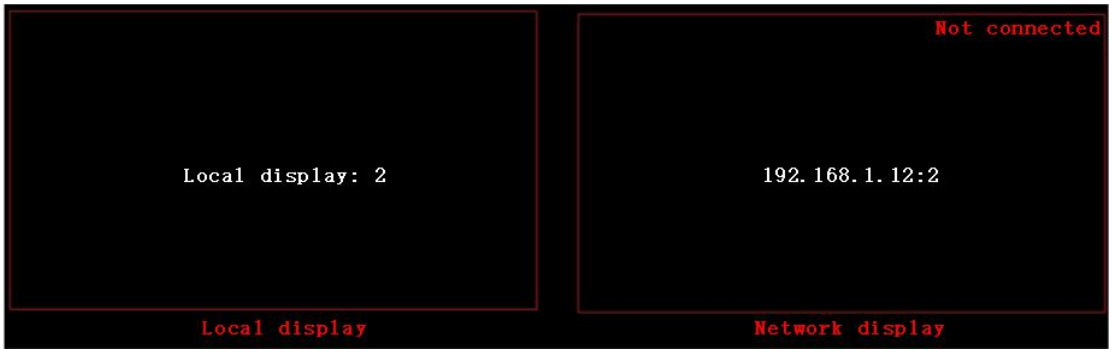
Position: The position of the screen on the stage. Set the position and size parameters or drag the screen with the mouse on the stage to change the parameters.

Anchor point: The anchor point (center point) of the screen.

Rotate screen: Set whether to rotate the screen according to the project conditions, and the rotation angle can be set freely.

**Web Screen**

In Online mode, a network screen can be added, and the effect is the same as the local screen.




Unlike the local screen, the network screen has a connection status prompt in the top right

corner. When the display terminal is functioning normally, the text in the top right corner will appear white with the label "connected". If the screen goes offline, it will display "disconnected" and the color will change to red.

## Scheduled task control

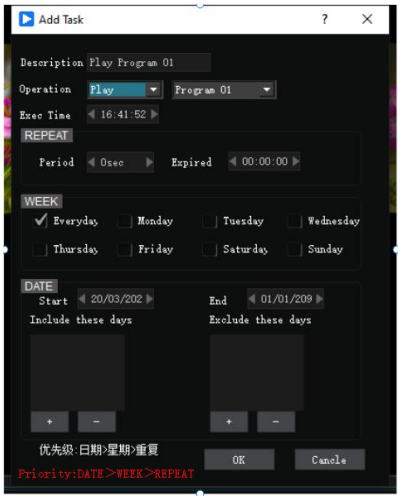
The Player broadcast control system supports customized scheduled task control, allowing users to create scheduled tasks according to their needs. The program will automatically execute tasks based on the settings.

**Add playback task plan**

Click on the top right of the software Mission control options 

, enter the mission schedule window. Click Add again button 

to add a scheduled task in the pop-up Add Scheduled Task panel.




Operation: Select play here.

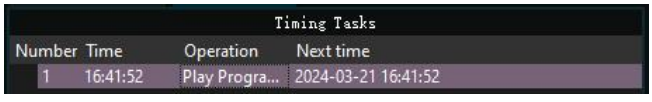
Program: Refers to the timeline corresponding to the scheduled task, which users set according to project requirements.

Execution time: Refers to the time when the scheduled task is triggered. By default, it is set to daily, but users can specify a specific date.

Dates for Guaranteed Execution: This has a higher priority, ensuring that the dates listed will always be executed.

Dates for Non-Execution: This has a higher priority, ensuring that the dates listed will never be executed.

After the settings are completed, click OK and you can see the added playback task in the task list.




Finally, check the box 

to enter the scheduled operation state.

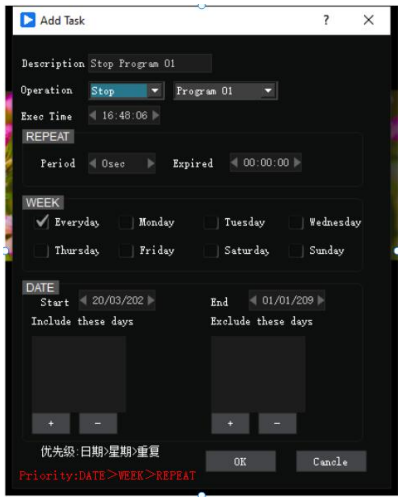
The system will trigger timing tasks.

**Add stop task schedule**

Click on the "Task Control" option 

located at the top right of the software to enter the Task Schedule window. Then, click on the "Add" button 

. In the popped-up panel for adding a task plan, add the stop task plan.




Operation: Select "Stop" in this field.

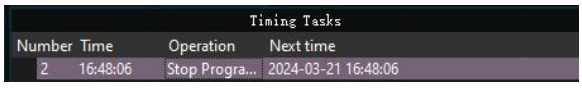
Program: Refers to the timeline corresponding to the scheduled task, which users set according to project requirements.

Execution time: Refers to the time when the scheduled task is triggered. By default, it is set to daily, but users can specify a specific date.

Dates for Guaranteed Execution: This has a higher priority, ensuring that the dates listed will always be executed.

Dates for Non-Execution: This has a higher priority, ensuring that the dates listed will never be executed.

After the settings are completed, click OK and you can see the added playback task in the task list.




Finally, check the box 

to enter the scheduled operation state.

The system will trigger timing tasks.

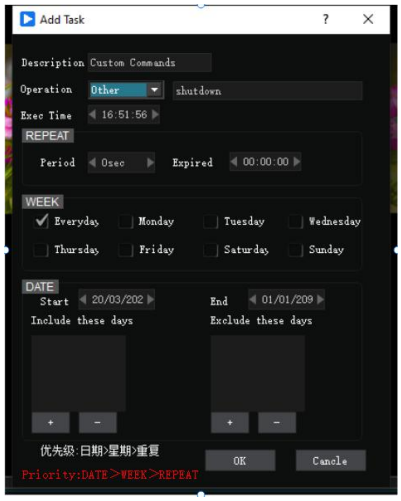
**Add Shutdown Task Plan**

The shutdown command will shut down the server. Please add it carefully based on the actual situation.

Click on the top right of the software Mission control options 

, enter the mission schedule window. Click Add again button 

to add a scheduled task in the pop-up Add Scheduled Task panel.




Operation: Select "Shutdown" in this field.

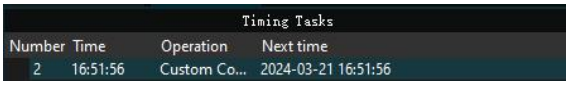
Timeline: Refers to the timeline corresponding to the scheduled task, which users set according to project requirements.

Execution time: Refers to the time when the scheduled task is triggered. By default, it is set to daily, but users can specify a specific date.

Dates for Guaranteed Execution: This has a higher priority, ensuring that the dates listed will always be executed.

Dates for Non-Execution: This has a higher priority, ensuring that the dates listed will never be executed.

After the settings are completed, click OK and you can see the added playback task in the task list.




Finally, check the box 

to enter the scheduled operation state.

The system will trigger timing tasks.

**Add jump task plan**

Click on the top right of the software Mission control option 

, enter the mission schedule window. Click Add again button 

to add a scheduled task in the pop-up Add Scheduled Task panel.


Operation: Select "Jump" in this field. Underneath, fill in the command name to which you want to jump. This command can be on any timeline.

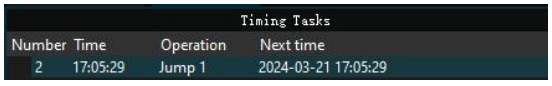
Timeline: Refers to the timeline corresponding to the scheduled task, which users set according to project requirements.

Execution time: Refers to the time when the scheduled task is triggered. By default, it is set to daily, but users can specify a specific date.

Dates for Guaranteed Execution: This has a higher priority, ensuring that the dates listed will always be executed.

Dates for Non-Execution: This has a higher priority, ensuring that the dates listed will never be executed.

After the settings are completed, click OK and you can see the added playback task in the task list.




Finally, check the box 

to enter the scheduled operation state.

The system will trigger timing tasks.

**Delete scheduled tasks**

Select the scheduled task that needs to be deleted and click the Delete button 

.

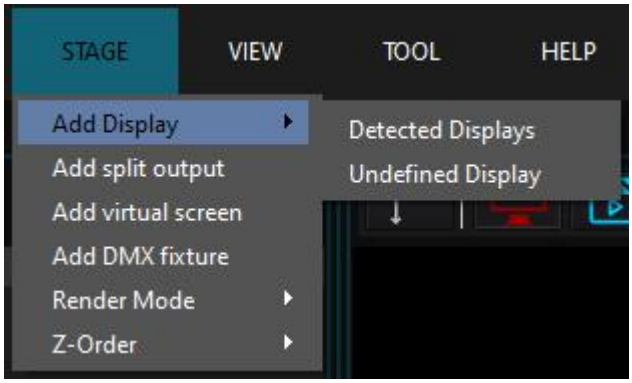
The selected scheduled task will be deleted.

# Appendix

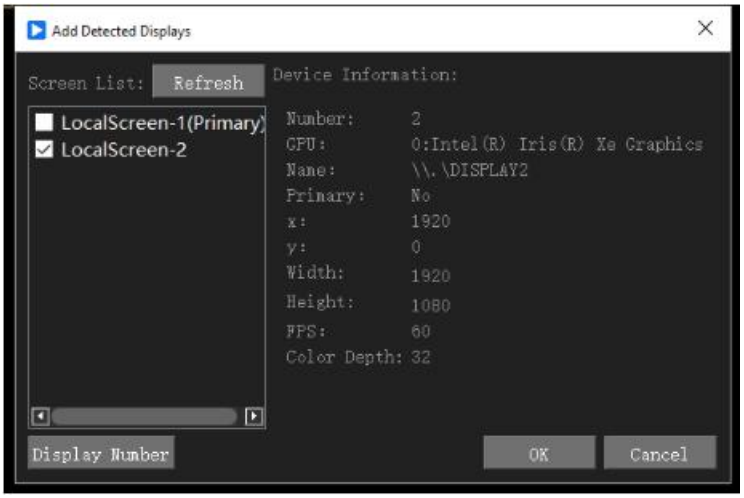
## Appendix I: Quick Start Guide

1.Screen management

First, add a display screen: as shown in the figure, go to Stage -----> Add Display -----> Detected Displays.



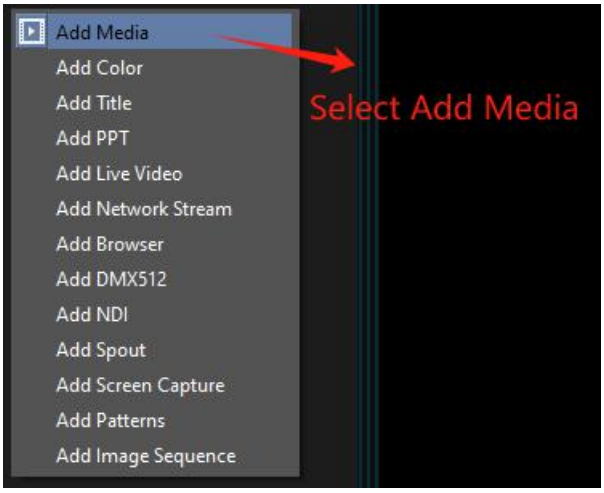

Select the connected display screen in the pop-up box and click OK to add it after selection.




After the addition is completed, as shown below: the position of the display box (red) can be moved and arranged.

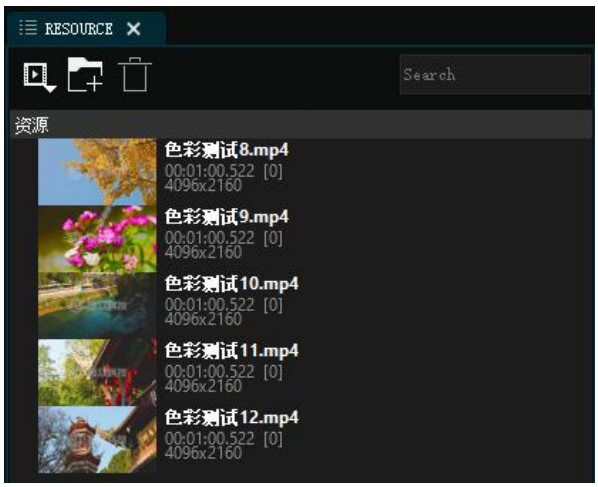
2. Add media

Select the material library in the resource management window, right-click and select Add Media.



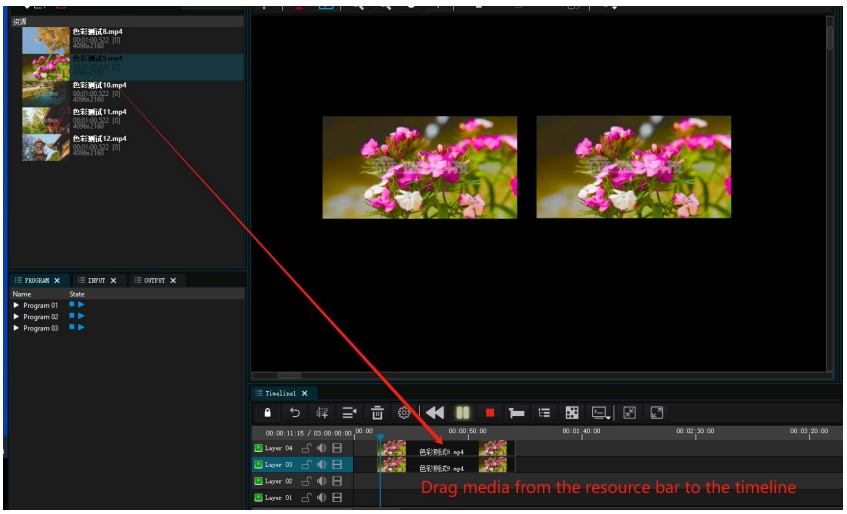

Browse to the media storage path in the pop-up dialog box, select the media to be added and click Open. (As shown below)


After clicking "Open," you will be able to see the media we added in the resource panel of the software. (As shown below)



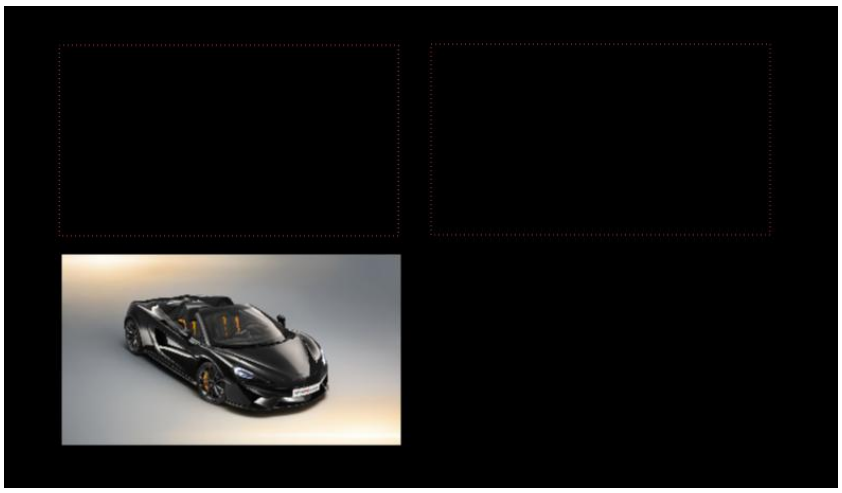
3. Add media to the timeline

Select the media you want to add in the resource bar, hold down the left mouse button and drag it to the timeline to add the media to the timeline.



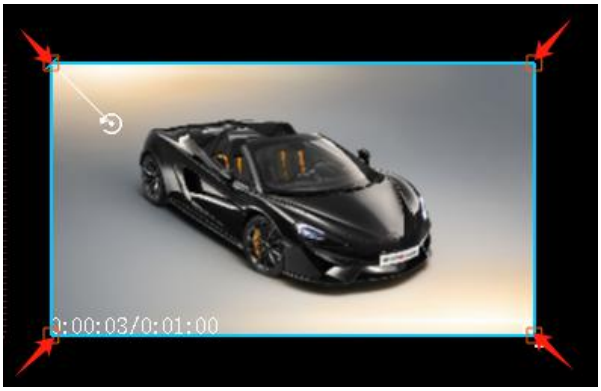

4. Edit media and screen position

After adding the media to the timeline, a preview of the media will appear on the stage (as shown below). At this time, we need to manually adjust the relationship between the media and the screen. It can also be pre-adjusted in the layer properties.



Clicking on the "Media" button 媒体 switches to the media editing mode. At this point, you can freely move the media around the stage. (As shown below)

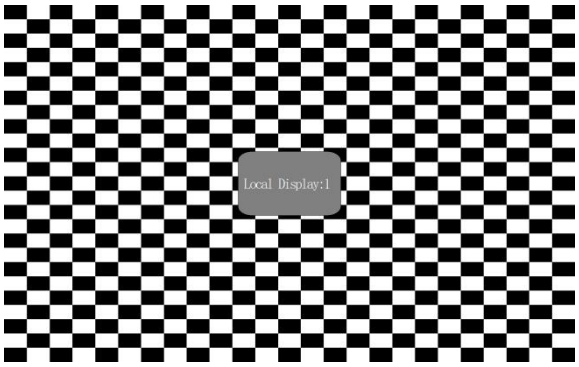
Move the media into the display frame. When small boxes appear at the four corners of the display frame, it means that the media overlaps and fills the display frame. (As shown below)




At this time, the screen can be output in full screen.

5. Outputting the Display

After adjusting the positions of the assets, you can click on the "OUTPUT" and "LINK" buttons in the top right corner to output the current display. If only "OUTPUT" is clicked, the output will be a black and white grid. (As shown below)

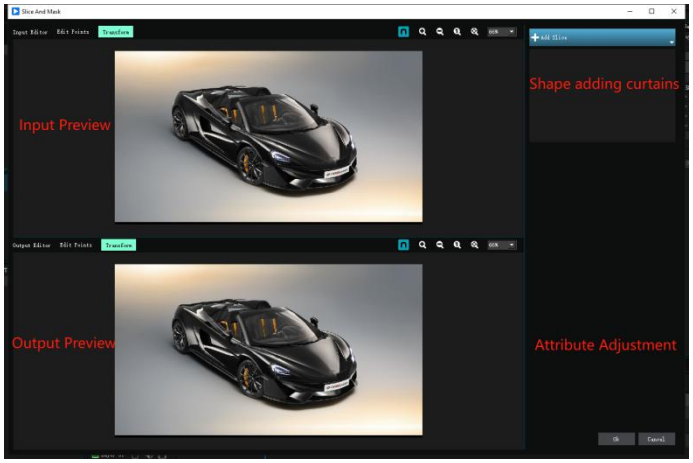



The media display will only be output when both "OUTPUT" and "LINK" are open simultaneously.

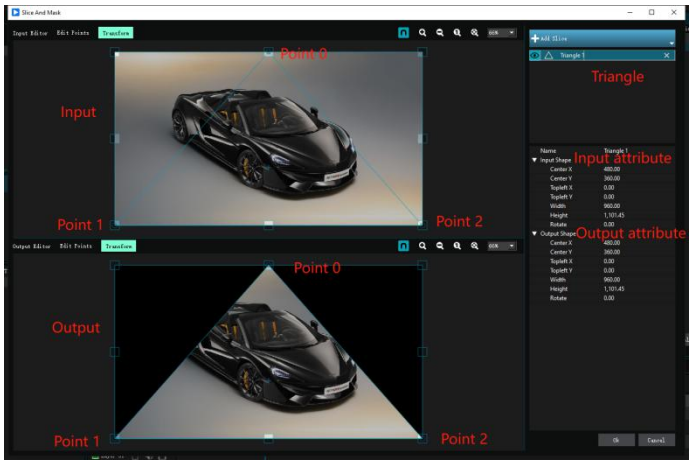
6. Slicing and Masking

Click the button  to switch to screen editing mode. Select the screen frame that needs to be sliced, then right-click and choose the "Slice and Mask" menu 

. This will take you to the slice and mask editing window. (As shown in the image below)




Slicing supports triangles, squares, ellipses, and polygons. Users can add them according to their actual needs. The slicing effect is displayed in real-time. Taking a triangle as an example, add a triangular mask. (As shown in the image below)



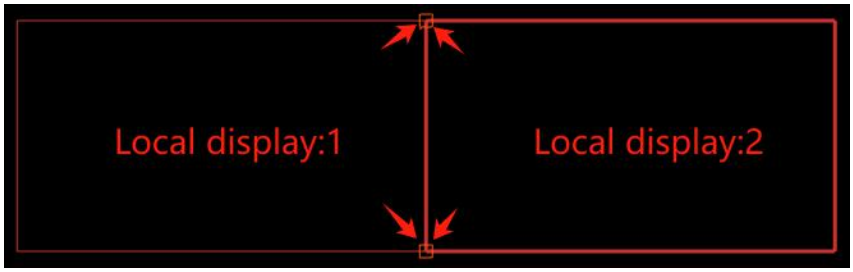

Users can individually adjust the size of the output and input screen position triangles, etc. The coordinates of each point can be adjusted in detail in the property bar on the right. Click OK after the adjustment is completed.

The output screen after slicing.

7.Multiple display splicing

Player supports multi-port display splicing. After adding screens to the stage, we can splice the screen frames together to complete the splicing of multiple displays. As shown in the picture below, there is an adsorption effect when the display is spliced, and there

will be a small square prompt on the corner of the splicing joint.



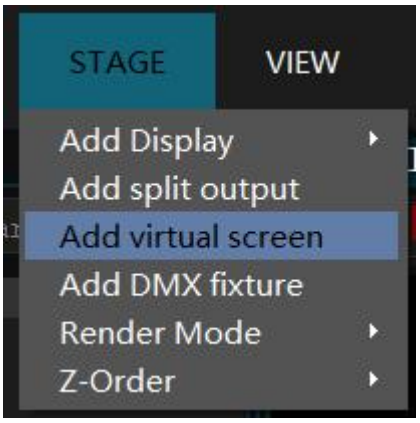

After the screens are spliced, the material can be spread across the two screens to achieve splicing playback.

8.Virtual screen

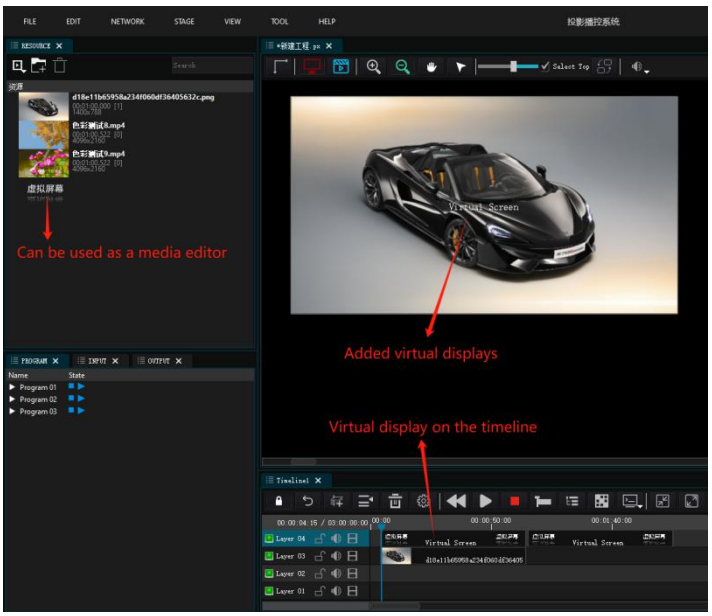
Virtual screen description: The virtual screen collects and plays the programs in stage management in real time. The virtual screen size, rotation and other effects can be adjusted freely, such as camera splicing, camera close-ups, live broadcast interception, special-shaped screen playback and other functions.

Add virtual screen

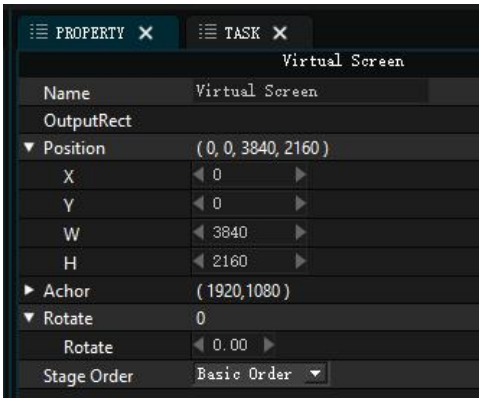
Add a virtual screen to the resource management window by selecting "Add Virtual Screen" on the stage menu.



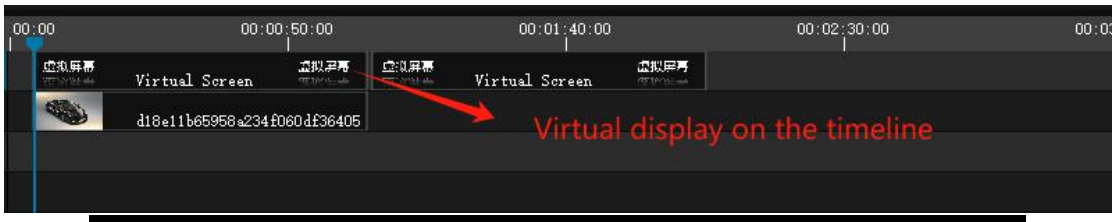

At this point, the virtual screen displayed in the stage management is used to real-time capture media resources. Add the media you want to play from the stage management to the virtual screen. Then, in stage editing mode, double-click on the virtual screen in stage management to set parameters such as size, position, and angle. Alternatively, you can click on the virtual screen, or in the resource window, click on the screen management menu, and then double-click on the virtual screen option displayed in the management menu to set parameters such as size, position, and angle for the virtual screen.

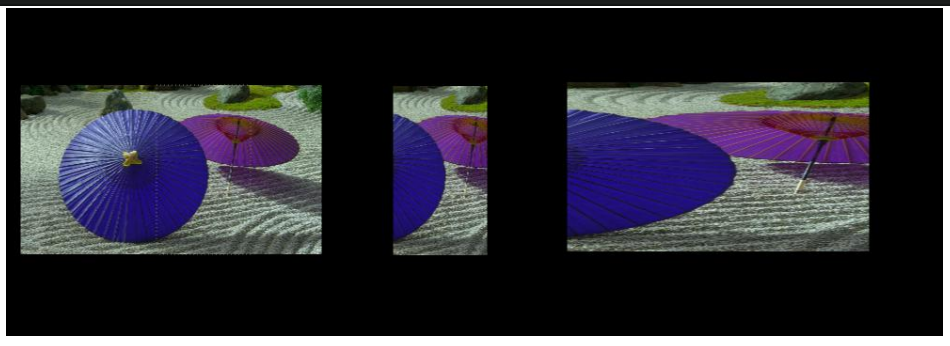



Then, in screen editing mode, click and drag the virtual screen from the stage management to the desired position. Alternatively, you can directly input coordinates in the virtual screen property to change its position.




Then add the virtual screen media resource to the timeline or to the program window in the program management.



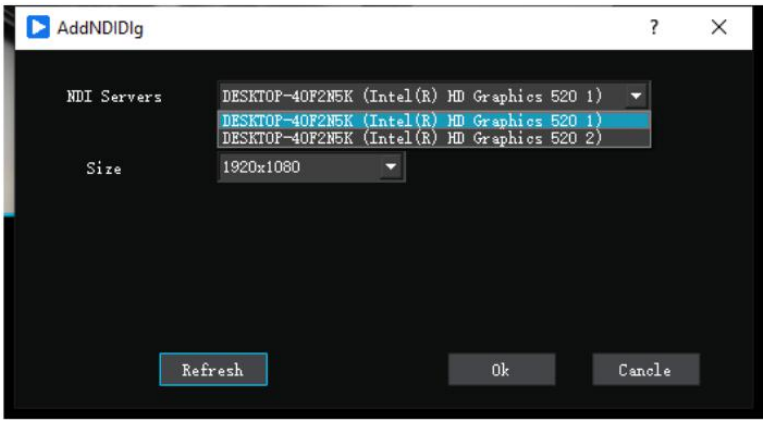



Now you can play the media that is being captured in real-time. You can adjust the position, size, and effects as needed, following the same methods as adjusting media resources.

9. Add NDI network acquisition

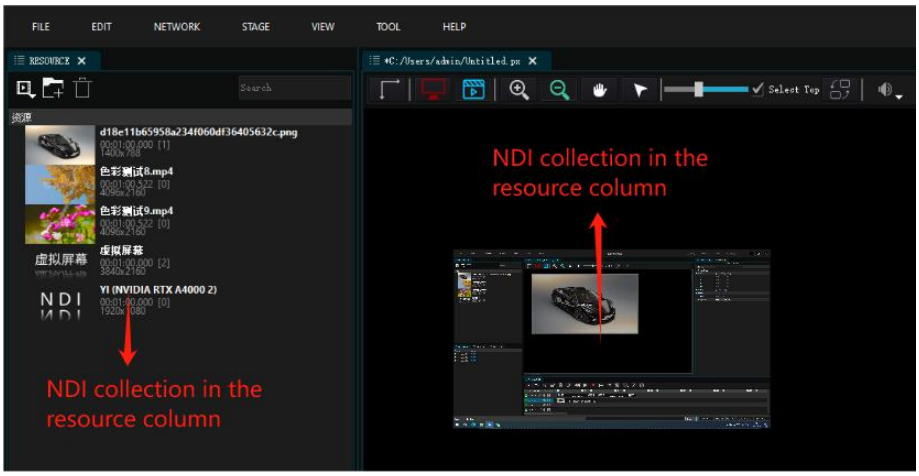
To set up the NDI device environment, install the NDI TOOLS software on the computer being captured. If not installed, you can visit the following link to download and install it: https://www.ndi.tv/tools/. After installation, open the Virtual Input and Scan Converter tools in the NDI Tools. Refer to the image below.

Then add an NDI resource in the resource column of the Player broadcast control system. If the computer to be collected has multiple display screens, you can select the screen that needs to be collected when adding. As shown below.




After selecting the screen to be collected, click OK.

Then add the NDI resource to the timeline to capture the screen of another computer.



## Appendix II: Multi-machine online

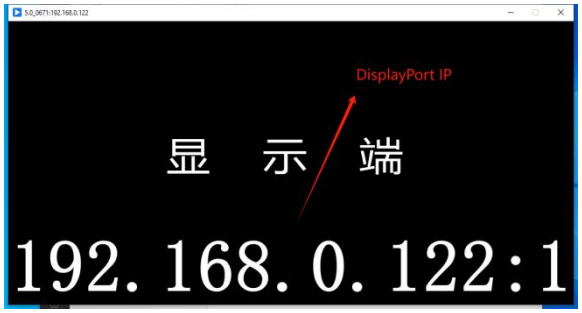
The Player broadcast control system supports LAN cascading mode operation.

Connecting two servers within the same LAN enables communication testing between the two machines using the "ping" command.

1. Run the display terminal

Run the display software on the display server. (requires encryption lock)


After running, the display software interface appears. As shown below.



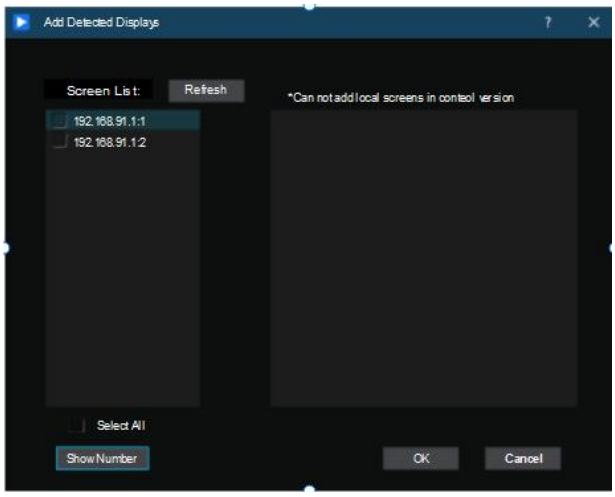

2. Run the control terminal

Run the control terminal software on the control terminal. Refer to the image below.


The control software does not require a dongle, but it cannot output the local port and can only add a network screen.

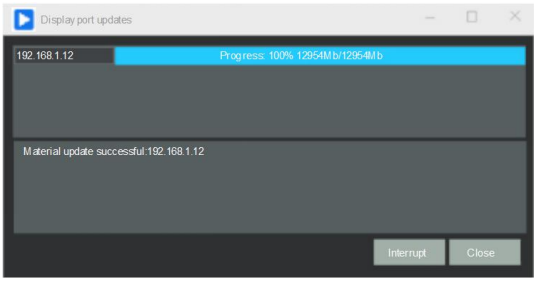
3.Add network screen

At this point, adding screens will display the screens as IP network screens. As shown below.




Check Network Screen and click OK to add the screen to the stage. (As shown below)


The usage method of network screens is the same as local screens, but there is a media synchronization process before output. We just need to wait for the software to fully synchronize the media. (As shown in the image below)




## Appendix III: Frequently Asked Questions

1. The software crashes after opening the software or project.

This situation is usually due to improperly installed graphics drivers.

Solution: If you have a professional card like the RTX4000, download the corresponding graphics drivers from the official website forum and reinstall them.

Link: https://www.nvidia.cn/Download/index.aspx?lang=cn

If it's a non-professional graphics card, you can download DriverGenius and use it to update the graphics card driver.

2. Stuttering during playback of high-resolution videos.

The main reason for the stuttering of high-resolution videos is usually due to excessively high resolution or bitrate. In most cases, transcoding is needed to resolve this issue.

Recommended formats and codecs:

| Resolution | Frames/ Second | Recommended code rate | Encoding format | Packaging format |
|---|---|---|---|---|
| 1280*720@30 | 30 | 5Mbp/s | H.264\|MPEG2 | MP4/MOV/MKV\|MPG |
| 1920*1080@30 | 30 | 10-15 Mbp/s | H.264\|MPEG2 | MP4/MOV/MKV\|MPG |
| 1920*1080@60 | 60 | 25-35 Mbp/s | H.264\|MPEG2 | MP4/MOV/MKV\|MPG |
| 3840*2160@30 | 30 | 50-70 Mbp/s | H.264\|MPEG2 | MP4/MOV/MKV\|MPG |
| 3840*2160@60 | 60 | 80-120 Mbp/s | H.264\|MPEG2 | MP4/MOV/MKV\|MPG |
| 7680*4320@30 | 30 | 130-160 Mbp/s | H.264\|MPEG2 | MP4/MOV/MKV\|MPG |
| 7680*4320@60 | 60 | 200 Mbp /s | H.264 | MP4/MOV/MKV\|MPG |

| | | | | |
|---|---|---|---|---|
| | | | \|MPEG2 | |

3. When opening the software, it prompts that there is no authorization information. Please confirm whether the encryption dongle is plugged into the host machine. If it is not, please insert the encryption dongle. If after inserting the encryption dongle you still receive a prompt indicating no authorization, you need to check if the driver for the encryption dongle is successfully installed. Check if there is an icon like this in the bottom right corner of the desktop. If not, you will need to reinstall the encryption dongle driver. The driver's name is CodeMeterRuntime.exe. Simply double-click it to install the software by default.

4. The software timeline runs faster than normal (sound card driver problem)
Download Driver Life and update the sound card driver to the latest version.

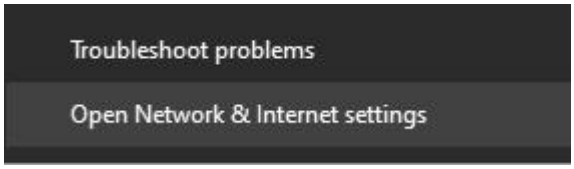
5. The software opening prompt indicates the maximum number of users.


This situation belongs to repeated software openings.
Solution: Firstly, check the system's taskbar to see if any instances of the Player broadcast control system are running. If so, close all instances of the Player broadcast control system, and then reopen the program.

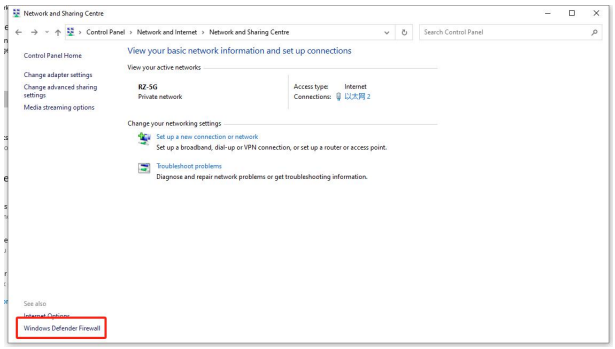
6. After debugging the software, shut down and then restart, the output resolution is incorrect.
Causes: （1）The output sequence is disordered, resulting in the order of output channels with different resolutions being swapped. （2） EDID errors are caused by cable transmission.
Solution: Lock EDI
7. Setting up primary-backup and multi-host interconnected local area network (LAN).
（1）Set the hosts to different fixed IPs, and the IP addresses need to be in the same network segment. For example, the host IP is: 192.168.1.2, and the backup IP is:

192.168.1.3;

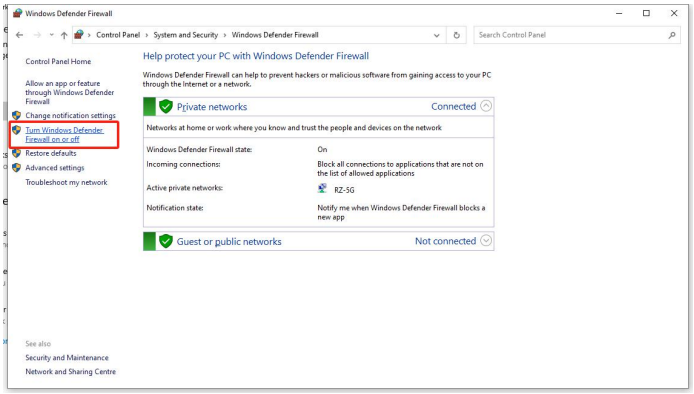
（2）Turn off the system firewall. Right-click the network icon on the taskbar and click to open Network and Sharing Center.



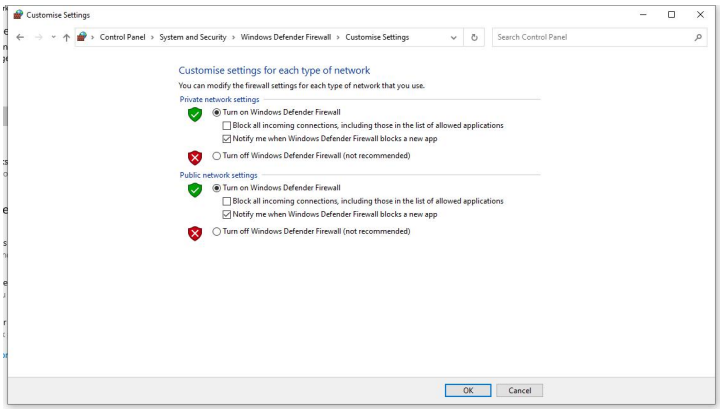

Click Windows Firewall in the interface.




Then click Turn firewall on or off.




Then set both the public network and the private network to turn off the firewall.

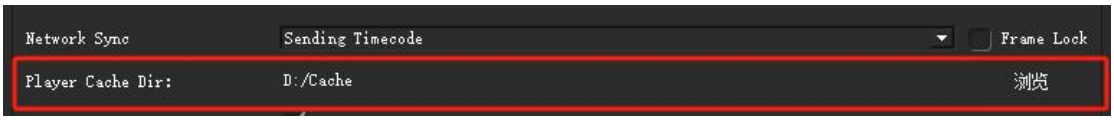



8. Update fails in multi-machine online mode

（1）Caused by insufficient space in the cache path. Change the online or backup cache path or clear the junk files in the disk to leave enough space.

Steps: Run the control end once on the display end. After entering the software by creating a new project, open the settings option and locate the display end cache. Change

the path to a directory with a larger disk, then click OK.




（2） Due to network errors, please check the network settings and review whether the primary and backup machine networks are smooth and if the IP addresses are displayed correctly. You can reset the network settings according to the instructions in item 15.

## Appendix IV: Network Central Control Command Description

1. The network is set to TCP /UDP connection; the port number is set to: 16384.

2. Command format: PLAY; SEEK 1.5; Valid commands are uppercase letters, parameters are floating point numbers, separated by spaces and terminated by semicolons. Continuous commands are supported.

| **Instruction** | **Function Description** |
|---|---|
| PLAY; | Start playing all timelines |
| PAUSE ; | Pause all timelines |
| STOP; | Stop all timelines |
| FORWARD X (can be omitted); | Fast forward the specified timeline by 10 seconds. Without parameters, it is the default timeline (X value is 1~N) |
| BACKWARD X(can be omitted); | Rewind the specified timeline by 10 seconds. Without parameters, it is the default timeline (X value is 1~N) |
| PLAY X; | Play the specified timeline (X value is 1~N) |
| PAUSE X; | Pause the specified timeline (X value is 1~N) |
| STOP X; | Stop the specified timeline (X ranges from 1 to N) |
| SEEK X; | Jump to X seconds, X is a decimal |
| JUMP X; | Jump to control command X, X is a single character, range [ 0~9 ] [ a~z ][A~Z] |
| OPEN; | open show all |
| CLOSE; | Close show all |
| LINK : | Connect |
| DIS LINK; | Disconnect |
| SETVOLUMN X; | Set volume |
| VOLUMEUP; | Volume increased by 1% |
| VOLUMEDOWN; | Volume decreases by 1% |
| SHUTDOWN; | All machines shut down |
| RESTART; | All machines restart |