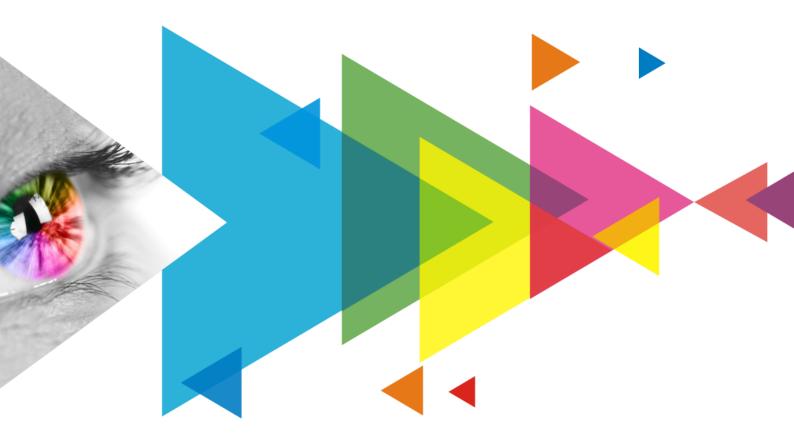


# NovaLCT

# LED Configuration Tool for Synchronous Control System



# **User Manual**

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# **1** Software Introduction

The LED display control systems are categorized into synchronous control system and asynchronous control system. In synchronous control system, the images are played and controlled on the screen synchronously with the video source (such as on PC or camera). In asynchronous control system, they are played and controlled asynchronously. The program is pre-stored on the local playback device and then played according to the playback schedule.

No matter in which control system, the application scenario requires a piece of supporting software to configure the control system. Based on the needs of different users, NovaStar has designed and developed an LED screen configuration tool — NovaLCT.

As a basic screen configuration tool running on Windows, NovaLCT has the following features.

#### Easy to install

The latest installation package can be downloaded from NovaStar official website www.novastar.tech at any time and it is quick and easy to install.

#### Practical functions

A lot of commonly used functions are provided, such as screen configuration, screen monitoring, redundancy settings, brightness adjustment, multi-batch adjustment, dark or bright line adjustment, multifunction card management and other configuration functions. Thanks to these functions, the screen can present optimal display effect and is easy to manage and maintain.

#### Wide scope of applications

NovaLCT can be used to configure NovaStar synchronous control system products and multimedia players of asynchronous control system. It meets different needs of screen manufacturers, contractors, distributors, rental application clients, end users and technical support engineers.

#### Efficient configuration

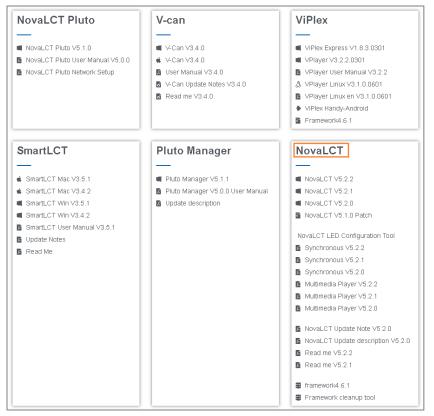
After the PC and control system product are connected, users can perform any operations with the PC. NovaLCT displays the corresponding functions and parameters according to the different hardware models and programs. During configuration, various kinds of configuration files can be used to complete operations quickly. If the configuration information is saved to the hardware, it will not be lost even after the hardware is powered off.

# **2** Software Installation

# **Obtaining Software**

Visit www.novastar.tech and choose **DOWNLOADS** > **Software**. In the NovaLCT area, download the needed version of software installation package.





# **Installing Software**

Before installing NovaLCT, prepare a Windows PC and disable the antivirus software.

Unzip the installation package, run the .exe file and follow the setup wizard to complete the installation. If a firewall prompt appears, choose to allow the installation.

If the PC does not have the serial port driver program or the program version is earlier, the NovaLCT installation program will automatically install or update the program.

# **Verifying Installation**

If the installation is successful, the shortcut appears on the desktop, and and icons appear on the taskbar.

# **3** Device Connection

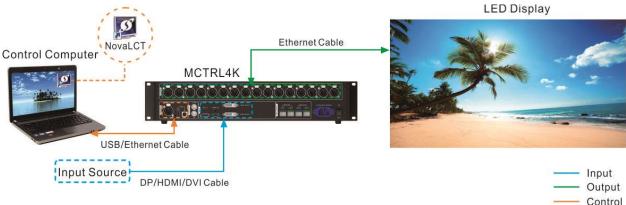
# 3.1 Connect PC to Sending Card

Connect the PC with NovaLCT installed to the sending card with control cable (USB cable or Ethernet cable), as shown in Figure 3-1. The MCTRL4K is used as an example of sending device.

All control commands, parameters and configuration files are transmitted with the control cable.

The PC can also be connected to multiple sending cards with control cable. After selecting a target communication port in NovaLCT, you can operate the connected device.

#### Figure 3-1 Hardware connection example



# 3.2 Connect NovaLCT to Sending Card

If the hardware connection is normal and the sending card is operating normally, NovaLCT connects to the sending card automatically. After successful connection, the NovaLCT main window displays the sending card quantity and monitoring information about the control system, as shown in Figure 3-2.

#### Figure 3-2 Main window (Not logged in)

System( <u>S</u> ) Setti	ngs ( <u>C</u> ) Too	ols(T) Plug-in (E	2) User(U)	Language(L)	Help( <u>H</u> )	
Cloud Monitoring	Brightness	Screen Control	Monitoring	Multi-function Car	d Test Tool	
Local System Inform	nation					
Control System	1	Other De	vice	0 <u>Vie</u>	ew Details of Device	
Monitor Information						
	F		<u>9</u>			
			۲		۲	
				4		
ervice Status: Serv	ice version:3.1	1.1				

Click **View Details of Device** to view the communication port, device name, device quantity, SN, and take over the control of other devices. If the communication port information contains IP address, NovaLCT communicates with the device via Ethernet port. If it contains "USB" characters, they communicate via USB port. "SN" is the unique identifier of the sending card.

#### Notes

Currently, the take over function is only available for MGT2000, MGT1000, MGT600. When a device is being controlled by another instance of NovaLCT and is not available for connection by your NovaLCT, you can click **Take Over** under **Operation** to assume control of the device.

Connection related operations:

Reconnect sending card

Choose System > Reconnect.

Restart server

On the taskbar, right click Market and click Restart.

www.novastar.tech



#### Set connection parameters

On the taskbar, right click **Detect Config** and set the marked parameters in the figure below.

- Auto detect controller: When this is checked, the software automatically detects the connected devices at the specified intervals (Detect interval).
- Disable cascade communication: In a setup with devices connected in cascade, checking this option allows the software to connect only to the first device and skip detection for other devices in the cascade, improving connection efficiency. If unchecked, the software will perform connection detection for all devices.

🖳 Detect Config	-		×
Auto Detect Config-			
Auto detect con Detect Interval Config			
Detect interval:	30	😫 S	
Disable cascade comm	inication		
OK	Cano	el	

# 4 User Login

# Sending Card Connected

If the sending card is connected, users can directly use the available functions without login. To use the advanced functions, users must log in to NovaLCT.

### **Operations:**

Choose **User > Advanced Synchronous System User Login**. Enter the password and click **Login**. The default password is "admin".

After successful login, the main window is shown as Figure 4-1.

#### Figure 4-1 Main window (Logged in)

💋 NovaLCT V	/5.7.0.T2(No H	ardware)					_		$\times$
System (S)	Settings (C)	Tools (T) Plu	g-in (P) Us	er (U) Lar	nguage (L) 🛛 H	Help (H)			
2		4			~	$\sim \sim$			
Cloud Monito	ring Screen	Configuration E	Brightness (	Calibration	Screen Contro	ol Monitoring	Multi-fur	nction Card	Ţ
- Local System	Information								
-									
Control Sys	stem 0	Oth	er Device	0	View	Details of Device	<u>ce</u>		
Monitor Inform	ation								
<b>PE</b>			<b>1</b>	<b>S</b>		U ·			
Service Status:	Service versio	n:3.1.1							

#### **Other Operations:**

- To log out, choose **User** > **Logout**.
- To change the login password, choose User > Change Password.

# **Sending Card Not Connected**

If the sending card is not connected and users want to learn about the functions, use the demonstration mode. **How to access demonstration mode:** 

Choose User > Demonstration Login. Enter the password "admin" and click Login.

#### Other operation:

Click **View Details of Device**, then in the pop-up window, click **Change Device Type** to switch the device in demonstration mode.

# **5** Screen Configuration

#### Notes

NovaLCT currently only supports configuring regular screens. Irregular screens are not supported.

# 5.1 Load Configuration Files

# **Applications**

Load a cloud or local configuration file to finish screen configuration quickly.

# Applicable Products

All receiving cards and sending cards

# **Prerequisites**

- Load a cloud configuration file: The control computer is connected to the Internet.
- Load a local configuration file: The system configuration file (.scfg and .zip) is prepared.

# **Related Information**

- The information in the cloud configuration file and local .zip file can be viewed in NovaLCT, but cannot be modified before the information is sent to the hardware.
- The information in the local .scfg file can be viewed and modified in NovaLCT before the information is sent to the hardware.

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

Step 2 Click Screen Configuration from the menu bar to open the dialog box shown in Figure 5-1.

Figure 5-1 Screen configuration method

Screen Configuration		×
- Select Communication	Port	
Current Operatio	COM99 ~	
Configure Screen		
O Cloud Restore	~	
<ul> <li>Local Restore</li> </ul>	Browse	
	Next Close	

Step 3 Choose a communication port.

If the PC is connected to multiple sending cards with control cable, there are multiple ports in the drop-down list.

- Step 4 Perform any of the following operations as needed to load a configuration file.
  - Load from cloud platform



- a. Select Cloud Restore and select a node from the drop-down list.
- b. Click **Next** to open the **Restore Configuration File** dialog box.

			onfiguration File-COM99 d Receiving Card Screen C	onnection			-		×
	Sen	ding	g card redundancy						
			Serial Number of Primary Sending Card	Serial Numb Primary P		rial Number of Backup Sending Card	Serial Num Backup F		
	►	1	1	1		1	2		
		2	1	3		1	4		
							Send	to HW	
Ba	ckup	Fil	e: novastarScreenBackup	File.zip So	ftware Version:	NovaLCT V5.4.4.1982.	T1(PingBoss)		

c. Select a tab as needed and send the configuration file to the hardware.

**Sending Card**: Click **Send to HW** to send the Ethernet port redundancy configuration file of the sending card to the hardware.

**Receiving Card**: Select **Send By Topology** or **Send By Physical Address**, set the related parameters, and click **Send to Specified RV Cards** to send the receiving card configuration file to the hardware. When you have selected **Select by Topology or List**, if it is not convenient to select an area with the software, you can select **Select Operating Area on Screen** to select the area on the display window.

Screen Connection: Click Send to HW to send the screen connection file to the hardware.

d. In the displayed dialog box, click Save to HW or Don't Save to HW.

#### Load from local PC

- a. Select Local Restore.
- b. Click Browse, select a configuration file, and click Open.
- c. Click Next.

For the .zip local configuration file, see the figures and steps in the **Load from cloud platform** section. For the .scfg local configuration file, the loading progress will be displayed. After the file is loaded, the



# 5.2 Configure a Screen Manually

For a common screen, set the input source, light the screen and connect the screen in order to complete the screen configuration.

#### Notes

The screen configuration page in NovaLCT varies depending on the functions supported by the sending card and receiving card.



# 5.2.1 Step 1 Set Input Source

# **Applications**

Set the input source type, resolution, refresh rate and bit depth for the sending card to make the screen display the specified input source pixel to pixel.

# **Applicable Products**

The V1160 and VX16s all-in-one devices, and other sending cards

# **Prerequisites**

None

# **Related Information**

If the resolutions of the sending card and screen are the same, the image can be displayed pixel to pixel. If the refresh rate is too low, the screen flickers. A higher refresh rate helps stabilize the display image.

### **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".



- Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar.
- Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, click **Next**.

Figure 5-2 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	СОМ99 ~	
Configure Screen		
Cloud Restore	~	
O Local Restore	Brow	vse
	Next	se

Step 4 On the Sending Card tab page, view the current display mode, as shown in Figure 5-3.

Figure 5-3 Input source information

Display Mode			Refresh	
Current Display Mod	ie			
Sending Card	1280 x 720(720P)	Graphics Output R	1920 x 1080 Curre HDMI	
- Select Input Source				
Video Input			3D Function	
🗌 Automati	HDMI	✓ Send	Enable Settings	
Source Configuratio	n			
Source:		]		
Resolution:	1920 x 1080 px 🛛 🗸	Custom	1920 🜩 🗙 1080 🜩	
Refresh Rate T	60 ~	Hz Input Source Bit [		
		-	Set	



- Step 5 Select Automatic Selection to allow NovaLCT to automatically select the input source according to the input signal, or select an input source from the drop-down list.
- Step 6 Click **Send** to send the configuration information to the hardware.
- Step 7 In the **Source Configuration** area, set the input source type and the corresponding resolution. You can select a resolution from the drop-down list or customize a resolution.
- Step 8 Set the refresh rate and bit depth of input source.

After you change the refresh rate, you are advised to resend the performance parameters on the **Receiving Card** tab page to avoid the problem that the receiving card cannot automatically fit the refresh rate. The recommended input source bit depth is 8 bit.

- Step 9 For the MCTRL660 PRO and MCTRL R5, you can perform the following operations to set input source backup if necessary. Otherwise, skip this step.
  - 1. Click Set next to Source Backup Setting.
  - 2. Select Start source backup.
  - 3. Set the input source backup relation and click OK.

Figure 5-4 Source backup settings

Source backup setting			Х
🗹 Start source backu	0		
SDI	HDMI	$\sim$	
HDMI	SDI	$\sim$	
HDBaseT	NULL	$\sim$	
DVI	NULL	$\sim$	
ОК		Cancel	

Step 10 Click Set to send the configuration information to the hardware.

- Step 11 Click Refresh to confirm the result of input source setting.
- Step 12 Click Save to save the configuration information to the hardware.
- Step 13 After successful saving, choose whether to save the backup file to the local computer.

When the control computer can access the Internet, you can use the backup file to register screens to VNNOX Care. For details, see 7.1.2.1 Register by Using Local Backup Files (Recommended).

This step is related with the configuration of the save function. See 11.3 Configure the Save Function.

#### Notes

You can click **Restore Factory Settings** on the **Sending Card** tab page to reset the sending card configuration information to factory settings.

# 5.2.2 Step 2 Light a Screen

#### Notes

When using the A10s Pro receiving card, please refer to 5.2.2.2 Configuration through NCP.

# 5.2.2.1 Configuration through RCFG

#### Note

In the **Receiving Card** tab of **Screen Configuration**, you can click **Load from Cloud** (VNNOX Care) or **Load from PC** to load a receiving card configuration file (.rcfgx/.rcfg) and quickly up light up the screen. This section outlines the steps needed for manual configuration.

When loading from the cloud, if the firmware version of the receiving card does not match the configuration file, you may choose whether to upgrade the firmware.

# 5.2.2.1.1 Light Module

### **Applications**

Set the receiving card parameters to light a new module.

### **Applicable Products**

For receiving cards that support .rcfgx or .rcfg files

# **Prerequisites**

- The receiving card firmware supports the module chip.
- The display settings on the PC are completed. For example, display settings on Windows 10 are shown in Figure 5-5 and Figure 5-6. The resolution of PC graphics card must be set to be greater than or equal to the screen resolution based on the actual condition.

#### Figure 5-5 PC display settings 1

Scale and layout
Change the size of text, apps, and other items
100% (Recommended) V
Advanced scaling settings
Resolution
1920 × 1080 (Recommended) $\sim$
Orientation
Orientation Landscape ~
Landscape ~

Figure 5-6 PC display setti	ngs 2
-----------------------------	-------

File Edit Desktop Display Help		- 0	×
🔆 Back 👻 🛞			
elect a Task	3. Apply the following settings. Use default color settings © Use NVIDIA color settings Desktop color depth: Highest (32-bit) Uutput 8 bpc	ynamic Super Resolution factors from <u>Manage 3D settings</u> page.	
	<		

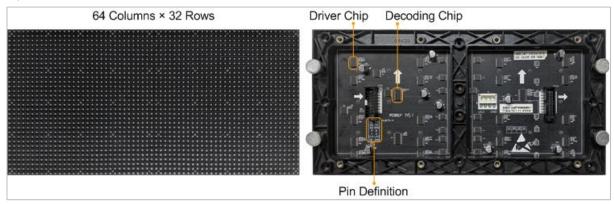
# **Related Information**

The module specifications are provided when the module is shipped. Users can also obtain the specifications from the driver chip, decoding chip and pin definition on the module.

For example, the following information can be obtained from the module shown in Figure 5-7.

- Driver chip: 24 SUM2016GAS2 chips
- Data type: 2 groups of parallel RGB data
- Module type: Regular module
- Pixel quantity: 64 columns × 32 rows
- Decoding chip: 2 SUM74HC138 chips

#### Figure 5-7 Module example



Both regular and irregular modules are rectangular. If the module column quantity can be divided by 16 without remainder, the module is a regular one.

An irregular module has any of the following features:

• Some output pins of the driver chip are not used.



- The numbers of pixel rows or columns driven by each data group are different.
- The data groups do not drive the pixel rows or columns in order.

# **Operating Procedure**

Step 1 On the Screen Configuration page, click the Receiving Card tab.

#### Figure 5-8 Screen configuration

n-COM99					- 0
ving Card Screen	Connection				
n					
Common C	Size:	32W×16H	Scanning Typ	e 1/8 scan	100
Horizontal	Data Groups	2	Adjust RG		Check M.
on					
					Set Rotation
			Irregular		
1	=256		Width: ??	Height: ??	,
1	=128				
From Right to	Left v		Construct Co	View Cobinet	
			Construct Od		
ings					
More Settin	ngs 🗌 E	3ig ?	18bit+		Send Perform.
480	✓ Hz:	Refresh Rate Ti	4 ~		^
Normal 4096	$\sim$	Grayscale Mode	Refreshing Rate Pre $\sim$		
12.5	✓ MHz	Duty Cycle	50 🗸	(25~75) %	
6	$\sim$	Low Grayscale C	0		
15	≑ (=1.20us)	Ghost Control En	13 🔶	(1~14)	
3	(0~12)				
- 160 ns					
	n Common C Horizontal on 1 1 1 1 From Right to Normal 4096 12.5 6 15	Common C         Size:           Horizontal         Data Groups           I         ↓           <=256	n Common C Size: 32W×16H Horizontal Data Groups 2 on	n Common C Size: 32W×18H Scanning Typ Horizontal Data Groups 2 Adjust RG on	n Common C Size: 32W×16H Scanning Type 1/8 scan Horizontal Data Groups 2 Adjust RG an

#### Step 2 Click Smart Settings.

- Step 3 Select option 1 and click Next.
  - Option 1: Enter smart settings.
  - Option 2: Load a module configuration file to quickly configure the module.
  - Option 3: Load the module configuration file in the cabinet database to quickly configure the module.

After the configuration file is loaded, click Send to Receiving Card.

Figure 5-9 Smart settings options

Consult Contribution	-		X
Smart Settings Selection			~
Note:			
(1).Option 1, click 'Ne	ext' to begin sma	art settings!	
(2).Option 2 or 3; loa	d module inform	nation to software.	
Option 1: Make the m	odule on by sm	art settings	
Option 2: Load modu	le information fr	om file	
File Path:			Browse
Option 3: Load modu	le information fr	om cabin	
Cabinet Databa			Browse
Selected Module:			Select Module
Cerected Module.			
	View Module	Next	Close
	view wodule	INEXL	Close

Step 4 On the Smart Settings Guide 1 page, set the parameters and click Next.

Module Chip 1:-	0.001	0.15	at a bia tana
Module Chip	Common Chi	p 🗸 Sele	ct chip type
Data Type			
Data Type:	Parallel	drive	~
Module Informati	on		
Module Type		Regular Module	🔘 Irregular Module
Quantity of Pixels	s (virtual s	х. 32 🛓	y: 32
Row Decoding T	ype	LS9739_Common 🗸	Select New v
Working Mode o	f Deceiving O	ord	
Hub Mode:	-		○ 24 Gr ○ 28 Gr
	-	-	0 20 0
Ghost Control S	ignal	High O Lo	W

Figure 5-10 Smart Settings Guide 1

- Module Chip: Select the type of module driver chip. You can click **Select chip type** to open the chip table and select the desired chip. If the table does not have the type of chip you want, select **Common Chip**.
- Data Type: Select the data type of the module. Parallel data indicates that the data of the RGB three colors is transmitted parallelly, but serial data indicates that the data of the RGB three colors is transmitted serially.
- Module Type: Select the module type. Module type includes regular and irregular modules.
- Number of Driver Chips for One Scan and One Color: This parameter is available when irregular module is selected. It is calculated by the following formula.

Number of driver chips for one scan and one color = Number of driver chips / Number of data groups / Number of colors

- Quantity of Pixels: Set the quantity of pixel columns and rows on the module.
- Row Decoding Type: Select the row decoding type of the module. You can click Select a decoding type to open the decoding type table and select the desired type. When the Parity Scan option is displayed, if only the odd or even output of the decoding chip is used, please select this option.
- Hub Mode: Use the default value.
- Ghost Control Signal Polarity: Use the default value.



Step 5 On the Smart Settings Guide 2 page, select one option based on the current display on the module and click Next.

When you are viewing the display on the module, view the first module loaded by the first receiving card connected to the first Ethernet port.

Figure 5-11 Smart Settings Guide 2

Smart Settings Guide 2		x
The current display modu	ıle is:	
Full Black	🔿 Display	
	Back	Cancel

Step 6 On the **Smart Settings Guide 3** page, select the module display color switching mode and check whether the current module display color is the same as the selected color.

Figure 5-12 Smart Settings Guide 3

Smart Se	ttings Guide 3		×
Automotion	omatic switchin 🔘 Ma	anual switchin	
Please	select the module color in eac	ch status:	
<b>I</b>	Red A		$\sim$
O 2	Green		~
03	Blue		~
04	Red B or black		$\sim$
	Back	ext Cance	el

- If they are the same, click **Next** to go to Step 7.
- If they are different, select a color corresponding to the module display color from the drop-down list to make them the same.
- Step 7 On the Smart Settings Guide 4 page, set the parameters based on the number of lighted rows (or columns) on the module and click Next.

#### Figure 5-13 Smart Settings Guide 4

Smart Settings Guide 4	
Lighted rows (or columns) on the module	
Row     Column	****
Number of lighte 16	
Back Next Cancel	

Step 8 On the **Smart Settings Guide 5** page, set the parameters based on the number of lighted rows (or columns) on the module and click **Next**.

#### Figure 5-14 Smart Settings Guide 5

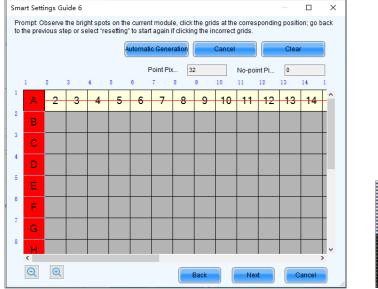
S	Smart Settings Guide 5	×
	Lighted rows (or columns) on the module	
	Quantity 1	
	Back Next Cancel	

Step 9 On the **Smart Settings Guide 6** page, view the flashing pixel in the first row on the module and click the corresponding cell in the grid to draw the pixel position.

Generally, you only need to draw pixel position for the first row of pixels. If the flashing pixels are on the other row or column, click the corresponding cells in the grid.

- Automatic Generation: Complete pixel position drawing for the first row of pixels quickly.
- Cancel: Clear the last pixel position drawing.
- Clear: Clear all the pixel position drawing.
- Lighted Pixels: Display the total number of lighted pixels on the current module.
- Unlighted Pixels: For regular modules, the value of this parameter is always 0. For irregular modules, a No corresponding LED button is added to the page shown in Figure 5-15. When a pixel cannot be lighted during pixel position drawing, you can click No corresponding LED and the number of Unlighted Pixels increases by 1.
- Image: Zoom out the grid.
- Image: Zoom in the grid.

#### Figure 5-15 Smart Settings Guide 6





Step 10 View the flashing pixel in the first column on the module and click the corresponding cell in the grid to draw the pixel position (You can also use the keyboard arrow key to quickly draw the position), and click **OK** after the drawing is done.

Generally, you only need to draw pixel position for the first column of pixels. If the flashing pixels are on the other row or column, click the corresponding cells in the grid.

- Step 11 Click Next and click OK.
- Step 12 (Optional) Enter a module name and save the module configuration as a file or save the module configuration to the cabinet database.



In the future, you can load the module configuration file to quickly light the modules with the same specifications.

- Browse: Select the path to save the module configuration file.
- Change Cabinet Database: Open or create a cabinet database.
- View: View the module configuration file saved in the cabinet database.
- View Module: View the detailed information about the current module.

#### Figure 5-16 Saving module information

Save Module Information	×
Prompt: You can save module inform time. Module Name:	ation to file or cabinet database for direct loading next
<ul> <li>Option 1: Save module infor File Path:</li> <li>Option 2: Save module infor Cabinet Datab</li> </ul>	Browse
	View Module Save Complete

#### Step 13 Click Complete.

#### Notes

On the Receiving Card tab page, you can also perform the following operations.

- In the Module Information area, click to view the detailed module information. On the Details of Module page, click Save Module to save the module configuration as a file.
- Click Restore Factory settings to reset the configuration information of all or specified receiving cards to factory settings.
- Type "admin" to show the Save to factory area button. This button is used to save some parameters to the factory area before delivering the cabinets to users. This function is supported only by some receiving cards.

#### 5.2.2.1.2 Set Cabinet

# **Applications**

Set the size of the cabinet loaded by the current receiving card and the cascading direction of the modules in the cabinet.

#### Applicable Products

For receiving cards that support .rcfgx or .rcfg files

#### **Prerequisites**

- A module is lighted. For details, see 5.2.2.1.1 Light Module.
- If the cabinet is irregular, the cabinet database file (.mcl) or module configuration file (.module) is prepared.

#### **Related Information**

If a cabinet is rectangle and the specifications of all the modules are the same, the cabinet is a regular cabinet, otherwise it is an irregular cabinet. For an irregular cabinet, the configuration file must be used to construct the cabinet.

# **Operating Procedure**

Step 1 On the Screen Configuration page, click the Receiving Card tab.

Step 2 In the Cabinet Information area, perform the corresponding operations below based on the cabinet type.



#### Figure 5-17 Cabinet information

Cabinet Information

								Set Rotation
O Regular				Irregular				
Width (Pixel)	64	*	<=128	Width:	64	Height:	64	
Height (Pixel)	64	*	<=256					
Module Casc	From Rig	iht to Left	~	Construc	t Ca	View Cabi	inet	

#### Configure regular cabinet

Select Regular, set the cabinet width and height, and set the cascading direction of modules.

#### Configure irregular cabinet

- a. If you need to configure row extraction position, select **Big Control Mode**. If **Big Control Mode** is not displayed or you do not need to configure row extraction position, skip this step.
- b. Select Irregular, click Construct Cabinet to open the dialog box shown in Figure 5-18.
- c. If you have a cabinet configuration file (.mcl/.cabinet), click **Load** to configure the cabinet quickly. If you do not have the file, preform the subsequent operations to manually configure the cabinet.
- d. Set **Data Groups of Cabinet** according to the number of data groups actually used by the cabinet and click **Set**.
- e. Click From Cabinet Database or From File to load modules.

When loading modules from files, you can set the numbers of module rows and columns. The loaded modules support the Ctrl+C, Ctrl+V, Ctrl+A, Delete, Ctrl+Z and Ctrl+Y keyboard shortcuts.

f. Adjust the positions of modules to let them form a cabinet whose size is consistent with the actual cabinet size.

You can adjust the module positions by directly dragging the modules or using the functional buttons in the **Module Alignment** and **Module Spacing** areas. Currently, the position adjustment operations cannot be undone. You can also adjust the display scale of the module to zoom in, zoom out, or fit automatically as needed in the **Zoom** section.

g. Select the data group one by one and double click the corresponding modules to connect them.

To display the test pattern by data groups, check the option Enable Data Group Display.

When selecting the data group, you can click the **A** key or **D** key on the keyboard to switch data groups.

After you double click the module, the module number is displayed. For example, (2, 2) indicates the module is the second module of the second data group. Right clicking the module can cancel the connection.

Functions in the **Quick Operation** area allow you to quickly number the selected modules and you do not need to select data group first. The module positions after numbering may change and you can adjust them if necessary.

h. Select **Simple Mode** or **Advanced** and configure one or more row extraction positions. If **Big Control Mode** is not selected on the **Receiving Card** tab page, skip this step.

Simple Mode: Set the row extraction position of cabinet and click **Add**. For example, if you set the parameter to **2**, the second row in the cabinet will be extracted during row extraction and the second column will be extracted during column extraction.

Advanced: Set the row extraction position of module and click **Add**. For example, if you set the three parameters to **2**, the second row in the second cascaded module connected to the second data group will be extracted during row extraction and the second column in the second cascaded module connected to the second data group will be extracted during column extraction.

- i. After the configurations are done, click **OK**. If necessary, click **Save** to save the cabinet configuration information to the cabinet database or save the information as a file.
- j. (Optional) Click View Cabinet to view the cabinet information.

Figure 5-18 Constructing irregular cabinet

Construct Irregular-Cabinet				— 🗆 X
Data Groups of Cabinet	Module Alignment Align Left Center Top Align Middle Ali. Bottom Al.	Module Spacing Vertical O Horizontal Same Space Clear Space	Zoom	Cabinet Information Quantity 0 Cabinet 0
From Cabinet D., From File Delete Module Delete the Selec. Clear Module				^
Operation of Data Groups Delete Clear				
1 2 3 4 5 6 7 8 v				
Quick Operation Sorting Rules (a) Vertical O Horizont Operation Rules				
Data gr O Module      Apply  Data Row Extracting Location in Cabinet				
Simple Mode     Advance  Number of Data Ro	<			× >
Add Delete Clear	OGUIE Information OE P Encodi Data Di Scanni	Driver Chip Four-color Param Total Quantity of P Scanning Line Pa	ixel	
	Short-Key prompts	Load	Save OK	Cancel

Step 3 If cabinet rotation is required, click **Set Rotation** and select the rotation angle. If it is not required, skip this step.

After cabinet rotation is set, all the input sources will be rotated to display according to the set angle.

Figure 5-19 Set cabinet rotation

Cabinet Information           Clockwise Rot ● 0°         90°         180°         270°         Hide	
---	--

- Step 4 After the settings are done, click **Send to Receiving Card**. In the displayed dialog box, select **All Receiving Card** or specify receiving cards, and click **Send**.
  - All Receiving Card: Send the receiving card configuration information to all the receiving cards loaded by the current sending card. If you select **Reset the Starting Coordinate of Receiving Card**, the starting coordinates of all the receiving cards will be reset to (0, 0). As a result, all the receiving cards display the top-left image of the input source.
  - Specify Receiving Card: Send the receiving card configuration information to the specified receiving cards by topology or by physical address.

Figure 5-20 Sending parameters to receiving card

Send Parameters to Receiving Card	_		×
All Recei     Reset the Starting Coordinate     Specify Receiving Card	Send	Car	icel

- Step 5 After successful sending, click OK to close the prompt box. The screen is now lighted.
- Step 6 (Optional) Click Save to File to save the configuration information as a receiving card configuration file (.rcfgx).

# 5.2.2.2 Configuration through NCP

# **Applications**

Configure the cabinet by loading NCP files. Additionally, you can read the cabinet information, restore the NCP, and set the cabinet rotation and indicator status.

# **Applicable Products**

For receiving cards that support NCP files

# **Prerequisites**

- To load NCP files, ensure you have prepared the .ncp file and that its applicable model matches the current receiving card in use.
- To restore NCP files, confirm that the receiving card model is A8s Pro and that the firmware version is V1.2.0.0 or higher.

# **Related Information**

None

# **Operating Procedure**

Step 1 On the Screen Configuration page, click the Receiving Card tab for NCP Management.

#### Notes

If the **Receiving Card** tab defaults to the .rcfgx/.rcfg configuration interface, click **NCP Management** to enter the NCP management interface.

#### Figure 5-21 NCP management

reen Configuration-COM99 nding Card Receiving Card Scree	n Connection	-	
-	cards that only allow for cor	ifiguration	
Cabinet File			
Cabinet	Display	~	
Cabinet Info			
Manuf	Model	Versic	
Resoluti	Pixel Pitc	Max Fra	
SN	Rv Card	Driver IC	
Scans	Refresh Rate	Grayscal	
Adjust Parameters	0.003		
Rotate	○ 90° ○ 180° ○ 270°		
Rv Card On	Off		Send Pa
Exit NCP Manage	Load NCP	Read Cabinet I., Send to Rec., Restore NCP	
		Save to HW Off	

#### Step 2 Click Load NCP.

Step 3 On the pop-up window, click **Browse** to choose an .ncp file.

#### Figure 5-22 Load NCP

🔜 Load Cabinet File	_	$\times$
NCP File Please browse local files	Browse	
Cabine 🗸 🗸		
Displa 🗸		
	Load	

Step 4 Select a cabinet file and display mode from the drop-down list and then click Load.

#### Step 5 Click Send to Receiving Card.

- Step 6 On the pop-up window, select the target receiving cards and click Send.
  - All Receiving Card: Send the receiving card configuration information to all the receiving cards loaded by the current sending card. If you select **Reset the Starting Coordinate of Receiving Card**, the starting coordinates of all the receiving cards will be reset to (0, 0). As a result, all the receiving cards display the top-left image of the input source.
  - Specified Receiving Card: Send the receiving card configuration information to the specified cards by sending card, by topology, or by physical address.

#### Step 7 Click Save to HW.

- Step 8 Do the following as required.
  - Read cabinet information

Click Read Cabinet Info, set the receiving card address on the pop-up window, and then click OK.

🖳 Please Select Rece	eiving Card	-		×
Please Set th				
Receiving Card P	osition			
Sending Card Nu	Ethernet Port No.		eiving 1 nu	
1	1	1		
Note: Reading ca	binet file infor	mation :	is not s	u
	OK		Cancel	

- Restore NCP
  - a. Click Restore NCP.
  - b. On the pop-up window, select the receiving cards you want to restore.

On the **Send by Topology** tab, you can click **Check Backup Files** to check if there is a backup file in the receiving card factory area.

- c. Click Restore Specified Rv Cards to restore the backup file in the factory area to DDR.
- d. Click Save to All Rv Cards.

🖶 Restore NCP		-		Х
Send by Sending Card Send By Topol	ogy Send By Physical Address			
Select Sending Card				
Select All				
Sending Card1	Send to all cabinets of the selected sending	card.		
Note:				
1. Restoration is only available wh	en the receiving card is able to access the backup file.			
2. If the cabinet file contains multip	ile modes, only one backed up mode can be restored.			
3. Legend				
Not selected	Selected			
Restorable	Unrestorable			
Restored successfully.	Failed to restore.	Save to All	Rv Car.	)

• Set cabinet rotation

Select Cabinet Rotation, set the rotation angle, and then click Send Parameters.

Set receiving card indicator
 Select Rv Card Indicator, choose between Enable or Disable, and then click Send Parameters.

# 5.2.3 Step 3 Connect Screen

# **Applications**

Connect the receiving cards logically. Generally, one receiving card loads one cabinet. Therefore, this function is also called connecting cabinets.

# Applicable Products

- Configuration of standard screen: Applicable to all sending cards
- Configuration of complex screen: The DVI connector of the MCTRL1600 cannot be used to configure a complex screen. You must use its DP 1.2 connector. The E8000 cannot be used to configure a complex screen.

# **Prerequisites**

None

# **Related Information**

In NovaLCT, you can configure up to 20 screens.

To configure a complex screen efficiently, you are advised to configure a standard screen first and then configure the complex screen based on the standard screen.

# **Operating Procedure**

Step 1 On the Screen Configuration page, click the Screen Connection tab.



Step 2 Set the screen quantity and click **Configure**.

If the multiple output ports of the sending card load the different areas of the same screen, set the screen quantity to **1**. If the multiple output ports of the sending card load different screens, set the screen quantity to the number of screens loaded.

Step 3 On the **Standard Screen** page, set the column and row quantity of receiving cards. For example, set them to 10 columns and 5 rows respectively, as shown in Figure 5-23.

Sending Card Number	- Basic Info		Y: 0 Virtu	al Mo 🔲 E		abl Screen A	Г 1920 х	1080
	Columns		ws 5					
Ethernet Port No.		1	2	3	4	5	6	7 ^
1 2 3 4 ^		Sending Card: Port:	Se					
5 6 7 8 9 10 11 12	▶ 1	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	r
13 14 15 16 v	2	Sending Card: Port: Receiving	Sei					
eceiving Card Size		Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	
eight: 128 🖨 Apply to Entir		Sending Card: Port:	Se					
Set Blank Apply to the Curren	3	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	t
ick Connection		Sending Card: Port:	Se					
	4	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	Receiving Card: Width:0	F
의 띠 김 띠	<	Sending Cord	Sending Cord:	Sending Card	Sending Card	Sanding Card	Sanding Card	Q₀ ¥

Figure 5-23 Column and row quantity of receiving cards

- Step 4 Choose an output port.
- Step 5 Set the receiving card size (loading capacity) and connection. For example, Figure 5-24 illustrates setting of the receiving cards loaded by output port 1.
  - Custom connection: In the table, click or drag the mouse.
  - Quick connection: Click a connection pattern and drag the mouse to select an area in the table.

During connection, the loading capacity of all the receiving cards is the value you set by default. If necessary, you can change the width and height of the loading capacity on the left.

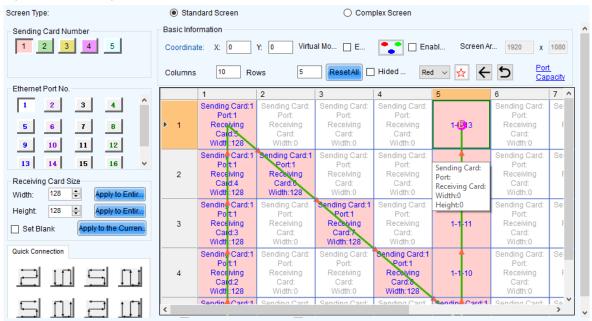


Figure 5-24 Receiving card connection and size



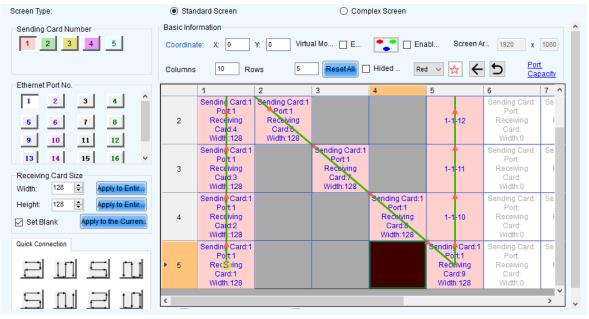
- Apply to Entire Column: Apply the loading capacity width of the selected receiving card to all the receiving cards in the same column.
- Apply to Entire Row: Apply the loading capacity height of the selected receiving card to all the receiving cards in the same row.
- Apply to the Current Port: Apply the current loading capacity width and height to all the receiving cards connected to the current output port.
- Reset All: Reset all the receiving card connections and blanks.
- Hided Mapping Line: Hide the receiving card mapping line (namely the connections).
- Mark the receiving card.
- E: Return to the previous step of connection.
- D: Clear all the connections of receiving cards connected to the current output port.
- Zoom: Zoom in or out the receiving card interface in the middle. When the interface is large enough, cabinet
  related information is displayed.
- Port Capacity: View the usage rate of Ethernet ports.
- Step 6 Set the specified receiving cards blank and set the blank size, as shown in the example in Figure 5-25. If you do not need to set blank, skip this step.

Click a receiving card and select **Set Blank** to leave the position of that receiving card blank. Continue clicking or dragging the mouse on the empty cabinets to set blank on the other positions.

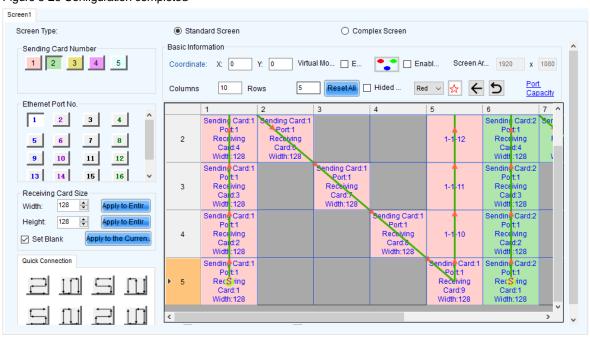
The receiving cards that are left blank do not load the screen to display the image, which helps to realize configuration of complex screen.

The blank size must be set based on the loading capacities of the neighbor receiving cards. For example, the display effect of both connection lines in Figure 5-26 is N shape. The areas in red boxes are loaded by the neighbor receiving cards. Therefore, their blank size is set to 0.

#### Figure 5-25 Setting receiving card blank



Step 7 Repeat Step 4 to Step 6 to set the receiving cards loaded by the other output ports.



#### Figure 5-26 Configuration completed

#### Notes

To configure a complex screen efficiently, you are advised to configure a standard screen first and then configure the complex screen based on the standard screen by following the operations below.

After the standard screen is configured, select **Complex Screen**. The **Complex Screen** page shows the connection diagram of the standard screen. The connection diagram in Figure 5-25 is shown as the diagram in Figure 5-27.

You can directly drag cabinets on the left or adjust data in the table on the right to let the configuration meet the actual screen configuration requirements.

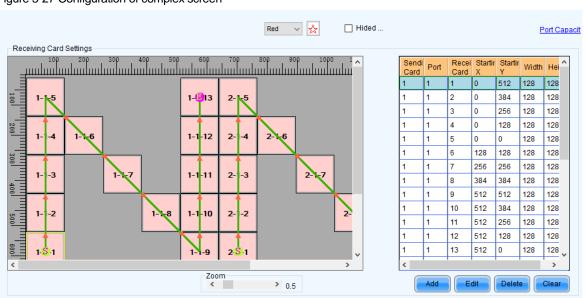


Figure 5-27 Configuration of complex screen

Step 8 Click Send to HW to send the configuration information to the hardware. If necessary, click Save to File to save the configuration information as a file.

Empty cabinets cannot exist before saving configuration. You can set the empty cabinets blank.

- Step 9 After the settings are done, click **Save** to save the configuration information to the hardware.
- Step 10 After successful saving, choose whether to save the backup file to the local computer.

When the control computer can access the Internet, you can use the backup file to register screens to VNNOX Care. For details, see 7.1.2.1 Register by Using Local Backup Files (Recommended).

This step is related with the configuration of the save function. See 11.3 Configure the Save Function.

# **Related Operations**

- Detect Communication Status: Detect the status of connection between the receiving card and Ethernet port.
- Read the Number of Receiving Cards: Read the number of receiving cards connected to the current Ethernet port.
- Test Pattern: Display test patterns through the sending card, receiving card, or Ethernet port. Additionally, you can
  perform screen controls like normal display or blackout.
- Enable Mapping: Enable the Mapping function. The Mapping function is for you to obtain the receiving card connection information conveniently.
- Read from HW: Read the current configuration information in the hardware.
- Coordinate: Set the start position of the display image on screen.
- Virtual Mode: For modules with shared pixels (sub-pixels), you can check the Enable checkbox and then click
   to set the parameters for virtual pixels.

Set Virtual Mode
3-Color Mode 1
Balanced Mode Meeting Mode
Prompt: Drag the round objects to swap their p
Red LED Green LED OK

- Balanced Mode: Suited for standard display scenarios.
- Meeting Mode: Suited for displaying documents.
- Image Mode: Suited for displaying images and videos.
- Enable Sync: Used for the mosaic function of the all-in-one device
- Back Up System Configuration: Back up some system configurations, sending card configurations and receiving card configurations to the local computer. This button is available for the MCTRL660 PRO device only.
- Restore System Configuration: Use the backup file (.pbk) to restore the system configurations, sending card configurations and receiving card configurations. This button is available for the MCTRL660 PRO device only.

# 5.2.4 Step 4 (Optional) Save Configuration Files

# **Applications**

After the screen configuration is done, save the configuration file of the online screen to the cloud (VNNOX Care) and the local computer, or save the configuration file of the offline screen to the local computer.

# Applicable Products

All receiving cards and sending cards



# **Prerequisites**

To save the configuration files to the cloud, the following conditions must be met:

- You have a valid VNNOX Care account.
- The control PC is connected to the Internet.

# **Related Information**

When saving the configuration files of a screen that is not registered with the cloud, the screen will be registered with VNNOX Care automatically. During registration, NovaLCT will automatically enable **Automatic Refresh** and **Link to NovaiCare** in the monitoring configuration. If you want to set the refresh period, please see 7.2 View and Configure Monitoring.

The configuration files saved to the cloud include the receiving card configuration file (.rcfgx), screen connection file (.scr), version file (.cfg), etc. The version file contains the version information about NovaLCT and the receiving card program package.

The configuration files saved to the local computer include the system configuration file (.scfg) only.

# **Operating Procedure (Online Screens)**

Step 1 On the Screen Configuration page, click Save System Configuration File to open the dialog box shown in Figure 5-28.

💀 Save System File	s to Cloud	×
VNNOX Care Use		
Password		
Screen Name	USB@Port_#0002. Hub_	#0001-Screen1
System Config		
System Config	1 . Receiving card by 2 . Screen connection 3 . Receiving card/No Save	n file
🖪 The screen is no	ot registered	American 🔻

Figure 5-28 Saving configuration files (online screen)

- Step 2 Enter your VNNOX Care user name and password, set the screen name and system configuration file name, and select a server node.
- Step 3 After the parameter settings, click Save.
- Step 4 After successful saving, close the prompt box.

# **Operating Procedure (Offline Screens)**

Step 1 On the Screen Configuration page, click Save System Configuration File to open the dialog box shown in Figure 5-29.

$\leftrightarrow \rightarrow \uparrow \uparrow \blacksquare $	This PC → Documents	∿ ⊽	Search Documer	nts	Q
Organize 👻 New fo	lder				?
🕂 Downloads 🖈	Name		Date modified	Туре	
🚆 Documents 🖈	Adobe		9/29/2018 5:05 PM	File folder	
📰 Pictures 🛛 🖈	Custom Office Templates		12/11/2019 7:18 PM	File folder	
0624 F8	Nova Star		2/15/2019 5:49 PM	File folder	
en-US	NovaCLB		5/14/2019 8:29 PM	File folder	
System32	NovaLCT 2012		7/2/2021 2:01 PM	File folder	
			5/7/2019 3:22 PM	File folder	
	QQPCMgr		1/16/2019 1:44 PM	File folder	
len OneDrive	SDL	1	8/19/2019 10:55 AM	File folder	
This PC	Snaglt		3/1/2020 12:08 PM	File folder	
	Studio 2019		12/2/2019 9:33 AM	File folder	>
Make and a					
File name:					
Save as type: Sys	tem configuration file(*.scfg)				

Figure 5-29 Saving configuration files (offline screen)

Step 2 Select a location from the control PC and click Save.

Step 3 After successful saving, click OK to close the prompt box.

# 5.3 Set Redundancy

# **Applications**

Set device redundancy and Ethernet port redundancy to ensure high reliability of the control system in applications like stage and conference center.

# **Applicable Products**

- Redundancy: Applicable to all sending cards
- Hot backup verification: Applicable to the MCTRL4K, MCTRL R5 and KT8 sending cards

### **Prerequisites**

Redundancy related hardware connection is done. The devices are cascaded before you set device redundancy and Ethernet port redundancy between devices.

# **Related Information**

Use the hot backup verification function to directly verify effectiveness of backup Ethernet ports without disconnecting and reconnecting Ethernet cables.

#### **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK.

The default password is "admin".



- Step 2 Click Screen Configuration from the menu bar.
- Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, select **Next**.

Figure 5-30 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	COM99 ~	
Configure Screen		
O Cloud Restore	~	
O Local Restore		Browse
	Next	Close
		.:

Step 4 On the Sending Card tab page, perform any of the following operations as required.

#### Configure device redundancy

- Set a single device

Select Set as Primary or Set as Backup to set the current device as the primary or backup device.

Redundancy		
Set the Current Devi	Set as Primary	Set as Backup

- Set multiple devices

Click Set in the Redundancy area to open the Redundancy settings dialog box. Then, select Set as Primary or Set as Backup. At last, select the sending cards you want to set and click Set.

💀 Redundancy settings		$\times$
Set as Primary	○ Set as Backup	_
Sending Card:		
	🔋 Primary B Backup 🝔 Not set	1
📔 🗹 Sending Card1		
📔 🗹 Sending Card2		
📔 🗹 Sending Card3		
📔 🗹 Sending Card4		
📔 🗹 Sending Card5		
	Set	

#### **Notes**

To set a single backup device as the primary device, deselect **Set as Backup** first, send the settings to the hardware and then select **Set as Primary**.

The sending card that is used in the completed screen configuration cannot be set as backup device. To set it as backup device, you must delete the screen configuration information first.

#### Configure Ethernet port redundancy

a. Click Add to open the Redundancy Settings dialog box.

Re	edundancy Settings			×
	Serial Number of Primar Serial Number of Primar	1 🗘	Serial Number of Backu 1	
	Add		Close	



b. Enter the serial numbers of the sending cards and output ports, and click Add.

For Ethernet port redundancy within a sending card, enter the same value for serial numbers of the primary and backup sending card. For Ethernet port redundancy between sending cards, enter the actual serial numbers of the primary and backup sending cards after they are cascaded.

- c. After the configurations are done, click **Close**.
- Step 5 (Optional) After Ethernet port redundancy is configured, perform the following operations to verify hot backup.
  - 1. Click Verify to open the dialog box shown in Figure 5-31.
  - 2. Select the sending card and click **Enable Hot Backup Verification**. If the display is normal, the backup Ethernet port is effective, otherwise it is not.
  - 3. After verification, click **OK**.
  - 4. Click **Disable Hot Backup Verification** and click **OK**.
  - 5. Close the Hot Backup Verification dialog box.

Figure 5-31 Hot backup verification

📲 Hot Backup Verification	Х
Select sending cards for hot backup verification	
SelectAll	
Sending	]
After hot backup verification is enabled, if the display is correct, the hot backup takes effect. If the display is wrong, please chec	
Enable Hot Backup	

- Step 6 Click **Send** to send the configuration information to the hardware, or click **Save** to save the information to the hardware.
- Step 7 After successful saving, choose whether to save the backup file to the local computer.

When the control computer can access the Internet, you can use the backup file to register screens to VNNOX Care. For details, see 7.1.2.1 Register by Using Local Backup Files (Recommended).

This step is related with the configuration of the save function. See 11.3 Configure the Save Function.

# 5.4 Enable 3D

#### Applications

Enable the 3D function and set the related parameters to let users wearing 3D glasses enjoy stereoscopic images.

# **Applicable Products**

The MCTRL4K, MCTRL1600, KT8, KT8E, KT16E, KT16C, MEE200 and MEE400 sending cards, and H series products

# **Prerequisites**

The 3D and low latency functions cannot be enabled at the same time. The low latency function must be disabled before enabling 3D function.

The hardware connection is done and the 3D glasses are prepared.



# **Related Information**

After the 3D function is enabled, the loading capacity of the sending card is reduced by half.

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".

Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, select **Next**.

Figure 5-32 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	COM99 ~	
Onfigure Screen		
O Cloud Restore	~	
O Local Restore	Browse	
	Next Close	

Step 4 On the Sending Card tab page, select Enable in the 3D Function area.

### Figure 5-33 Enabling 3D

- Select Input Source				
Video Input			3D Function	
🗌 Automati	HDMI	- Send	🗹 Enable	Settings

Step 5 Click Settings next to Enable to open the dialog box shown in Figure 5-34.

Set 3D Parameters		_		×						
Video Source Format										
🔘 Side-by-side	◉ Top-and-bottom	⊖ Frame s	equential							
Eye Priority										
Right eye	🔾 Left eye									
Mode Selection										
DVI										
● DVI1: L	DVI2: R									
3D signal emitter										
Enable third-party emitter										
Signal Delay Time 7 🚖 ms 0 🖨 us (Range: 0-20 ms) Restore Defa Flease set an appropriate delay time to make left and right eye										
					rrease ser an abbrobingte nergy nume to make reff sun light she					
	Save	from File	Save to Fi	le						

Figure 5-34 Setting 3D parameters

Step 6 Click Load from File to quickly configure the related parameters, or configure them manually.

- Video Source Format: Set the format of the video source to side-by-side, top-and-bottom or frame sequential according to the format of the used video source.
- Eye Priority: Set which image is sent first, the left eye image or the right eye image. Wear the 3D glasses and watch the display. If the display is abnormal, set the parameter value to the other one. If the display is normal, the setting is done.
- Mode Selection: Select the same or different signal sources for the left and right eye images. If there is only one input source, this parameter is not displayed.
- Right Eye Start: Set the start position of the right eye image. When the video source format is side-by-side or topand-bottom and the left and right eye images are provided, this parameter can be set.
- 3D signal emitter: If you use a third-party 3D emitter, select **Enable third-party emitter**. If you use the EMT200 emitter of NovaStar, do not select it.
- Signal Delay Time: Set the delay time of sending the synchronization signal from 3D signal emitter to the 3D glasses. This setting ensures that the switching between left and right eye images of the 3D glasses is in sync with the switching between the left and right images on the display. This parameter is applicable to both the NovaStar and third-party emitters.
- Step 7 After the configurations are done, click Save to save the configuration information to the hardware.

The 3D parameters take effect on the hardware immediately after they are configured. If they are saved to the hardware, they will not be lost even after the device is powered off.

Step 8 (Optional) Click Save to File to save the configuration information as a file on the local computer.

# 5.5 Set Working Mode

# **Applications**

Set the working mode to let the device switch to the sending card mode (also known as video controller mode) or the fiber converter mode.



# **Applicable Products**

The MCTRL660 PRO, MCTRL1600, H9, NovaPro UHD Jr, K16, and MCTRL R5 sending cards

# **Prerequisites**

None

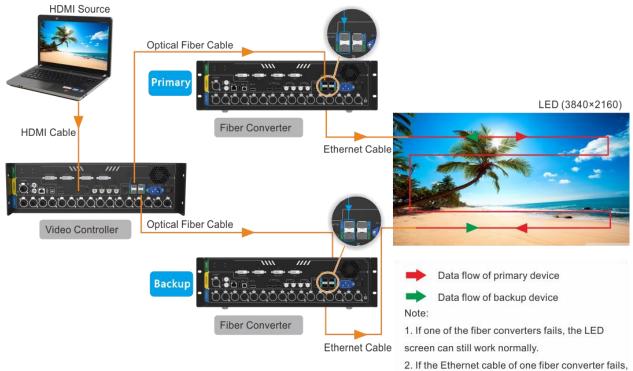
# **Related Information**

For the MCTRL1600, H9, NovaPro UHD Jr and K16, after their working mode is set to sending card mode, you can further set the working mode of their optical ports. The working modes of optical port include hot backup mode and copy mode.

Figure 5-35 and Figure 5-36 are illustrations of the two optical port working modes, using the NovaPro UHD Jr as an example.

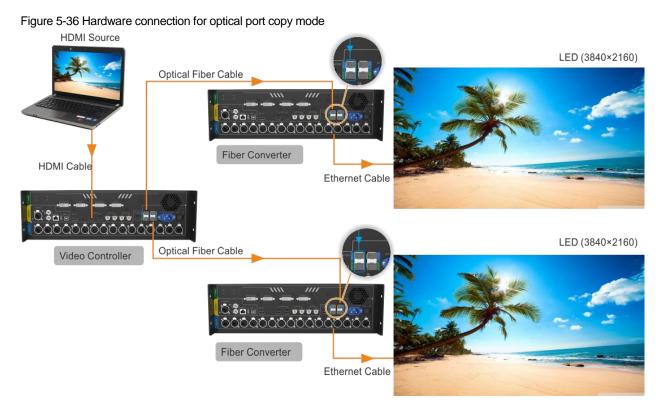
- Hot backup mode: The sending card sends the two duplicate optical signals to the same display through the primary and backup fiber converters to form a loop backup.
- Copy mode: The sending card sends the two duplicate optical signals to two displays through two fiber converters.

Figure 5-35 Hardware connection for optical port hot backup mode



the LED screen can still work normally.





# **Operating Procedure**

- Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".

Step 2 Click Screen Configuration from the menu bar.

Step 3 On the pop-up dialog box, select a communication port and choose Configure Screen. Then, select Next.

Figure 5-37 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	СОМ99 🗸	
Configure Screen		
O Cloud Restore	~	
<ul> <li>Local Restore</li> </ul>	Browse	
	Next Close	

Step 4 On the **Sending Card** tab page, click **Set Working Mode**.

Figure 5-38 Working mode

	Verify	Hot Backup V	Working Mode
--	--------	--------------	--------------

Step 5 Select the sending card and set the working mode to sending card mode or fiber converter mode.

### Figure 5-39 Setting working mode

Set Working Mode		×
Select Sen	Working Mode	
SelectAll		
Sending Card1	🖲 Sendina Card 🛛 🔾 Fib	er Converter
	Working Mode of Optical Port	
	Please select	
	ОК	Cancel

- Step 6 For the MCTRL1600, H9, NovaPro UHD Jr and K16, after their working mode is set to sending card mode, if necessary, set the working mode of their optical ports.
- Step 7 Click OK.

# 5.6 Enable Zoom

# **Applications**

Enable the zoom function and set the output resolution to let the image be displayed in a specified size.

# **Applicable Products**

The KT8E, KT16E, KT16C, MEE200 and MEE400 sending cards

# **Prerequisites**

None

# **Related Information**

None

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

Step 2	Click	Screen Configuration	or choose Settings > Scree	en Configuration from the menu bar.
• • • • =	•			

Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, select **Next**.

### Figure 5-40 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	СОМ99 ~	
Configure Screen		
O Cloud Restore	~	
O Local Restore		Browse
	Next	Close



Step 4 Click the Sending Card tab.

Step 5 Select **Enable zoom** and click **OK**.

Zoom Output Reso 0 🔄 x 0 🔄 Px Set 🗸 Enable Zoom	Figure 5-41 Enabling zoom	
		Enable Zoom

Step 6 Set the output resolution.

Step 7 Click **Set** and click **OK**.

# 5.7 Set Audio Input

# **Applications**

Set the audio input to HDMI or external audio.

# **Applicable Products**

The sending card MCTRL2000

# **Prerequisites**

None

# **Related Information**

None

# **Operating Procedure**

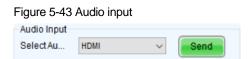
Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".

- Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar.
- Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, select **Next**.

Figure 5-42 Screen configuration method

Screen Configuration		×
- Select Communication	Port	
Current Operatio	СОМ99 ~	
Configure Screen		
O Cloud Restore	~	
<ul> <li>Local Restore</li> </ul>		Browse
	Next	Close

- Step 4 Select the Sending Card tab.
- Step 5 Select HDMI or External Audio from the drop-down list and then click Send.





# 5.8 Set Performance Parameters

# **Applications**

Set the performance parameters of the cabinet to let the screen present better display effect.

# **Applicable Products**

All receiving cards

# **Prerequisites**

None

# **Related Information**

None

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".



- Step 2 Click Screen Configuration from the menu bar.
- Step 3 On the pop-up dialog box, select a communication port and choose Configure Screen. Then, select Next.

Figure 5-44 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	COM99 ~	
© 0		
Configure Screen		
Cloud Restore	~	
<ul> <li>Local Restore</li> </ul>		Browse
	Next	Close

- Step 4 Click the Receiving Card tab and click Read from Receiving Card to obtain the latest configuration information.
- Step 5 If you have a receiving card configuration file (.rcfgx/.rcfg), click **Load from File** to complete the configuration quickly. If do not have the file, preform the subsequent operations to manually configure the performance.
- Step 6 In the **Performance Settings** area, set the performance parameters.

Performance Setting Data Group E	s More Settir	ngs		🗌 18bit+	
Refresh Rate	480	∼ Hz	Refresh Rate Ti	4 ~	
Grayscale Level	Normal 4096	$\sim$	Grayscale Mode	Refreshing Rate Fir $ \sim $	
Shift Clock Fre	12.5	∼ MHz	Duty Cycle	50 ~	(25~75) %
Phase Position	2	$\sim$	Low Grayscale C	0	
Row Blanking	25	≑ (=2.00us)	Ghost Control En	24	(1~24)
Line Changing	3	(0~23)			
Minimum OE w	80 ns				
Brightness Effi	68.24%				

The performance parameters displayed in the area varies depending on the receiving card. The main parameters include the followings.

- Refresh Rate: Indicates the rate of updating the image on the display. Increasing refresh rate reduces image flickering, allowing for a more stable image.
- Grayscale Level: Indicates the shading of display. The higher the grayscale level, the more brightness levels the display will have. For example, if the grayscale level is 16bit, the display can express 65,536 levels of brightness.
- Grayscale Mode: Indicates the grayscale display mode. It includes brightness first, refreshing rate first, grayscale first and performance balancing.
- DCLK Frequency: Indicates the frequency of shift clock.
- DCLK Duty Cycle: Indicates the duty cycle of shift clock. Set it to 50% in general.
- DCLK Phase: Indicates the phase of shift clock. When there are mismatching or flashing pixels, adjust this parameter to fix the problem.
- Refresh Rate Times: Indicates the times of refresh rate.
- Low Grayscale Compensation: Indicates the compensation for the grayscale in low grayscale conditions, allowing for more precise grayscale.
- Row Blanking Time: Used to adjust the ghost problem of the scanning type display. If the ghost problem is serious, increase the parameter value.
- Line Changing Time: Works with row blanking time to adjust the ghost of the scanning type display.
- Ghost Control Ending Time: Works with row blanking time and line changing time to adjust the ghost of the scanning type display.
- Line break trimming: Works with row blanking time to adjust the ghost of the scanning type display.
- GCLK Frequency: Indicates the frequency of grayscale clock.
- GCLK Duty Cycle: Indicates the duty cycle of grayscale clock.
- GCLK Phase: Indicates the phase of grayscale clock.
- Blanking Time Height: Used to eliminate the lower ghost
- Minimum OE Width: It is calculated from other performance parameters and can be viewed only.
- Brightness Efficiency: It is calculated from other performance parameters and can be viewed only.
- Step 7 After the settings are done, click **Send Performance Parameters** to send the performance parameters to the hardware.
- Step 8 After the display effect meets the expectation, click **Save** to save the performance parameters to the hardware.
- Step 9 After successful saving, choose whether to save the backup file to the local computer.

When the control computer can access the Internet, you can use the backup file to register screens to VNNOX Care. For details, see 7.1.2.1 Register by Using Local Backup Files (Recommended).

This step is related with the configuration of the save function. See 11.3 Configure the Save Function

# Data Group Exchange

This function is used to exchange every two data groups to adjust the display image. It can be performed only after the smart settings are done and supports regular cabinets only. For example, after you exchange the data groups A and B, data group A outputs the image of data group B, and data group B outputs the image of data group A.

Click **Data Group Exchange**, select all the receiving cards or specify one receiving card and click **OK** to open the **Data set exchange** dialog box. If the module height is less than 8 or the width is less than 20, the data group exchange is in group mode, otherwise it is in intuition mode.

The red table on the desktop indicates the original data groups. Each row is a data group. The first row is the first data group.

To display the test pattern by data groups, check Enable Data Group Display and specify the data group number.

### Intuition Mode

Select **Enable data exchange** and view the data group No. displayed on the screen. In the dialog box, double click the rows with the same No. in the second column and change the numbers.

Example:

The receiving card has two data groups in parallel output. The screen displays **5** and **6**, indicating that it outputs the images of data group 5 and data group 6.

In the Data set exchange dialog box, change 5 to 1, 6 to 2, 1 to 5, and 2 to 6, as shown in the figure below.



ta set e	exchange(intu	ition mode)					
				A			
> 1				1			
2				2			
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			
dication	1: Fill in the list	s of data set	exchange ac	cording to t	he figures displa	ayed in lar	ge screen
Enab	ble Data	Data 1	*				Reset data
						Ľ	Kesel uala

Click **Send**. The screen displays **1** and **2**, indicating that it outputs the images of data group 1 and data group 2 after data group exchange.

### Group Mode

Select **Enable data exchange** and check whether the screen has a white area. If it has no white area, click **No flashing area**. The white row in the red table moves to the next data group. If it has a white area, click the data group you want to exchange in the **Data set exchange** dialog box.



Example:

The receiving card has two data groups in parallel output. Click **No flashing area** multiple times and watch the screen. When the white row in the red table moves to the fifth data group, the screen has a white area, indicating that the screen outputs the image of data group 5.

In the **Data set exchange** dialog box, click the first data group. This exchanges data group 5 and data group 1. The white row automatically moves to the sixth data group. Then, click the second data group in the **Data set exchange** dialog box. This exchanges data group 6 and data group 2, as shown in the figure below.

Data set	exchange(group mode)			×
Serial		A		
1		1	0	
2		2		
3		3		
4	1925 P	4	S 1-	
5		5		
6		6		
7	0.0	7		
▶ 8		8		
Indication	1: Observe the position of the white disp	view area in the larg	e screen then clic	k the correspon
	able Data Data 1 🚖 t chos 8	Undo	No flashing	Reset data
🗹 Ena	ble dat	Send	Apply	Close

After the settings are done, click **Send** to send the configuration information to receiving cards.



# More Settings

Click More Settings to perform the following functions and set the extended attributes for the used chip.

Symmetrical/Data Group Extension

Set the output mode of data group, data group extension, hub mode and graphics output direction.

Symmetrical/Data Group Extension	
Output Mode Symmetrical Outputs Triple Strip Outputs Quadruple Strip Outputs	
Data Group Extension         20 Data Groups         24 Data Groups         28 Data Groups         32 Data Groups         64 Data Groups         Serial 128 Data Groups	
Ghost Control Signal Signal Switch:	
Hub Mode Normal O 20 Groups O 24 Groups O 28 Groups	
Graphics Output <ul> <li>Output by Scanni</li> <li>Output in the dir</li> </ul>	
OK	

- Output Mode: If the screen is very wide and the receiving card cannot load the entire width, set the output
  mode to symmetrical outputs, triple strip outputs or quadruple strip outputs.
- Data Group Extension: If the receiving card supports data group extension, select the corresponding
  option according to the actual condition.
- Ghost Control Signal: Use the default value.
- Hub Mode: Select a mode based on the receiving card specifications.
- Graphics Output: Use the default value.

### Monitoring Card Data Line Adjustment

Adjust the data lines used by red, green, blue and virtual red LEDs during LED error detection.

Select Enable Adjustment of Monitoring Data Line and select Red, Green, Blue or Virtual Red from the drop-down list. After the settings are done, click OK.

Ad	just	ment of Monitoring	Data Line	×
		Enable Adjustment of I	Monitoring Data Line	
			Transfer Data Line Sign	al
	۲	Data Line 1	Red	$\sim$
		Data Line2	Green	$\sim$
		Data Line 3	Blue	$\sim$
		Data Line 4	Virtual Red	$\sim$
			OK	el

### Additional Function

Enable or disable some additional functions of receiving card.

Additional Function	x
Isolated Pixel Afterglow Indicator Light of Rec Shorten the synchroni Brightness becomes EMC Function: Linear Connection Auto Upload Module C Calibrati  Enable	Eliminate Close Enable Enable Disat Enable Enable Ena
G: 0 ÷ G( B: 0 ÷ B(	Coef         1.000 +           Coef         1.000 +           Coef         1.000 +           Coef         1.000 +
Note Delay Time of ABCDE Sig Delay of ABC signals: Delay of DE signals: No delay: Delay time:	e some chips support inals C Enable Enable Enable Enable 0 \$ 0 ns Apply
ок	Cancel

The EMC function can be set to **Disable**, **Weak**, **Medium** or **Strong**. The other functions are described as follows.

- Isolated Pixel Afterglow: Eliminate the afterglow problem of isolated pixels.
- Indicator Light of Receiving Card: Turn off the operating status indicator of receiving card.
- Shorten the synchronization time: Shorten the frame interval time during data output of receiving card.
- Brightness becomes strong slowly: Make the display become brighter slowly after the power is supplied.
- Linear: Increase the loading capacity of receiving card. The linear mode requires that the module connection line is straight, the cabinet does not have data row extraction and the cabinet is not rotated.
- Auto Upload Module Calibration Coefficients: Once selected, if the control system detects a change in the module ID upon power-up, it will automatically upload the calibration coefficients from the module flash to the receiving card.
- Calibration Threshold: When the grayscale level is less than or equal to the specified level, use the average calibration coefficients, other than the pixel level calibration coefficients. This fixes the display problems in low grayscale after the screen is calibrated, such as mottling, color blocks and grayscale spikes.

The R, G, and B values are hexadecimal and the largest value is FFFF. Before setting them, check the Yaxis value corresponding to the X-axis value (the specified grayscale level) in the Gamma table in the brightness adjustment function, and then convert the Y-axis value to hexadecimal value. If the device does not support individual Gamma adjustment for RGB, set the R, G and B to the same value. The VR value setting is optional.

The threshold coefficient is used to determine the transition mode of pixel level calibration below the threshold value. The coefficient range is from 0.000 to 1.200, where 0 signifies no transition, rendering the pixel level calibration ineffective straightaway. The larger the value, the more gradual the decrease in effectiveness of the pixel level calibration.

 Delay Time of ABCDE Signals: Fix the problem that the afterglow cannot be eliminated because the decoding signals are not synchronized. After the settings are done, click **Apply**.

### Flash Arrangement

When the module has a flash memory, use this function to set the flash memory arrangement of cabinet. The receiving card reads the calibration coefficients and module IDs from the flash memory via bus.

Before connecting the modules that have flash memory, obtain the bus No. A bus can cascade multiple modules. Then, set the flash arrangement according to the actual connection order.

Number of F	Fl 4	Numbe	r of Fl	4				Back	Reset	All
BUS				1	2	3	4			
1 2	3	4		BUS 1 Serial	BUS 1 Serial	BUS 1 Serial	BUS 1 Serial			
5 6		8	1	numt B 0 Width 32 Height 16	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16			
9 1		12		BUS 2 Serial	BUS 2 Serial	BUS 2 Serial	BUS 2 Serial			
13 1 17 1		16 20	2	numt B 9 Width 32 Height 16	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16			
21 2		24	3	BUS 3 Serial numt B-0	BUS 3 Serial	BUS 3 Serial	BUS 3 Serial			
25 2	6 27	28	5	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16			
29 3		32	4	BUS 4 Serial numt <mark>B -9</mark>	BUS 4 Serial	BUS 4 Serial	BUS 4 Serial			
lash Contro Vidth	32	÷		Width 32 Height 16	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16			
leight Aodule Para Number	16 Apply to Cun meters 2 Apply to Cun	÷								
tarting X Co tarting Y Co		÷								
us Data Gro	oup Order									
djust O	Adjust Ord	er								

- a. Set the number of flash memory rows and columns. Generally, a module has one flash memory.
- b. Click the bus No.
- c. Set the width and height of the module controlled by the flash memory.
- d. In the arrangement table, click the cells in order according to the actual module connection.

Right clicking a flash memory cell cancels the configuration of that flash memory. Clicking **Back** returns to the previous operation. Clicking **Apply to Current BUS** sets all the flash memories connected to the current bus to the same value.

- e. Set the number of data groups of the module and the start coordinates of the flash memory.
- f. Click Adjust Order to arrange the data group numbers as necessary.
- g. If necessary, click the other bus to continue setting. After the configurations are done, click OK.

### Monitoring Card Data Set Exchange

When the hardware connections of the monitoring card have errors, use this function to exchange the data groups of the card without the need to reconnect the hardware.

N	1onit	oring card da	ata set exchange	×
	<b>_</b> E	Enable monito	ring ca	
			A	^
		1	5	
		2	6	
		3	3	
		4	4	
		5	1	
	►	6	2	
		7	7	
		8	8	
		9	9	
		10	10	
		11	11	
		12	12	
		13	13	
		14	14	
		15	15	
		16	16	~
		Reset	Send Apply Ca	incel

a. Click **Monitoring Card Data Set Exchange**. In the displayed dialog box, select **All Receiving Cards** or specify one receiving card and click **OK**.



- b. In the Monitoring card data set exchange dialog box, select Enable monitoring card data set exchange.
- C. Double click the row in the second column and change the value. For example, change 1 to 5, 2 to 6, 5 to 1, and 6 to 2, indicating that data group 1 is exchanged with data group 5 and data group 2 is exchanged with data group 6.
- d. After the settings are done, click Send to send the configuration information to the monitoring card.

### Cabinet Information Settings

Set the weight, power, width, height, pixel width, pixel height and voltage of the cabinet base on the actual situation.

🖳 Cabinet Inform	nation Settings		×
Weight (kg):	0.00	Power (W):	0.00
Width (cm):	0.00	Height (cm):	0.00
Pixel Width:	0	Pixel Height:	0
Voltage (V):	0.00		
		Apply	Close

# 5.9 Set Module Flash Parameters

# **Applications**

Send or read the module flash parameters, and configure automatic readback upon power-up.

# Applicable Products

For receiving cards that support read-write flash module.

# **Prerequisites**

Modules with flash memory and the TBS 614 chip.

# **Related Information**

None

### **Operating Procedure**

- Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".
- Step 2 Click Screen Configuration from the menu bar.
- Step 3 On the pop-up dialog box, select a communication port and choose Configure Screen. Then, select Next.

### Figure 5-45 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	COM99 ~	
Configure Screen		
O Cloud Restore	~	
O Local Restore		Browse
	Next	Close



- Step 4 Click the Receiving Card tab and press the "NEC" (case sensitive) on your keyboard.
- Step 5 Click the **Write Flash Parameters** that appears on the interface.

Figure 5-46 Receiving card

-	-COM99					- 🗆 ×
ending Card Receiving		Connection				
Module Information	l Common C	Size:	32W×16H	Occurring Tor	4/0	
	Common C Horizontal	Size: Data Groups	32W×16H	Scanning Typ Adjust RG	ie 1/8 scan	Check M
		Data Groups	2	<u>Adjust RG</u>		CHECK M
Cabinet Information	n					Set Rotation
Regular		1.0		Irregular	2 <sup>9</sup> . o. 1 <sup>9</sup>	
Width (Pixel)	1	-=256		Width: ??	Height: ??	
Height (Pixel)	1	€ <=128				
Module Case.	From Right to	Loff			View Oakiast	
modulo odoc	From Right to	Len V		Construct Ca	View Cabinet	
Performance Settin	igs					
Data Group E	More Settin	igs 🗌 E	3ig 🕜 🗌	18bit+		Send Perform
Refresh Rate	480	∼ Hz:	Refresh Rate Ti	4 ~		^
Grayscale Level	Normal 4096	$\sim$	Grayscale Mode	Refreshing Rate $\mathrm{Pre}\sim$		
Shift Clock Fre	12.5	✓ MHz	Duty Cycle	50 ~	(25~75) %	
Phase Position	6	$\sim$	Low Grayscale C	0		
Row Blanking		🗧 (=1.20us)	Ghost Control En	13 🗘	(1~14)	
	3	÷ (0~12)				
Line Changing						
Line Changing Minimum OE w Brightness Effi	160 ns					

Step 6 Do the following as required.

Figure 5-47 Module flash parameters

🖷 Operation of Flash Parameter Version	$\times$
Send Parameter Parameter   (Length: 5)	
Parameter Readback	
Parameter Readbac Save Power-on S	
Note: Please make sure that the receiving card parameters are set correctly. This command will save the receiving card parameters to the module flash.	

• Send Parameters

Set the parameter version ID, and then click **Save Parameters to Module Flash**. In the **Save Result** dialog box, you can check if the saving process was successful or not.

Read Parameters

Click **Read Configuration back to Rv Card**, specify the location of the receiving card in the pop-up dialog box, and click **OK**.

Check **Parameter Readback to Rv Card on Power On** and click **Save Power-on Switch**. If the parameter versions of the module and receiving card are inconsistent when the control system is powered on, the parameters in the module flash will be automatically read back to the receiving card.

# **6** Brightness and Chroma Adjustment

# 6.1 Calibration

# 6.1.1 Set Online Calibration Parameters

# **Applications**

Set parameters of displaying image and disable calibration or set calibration type during online calibration when NovaLCT works with NovaCLB calibration software.

# **Applicable Products**

- Full-grayscale calibration: Applicable to the A10s receiving card
- Low-grayscale calibration: Applicable to the A10s receiving card
- Dark or bright line correction: Applicable to the A8s receiving card
- Other functions: Applicable to all receiving cards and sending cards

# **Prerequisites**

- Hardware setup is done.
- NovaCLB calibration software is installed.

# **Related Information**

Screen calibration enables the brightness and chroma of LEDs to reach target values, allowing for balanced images and better display effect.

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK.

The default password is "admin".



Step 2 Click Calibration or choose **Tools** > **Calibration** from the menu bar.

### Figure 6-1 Screen calibration

reen Calibration	- 0	×
ingle-Screen Mode Combined-Sc + +	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients	
Current Operation Communication Port COM99 V	Network Setting         10.40.91.77         Port         8080         Reconnect	
Current Screen		
	Communication Information	
Screen1	14.28:12 The current port is occupied. Please enter a new one.	
ettings of Displaying Image		
Position to Display Image:		
Primary Display ~		
Device Response Time		
100 ≑ ms		
Method to Display Image:		
Hardware Test Pattern V		
able/Disable Calibration		
Disable		
Chroma		
) Full-Graysc	Export Log	1
Dark or Save		J



Step 3 Select the Single-Screen Mode tab or Combined-Screen Mode tab.

- Step 4 In single-screen mode, select a communication port and screen. In combined-screen mode, skip this step.
- Step 5 Set the displayed parameters.
  - Position to Display Image: Choose to display the image of the primary or extended monitor on the screen.
  - Device Response Time: In combined-screen mode, setting this parameter allows the display window to fit well
    with the time for camera to take pictures.
  - Method to Display Image: Select hardware test pattern or signal test pattern.
  - Enable/Disable Calibration: You can select disable calibration, brightness calibration, chroma calibration, or fullgrayscale calibration. You can also select dark or bright line correction and low-grayscale calibration at the same time. Click Save to apply your settings.
- Step 6 If network monitoring succeeds, open NovaCLB and enter the local IP address and port number displayed on the **Online Calibration** tab page of NovaLCT to connect NovaCLB to NovaLCT.

If network monitoring fails, click Reconnect, or change the port and then click Reconnect.

Step 7 (Optional) Click Export Log to export the communication log, or click Clear to clear the communication log.

### 6.1.2 Get Average Coefficients

### Applications

Get the average coefficients of a specified area on a screen.

# **Applicable Products**

All receiving cards

# **Prerequisites**

None

# **Related Information**

Offline calibration is not available for combined screens.

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".



- Step 2 Click Calibration or choose Tools > Calibration from the menu bar.
- Step 3 Select the Single-Screen Mode tab.
- Step 4 Select a communication port and screen.
- Step 5 Select the Offline Calibration tab.

creen Calibration		- 🗆 ×
Single-Screen Mode Combined-Sc • •	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients	
Current Operation Communication Port COM99 ~	Display Area Screen:1 Starting coordinateX=0, Y=0 Size512W×256H	
Current Screen		
Screen1	Column Nu 0 Display 100 🜩 Row Number 0 Display 100 🖨	Display
	Average Calibration Coefficient	
	0 0 0	
	0 0 0	
	0 0 0	Get Average C.
	Display Parameters	
	Mode All V	
Settings of Displaying Image	Color 🔍 Red 💭 Green 🕘 Blue 💿 White 🔍 Black	
Position to Displaying Image:	Brightness < 40 🔶 %	
Primary Display V		
Device Response Time		
100 🔺 ms		
Method to Display Image:		
Hardware Test Pattern $\sim$		
Enable/Disable Calibration		
Disable		
O Brightnes Low Gra		
O Chroma		
O Full-Graysc		
Dark or Save		

- Step 6 Specify an area where you want to get the average calibration coefficients.
- Step 7 Click Get Average Coefficients.

Figure 6-2 Offline calibration

- Step 8 After the average calibration coefficients are obtained successfully, click OK.
- Step 9 (Optional) Click **Display** or **Hide** to show or hide the display window.

# 6.1.3 Manage Calibration Coefficients

# **Applications**

Upload, save, adjust, erase and reload calibration coefficients.

# **Applicable Products**

- Full-grayscale calibration: Applicable to the A10s receiving card
- Low-grayscale calibration: Applicable to the A10s receiving card
- Dark or bright line correction: Applicable to the A8s receiving card
- Other functions: Applicable to all receiving cards

# **Prerequisites**

- If you want to use a database file, you need to prepare it.
- Module flash management requires modules with flash memory.

# **Related Information**

Calibration coefficient management is not available for combined screens. Pixel level calibration database files fall into two types:

### • Screen calibration database file

Saves the coordinates and calibration coefficients of each pixel on a screen. After the location of a cabinet is changed, the calibration coefficients cannot be uploaded to the cabinet.

Cabinet calibration database file



Saves the coordinates and calibration coefficients of each pixel on a cabinet according to the cabinet number. After the location of a cabinet is changed, the calibration coefficients can be uploaded to the cabinet according to the cabinet number.

Module flash memory can store calibration coefficients and module IDs. In the event of network outage, you can hold down the self-test button for 2 seconds to read the calibration coefficients in module flash memory back to the receiving card.

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK.

The default password is "admin".



- Step 2 Click calibration or choose **Tools** > **Calibration** from the menu bar.
- Step 3 Select the **Single-Screen Mode** tab.
- Step 4 Select a communication port and screen.
- Step 5 Select the Manage Coefficients tab.

### Figure 6-3 Calibration coefficient management

Screen Calibration	-	· [	2	$\times$
Single-Screen Mode Combined-Sc · · 0	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients			
Current Operation Communication Port COM99 ~ Current Screen	Select Operation			
Screen1	Save calibration coefficients to database			
	Set coefficients for a new receiving card			
	Set coefficients for a new module			
	Adjust coefficients (Color is not uniform on screen)			
	✓ Erase or reload calibration coefficients			
Settings of Displaying Image Position to Display Image :	C Reset calibration coefficients			
Primary Display Device Response Time 100 Time ms	Upload coefficients (for factory use)			
Method to Display Image:	📩 Module Flash			
	O Upload thermal compensation coefficients			
Enable/Disable Calibration				

Step 6 Perform the following operations as required. During the operation, you can select **Disable Calibration**, **Brightness Calibration**, **Chroma Calibration**, or **Full-grayscale Calibration** on the left. **Dark or Bright Line Correction** and **Low-grayscale Calibration** can also be selected at the same time. After saving, you can view the effect of applied coefficients on the screen.

### Upload coefficients

- Pixel level calibration database: Select the cabinet or screen calibration database file from the local computer and fast or stably upload the calibration coefficients to receiving cards.
- Dark or bright line database: Select the dark or bright line correction database file from the local computer and stably upload the calibration coefficients to receiving cards.
- Full-Grayscale Calibration Database: Select the full-grayscale calibration database file from the local computer and stably upload the calibration coefficients to receiving cards.

Stable uploading takes more time than fast uploading, but it is more stable and reliable.

Save calibration coefficients to database



Save the calibration coefficients in the receiving cards to an existing or new database. The coefficients for fullgrayscale calibration will also be saved if **Full-Grayscale** is selected.

### Set coefficients for a new receiving card

Get calibration coefficients by uploading calibration database file or referring to one or more surrounding cabinets. Adjust and save the coefficients to receiving cards as required.

### Set coefficients for a new module

Get calibration coefficients by uploading calibration database file or referring to one or more surrounding modules. Adjust and save the coefficients to receiving cards as required.

### Adjust coefficients (Color is not uniform on screen)

Adjust the current calibration coefficients of receiving cards or adjust the coefficients by referring to the surrounding area. After the adjustment, you can also apply the coefficients to other specified areas.

### Erase or reload calibration coefficients

Erase the calibration coefficients in the application areas of receiving cards or reload calibration coefficients from application areas. You are advised to back up the database file before erasing it.

### Reset calibration coefficients

Set calibration coefficients to specified values.

### Upload coefficients (for factory use)

Upload the calibration coefficients from the cabinet calibration database file to the matching cabinets based on the imported or read cabinet ID. Export the full-screen cabinet ID file and the full-screen calibration database file. For the module, read the module ID and upload the calibration coefficients from the module calibration database file to the corresponding modules. While stable uploading takes longer than fast uploading, it is more reliable.

### Module Flash

Check module flash memory status, view the calibration coefficients of modules and receiving cards, and save calibration coefficients to the receiving cards and modules based on their addresses or the topology.

Type "admin" with your keyboard. The Save Calibration Coefficients to Module button is displayed.

- Coef Type: The calibration coefficient type, including brightness & chroma coef, low-grayscale coef, fullgrayscale coef, and adaptive coef.
- SPI Bit Rate Level: The speed level of reading and uploading the calibration coefficients, 4 levels included
- Auto Upload Module Calibration Coefficients: When this function is selected, if the system detects that a cabinet ID is changed after the control system is powered on, the calibration coefficients in the module flash memory will be automatically uploaded to the receiving card.

### Upload thermal compensation coefficients

Import the thermal compensation coefficient file or read the coefficients from the hardware to adjust the red, green and blue coefficients individually, and send and save the coefficients.

- Adjust: Set the stepping of adjusting the coefficients.
- Enable Temperature Calibration Coefs: Apply the coefficients and check the effect on the screen.
- Clear: Clear the pixel level brightness and chroma calibration coefficients.
- Export: Export the thermal coefficient file.
- Erase: Erase the thermal coefficients.

#### Notes

Types and causes of module flash memory check errors:

- Hardware Fault: Screen configuration or flash topology is not consistent with the actual condition.
- Communication Error: There is a problem with hardware connection.
- Flash Topology Error: The module does not have flash memory or no flash topology is configured in **Screen Configuration**.

The **Coef Type** parameter value include brightness & chroma coefficient, low-grayscale coefficient and fullgrayscale coefficient. To set that parameter value to low-grayscale coefficient or full-grayscale coefficient, ensure that both the driver chip and receiving card support low-grayscale coefficient or full-grayscale coefficient.

# Related Operations

During coefficient management, three methods are provided for you to select an area for coefficient management. www.novastar.tech 48

Figure 6-4 Selecting an area for coefficient management

Screen:1	Starting coordinateX=0, Y=0 Size64 <b>V</b> ×32H	
◯ Full	○ Select by pix	
(1,1)		Zoom:
		^
		<b>~</b>
		1.0

- Full screen: Manage the coefficients of the entire screen.
- Select by pixel area: Manage the coefficients of a specified area.

For full-grayscale calibration database file, the parameter **Upload by area** is displayed at the bottom of the page. If you want to upload the data of full-grayscale database split by the split tool to a certain location, please select **Upload by area** and set other parameters.

• Select by Topology or List: Manage the coefficients of a specified cabinet, module or pixels. For a standard screen, a cabinet topology is displayed. For a complex screen, a cabinet list is displayed. If it is not convenient to select an area with the software, you can select **Select Area on Screen** to select the area on the display window.

Two methods are provided for calibration coefficient adjustment. You can display or hide the color window during the adjustment.

Simple Adjustment

As shown in Figure 6-5, drag the slider to adjust the values of red, green and blue. Click **Advanced Adjustment** to open advanced adjustment page.

### Advanced Adjustment

As shown in Figure 6-6, drag the slider to adjust the brightness, saturation and hue for red, green and blue, and adjust color temperature. Click **Simple Adjustment** to go back to simple adjustment page.





#### Figure 6-6 Advanced adjustment

Advanced Adjust	tment								
() 🖻 🔊 🤅	Ð								
Color adjustme	ent of red, i	green and blue							
		Red		🔘 Green		O Blue			
Brightness	۲.						>	0.0	-
Saturation	<						>	0.0	•
Hue	<						>	0.0	-
Color matching	g of red, gri	een and blue (Color 1	Femperature Adjustme	ent)					
	(	) Yellow	🔘 Cyan		🔿 Magenta	O White			
Red	<						>	0.0	÷
Green	<						>	0.0	¢
Blue	<						>	0.0	-
Note: Display d	lifferent col	ors for observing the	effect						
Simple Adj	iustm	Hide color wind							

# 6.1.4 Manage Double Calibration Coefficients

# **Applications**

View calibration coefficients saved in the application area and factory area, get calibration coefficients in the factory area, and save calibration coefficients to the factory area.

# **Applicable Products**

The A5, A5s, A7, A7s, A8, A8s, A9s and A10s Plus receiving cards

### **Prerequisites**

None

# **Related Information**

Calibration coefficients can be saved in both the factory area and application area of a receiving card. A copy of coefficients is saved in the factory area before a cabinet leaves the factory. The calibration coefficients usually used by users are in the application area. If necessary, calibration coefficients in the factory area can be restored to the application area.

### **Operating Procedure**

# Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".

- Step 2 Click calibration or choose Tools > Calibration from the menu bar.
- Step 3 Select the Single-Screen Mode tab or Combined-Screen Mode tab.
- Step 4 In single-screen mode, select a communication port and a screen. In combined-screen mode, skip this step.
- Step 5 Select the **Double Calibration Coefficients** tab.



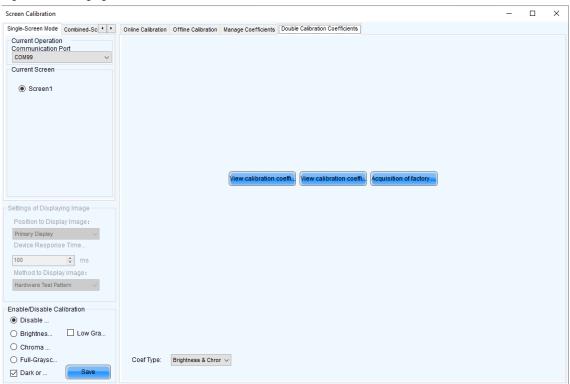


Figure 6-7 Managing double calibration coefficients

Step 6 Perform the following operations as required.

### View calibration coefficients in application area

Click View calibration coefficients in application area, select Disable Calibration, Brightness Calibration or Chroma Calibration, and view the application result of calibration coefficients on the screen.

### View calibration coefficients in factory area

Click View calibration coefficients in factory area, select Disable Calibration, Brightness Calibration or Chroma Calibration, and view the application result of calibration coefficients on the screen.

#### Get calibration coefficients in factory area

Click **Acquisition of factory area correction factor** to restore the calibration coefficients from factory area to application area.

### Save calibration coefficients to factory area

Type "admin" with your keyboard. A **Save coefficients to factory area** button is displayed. Click the button to save the calibration coefficients in the application area to factory area.

# 6.1.5 Set Thermal Compensation

### **Applications**

Enable or disable thermal compensation and adjust its application strength.

### Applicable Products

Receiving cards: A8s Pro and A10s Pro

### **Prerequisites**

The firmware version of the receiving card is V1.2.0.0 or above and includes thermal compensation coefficients.

### **Related Information**

None

# **Operating Procedure**

- Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".
- Step 2 Choose Settings > Thermal Compensation from the menu bar.

### Figure 6-8 Thermal compensation

Thermal Compensation			×
COM Port	contes v		
CUM Fort	Cumpo V		
Send By Topology			
-Screen selection-	Select Cabinet		
🖌 Select All	Full Soreen O Select by Ethern O Select by Cabinet		
Screen1	Operate on all cabinets of the sc		
Settings			
Thermal Comp	ensa É		
Adjustment M	ode		
Strength	< 0% 🚖		
There ar	e receiving cards that do not support thermal comp		

- Step 3 Select a communication port from the drop-down list.
- Step 4 To select the target cabinets, choose between Full Screen, Select by Ethernet Port, or Select by Cabinet.
- Step 5 Toggle on Thermal Compensation and adjust the application strength.
- Step 6 Click **Save to HW**.

# 6.2 Adjust Brightness

# 6.2.1 Adjust Brightness Manually

# **Applications**

Manually adjust the scree brightness, Gamma, color temperature and color space to change the brightness and chroma expressiveness of the screen in real time, meeting the environment condition and user needs.

# Applicable Products

- Individual Gamma adjustment for RGB:
  - If the bit depth of input source for the sending card is 8bit, the applicable receiving cards include the A4, A4s, A5, A5s, A5s Plus, A7, A7s, A7s Plus, A8, A8s, A9s, A10s Plus, DH7512 and DH3208.
  - If the bit depth of input source for the sending card is 10bit or 12bit, the applicable sending cards include the MCTRL1600, MCTRL4K, MCTRL660 PRO, KT8, KT8E, KT16E, KT16C, MCTRL R5, MEE200 and MEE400.



- Gamma interlink: Applicable to receiving cards with TBS6332 or TBS6336 chips.
- Other functions: Applicable to all receiving cards and sending cards

# **Prerequisites**

None

# **Related Information**

Manual brightness adjustment is to set screen brightness manually. After NovaLCT is opened, you can directly perform the steps in Operating Procedure. After logging in to NovaLCT, you can also perform the operations in Custom Gamma, Custom Color Temperature and Custom Color Space of this section.

If the ambient brightness is high, adjust the screen brightness to a higher level to ensure clear display. If the ambient brightness is low, adjust the screen brightness to a lower level to reduce light pollution.

### **Operating Procedure**



Step 1 Click Brightness or choose Settings > Brightness from the menu bar.

### Step 2 Select Manual Adjustment.

Step 3 Drag the slider to adjust brightness and select **Grayscale** or **Contrast**. You can also set **Gamma Interlink** if the screen is using receiving cards with TBS6332 or TBS6336 chips.

Figure 6-9 Manual brightness adjustment

99-Screen1				
	Manual Adjus	tment	Auto Adjustment	
rightness				
Brightness	٢		>	255 (100%)
	Grayscale		Contrast	
dvanced Settings Gamma		Color Gam		
dvanced Settings Gamma Gamma		Color Gam		
Gamma		Color Gam	>	2.8
Gamma Gamma	Color Te	Color Gam	>	2.8
Gamma Gamma () Gamma	Color Te	> 0.0%	>	2.8
Gamma Gamma	Color Te <	> 0.0%	Refresh	2.8 Save to HW

#### Step 4 Do the following as required:

### Adjust Gamma and low grayscale slope

Drag the slider to adjust Gamma value and low grayscale slope.

### Adjust color temperature

Choose Rough Adjustment and drag the slider to adjust the color temperature. Or choose Precise

Precise A...

9600

Adjustment and click a custom color temperature to use it, such as



### Adjust color space

Disable color space, enable a standard color space (PAL/NTSC), or enable a custom color space, such as

### Notes

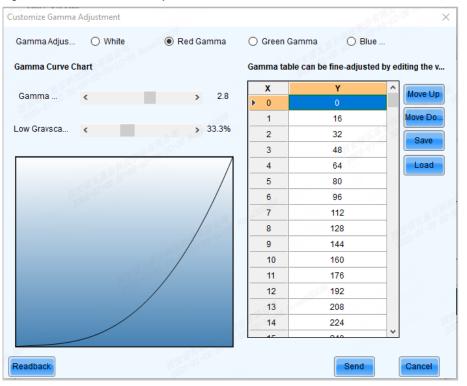
After logging in to NovaLCT, you can set custom Gamma, custom color temperature and custom color space. For details, see Custom Gamma, Custom Color Temperature and Custom Color Space.

Step 5 After the configuration is done, click **Save to HW** to save the configuration to the hardware.

# Custom Gamma

- Step 1 On the Gamma Adjustment page, select Custom Gamma Adjustment.
- Step 2 Click **Configuration** to open the dialog box shown in Figure 6-10.

#### Figure 6-10 Custom Gamma adjustment



- Step 3 If the control system supports individual Gamma adjustment for RGB, select **White** to adjust the Gamma curves for red, green and blue at the same time. Or, select **Red Gamma**, **Green Gamma**, or **Blue Gamma** to adjust the Gamma curve for a single color. If the control system does not support individual Gamma adjustment for RGB, skip this step.
- Step 4 Perform any of the following operations as required to configure the Gamma curve.

# Gamma readback

Click Readback to read the gamma information.

### Load a Gamma configuration file

Click Load to load a Gamma configuration file.

Adjust the Gamma manually

Drag the slider to adjust the Gamma value and low grayscale slope.

### Adjust the Gamma table manually

Double click a value in the Y column to edit the value, and select a value in the Y column and click **Move Up** or **Move Down**.

Step 5 After the settings are done, click **Send** to send the configuration to the hardware.

Step 6 (Optional) Click **Save** to save the Gamma information as a configuration file. www.novastar.tech



# **Custom Color Temperature**

Step 1 On the Color Temperature Adjustment page, select Precise Adjustment.

Step 2 Click to open the dialog box shown in Figure 6-11.

### Figure 6-11 Custom color temperature

vanced Co	olor Config	guration						-		>
creen	USB@P	ort_#0002.Hub_#0001-	-Screen1	Import	Export				Refresh	
olor Tempera	ature Table									
Operatio	n prompts									
The cold	r temperat	ture name box of sel	lected color temp	erature section is yelle	W					
Add'- ad	d color terr	perature section								
Delete' -	delete the	selected color temp	erature section							
Edit' - to	edit the se	lected color tempera	ature section (inc	luding the deletion of t	he selected row, clear	the information in t	he current color temp	perature se	ction)	
Color tem	nperature	Brightness value	R gain	G gain	B gain	R brightness	G brightness	B brigh	itness	
00101 1011	iperature	Brightness value	reguin	o guin	b gain	Tt brightness	o brightness	D bligi	ancoo	
Add	Edit	Delete	lear					Sav	ed to loc:	
										al
19/11/28.1	7:41:541			d successfully						al
19/11/28 1	7:41:54T	The screen informati		d successfully						al

- Step 3 If you have a color temperature configuration file (.fcg), click **Import** to complete the configuration quickly. If you do not have a color temperature configuration file, continue performing the following operations to manually complete the configuration.
- Step 4 Click **Add** to open the dialog box shown in Figure 6-12.

### Figure 6-12 Adding color temperature information

A	dd Color Tem	nperature In	formation					×
	Color Temper	atu <mark>9600</mark>						
	Brightness	Red gain	Green gain	Blue gain	Red brightness	Green brightness	Blue brightness	Add Brightness
	100%	100.00%	100.00%	100.00%	255(100	255(100	255(100	Edit
								Clear
								OK Exit

Step 5 Click Add Brightness to open the dialog box shown in Figure 6-13.

Figure 6-13 Adding brightness information

Add Brightness Information	×
Set Color Temperature Information Brightness Value 🛐 %	
Current Gain	
R	> ~ %
G	> ~ %
Β <	> ~ %
Synchronize	
Brightness Component	
R <	> 229 🔶 (89.80%)
G <	> 229 + (89.80%)
в <	> 229 🚖 (89.80%)
Synchronize	
Add	Exit

Step 6 Add color temperature information corresponding to the specified brightness values.

**Current Gain** is a color temperature parameter of modules. This parameter can be set when supported by module chips. **Brightness Component** is a color temperature parameter of receiving cards. If **Synchronize** is selected, the R, G and B parameters will be set to the same value. You can edit, delete and clear the color temperature information if necessary.

- Step 7 After the configuration is done, click **Save to local** to save the custom color temperature. A corresponding button will be displayed next to **Precise Adjustment**.
- Step 8 (Optional) Click Export to save the current color temperature information as a configuration file.

# **Custom Color Space**

Step 1 On the **Color Space Adjustment** page, click to open the dialog box shown in Figure 6-14.

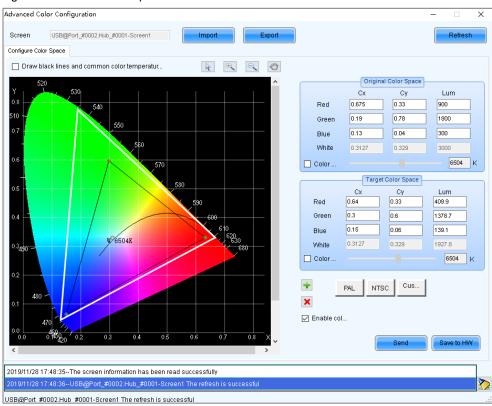


Figure 6-14 Custom color space

Step 2 Set the original color space.



The white triangle represents the original color space. The target color space is configured based on the original color space. You are advised to use a colorimeter to measure the original color space of the screen and then enter the measured values in the original color space table.

- Step 3 Perform any of the following operations as required to set custom color space.
  - Select a standard color space
    - Click **PAL** or **NTSC** to use one of the standard color spaces.
  - Select an existing custom color space

If there is a custom color space, click to use it. If not, click **Import** to import a custom color space, or click to create a custom color space and then click to use it.

### Adjust the color space diagram manually

Drag vertexes of the black triangle in the diagram on the left to adjust the target color space. If **Draw black lines and common color temperature points** is selected, a black curve (color temperature curve) and some common color temperature points (solid round spots) will be displayed in the diagram.

### Adjust the color space values manually

Change the parameter values in the target color space table for precise adjustment.

Step 4 After the configuration is done, select **Enable color space adjustment** to apply the target color space, and click **Send** to send the configuration information to the hardware.

Step 5 Click **Save to HW** to save the information to the hardware.

# 6.2.2 Adjust Brightness Automatically

# **Applications**

Set rules for automatic brightness adjustment, allowing NovaLCT or sending cards to automatically adjust screen brightness.

# **Applicable Products**

All sending cards

# **Prerequisites**

When screen brightness is adjusted based on ambient brightness, a light sensor must be connected to the sending card or multifunction card.

If the light sensor is connected to the multifunction card, peripheral configuration needs to be completed on multifunction card management page.

# **Related Information**

After you configure the automatic brightness adjustment, two adjustment modes are provided.

### Software adjustment mode

NovaLCT automatically adjusts screen brightness. This mode takes effect when the control PC is connected to the sending card and monitoring is running. Combined-screen brightness, color temperature and Gamma must be adjusted and night mode must be enabled with the software.

The adjustment process will be recorded as a log which can be exported and viewed in iCare of VNNOX cloud platform.

### Hardware adjustment mode

The sending card automatically adjusts screen brightness. This mode takes effect when the control PC and sending card are disconnected or monitoring stops running.

Combined screens do not support this mode.

The adjustment process will not be recorded as a log.

# **Operating Procedure**

- 🍅

Step 1 Click Brightness or choose Settings > Brightness from the menu bar.



#### Step 2 Select Auto Adjustment.

### Step 3 Click Wizard Settings.

If the auto adjustment table is configured, you can add, delete and modify items in the table, or click **Light Sensor Configuration** to set light sensor information.

Step 4 Select an adjustment mode as required and click Next.

#### Advanced adjustment

Screen brightness is adjusted by time periods. You can choose to adjust screen brightness according to specified brightness or ambient brightness.

Wizard SettingsTime Points Se	ttings	-	×
Automatically Adjustment Table —		Add	Clear list
Start Adjusting Time	Adjustment Method	Brightness (%)	
Please Note			-11
	ed from hardware, the system will t	urn to hardware a	ajustment mod
<ol> <li>Only adjust brightness, but not</li> <li>Do not record brightness adjust</li> </ol>			
		Previous	Finish

- a. Click Add.
- a. Set the start time and adjustment method and then click OK.

Adjust the Tim	e Setting			×
Starting Ti	10:00		•	
Adjust Type	Specified	O Environme.		
Brightness	10		-	%
More Setting	<u>s</u>			
		ОК	Ca	ncel

b. Click More Settings to set color temperature and Gamma vale.

The options in the drop-down box next to color temperature are the custom color temperatures.

c. After the settings are done, click **Cancel** to close the dialog box.

As shown in the figure below, the two configuration items denote that screen brightness will be adjusted to 80% from 8:00 to 18:00 and adjusted to the corresponding values in the brightness mapping table according to ambient brightness from 18:00 to 8:00 of the next day.

	Start Adjusting Time	Adjustment Method	Brightness (%)		
$\checkmark$	08:00	Specified Brightness	80	<u>Edit</u>	<u>Delete</u>
	18:00	Environment Brightness		<u>Edit</u>	<u>Delete</u>



d. If there is no **Environment Brightness** under **Adjustment Method**, click **Finish**. If there is **Environment Brightness** under **Adjustment Method**, click **Next** and complete light sensor settings according to the description in Light Sensor Adjustment below.

### Light sensor adjustment

Screen brightness is adjusted according to ambient brightness. Set the corresponding relations between ambient brightness and screen brightness in the ambient brightness mapping table.

Wizard Settings	Light Sensor S	Settings				-		×
Light Sensor Cor	nfiguration Tabl	e	Light Ser	nsor T	Refre	sh	Clear Faile	ed Li
Whether to Enable	Location	Environr Brightne		From		Remark	<	
Prompt: Please o								
🗹 When the lig	ht sensor fails,	the brightness	should b		5.0 🜩	%		
Brightness Mapp	ing Table (envir	ronment brighti	ness scree	n brightne	ss)	(	Fast Secti	on D
Environmental B	rightness (Lux)	)	Screen Bri	ghtness (9	6)		^	÷
20			40					
1218			44					
2416			48					
3614			52					
4812			56					
6010			60					
7200			64				~	
Night mode				C	)ffline w	ork is not	supported	ł
Brightness maxi	imum(%)	Start time(h)		End	i time(h)	1		-
								· · ·
					<sup>o</sup> revious		Finish	

a. Click **Light Sensor Test** to test the light sensors connected to the control system, including the light sensors connected to all sending cards and multifunction cards.

If you want to clear the ineffective light sensor information, click Clear Failed Light Sensor Information.

b. (Optional) Select When the light sensor fails, the brightness should be adjusted to and set a brightness value.

If this option is not selected, the screen brightness will keep the last updated brightness value when the light sensor fails.

c. Click 📧 or 送, or click **Fast Section Division** to set the brightness mapping table.

Fast section division can equally divide the ambient brightness range and screen brightness range into the specified number of segments.

d. (Optional) Select **Opening** to enable night mode and set the maximum brightness of the specified time period.

When surrounding lights interfere with the light sensor or an exception occurs when the light sensor is collecting ambient brightness data, screen brightness may be too high. This can be avoided in night mode. If the start time and end time are the same, night mode takes effect all the time.

- e. Click Finish.
- Step 5 After the settings are done, click **Save**.
- Step 6 (Optional) Click Export Log to export the brightness adjustment log in software adjustment mode.
- Step 7 (Optional) Set the advanced parameters of auto brightness adjustment.
  - 1. On the taskbar, click i and choose Brightness Advanced Settings.



Smart Brightness Adjustment	×
🗹 Enable Brightness Gradient	
Automatic brightness adjustment information	_
Environment brightn 60 😴 S	
Times of reading en 5	
Note: Under the automatic brightness adjustment mode, we need to calculate the average value of light sensor after N times of readings before adjusting the brightness of screen, and then adjust the screen brightness according to the curve formed by enviro	
Save	

- 2. Select Enable Brightness Gradient. Screen brightness will gradually change to the target value.
- 3. Set the cycle and number of times for the light sensor to measure ambient brightness.

For example, if the cycle is 60 seconds and number of times is 5, the light sensor will measure ambient brightness every 60 seconds. After 5 times of measurement, NovaLCT will calculate the average of the measured values without the maximum and minimum ones. This average value is ambient brightness. If multiple light sensors are connected, NovaLCT will calculate the average of all the ambient brightness values.

4. Click Save.

# 6.3 Adjust Multi-batch Cabinets

# **Applications**

Adjust the chroma of cabinets or modules from multiple batches to make the overall screen chroma more uniform.

# **Applicable Products**

All receiving cards

# **Prerequisites**

None

# Related Information

None

# **Operating Procedure**

Step 1 On the menu bar, choose Tools > Multi-batch Adjustment.

### Step 2 Select Manual Adjustment.

If you have a configuration file, select **Apply Adjustment File** to quickly complete chroma adjustment for cabinets from multiple batches.

### Figure 6-15 Multi-batch adjustment

Multi-Batch Adjustment - Initialization	-		×
Operation Type			
Manual Adjustment	O Apply Adjustment File		
Colorimeter			
Select Colorimeter:	No Colorimeter V		
		Vext	

Step 3 If no colorimeter is connected, select **No Colorimeter**. If a colorimeter is connected, select the colorimeter type and set its measurement accuracy.

### Step 4 Click Next.

Step 5 Set the parameters of a sample batch.

### Figure 6-16 Setting sample batch

Multi-Batch Adjustme	ent - Add Sample Batch —	×
Add Delete In	See Export	
Batch Name	Sample Information	
Sample Batches1	☐ Fixed Batches, Adjust Other Batches to The Batch	
Sample Batches2	Information of The Current LED Display	
	Communication P USB@Port_#0001.H V Select Displa LED Display1 V	
	Display Screen:   Main Display  Extended Display	
	Sample Area Information	
	No. LED Display X Y W H	
	Measurement Value of Colorimeter	
	Display Screen Brightness Cx Cy	
	Red	
	Green	
	Biue	
	Previous	
	PTEVIDUS NCAL	

1. (Optional) Select Fixed Batches, Adjust Other Batches to The Batch.

Fixed sample batch is for reference and cannot be adjusted. All the sample batches can be adjusted without a fixed batch.

- 2. Select a communication port and screen.
- 3. Select a position to display image.
- 4. Click 💼 to specify an operating area for the fixed sample batch.



			-	- 🗆	Х
Screen:1 Starting coordinate	eX=0 X=0 Size64100	321			
Screen.r Starting coordinate	ex-0, 1-0 312e0417	0211			
O Screen O Pixel	Topology or List	Select Are	ea o		
(1,1)				Zoom:	
Hidden Screen (ESC)	Select More that	n One Area	Add	Complete	

- Pixel: Perform operations in a specified area.
- Topology or List: Perform operations on a specified module or pixels. If it is not convenient to specify an
  area with the software, you can select Select Area on Screen to specify an area on the display window.
- 5. Click **Red**, **Creen** and **Blue** in order to measure **Brightness**, **Cx** and **Cy** by using a colorimeter and enter the measured values. If no colorimeter is connected, skip this step.

Measurement Value	of Colorimeter			
Display Screen	Brightness	Сх	Су	
Red	120.40	0.6882	0.3098	
Green	273.20	0.1562	0.7226	
Blue	60.77	0.1259	0.0688	

- Step 6 Set other sample batches.
  - 1. Import, add or delete other sample batches as required.
  - 2. Select a sample batch and specify an operating area by following 4 in Step 5.
  - Enter the values measured by the colorimeter by following 5 in Step 5. If no colorimeter is connected, skip this step.

### Step 7 Click Next.

Step 8 View the preliminary adjustment result, select a result option and click **Next**. If no colorimeter is connected, skip this step.

Figure 6-17	View the	preliminar	v ad	justment result

Multi-Batch Adjustment - Watch Initial Adjustment Effect	-	X
View Preliminary Result		
Automatic Switching Interval 3 🖨 Second Switching (1-60 se		
	C	
Brightn <	> 50 %	
Enable Correction		
Result Selection		
O Satisfactory (Enter Color Temperature Adjustment)		
<ul> <li>Not Satisfactory (Enter Fine Adjustment of Batch)</li> </ul>		
Previous	1	Vext

Selecting **Automatic Switching** automatically switches the display color. Selecting **Enable Correction** allows you to view the calibration result.

- If the calibration result is satisfactory, go to Step 10.
- If the calibration result is not satisfactory, go to Step 9.
- Step 9 Fine tune the sample batch.

Figure 6-18	Fine	tuning	as	sample	batch

Multi-Batch Adjustment - Sample Batch Adjustment -	×
Delete Export	
Name       Display         Adjustment Batch         Sample Batch         Sample Batch         Brightness:         Coefficient Adjustment         Adjustment Mode:         RGB         HSI         Red Coefficient         Brightness	
Red Brig          > 2033         >           Green C          > 0         >	
Previous	

- 1. Select the sample batch to be displayed.
- 2. Select a display color.
- 3. Drag the slider to adjust brightness.
- 4. Select **RGB** or **HIS** and adjust the coefficients of red, green and blue.

You can click Withdraw to restore the coefficients.

5. (Optional) Click **Balanced** and perform balanced adjustment for the sample batch in the dialog box that appears. Click **Balanced Description** to see the detailed description of balanced adjustment.

Balanced adjustment - Red, green and blue	– 🗆 X
Reference Batch Selection	
Reference Batch: Sample Batches1 v	
Balanced Adjustment (Red, Green, Blue)	
Adjustment Mode:      RGB O HSI	
Red Coefficient Green Coefficient Blue Coefficient	
Red Brig <	> 2047 ≑
Green C <	> 6 🜩
Blue Co <	> 0 🜩
	Cancel Adjust
	Next

### 6. Click Next.

Step 10 Select Adjust Color Temperature. Drag the slider to adjust color temperature and view the effect.

Figure 6-19 Adjusting	color temperature
-----------------------	-------------------

Multi-Batch Adjustment - Color Temperature Adjustment —	
Color Temperature Adjustment	
Color Temperat	
Brightness: C Second Switching (1-60 seconds)	
Previous	ext

Step 11 After the adjustment is done, click Next.

Step 12 Click Add Areas to select the areas where the adjustment effect will be applied.

### Figure 6-20 Applying adjustment effect

Apply Adjustment							
Batch Name							_
Sample Batches1	No.	Regional Information	LED	Apply	Cancellati	Deletion	
Sample Batches2	1	USB@Port_#0003.Hub_#000	reen on Li	Apply	Cancel	Delete	Display the C
							Add Areas
							Apply All
							Cancel All
	E	nable Correction 🛛 🗌 Disp	ayAll Batches		Save	File	Save to Flash
				[	Previous		Complete

Step 13 Click Display screen on LED display to view the adjustment effect.

- Enable Correction: After this option is selected, you can view the calibration result.
- Display All Batches: After this option is selected, all sample batches are displayed.
- Step 14 Click Apply or Apply All.
- Step 15 Click Save to Flash to save the configuration to the hardware.
- Step 16 (Optional) Click Save File to save the configuration as a file (.lxy).
- Step 17 Click Complete and OK.

# 6.4 Adjust Dark or Bright Lines

# **Applications**

Adjust dark or bright lines between cabinets or modules to improve visual experience.

# Applicable Products

All receiving cards

# **Prerequisites**

None

# **Related Information**

None

# **Operating Procedure**

Step 1 On the menu bar, choose Tools > Quickly Adjust Dark or Bright Lines.

#### Figure 6-21 Adjusting dark or bright lines

O Seam	Brightness Adjustment						- 🗆 ×
Modu.	Cabi Row Ro	w Column C	Image: Deselect     Image: Deselect       F11     F2       F12	Show Show Z X	Calibration Show	Screen dis Window Color (Alt+C)	Screen Brightness ← + - →
	Selected Area Parameter Adjustment	0.3	1.000 1.200	1.000 ÷ Precision	0.005	□ No Video Source (The sending card does not need	d a video source)
1			1.000 1.200				Save to HW

- Step 2 By default, the software uses **No Video Source** and the hardware's test pattern. You can uncheck **No Video Source** if needed.
- Step 3 Click and then fill in the module width and height on the pop-up window to switch to module mode. You can also click to switch to cabinet mode.
- Step 4 For the calibration drop-down list (\*\*\*\*), make you choice between Off, Chroma Calibration, Brightness Calibration, or Full-grayscale Calibration.
- Step 5 Choose a test pattern color.
  - Show or hide the test pattern.
  - Show the test pattern on the main display or extended display.
- Step 6 Drag the slider to adjust the screen brightness.
- Step 7 Click or drag to select the edges you want to adjust. Set the adjustment precision and move the slider to adjust the values. If you need to adjust by pixels, double-click the edge you want to modify, set the pixel range in the pop-up window, adjust the precision, and move the slider to change the values.
  - Elect the horizontal and vertical edges.
  - Image: Contract of the select the horizontal edges.
  - Only select the vertical edges.
  - Clear the effect of the selected edges.
  - Z: Deselect.
  - *m*: Clear the effect of all edges.
  - Show or hide the flashing dashed lines on the screen.
  - No: Show or hide module/cabinet numbers.
  - Soom out the topology.
  - Image: Zoom in the topology.
  - Display the topology at a 1:1 ratio with the screen.
  - 🛄: Auto fit the topology.

Step 8 Click **Save to HW** once you are done.



# 6.5 Correct Brighter Pixels

# **Applications**

Correct brightness of pixels that are brighter or darker than normal to fix the problem that the pixel brightness of the screen is not uniform after calibration.

# **Applicable Products**

All receiving cards and sending cards

# **Prerequisites**

Cabinets of the screen are calibrated or the entire screen is calibrated and the cabinet or screen calibration database file is saved.

# **Related Information**

None

# **Operating Procedure**

### $Step 1 \quad On the menu \ bar, choose \ \textbf{Tools} > \textbf{More} > \textbf{Brighter Pixel Correction}.$

Figure 6-22 Brighter pixel correction

🖷 Brighter Pixel Correction		- 🗆 ×
Topology Simulati	🗹 Sho 🛛 🗹 Show   💽 🕵	Select Display Display: Display: Screen b Screen b Screen b
		Import Database
		Database  Cabinet O Full Browse
		Cabinet
		Read Coefficients
		Coefficie Advanced
		Select
		No. Colur Row Red Green Blue
		Average
		Upload Save to HW Save Datab

Step 2 Select a screen.

Step 3 Select a position to display image.

- Step 4 Set the brightness of the display window.
- Step 5 Select a database type, for example, **Cabinet**.
- Step 6 Click Browse and select a database file. For example, select a cabinet calibration database file and click Open.
- Step 7 On the Topology page, select an area and then select the Simulation Diagram tab.
- Step 8 Click brighter pixels or select the area where there are brighter pixels and click V.
  - Click to select a brighter pixel.

Select brighter pixels by clicking and dragging the mouse to form a selection box.

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Select brighter pixels by clicking and dragging the mouse to form a selection oval.

🖷 Brighter Pixel Correction							-		×
Topology Simulati	7	K 🔲 🔿 🛧 👔	1 2 2	Select Display Display:	4				
ing on and a				Display	<ul> <li>Main</li> </ul>	0	Extende	~	
				Screen b		0		30%	
				-Import Databas	e				
				Database	🖲 Cabi	net O	Full		
				Database	G:\LCT镑	料优化Wiang	iCLB.db	Brows	se
				Cabinet	1-1			~	
							Read C	Coefficier	nts
				Coefficie A	dvanced				
				Select			(	Reset	
				No.	Colun I	Row Red	Green	Blue	^
				✓ 1	34 1	5 2047	2047	2047	
				2	34 1			2047	
				2 3	34 1			2047	
				4	34 1			2047	
				5	34 1			2047	
				6	35 1 35 1			2047 2047	
					35 1			2047	
					35 1		2047		~
				-					
						)		<b>()</b> 10	10%
					Avera				
				F	R:2047 G:	2047 B:2047			
				Upload		ave to HW	Sav	ve Datab.	

### Figure 6-23 Selecting brighter pixels

- Step 9 Select Coefficient Adjustment or Advanced to adjust coefficients.
- Step 10 After the settings are done, click Upload to save the configuration to the hardware.
- Step 11 Click **Save to HW** to save the configuration to the hardware.
- Step 12 (Optional) Click Save Database to save the configuration to the current database file.

# 6.6 Set Advanced Color

### **Applications**

Improve the display effect of a screen by setting screen brightness, color space, color temperature, etc.

# **Applicable Products**

- Color adjustment: Applicable to the NovaPro HD
- Other functions: Applicable to all sending cards

# **Prerequisites**

None

# **Related Information**

None

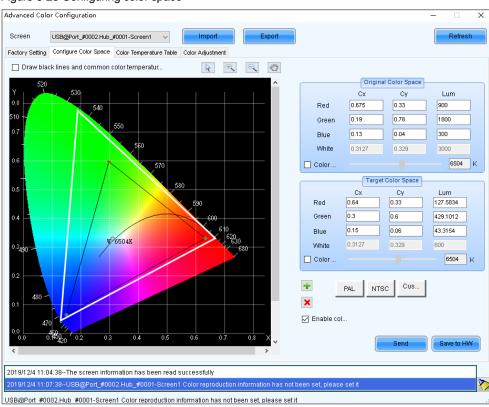
# **Operating Procedure**

- Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".
- Step 2 Choose Settings > Advanced Color Configuration.
- Step 3 Click **Import** to quickly complete the configuration or continue performing the following operations to complete the configuration manually.
- Step 4 On the Factory Setting tab page, adjust parameters and then click Save to HW.



dvanced Col	or Configuration			
Screen	USB@Port_#0002.Hub_#0001-Screen1 v Import Export		Refresh	
actory Setting	Configure Color Space Color Temperature Table Color Adjustment			
Current	3ain			
R	<	>	100 %	
G	¢	>	100 %	
в	<	>	100 %	
	lynchronize	D	efault Value	
RGB Brig	phtness			
R	<	>	255 (100.0%)	
G	¢	>	255 (100.0%)	
в	¢	>	255 (100.0%)	
<b></b>	Synchronize			
			Save to HW	
04.040.04444	04:38The screen information has been read successfully			

- Current Gain: This is a module parameter and can be set when supported by module chips. Clicking **Default Value** can reset the value.
- RGB Brightness: This is a receiving card parameter.
- If Synchronize is selected, the R, G and B parameters will be set to the same value.
- Step 5 Select Configure Color Space to set color space.



# Figure 6-25 Configuring color space



1. Set the original color space.

The white triangle represents the original color space. The target color space is configured based on the original color space. You are advised to use a colorimeter to measure the original color space of the screen and then enter the measured values in the original color space table.

- 2. Perform any of the following operations as required to set custom color space.
  - Select a standard color space

Click **PAL** or **NTSC** to use one of the standard color spaces.

Select an existing custom color space

If there is a custom color space, click to use it. If not, click Import to import a custom color space, or click

to create a custom color space and then click to use it.

Adjust the color space diagram manually

Drag vertexes of the black triangle in the diagram on the left to adjust the target color space. If **Draw black lines and common color temperature point** is selected, a black curve (color temperature curve) and some common color temperature points (solid round spots) will be displayed in the diagram.

Adjust the color space values manually

Change the parameter values in the target color space table for precise adjustment.

- 3. After the configuration is done, select **Enable color space adjustment** to apply the target color space, and click **Send** to send the configuration information to the hardware.
- 4. Click **Save to HW** to save the configuration to the hardware.
- Step 6 Select Color Temperature Table to set color temperature.

#### Figure 6-26 Color temperature table

Advanced Cold	or Config	guration						-		×
Screen		ort_#0002.Hub_#0001 re Color Space Color		Import Color Adjustment	Export				Refresh	
- Operation		re color space color	Tomportataro Tablo	Color Adjustment						
		ure name box of se	lected color temper	rature section is yell	ow					
Add'- add	color tem	perature section								
Delete'- de	elete the :	selected color temp	erature section							
		-		ding the deletion of	the selected row, clear	the information in th	ne current color temp	erature se	ection)	
Color temp	erature	Brightness value	R gain	G gain	8 gain	R brightness	G brightness	B brigh	ntness	
Add	Edit	Delete	lear					Sav	ed to loc:	al
2019/12/4 11:1	3:40Re	ad Receiving Card	Parameters,Resul	ts -Successful					1	^
		e screen informatio								- 📎
The screen info	rmation	has been read succ	cessfully							

- 1. Click Add to open the dialog box shown in Figure 6-27.
- 2. Click Add Brightness to open the dialog box shown in Figure 6-28.
- 3. Add color temperature information corresponding to specified brightness values.

**Current Gain** is a color temperature parameter of modules. The parameter can be set when module chips support current gain. **Brightness Component** is a color temperature parameter of receiving card. If **Synchronize** is selected, the R, G and B parameters will be set to the same value. You can edit, delete and clear the color temperature information if necessary.

4. After the configuration is done, click Save to local to save the custom color temperature.



Figure 6-27 Adding color temperature information

¥	Add Color Tem	nperature In	formation					×
	Color Temper	atu 9600						
	Brightness	Red gain	Green gain	Blue gain	Red brightness	Green brightness	Blue brightness	Add Brightness
	100%	100.00%	100.00%	100.00%	255(100	255(100	255(100	Edit
								Delete
								Clear
								ОК
								Exit

#### Figure 6-28 Adding brightness information

Add Brightness Information	×
Set Color Temperature Information Brightness Value 🔟 🕺	
Current Gain	
R <	> ~ %
G	> ~ %
в <	> ~ %
Synchronize	
Brightness Component	
R <	> 229 🚖 (89.80%)
G <	> 229 🚖 (89.80%)
в <	> 229 🔶 (89.80%)
Synchronize	
Add	Exit

Step 7 For the NovaPro HD, select **Color Adjustment** to set the hue, contrast and saturation of the screen. This function is not available for other products.

lvanced Colo	or Configuration					-	
Screen	USB@Port_#0002.Hub_	#0001-Screen1 ~	Import	Export		ſ	Refresh
actory Setting	Configure Color Space	Color Temperature Table	Color Adjustment				
Hue Adjustn	nent						
Hue	<				>	0	
ContrastAdj Contras					>	50 %	
Saturation A							
Saturatio					>	50 %	
019/12/2 17:2	26:59The screen infor	mation has been read s	uccessfully				

Step 8 (Optional) Click **Export** to save the configuration as a file.

# 6.7 Adjust Screen Effect

# **Applications**

Enable 18bit+, ClearView and low latency, and set HDR parameters to improve display effect.

# **Applicable Products**

- 18bit+: Applicable to the A5s Plus, A7s Plus, A8, A8s, A10s Plus and DH7512 receiving cards
- ClearView: Applicable to the A8, A8s and A10s Plus receiving cards
- Low latency: Applicable to the A5s Plus, A6s, A8s, A10s Plus and AT60 receiving cards
- HDR: Applicable to the sending cards that support 10-bit or 12-bit input sources

# **Prerequisites**

- During HDR settings, the hardware must support HDR and an HDR10 or HLG input source is also required.
- HDR and ClearView cannot be enabled simultaneously.
- Low latency and 3D function cannot be enabled simultaneously.

# **Related Information**

18bit+ can improve LED display grayscale by 4 times, avoiding grayscale loss due to low brightness and allowing for smoother images.

ClearView make texture, size, and contrast adjustments on different areas of the display image, creating a more realistic image.

Enabling either sending card low latency or receiving card low latency can reduce the delay by one frame. Enabling both can reduce the delay by two frames.

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK.



The default password is "admin".

#### Step 2 Choose Settings > Adjust screen effect.

Figure 6-30 Screen effect adjustment (new)

Adjust screen effe	ect					-	- [		×
10.40.40.111:5200-5	Screen1	USB@Port	_#0010.Hub	#0001-Scree	n1				
Parameter Settin	ings								
Enable 18	·								
Enable	<				>	0	Save	to HW	
Enable ser	ndino car		🗌 Ena	able receiving	a car				
HDR Settings Effect of HDR 1. Only HDR10 2. Switching sig	ional soui	rces or re	ceiving card	ls requires a	diustina t	he HDF			
3. It is recomm			optical para	meter calibra	ation on	· [_R	eset to D	Default	
HDR Paramete	er Setting SDR	S		~					
Peak Scre [	Ov	<				> 10	000 韋	nits	
PQ Mode S	ST2084			~					
MaxCLL	Ov	<				> 10	00 ≑	nits	
	No	te: The cu	irrent sourc	e is not HDR	10. Pleas	se swito	h sourc	es.	
EOTF Adjustm	nent								
Low-G <	c 📃				>	0	-	%	
Ambient 🤇	c				>	0	<b>•</b>	%	
					Apply		Save	e to HW	
-Screen Informat	tion								
								Clear	

#### Figure 6-31 Screen effect adjustment (old)

djust screen effect JSB@Port_#0001.Hub						>
Parameter Setting						
Enable 18						
Enable	<	>	0	Sav	e to HW	
🗌 Enable sendi	na car	Enable receiving car				
HDR Parameter S	ettings					
Enable		$\sim$		Resto	ore defau	ults
Peak Screen	<	>	1000 cd	/m2		
Ambient Light:	<	>	30 Lu	X		
Low Graysca	<	>	15			
Tip: Curren	it source is not HDP	(10. Please connect an HD	R10 vide	o source		
Screen Information						
		card low latency parameter	s succes	sf ^	]	
l	17Reading HDR p					
2020/1/19 16:03:	17HDR parameter	's read successfully.				
	•				Clea	ar

Step 3 In the pop-up window, perform any of the following operations as required.

Enable 18-bit mode (18bit+)

Select Enable 18-bit mode and click Save to HW.

Enable ClearView

Select Enable ClearView, drag the slider to adjust the value and then click Save to HW.

Enable low latency

Select **Enable sending card low latency** and **Enable receiving card low latency** or either of them, and click **Save to HW**. Enabling either of them can reduce the delay by one frame. Enabling both can reduce the latency by two frames.

#### Set HDR Parameters (When sending and receiving cards support newer HDR versions)

Choose an HDR mode and configure the associated parameters.

- Screen Peak Brightness: This is the override value for the screen peak brightness. Ensure **Override** is checked for it to take effect.
- PQ Mode: If **ST2084** is selected, it indicates a 1:1 mapping of the video source's brightness, adjusting the video's brightness that exceeds the screen's maximum to fit. If **ST2086** is chosen, it indicates a linear mapping, adjusting the video source brightness overall while maintaining the content's brightness ratio.
- MaxCLL: This is the override value for the video source's maximum brightness. Make sure to check **Override** for it to be effective.
- Set HDR parameters (When sending and receiving cards support older HDR versions)

Select Enable, select HDR10 or HLG from the drop-down box and complete relevant settings.

# 6.8 Set Image Booster Engine

#### Applications

Using a professional color analyzer (also called light gun or colorimeter) to correct the cabinet's optical factors (such as color gamut, brightness, grayscale, and color temperature) to achieve precise brightness control and accurate color display.

#### **Applicable Products**

Applicable to the A8s-N, A10s Plus-N, A10s Pro receiving cards

Color management is also applicable to the A5s Plus and A7s Plus receiving cards

#### **Prerequisites**

When collecting screen data, if you select the auto or custom collection method, CA410-VP427, CA410-P427 or CA410-P427H (use when the brightness exceeds 3000 nits) and the hardware connection must be completed.

#### **Notice**

Adjusting the receiving card parameters affects the display effect.

#### **Related Information**

When adjusting the effect parameters, it includes the color management, precise grayscale, and 22bit+ functions of the image booster:

#### Color Management

With the help of NovaStar's unique color management algorithm, the this function will realign the LED screen's color gamut to approximate the standard color gamut of BT.709, BT.2020 and D CI-P3, and eventually, the color gamut is adjusted to be consistent with the video source, eliminating color deviation and reproducing natural colors.

#### Precise Grayscale

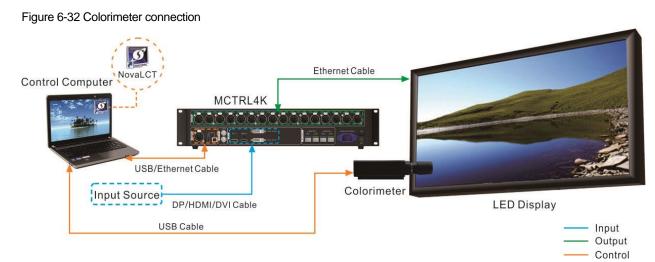
With the help of professional optical instruments, individually correct the 65,536 levels of grayscale of the driver IC to fix the display problems at low grayscale conditions, such as brightness spikes, brightness dips, color cast and mottling and achieve pinpoint accuracy in grayscale control, allowing for a significant improvement in the quality of LED display images.

#### 🕈 22bit+

Harnessing the power of image quality algorithms, the bit depth of low shades of grayscales on the screen is elevated, resulting in an incredible 64-fold surge in dynamic contrast. This process effectively addresses common issues such as grayscale loss and contour lines that arise in case of insufficient grayscale on the screen, allowing for richer grayscale shading and intricate detail presentation for on-screen images.

When you collect the screen data, ensure the colorimeter touches the screen closely. The hardware connection is illustrated in Figure 6-32.



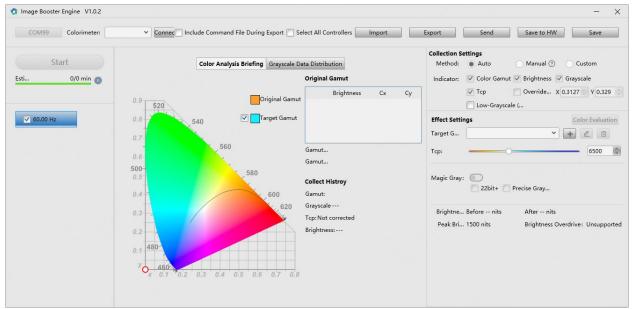


# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

- Step 2 On the main window, click in next to the rightmost function icon to open the drop-down list and then click
- Step 3 On the Image Booster screen, click Please refresh and select device located at the top left corner.



#### Figure 6-33 Image booster

Step 4 In the Device Management dialog box, click Refresh and select a device from the drop-down options.

#### Figure 6-34 Device management

D	)evi	ce Man	nagement						×
	Cont	roller	USB@Port_#0010.H	Hub_#0001 🗸 🔘	Re				
	Onli	ne Cabine	ets: 1 Selected	1 Individual					
	✓	No.	Cabinet Locatic	Cabinet Manufactc	Cabinet Model 🖓	Rv Card Model	Firmware Version		5
	•	1	S1-P1-1	unknown		A10SPro	V1.3.3.3 ⑦		
								Current	ок
								Cancel	OK

- Step 5 Select the target cabinets, or toggle on Select Port to select all the cabinets of the Ethernet port and then click OK.
   You can also identify, update, or restart the cabinets through the interface where you choose cabinets via Ethernet port.
- Step 6 On the left of the screen, select a frame rate.
- Step 7 Set Collection Acceleration and do the following according to the screen data collection method.
  - Automatic
    - a. Set the collection method to Auto.
    - b. Select a colorimeter model from the drop-down list.

When the hardware connection is normal, the software will automatically establish communication with the colorimeter after selecting a model.

- c. Click Start to automatically collect the screen data through the colorimeter.
- Manual
  - a. Set the collection method to Manual.
  - b. Select **Color Gamut**, manually collect the screen data, and then double-click the color gamut value in the table and modify it.
  - c. Select Brightness and then set the brightness before and after calibration.
  - d. Click Start to make the color gamut and brightness data take effect.
- Custom
  - a. Set the collection method to Custom.
  - b. Set the collection indicators.
  - c. Click Start to automatically collect the screen data through the colorimeter.

#### Notes

If an image quality file (.nrf/.vglcx) is available, you can click **Import** to import the image quality data and then adjust the effect parameter.

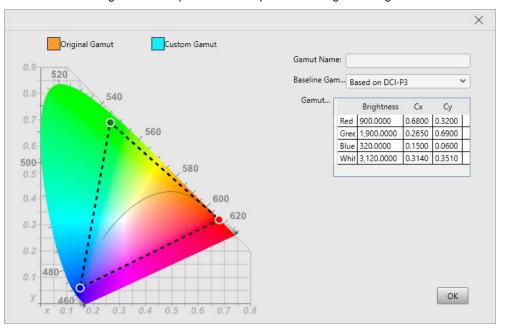
- Step 8 Under the Effect Settings, set the following parameters and view the effect on the screen.
  - Target gamut

Select a target gamut from the drop-down list. To view the target gamut in the color gamut diagram, select **Target Gamut** in the middle area of the **Correct Cabinets** screen.

Do the following to add custom gamut.



a. Click i on the right of the drop-down list to open the adding custom gamut window.



- b. Enter a custom gamut name.
- c. Select a baseline gamut from the drop-down list.
- d. Double-click the cells in the table to change the gamut values or drag the vertex of the black triangle in the color gamut diagram to modify it.
- e. Click OK once you are done.

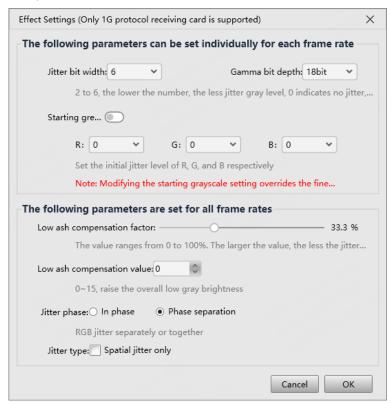
Select a custom gamut and then click used to edit it, or click it to delete it.

Color Temperature

Drag the slider to set the color temperature, or set the value in the entry box.

Magic Gray

Toggle switch to enable/disable this function. When this is enabled, **22bit+** and **Precise Grayscale** can be selected. When the receiving card supports Image Booster 2.1, an **Effect Settings** button will appear on the right side of the interface. Clicking this button will allow you to configure the relevant effect parameters in the dialog box that appears.





• Dynamic Booster

Toggle switch to enable/disable this function. When this is enabled, drag the slider to adjust the intensity of the Dynamic Booster, and set the max brightness.

Brightness

Verify the pre-calibration brightness, post-calibration brightness, and peak brightness, and also check if brightness overdrive is supported.

Peak Brightness is the max brightness measured by the colorimeter.

- Step 9 Click **Export** to save the configuration into a file.
- Step 10 Click Send to send the configuration to the hardware, or click Save to HW to save the configuration to the hardware.
- Step 11 If you want to evaluate the color precision, do the following.
  - 1. Click Color Evaluation.

Evaluate Colo	r Precision						$\times$
Evaluate Color:	~						
Start Evaluation	Export Report		📄 Display Demo	Switching I	nterval 1 s	Start Demo	Stop
Standard Color	Color Value	CIE31(Lxy)	sured Value Before MGMT	DeltaE	Measured Value (Lxy)	DeltaE	
	#745244			0		0	
	#D9792F			0		0	1
	#2E3E95			0		0	1
	#F9F3ED			0		0	1
	#C49582			0		0	1
	#455CA3			0		0	1
	#45924A			0		0	
	#C8C8C7			0		0	1
	#5C799B			0		0	1
	#B12D38			0		0	1
	#5B6B45			0		0	
	#5A3D67			0		0	
	#EBC32F			0		0	
	#777978			0		0	
	#827FAC			0		0	
	#9DB848			0		0	1
	#BD5290			0		0	1
	#535454			0		0	
	#5DBAA8			0		0	1
	#E39E34			0		0	1
	#0083A2			0		0	1
	#363637			0		0	

- 2. On the Evaluate Color Precision screen, select a gamut from the drop-down list and click Start Evaluation.
- 3. Select Display Demo.
- 4. Click any of the colors in the table and check their effect on the LED screen. Or, you can set the auto color switching interval and then click **Start Demo** to check the effects of all colors on the screen.
  - CIE31: The standard value of brightness, Cx and Cy of the color.
  - Measured Value Before MGMT: The measured value of brightness, Cx and Cy of the color in the original color gamut.
  - Measured Value: The measured value of brightness, Cx and Cy of the color in the target color gamut.
  - DeltaE: The deviation between the measured value and standard value.
- 5. Deselect Display Demo, click Export Report to save the evaluation result into a file.

# 6.9 Batch Check Calibration Effects

#### **Applications**

Batch check the effects of disabling calibration, brightness calibration and chroma calibration of multiple devices.

# **Applicable Products**

All receiving cards and sending cards



# **Prerequisites**

None

# **Related Information**

None

# **Operating Procedure**

Step 1 From the menu bar, choose **Tools** > **More** > **Device Settings**.

Figure 6-35 Batch checking calibration effects

				×
Select Function	Select	COM Port	Device	Device Quantity
Restore calibration mode		USB@Port_#0002.Hub_#0001	MCTRL660 PRO	1
Enable/Disable calibration				
Disable calibration				
O Brightnes				
O Chroma calibration				
Select all	Select all			
				Setting

- Step 2 In the device list, select the device of which you want to check the calibration effects.
- Step 3 Select Enable/Disable calibration and click Setting.
- Step 4 Click **OK** to close the prompt box.
- Step 5 Select **Disable calibration**, **Brightness calibration** or **Chroma calibration** and check the corresponding display effects on the LED screen.

# **7** Screen Monitoring

# 7.1 Register Screens with VNNOX Care

- 7.1.1 Register Online Screens
- 7.1.1.1 Register via Saving Configuration Files (Recommended)

# **Applications**

Register your online screens with VNNOX Care to perform centralized monitoring of the screen working status from a remote place.

# **Applicable Products**

All receiving cards and sending cards

# **Prerequisites**

- You have a valid VNNOX Care account.
- The control PC is connected to the Internet.

# **Related Information**

None

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".



- Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar.
- Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, click **Next**.

#### Figure 7-1 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	СОМ99 ~	
Configure Screen		
O Cloud Restore	~	
O Local Restore		Browse
	Next	Close .:

Step 4 On the Screen Configuration page, click Save System Configuration File to open the dialog box shown in Figure 7-2.

💀 Save System File	es to Cloud X
VNNOX Care Use	
Password	
Screen Name	USB@Port_#0002.Hub_#0001-Screen1
System Config	
System Config	1、Receiving card backup file
	2. Screen connection file
	3、Receiving card/NovaLCT
	Save
🖪 The screen is n	ot registered American 💌

Figure 7-2 Saving configuration files

- Step 5 Enter your VNNOX Care user name and password, set a screen name and system configuration file name, and select a server node at the bottom right.
- Step 6 After the settings, click Save.
- Step 7 After successful saving, close the prompt box.

#### Notes

During registration, NovaLCT will automatically enable Automatic Refresh and Link to NovaiCare in the monitoring configuration. If you want to set the refresh period, please see 7.2 View and Configure Monitoring.

#### 7.1.1.2 Register via Function Buttons

#### **Applications**

Register your online screens with VNNOX Care, or modify the earlier registration information and then re-register the screens with VNNOX Care to perform centralized monitoring of the screen working status from a remote place.

#### **Applicable Products**

All receiving cards and sending cards

#### **Prerequisites**

- You have a valid VNNOX Care account.
- The control PC is connected to the Internet.

#### **Related Information**

When multiple screens are connected to the control PC, all these screens will be registered with VNNOX Care.

#### **Operating Procedure**

Step 1 Click Monitoring or choose Tools > Monitoring from the menu bar to open the monitoring page.

You can also right click 🤷 on the desktop taskbar and select **Open MonitorSite** to open the monitoring page.



MonitorSite V2.6 –	
USD#Fort_#0003. Hub_#0001-Screen!         Image: Comming in the image: Comm	Monitoring R Configuration
Soreen Name 🔛 🕅 🎧 🖾 🐼 To attained to the second secon	
Screen Name         Image: Contract of the state o	
	-
Care status:Online	

- Step 2 Click Configuration to open the MonitorSite Settings page.
- Step 3 On the Refresh Period tab page, select Automatic Refresh and set the refresh period.
- Step 4 Set the rereading times. 2 is recommended.

Figure 7-3 Monitoring

Step 5 Select Link to NovaiCare, click Save and then OK.

#### Figure 7-4 Monitoring configuration

MonitorSite - Settir	ngs			×
Refresh Period	Refresh Period ———			
Hardware Settings	□ Automatic Refresh	Refresh Period:	60 🔹 S	
Alarm	Set Rereading Times			
Monitoring Con	When failing to r software will rea	ead status, the d	0 🗘 Times	
Email	Link to NovaiCare —			
Email Log	∠ Link to NovaiCare			
				Save
On the desk	top taskbar. rie	ght click	select Exit and a	click <b>OK</b> .

Step 6

Step 7 Click Monitoring to start the monitoring function again.





- Step 8 Click Cloud Monitoring or choose Settings > Cloud Monitoring from the menu bar.
- Step 9 Click Register in VNNOX Care.
- Step 10 Click Modify Registration.

Figure 7-5 Registration

egistration				×
Server:	China	User	:	Refresh
Screen N	ame	Width	Height	Registration State
USB@Port_#00	102. Hub	64	32	3
				Modify Regis

Step 11 Select a server node, enter your VNNOX Care user name and password, and set the screen name.

Screen Registration		×
Server	American 🗸	
Vser Name	Nova	
Password	••••	
Screen	001	
	Register	

Step 12 Click Register.

Step 13 After successful registration, click **OK** to close the prompt box.

#### 7.1.2 Register Offline Screens

7.1.2.1 Register by Using Local Backup Files (Recommended)

# **Applications**

During the process of saving the screen configuration data, save the configuration files to the local PC. When the control PC can access the Internet normally, use the backup files to register the screens with VNNOX Care.

# **Applicable Products**

All receiving cards and sending cards



# **Prerequisites**

You have a valid VNNOX Care account.

# **Related Information**

None

# **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".



- Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar.
- Step 3 On the pop-up dialog box, select a communication port and choose Configure Screen. Then, click Next.

#### Figure 7-7 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	COM99 ~	
Onfigure Screen		
O Cloud Restore	~	
<ul> <li>Local Restore</li> </ul>	Browse	
	Next Close	

- Step 4 On the Screen Configuration page, click Save.
- Step 5 After successful saving, click OK to save the backup file to the local computer.

This step is related with the configuration of the save function. See 11.3 Configure the Save Function.

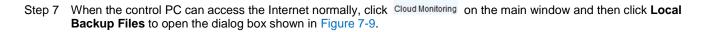
Step 6 After successful saving, click **Close**.

For devices with the same SN, NovaLCT uses the new file to overwrite the old file.

#### Figure 7-8 Saved successfully

🖷 Prompt	×			
Saved successfully.				
The screen's system configuration file has been				
saved locally. You can use the 🛅 Local Backup				
Files function on the main window to bind the screen to VNNOX Care after the PC is connected to the				
Internet.				
Close				





#### Figure 7-9 Local backup files

🖷 Local Backup Files				-		×
The local backup file i Save after completing t screens to VNNOX Care a	he screen configurati	on. The backup file	is convenient for			
Device SN	Device Model	Remarks	Saved	Binding	; Status	
9912310000999999	MCTRL1600		2021/12/24 15:36	Unbound		
	Bind	l Delet	e			

Step 8 Enter a remark.

The remark will be the name of the successfully bound screen. If the remark is empty, the device SN will be the screen name.

- Step 9 Select the backup file records of one or multiple devices and click Bind.
- Step 10 Enter your VNNOX Care user name and password, select a server node and click OK.

After successful binding, the **Binding Status** of the corresponding device in the **Local Backup Files** dialog box becomes **Bound**.

Figure 7-10 Binding to VNNOX Care

💀 Bind to VNNOX Care	<
User Name	
Fassword	
OK	
American	•

# **Related Operations**



Both in the logged in and not logged in statuses, you can click **Cloud Monitoring** and then **Local Backup Files** to open its dialog box and check the device binding status and delete configuration files.

# 7.1.2.2 Register by Using Screen Monitoring Data

# **Applications**

Export the configuration file of an offline screen. When the control PC can access the Internet normally, import the exported configuration file to VNNOX Care to complete screen registration.

#### **Applicable Products**

All receiving cards and sending cards

#### **Prerequisites**

You have a valid VNNOX Care account.

#### **Related Information**

None

#### **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".



- Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar.
- Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, click **Next**.

#### Figure 7-11 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	СОМ99 ~	
Configure Screen		
O Cloud Restore	~	
O Local Restore	Browse	
	Next Close	

- Step 4 Choose a communication port.
- Step 5 Select Configure Screen and click Next.
- Step 6 On the Screen Configuration page, click Export Screen Monitoring Data to open the dialog box shown in Figure 7-12.

#### Figure 7-12 Exporting screen monitoring data

Export Screen Monitoring Data				
File Name	l			
Location	C:\Users\zlkf=gyO1\Desktop			
File Content	<ol> <li>Screen monitoring data</li> <li>Sending card backup file</li> <li>Receiving card backup file</li> <li>Screen connection file</li> <li>Receiving card/NovaLCT versions</li> </ol>			
	Save			

Step 7 Set a file name, click 🛄 to select a location and click **Save**.

Step 8 After successful saving, click **OK** to close the prompt box.

Step 9 When the control PC can access the Internet normally, log in to VNNOX Care.

Step 10 Go to My Services > Screen Management to enter the screen management page.

Step 11 Click Add Screen, select the exported screen monitoring data file and click Upload.

# 7.2 View and Configure Monitoring

# **Applications**

View the monitoring information and configure the monitoring parameters to monitor the statuses of sending cards, receiving cards, receiving card temperatures, monitoring devices, as well as humidity, smoke, fans, power supplies, cables, cabinet doors, modules, iCare within the control system, in order to detect abnormalities and handle them in time.

# Applicable Products

- Use monitoring card for monitoring: Applicable to the MON300 monitoring card. This card works with the MRV320 and MRV560 receiving cards.
- Use smart modules for monitoring: Applicable to the A4, A4s, A5, A5s, A5s Plus, A7, A7s, A7s Plus, A8, A8s, A9s, A10s Plus, XC200, XC100 and B4s receiving cards. The smart module monitoring function is a customized function of the receiving cards.
- Use hub products for monitoring: Applicable to the A4, A4s, A5, A5s, A7, A7s, A8, A8s, A9s, A10s Plus, XC200 and XC100 receiving cards. Using hub product for monitoring is an optional function of the receiving cards.

# **Prerequisites**

- If you want to use the monitoring function of monitoring card, a monitoring card should be used between the module and receiving card.
- If you want to use the email service, the SMTP server address and port must be known in advance.

# **Related Information**

When the monitoring card is used, hub monitoring and smart module cannot be used. Hub monitoring and smart module can be used simultaneously.

#### **Operating Procedure**

 $\sim \sim$ 

Step 1 Click Monitoring or choose Tools > Monitoring from the menu bar to open the monitoring page.

You can also right click 🔛 on the desktop taskbar and select **Open MonitorSite** to open the monitoring page.



Figure 7-13 Monitoring		
-		X
USB@Port_#0003. Hub_#0002-Soreen1	]	
Zooming	Module mon	it
Hormal		
Fault         Voltage E         Unknown         Statistical Information         Total Quantity of Receivin 2         Rule (Jury) Information		
Total Quantity of Receivin 2		
Fault (alarm) Information Quantity of Faulted Receiving 2 Cards: 0	Monitoring Configurat	
Screen. Name 🔛 🛄 📢 🐻 🌑 🤧 💟 🚺 📲		
USB@Port_#0003.Kub_#0002-Soreeni 🔴 🛑 😑 🚫 🚫 🚫 🚫 🚫 🚫	3	
Care status:Online		.:

#### Notes

- Click **Monitoring Refresh** to manually refresh the monitoring information.
- On the desktop taskbar, right click and select Reload Screen to refresh the receiving card topology diagram.
- Step 2 Click the monitoring item on the left or at the bottom of the page to view the detailed monitoring information.
- Step 3 Click **Configuration** to set the monitoring parameters.
  - Refresh Period

MonitorSite - Setti	ings	Х
Refresh Period		
Hardware Settings	Refresh Period	
	Automatic Refresh 60 🔷 S Refresh Period:	
Alarm	Set Rereading Times	
Monitoring Con	When failing to read status, the 0 😴 Times	
Email	Link to NovaiCare	
Email Log	⊠ Link to NovaiCare	
	Save	

Set the necessary items as follows and click **Save** to save the settings.

- Select **Automatic Refresh** to set the refresh period. The monitoring information will be refreshed based on the set time period. If the screen is registered with iCare, this item must be selected.
- Set the reread times when the reading of the monitoring information from the receiving card fails.
- Select **Link to NovaiCare** to enable iCare to get the monitoring information.

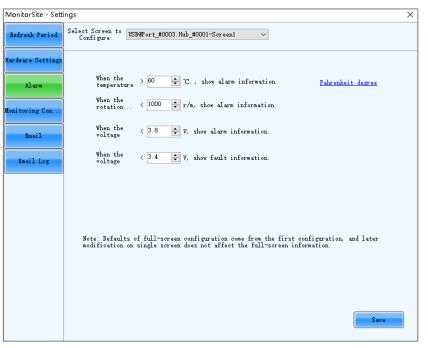
#### Hardware Settings

MonitorSite - Settin	gs	×
Refresh Period	Select Soreen to Configure COM99-Screen1	v
Hardware Settings	Connect to Monitori	Setting
Alarm	Connect to HUB Monitoring	Use 2 receiving car
<u> </u>	Connect to Smart Module	Common Chip 🗸
Monitoring Con	Refresh Backup Fower Supply	
Email	Backup Power Supply Quantity	2
Email Log	Refresh Humidity	Refresh Smoke
	Refresh Ribbon Cable	Refresh Cabinet Door Status
	Refresh Fan	
	Fan Pulse:	1 ¢ PCS/r
	Set fan quantity uniformly	4
	○ Set fan quantity individually	Setting
	Refresh Power Supply of Monitoring Card	
	The numbers of power supplies on eac	3
	O Set power supply quantity individually.	Setting
	Note: First time configuration is the default	t for full screen, later modification will not
		Save

Set the necessary items as follows and click Save to save the settings.

- Select Connect to Monitoring Card and set the monitoring items. Click Setting to set the number of monitoring cards connected to each cabinet. The number is 0 or 1.
- Select Connect to HUB Monitoring and set the monitoring items.
- Select Connect to Smart Module and set the monitoring items. If the TBS 614 Chip is selected, you can click Module Monitoring in the monitoring interface to view and configure the information related to the module monitoring.
- Select Connect to HUB Monitoring and Connect to Smart Module, and then set the monitoring items.

#### 🕈 🛛 Alarm



Set the alarm thresholds for temperature, fan rotating speed and voltage. When the threshold value is exceeded, faults or alarms will be displayed. After the configuration is done, click **Save** to save the settings.



#### Monitoring Control

MonitorSite - Setti	ings	×
Refresh Period	Select Soreen to Configure USB@Port_#00003.Hub_#0001-Soreen1 V	
fardware Settings	Control Information List	_
Alarm	Control type Condition	-
Monitoring Con		
Email		
Email Log		
	Add Edit Delete Clear list	

Set the rules for automatic control of smoke, temperature and dual backup power supply. If the control type is set to smoke, a multifunction card must be configured in advance. After the settings are done, click **OK**.

#### 🕈 Email

MonitorSite - Setti	ngs	×
Refresh Period	Enable Email Notification     Send email when same fault/ 3     Times sending     Enable System Recovery Notification	ž · · ·
Mardware Settings	Enable Sending System Report Email	
Alarm	Send system report email regularly _Email Sender	
Monitoring Con	Email Address novalct@novastar.tech Port 25 SMTP Server smtp.qiye.163.com SSL Encryption <b>Enable</b>	
Email	Modify Sender Use Def	ault
Email Log	Recipient           Name         Email address	
	111 nova_huixy@126.com	
	Email Information Sending Email A-1 (e.g.:Neighborhood A, Square B)	
	Tip: If the display has been registered with NovaiCare, please disable local Email notificati	on

Select Enable Email Notification. Set the necessary items as follows and click Save to save the settings.

- Set the condition for sending an email notification, namely how many times the same fault or alarm occurs consecutively.
- Select Enable System Recovery Notification to send email notification when the fault or alarm recovers.
- Select Enable Sending System Report Email and click Send system report email regularly to set the email sending period and time.
- Click Modify Sender to change the email service related settings.
- Add, edit or delete the recipients.
- Set where the email is sent from.
- Email Log



MonitorSite - Setti	ngs					×
Refresh Period	Log Time	- 2019年12月	4日	•	Refresh	Delete Log
Hardware Settings	Notification Time	Recipients	Title	Notifi	cation Content	
Alarm						
Monitoring Con						
Email						
Email Log						
	< Note: When you er	able local Email	notification, yo	u can view the log.		>

View or delete the email log. Enable the email notification function before log operations.

# 7.3 Configure Module Monitoring

# **Applications**

Configure the module monitoring parameters to monitor the module's temperature, voltage, and bit error.

# **Applicable Products**

All receiving cards.

# **Prerequisites**

- The module is equipped with a TBS 614 chip.
- You have selected **Connect to Smart Module** in the monitoring configuration, and along with the **TBS 614 Chip**.
- You have completed the Flash Arrangement. For more details, please refer to 5.8 Set Performance Parameters

# **Related Information**

None

# **Operating Procedure**

 $\sim \sim$ 

Step 1 Click Monitoring or choose Tools > Monitoring from the menu bar to open the monitoring page.

You can also right-click so on the desktop taskbar and select **Open MonitorSite** to open the monitoring page.

Figure /	-14 Monitoring							_	-		×
	USB@Port_#0003. Hub_#0002-Scree	enl									
	Time of Acquiring the Current							ing 0.40 Normal Fault Voltage B Unknown	· · · ·	Module mo	vni t
-1	Statistical Information Total Quantity of Receivin	2									
	Fault (alarm) Information Quantity of Faulted Receiving Cards:	: ,	Quantity of with Voltage	Receiving Co	ard 0				_	Monitorin	ng R
	Uards:	2	with Voltage	e Exception:						Confi gur s	ation
	Screen Name				<b>S</b>	V	U	•			
USB@Por	t_#0003. Hub_#0002-Screen1	•	00	$\bigcirc$	$\bigcirc$	$\odot$	$\bigcirc$	$\bigcirc$	$\bigcirc$	3	
Care status	s:Online										

#### Step 2 Click Module Monitoring.

Step 3 On the **Module Info** dialog box, select **Temperature**, **Voltage** or **Bit Error** to view the corresponding monitoring information. Click on the text link of the monitor result to view the details.

**Related Operations:** 

- The monitoring information will be refreshed once when you select the items to be monitored. To refresh again, click **Manual**.
- Screen Display: Click **Normal display** in the **Action** column to switch to **Screen display**, which will show the test pattern in the load area of the corresponding receiving card.
- Clear Errors: Click Clear Errors in the respective column to reset the errors of the corresponding receiving card. To reset the errors of all receiving cards in the list, click Clear in the top right corner of the interface.

#### Figure 7-15 Module information

dule Info							—
Temperatur(	) Voltage () Bit Error			[	Auto Refresh 1 🌲 Min	n Manual Thre	sholds Clear
dule Info							
etection	Sending Card	Ethernet Port	Rv Card	Module No.	Temperature (°C)	Updated At	Action
	USB@Port_#0003.Hub_#0002-1	1	1	1	60	2024/4/1 17:58:34	Normal display
	USB@Port_#0003.Hub_#0002-1	1	1	2	<u>29</u>	2024/4/1 17:58:34	Normal display

- Step 4 (Optional) Select Auto Refresh and set the refresh interval.
- Step 5 Click Thresholds.
- Step 6 On the pop-up dialog box, set the alarm thresholds for temperature, voltage, and bit error. Clicking on **Celsius** or **Fahrenheit** allows you to switch temperature units.

Figure 7-16 Thresholds

🔡 Thresholds	5			-		×
When temperature	> \$0	5 🖨	, show warning message.		<u>Celsius</u>	
When voltage	< 4.0	🔷 V	, show warning message.			
When bit error	> 1	-	, show warning message.			
					Save	]

Step 7 Click **Save** once you are done.

# 8 Screen Management

# 8.1 Multi-function Card Management

# **Applications**

Configure the multifunction card, and perform power management, monitoring data viewing, peripheral settings, program loading and audio management.

# Applicable Products

The MFN300 multifunction card

# **Prerequisites**

Hardware connections for the multifunction card are done.

# **Related Information**

None

# **Operating Procedure**

Step 1 Click Multi-function Card from the menu bar.

#### Figure 8-1 Multifunction card management

Multi-fu	nction Caro	d Managem	nent							×
Add : 👍 🗸		Refresh	Rename	Ţ Ţ		5	000		O,	
	<u> </u>	2   15		·	PowerManagement	Monitoring Data	Peripheral Device	Load Program	Audio Management	

Step 2 Click Add and select the connection type for the multifunction card.

- Serial Port Connection: Select this option when the serial port of the multifunction card is connected to the USB port of the PC.
- Ethernet Port Connection: Select this option when the Ethernet port of the multifunction card is connected to that of the sending card or receiving card.

You can also remove, refresh or rename the added connections.



For serial port connection, you can perform the following operations:

- Modify Serial Port: Change the current serial port to the one that is not configured for the multifunction card.
- Replace Serial Port: Replace the current serial port with the one that is connected with the multifunction card.

Step 3 For serial port connection, choose a communication port and click OK.

For Ethernet port connection, choose a communication port and set other parameters as shown in Figure 8-2, and then click **OK**.

Add Multi-function Carc	1		X
Communication Port	USB@Port_#0003.Hub_#0001	~	
Sending Card	1	÷	
Ethernet Port	1	-	
Name			
ОК	Exit		

Figure 8-3 shows the user interface of an Ethernet port connection that is added successfully. The following procedure takes Ethernet port connection as an example to illustrate the function.

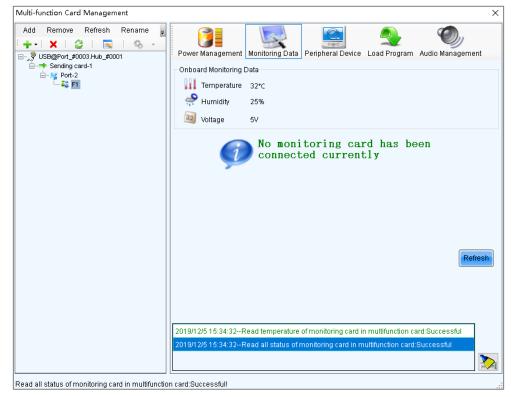
Figure 8-3 Ethernet port connection
-------------------------------------

Multi-function Card Management		×
Add Remove Refresh Rename	Time of Powe	ement Monitoring Data Peripheral Device Load Program Audio Management rer Management Board Thursday 15:25:58 Read Set Start Delay
	<ul><li>Manual</li></ul>	Automati     Automati     Control     Automati
	Switch 1	Start Stop
	Switch 2	Start Stop
	Switch 3	Start Stop
	Switch 4	Start Stop
	Switch 5	Start Stop
	Switch 6	Start Stop
	Switch 7	Start Stop
	Switch 8	Start Stop
	2019/12/5 15:25	5:23Read the status of all the powers in multifunction card:Successful
	2019/12/5 15:25	5:28Read the status of all the powers in multifunction card:Successful
Read the status of all the powers in multifunctio	n card:Successful!	

- Step 4 Use any of the following functions as needed.
  - Power Management

Multi-function Card Management				×
Add         Remove         Refresh         Rename            + - · · ×         2         ∞         -         <		ment Monitoring Data	Peripheral Device Load Pro	gram Audio Management
i		- Thursday 15:30:49	Read	Set Notes Start Delay
	) Manual	Automati	Software Control	Start All Emergency St
	Switch 1	Start Stop		
	Switch 2	Start Stop		
	Switch 3	Start Stop		
	Switch 4	Start Stop		
	Switch 5	Start Stop		
	Switch 6	Start Stop		
	Switch 7 Switch 8	Start Stop		
		):15Start all powers of m ):16FuncCard_SetPowe	nultifunction card:Successful rPortCtrlTotal:Successful	
Read emergency control status of power in mult	tifunction card:Succ	ressfull		

- Read: Read the time from the multifunction card.
- Set: Set the multifunction card time to the PC time.
- Set Notes: Write notes for the power supplies.
- Start Delay: Set the delay time for powering on the multifunction card.
- Refresh: Read back the multifunction card information.
- Start All: Start all power supplies.
- Emergency Stop: Stop all power supplies. When the emergency stop operation is executed, automatic control is invalid.
- Manual: Start or stop the power supplies manually.
- Automatic Control: Set the auto start and stop time for the power supplies.
- Software Control: Set the power control schedule. Click Edit to customize the power control list. Click View Log to view the power control log.
  - Advanced: Set the time for the automatic time synchronization between the multifunction card and PC.
- Monitoring Data



View the monitoring data of both multifunction card itself and its connected monitoring card.

#### Peripheral Device

Multi-function Card Management	×
→ Seating card-1	itoring Data Peripheral Device Load Program Audio Management click 'Save' button after ation
Peripheral device 1 Peripheral device 2 Peripheral device 3 Peripheral device 4 Peripheral device 5 Peripheral device 6	No external device  V No external device  V
Read all status of monitoring card in multifunction card Successful	Refresh Save

Add the peripheral devices connected to the multifunction card, including the light sensors and external 3D emitters.

Load Program

Multi-function Card Management		×
Multi-function Card Management	Power Management Monitoring Data Peripheral Device Load Program Audio Management Multi-function Card Information Model of Multi-function C FPGA Version: FPGA Note of Multi-function Card Refresh	
Read all status of monitoring card in multifuncti	Don card:Successfull	2

Click **Refresh** to view the multifunction card model, FPGA version and FPGA note.

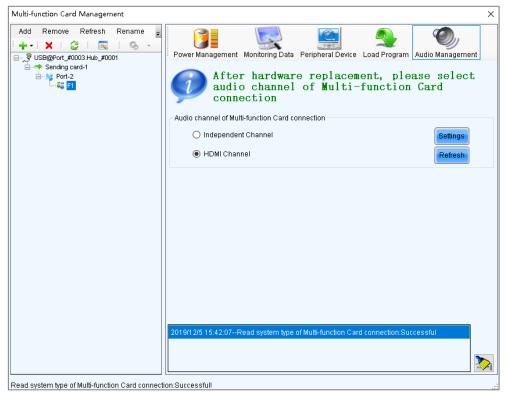
Type "admin" to access the options for program loading.

- a. Select Load program for selected Multi-function Card or Load all programs for Multi-function Card.
- b. Click **Browse** to select the program package.
- c. Click Change to load the selected program.
- d. Click Exit to hide the program loading options.

Multi-function Card Management		Х
Multi-function Card Management	Power Management       Monitoring Data       Peripheral Device       Load Program       Audio Management         Multi-function C and Information       Model of Multi-function C       FPGA Version:       FPGA Version:         FPGA Note of Multi-function C and       Refrest            • Load program for selected Multi-function C and(USB@Port_#00)       Load all programs for Multi-function C and       Exit         Select Program       Program Name       Program Version       Browsee         Program Path       Browsee       Change	h
Read all status of monitoring card in multifunction	card:Successful!	

Audio Management





Set the audio channel connected to the multifunction card, including the independent channel and HDMI channel.

# 8.2 Multiple-screen Management

#### Note

The settings for multiple-screen management are only effective on your computer's NovaLCT. To apply them on other computers, you will need to adjust the corresponding settings accordingly.

# **Applications**

Combine multiple screens into a combined screen, allowing for easier brightness adjustment, screen calibration and monitoring configuration, and higher working efficiency.

# Applicable Products

All receiving cards and sending cards

#### **Prerequisites**

None

# **Related Information**

The combined screen supports both auto and manual brightness adjustment.

#### **Operating Procedure**

- Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".
- Step 2 Choose Settings > Multiple-screen Management.



# Figure 8-4 Multi-screen management

- Step 3 Set the number of combined screens and click Configuration.
- Step 4 Set the combined screen name and number of screens in the combined screen, and then click **Configuration**.

#### Figure 8-5 Configuration of combined screen

onfiguration of Combined S	creen		_		>
Number of Combined	1	Configuration	Clea	r	
Combined screen 1					
Name:	Combined screen 1				
Number of Screen:	2	Configuration	Rese	t	
Zoom:	<	>	0.2		
Size of Combined Scr	1280 x 480				
?	?				
•					
			ОК	Clos	e

Step 5 Right click the first screen to pop up the window as shown in Figure 8-6. Choose a communication port and its associated screen.

#### Figure 8-6 Associated screen

•	
Currently o	perating screen information
Comm	USB@Port_#0001.Hub_#0001 ~
-Screen lis	t of designated
1	
Associate	d Screen
	Clear

- Step 6 Do the same for other screens of the combined screen.
- Step 7 Drag the screen to snap it to other screens.

#### Figure 8-7 Adjusting screen position

Configuration of Combined S	creen		_		×
Number of Combined	1	Configuration	Clear		
Combined screen 1					
Name:	Combined screen 1				
Number of Screen:	2	Configuration	Reset		
Zoom:	<	>	0.96		
Size of Combined Scr	192 x 128				
001.Hub_#	0001-				
			ок	Clos	e

Step 8 After the settings are done, click **OK**.

# 8.3 Prestore Screen

# **Applications**

Set the picture displayed on the screen during startup process, or displayed when the Ethernet cable is disconnected or there is no video signal.

# **Applicable Products**

All receiving cards and sending cards

# **Prerequisites**

A picture in BMP, JPG or PNG format is prepared.

# **Related Information**

None www.novastar.tech



# **Operating Procedure**

Step 1 On the menu bar, choose Settings > Prestore Screen.

Prestore Picture	Settings	×
Communication	Port Selection	
Communic	USB@Port_#0003.Hub_#0	~
Screen1		
Prestore Picture	e Settings	
Select Pi		Browse
Effect Settings		
Screen Et	ffect Center	~
🔘 Single Ca	abin Center	Test Effect
Extende	Save to HW	Check Stored Picture
Function Setting	js	
Start-up Picture		
🔲 Enable	Time	30 🚖 Se
Disconnect Ca	ble	
🖲 Black	🔘 Last Frame	O Prestor
No DVI Signal -		
Ilack	🔘 Last Frame	O Prestor
	Send	Save to HW

Figure 8-8 Prestore picture settings

- Step 2 Choose a communication port.
- Step 3 Set a prestore picture.
  - 1. Click **Browse** to select a picture.
  - 2. Set the screen display effect and click Test Effect to view the actual effect.
    - Screen Effect: The selected picture will be stretched, tiled or centered to fit the screen.
    - Single Cabinet Effect: The selected picture will be stretched, tiled or centered to fit each cabinet of the screen.

Select Extended Screen to display the picture on the extended screen.

- 3. Click Save to HW to save the prestore picture to the hardware.
- 4. Click Check Stored Picture to view the current prestore picture.
- Step 4 Set the picture displayed during startup process, or displayed when the Ethernet cable is disconnected or there is no video signal.
  - 1. Select **Enable** in the **Start-up Picture** area and set how long the prestore picture is displayed for during the startup process.
  - Set whether the screen is black, or displays the last frame image or prestore picture when the Ethernet cable is disconnected.
  - 3. Set whether the screen is black, or displays the last frame image or prestore picture when there is no video signal.
  - 4. After the settings are done, click **Send** to send the configuration information to the hardware.
  - 5. Click **Save to HW** to save the configuration information to the hardware.

# 8.4 Receiving Card Relay

# Applications

Set the receiving card relay status to manually connect or disconnect the circuit or let the circuit automatically connect or disconnect, and reset the receiving card running time.



# **Applicable Products**

- Setting the receiving card relay status: Applicable to the MRV350 receiving card
- Resetting the receiving card running time: Applicable to all receiving cards

# **Prerequisites**

None

# **Related Information**

When the relay is closed, the circuit is connected. When the relay is released, the circuit is disconnected. The running time is accumulated as the receiving card works, and will not be reset after the receiving card is powered off.

#### **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

Step 2 Choose Settings > Receiving Card Relay.

#### Figure 8-9 Setting receiving card relay

Setting of Receiving Card Relay	- 🗆 X
Serial Port Selection	
Serial Port USB@Port_#0003.Hub_#0001	N 1
Screen1	
Parameter of Receiving Card Relay	
Disconnected	
○ Connected	
O Automatic	
- Temperature Under Automatic Mode	
Temperature of Connected Relay	0 🔷 °C
Refresh	Send
Receiving Card Timing Clearing	
Record Time 10Days 6Hours 5Minutes	
Refresh	iming Resetting

Step 3 Choose a communication port and perform the following operations as required.

- Set receiving card relay
  - Select Disconnected and click Send to disconnect the circuit.
  - Select Connected and click Send to connect the circuit.
  - Select **Automatic** and set the threshold temperatures for both connecting and disconnecting the relay, and then click **Send**.
- Reset receiving card running time

Click **Timing Resetting** to record the receiving card running time from 0.



# 8.5 Screen Control

# **Applications**

Set the screen display status. Use the test pattern to perform the screen aging test and detect problems. Control the cabinet LCD backlight status.

# Applicable Products

- Flipping: Applicable to the MCTRL660 PRO sending card
- Other functions: Applicable to all receiving cards and sending cards

# **Prerequisites**

None

# **Related Information**

None

# **Operating Procedure**

Step 1

Click **science Control** from the menu bar.

#### Figure 8-10 Screen control

Screen Control	×
COM99-Screen1	
Display Control Black Out Freeze Normal	
Self-Test. Normal V	
Cabinet LCD Backlight Control	
Turn off cabinet LCD	
Rv Card Indicator Control	
Turn Off Rv Card Indicator	
Save	e

Step 2 Perform any of the following operations as required.

Set screen display

Select Black Out, Freeze or Normal. When Freeze is selected, the screen always displays the current image.

Select test pattern

Select a test pattern from the drop-down list and click **Send**. The receiving card will display the selected test pattern on the screen.

Set LCD backlight status

Select or deselect Turn off cabinet LCD and click Send.

Set receiving card indicator

Select or deselect Turn off Rv Card Indicator and click Send.

- Step 3 When the MCTRL660 PRO is connected, select a flipping option for the image of the Ethernet port. The options include **Disable**, **Left-Right**, or **Top-Bottom**. If other devices are connected, skip this step.
- Step 4 Click Save once you are done.



# 8.6 Controller Cabinet Configuration File Import

# **Applications**

Save the receiving card configuration files to the sending card, so as to send the configuration files to the receiving card on site by using the configuration file import function of the sending card.

# Applicable Products

- Importing cabinet configuration files: Applicable to the device-level sending cards
- Renaming device: Applicable to the NovaPro HD, VX2, VX4, VX4S, VX5s, VX6s, K4, K4S, K6s, VD43, VX2U, VX4U, K4U, K2U, VX2S, CVT4K-S, MCTRL4K, K16, H9, V1260, NovaPro UHD Jr, MCTRL1600, MCTRL R5, MCTRL660 PRO and E8000

# **Prerequisites**

The receiving card configuration files in .rcfgx or .rcfg format are ready. The cabinet must be a regular cabinet, and cannot be in triple or quadruple strip output mode.

# **Related Information**

None

Б

# **Operating Procedure**

Step 1 On the menu bar, choose Tools > Controller Cabinet Configuration File Import.

mport the Configuration File of Controller Cabinet × Select Serial Port COM3  Move Up Move Down Advanced C  Add Configuratio Delete Configur  Rename File Save the Chang				
Move Up         Move Down         Advanced C	mport	t the Configuration	File of Controller Cabir	net X
Add Configuratio	\$	Select Serial Port	СОМЗ	~
				Move Down

Figure 8-11 Importing cabinet configuration files

- Step 2 Choose a communication port.
- Step 3 Click Add Configuration File, select a configuration file, and click Open.

You can add configuration files for multiple receiving cards as needed. You can also delete and rename the configuration file.

Step 4 If you need to specify one or multiple sending cards, click **Advanced Configuration**. Select the desired sending cards in the displayed dialog box, and click **OK**. If you want to save the configuration files to all the connected sending cards, skip this step.



#### Figure 8-12 Advanced configuration



- Step 5 After the settings are done, click Save the Change to HW to save the configuration files to the sending cards.
- Step 6 After the files are saved successfully, click **OK**.
- Step 7 If the renaming function is supported by device, you can rename the sending card as shown in Figure 8-13. If not supported, skip this step.

Import the Configuration File of Controller Cabinet $\qquad \qquad \qquad$
Select Serial Port USB@Port_#0002.Hub_#0001 V
Move Up         Move Down         Advanced C         Add Configuratio         Delete Configur         Rename File         Save the Chang
Sending Card Name Setting
Name
MovaStar
Rename Save to HW

- 1. Select Enable Naming.
- 2. Choose a sending card and click **Rename**.
- 3. Enter the new name that contains only letters, and click OK.
- 4. Click Save to HW.

# 8.7 Module ID Settings

## **Applications**

Set ID for the module containing a flash memory.

#### **Applicable Products**

The receiving cards that support module Flash or smart module



## **Prerequisites**

The Flash arrangement is completed as described in 5.8 Set Performance Parameters.

#### **Related Information**

Some modules do not support ID settings. For details, please contact NovaStar.

#### **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

- Step 2 Choose Tools > Module ID setting.
- Step 3 Click Refresh to view the module IDs.

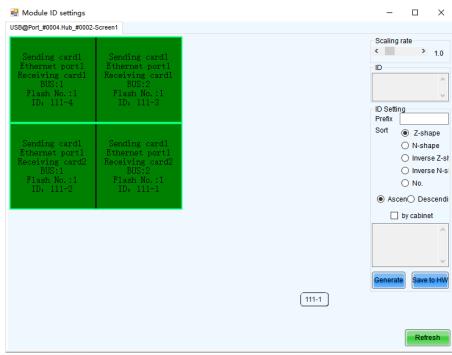
#### Figure 8-14 Viewing module IDs

🖶 Module ID settings		- 0
JSB@Port_#0003.Hub_#0001-Screen1		
Sending card1 Ethernet port1 Receiving card1 BUS:1 Flash No.:1 ID: 0-0	Sending card1 Ethernet port1 Receiving card2 BUS:1 Flash No.:1 ID: 1-0	Scaling rate

Step 4 Type "admin" to access the ID setting pane.



Figure 8-15 Setting module ID (regular screen)



#### Figure 8-16 Setting module ID (complex screen)

200	Port_#0004.	Hub_#0002	-Screen1										
St	Sendi	Outpu	Recei	BUS	X Coo	Y Coo	Width	Height	Flash No.	ID	]		
No	1	1	1	1	0	0	152	152	1	111-4			
٧o	1	1	1	2	152	0	152	152	1	111-3			
<b>١</b> ٥	1	1	2	1	0	0	152	152	1	111-2			
<b>١</b> ٥	1	1	2	2	152	0	152	152	1	111-1			
											ID Settin Prefix	g	
													cent
											Prefix	n() Des	

# Step 5 Select the ID generation method and then click **Generate** to set IDs for all the modules. When manually setting the ID, for regular screens, double click a single module and set its ID in the displayed dialog box, and then click **OK**; for complex screens, double-click the cell of ID column, set the ID and click any other place of the interface.

- Prefix: Set the prefix of the module ID.
- Sort: Select the sorting type for the module IDs.
  - Z-shape: Generate module IDs from left to right for all the rows from top to bottom. The ID format is "receiving card number-module number".
  - N-shape: Generate module IDs from bottom to top for all the columns from left to right. The ID format is *"receiving card number-module number"*.



- Inverse Z-shape: Generate module IDs from right to left for all the rows from top to bottom. The ID format
  is "receiving card number-module number".
- Inverse N-shape: Generate module IDs from top to bottom for all the columns from left to right. The ID format is "receiving card number-module number".
- No.: The ID format is "receiving card number-Flash number".
- Ascending: The module IDs are in ascending order.
- Descending: The module IDs are in descending order.
- By cabinet: Generate the IDs for all modules based on cabinets by Z type or N type, or number the modules by "sending card number-output port number-receiving card number-Flash number".

Step 6 After the settings are done, click Save to HW to save the configuration information to the hardware.

## 8.8 Set Device Communication Parameters

#### **Applications**

Configure the device's IP address and identify the device.

#### Applicable Products

The MCTRL700 Pro sending card

#### **Prerequisites**

None

#### **Related Information**

None.

#### **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

Step 2 Choose Tools > Device Communication

#### Figure 8-17 Device communication

	COM Port	Device	Sending Card	IP	Identif
] 10.4	40.40.111:	MCTRL700Pro	1	Set IP	

#### Step 3 Do the following as required.

Set device IP

Click Set IP and configure the device's IP address.

Identify device

After using the locate feature, the red light on the target device will flash, helping you easily spot it.

- To identify multiple devices: Select **Identify Device** and then choose the numbers of the devices you want to find.
- To identify a single device: Select Identify for the specific device you want to find.



# 8.9 Sending Card Relay Settings

## **Applications**

Set the status of the sending card relay to turn on or off the power of the receiving card.

#### **Applicable Products**

The KT8 sending card

#### **Prerequisites**

None

#### **Related Information**

When the relay is closed, the circuit is connected. When the relay is released, the circuit is disconnected.

#### **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

Step 2 Choose Tools > More > Sending Card Relay.

#### Figure 8-18 Sending card relay

💀 Sending Card Relay Switch			$\times$
Current Serial Port USB@Port_#0001.Hub_#0001 ~			
Sending Card List	Status	Operation	
Sending Card1	Disconnect	Start	

Step 3 Choose a communication port and a sending card.

Note: When the sending cards are cascaded, multiple sending cards are displayed in the list.

- Step 4 Check the relay status and perform the following operations as required.
  - Click Start to connect the circuit.
  - Click Stop to disconnect the circuit.

# 8.10 Optical Port Settings

#### Applications

When automatic pairing between two CVT10 devices fails, set the optical ports of those devices respectively to make pairing succeed.

#### Applicable Products

The CVT10 fiber converter

#### **Prerequisites**

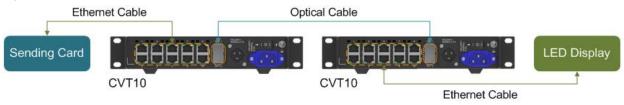
None



## **Related Information**

When the sending card has no optical ports, two CVT10 devices must be used for photoelectric conversion. The two CVT10 devices can pair automatically. After successful pairing, they can transmit data normally.

Figure 8-19 Photoelectric conversion between two CVT10 devices



#### **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

#### Step 2 Choose Tools > More > Optical Port Settings.

Figure 8-20 Optical port settings

•	Optical Port Sett	ings		×
	Current COM Port USB@Port_#0003.H		•	
	Function	Status	Operation	
	Optical port	Disable	Enable	

- Step 3 Choose a communication port.
- Step 4 Click Enable.

# 9 Screen Maintenance

# 9.1 Firmware Program Update

# **Applications**

Check the device firmware program version, and update the program.

#### **Applicable Products**

All receiving cards and sending cards

#### **Prerequisites**

The program update package is prepared.

## **Related Information**

In the Screen Configuration interface, click Program Update. In the popup window, you can either click Cloud Update to match and install the firmware package automatically, or select and load a package manually. Alternatively, you can click Local Update to load and install the firmware package from your computer.

Figure 9-1 Program update

		inter Court of					
Chip: Common C Size: 32W×16H Scanning Type 1/8 scan Direction: Horizontal Data Groups 2 Adjust RG Check M Cabinet Information © Regular Width (Pixel) 32 ÷ <=65 Width: ?? Height ?? Height (Pixel) 16 ÷ <=128 Width: ?? Height ?? Height (Pixel) 16 • Frogram Update Program Update Choose an upd Performance Settings Refresh Rate 480 v Grayscale Level Normal 4096 v Shift Clock Fre 125 v Phase Position 6 v Row Blanking 15 • Line Changing 3 • (0~12) Minimum OE W 160 ns	-		preen Connection				
Direction: Horizontal Data Groups 2 Adjust RG Check M Cabinet Information  Set Rotation  Pergular  Width (Pixel)  22  Cabinet Informance Settings Pergram Update Performance Settings Performance			C Size	32Wx16H	Scanning Type 1/	8 scan	
Set Rotation						0000	Check M
Set Rotation	Ochinat Informat						
Width (Pixel)       32 <ul> <li><li><li><li><li><li><li><li><li><li></li></li></li></li></li></li></li></li></li></li></ul>	Sabinet mormat	ion					Set Rotation
Height (Pixel) 16 + =128 Loading error Please http adjust pe Module Casc From Right to Left Program Update Program Update Adjust pe Performance Settings More Settings Choose an upd Choose an upd Cloud Update When connected to the network, auto the receiving card based c Phase Position 6 Row Blanking 15 Line Changing 3 Line Changing 3 Line Changing 160 ns	Regular	2. a.C. 22			O Irregular		
Height (Pixel) 16 + =128 Loading error Please http adjust pe Module Casc From Right to Left Program Update Program Update Adjust pe Performance Settings More Settings Choose an upd Choose an upd Cloud Update When connected to the network, auto the receiving card based c Phase Position 6 Row Blanking 15 Line Changing 3 Line Changing 3 Line Changing 160 ns	Width (Pixel)	32	€ <=65		Width: 22 Heigh	t: 22	
Module Casc       From Right to Left       Program Update       Image: Send Performance Settings         Performance Settings       More Settings       Choose an upd       Choose an upd       Image: Send Performance Settings         Refresh Rate       480       Image: Send Performance Settings       Send Performance Settings       Send Performance Settings         Shift Clock Fre       12.5       Image: Send Performance Settings       Image: Send Performance Settings         Phase Position       6       Image: Send Performance Settings       Image: Send Performance Settings         Row Blanking       15       Image: Send Performance Settings       Image: Send Performance Settings         Line Changing       3       Image: Send Performance Settings       Image: Send Performance Settings         Minimum OE W       160 ns       160 ns       Image: Send Performance Settings							
Performance Settings Data Group E. More Settings Refresh Rate 480 Grayscale Level Normal 4096 V Shift Clock Fre 12.5 V Phase Position 6 Row Blanking 15 (0~12) Minimum OE W 160 ns			Program U	pdate			
Pata Group E.       More Settings         Pata Group E.       More Settings         Refresh Rate       480         Grayscale Level       Normal 4096         Shift Clock Fre       12.5         Phase Position       6         Row Blanking       15         Line Changing       3         Minimum OE W       160 ns	module Cast	From Ri	-			abinet	
Data Group E.       More Settings         Refresh Rate       480         Grayscale Level       Normal 4096         Shift Clock Fre       12.5         Phase Position       6         Row Blanking       15         Line Changing       3         Winimum OE W       160 ns	erformance Se	tinge	Choose an	upd			
Shift Clock Fre 12.5 Phase Position 6 Row Blanking 15 Line Changing 3 Winimum OE w 160 ns				the receiv	ving card based o		^
Phase Position 6 Row Blanking 15 Line Changing 3 Winimum OE w 160 ns	Grayscale Leve	Normal 40	096 ~				
Row Blanking 15 Line Changing 3 Minimum OE w 160 ns			V Local U	pdate Load firm	ware package locall	) %	
Line Changing 3 (0~12) Minimum OE w 160 ns	Shift Clock Fre.	12.0					
Minimum OE w 160 ns			~				
	Phase Position	6		2	22		
Brightness Eff 68.96%	Phase Position Row Blanking .	6 15	÷				
	Phase Position Row Blanking . Line Changing	6 15 3	÷				
	Phase Position Row Blanking . Line Changing Minimum OE w	6 15 3	÷				~
	Phase Position Row Blanking . Line Changing Minimum OE w Brightness Effi.	6 15 3 160 ns 68.96%	÷ (0~12)				v
Smart Settings Select Program Load from. Load from. Save to File Read from Re Send to Recei	Phase Position Row Blanking . Line Changing Minimum OE w Brightness Effi.	6 15 3 160 ns 68.96%	÷ (0~12)	(	Load from. Save I	o File Read from	× Re.) Send to Recei.
	Phase Position Row Blanking . Line Changing Minimum OE w Brightness Effi.	6 15 3 160 ns 68.96% 3 Select Pro	÷ (0~12)	(	Load from. Save I	o File Read from	
	Phase Position Row Blanking . Line Changing Minimum OE w Brightness Effi.	6 15 3 160 ns 68.96% 3 Select Pro	€ (0~12)		Load from. Save t	to File Read from	Re. Send to Recei. Restore Facto

## **Operating Procedure**

Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Login.

The default password is "admin".

Step 2 Click Program Update, or type "admin" or "123456" to open the program loading window as shown in Figure 9-2.

				vice accessed					
rogram loading									
Select the comm	nunication por	for operation -							
Communication						Device q.	0	6	Reconnec
for the current of	perati					. Device q.	0	(	(cconnee
Program updatin	g								
Program Pat								В	rowse
Advanced	Multi-select	COM Ports							Jpdate
Extend the opera		000000							
Extend the opera	tion item								
Read-back of rec	ei								
			Outp	1	Recei	1	Refres		Refresh
			Outp	1	Recei	1	Refres		Refresh
			Outp	1 🗘	Recei	1	Refres		Refresh
			Outp	1	Recei	1 .	Refres		Refresh
ardware Program I Refres O F			Outp	1	Recei	1	Refres		Refresh
			Outp	1	Recei	1	Refres		Refresh
			Outp	1	Recei	1 .	Refres		Refresh
			Outp	1	Recei	1 .	Refres		Refresh
Refres O F	Refres Se		Dutp	1	Recei	1	Refres		Refresh
Refres O F	Refres Se		Dutp		Recei	1	Refres		Refresh
	Refres Se		Dutp		Recei	1	Refres		Refresh

Step 3 Choose a communication port.

If you need to reconnect the sending card, click Reconnect.

- Step 4 Specify the viewing range and click Refresh to view the current program version of the hardware.
  - Refresh All: View the program versions of all the sending cards and receiving cards.
  - Refresh Specified: View the program versions of the specified sending cards and receiving cards. If the module has an MCU, select **Refresh Module MCU** to view the MCU version.

Figure 9-3 Viewing program version

Hardware Program Version Information	
● Refres ○ Refres Sendi 1 🔄 Outp 1 荣 Recei 1 荣 🗌 Refres	Refresh
- Hardware program version information	
□ Sending Card	

Step 5 Click **Browse**, select a program package, and click **OK**. If you select an integrated firmware package for the receiving card (which includes firmware for multiple receiving cards), follow these steps:

In the **Update Program** interface, select the appropriate driver IC and decoding method based on your actual requirements, then either match the package file automatically or choose it manually, and click **Update**.

Auto match: Select **Auto Match**, and the software will automatically select the appropriate package file based on the receiving card model, and the specified driver IC and decoding method.

- Manual selection: Unselect the Auto Match, and manually choose the required package file from the list.

Update Program	1. SP		1	×
Integrated Pa	ckage			
Integrated	Group_HUB75E_V1.2.3.0.zip			
Select Chip				
Driver IC:	MBI5050 V Browse	Decodin	5953 Decoding	Browse
Program P	DATA_MRV416_V4.9.0.0			🗌 Auto Match
		Integrated Packs	age	
		DATA_MRV412_V4.9.	0. 0	
	$\checkmark$	DATA_MRV416_V4.9.	0.0	
100				- Sec
	2		3.011.031	
			Update	Cancel

- Step 6 Click Advanced, select the items to be updated, and click OK.
- Step 7 Click Update.
- Step 8 Set to update the programs of all receiving cards or the specified receiving card, and then click OK.

#### Figure 9-4 Selecting send mode

🖳 Select a send mode	×
All receiving cards	
<ul> <li>Specified receiving c</li> </ul>	ard
Sending card	1
Ethernet port:	1
Receiving card:	1
ок	Cancel
Specified broadcast data ope	erating tips:
Broadcast corrsponding valu	es: sending card(256); Et 📀

Step 9 After the programs are updated successfully, click **OK**.

#### Note

If the receiving card supports program readback, click **Read-back of receiving card program** to save the receiving card program to a specified location.

## 9.2 LED Error Detection

## **Applications**

Detect the damaged LED lights and locate them on the screen. www.novastar.tech



# Applicable Products

- Use monitoring card for Led error detection: Applicable to the MRV320 and MRV560 receiving cards
- Use smart module for Led error detection: Applicable to the A4, A4s, A5, A5s, A5s Plus, A7, A7s, A7s Plus, A8, A8s, A9s, A10s Plus, XC200, XC100 and B4s receiving cards. The smart module Led error detection function is a customized function of the receiving cards.

## **Prerequisites**

- The module driver chip must be support LED error detection.
- If you want to use the Led error detection function of the monitoring card, the module driver chip must support 1/16 scan or below, and the MON300 monitoring card is required between the connection of module and the MRV320 or MRV560.

#### **Related Information**

None

#### **Operating Procedure**

Step 1 On the menu bar, choose **Tools** > Led Error Detection.

#### Figure 9-5 Led error detection

ed Error Detection								×
Communication Port Sele	10 million 10							
Communication Port	192.168.0.10:5200	~						
Screen1								
Screen Topological Diag	ram							
						Zoom		
						^		
						Y 1.1	0	
						t	Jnknow	m
							rror	
							Jormal	
							lo Moni	to
								10
Led Corres Data Mars Data								
Led Error Detection Para								
Detection Type	Open Circuit an	d Short Circuit Detectior	1					
Threshold Voltage	1	O 2	О з	○ 4				
Current Gain	🗹 Enable	<u>Change Setting</u>						
Bi-Color LED Error	🔲 Enable							
		Save Confi	Conduct led.	Led error d	Pause		Stop	
		L					accession and	
								×
								_
								1
Information								

- Step 2 Choose a communication port.
- Step 3 Set Led error detection parameters.
  - Detection Type: The detection types supported by the driver chip
  - Threshold Voltage: The threshold voltage of the driver chip, which can be set based on the information provided by the screen manufacturer
  - Current Gain: Select whether to enable the current gain function. Click Change Setting to adjust the current gain.
  - Bi-Color LED Error: Select whether to detect only the red and green LED lights.
- Step 4 Click **Conduct led error detection for full screen**, or select a cabinet on the screen topological diagram and click **Led error detection selection**.
- Step 5 After the detection is done, click **OK**.



ed Error Detection					- O >
Communication Port Sele	ection				
Communication Port	192.168.0.10:5200	~			
Screen1					
Screen Topological Diag	gram				
24552					Zoom
					Unknown Error Normal No Monito
Led Error Detection Para	ameters				
Detection Type	Open Circuit an	d Short Circuit Detection			
Threshold Voltage	O 1	O 2	O 3	4	
Current Gain	🗹 Enable	Change Setting			
Bi-Color LED Error	🔲 Enable				
Bi-Color LED Error	Enable	Save Confi	Conduct led.	Led error d	Pause Stop
Bi-Color LED Error	Enable	Save Confi	Conduct led.	Led error d	
		Save Confi		Led error d	Pause Stop
2019-11-08 05:16:038c	reen1:Led error deter	(	please wait		

Figure 9-6 Result of the Led error detection for the whole screen

The number displayed on the topological diagram indicates the number of the faulty LED lights. Hover the mouse over the topological diagram to view the detailed Led error detection information.

Step 6 Double click a cabinet in the topological diagram to access the interface shown in Figure 9-7.



Figure 9-7 Result of the Led error detection for all the modules

Step 7 Select a red module, and select **Red A**, **Green**, **Blue** or **Red B** (virtual red) on the right to view the faulty LED lights which are shown in black.

# 9.3 Reset Run Time

#### **Applications**

Reset the receiving card run time displayed on each cabinet LCD.



# **Applicable Products**

All receiving cards

#### **Prerequisites**

None

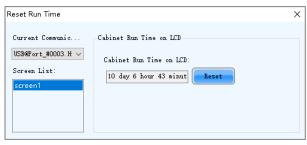
## **Related Information**

The run time is stored in the receiving card and displayed on the cabinet LCD.

#### **Operating Procedure**

Step 1 On the menu bar, choose Tools > More > Reset Run Time.

#### Figure 9-8 Resetting run time



Step 2 Choose a communication port and a screen.

Step 3 Click Reset.

# 9.4 Bit Error Detection

## **Applications**

Check the bit error rate information and signal-to-noise ratio of the receiving card's Ethernet port communication.

## Applicable Products

- Error rate detection: Applicable to all receiving cards.
- Ethernet disconnection count: Applicable to A10s Pro.
- Signal-to-noise ratio detection: Applicable to A10s Pro.

#### **Prerequisites**

None

#### **Related Information**

None

#### **Operating Procedure**

- Step 1 On the menu bar, choose **Tools** > **More** > **Bit Error Detection.**
- Step 2 Navigate to the Error Rate Info tab and then click Manually as shown in Figure 9-9.

Error Detection							-	
vice All	Auto Refr	esh 1 🜩 Min Manually	7				C	lear
□- 10. 40. 40. 111:5200 Sending card1	Error Rate ]	Info Signal-to-Noise Ratio	_					
USB@Port_#0010.Hub_#	Status	Sending card	Ethernet Port	Beceiving Card	Error Details	No. of Jisconnections	Locate	Clea Error
	$\odot$	10.40.40.111:5200-Sending card1	Port1	Receiving card1	Detection not supported	1	Locate	Clear Error
	$\odot$	USB@Port_#0010.Hub_#0001-Sending card1	Port2	Receiving card1	Detection not supported	1	Locate	Clear Error

#### Figure 9-9 Bit error detection

- Step 3 If the communication is abnormal, perform any of the following operations as required. If the communication is normal, skip this step.
  - View error details

Click the link in the Error Details column and view the detailed error information in the displayed dialog box.

Locate display area

Click Locate to view the display area on the screen.

Clear errors

Click Clear Errors to reset the error quantity to 0.

- Step 4 If the receiving card model is A10s Pro, navigate to the **Signal-to-Noise Ratio** tab, click **Manually**, and then check the detection results. If you're using a different receiving card model, you can skip this step.
- Step 5 (Optional) Select Auto Refresh and set the refreshing period.

## 9.5 View Hardware Information

#### **Applications**

Set the current time of the hardware, and view the sending card SNs and hardware program version information.

#### Applicable Products

All receiving cards and sending cards

#### **Prerequisites**

None

#### **Related Information**

Currently only hour, minute and second can be set, but the date cannot be set.

#### **Operating Procedure**

Step 1 On the menu bar, choose Settings > Hardware Information.



#### Figure 9-10 Hardware information

Hardware Information			-		×
Time					
Current Time of Hardware	12/04/2019 17:02:42	Read	Set		
Select the Communication F	Port				
Current Operation C	USB@Port_#0003.Hub_#0001			~	
SN Number of Sending Car	d				
Serial Number	SN Number				
▶ 1	1205-1000-8002-0000 (18-5-2	8-0-640)			
				Reread	
Hardware Program Version	Information				
● Refres ○ Refres	Sendi 1 🖨 Outp 1	Recei 1	Refres	Refre	esh
Information Console					
				Cle	ar

Step 2 Choose a communication port.

After a communication port is selected, the current hardware time will be refreshed automatically. You can also click **Read** to manually update the hardware time.

- Step 3 If you want to set the current time of the sending card to that of the computer, click Set; otherwise, skip this step.
- Step 4 Click **Reread** to view the sending card SNs.
- Step 5 Specify the refreshing range, and click **Refresh** to view the current program version of the hardware.
  - Refresh All: View the program versions of all sending cards and receiving cards.
  - Refresh Specified: View the program versions of the specified sending cards and receiving cards.

If the module has an MCU, select Refresh Module MCU to view the MCU version.

#### Hardware Information $\times$ \_ Time Current Time of Hardware 12/04/2019 17:02:42 Read Set Select the Communication Port-Current Operation C... USB@Port\_#0003.Hub\_#0001 ~ SN Number of Sending Card Serial Number SN Number 1205-1C00-8002-0000 (18-5-28-0-640) Reread Hardware Program Version Information ● Refres... 〇 Refres... Sendi... 1 🖨 Outp... 1 🖨 Recei... 1 Refres.. Refresh **-**--🖕 Sending Card Sending Card MCU • V1.2.4.0 Total1, Remarks: 2019.07.04 MCTRL4K V1.2.4.0 STD E- Sending Card FPGA + V1.2.4.0 Total1, Remarks: 2019.07.04 MCTRL4K V1.2.4.0 STD - Receiving Card Information Console 2019/12/4 17:04:57--Sending Card1 Read sending card program version Succeeded 2019/12/4 17:04:57--Sending Card1 Output port1 Receiving Card1 Read receiving card FPGA version Succeeded 2019/12/4 17:04:57--Sending Card1 Output port1 Receiving Card1 Read receiving card MCU version Succeeded Clear

#### Figure 9-11 Viewing program version

# 9.6 Set Cabinet Dehumidification

#### **Applications**

Dehumidify the cabinet that has been stored for a prolonged period or left unpowered for an extended duration.

#### Applicable Products

All receiving cards and the sending card MCTRL4K

#### Prerequisites

None

#### Related Information

None

## **Operating Procedure**

On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click Step 1 Login.

The default password is "admin".

- Step 2 Select Settings > Cabinet Dehumidification.
- Step 3 Select a communication port and click Next.



Figure 9-12 Select the communication port

💀 Cabinet Dehum	idification	×
Select communicat	ion port	
Current port	USB@Port_#0003.Hub_#0001 ~	
Next	Close	

Step 4 Toggle on the Cabinet Dehumidification switch (

#### Figure 9-13 Cabinet dehumidification

inet Dehumidification X														
bin (		) E												
Dehumid	difi	cation (	Strates	v										
													1	1
				Dura	tion (m	nin) B	rightne	ess (%)			Power-off Time	Display Con	Action	
۲	0	10	1	20	2	50	3	75 4	100	5	≥ 3	White Sc	<u>Edit</u>	
0	0	10	240	20	480	50	600	75	100	840	> 7	White Sc	Edit	
0		10	360	20	720	50	900	75	100	1260	≥ 30	White Sc	<u>Edit</u>	
0		10	480	20	960	50	1200	75	100 140	1680	≥ 45	White Sc	<u>Edit</u>	
0		10	600	20	1200	50	1500	75	100	2100	≥ 60	White Sc	Edit	
Execution  © On next power-on: O On power-on O Execu Strategy Based on cabin														
Notes			-						nly upon very pow		power-on.			
					art den art deh				very pow	er-on.				
									the nex	t τower-o	n of the sending card, a	ntomatically select	a dehumidification	
					-	-		-		-	e sending card is in fib	-		
												OK	Cancel	

Step 5 Click Edit. In the pop-up dialog box, set the dehumidification strategy and click OK.

Figure 9-14 Set dehumidification strategy

Set Dehumidific	ation Strategy	×
Bright	10 20 50 75	100
Duration		5
Power-off	≥ 3 d	
Display	White Sor 🗸	
	ОК	Cancel

- Brightness: The corresponding screen brightness when the dehumidification duration reaches a certain range.
- Duration: Duration for dehumidification.

- Power-off Time: The duration of the sending card power-off time.
- Display Content: The displayed content on the screen during the dehumidification.
  - White Screen: Display a white screen.
  - From Input: Display the current video source.
- Step 6 Select a dehumidification strategy and then select an execution mode.
  - On next power-on: If **Based on sending card power-off time** is not selected, the screen will enter the dehumidification mode upon the next power-on, based on the user-selected strategy. If **Based on sending card power-off time** is selected, the screen will automatically match the dehumidification strategy based on the duration of the sending card power-off time, and enter the dehumidification mode upon the next power-on.
  - On power-on: If **Based on sending card power-off time** is not selected, the screen will enter the dehumidification mode upon each power-on, based on the user-selected strategy. If **Based on sending card power-off time** is selected, the screen will automatically match the dehumidification strategy based on the duration of the sending card power-off time, and enter the dehumidification mode upon each power-on.
  - Execute now: Start dehumidification now.
- Step 7 Click **OK** once you are done.

# 10 Plug-in

# 10.1 Test Tool

## **Applications**

Show test patterns on the screen to assess the screen's functionality and pinpoint any potential issues.

## **Applicable Products**

All receiving cards and sending cards

## **Prerequisites**

When the display window is large, it is recommended you use an extended display to display the test pattern for easier operation of the software.

## **Related Information**

None

## **Operating Procedure**

#### Note

You can choose to use either the old or new version of Test Tool via **Settings** > **Test Tool Settings** in the menu bar.

~~~

Click Test Tool or choose Plug-in > Test Tool from the menu bar to open Test Tool.

- For more detailed instructions on the new version of Test Tool, please refer to Test Tool User Manual.
- For the old version of Test Tool, you could adjust the test pattern size based on the screen size, as well as modify the test pattern position, and show/hide the test pattern in the **Window** tab. Additionally, you could customize the test pattern further in the **Pure Color**, **Gradual Change**, **Grid**, and **Orientation** tabs.

# 10.2 Calculator

#### **Applications**

Open the Windows calculator for users to do the necessary calculations.

#### **Applicable Products**

N/A

#### **Prerequisites**

None

#### **Related Information**

None

#### **Operating Procedure**

On the menu bar, choose **Plug-in** > **Calculator** to open the Windows calculator.

# 10.3 External Program

## **Applications**

Add the shortcut icons for the commonly-used programs to NovaLCT user interface.

## **Applicable Products**

N/A

#### **Prerequisites**

None

## **Related Information**

None

#### **Operating Procedure**

Step 1 On the menu bar, choose Plug-in > External Program.

| Figure 10-1 External program |         |  |    |        |   |  |
|------------------------------|---------|--|----|--------|---|--|
| External                     | Program |  |    |        | x |  |
| Common                       |         |  |    |        |   |  |
|                              |         |  |    |        |   |  |
|                              |         |  |    |        |   |  |
|                              |         |  |    |        |   |  |
|                              |         |  |    |        |   |  |
|                              |         |  |    |        |   |  |
|                              |         |  |    |        |   |  |
|                              |         |  |    |        |   |  |
|                              |         |  |    |        |   |  |
| <b>-</b>                     | ×       |  | ок | Cancel |   |  |

Step 2 Click

Figure 10-2 Adding external programs

| Add External Program | x      |
|----------------------|--------|
|                      |        |
| Program P            |        |
| Command              |        |
| ОК                   | Cancel |

Step 3 Select the program path and enter the command line parameter as required, and then click **OK**.

If the external program is successfully added, the shortcut icon of the program will be displayed in Figure 10-1.

Notes

Select an external program icon and click 🐱 to remove the program.

Step 4 Click OK.



# **11** Software Settings

# 11.1 Configuration Information Management

# **Applications**

Import and export the NovaLCT configuration files for quick configuration in NovaLCT.

## **Applicable Products**

N/A

## **Prerequisites**

None

## **Related Information**

None

# **Operating Procedure**

Step 1 On the menu bar, choose Settings > Configure Information Management.

#### Figure 11-1 Configuration file management



#### Step 2 Do the following as required.

- Import Configuration File
   Click Import Configuration, browse for the configuration file (.zip), and click Open.
- Export Configuration File

Click Export Configuration, choose a save path, enter the file name, and then click Save.

# 11.2 Set Main Window Starting Position

## **Applications**

Set the coordinates of the top-left corner of the main window of NovaLCT on the desktop, and make the window display in the specified position when the software is started.

## **Applicable Products**

N/A

## **Prerequisites**

None

## **Related Information**

None



## **Operating Procedure**

Step 1 On the menu bar, choose Settings > The Main Window Starting Position.

Figure 11-2 Setting starting position coordinates

| Starting Position Set | ting   | Х |
|-----------------------|--------|---|
| X Coordinates         | 780    |   |
| Y Coordinates         | 56     |   |
| ОК                    | Cancel |   |

Step 2 Set the coordinates of the top-left corner of the main window on the desktop, and click **OK**.

After the settings are done, the main window moves to the specified position. When next time NovaLCT is started, the main window will be displayed in the target position.

# 11.3 Configure the Save Function

#### **Applications**

Configure the Save function that is in the Screen Configuration dialog box.

#### **Applicable Products**

All receiving cards and sending cards

#### **Prerequisites**

None

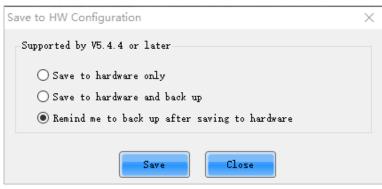
#### **Related Information**

None

#### **Operating Procedure**

- Step 1 On the menu bar, choose Settings > Screen Configuration Backup Settings.
- Step 2 Select an option and click **Save**.

#### Figure 11-3 Save to HW configuration



# 11.4 Cloud Server Configuration

## **Applications**

Configure the cloud server address to VNNOX Care or a custom domain name. The custom domain can only be used to restore the configuration file from the cloud when setting up the screen and does not support other cloud-based functions.

## **Applicable Products**

All receiving cards and sending cards.

#### **Prerequisites**

To configure the server address as a custom domain name, you need to have an available domain.

#### **Related Information**

None

#### **Operating Procedure**

Step 1 On the menu bar, choose Settings > Server Configuration.

Figure 11-4 Server configuration

| Server Configuration   |    | ×      |
|------------------------|----|--------|
| Select server address: |    |        |
| VNNOX Care             |    |        |
| 🔘 Custom domain name   |    |        |
|                        |    |        |
|                        | OK | Cancel |

Step 2 Select VNNOX Care or select Custom domain name and enter you domain name.

- Step 3 Click OK once you are done.
- Step 4 Restart the NovaLCT for the change to take effect.

# 11.5 Test Tool Settings

#### **Applications**

You can choose to use either the old or new version of Test Tool.

## **Applicable Products**

All receiving cards and sending cards.

#### **Prerequisites**

None

#### **Related Information**

The Test Tool is for displaying test patterns on the screen.



## **Operating Procedure**

Step 1 On the menu bar, choose Settings > Test Tool Settings.

# 

Step 2 Select a version for the Test Tool and click Save.

# 11.6 Change UI Language

#### **Applications**

Change the UI language for NovaLCT.

#### **Applicable Products**

N/A

#### **Prerequisites**

None

#### **Related Information**

NovaLCT supports Deutsch, English, Spanish, French, Japanese, Korean, Portuguese, Russian, Thai language, Traditional Chinese and Simplified Chinese.

#### **Operating Procedure**

On the menu bar, choose Language and select the target language from the sub-menu.

## 11.7 Obtain Help Information

#### **Applications**

Check the user manuals, update log and software information of the current version of NovaLCT, and contact online customer service.

#### Applicable Products

N/A

#### **Prerequisites**

None

#### **Related Information**

None



## **Operating Procedure**

Choose Help from the menu bar and do the corresponding operations below as needed.

Check User Manuals

Choose User Documents and select the desired user manual.

View Update Log

Choose Update Log to view the update log in the displayed dialog box.

• View Software Information

Choose **About** to view the software version and copyright information in the displayed dialog box. If needed, click the link to visit the official website of NovaStar.

#### Contact online customer service

Choose Online Support. On the displayed page, chat with the customer service online.

## 11.8 Update Software

## **Applications**

When the Internet is available, download the NovaLCT update package from the cloud and install it.

#### **Applicable Products**

N/A

#### **Prerequisites**

The control computer is connected to the Internet.

## **Related Information**

None

#### **Operating Procedure**

Step 1 From the menu bar, choose Help > Online Update.

#### Notes

If NovaLCT is not up to date, after NovaLCT is opened, an "Online Update" dialog will be displayed.

If there is an available new version, an 😑 icon is displayed in front of the **Online Update** menu name.

#### Figure 11-6 Online update

| Online Update     |                                  | $-\times$ |
|-------------------|----------------------------------|-----------|
|                   |                                  |           |
|                   |                                  |           |
| A new v           | ersion is available. Update now? |           |
|                   |                                  |           |
|                   |                                  |           |
|                   | ОК                               | Close     |
| Do not show again |                                  |           |

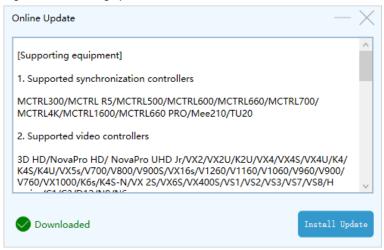
Step 2 Click **OK**. www.novastar.tech



#### Step 3 Click Get Update.

Step 4 After the update package is downloaded, click Install Update and wait for it to complete.

#### Figure 11-7 Installing update



# 11.9 Export Log

#### **Applications**

Export the logs of NovaLCT.

#### **Applicable Products**

N/A

#### **Prerequisites**

None

#### **Related Information**

None

#### **Operating Procedure**

On the menu bar, choose Help > Export Log. On the pop-up window, choose a save path and click OK.

# **12** Troubleshooting

# 12.1 Installation Problems

## 12.1.1 Failed to install NovaLCT of earlier versions

## **Problem**

The installation of NovaLCT fails when the version to be installed is earlier than the current version.

## Possible Causes

None.

## **Solution**

Uninstall the current version, and then install the earlier one.

#### 12.1.2 .NET Framework is missing

#### **Problem**

When installing NovaLCT, you run into a system prompt like "To run this application, you must first install one of the following versions of the .NET Framework." (This typically appears on computers that have not previously installed NovaLCT.)

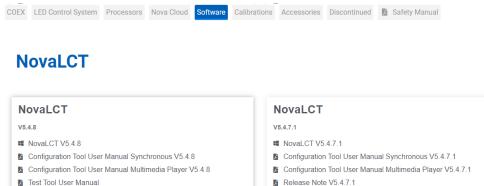
#### **Possible Causes**

The required .NET Framework version is missing on the computer where NovaLCT is installed.

#### Solution

Visit NovStar's official website (www.novastar.tech) and download the required .NET Framework. Download path: Downloads > Software > Framework

#### Figure 12-1 Download .NET Framework



- Release Note V5.4.7.1
  - framework @ Driver

S framework Driver

Release Note V5.4.8

# 12.1.3 "DeleteFile failed" error

#### **Problem**

When installing NovaLCT, you run into a system prompt like "An error occurred while trying to replace the existing file. DeleteFile failed with code 5. Access denied."



## Possible Causes

The monitoring daemon is still running after shutting down NovaLCT, causing some files to be unable to be deleted.

#### Solution

Open the task manager, right-click on "MonitorDaemon", select "End task" from the pop-up menu, then click "Retry" to proceed with the installation of NovaLCT.

#### Figure 12-2 Task manager

| Processes     | Performance      | App history | Startup | Users | Details | Services |            |          |          |   |
|---------------|------------------|-------------|---------|-------|---------|----------|------------|----------|----------|---|
|               | ^                |             |         |       |         | 179      | 6 95%      | 7%       | 0%       |   |
| Name          |                  |             | Statu   | IS    |         | CP       | U Memory   | Disk     | Network  |   |
| Apps (5)      | )                |             |         |       |         |          |            |          |          | ^ |
| > 🔳 Mo        | onitorDaemon     |             |         |       |         | 0.25     | % 8.9 MB   | 0 MB/s   | 0 Mbps   |   |
| > <u> </u> No | vaLCT (32 bit) ( | (3)         |         |       |         | 09       | % 127.8 MB | 0.1 MB/s | 0.1 Mbps |   |

#### 12.1.4 Prompts to run DPinst.exe

#### Problem

At the end of the installation process for NovaLCT, when starting the installation of the driver, you run into a system prompt like "You need to run the 64-bit version of DPinst.exe on this computer. Please contact the software developer who provided you with this software package." (This typically appears on computers that have not previously installed NovaLCT.)

#### Possible Causes

The required driver is missing on the computer where NovaLCT is installed.

## **Solution**

Proceed with the installation disregarding the issue at hand. Once completed, test if NovaLCT is able to connect to the device via the USB cable.

- If you are able to connect to the device with no issue, there is no need for any further action as NovaLCT can be used as intended.
- If you are unable to connect to the device, visit NovStar's official website (www.novastar.tech) and download the
  required driver. Please contact NovaStar if the problem persists after installing the driver.

Download path: Downloads > Software > Driver

#### Figure 12-3 Download driver

COEX LED Control System Processors Nova Cloud Software Calibrations Accessories Discontinued 🖪 Safety Manual







NovaLCT LED Configuration Tool for Synchronous Control System User Manual

# 12.2 Other Problems

## 12.2.1 "No Screen" displayed in NovaLCT

#### **Problem**

|          | t(No Hardware) | 2 |
|----------|----------------|---|
| Screen 1 |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          | No Screen      |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |
|          |                |   |

## **Possible Causes**

Failed to read screen configuration or no screen has been configured.

## **Solution**

- If the LED screen has been configured already, click Screen Configuration and select the Screen Connection tab, and then click Read from HW to read the configurations from the LED screen.
- If the screen has not been configured yet, configure it first. •

#### 12.2.2 Permission error

#### **Problem**

After NovaLCT is installed on the system disk of the computer that runs Windows 8 or later version, some functions in NovaLCT cannot work normally.

#### **Possible Causes**

File permission denied.

## **Solution**

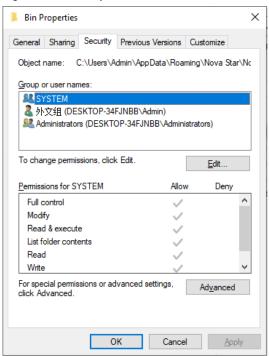
Here, we use Windows 10 as an example to illustrate how to solve this problem.

Right click the desktop shortcut of NovaLCT and select Open file location. Step 1



- Step 2 Go back to the upper level of current file directory, that is, "\Nova Star\NovaLCT".
- Step 3 Right click the **Bin** folder and select **Properties**.
- Step 4 Select the Security tab.

#### Figure 12-5 Security



Step 5 Check whether there is current user or Everyone in the Group or user names area.

- Yes: Go to Step 11.
- No: Go to Step 6.
- Step 6 Click Edit to open the dialog box shown in Figure 12-6.

#### Figure 12-6 Changing permissions

| Permissions for Bin                                      |              |                |  |  |  |
|----------------------------------------------------------|--------------|----------------|--|--|--|
| Security                                                 |              |                |  |  |  |
| Object name: C:\Users\Admin\AppData\Roaming\Nova Star\Nc |              |                |  |  |  |
| Group or user names:                                     |              |                |  |  |  |
| ¥\$\$Y\$TEM<br>多                                         |              |                |  |  |  |
| L                                                        | A <u>d</u> d | <u>R</u> emove |  |  |  |
| Permissions for SYSTEM                                   | Allow        | Deny           |  |  |  |
| Full control                                             | ~            | □ <u>^</u>     |  |  |  |
| Modify                                                   | $\checkmark$ |                |  |  |  |
| Read & execute                                           | ~            |                |  |  |  |
| List folder contents                                     | $\checkmark$ |                |  |  |  |
| Read                                                     | $\checkmark$ |                |  |  |  |
|                                                          |              |                |  |  |  |
|                                                          |              |                |  |  |  |

Step 7 Click Add to open the dialog box shown in Figure 12-7.



Figure 12-7 Selecting users or groups

| Select Users or Groups                                | ×            |
|-------------------------------------------------------|--------------|
| Select this object type:                              |              |
| Users, Groups, or Built-in security principals        | Object Types |
| From this location:                                   |              |
| DESKTOP-34FJNBB                                       | Locations    |
| Enter the object names to select ( <u>examples</u> ): |              |
|                                                       | Check Names  |
|                                                       |              |
| <u>A</u> dvanced OK                                   | Cancel       |

Step 8 Click Advanced to open the dialog box shown in Figure 12-8, and click Find Now.

Figure 12-8 Advanced settings

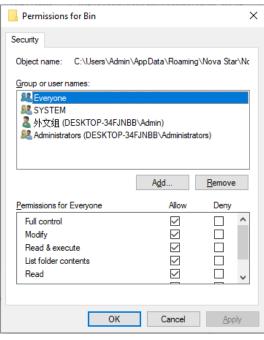
|                              | -                            |   |            |                |
|------------------------------|------------------------------|---|------------|----------------|
| Select Users or Groups       |                              |   |            | >              |
| Select this object type:     |                              |   |            |                |
| Users, Groups, or Built-in   | Object Types                 |   |            |                |
| From this location:          |                              |   |            |                |
| DESKTOP-34FJNBB              |                              |   | Locations  |                |
| Common Queries               |                              |   |            |                |
| Name: Starts                 | with $ \sim $                |   | <u>C</u> o | lumns          |
| Description: Starts          | with $ \smallsetminus $      |   | Fir        | nd <u>N</u> ow |
| Disabled accounts            | 3                            |   |            | Stop           |
| Non expiring pass            | word                         |   |            |                |
| Days since last logon        | $\sim$                       |   | 3          | P/             |
|                              |                              | Г | ок с       | Cancel         |
| Search res <u>u</u> lts:     |                              |   |            |                |
| lame                         | In Folder                    |   |            |                |
| Access Control Assi<br>Admin | DESKTOP-34FJ<br>DESKTOP-34FJ |   |            |                |
| Administrator                | DESKTOP-34FJ                 |   |            |                |
| Administrators               | DESKTOP-34FJ                 |   |            |                |
| ALL APPLICATION              |                              |   |            |                |
| ANONYMOUS LO                 |                              |   |            |                |
| Authenticated Users          |                              |   |            |                |
| Backup Operators             | DESKTOP-34FJ                 |   |            |                |

Step 9 Select current user or Everyone in the search result, and click OK.

#### Step 10 Click OK.

Step 11 Select all for the Allow column and click OK.

Figure 12-9 Setting permissions



Step 12 Click **OK** and close the properties dialog box.

#### 12.2.3 Failed to connect colorimeter

#### **Problem**

The colorimeter connection fails when the colorimeter is used to automatically measure the original color space of the screen.

## Possible Causes

- The colorimeter connection is abnormal.
- The model of the colorimeter selected is incorrect.

## **Solution**

Step 1 Check whether the hardware connection of the colorimeter is normal.

When the colorimeter model is CS-100A, follow the subsequent descriptions to make sure the colorimeter auto mode is turned on.

Turning on auto mode: Set switch to ON while pressing the F button. When you see a C letter on the LCD, the auto mode is turned on, which is shown in Figure 12-10.

Figure 12-10 Setting CS-100A colorimeter





- Abnormal: Reconnect the colorimeter and make sure the colorimeter can work normally.
- Check whether the colorimeter model selected in NovaLCT is correct.
- Correct: Go to Step 2.
- Incorrect: Select the correct model.
- Step 2 In NovaLCT, click Connect to reconnect the colorimeter.

## 12.2.4 No available server for VNNOX Care

#### **Problem**

No available server from the dropdown list for VNNOX Care services.

#### Figure 12-11 VNNOX Care services

| Screen Registration |                            | × |
|---------------------|----------------------------|---|
| Server              | `                          | ] |
| Enter User          | Entwined                   |   |
| Password            |                            |   |
| Screen              | 192.168.1.64:5200-Screen 1 |   |
|                     |                            |   |
|                     |                            |   |
|                     |                            |   |
|                     |                            |   |
|                     |                            |   |
|                     | Register                   |   |

#### Possible Causes

The network or antivirus software may be the cause of the issue.

#### **Solution**

You can try the following methods to resolve this issue:

- Disable your computer's firewall or your company's network firewall and try again. Or try from a different computer if the problem persists.
- Uninstall the antivirus software (release the quarantined files) and reinstall NovaLCT.

# 13 FAQs

# 13.1 How do I set the proxy when NovaLCT needs to access WAN network?

# **Question**

When NovaLCT in LAN network needs to access WAN network, how to set the proxy?

## <u>Answer</u>

Step 1 On the taskbar, right click and choose System Setting.

#### Figure 13-1 Setting proxy

| System Setting | ×          |
|----------------|------------|
| 🗌 Enable Proxy | Test Proxy |
| Proxy Address  |            |
| Proxy Port 0   |            |
| Setting        | Close      |

- Step 2 Select Enable Proxy.
- Step 3 Enter the proxy address and port.
- Step 4 Click Test Proxy.
- Step 5 After the test succeeds, click **Setting**.

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