



X400

Professional Media Server



User Manual

Copyright © 2023 Pixelhue Technology Ltd. All Rights Reserved.

No part of this document may be copied, reproduced, extracted or transmitted in any form or by any means without the prior written consent of Pixelhue Technology Ltd (hereinafter referred to as PIXELHUE).

Trademarks

 **PIXELHUE** is a trademark of Pixelhue Technology Ltd.

Brand and product names mentioned in this manual may be trademarks, registered trademarks or copyrights of their respective holders.

Statement

Thank you for choosing PIXELHUE products. This document is intended to help you understand and use the products. PIXELHUE may make improvements and/or changes to this document at any time and without notice. If you experience any problems in use or have any suggestions, please contact us via the contact information given in this document. We will do our best to solve any issues, as well as evaluate and implement any suggestions.

This document could contain technical inaccuracies or typographical errors. Changes are periodically made to the information in this document; these changes are incorporated in new editions of this document.

The latest edition of user manuals can be downloaded from the official website of PIXELHUE.

Contents

Contents.....	ii
1 General.....	1
1.1 About This Manual.....	2
1.2 Version History.....	2
1.3 Symbols and Pictures.....	2
2 Safety.....	3
2.1 General Considerations.....	4
2.1.1 General Safety.....	4
2.1.2 Environmental Requirements.....	4
2.1.3 Device Safety.....	5
2.1.4 Personal Safety.....	5
2.2 Device Carrying.....	6
2.3 Device Mounting.....	6
2.3.1 Mounting on a Desktop.....	6
2.3.2 Mounting into a Rack.....	7
2.3.3 Grounding.....	7
2.4 Cable Requirements.....	7
2.4.1 Power Cords.....	7
2.4.2 Signal Cables.....	8
2.4.3 Miscellaneous.....	8
2.5 Electrical Safety.....	9
2.5.1 Battery.....	9
2.5.2 Electromagnetic Interference.....	9
2.5.3 Anti-Static.....	9
2.6 Unpacking and Inspection.....	9
2.6.1 Unpacking.....	9
2.6.2 Inspection.....	9
2.7 Device Labels.....	10
2.8 Notes and Cautions.....	10
2.8.1 Notes for Battery.....	10
2.8.2 Notes for Installation.....	10
2.8.3 FCC Caution.....	11
2.8.4 Others.....	11
3 Hardware Overview.....	12
3.1 Introduction.....	13

3.2 Features	13
3.3 Appearance	15
3.3.1 Front Panel	15
3.3.2 Rear Panel	15
3.3.3 Cards	17
4 Applications	19
4.1 Applications - Single Unit	20
4.2 Applications - Dual Redundant	21
5 X400 Settings	22
5.1 Set Main Display	22
5.2 Change Resolutions	23
5.2.1 Set Standard Resolutions	23
5.2.2 Set Custom Resolutions	25
5.3 EDID Management	28
5.4 Output Mosaic	32
6 Software Overview	36
6.1 Introduction	37
6.2 Change UI Layout	40
6.3 Load Layout	41
6.4 Lock User Interface	41
7 Project Operations	43
7.1 Create New Projects	44
7.2 Manage Media	44
7.2.1 Add Media	44
7.2.2 Edit Media	45
7.2.3 Add Input Sources	48
7.3 Manage Layers	53
7.3.1 Add Layers	53
7.3.2 Layer Mosaic	54
7.3.3 Set Layer Properties	56
7.4 Build Application Environment	58
7.4.2 Add Screens	59
7.4.3 Add Slices	61
7.4.4 Set Slice Properties	62
7.4.5 Configure Link Backup	65
7.5 Produce Programs	68
7.5.1 Edit Programs	69
7.5.2 Set Media Continuation	69
7.5.3 Set Program Properties	70
7.5.4 Set Program Jump	77
7.5.5 Manage Program Groups	78

7.6 Playback Control	78
7.7 Save Projects.....	80
8 Software Settings.....	81
8.1 System Settings	82
8.1.1 General	82
8.1.2 Display	83
8.1.3 Audio.....	83
8.1.4 Office	84
8.2 Authorization	85
8.3 Hotkey Binding	85
8.4 MIDI Binding	86
8.4.1 Connect MIDI Keyboard	87
8.4.2 Bind MIDI	87
9 Software Help Information	89
9.1 User Manual	90
9.2 About.....	90
9.3 Software Updates	90
9.4 Contact Us.....	90
10 Software Tools.....	91
10.1 Transcoding Assistant	92
11 Specifications.....	94

1 General

Overview

- About This Manual
- Version History
- Symbols and Pictures

1.1 About This Manual

This user manual guides you how to use our product. This manual is designed to be a reference for your daily use of our product.

Note





Always check for the latest version of all documents at www.pixelhue.com.

1.2 Version History

Version	Date	Description
V1.2.0	2023-03-15	<ul style="list-style-type: none"> • Updated some hardware descriptions. • Updated some software pictures and descriptions.
V1.1.0	2022-11-9	<ul style="list-style-type: none"> • Updated the device rear panel picture. • Updated the 4K input card and 2K output card pictures and descriptions. • Updated the descriptions and user interface pictures of the built-in software Pilot MS3.
V1.0.0	2022-5-30	First release

1.3 Symbols and Pictures

Symbol Overview

	Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.
	Warning	Indicates a hazard with a medium or low level of risk, which if not avoided, could result in minor or moderate injury.
	Caution	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
	Note	Provides additional information to emphasize or supplement important points of the main text.

Picture Overview

Images and pictures given in this manual are used for illustration purposes only. The actual product may vary due to product enhancement. The content of the images can be slightly different from reality, such as device types, installed modules, form and position of software windows on the screen.

2 Safety

Overview

- General Considerations
- Device Carrying
- Device Mounting
- Cable Requirements
- Electrical Safety
- Unpacking and Inspection
- Device Labels
- Notes and Cautions

2.1 General Considerations

To ensure that you can use this product correctly and safely, please be sure to observe the following precautions:

- Before performing any operation, make sure that you have read all the operating instructions provided by the device, especially the instructions that may endanger the personal safety and device safety, such as dangers, warnings and cautions, to minimize the probability of accidents.
- All the operations must conform to local safety codes. When the safety and precautionary measures described in this manual conflict with local safety codes, please follow the local codes.
- The personnel responsible for installing and maintaining the device must be professionals who have been trained and have mastered the correct operation methods and all safety precautions. Only trained and qualified personnel can perform device installation and maintenance.
- This device must be used in an environment that meets the design specifications; otherwise, it may cause device failure. The resulting device function abnormalities or component damage, personal safety accidents, property losses and other situations are not included within the scope of the device warranty.

2.1.1 General Safety

- When operating the device, you must strictly abide by the local laws and regulations. The safety precautions described in this manual are only a supplement to the local safety laws and regulations.
- The "Danger", "Warning" and "Caution" items described in this manual are only supplementary instructions for all safety precautions.
- To ensure personal and device safety, please strictly follow all the safety precautions on the device labels and described in this manual when installing the device.

2.1.2 Environmental Requirements

- Ensure adequate air flow in the equipment room.
- Take necessary measures to prevent dust, water and static electricity.
- Avoid long-term direct sunlight.
- Keep the device away from heat and ignition sources.
- Do not place the device in an explosive atmosphere.
- Do not place the device in a corrosive environment.
- Do not place the device in a strong electromagnetic environment.

The following table outlines the physical environment where the device can be safely stored and operated.

Environmental Requirements	Operating Environment	Storage Environment
Temperature	0°C to 45°C	-20°C to +70°C
Humidity	0% RH to 80% RH, non-condensing	0% RH to 95% RH, non-condensing
Air Cleanliness	ISO 14644-1 ISO 9	N/A

2.1.3 Device Safety

- Before operating, fix the device on the floor or other stable objects, such as a wall or mounting bracket.
- During transportation and use of the device and its packaging, the device must be fixed stably to avoid falling.
- Do not step on, hit and violently operate the device and its packaging to prevent damage to the device or packaging box.
- Do not block the ventilation openings during operation.
- Tighten the board or card screws with a tool.
- After the installation, remove the empty packing materials from the device area.
- Save the packing box and materials for possible storage and transportation in the future.
- Always wear anti-static wrist bands and insulating gloves when touching the static-sensitive components.
- Avoid dropping any object into the chassis.
- Keep the device away from conductors that are easy to induce lightning to avoid lightning strikes to the device.
- Do not make the circuit faces of the boards or cards contact each other.
- Do not touch the circuit, components, connectors or wiring slots of the boards or cards with bare hands.
- Do not repair the device without authorization. Only trained professionals can maintain the device. You can contact Pixelhue at any time if needed.
- Always use the spare parts recommended by Pixelhue.
- Regularly clean the dust on the heat dissipation holes to prevent the dust from blocking the holes and thus affect the heat dissipation of the device.

2.1.4 Personal Safety

- Place the device in a stable location to prevent personal injury caused by falling.
- Avoid bare wires and maintain or replace them in time when they are damaged.
- Do not operate the device and connect cables outdoors under thunderstorms.
- Do not wear watches, rings, or other metal jewelry when installing spare parts or maintaining the device.

2.2 Device Carrying

- Do not relocate a powered device, and do not take any objects that may cause danger to the relocation.
- Always pay attention to the wheels at the bottom of the flight case during transportation to avoid them being jammed by stones or deformed due to external forces.
- Always hold the handles of the flight case firmly when pushing a flight case with wheels. Do not stack other devices on the flight case.
- The relocated device should be repacked in the original factory packaging.
- When handling or placing the boards or cards, bare board components or modules, always package them individually.
- When carrying the device with your bare hands, always wear protective gloves to avoid injury.
- When carrying the device, handle it gently and always hold the handles of the device or drag the bottom edge of the device. Do not hold the handles of a device component.
- When the device weight exceeds the carrying limit of a single person, carry it with multiple people or use a carrying tool.
- When using a forklift or handcart for transportation, place the device stably to ensure the device will not tip over.

The following table lists the maximum weights that adults can carry at a time specified by some organizations for your reference.

Organization	Weight
CEN (European Committee for Standardization)	25 kg/55.13 lb
ISO (International Organization for Standardization)	25 kg/55.13 lb
NIOSH (National Institute for Occupational Safety and Health)	23 kg/50.72 lb
HSE (Health and Safety Executive)	25 kg/55.13 lb
General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China	Male: 15 kg/33.08 lb Female: 10 kg/22.05 lb

2.3 Device Mounting

When the device is installed on a desktop or into a rack, the desktop or rack must bear at least 4 times the device weight.

2.3.1 Mounting on a Desktop

- Ensure the stability and grounding of the desktop or working table.
- Ensure that the device is placed horizontally and do not turn it over or hang it on the wall.
- Do not place other objects on the device.

- Do not put water cups, beverages and other containers with liquid close to or on the device to avoid liquid leakage and thus cause safety hazards.
- If any object or liquid accidentally enters the device, stop using the device and disconnect the power cord and all cables connected to the device immediately, and then contact the after-sales personnel.
- When handling a flight case with wheels, please lock and fix the wheels to prevent the device from sliding.
- When stacking, ensure all the devices are stacked stably to avoid device damage and personal injury caused by falling.

2.3.2 Mounting into a Rack

- The rack must be fixed properly to avoid tilting and falling, and thus cause personal injury and device damage.
- When a device is mounted into a rack, all mounting holes must be fixed with screws.
- Ensure the rack is well ventilated. It is recommended to reserve at least 1U space between the stacking devices, and the heat dissipation vents must not be obstructed and keep at least 10 cm distance from other objects.

2.3.3 Grounding

- Connect the grounding wire first when installing a device, and disconnect the grounding wire at last when removing the device.
- The connecting surface of the grounding wire and the device must have good conductivity. Spray painting is strictly prohibited, and there must be sufficient fastening force between the connecting parts.
- Do not operate the device when the grounding conductor is not installed.
- There must be no joints in the middle of the grounding wire, and it is strictly prohibited to install a switch or fuse on the grounding wire.
- For devices using a three-pin socket, ensure that the ground terminal in the three-pin socket is well grounded.

2.4 Cable Requirements

2.4.1 Power Cords



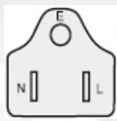
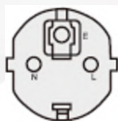


Warning

Do not install or remove the power cord when the device is powered on. When the power cord core contacts the conductor, an electric arc or spark will be generated which may result in fire or eye injury.

- Protect the power cord properly to prevent it from being punctured to avoid personal injury or fire caused by a short circuit.
- To ensure the safety of the device and personnel, be sure to use the matched power cord.

- User-supplied cables must comply with local cable regulations and device cable requirements.
- Before installing or removing the power cord, turn off the device power first.
- Check the electrical plug regularly and wipe off the dirt or dust accumulated on the plug.
- Before connecting the power cord, read the labels or markings on the power cord to make sure it is a matched one.

The device is intended to operate from an AC power source with a voltage range of AC 100–240V~, 50/60Hz. Various standard plugs are shown in the figure below.

US NEMA5/15	Europe CEE 7	China GB 2099	UK BS 1363
			

E Earth

N Neutral

L Live

2.4.2 Signal Cables

- Before using a DVI signal cable, check whether the pins on the cable connector are vertical and even. If not, please replace the cable.
- Before connecting the signal cable to the device, check whether there is any object in the device connector. If yes, remove the object first.
- If the signal cable has not been used for a long time, discharge static electricity before using it.
- Under normal working conditions of the device, it is recommended that non-technical professionals do not perform hot-swapping to avoid device damage.

2.4.3 Miscellaneous

- Signal cables must be bound separately from strong current cables or high voltage cables.
- When the temperature is too low, severe shock and vibration may cause brittle cracking of the plastic sheath of the cable. All cables should be laid and installed when the temperature is above zero.
- If the storage temperature of the cable is below zero, the cable must be moved to room temperature and stored for more than 24 hours before laying and installation.
- When carrying cables, especially in a low-temperature environment, always handle the cable with care. Violent handling, such as pushing down the cables directly from a high place, is prohibited.

2.5 Electrical Safety

2.5.1 Battery

- There is a danger of explosion if a battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.
- Always follow the relevant instructions to dispose of batteries.
- Do not throw lithium batteries into fire.

2.5.2 Electromagnetic Interference

- Keep the device away from transformers, high-voltage power lines and high-current devices.
- Keep the device away from high-power broadcast transmitters.
- If there is a mobile communication transmitter around the device, its interference degree should meet the requirements of relevant standards. If needed, take necessary measures to prevent interference, such as shielding and isolation.
- When using hand-held wireless communication devices, such as interphones, keep at least 30 cm away from the device.

2.5.3 Anti-Static

- Always wear anti-static wrist bands and insulating gloves when touching the static-sensitive components.
- Always hold the board by the edges to avoid touching the circuits or components, and do not touch the chip with your hands.
- The disassembled board must be packaged with anti-static packaging material before storage or transportation.

2.6 Unpacking and Inspection




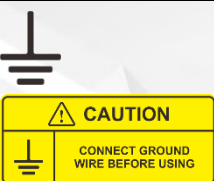

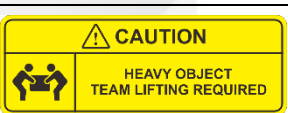
2.6.1 Unpacking

- After receiving the device, check whether the packing box is damaged. If there is any damage, do not open the box and contact the carrier in time to confirm the damage to the device and matters related to compensation.
- After unpacking, save the packing box and materials for possible storage and transportation in the future.

2.6.2 Inspection

- When the packing box is in perfect condition, unpack the box. Check the appearance of the device for damage. If there is damage, please contact the salesperson.
- Check the box contents according to the packing list described in the certificate of approval. If any item is missing, please contact the salesperson in time.

2.7 Device Labels

Labels	Description
	Shock hazard
	Multiple power inputs The device is powered by multiple power supplies. Disconnect all power cords when the device is powered off.
	Warranty void if removed Do not open the chassis. If this label is damaged, the device will not be covered by the warranty.
	Grounding The two ends of the grounding wire are connected to the device and the grounding point respectively, which means that the device must be grounded through the grounding point to ensure the normal operation of the device and the personal safety of the operators.
	Sensitive electronic device Keep the device away from areas with strong electromagnetic radiation to avoid electromagnetic interference and thus affect the image output quality.
	Device carrying The device needs to be carried by multiple people.

2.8 Notes and Cautions

2.8.1 Notes for Battery

- The battery is not intended to be replaced.
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.
- Leaving a battery in an extremely high temperature surrounding environment can result in an explosion or the leakage of flammable liquid or gas.
- A battery subjected to extremely low air pressure may result in an explosion or the leakage of flammable liquid or gas.

2.8.2 Notes for Installation

When the product needs to be installed on the rack, 8 screws at least M5*8 should be used to fix it. The rack for installation shall bear at least four times the total weight of the mounted equipment.

- Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to

- installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.
- b) **Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
 - c) **Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
 - d) **Circuit Overloading** - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
 - e) **Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

2.8.3 FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

2.8.4 Others

- This is Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.
- This product can only be placed horizontally. Do not mount vertically or upside-down.
- Please read the manual thoroughly and use the product in accordance with the requirements. If you have any questions about the specifications, please contact us immediately. If you use the product improperly, not following the requirements, or for illegal purposes, you shall be solely responsible for any consequences arising therefrom.

3 Hardware Overview

About This Chapter

This chapter is designed to describe the hardware appearance, features and specifications of the X400 media server.

Overview

- Introduction
- Features
- Appearance

3.1 Introduction

The X400 is PIXELHUE's brand-new professional media server specifically designed for various large-scale multimedia applications. The X400 adopts a modular and plug-in design, allowing users to flexibly choose the desired input and output cards to meet various connections needs. The X400 is equipped with a new generation of Intel processor, high-performance server-class motherboard, server-class graphics card, high-speed SSD and other excellent hardware features to ensure a highly smooth and stable on-site operation.

The X400 has a built-in professional multimedia playback software Pilot MS3, allowing for the display and control 8K images in pixel-to-pixel mode or multiple 4K images simultaneously, and enabling users to freely unleash their stunning and creative mosaic ideas. Pilot MS3 features with an intuitive, easy-to-use and fully-visualized graphical UI and provides complete functionalities required for media editing and broadcasting in professional stage performances, thus becoming the unrivaled choice for a large number of high-end rental and other creative display applications, such as stage performances, large-scale conferences, exhibitions, presentations and more.

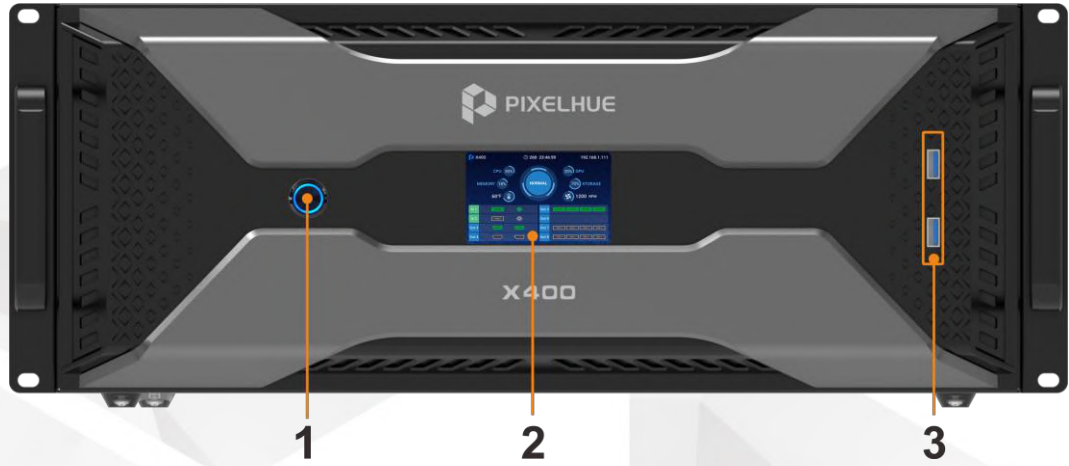
3.2 Features

Software
<ul style="list-style-type: none"> • Playback and real-time editing of all categories of media, including videos, pictures, audio, web pages, acquisition devices and NDI inputs • Various playback modes, including single program, single media, media collection, cross-program media and jump playback • Unlimited layers and unlimited programs • Powerful slices for diversified visual applications • Visualized management of slices, programs, playback and input sources • Flexible mosaic realizes your creative ideas • Auto preview and preview editing of next program • Media optimization for better media performance • Media image quality adjustment • Media mirroring, stretching, cropping supported • Crossfade and cut effects on program switching • Decoding of various mainstream video formats • Output mapping and markings for clear screen and connector correspondence • Automatic software startup and program playback • Project file management and packaging
Hardware
<ul style="list-style-type: none"> • 8K or multiple 4K hardware decoding and rendering for smooth playback and flawless output • Plug-in and modular design for higher system stability

<ul style="list-style-type: none"> • Frame sync technology for synchronized and smooth display • Seamless primary and backup device switching safeguards your on-site operation • Infinite device cascading, synchronized by Genlock • EDID lock, ensuring no jump of connector resolution and display sequence • Intelligent thermal solution • Running status indication and fault alarm on front panel display • High quality XLR audio inputs and outputs • Central control via TCP/UDP protocol • 4U rack mountable chassis • Industrial ruggedized design 	
Configuration	
<ul style="list-style-type: none"> • HDMI 1.4 monitoring connector dedicated for software UI • Dual SSD built-in with dual OS • Dual authorization: dongle + license 	
Interactive UI	
<ul style="list-style-type: none"> • Fully-visualized and friendly graphical UI, what you see is what you get • Customizable graphical UI layout • UI lock for safer unattended operation 	
Power Performance	
Capability	<ul style="list-style-type: none"> • Smooth playback of 1x 8K4K@60fps video, 4x 4K2K@60fps /6x 4K2K@30fps videos, or 15x 2K1K@30fps videos • Unlimited layers
Outputs	<ul style="list-style-type: none"> • 8192×1080@60Hz/4096×2160@60Hz or 2048×1152@60Hz output card • 6x 4K or 24x 2K outputs • 4:4:4 10-bit color sampling • Genlock and frame sync card
Inputs	<ul style="list-style-type: none"> • 1920×1200@60Hz or 4096×2160@30Hz input card • 4x 2K or 4x 4K inputs • NDI, streaming media and web page inputs
Audio	<ul style="list-style-type: none"> • XLR audio: 1x AUDIO IN, 1x AUDIO OUT L, 1x AUDIO OUT R • 1x 3.5 mm audio input, 1x 3.5 mm audio output • Formats: mp3, aac, flac, amr, ape, wav, wma, ogg
Control	<ul style="list-style-type: none"> • Built-in Pilot MS3 Professional Multimedia Playback Software • Central control via TCP/UDP protocol • 1x HDMI 1.3 connector for software UI • 2x USB on front panel, 4x USB on rear panel

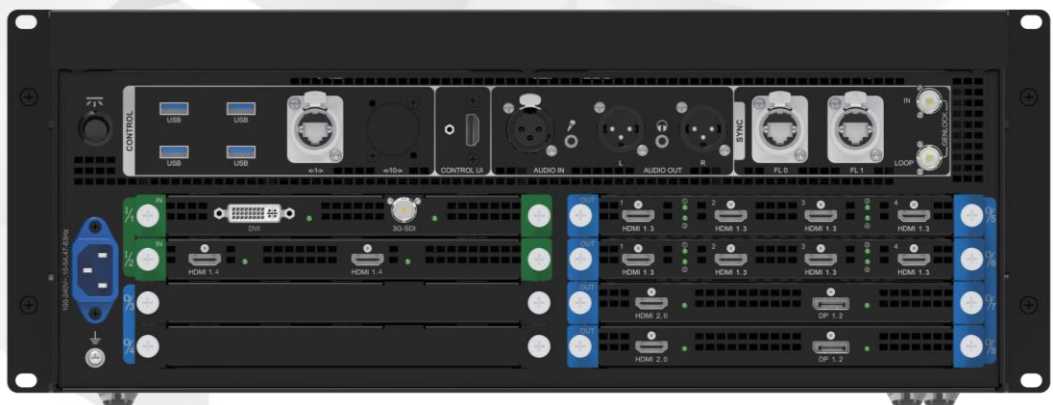
3.3 Appearance

3.3.1 Front Panel




No.	Name	Function
1	Power button	Press the button to power on or power off the device. Note DO NOT unplug the power cord to power off the device.
2	Display screen	Display the device working, input and output statuses.
3	USB ports	2x USB 3.0 <ul style="list-style-type: none"> • Connect to the mouse and keyboard. • Insert the USB drive to import media files.

3.3.2 Rear Panel



Notes





- All product pictures shown in this document are for illustration purposes only. Actual product may vary.
- The sync connectors may not be present for different device configurations.
- The input and output cards do not support the hot swappable function.

Area	Connector	Qty	Description
CONTROL	USB	4	4x USB 3.0 <ul style="list-style-type: none"> • Connect to the mouse and keyboard. • Insert the USB drive to import media files.
	Ethernet ports	2	Connect to the network. <ul style="list-style-type: none"> • 1x Gigabit Ethernet port • 1x 10G Ethernet port (reserved)
CONTROL UI	HDMI	1	1x HDMI 1.3 Connect a monitor to display the user interface of the Pilot MS3 multimedia playback software.
AUDIO	Audio connectors	5	<ul style="list-style-type: none"> • XLR audio connectors <ul style="list-style-type: none"> – 1x AUDIO IN: Mic audio input connector – 1x AUDIO OUT-L: Audio output connector (left channel) – 1x AUDIO OUT-R: Audio output connector (right channel) • 3.5 mm audio connectors <ul style="list-style-type: none"> – 1x input – 1x output <p> Note The audio device connected to the XLR audio input connector must have an independent power supply.</p>
SYNC	Sync connectors	2	Synchronize the mosaic images on multiple displays.
	GENLOCK	2	Synchronize the connected device units.
I/1~I/2	Input card slots	2	Please refer to the table in 3.3.3 Cards to select the desired input cards.
O/3~O/8	Output card slots	6	Please refer to the table in 3.3.3 Cards to select the desired output cards.
Hardware/Software Performance			
Power supply		750 W	
CPU		11th Generation Intel® Core™ Processor	
Memory		64 GB DDR4	
Motherboard		High-performance ASUS Server Motherboard	
Storage		<ul style="list-style-type: none"> • System disk: Samsung M.2 SSD 250GB • Storage disk: Samsung M.2 SSD 1TB 	
Graphics card		NVIDIA RTX A4000	

Sync card	Quadro Sync II
OS	Windows 10 IoT Enterprise LTSC

3.3.3 Cards

The X400 provides the following input and output cards for your applications.

Input Card	
4K Input Card	 <p>2x HDMI 1.4</p> <ul style="list-style-type: none"> • Downwards compatible with HDMI 1.3 • Max. resolution of single connector: 4096x2160@30Hz • 2x 4096x2160@30Hz inputs simultaneously • HDCP 2.2 compliant
2K Input Card	 <ul style="list-style-type: none"> • 1x DVI <ul style="list-style-type: none"> - Max. resolution: 1920x1200@60Hz, min. resolution: 800x600@60Hz - Interlaced signal inputs supported • 1x 3G-SDI <ul style="list-style-type: none"> - Downwards compatible with HD-SDI and SD-SDI - ST-424 (3G), ST-292 (HD) and SMPTE 259 (SD) standard video inputs - Max. resolution: 1920x1080@60Hz - Interlaced signal inputs supported - DOES NOT support input resolution and bit depth settings.
Output Card	
4K Output Card	 <ul style="list-style-type: none"> • 1x HDMI 2.0 • 1x DP 1.2 <ul style="list-style-type: none"> - HDMI 2.0 and DP 1.2 output the same content. - Max. output resolution: 8192x1080@60Hz/4096x2160@60Hz - HDCP 2.2 compliant - Mosaic output of multiple same-type connectors
2K Output Card	 <p>4x HDMI1.3</p>

- | | |
|--|---|
| | <ul style="list-style-type: none">• Max. output resolution of single connector: 2048×1152@60Hz• Max. width: 2560 pixels (2560×972@60Hz)• Max. height: 2560 pixels (884×2560@60Hz)• 4x HDMI mosaic outputs (2x2) by default |
|--|---|



4 Applications

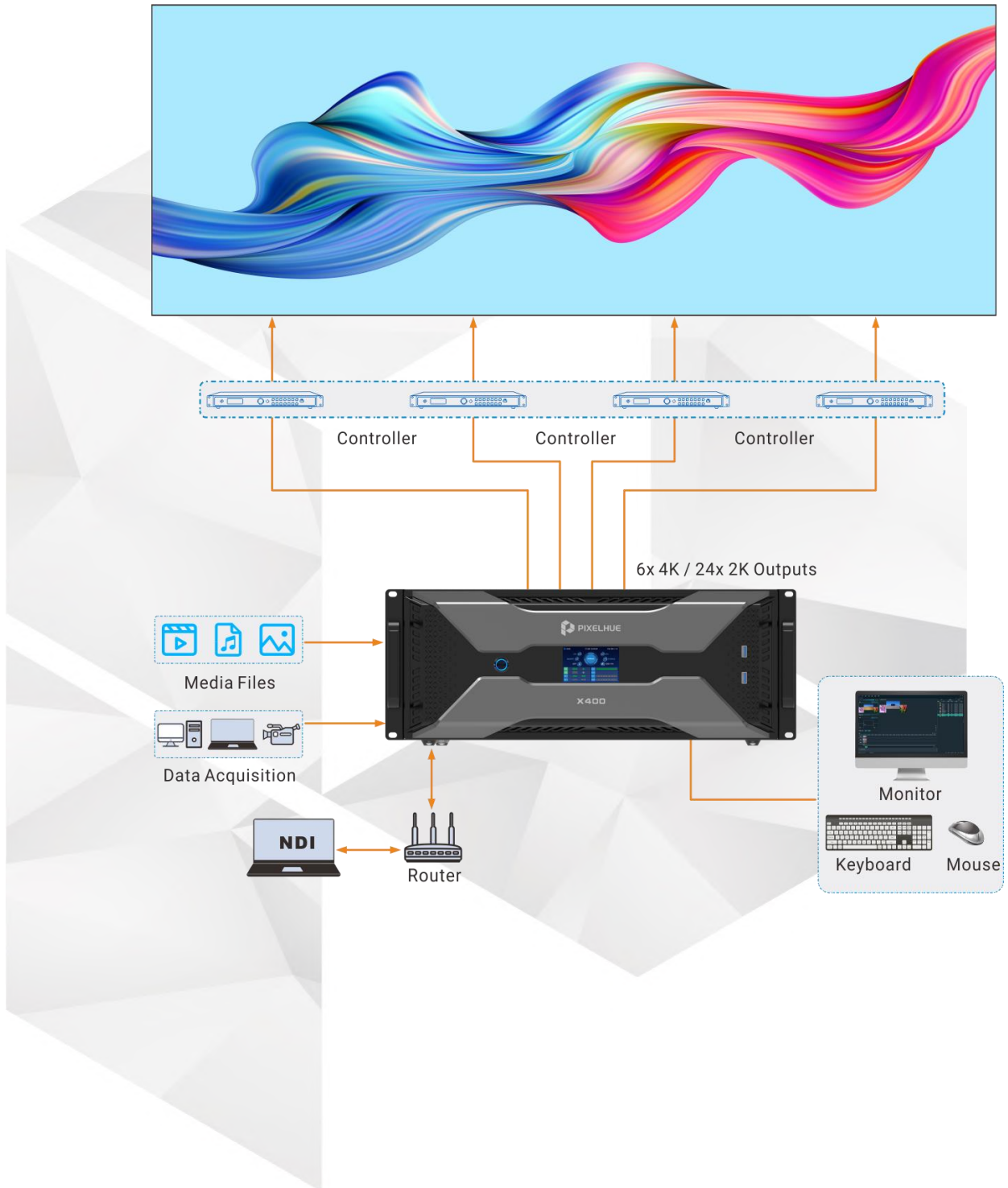
About This Chapter

This chapter is designed to introduce you to the X400 application scenarios.

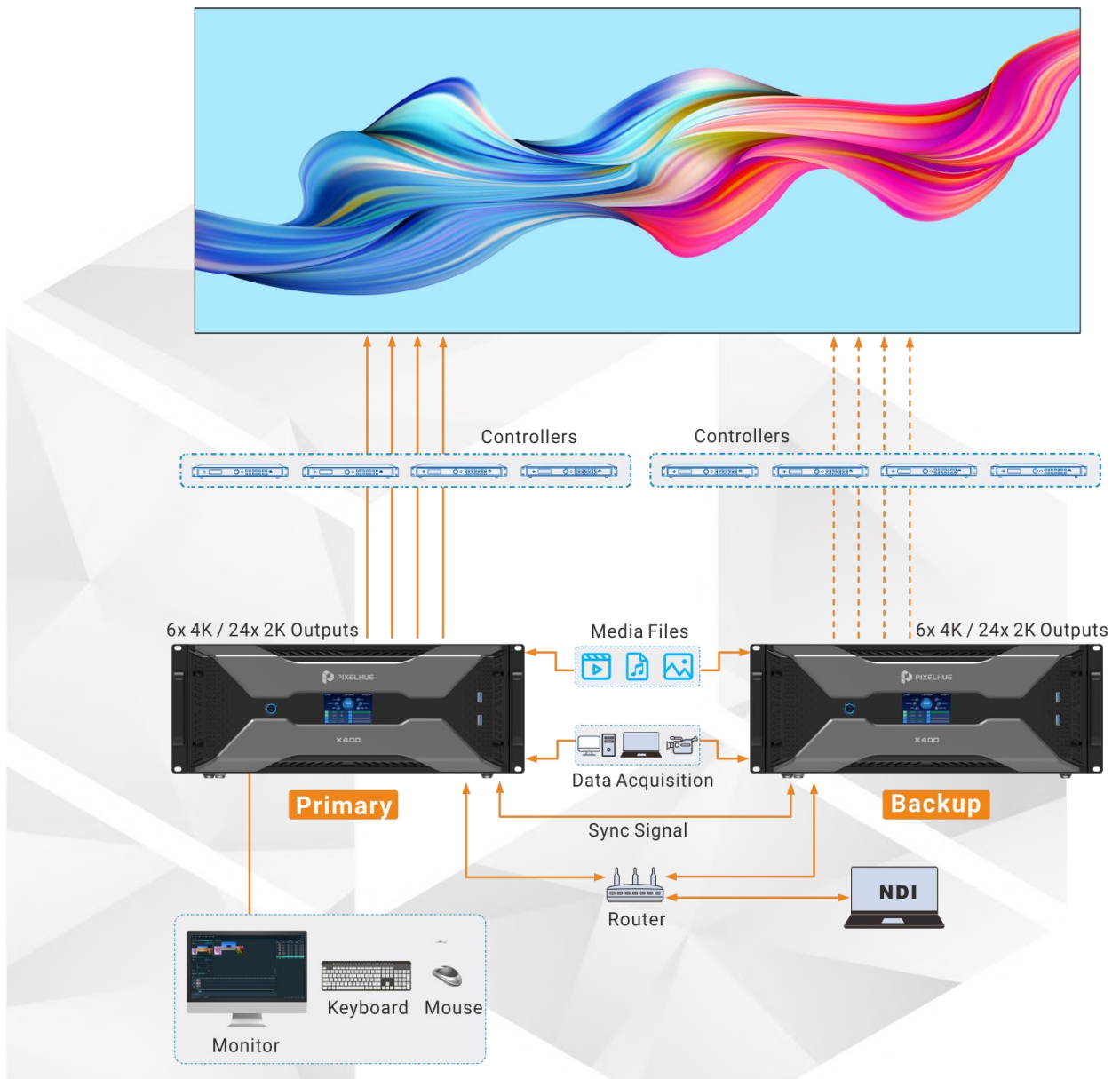
Overview

- Applications - Single Unit
- Applications - Dual Redundant

4.1 Applications - Single Unit



4.2 Applications - Dual Redundant



Note

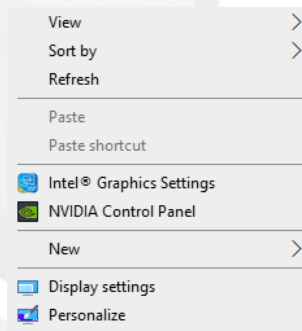
If the dual redundant application is required, please select the device configuration with sync connectors.

5 X400 Settings

5.1 Set Main Display

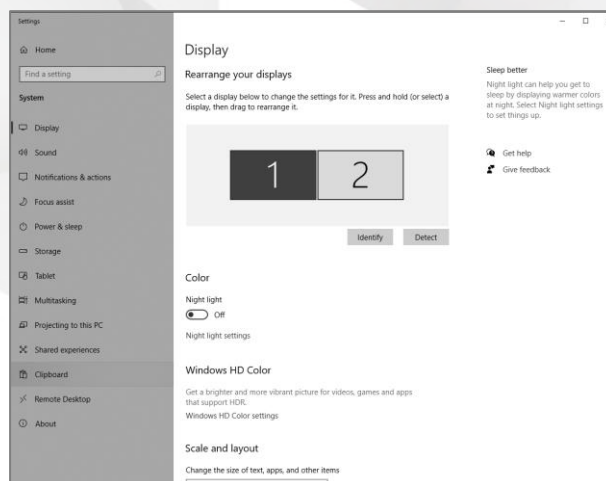
Step 1 Right click on your desktop and select **Display settings**.

Figure 5-1 Display settings



Step 2 Select a display to set it as the main display.

Figure 5-2 Multiple displays-1

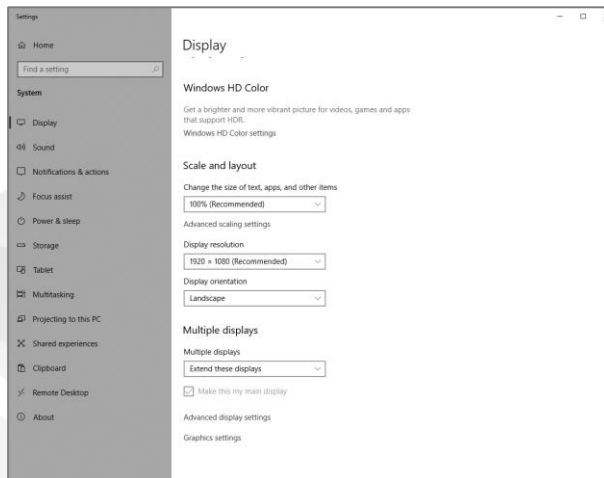


Note

When multiple displays are connected, you can click **Identify** to show the number at the bottom left corner on each display.

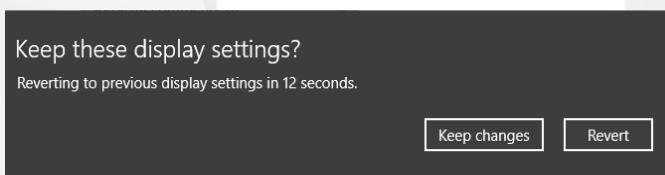
Step 3 For the **Multiple displays** item, select **Extend these displays**.

Figure 5-3 Multiple displays-2



Step 4 On the window that appears, select **Keep changes**.

Figure 5-4 Confirmation



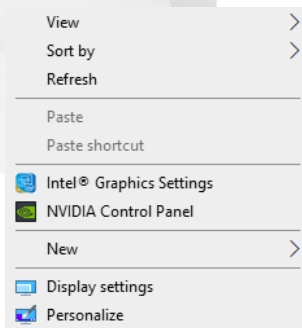
Step 5 Check the box next to **Make this my main display**.

5.2 Change Resolutions

5.2.1 Set Standard Resolutions

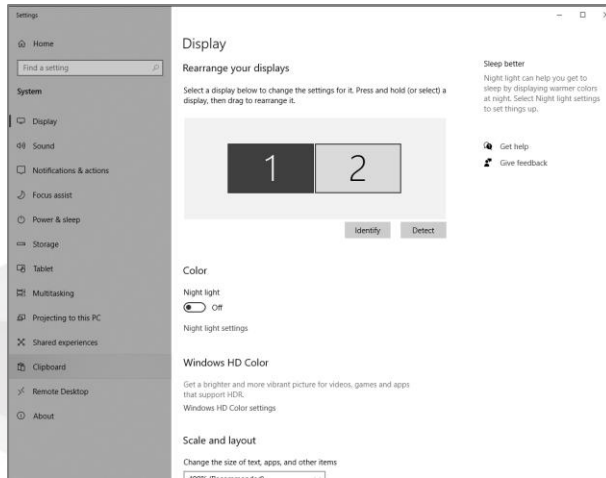
Step 1 Right click on your desktop and select **Display settings**.

Figure 5-5 Display settings



Step 2 Select a display to set it as the main display.

Figure 5-6 Multiple displays-1

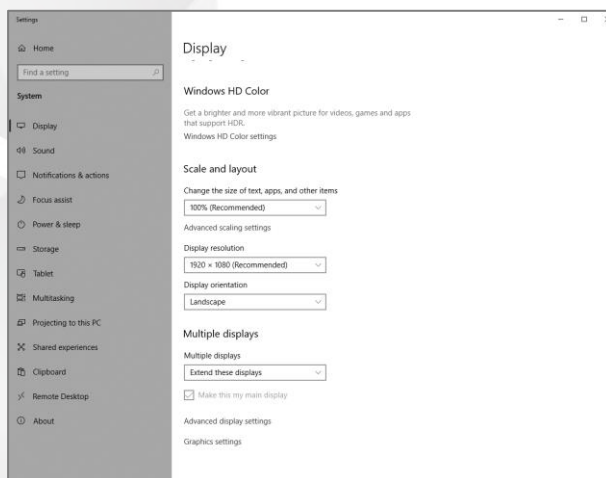


Note

When multiple displays are connected, you can click **Identify** to show the number at the bottom left corner on each display.

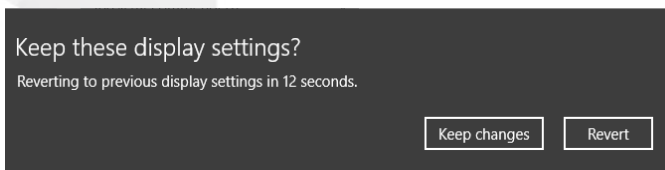
Step 3 For the **Display resolution** item, select the desired output resolution.

Figure 5-7 Multiple displays-2



Step 4 On the window that appears, select **Keep changes**.

Figure 5-8 Confirmation

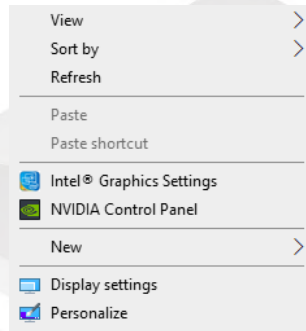


Step 5 Repeat Step 2 to Step 4 to complete the resolution settings for other displays.

5.2.2 Set Custom Resolutions

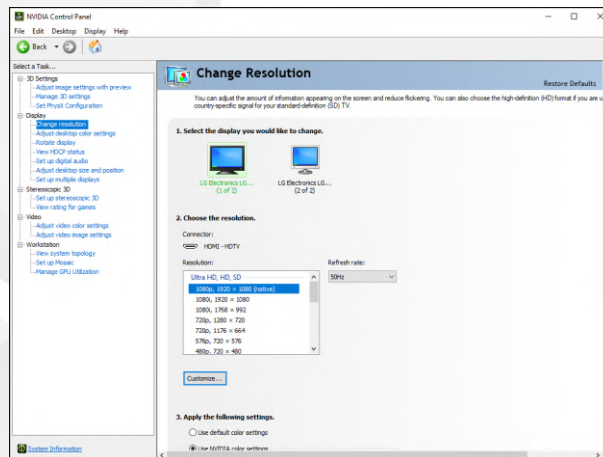
Step 1 Right click on your desktop and select **NVIDIA Control Panel**.

Figure 5-9 NVIDIA control panel



Step 2 On the **NVIDIA Control Panel** interface, go to **Display > Change resolution**.

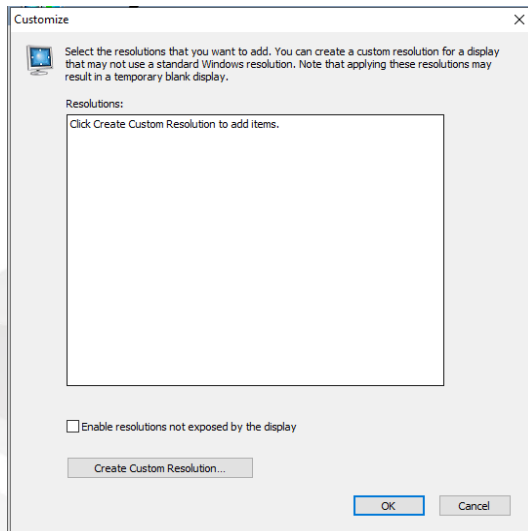
Figure 5-10 Change resolutions



Step 3 Select the desired display.

Step 4 Click **Customize** to show the customize window.

Figure 5-11 Custom resolution-1

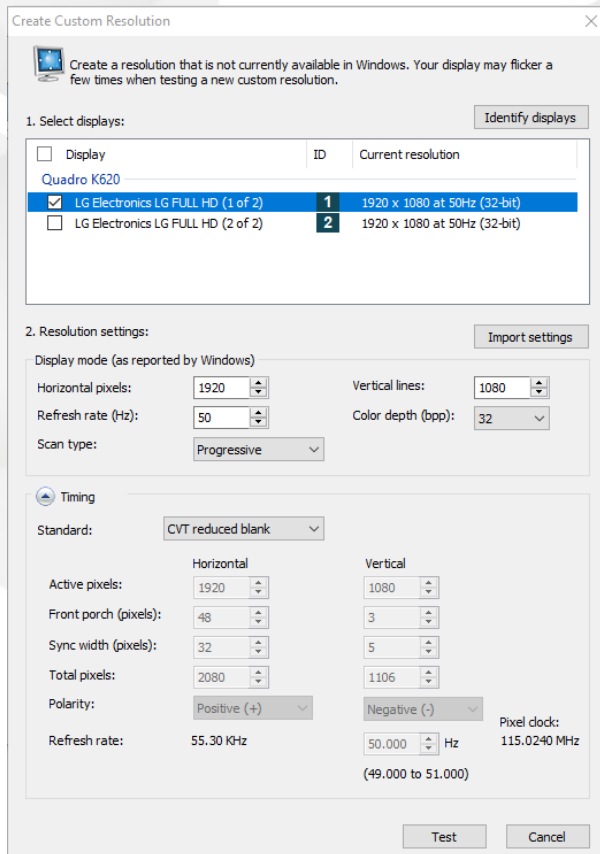


Step 5 Click **Create Custom Resolution**.

Step 6 Read the disclaimer information carefully and click **Accept** to show the **Create Custom Resolution** window.

Step 7 Select the desired display.

Figure 5-12 Custom resolution-2



Step 8 Set the horizontal pixels, vertical lines, refresh rate and scan type.

Step 9 Click **Test** and then click **Yes** on the window that appears.

Figure 5-13 Confirmation

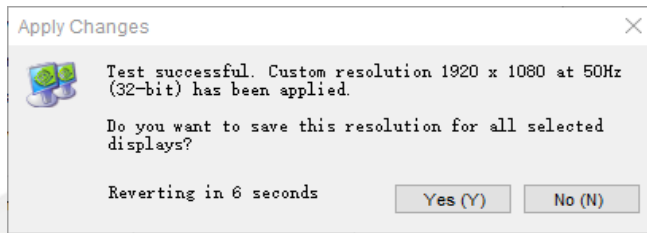
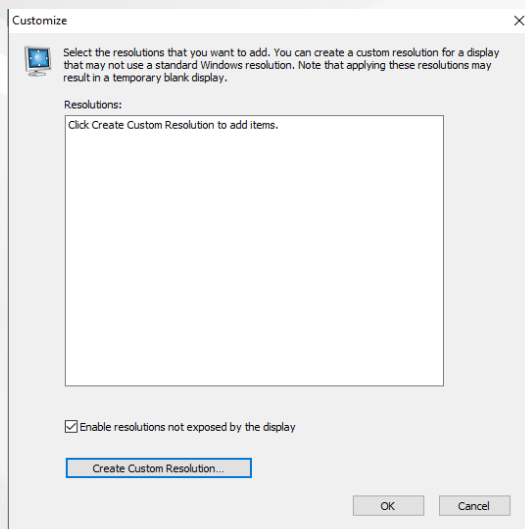


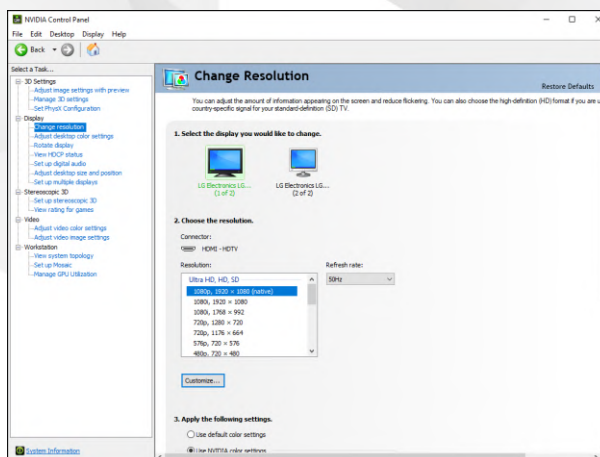
Figure 5-14 Custom resolution-3



Step 10 Click **OK** to complete the custom resolution settings.

After a custom resolution is created successfully, it will appear in the custom area as shown in the figure below.

Figure 5-15 Custom resolution-4



5.3 EDID Management

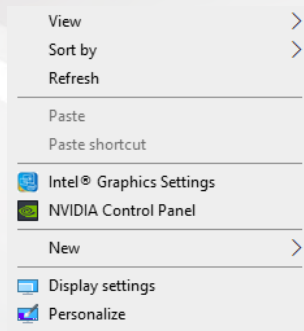
After the display resolution settings, you need to manage the EDID for precise identification of display properties and to avoid the on-site screen display disorder.

Load EDID

The procedure of how to load the EDID is as follows.

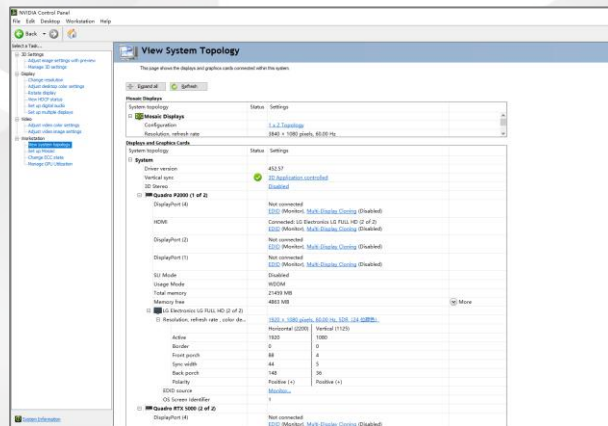
Step 1 Right click on your desktop and select **NVIDIA Control Panel**.

Figure 5-16 NVIDIA control panel



Step 2 On the NVIDIA Control Panel interface, go to **Workstation > View system topology**.

Figure 5-17 NVIDIA control panel



Step 3 Click **EDID (Monitor)** next to a desired output connector of the current graphics card to show the EDID management window.

Figure 5-18 EDID (Monitor)

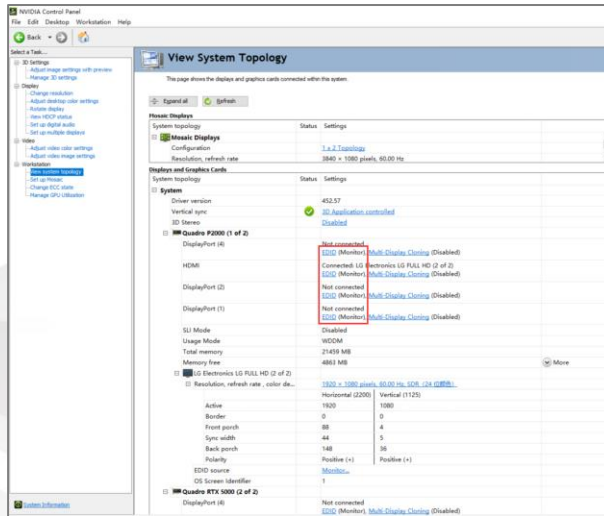
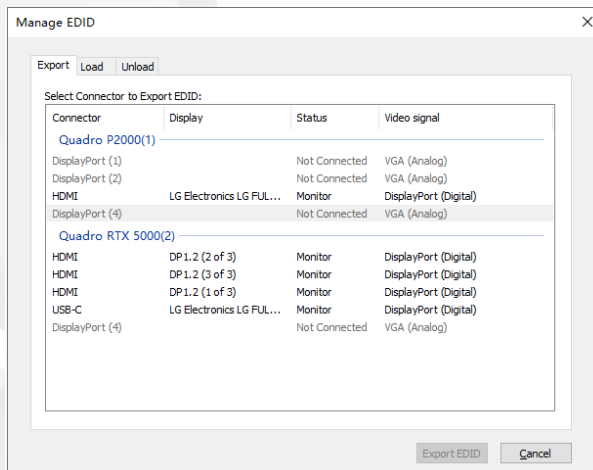
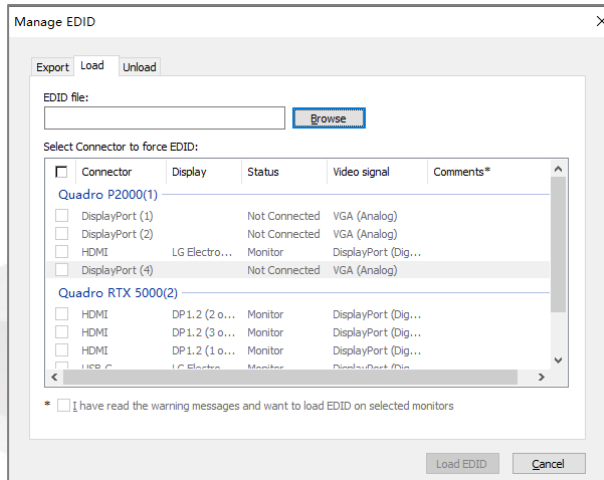


Figure 5-19 Manage EDID



- Step 4 Click **Export EDID** and then name the exported EDID file in the window that appears.
- Step 5 Select the **Load** tab to show the EDID loading window.
- Step 6 Click **Browse** and then select the EDID file exported in [Step 4](#).
- Step 7 In the **Select Connector to force EDID** area, select the desired connector.

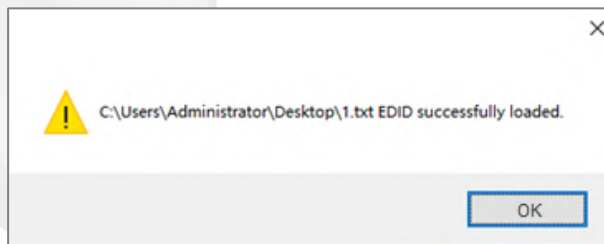
Figure 5-20 Load EDID



Step 8 Click **Load EDID**.

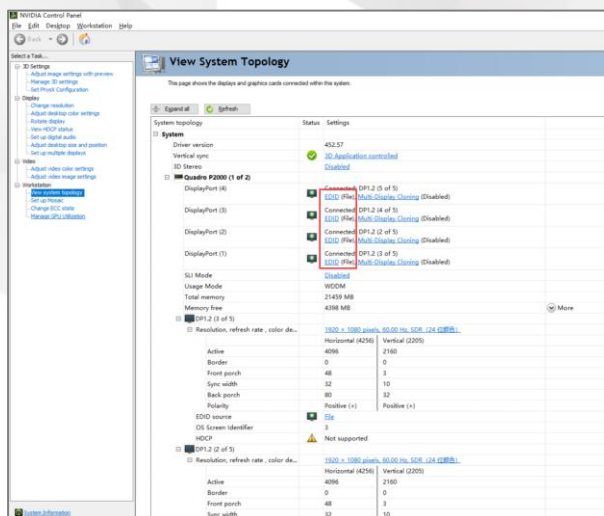
Step 9 On the dialog box that appears, click **OK** to complete loading the EDID.

Figure 5-21 EDID loaded successfully



Step 10 Go back to **Workstation > View system topology** to check the EDID status. If the original **EDID (Monitor)** changes to **EDID (File)**, the EDID is loaded successfully.

Figure 5-22 EDID loaded successfully



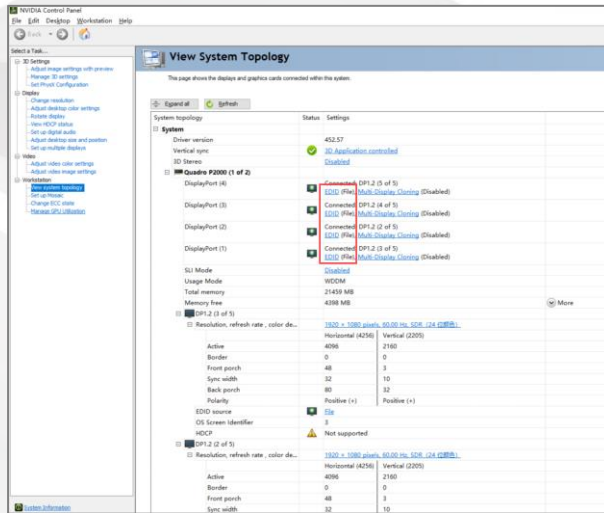
Unload EDID

The procedure of how to unload the EDID is as follows.

Step 1 On the NVIDIA Control Panel interface, go to **Workstation > View system topology**.

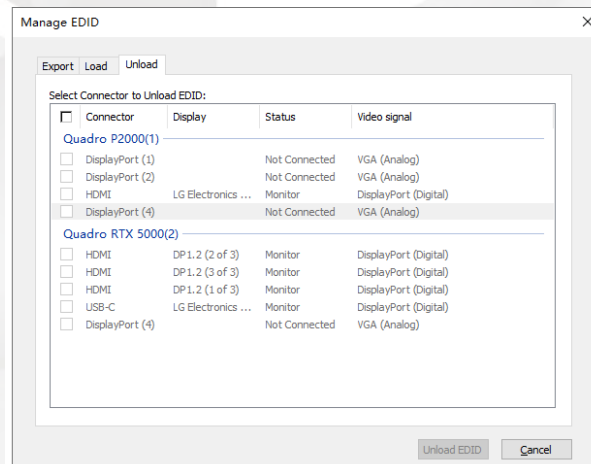
Step 2 Click **EDID (File)** to show the EDID management window.

Figure 5-23 EDID (File)



Step 3 Select the **Unload** tab and then select the desired connectors.

Figure 5-24 Unload EDID



Step 4 Click **Unload EDID**.

Step 5 After the EDID is unloaded successfully, click **OK** on the dialog box that appears.

Figure 5-25 EDID unloaded successfully



Step 6 Go back to **Workstation > View system topology** to check the EDID status. If the **EDID (File)** changes to **EDID (Monitor)**, the EDID is unloaded successfully.

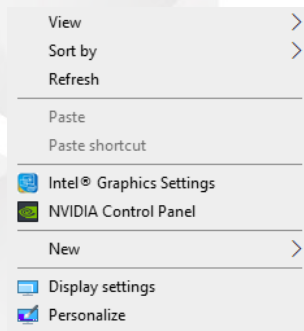
5.4 Output Mosaic

The graphics card supports connector mosaic output. The output connector mosaic must observe the following rules.

- The graphics card does not support irregular mosaic layouts. The mosaic layout must be 1x2, 1x3, 1x4, 2x2, 2x1, 3x1 or 4x1.
- The output resolutions of the graphics card connectors that are used for mosaic must be the same.

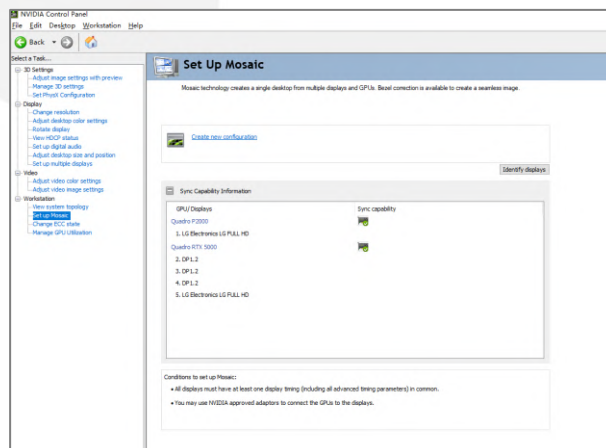
Step 1 Right click on your desktop and select **NVIDIA Control Panel**.

Figure 5-26 NVIDIA control panel



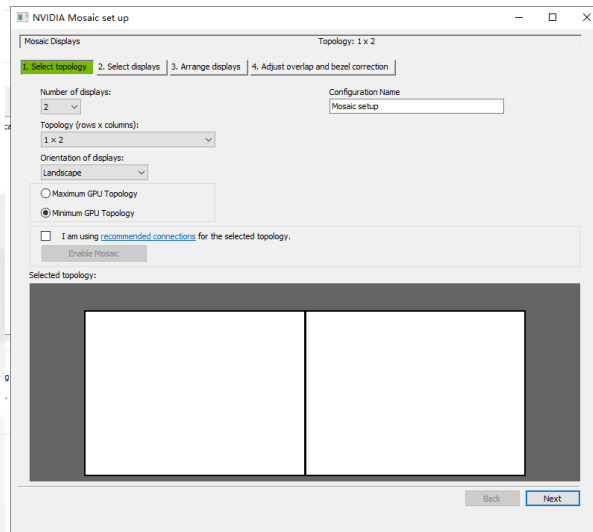
Step 2 On the **NVIDIA Control Panel** interface, go to **Workstation > Set up Mosaic**.

Figure 5-27 Set up mosaic



Step 3 Click **Create new configuration** to show the mosaic settings window.

Figure 5-28 Mosaic settings



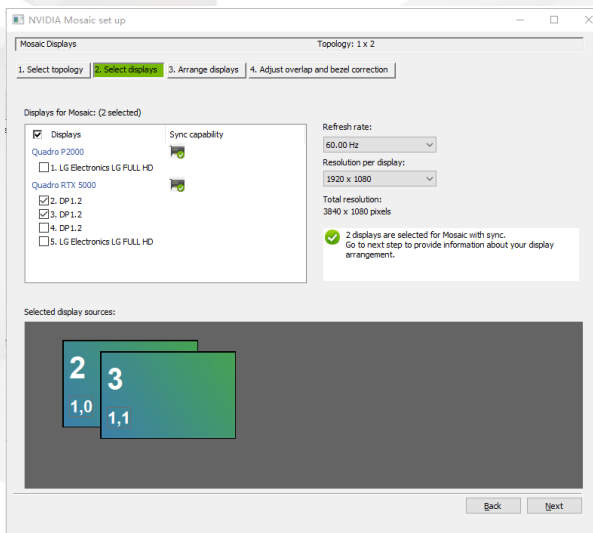
Step 4 Select the screen number from the drop-down list of **Number of displays**.

Step 5 Select the screen mosaic layout from the drop-down list of **Topology (rows x columns)**.

Step 6 Select the screen orientation from the drop-down list of **Orientation of displays**.

Step 7 Click **Next** to proceed.

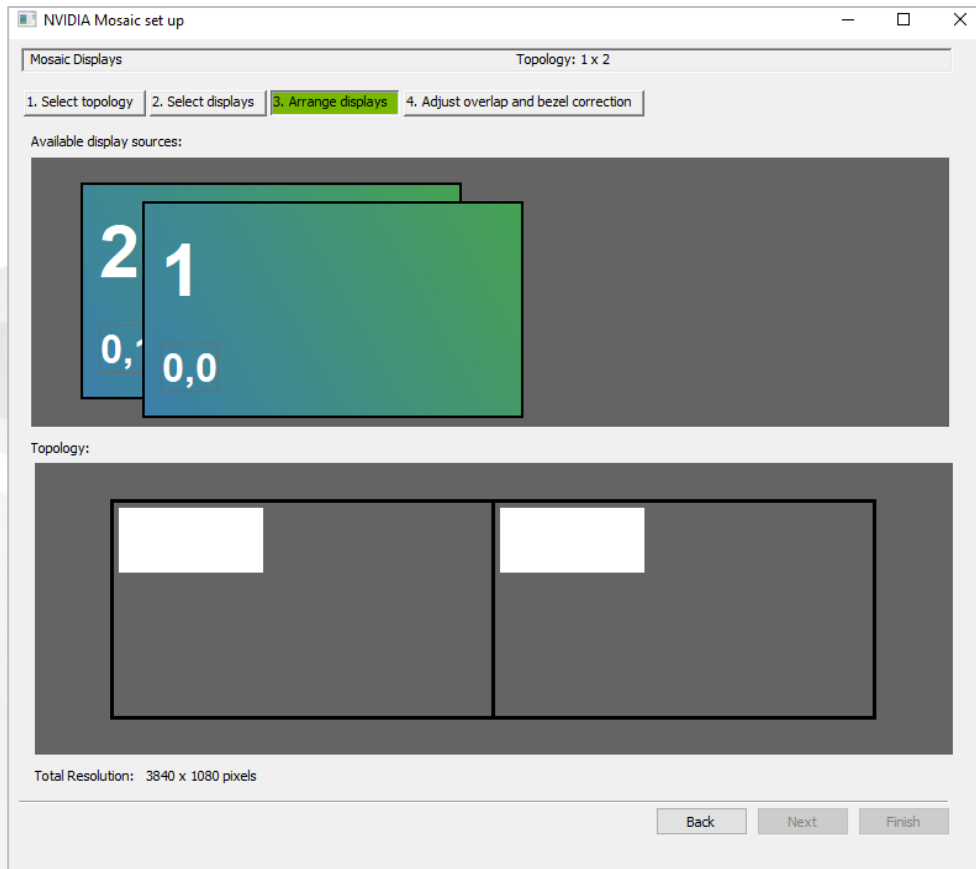
Figure 5-29 Select displays



Step 8 Select the connected displays and then select their refresh rate and resolution.

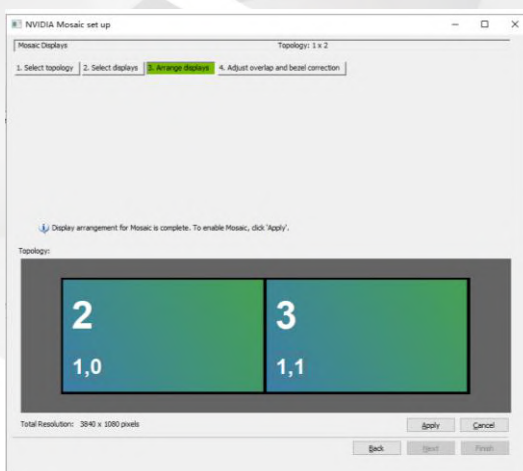
Step 9 Click **Next** to proceed.

Figure 5-30 Arrange displays



Step 10 Arrange the displays according to the screen arrangement and structure by dragging the available displays to the corresponding topology areas.

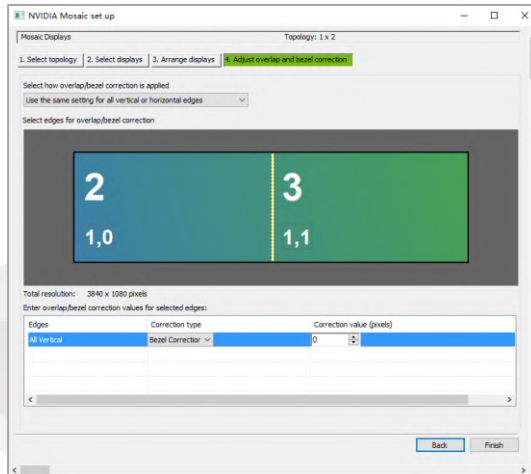
Figure 5-31 Arrange displays



Step 11 Click **Apply** and then click **Yes** on the confirmation window.

Step 12 Click **Next** to proceed.

Figure 5-32 Adjust overlap and bezel correction

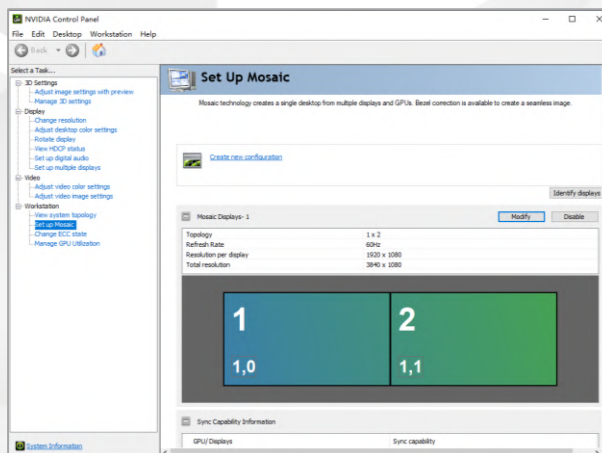


You can perform overlapping adjustment or bezel correction to the vertical or horizontal edges of the display as needed.

1. Select whether to use the same settings for all the vertical or horizontal edges of the display in the **Select how overlap/bezel correction is applied** area.
2. Select the desired edges and then enter the overlap or bezel correction values for the selected edges. Click **Apply** after the settings are done.

Step 13 Click **Finish** to complete the mosaic settings.

Figure 5-33 Mosaic completed



6 Software Overview

About This Chapter

This chapter introduces you to the user interface of the built-in multimedia playback software Pilot MS3.

Overview

- Introduction
- Change UI Layout
- Load Layout
- Lock User Interface

Note

The software pictures and descriptions in this manual are based on Pilot MS3 V3.0.0, which may vary with the actual product in your hand. For the latest software operation instructions, please visit our official website or contact the technical support to obtain the latest user manual.

6.1 Introduction

After the software is started successfully, the main user interface is shown in 0. The functions of each area are described in Table 6-1. User interface

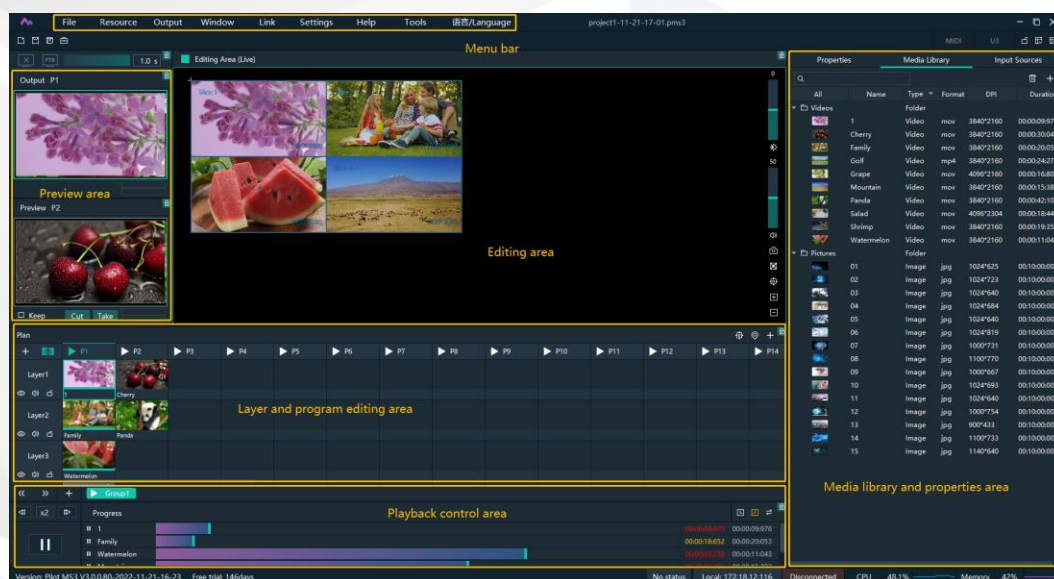













Table 6-1 User interface descriptions

Area	Item	Description
Menu bar	File	Project file operations include: <ul style="list-style-type: none"> • New: Create a new project. • Open: Open a saved project. • Save: Save the current project. • Save As: Save the current project as a new project. • Package Project: Package the current project and the media files in it as an independent project file for easy use in future.


Area	Item	Description
	Resource	<p>Manage the media files and input sources.</p> <ul style="list-style-type: none"> • Add Local Media: Add the local media files. • Add Input Source: Add the network media, NDI screens and websites as input sources. • Delete All Media: Delete all the imported media files. • Delete All Inputs: Delete all the added input sources.
	Output	Manage the screens and slices.
	Window	Show or hide the areas of the Pilot MS3 user interface. The area options include Media Library, Editing Area, Output, Preview, Fade to Black and Plan.
	Link	<ul style="list-style-type: none"> • Disconnect Primary: When a backup device is added, use this function to disconnect the binding relation between the primary and backup devices. • Synchronize Data: Manually synchronize the data on the primary and backup devices, and the data on the master and slave devices.
	Settings	Perform the system settings, authorization and hotkey bindings.
	Help	<ul style="list-style-type: none"> • View the user manual. • View the product-related information. • Check for the software updates. • Get the contact of the product provider.
	语言 /Language	Switch the UI language.
Preview area		<ul style="list-style-type: none"> • Output: View the content of the current output program. • Preview: Preview the content of the next program. <ul style="list-style-type: none"> – Cut: Send the currently previewed program to the screen without transition effect. – Take: Send the currently previewed program to the screen with the fade transition effect. – If Keep is selected and the program is sent to the screen via Take or Cut, the program will be played from the current playback progress in the preview area. – If Keep is not selected and the program is sent to the screen via Take or Cut, the program will be played from the beginning.

Area	Item	Description
Editing area		<ul style="list-style-type: none"> • Use layers to configure the output according to the on-site screen pattern. • Preview the output image. • : Adjust the output image brightness. The value ranges from -50 to +50 and defaults to 0. • : Adjust the output volume. The value ranges from 0 to 100 and defaults to 50. Click  to turn off the output audio. • : After selecting a layer or slice in the editing area, click this icon to capture the current frame of the selected layer or slice and add the captured image to the media library. • : Make the selected layer fill the screen area loaded by the output connectors where the layer is located and crosses. • : When the output image is moved out of the visible area, click this icon to restore the screen to the origin. • : Zoom in the editing area. • : Zoom out the editing area.
Layer and program editing area		<ul style="list-style-type: none"> • Add, control and mosaic the layers. • Edit, group and play the layers.
Playback control area		Control the playback of the programs or layers in the program.
Media library and properties area	Media Library	Manage the media files. <ul style="list-style-type: none"> • Add the local media files. • Create folders to manage the media files efficiently. • Delete, replace or rename the media file.
	Input Sources	Manage the input sources. <ul style="list-style-type: none"> • Add the network media, NDI screens and websites as input sources. • Delete the input sources. • Preview the input sources.
	Properties	Edit the layer or program properties.
Others	U3	Enable or disable the U3 control.
		The output connection has been established. Click the button to disconnect the output.
		The output has been disconnected. Click the button to regain the connection.



Area	Item	Description
		Enable or disable the fade to black (FTB) function. When the slider block is at the leftmost, the output is black; when the slider block is at the rightmost, the output is normal. The default FTB duration is 0.5s and the value ranges from 0 to 5s.

6.2 Change UI Layout

Pilot MS3 allows you to adjust the user interface layout according to your using habits. You can save and load the adjusted layout.

Step 1 Click  at the top right corner of the target area to unlock this area.

The icon descriptions are as follows:

-  (highlighted): The area is locked and you cannot adjust its size and position.
-  (grayed out): The area is unlocked. Move the cursor to the edge of the area and then click and drag the edge to adjust its size.

Step 2 Move the cursor to any edge of an area. When the cursor turns into a double-sided arrow, click and drag the mouse to change the area size.

Step 3 Move the cursor to the title bar of an area, and click and drag the mouse to change the area position.


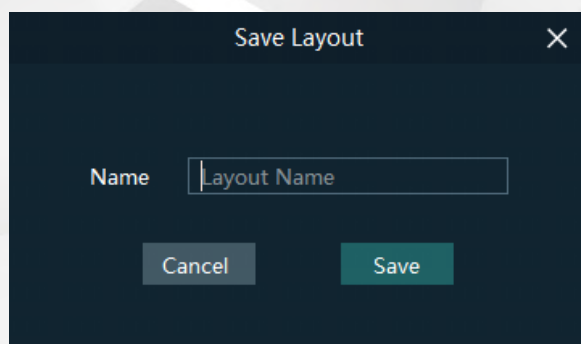
Step 4 Click  at the top right of the user interface to save the adjusted layout.

Figure 6-1 Save layout



Step 5 Enter a layout name.

The layout name is unique and it is recommended you set a name that is easy to recognize.

Step 6 Click **Save** to save the layout.

6.3 Load Layout

When the interface layout has been adjusted by others, you can load your preferred layout simply by using this function, instead of adjusting it area by area.


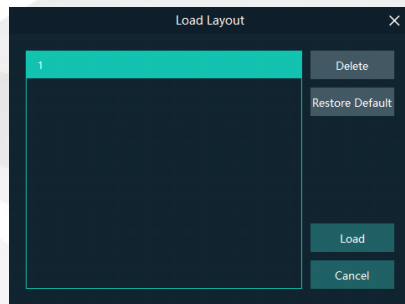
Step 1 Click  at the top right of the user interface to open the layout loading window.

Figure 6-2 Load layout



Step 2 Select the desired layout from the list on the left.

Step 3 Click **Load** to load the layout.

You can also perform the following operations:

- Delete: Delete the selected layout from the layout list.
- Restore Default: Restore the current interface layout to the default style.
- Cancel: Cancel the layout loading and exit the layout loading interface.

6.4 Lock User Interface

If you do not want others to operate the software when you are away, just simply use this function to lock the software interface.


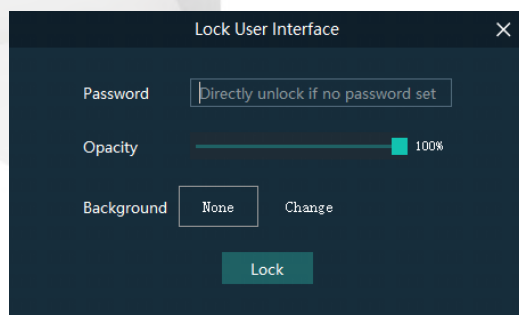
Step 1 Click  at the top right of the user interface to open the UI locking window.

Figure 6-3 Lock user interface




Step 2 Enter a password.


Step 3 Set the opacity for the locking interface.

100% is completely opaque. At this time, the editing interface is completely invisible and only the lock screen background can be seen.

Step 4 [Optional] Click **Change** next to **Background** to select a picture to be displayed on the locking interface.

Step 5 Click **Lock** to complete the locking settings and lock the interface.

 **Notes**

- The locking password and background are for one-time use only. When you want to lock the interface for a second time, please set the password and background again.
- To unlock the user interface, just enter your password click  to show the Pilot MS3 interface.

7 Project Operations

About This Chapter


This chapter guides you on how to add media files, edit programs, set program playback sequence and media properties, save configuration data as an independent project file for future use and more.

Overview

- Create New Projects
- Manage Media
- Manage Layers
- Build Application Environment
- Produce Programs
- Playback Control
- Save Projects

7.1 Create New Projects

There are three methods provided for you to create a new project.

- After Pilot MS3 is started successfully, click **New** on the startup interface and select the save path for the new project, and finally click **Save**. The system will automatically create a project file.
- Go to **File > New**, select the save path for the new project and click **Save** to create a new project.
- Click  below the menu bar to create a new project.

7.2 Manage Media

Pilot MS3 supports pictures, videos, audio media files and website inputs.

The supported media formats are as follows:

- Video: avi, asf, wmv, flv, mkv, mov, 3g, mp4, mpg, mpeg, ts, m4v
- Picture: jpg, bmp, gif, mif, miff, png, wmf, jpeg, ico, pic
- Audio: wav, mp3, wma, ape, aac, flac, ogg, dts, amr, alac
- Office files: ppt, pptx

Notes

Recommended video coding formats:

- 4K < resolutions ≤ 8K: H.265 (HEVC) or VP9 recommended
- Resolutions ≤ 4K: H.264 (AVC) recommended

For a better image quality experience, the following video bitrates are recommended.

Recommended video bitrates for SDR uploads:

Type	Video Bitrate Standard Frame Rate (24 fps, 25 fps, 30 fps)	Video Bitrate High Frame Rate (48 fps, 50 fps, 60 fps)
4320 (8K)	75 to 90 Mbps	110 to 135 Mbps
2160p (4K)	35 to 45 Mbps	53 to 68 Mbps
1440p (2K)	16 Mbps	24 Mbps
1080p	8 Mbps	12 Mbps

7.2.1 Add Media

Pilot MS3 supports both single media file importing and batch importing.

7.2.1.2 Import Files

Step 1 Click the **Media Library** tab on the right pane of the user interface.

- Step 2 Right click the blank area in the **Media Library** area and select **Add Local Media** to open a local folder.
- Step 3 Select the target media files and click **Open**. Pilot MS3 will import the selected files to the media library automatically.
- Importing a single file: Select the desired file and click **Open** to complete the importing.
 - Importing multiple files: Press the **Shift/Ctrl** key, select the desired files, and click **Open** to complete the importing.

7.2.1.3 Import Folders

There are three methods provided for you to import a folder.

- Import folder
- Step 1 Right click the blank area in the **Media Library** area and select **Add Local Folder** to open a local folder.
- Step 2 Select the desired folder where the media files are stored, and click **Open**.
- The system will automatically import the media files in the target folder with their original names to the media library.
- Replace folder
- Step 3 Right click the blank area in the **Media Library** area and select **Add Folder**. The system will automatically create a new folder.
- Step 4 Right click the folder and select **Replace** in the context menu.
- Step 5 Select the desired folder from the displayed dialog box.
- Step 6 Click **Select Folder** and the system will automatically import the media files in the target folder with their original names to the media library.

7.2.2 Edit Media

7.2.2.4 Media Optimization

When the imported media or video resolutions are inconsistent, or the imported media resolution exceeds the processing capability of Pilot MS3, to facilitate future use, you can change the file resolution in advance by using this function.

Note

Only the videos and .jpg pictures can be optimized to even resolutions only.

- Step 1 Select the picture or video that needs to be optimized from **Media Library**.
- Step 2 Right click the file and select **Media Optimization** in the context menu.
- Step 3 Set the desired parameters for the optimization.

Figure 7-1 Media optimization



If **Lock Aspect Ratio** is selected, you only need to set either width or height, and the other parameter value will be calculated automatically according to the current aspect ratio of the media.

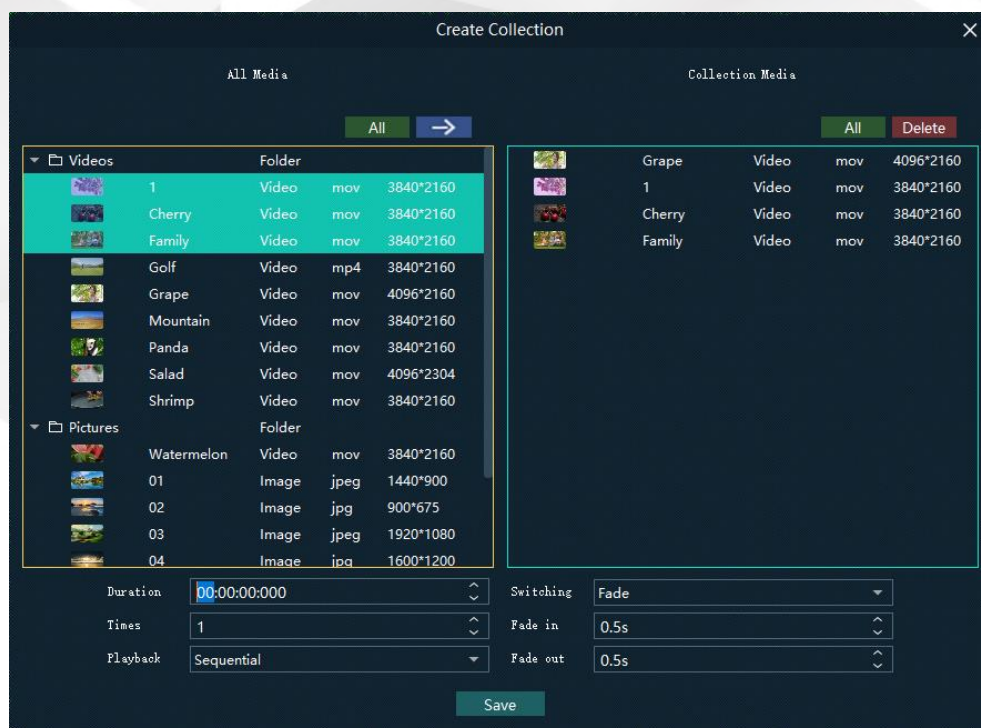
Step 4 Click **Optimize** and the system will automatically optimize the selected media file.

7.2.2.5 Create Playback Collection

The playback collection allows you to sort and combine multiple videos or pictures into a new collection source. All the videos and pictures in the collection will be played automatically according to the set mode.

Step 1 Right click the blank area in the **Media Library** area and select **Create Collection** to open the **Create Collection** window.

Figure 7-2 Playback collection




- Step 2 Select the desired media files in the **All Media** area on the left side.
- Step 3 Click  at the top right in the **All Media** area to add the selected files to the **Collection Media** area on the right side.
- Step 4 Select the newly-added media in the **Collection Media** area.
- Step 5 Change the media properties at the bottom.

Table 7-1 Collection media properties

Property	Description
Duration	Set how long the selected media will be played. After the playback ends, the next media will be played automatically. If the duration is not set, the video file will be played according to its original playback duration, and the picture file will be played for 10 minutes by default.
Times	Set how many times the selected media will be played.
Playback	Set the media playing order in the collection media. <ul style="list-style-type: none"> • Sequential: The media in the collection will be played in sequence. • Shuffle: The media in the collection will be played randomly.
Switching	Set the transition effect when the current media starts to play or stops the playing. Currently, only Cut and Fade effects are supported.
Fade in	Set the time length from when the current media starts to play to when the media is fully displayed.
Fade out	Set the time length from when the current media starts to stop to when the media is stopped.

- Step 6 Repeat the above steps to complete the settings of other media in the collection.
- Step 7 Click **OK** to complete the collection settings.
- Step 8 Double click the collection name, and the name becomes editable. Rename the collection and press **Enter** to confirm the change.


 **Note**

After a collection is created, the default name is Playback Collection. It is recommended you give it a new name that is easier for you to distinguish.

7.2.2.6 Media File Group Management

You can create folders to classify the added media files.

- Step 1 Right click the blank area in the **Media Library** area and select **Add Folder**. The system will automatically create a new folder.
- Step 2 (Optional) Double click the folder to rename it.
- Step 3 Select the desired media files and drag them to the new folder.

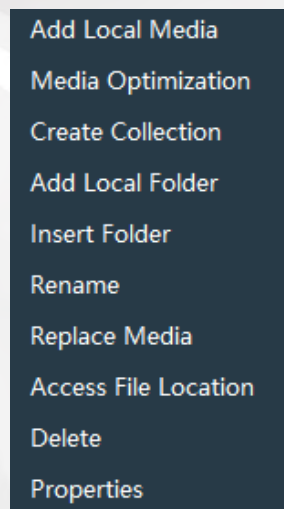
 **Notes**

- Hold down the **Shift** or **Ctrl** key, and select the target file or multiple files in **Media Library**.
- After selecting a media file, right click it and select **Insert Folder** in the context menu to move the selected file to the newly-inserted folder.

7.2.2.7 Media File Context Menu

Right click a media to show the media file context menu.

Figure 7-3 Media file context menu



- **Add Local Media:** Add new media files into the media library.
- **Media Optimization:** Change the coding, quality, code rate, frame rate, audio and resolution settings of the videos or pictures.
Only the videos and .jpg pictures can be optimized to even resolutions only.
- **Create Collection:** Create a collection media.
- **Change Playback Collection:** Change the settings of the collection media.
- **Add Local Folder:** Import a folder containing media files into the media library.
- **Insert Folder:** Create a new folder and move the selected media files into the folder.
- **Rename:** Rename the selected media or collection.
- **Replace Media:** Replace the currently-selected media. When the media is replaced, the media in the program will also be replaced synchronously.
- **Access File Location:** Open the storage location of the current media.
- **Delete:** Delete the current media.
- **Properties:** View the media properties, such as the name, size, format and more.

7.2.3 Add Input Sources

You can add the network media, website input sources, NDI input sources and input sources from acquisition devices. The system automatically identifies and adds the

input sources from acquisition devices. You can also enable or disable the acquisition device.



Note

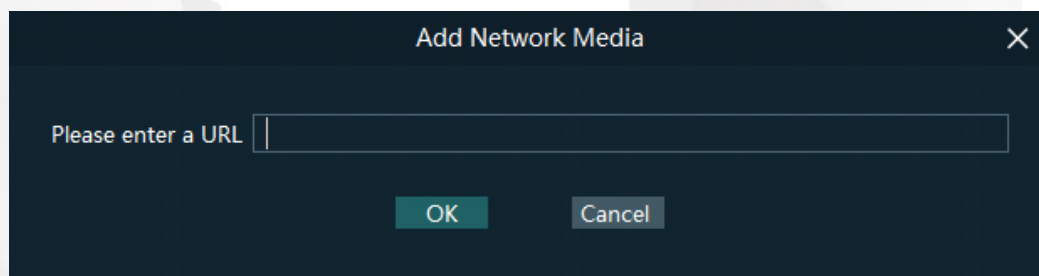
When the acquisition card and its driver have been installed into the device successfully, Pilot MS3 will automatically identify and add the acquisition card input source.

7.2.3.8 Add Network Media

Pilot MS3 supports adding the streaming media whose format is rtsp and rtmp as input sources.

- Step 1 Click the **Input Sources** tab on the right pane of the user interface.
- Step 2 Right click the blank area and go to **Add Input Source > Add Network Media**. The system will automatically open the network media adding window.

Figure 7-4 Add network media

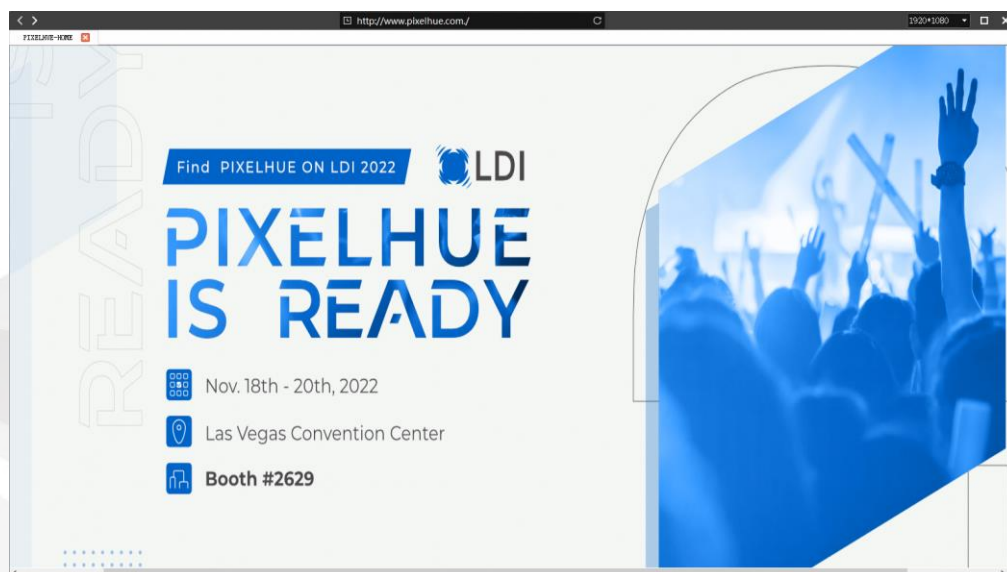


- Step 3 Enter the media path in the URL text box.
Make sure the media path begins with rtsp:// or rtmp://.
- Step 4 Click **OK** to complete the adding.

7.2.3.9 Add Website Input Sources

- Step 1 Click the **Input Sources** tab on the right pane of the user interface.
- Step 2 Right click the blank area and go to **Add Input Source > Add Webpage**. The website page will appear as shown below.

Figure 7-5 Add website input sources-1



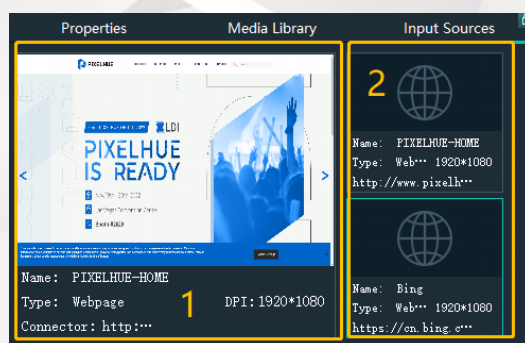
- Step 3 Enter an URL in the address bar.
- Step 4 Press **Enter** to enter the website and select the content to be played.
- Step 5 Click the drop-down arrow at the top right to show the list where you can set the webpage resolution.
- Step 6 Click **x** at the top right to close and finish adding the website.







Note

When multiple tabs are opened, the input source displays the tab you stay on before closing.

Figure 7-6 Add website input sources-2



- 1: Preview window where you can preview the input source image, input source name, type and resolution
- 2: List all the input sources with their names.
 - : The added network media
 - : The added NDI input source
 - : The input sources from the acquisition device
 - : The added webpage input source

7.2.3.10 Add NDI Input Sources

After Pilot MS3 is successfully installed, the NDI configuration tool NDI Sender that comes with Pilot MS3 will be installed. After NDI Sender is enabled, Pilot MS3 will automatically search for all the computers whose NDI sending functions have been enabled in the current network segment.

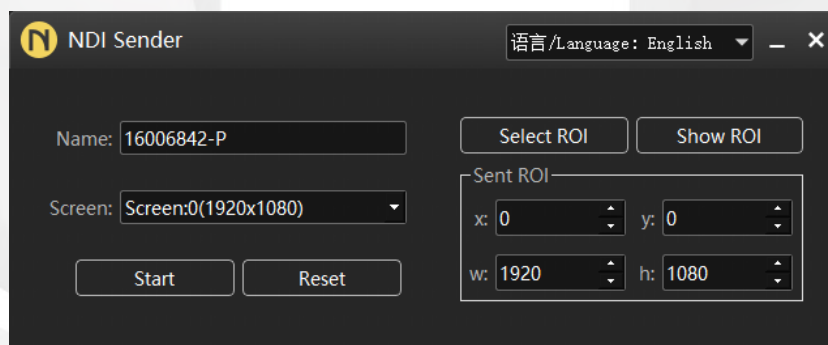
Prerequisites

- The computer running the NDI Sender and Pilot MS3 must be on the same network segment.
- Make sure the computer running the NDI Sender and Pilot MS3 can communicate normally.

NDI Settings

Step 1 Double click the NDI Sender shortcut on the desktop to open the NDI Sender software.

Figure 7-7 NDI Sender



Step 2 Set the image position and size for NDI on the computer screen.

There are two methods to set the NDI image position and size.

- Click **Select ROI** and then click and drag the mouse to select the display area you want to send.
- In the **Sent ROI** area, you can precisely set the position and size of the sent area.
 - x: The horizontal offset from the top left corner of the sent area to the screen's left edge
 - y: The horizontal offset from the top left corner of the sent area to the screen's top edge
 - w: The horizontal width of the sent area
 - h: The vertical height of the sent area

After the settings, you can click **Show ROI** to see the image position and image size you have set.

Step 3 Enter an NDI name.

Step 4 Select the screen you want to send if there are multiple computer screens.

Step 5 Enter the frame rate of the NDI image. The default value is 25.

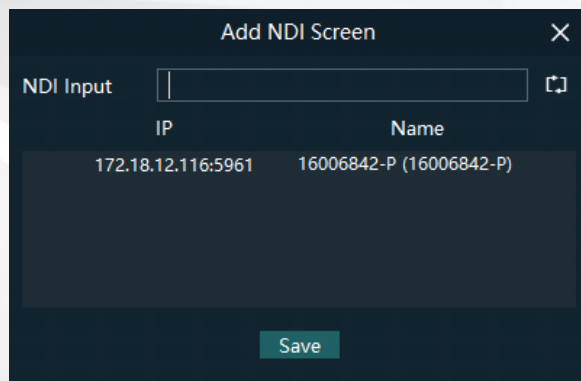
Step 6 Click **Start** to complete the NDI Sender settings.

Add NDI Input Sources

Step 1 Click the **Input Sources** tab on the right pane of the user interface.

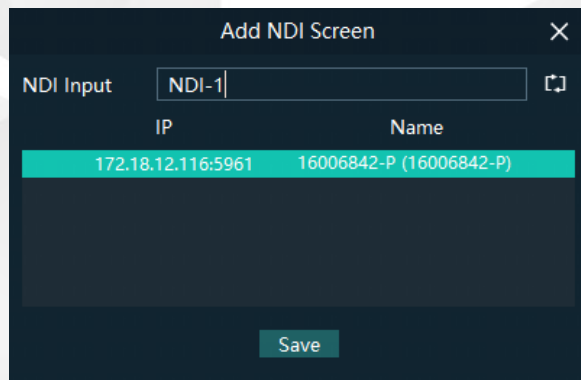
Step 2 Right click the blank area and go to **Add Input Source > Add NDI Screen**. The system will automatically search the current network segment for all the NDI-enabled devices and then show you the NDI list.

Figure 7-8 NDI list



Step 3 Select the NDI sources from the NDI list.

Figure 7-9 Select NDI sources



Step 4 Enter an NDI name.

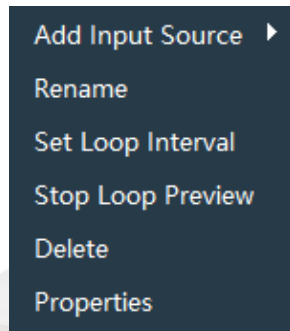
After the name is changed here, the new name will be displayed under the **Input Sources** tab.


Step 5 Click **OK** to complete adding an NDI source.

Website Input Source Menu

Right click an input source under the **Input Sources** tab to show the website input source menu.

Figure 7-10 Website input source menu



- Add Input Source: Add the network media, NDI screen or webpage.
- Rename: Change the input source name.
- Set Loop Interval: Set how long the input source is previewed in the preview area.
- Stop Loop Preview: Stop loop preview of the current input source in the preview area.
- Restore Loop Preview: Perform loop preview of all the input sources in the preview area.
- Delete: Delete the current input source.
- Properties: View the relevant information of the input source, including the name, type, network address, resolution and frame rate.
- Click  at the bottom right of the acquisition card to select whether to add the sources from the acquisition device.

7.3 Manage Layers

7.3.1 Add Layers

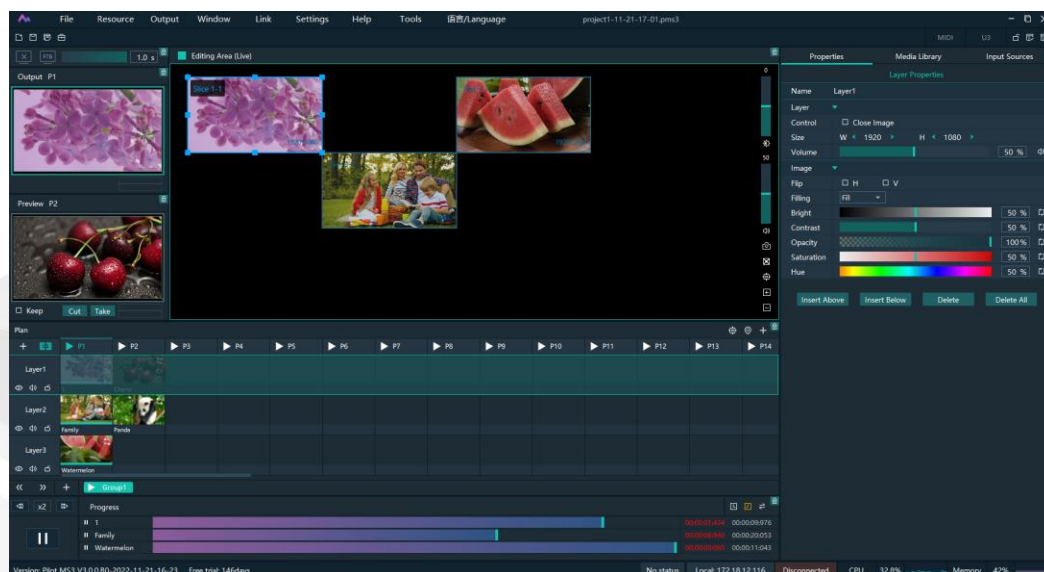
The layer is a container where you store the media file of a program. Before you edit the program, please add the layers and add the media files into the layers first.

Step 1 Click **+** at the top left in the **Plan** area to add a layer.

The new layer will be added to each program.

Step 2 Change the layer position in the **Editing Area** to arrange the output slices and avoid overlapping perfectly.

Figure 7-11 Slice position



Step 3 Select a layer and click the **Properties** tab on the right pane to show the layer properties.

Step 4 Configure the layer-related properties.

Notes

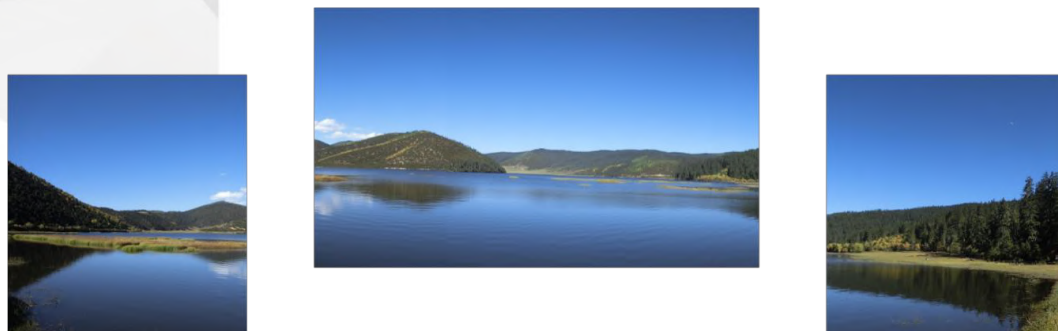
- When you click and drag the layer, the purple auxiliary lines appear to help you better align the layers.
- When there are too many media items, you can search for the media item in the search box above.

7.3.2 Layer Mosaic

Applications

When an image needs to be output by multiple connectors and pixel-to-pixel display is required, you can use this function to satisfy your needs.

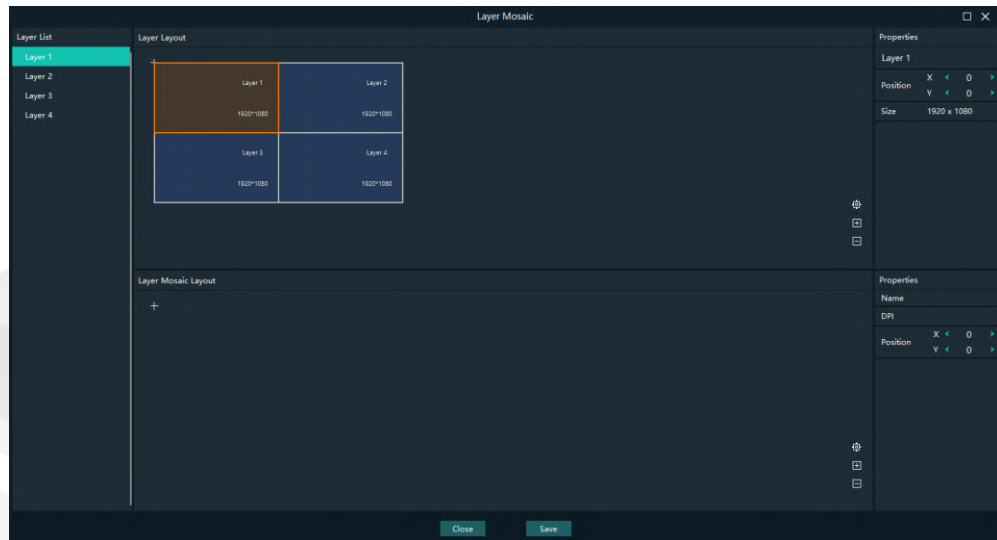
Figure 7-12 Layer mosaic effect



Operating Procedure

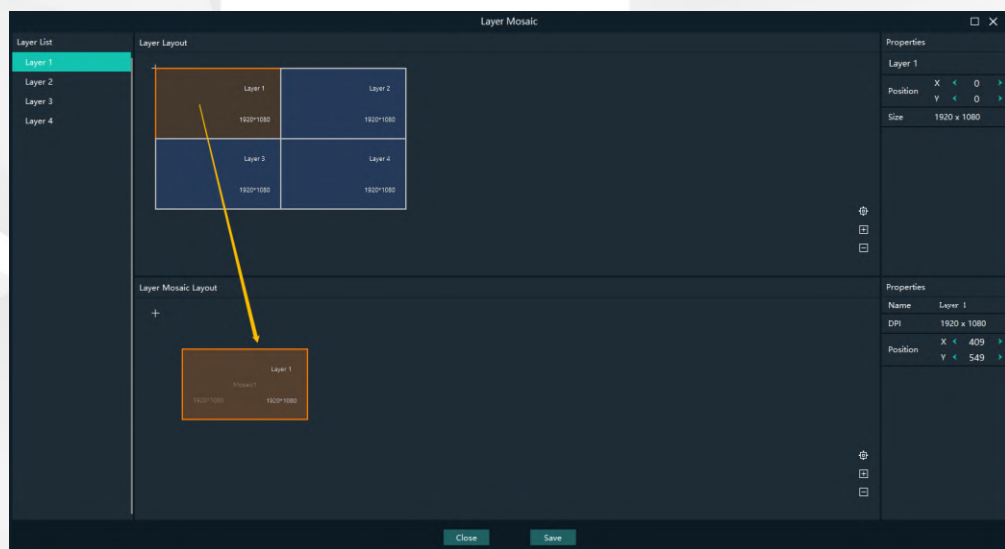
Step 1 Click  at the top left in the **Plan** area to open the layer mosaic window.

Figure 7-13 Layer mosaic-1



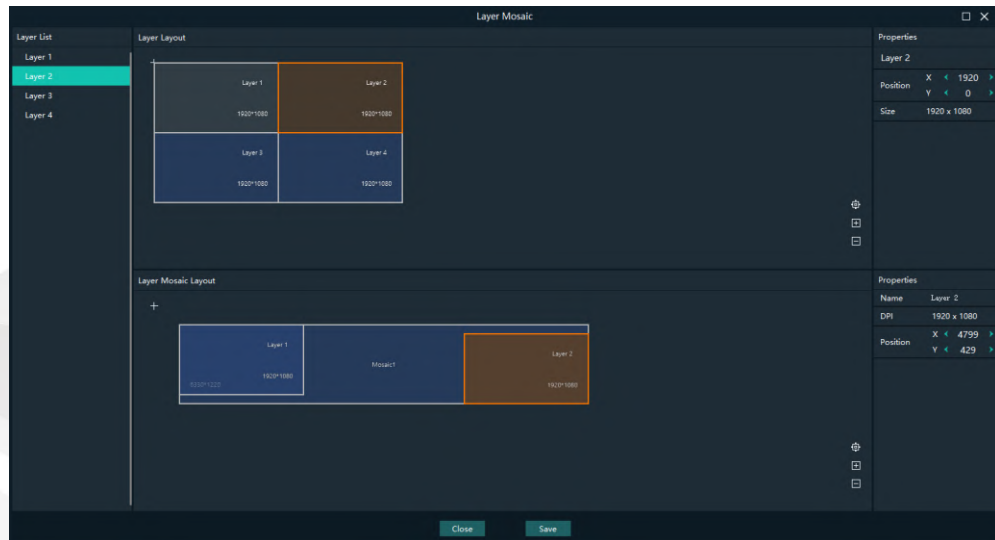
Step 2 Select and drag the layers in the **Layer Layout** area to the **Layer Mosaic Layout** area.

Figure 7-14 Layer mosaic-2



Step 3 Arrange the layers in the way you prefer in the **Layer Mosaic Layout** area.

Figure 7-15 Layer mosaic layout



Step 4 (Optional) Change the mosaic layer name in the **Properties** area on the right.

Step 5 Click **Save** to complete the layer mosaic.

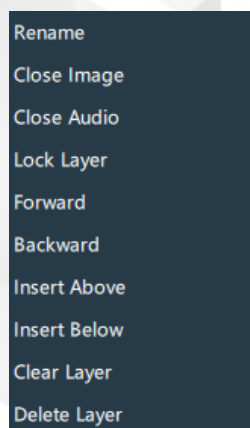
After the mosaic is completed, a new mosaic layer will be displayed in the **Plan** area.

7.3.3 Set Layer Properties

Layer Menu

Right click a layer in the **Plan** area to show the layer menu as shown below.

Figure 7-16 Layer menu



- **Rename:** Change the layer name.
- **Close Image:** Do not display the image of the current layer in all the programs.
- **Close Audio:** Do not play the audio of the current layer in all the programs.
- **Lock layer:** Lock the current layer in all the programs. After the layer is locked, the layer property changes will not take effect.
- **Forward/Backward:** Adjust the order of the layer.
- **Insert Above:** Insert a layer above the current layer row.

- Insert Below: Insert a layer below the current layer row.
- Clear Layer: Clear the data in the current layer.
- Delete Layer: Clear the layer data and delete the layer.

Layer Properties

Step 1 Select a layer in the **Plan** area or **Editing Area**.

Step 2 Select the **Properties** tab on the right pane of the user interface.

Figure 7-17 Layer properties

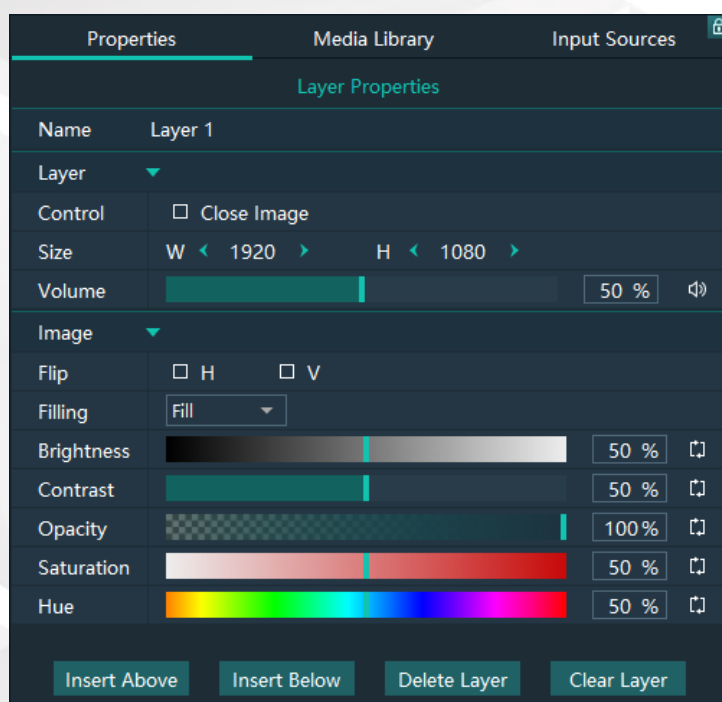




Table 7-2 Function descriptions

Function	Description
Name	View and change the layer name.
Control	Close Image: Do not display the image of the current layer, and only the audio is played.
Size	Change the layer size. <ul style="list-style-type: none"> • W: Set the layer size in the horizontal direction. • H: Set the layer size in the vertical direction.
Volume	Adjust the output volume of the current layer. The default value is 100%. <ul style="list-style-type: none"> • Click  to turn off the audio. • Click  to reset the volume to default.

Flip	<p>Set the flipping mode of the output image. If H and V are not selected, the output image is displayed normally, without any flipping effect.</p> <ul style="list-style-type: none"> • H: Flip the image horizontally. • V: Flip the image vertically.
Filling	<p>Set how the image is displayed in the selected layer.</p> <ul style="list-style-type: none"> • Fill: The image fills the whole layer. • Proportional: The image is scaled and displayed in the layer according to its original aspect ratio.
Brightness	<p>Set the overall brightness of the layer image. The value range is 0%–100%, and it defaults to 50%.</p>
Contrast	<p>Set the overall contrast of the layer image. The value range is 0%–100%, and it defaults to 50%.</p>
Opacity	<p>Adjust the transparency of the output image. The value range is 0% (totally transparent)–100% (opaque), and it defaults to 100%.</p>
Saturation	<p>Adjust the colorfulness of the output image. The value range is 0%–100%, and it defaults to 50%.</p>
Hue	<p>Set the relative degree of how bright or dark the output image is. The value range is 0%–100%, and it defaults to 50%.</p>
Insert Above	<p>Insert a layer below the current layer row.</p>
Insert Below	<p>Insert a layer below the current layer row.</p>
Delete Layer	<p>Clear the layer data and delete the layer.</p>
Clear Layer	<p>Clear the data in the current layer.</p>

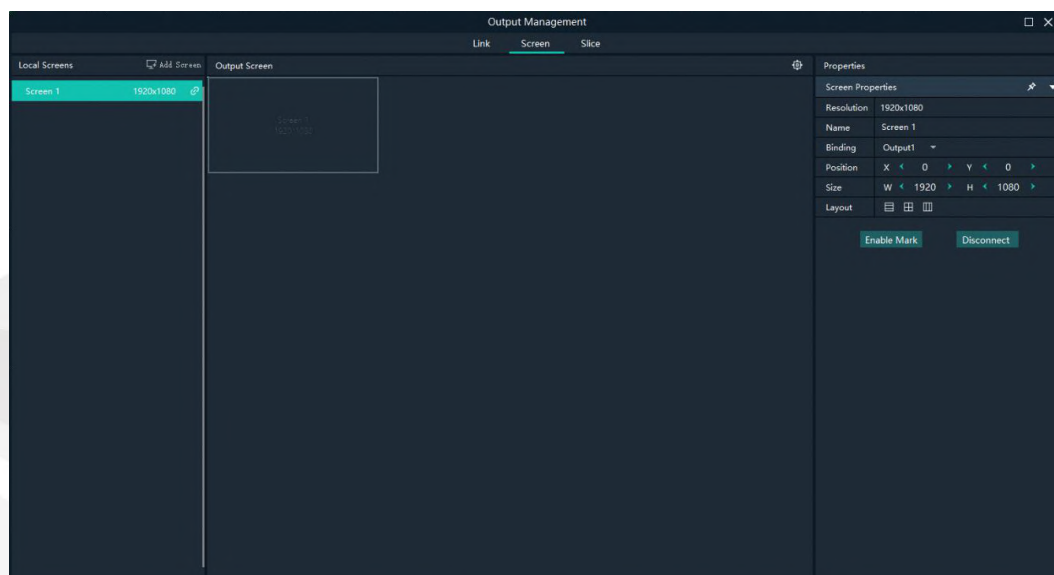
7.4 Build Application Environment

In Pilot MS3, you can use the screens and slices to build an application environment according to your actual on-site needs.

- Screen: Configure the output image displayed on the screen.
- Slice: Configure the image output by the corresponding output connector.

Click **Output** in the menu bar to open the **Output Management** window where you can relate the screens with the output connectors and change the screen position and sequence.

Figure 7-18 Output management



7.4.2 Add Screens

Each output connector on the discrete graphics card of the computer or server where Pilot MS3 is installed corresponds to a screen.

To synchronize output images, please refer to [5 X400 Settings](#) to complete relevant configurations.

Add and Bind Screens Automatically

Pilot MS3 will automatically detect the graphics card connectors and then complete the adding and binding of those detected connectors. All the connectors are displayed in the output list on the left.

Add and Bind Screens Manually

When you add the graphics card to the control PC or change the saved project file, you can add the screens manually.

- Step 1 Click **Add Screen** at the top left to add an output.
- Step 2 Set the screen position and size according to the screen layout in the **Screen Properties** area on the right.

Figure 7-19 Screen management

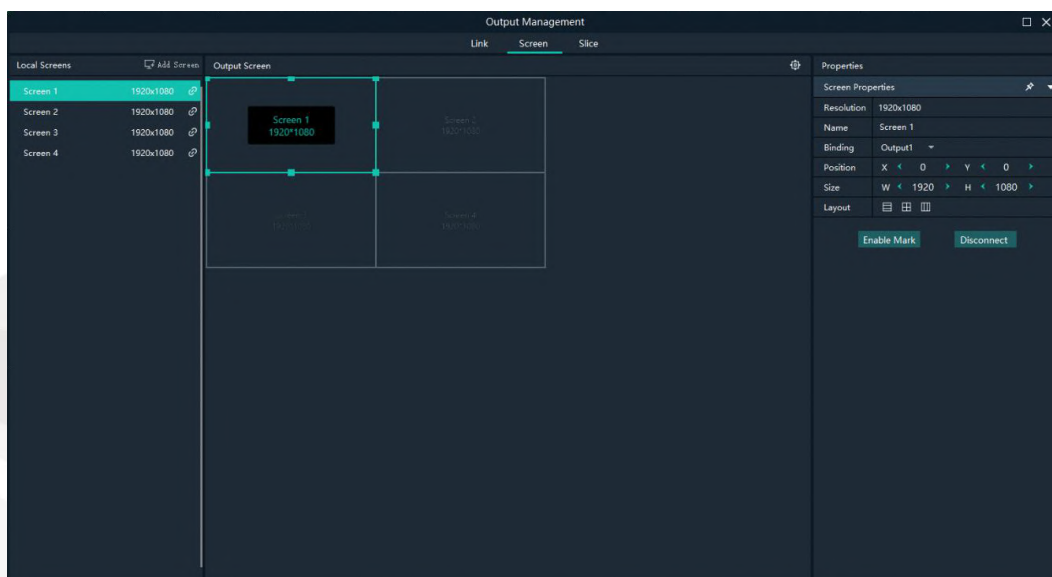





Table 7-3 Screen properties

Menu	Description
Resolution	The resolution of the screen loaded by the connectors
Name	Change the screen name.
Binding	Set the relationship between the output connector and screen.
Position	<ul style="list-style-type: none"> • X: Set the horizontal distance between the top left corner of the screen and the top left corner of the screen editing area. • Y: Set the vertical distance between the top left corner of the screen and the top left corner of the screen editing area.
Size	Set the screen size. <ul style="list-style-type: none"> • W: Set the screen size in the horizontal direction. • H: Set the screen size in the vertical direction.
Layout	When there are multiple screens, use this function to arrange the screens quickly. <ul style="list-style-type: none"> • : All the screens are arranged in a 1x4 pattern. • : The screens are arranged in a 2x2 pattern. • : All the screens are arranged in a 4x1 pattern.
Enable Mark	Display a sequence number on the output connector and screen, which helps you easily identify and adjust the output pattern.
Disable Mark	Do not display the sequence number.

Disconnect	Do not show the output image of the current screen.
Connect	Show the output image of the current screen.

Step 3 Click and drag the screens to complete the screen mosaic.

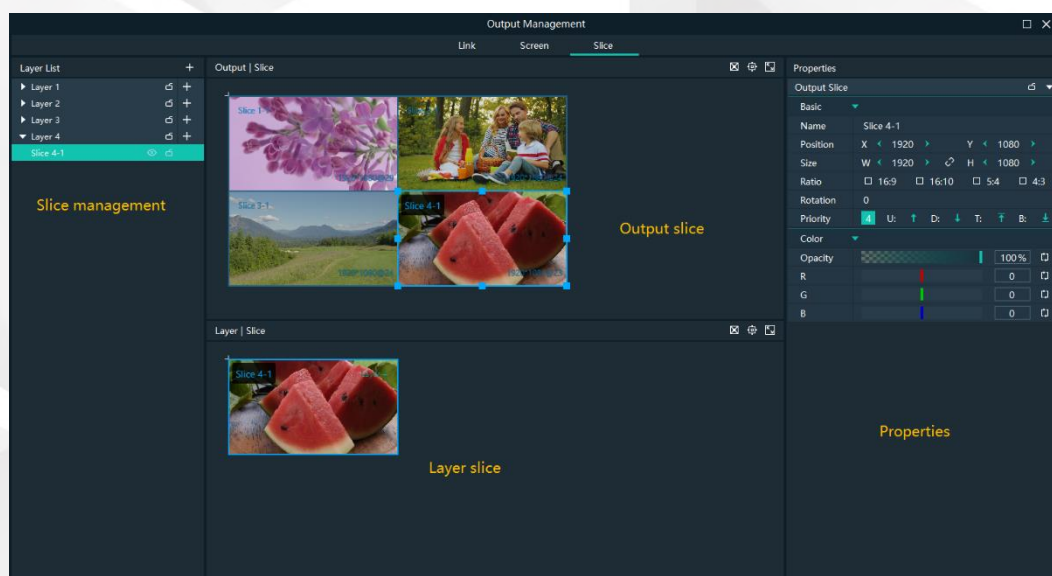
7.4.3 Add Slices






Pilot MS3 uses the slices to output the image to the LED screen. Select the desired image area of the layer using the slice, and then map the image to the output connector to complete the image construction.

Step 1 Click **Output** in the menu bar to open the **Output Management** window.

Step 2 Select the **Slice** tab.

Figure 7-20 Screen slice and area descriptions



- Slice management: Add and delete slices.
- Output slices: Adjust the output slice positions on the screen to construct the desired output image.
- Layer slices: Adjust the sizes and positions of the layer slices, and flexibly crop the layer image.
- Slice properties: Set the properties of the output slices, layer slices and layers.
- : Slice self-adaptive configurations
 - In the layer slice area, click  to make the selected slice fill the layer.
 - In the output slice area, click  to make the selected slice fill the screen.
- : Restore the canvas to the origin.
- : Maximize the Output | Slice or Layer | Slice area.

Step 3 Add the slices.

1. In the **Layer List** area, select the desired layer to add the slices.

2. Click **+** next to the layer name to add a slice.

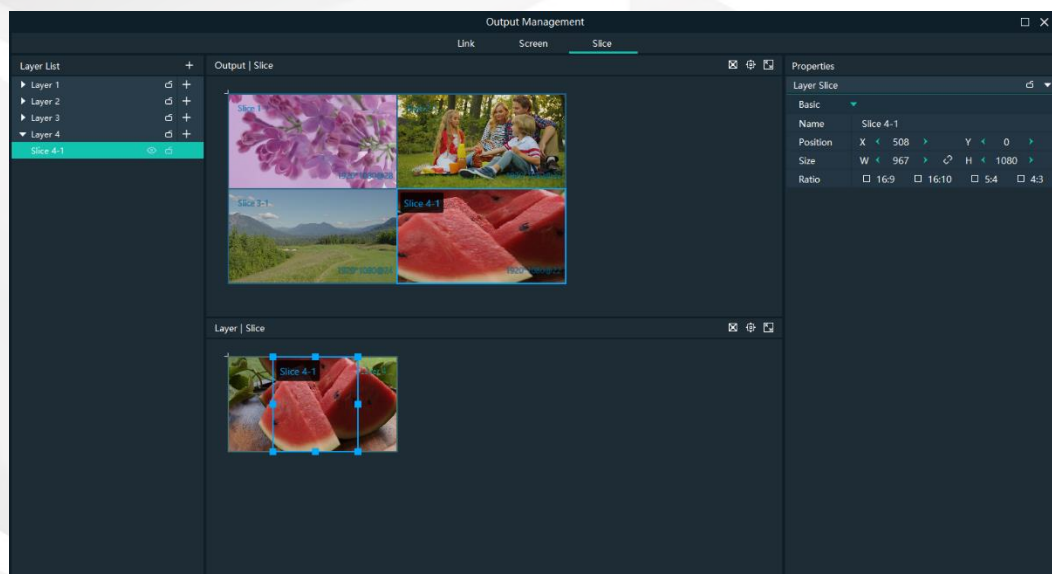
Note

You can also add the slices by simple copy and paste operations. Right click the desired slice in the **Layer List** area and then select **Copy**, and right click it again and then select **Paste** to add a slice.

Application Example

If you want to output only the watermelon area in Layer 4, do the following.

Figure 7-21 Slice application example



Step 2 Under the **Slice** tab, select **Slice 4-1** on the left side.

Step 3 In the **Layer | Slice** area, move the slice to cover the tree and adjust the slice size as needed.

Step 4 In the **Output | Slice** area, adjust the output slice size as needed and move the slice to the desired screen.

7.4.4 Set Slice Properties

Output Slice

The output slices are used for the construction of the output image. The output slice outputs the image of the corresponding layer slice, and then scales the layer slice image according to the output slice size you set. Select the desired output slice in the **Output | Slice** area, and then set the slice properties on the right.

Figure 7-22 Output slice properties

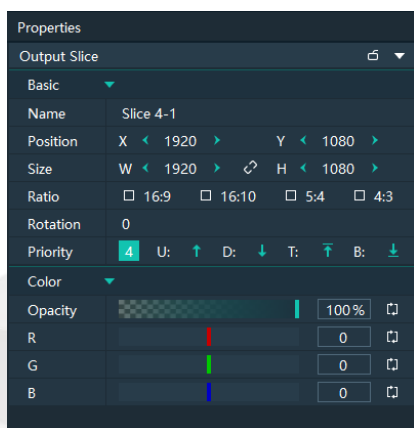







Table 7-4 Function descriptions

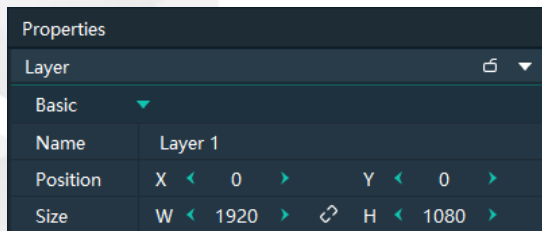
Area	Parameter	Description
Basic properties	Name	Display or change the name of the output slice.
	Position	View or set the output slice position in the Output Slice area. The origin of the Output Slice area is the adjustment reference point and the adjustment unit is the pixel. <ul style="list-style-type: none"> • X: View or set the horizontal coordinate of the top left corner of the output slice in the Output Slice area. • Y: View or set the vertical coordinate of the top left corner of the output slice in the Output Slice area.
	Size	View or set the output slice size. <ul style="list-style-type: none"> • W: View or set the output slice size in the horizontal direction. • H: View or set the output slice size in the vertical direction. • Click  between W and H to lock the slice aspect ratio.
	Ratio	Set the aspect ratio of the output slice.
	Rotation	Rotate the output image clockwise based on the center of the output slice.


Area	Parameter	Description
	Priority	View or set the displaying priority of the output slice. <ul style="list-style-type: none"> • Display: Indicate the priority of the output slice by a number. The larger the number, the higher the priority, i.e., the more front the output slice is displayed. • Adjustment: Select the desired output slice, and then click , ,  or  to adjust its priority.
Color properties	Opacity	Adjust the transparent degree of the output slice. The value ranges from 0% (totally transparent) to 100% (nontransparent).
	R/G/B	Adjust the RGB values of the output slice.

Layers

Select the desired layer in the **Layer| Slice** area, and then set the layer properties on the right.

Figure 7-23 Layer properties



- Name: Display or change the name of the layer.
- Position: View or set the layer position in the **Layer | Slice** area. The origin of the **Layer | Slice** area is the adjustment reference point and the adjustment unit is the pixel.
 - X: View or set the horizontal coordinate of the top left corner of the layer in the **Layer | Slice** area.
 - Y: View or set the vertical coordinate of the top left corner of the layer in the **Layer | Slice** area.
- Size: View or set the layer size.
 - W: View or set the layer size in the horizontal direction.
 - H: View or set the layer size in the vertical direction.
 - Click  between **W** and **H** to lock the slice aspect ratio. If one of the two values is changed, the other value will change automatically according to the aspect ratio.

Layer Slices

Select the desired layer slice in the **Layer| Slice** area, and then set the layer slice properties on the right.

The layer slice is used to select a specific image area of the layer image.

Figure 7-24 Layer slice properties



Table 7-5 Function descriptions

Parameter	Description
Name	Display or change the name of the layer slice.
Position	View or set the layer slice position upon the layer. The top left corner of the layer is the adjustment reference point and the adjustment unit is the pixel. <ul style="list-style-type: none"> • X: View or set the horizontal coordinate of the top left corner of the layer slice upon the layer. • Y: View or set the vertical coordinate of the top left corner of the layer slice upon the layer.
Size	View or set the layer slice size. <ul style="list-style-type: none"> • W: View or set the layer slice size in the horizontal direction. • H: View or set the layer slice size in the vertical direction.
Ratio	Set the aspect ratio of the layer slice.

7.4.5 Configure Link Backup

Pilot MS3 supports the device backup to set the backup relationship between two devices. You can set one of the devices as the primary device or the backup device. When the primary device has got a problem or the primary device's cable fails, the backup device will take over the responsibilities of the primary device seamlessly, and continue to work well to ensure the LED screen will not go black.

Figure 7-25 Application



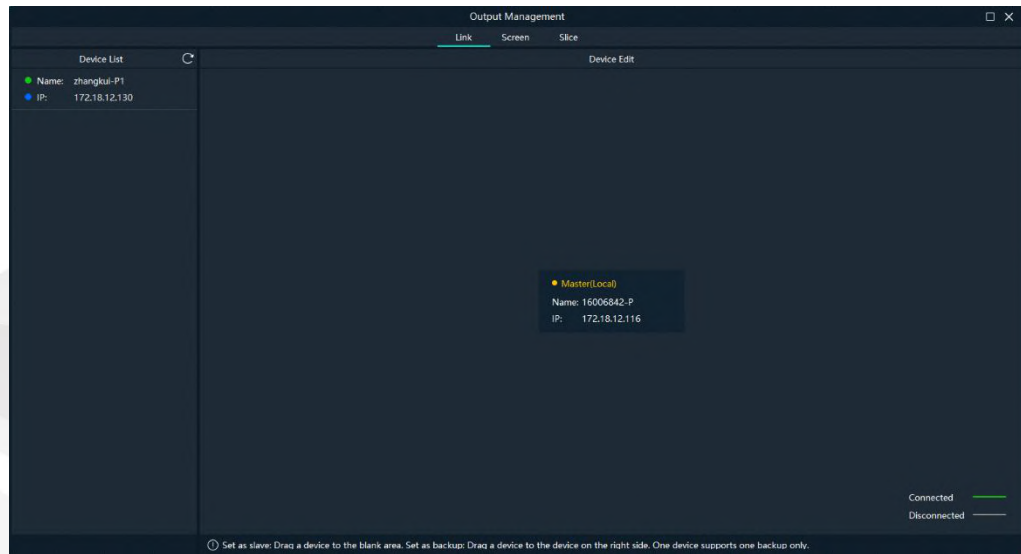
Prerequisites

- The primary and backup devices must be on the same network segment.
- The primary and backup devices must be connected to the same downstream device, such as an F4 shown above.

Operating Procedure





- Step 1 On the primary device, go to **Link > Link Settings** or click **Output > Link** to open the **Output Management** window.

Figure 7-26 Link settings



In the device list, the system will automatically search for all the online devices on the current network segment.

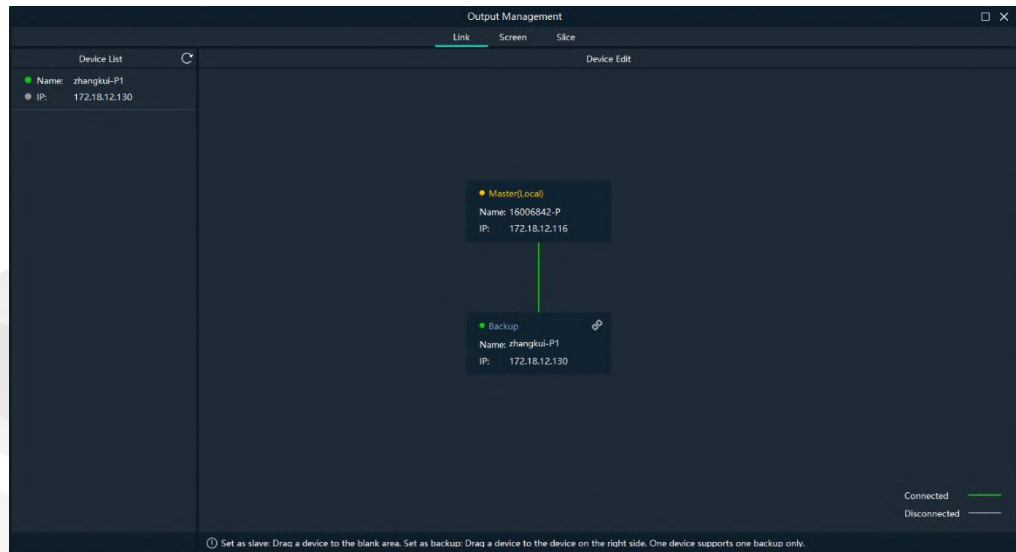
Device status descriptions:

- Name:
 - The media server name
 - : The device is online.
 - : The device is offline.
- IP:
 - The device IP address
 - : The device is not used as a backup one.
 - : The device is used as a backup one

Step 2 In the device list, select the device used as a backup one.

Step 3 Select the desired device and drag it to the target primary device to complete the backup setting

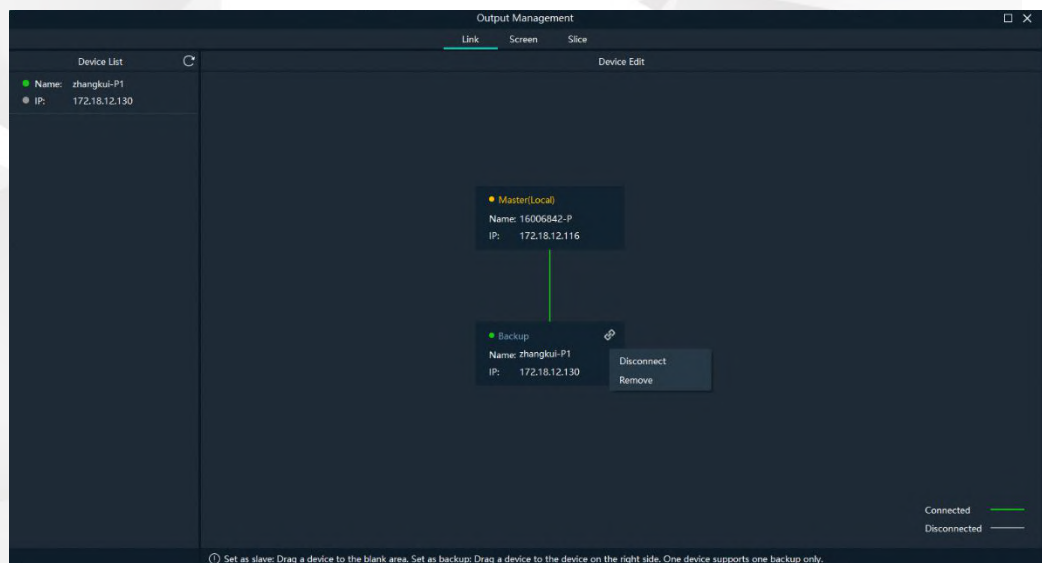
Figure 7-27 Backup settings



Other Operations

On the output management page, right click the backup device to show the context menu.

Figure 7-28 Context menu for backup device



- Click **Disconnect** to disconnect the backup device from the primary device. Right click again and select Connect to reconnect them.
- Click **Remove** to delete the backup device and remove the backup relation between the primary and backup devices.

7.5 Produce Programs

The playback unit of Pilot MS3 is the program.

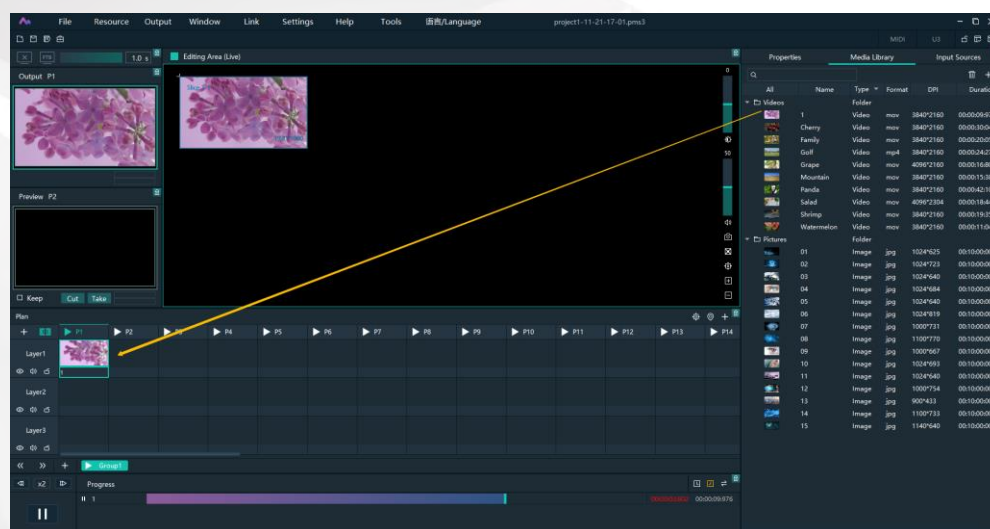
After you have completed the construction of the outputs and added images to the layers, the system will output the image according to your construction (slices).

7.5.1 Edit Programs

The system provides 50 programs by default. Before the playback of a program, you must add the media files or input sources to the layers of the programs.

Select the desired media file or input source in **Media Library** and drag it to the target program layer in the **Plan** area.

Figure 7-29 Edit programs



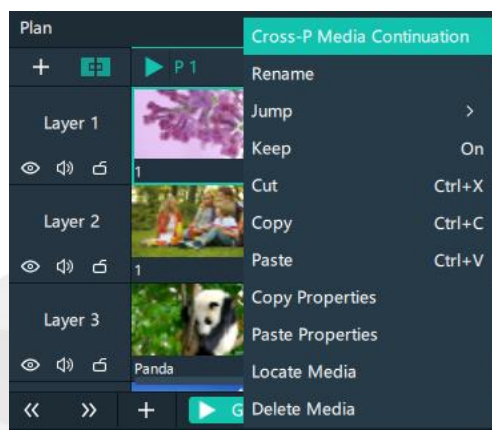
- The functions of the icons in the **Plan** area are described as follows.
 - : Return to the first program column.
 - : Locate the program that is being played or edited.
 - : Add a new program.
 - : Turn off the image display of the selected layer.
 - : Turn on the image display of the selected layer.
 - : Turn off the audio of the selected layer.
 - : Turn on the audio of the selected layer.

7.5.2 Set Media Continuation

When you want to play media content in the same layer of multiple continuous programs, you may need to add the same media file to each program. The added media will be played from the beginning when a new program starts, which may not be what you want to see. The cross-program media continuation function can perfectly solve this problem. After you have enabled this function for a specified media, the program will be played continuously but not played from the beginning when a new program is started.

- Step 1 Right click the desired media in the **Plan** area and select **Cross-P Media Continuation** from the context menu.

Figure 7-30 Set media continuation



Step 2 Click and drag the media to the target program.

Note

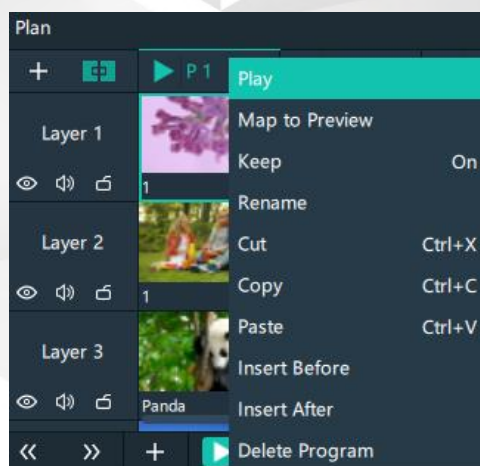
Right click the desired media and select **Cross-P Media Continuation**, and then right click again the target program and select **Complete Continuous Operations** to complete the media continuation settings.

7.5.3 Set Program Properties

Program Menu

Right click a program to show the context menu as shown in the following, and you can set the program properties as needed.

Figure 7-31 Set program properties



- Play: Play the current program.
- Map to Preview: Show the program content in the preview area.
- Keep: After this is enabled, when the playback switches to the program, it starts to play from the last position. After this is disabled, when the playback switches to the program, it starts to play from the beginning.

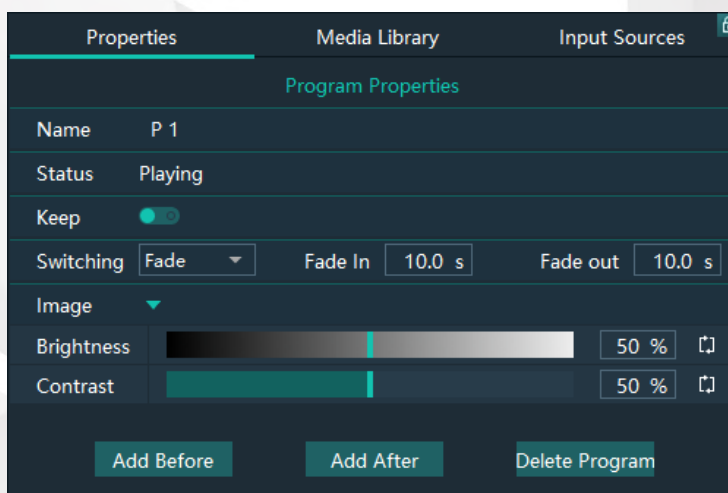
- Rename: Change the program name.
- Cut: Cut the current program.
- Copy: Copy the current program and its properties.
- Paste: Paste the copied program and its properties to the specified program.
- Insert Before: Add a new program before the current program column.
- Insert After: Add a new program after the current program column.
- Delete Program: Clear all the layer data in the program and delete the program.

Program Properties

Step 1 Select a layer in the **Plan** area or **Editing Area**.

Step 2 Select the **Properties** tab on the right pane of the user interface to show the program property settings.

Figure 7-32 Program properties

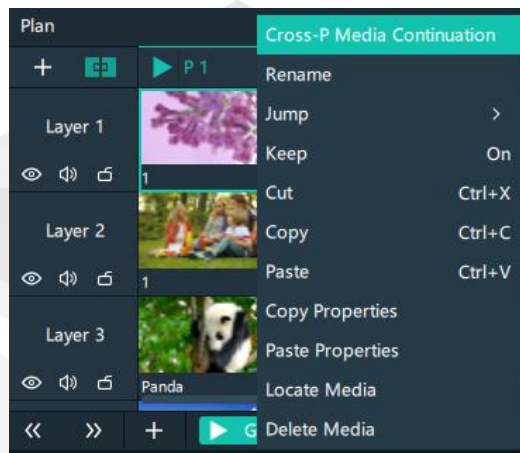





- Name: View or change the program name.
- Status: Display the playback status of the current program.
- Keep: After this is enabled, when the playback switches to the program, it starts to play from the last position. After this is disabled, when the playback switches to the program, it starts to play from the beginning.
- Switching: Set the transition effect for program switching. The options include **Fade** and **Cut**.
- Fade In: When **Fade** is selected, set the duration for the current media to appear.
- Fade Out: When **Fade** is selected, set the duration for the current media to disappear.
- Brightness: Set the brightness of the images in the program.
- Contrast: Set the contrast of the images in the program.
- Add Before: Add a new program before the current program.
- Add After: Add a new program after the current program.
- Delete Program: Clear all the layer data in the program and delete the program.

Media Context Menu in Program

Right click a media in a program in the **Plan** area to show the context menu.

Figure 7-33 Media context menu



- **Cross-P Media Continuation:** When you want to play a media in the same layer of multiple continuous programs, you may need to add the same media file to each program. The added media will be played from the beginning when a new program starts, which may not be what you want to see. The cross-program media continuation function can perfectly solve this problem. After you have enabled this function for a specified media, the program will be played continuously but not played from the beginning when a new program is started.
- **Rename:** Change the name of the media in the program. The media name in the media library is changed at the same time.
- **Jump:** Set the jump playback mode of the current media after the media playback ends.
 - **Loop:** Loop the playback of the selected media in the program, and then  will be displayed at the top right of the layer in the **Plan** area.
 - **EOF:** The current media will stop the playing and display the last frame after being played once, and  will be displayed at the top right of the layer in the **Plan** area.
 - **Stop:** The playback will stop after being played once, and  will be displayed at the top right of the layer in the **Plan** area.
 - **Next Program:** Jump to the next program after the current media playback ends.
 - **Jump to Specified Program:** Specify the desired program and the specified program will be played automatically after the current program is completed.
- **Keep:** After this is enabled, when the playback switches to the program, it starts to play from the last position. After this is disabled, when the playback switches to the program, it starts to play from the beginning.
- **Cut:** Cut the media in the layer of the current program.
- **Copy:** Copy the media in the layer of the current program.
- **Paste:** Paste the copied or cut media.

- Copy Properties: Copy the properties of the selected media.
- Paste Properties: Paste the copied media properties to another media.
- Locate Media: Locate the current media file in the media library.
- Delete Media: Delete the selected media.

Program Media Properties

Step 1 Select the desired media in a program.

Step 2 Select the **Properties** tab on the right pane of the user interface to show the media property settings.

Figure 7-34 Media properties

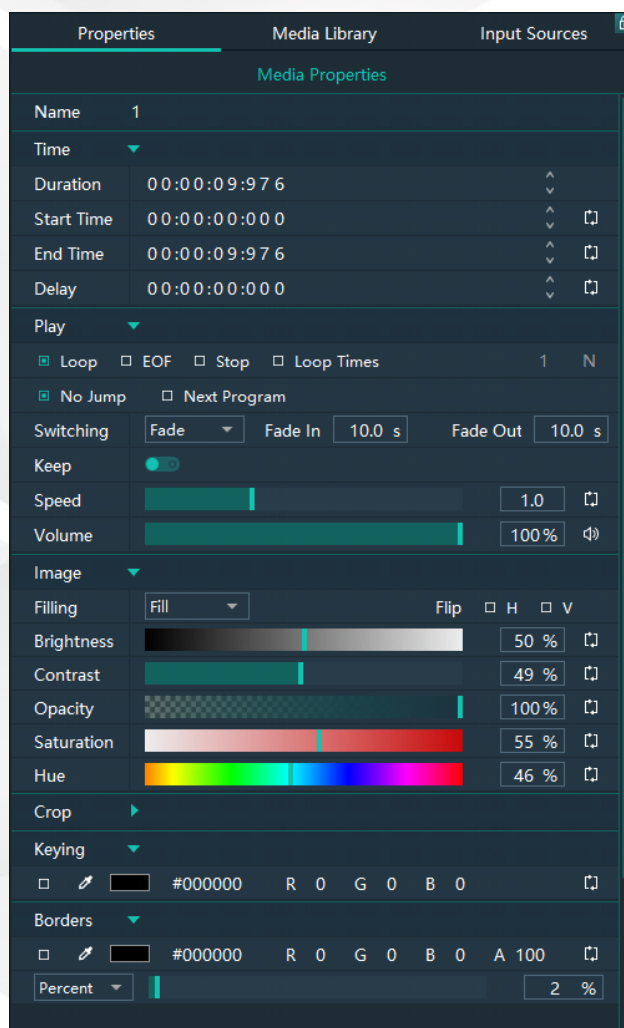








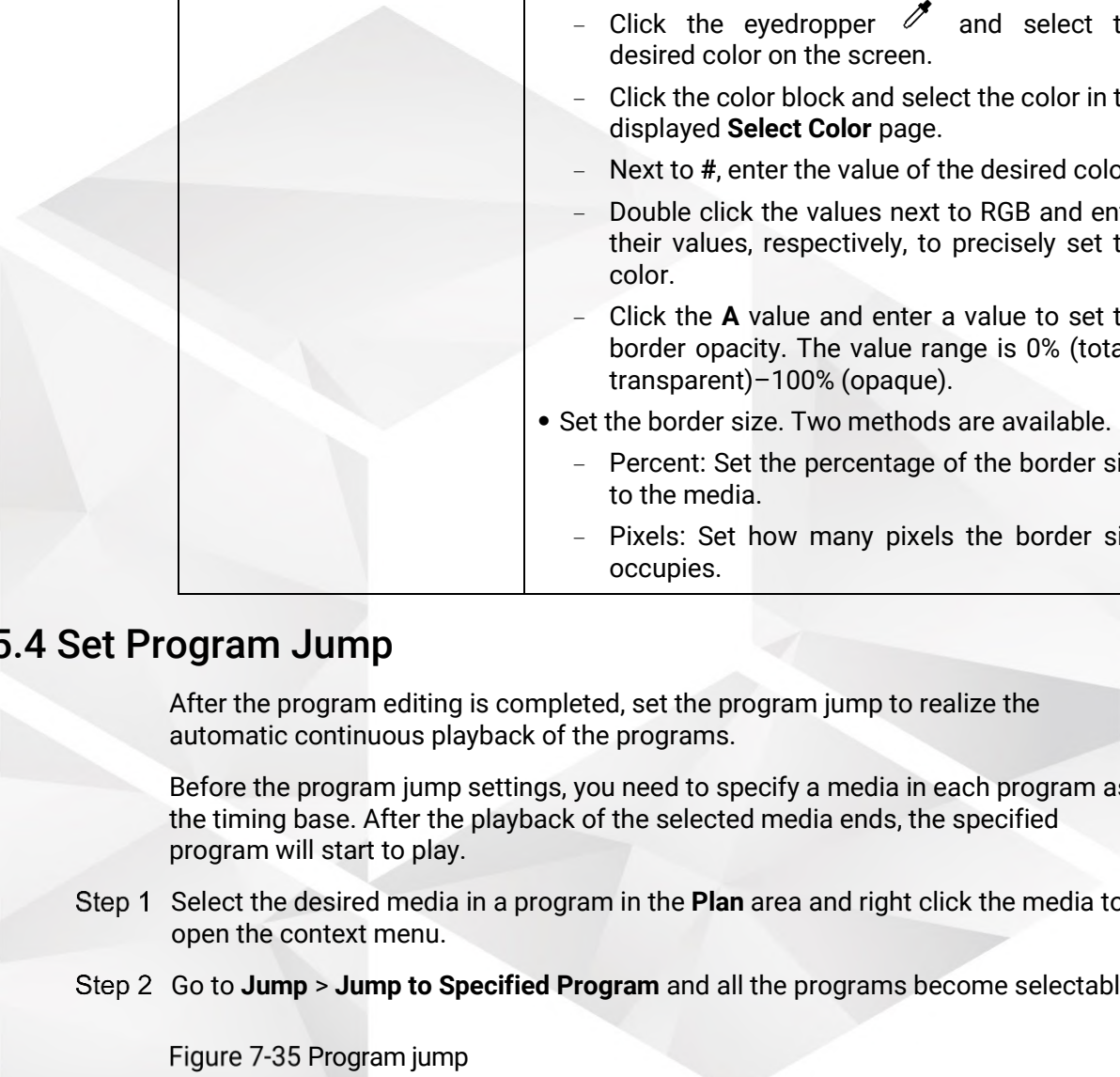



Table 7-6 Media property descriptions

Area	Function	Description
Name		View or change the media name.
Time	Duration	View the length of the media playing time.
	Start Time	Set the start time of the media playback. The start time value cannot be later than the media duration.
	End Time	Set the end time of the media playback. The end time value is later than the start time, and cannot be later than the media duration.
Play	Play	<p>Set the playback mode of the current media during the playing time of the program.</p> <ul style="list-style-type: none"> • Loop: Loop the playback of the selected media in the program, and then  will be displayed at the top right of the layer in the Plan area. • EOF: The current media will stop the playing and display the last frame after being played once, and  will be displayed at the top right of the layer in the Plan area. • Stop: The playback will stop after being played once, and  will be displayed at the top right of the layer in the Plan area. • Loop Times: Set the loop playback times of the current media, and  is displayed at the top right of the layer in the Plan area. ("N" stands for the number of loop times).
	Jump	<p>Set the jump playback mode of the current media after the media playback ends.</p> <ul style="list-style-type: none"> • No Jump: No operation will be performed after the current media playback ends. • Next Program: Jump to the next program after the current media playback ends, and  will be displayed at the top right of the layer in the Plan area. • If you have enabled the program jump, the group name and program name of the next program are displayed and  will be displayed at the top right of the layer in the Plan area.
	Switching	<p>Set the transition effect for switching the current media in the program layer. The options include Fade and Cut.</p>

	Fade In	When Fade is selected, set the duration for the current media to appear.
	Fade Out	When Fade is selected, set the duration for the current media to disappear.
	Keep	After this is enabled, when the playback switches to the program, it starts to play from the last position. After this is disabled, when the playback switches to the program, it starts to play from the beginning.
	Speed	Set fast playback speed for the media.
	Volume	Adjust the output volume of the media. Click  on the right of the volume to turn off the output volume of the layer.
Image	Filling	Set how the image is displayed in the selected layer. <ul style="list-style-type: none"> • Fill: The image fills the layer. • Proportional: The image is scaled and displayed in the layer according to its original aspect ratio.
	Flip	Set the display mode of the output image. If H and V are not selected, the output image is displayed normally, without any flipping effect. <ul style="list-style-type: none"> • H: Flip the image horizontally. • V: Flip the image vertically.
	Brightness	Set the overall brightness of the layer image. The value range is 0%–100%, and it defaults to 50%.
	Contrast	Set the overall contrast of the layer image. The value range is 0%–100%, and it defaults to 50%.
	Opacity	Set the transparency of the output image. The value range is 0% (totally transparent)–100% (opaque), and it defaults to 100%.
	Saturation	Adjust the colorfulness of the output image. The value range is 0%–100%, and it defaults to 50%.
	Hue	Set the relative degree of how bright or dark the output image is. The value range is 0%–100%, and it defaults to 50%.

Crop	Crop	<ul style="list-style-type: none"> • Cropping method: <ul style="list-style-type: none"> – Crop: Crop the output image. – Stretch: The media adapts to and fills the layer. • Percentage: <ul style="list-style-type: none"> – Selected: The unit for the cropping is the percentage. – Deselected: The unit for the cropping is the pixel. <p>T: Set the size of the cropped area at the top part of the media.</p> <p>B: Set the size of the cropped area at the bottom part of the media.</p> <p>L: Set the size of the cropped area at the left part of the media.</p> <p>R: Set the size of the cropped area at the right part of the media.</p>
Keying		<p>Subtract the specified color and delete it from the selected media.</p> <p>Check the box next to Color Key to enable the function and delete the selected color.</p> <p>Four method of selecting the color to be deleted are available:</p> <ul style="list-style-type: none"> • Click the eyedropper  and select the color to be deleted on the screen. • Click the color block and select the color in the displayed Select Color page. • Next to #, enter the value of the color to be deleted. • Double click the values next to RGB and enter their values, respectively, to precisely set the color.

<p>Borders</p> 	<p>Configure the size and color of the image borders.</p> <p>Check the box next to Borders to enable the function.</p> <ul style="list-style-type: none"> • Set the border color. Four methods are available: <ul style="list-style-type: none"> – Click the eyedropper  and select the desired color on the screen. – Click the color block and select the color in the displayed Select Color page. – Next to #, enter the value of the desired color. – Double click the values next to RGB and enter their values, respectively, to precisely set the color. – Click the A value and enter a value to set the border opacity. The value range is 0% (totally transparent)–100% (opaque). • Set the border size. Two methods are available. <ul style="list-style-type: none"> – Percent: Set the percentage of the border size to the media. – Pixels: Set how many pixels the border size occupies.
---	---

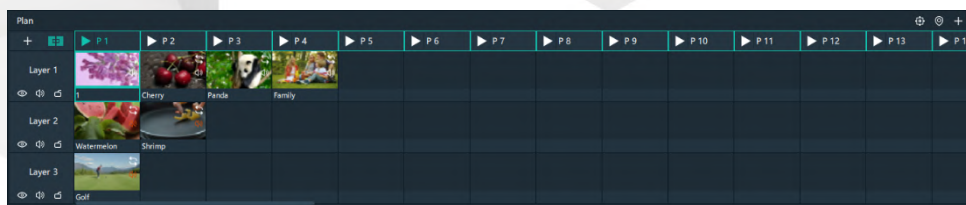
7.5.4 Set Program Jump

After the program editing is completed, set the program jump to realize the automatic continuous playback of the programs.

Before the program jump settings, you need to specify a media in each program as the timing base. After the playback of the selected media ends, the specified program will start to play.

- Step 1 Select the desired media in a program in the **Plan** area and right click the media to open the context menu.
- Step 2 Go to **Jump > Jump to Specified Program** and all the programs become selectable.


Figure 7-35 Program jump



- Step 3 Select the desired program to complete the jump settings.

If you want to jump to a program in another group, click the name of the group where the program belongs, and then click the program name to complete the program jump between program groups.

- Step 4 Repeat 错误!未找到引用源。 to 错误!未找到引用源。 to complete the jump settings for more programs.

After the program jump settings,  is displayed at the top right of the layer in the **Plan** area.

 **Note**

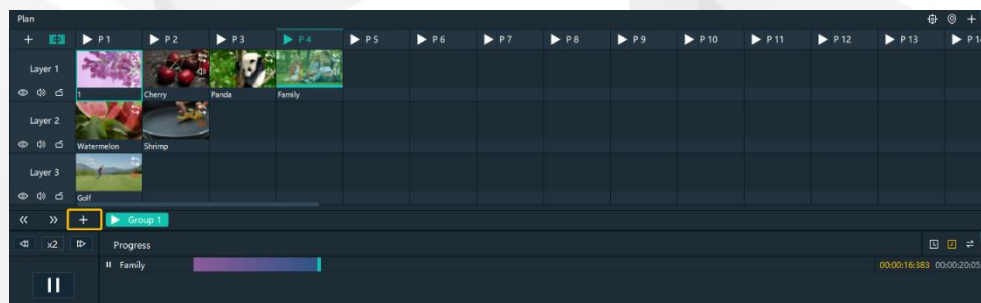
When two programs become jump partners for each other, they will be played circularly.

7.5.5 Manage Program Groups

When you need a large number of programs, you can create groups to manage those programs. Each group supports 20 programs by default.

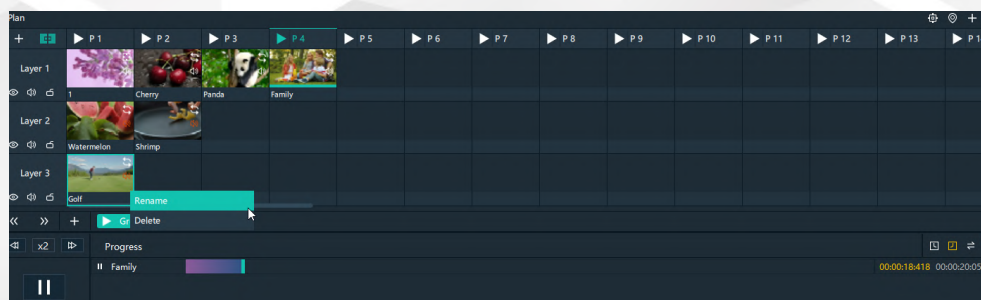
Step 1 Click **+** at the bottom left in the **Plan** area to add a program group.

Figure 7-36 Add program groups



Step 2 Right click the group name and select **Rename** to give the group a new name.


Figure 7-37 Rename groups



Step 3 Click **+** at the top right to add new programs to the newly-added group.

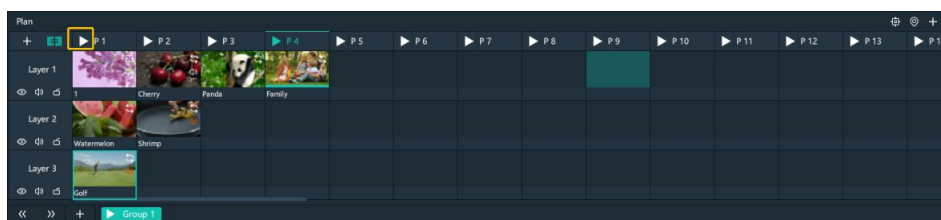
7.6 Playback Control

After the program editing, you can play the programs.

- Program playback: Click  next to a program name in the **Plan** area to play the program.

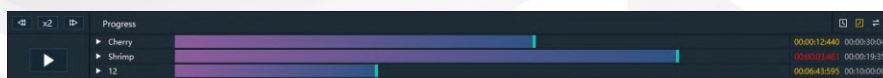
During the playback of a program, you can also switch the playback content of a layer. For example, in the below figure, when **Program 1** is being played, double click the media in **Layer 2** of **Program 2** to switch the playback of the media.

Figure 7-38 Playback control-1



- Playback control: In the playback control area, control the playback of a single media or all the media.

Figure 7-39 Playback control-2













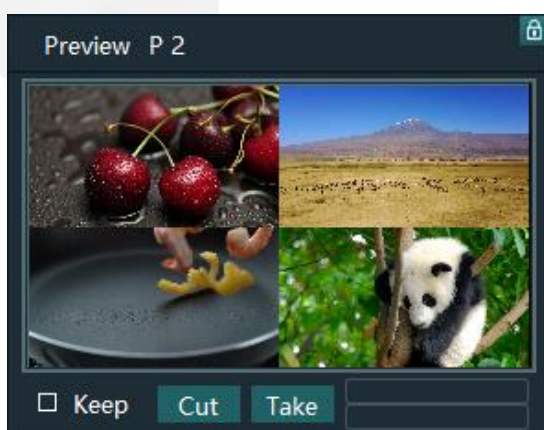

- Click  or  to play and pause the playback of all media in a program.
- Click  or  next to a media name to play or pause the playback of the selected media.
- Click  at the top right, and the program media adopts the count up timer.
- Click  at the top right, and the program media adopts the countdown timer.
- Click  at the top right, click the name of the program to be played synchronously and drag the media playback progress bar to play two media synchronously.
- Click  at the top left to set the fast-forward and rewind speed. The options include **x2**, **x4**, **x8** and **x16**. (The number refers to the playback speed and the unit is second.)
- Click  to set the fast-forward speed.
- Click  to set the rewind speed.
- In the **Preview** area, click **Cut** or **Take** to send the preview program to the screen.

Figure 7-40 Preview playback







- Cut: Send the currently previewed program to the screen without transition effect.
- Take: Send the currently previewed program to the screen with the fade transition effect.
- If **Keep** is selected and the program is sent to the screen via Take or Cut, the program will be played from the current playback progress in the preview area. If **Keep** is not selected and the program is sent to the screen via Take or Cut, the program will be played from the beginning.
- FTB:
Click  at the upper left of the main interface and the output image will fade to black within the time you set.

The time ranges from 0 to 5s and it defaults to 1s.

7.7 Save Projects

You can save the editing and settings as an independent project file for easy use in the future.

- Go to **File > Save** or **Save As** to save the current project file (*.pms3) to your local storage.
- Click  at the top left of the main interface to create a new project.
- Click  at the top left of the main interface to save the current project.
- Click  at the top left of the main interface to save the current project as a new project file.
- Click  at the top left of the main interface to package the current project, such as all the used media or all the media files and project files, which is convenient for future use.

8 Software Settings

About This Chapter

This chapter introduces you to various settings of the software.

Overview

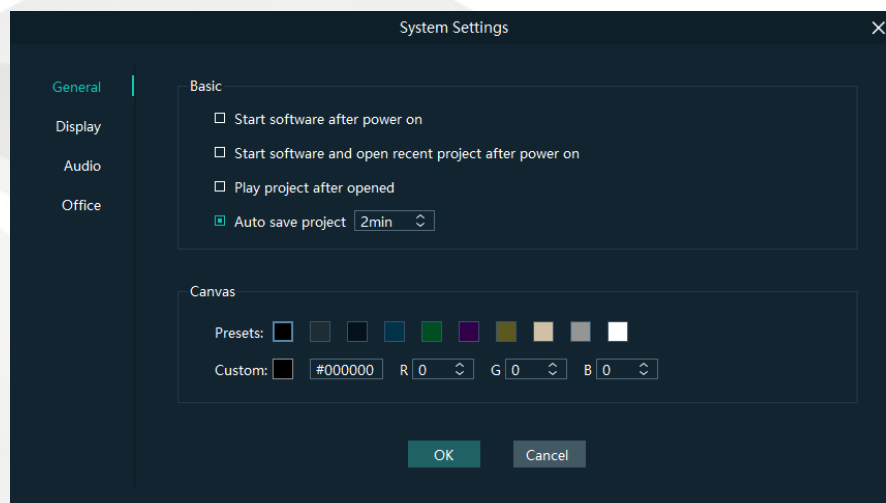
- System Settings
- Authorization
- Hotkey Binding
- MIDI Binding

8.1 System Settings

Set the startup-related settings. Go to **Settings > System Settings** to open the **System Settings** window.

8.1.1 General

Figure 8-1 System settings



Basic

- Start software after power on
 - Selected: Automatically launch Pilot MS3 when the system is started.
 - Deselected: Do not automatically launch Pilot MS3 when the system is started.
- Start software and open recent project after power on
 - Selected: Automatically open the last edited project when Pilot MS3 is launched.
 - Deselected: Display the default interface when Pilot MS3 is launched.
- Play project after opened
 - Selected: When you open a project, the project will be played from where it stopped playing last time.
 - Deselected: When you open a project, no media will be played and the project interface will be displayed.
- Auto save project

Set an interval that the system will automatically save the project. The value ranges from 1 to 30 min and it defaults to 5 min.

Canvas

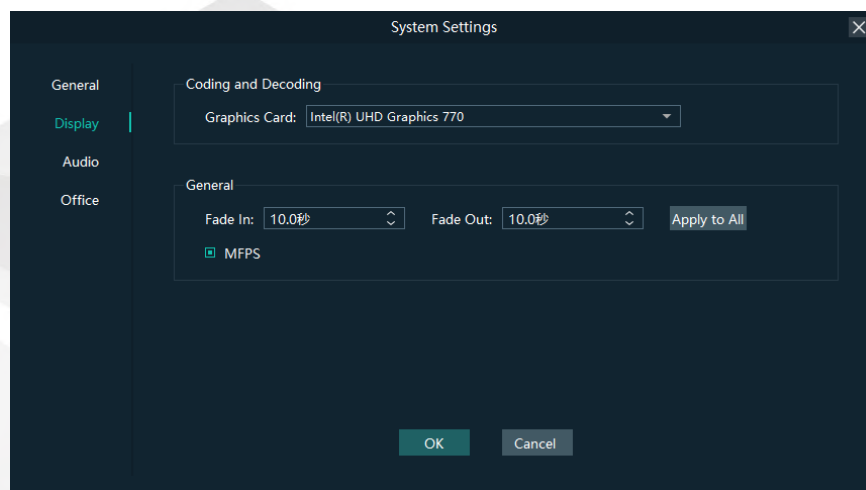
Set the background color of the editing area.

In the canvas settings area, change the background color of the editing area by selecting a preset color or customizing a color.

After the basic and canvas settings are done, click **OK** to apply the settings.

8.1.2 Display

Figure 8-2 Display settings



Coding and Decoding

Configure the rendering graphics card of Pilot MS3.

General

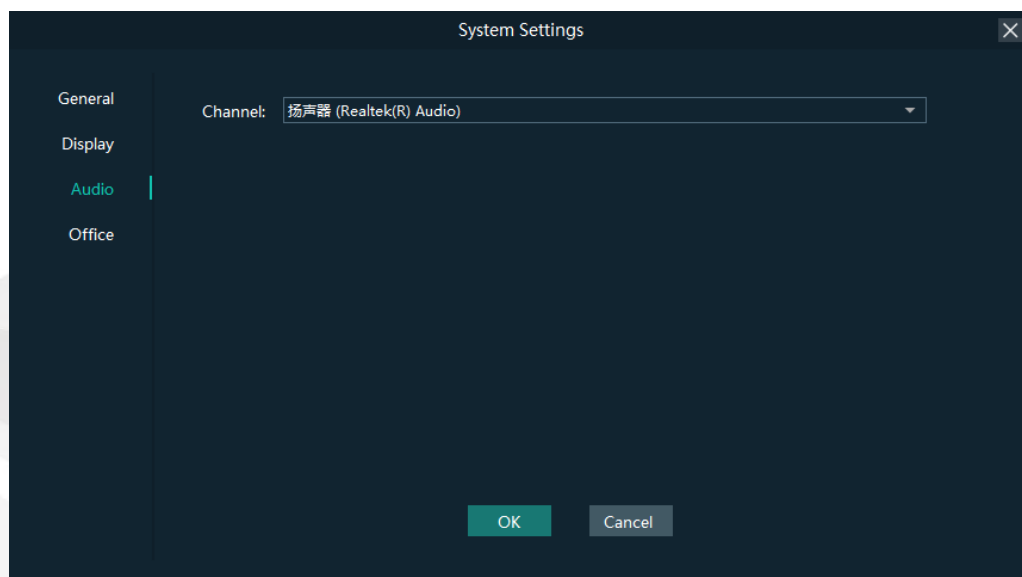
- **Fade In:** Set the time length from when the current media starts to play to when the media is fully displayed. The value ranges from 0 to 10 s. When the value is set to 0 s, there is no transition effect.
- **Fade Out:** Set the time length from when the current media starts to stop to when the media is stopped. The value ranges from 0 to 10 s. When the value is set to 0 s, there is no transition effect.
- **Apply to All:** Apply the duration of **Fade In** and **Fade Out** to all the programs. After the time length is set, if you do not click **Apply to All**, the transition will only be effective on the programs without the added media.
- **MFPS:** Real-time frame rate
 - Selected: Display the real-time frame rate at the bottom right on the media preview window.
 - Deselected: Do not display the real-time frame rate on the media preview window.

After the coding and decoding and general settings are done, click **OK** to apply the settings.

8.1.3 Audio

On the system settings window, click **Audio** to enter the audio settings tab page.

Figure 8-3 Audio settings



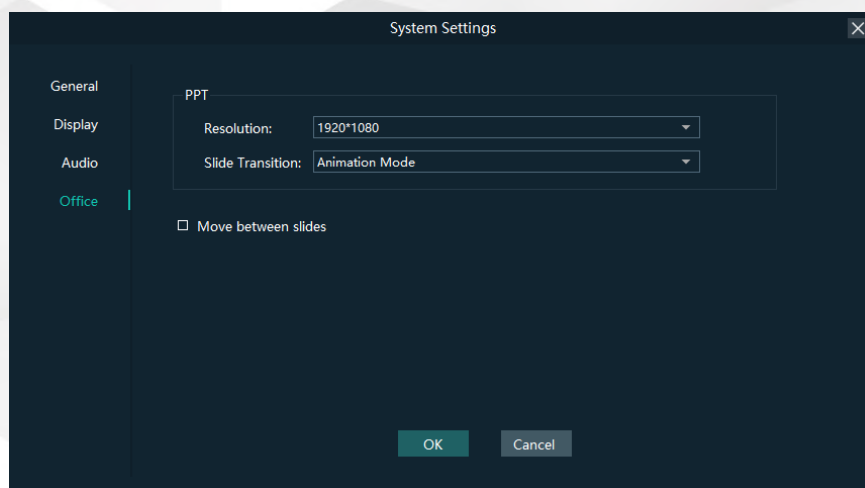
Select an audio output channel from the drop-down list next to **Channel**. Click **OK** to complete the audio settings.

8.1.4 Office

Pilot MS3 supports playback of PowerPoint files. Before playback, configure the basic information of PowerPoint files.

On the system settings window, Click **Office** to enter the office settings tab page.

Figure 8-4 Office settings



- PowerPoint Resolution: Set the resolution according to the resolution displayed on the PowerPoint file.
- Slide Transition: Set the transition of each slide of the PowerPoint document during playback.
 - Animation Mode: Show the animations of slides during playback.
 - Picture Mode: Do not show the animations of slides.

- Use arrow keys to switch between slides
 - Selected: Allow arrow keys to be used to switch between slides.
 - Deselected: Arrow keys cannot be used to switch between slides.

Click **OK** to complete the office settings.

8.2 Authorization

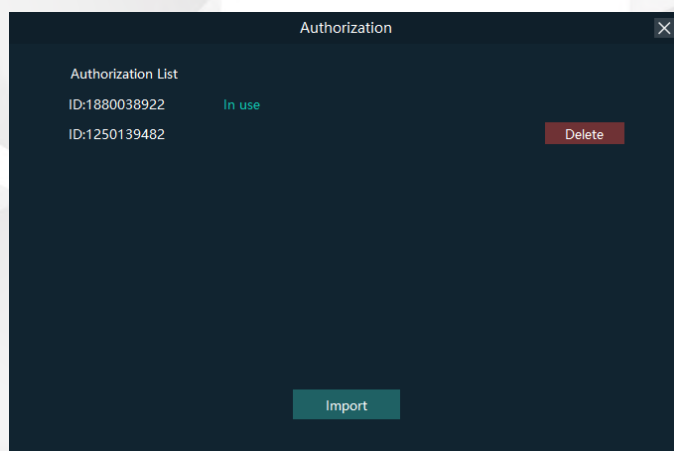
One authorization dongle corresponds to only one authorization file. When the dongle matches the authorization file, Pilot MS3 can be used normally.

Pilot MS3 supports the centralized management of multiple authorization files. When an authorization dongle is inserted, the system can automatically identify the corresponding authorization file to ensure the normal operation of Pilot MS3.

Step 1 Import the authorization file.

1. Go to **Settings > Authorization** to open the authorization settings window.
1. Click **Import** at the bottom to open the authorization file importing window.
2. Select the desired authorization file and click **Open**. The system will automatically import the file to Pilot MS3.

Figure 8-5 Authorization file



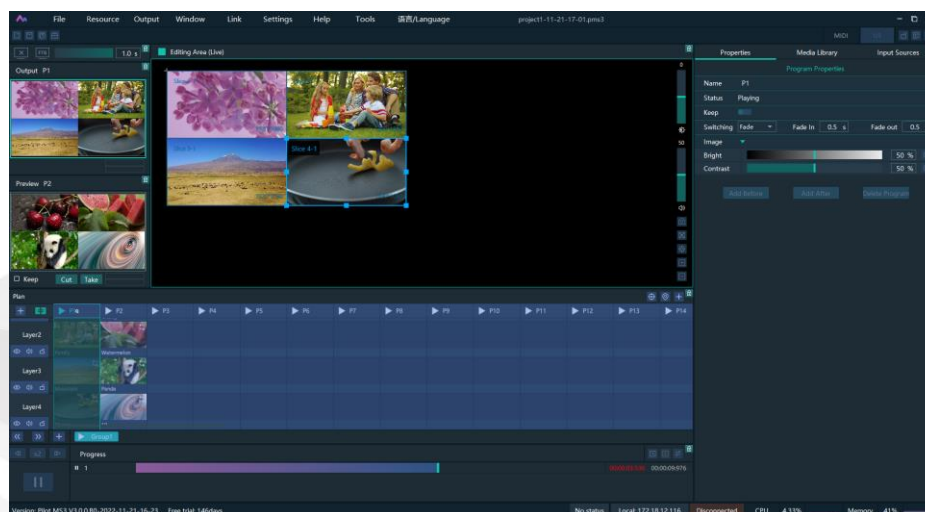
Step 2 Check the authorization.

1. Insert the authorization dongle into the system.
2. The system will automatically identify the authorization file according to inserted the authorization dongle, and then display **In Use** after successful identification.

8.3 Hotkey Binding

Pilot MS3 supports custom hotkeys, and users can use those keys to operate Pilot MS3 simply and conveniently. Go to **Settings > Hotkey Binding** to show the hotkey settings interface, and the areas where you can enable the hotkey function are highlighted.

Figure 8-6 Hotkey binding



Click the target area, and then press the letter or number keys on the keyboard as needed to complete adding the hotkey.

After the adding, go to **Settings > Complete Binding** to make the hotkeys take effect and exit the hotkey settings interface.

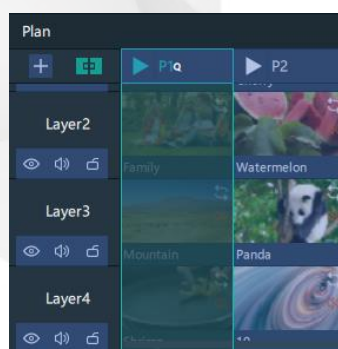
Note:

The **Ctrl+H** key combination is a built-in global hotkey which can quickly locate the mouse to the center of the main interface. When you set other hotkeys, this combined one cannot be used.

For example:

Set the hotkey for Program 1 to **Q**.

- a. On the hotkey settings interface, click **Program 1**.
- b. Press the letter **Q** on the keyboard, and then a letter **Q** will be displayed on Program 1.



8.4 MIDI Binding

Bind the Pilot MS3 functions with the MIDI (Musical Instrument Digital Interface) keyboard. After a successful binding, you can control Pilot MS3 by using a MIDI keyboard.

8.4.1 Connect MIDI Keyboard

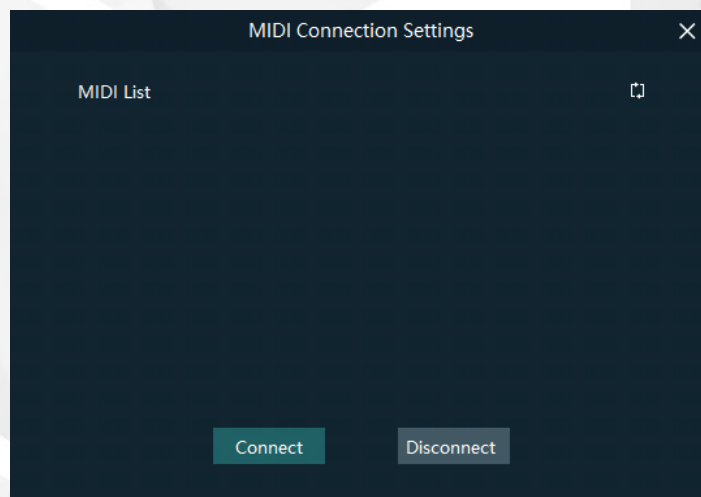
Prerequisites

- You have connected a MIDI keyboard to the computer where Pilot MS3 is installed.
- Make sure the computer where Pilot MS3 is installed have successfully recognized the connected MIDI keyboard.

Procedure

Step 1 Click **MIDI** at the top right of the user interface to open the MIDI connection settings window.

Figure 8-7 MIDI connection



Step 2 Pilot MS3 will automatically recognize all the connected MIDI keyboards.

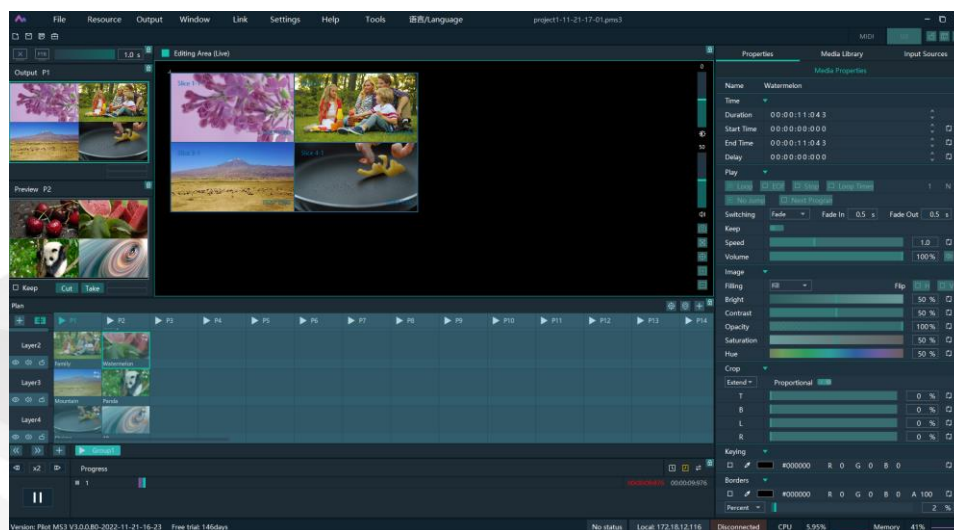
Step 3 Select the desired MIDI keyboard from the **MIDI List**.

Step 4 Click **Connect** to complete the connection.

8.4.2 Bind MIDI

Step 1 Go to **Settings > MIDI Binding** to show the MIDI binding page. You can see all the available functions that can be bound with a MIDI keyboard are highlighted.

Figure 8-8 Available functions for MIDI binding



Step 2 Select the target function in Pilot MS3 and then press the desired key on the MIDI keyboard to complete the binding.

After a successful binding, go to **Settings > Complete MIDI Binding** to make the binding take effect and exit the binding page.

9 Software Help Information

About This Chapter

This chapter introduces you the software-related and company-related information that may help you during the use.

Overview

- User Manual
- About
- Software Updates
- Contact Us

9.1 User Manual

Go to **Help > User Manual** on the menu bar to open and view the product user manual.

9.2 About

View the software version, license agreement and other information, and scan the QR code to get more information on our products or send us your feedback.

9.3 Software Updates

Check the current version of the software. When a new software version is detected, the system will download the latest version and then you can follow the instructions to complete the update.

9.4 Contact Us

View the contact information of the software provider and the software copyright and license agreement.

10 Software Tools

About This Chapter

To better meet onsite playback requirements, Pilot MS3 has integrated some tools that can be used to edit video files.

Overview

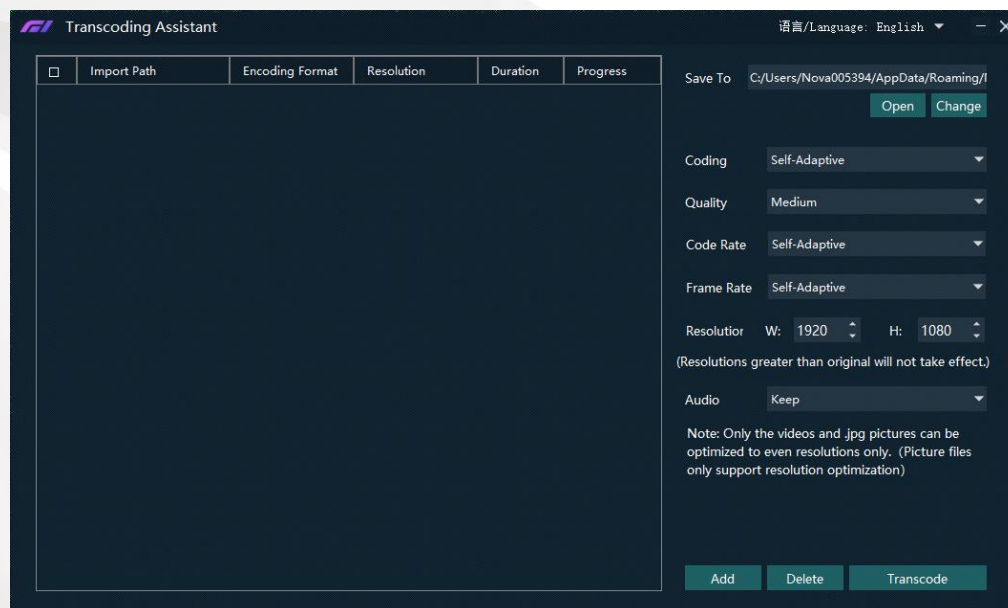
- Transcoding Assistant

10.1 Transcoding Assistant

Pilot MS3 supports the conversion of the video coding format, code rate, resolution, and frame rate to satisfy the requirements of different playback scenarios.

Step 1 Go to **Tools > Media Transcoding** to open the transcoding assistant window.

Figure 10-1 Transcoding assistant



Step 2 Click **Add** at the bottom to open the local folder where you can select the desired file.

You can also add multiple files by pressing the **Ctrl** key and selecting the files simultaneously.

Step 3 Click **Add** to add them into the assistant.

Step 4 Select the target video file.

Step 5 On the right side, set the parameters of **Coding, Quality, Code Rate, Frame Rate, Resolution** and **Audio**.

- **Coding**: Set the coding format of the transcoded video. The supported options include **Adaptive, h264, h265, VP9** and **hap**. When **Self-Adaptive** is selected, the video will be transcoded according to the original video coding.
- **Quality**: Set the quality of the transcoded video. The supported options include **Low, Medium** and **High**.
 - **High**: Keep the quality of the transcoded video the same as the original video quality.
 - **Low**: The quality of the transcoded video is relatively blurred compared to the original video quality.
 - **Medium**: The quality of the transcoded video is between the high and low qualities.
- **Code Rate**: Set the code rate of the transcoded video. The supported options include **Self-Adaptive** and **Custom**.

- Adaptive: The code rates before and after the transcoding are the same.
- Custom: Set the desired code rate and the video will be transcoded according to the set value.
- Frame Rate: Set the frame rate of the transcoded video. The supported options include **Self-Adaptive, 24, 30, 60** and **Custom**.
 - Adaptive: The frame rates before and after the transcoding are the same.
 - 24/30/60: The frame rate after the transcoding will be 24 Hz, 30 Hz, and 60 Hz, respectively.
 - Custom: Set the desired frame rate and the video will be transcoded according to the set value.
- Resolution: Set the resolution of the transcoded video.
 - W: Set the horizontal size of the transcoded video. The value defaults to 1920 and can reach a maximum value of 16384.
 - H: Set the vertical size of the transcoded video. The value defaults to 1080 and can reach a maximum value of 16384.
- Audio: Set how to deal with the audio that comes with the video. The supported options include **Keep** and **Remove**.
 - Keep: The transcoded video retains the audio in the video before transcoding.
 - Remove: The transcoded video display pure images without any audio.

Step 6 Click **Transcode** and the system will automatically start the transcoding process.

When the progress reaches 100% in the **Progress** column, the transcoding completes. After the transcoding, the video will be saved in the path specified in **Save Path**.


- Click **Open** to open the local folder where you can view the transcoded files.
- Click **Change** to change the save path.

Step 7 Click **Delete** at the bottom to delete the selected video files.

11

Specifications

Electrical Specifications	Power connector	100–240V~, 10–5A, 47–63Hz
	Maximum power consumption	650 W
Operating Environment	Temperature	0°C to 45°C
	Humidity	0% RH to 80% RH, non-condensing
Storage Environment	Temperature	–10°C to +60°C
	Humidity	0% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	L 482.6 mm × P 694.7 mm × H 183.5 mm W 19 inch × D 27.45 inch × H 7.2 inch
	Weight	23.5 kg / 51.8 lbs (Fully loaded without accessories) 57.2 kg / 126.1 lbs (Fully loaded with accessories & flight case)
Noise on Average (@1, 0.75m height)	Front: 51.8 dB Rear: 54.1 dB	
Packing Information	<ul style="list-style-type: none"> • 2x DP to DP cables • 3x HDMI to HDMI cables • 1x AC power cable • 1x Grounding cable • 1x Keyboard & mouse • 1x Windows product key • 1x USB to audio adapter • 1x Quick Start Guide • 1x Customer Letter • 1x Safety Manual • 1x Certificate of Approval 	

Certifications	CE, EAC, PSE, FCC, RoHS, RCM  Note If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact PIXELHUE to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks caused or PIXELHUE has the right to claim compensation.
-----------------------	--

