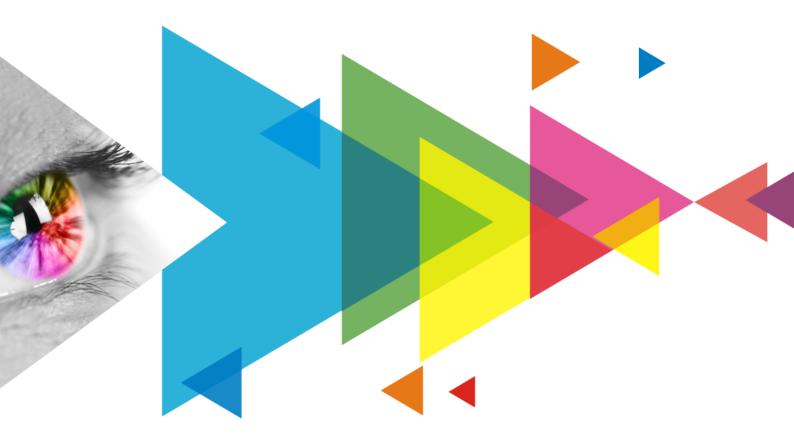


# NovaLCT

# 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.

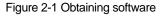
#### Efficient configuration

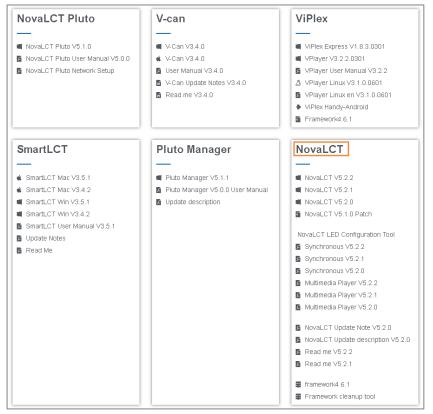
After the PC and control system product are connected, users can perform any operations with the PC. NovaLCT displays the corresponding functions and parameters according to the different hardware models and programs. During configuration, various kinds of configuration files can be used to complete 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

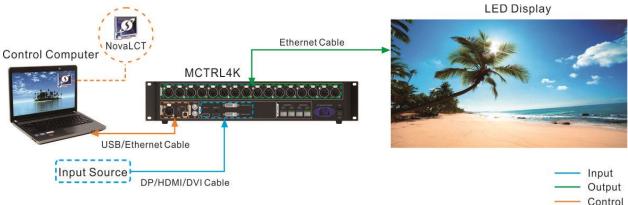
# 3.1 Connect PC to Sending Card

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



If the receiving card supports no sending card mode, the PC with NovaLCT installed can be directly connected to the receiving card with Ethernet cable. For related settings, see 13.1 How do I set the required parameters in no sending card mode?

# 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.

System( <u>S</u> ) Settin	gs ( <u>C</u> ) Tools(	[) Plug-in ( <u>P</u> ) I	Jser( <u>U)</u> Langua	ge( <u>L)</u> Help( <u>H</u> )	
Cloud Monitoring ocal System Informa	-	creen Control Mor	nitoring Multi-fun	tion Card Test Tool	
Control System	1	Other Device	0	View Details of Device	
Ionitor Information			100		
			1 M		
			-		

Click **View Details of Device** to view the communication port, device name, device quantity and SN. 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.

Connection related operations:

Reconnect sending card

Choose System > Reconnect.

Restart server

On the taskbar, right click was and click **Restart**.

• Set connection parameters

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

PAGE

3

🖳 Detect Config	31 <del></del> 75		×
Auto Detect Config-			
🖂 Auto detect	controller		
Detect Interval Con	fig		
Detect interval	: 30	‡ s	
Virtual Controller	Config —	_	
🗌 Enable virtu	al controlle	r	
ОК	Car	cel	
			8. T

# 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)

System( <u>S</u> ) Setti	ngs ( <u>C</u> ) Tools( <u>T</u> )	Plug-in (P) U	ser(U) Lan	guage(L) Help			
Cloud Monitoring	Screen Configuration	on Brightness	Calibration	Screen Control	Monitoring	Multi-function Card	
ocal System Inform	nation						
Control System	1	Other Device	Unkno	wn <u>View D</u>	etails of Device	l)	
Monitor Information			070	1			
9			<b>1</b>				
			•		•		
		50 <sup>0</sup>					

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. **Operations:** 

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

# **5** Screen Configuration

# 5.1 Load Configuration Files of Common Screens

# **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 or choose Settings > 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 I	Port	
Current Operatio	сом99 🗸	
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-							-		Х
Se	ending Card Receiving Card Screen Connection											
			g card redundancy									
			Serial Number of Sending Ca		Serial Nu Prima		Ser	ial Number of Ba Sending Card	ckup S	Berial Num Backup		
	►	1	1			1		1		2		
		2	1			3		1		4		
										Send	t to HW	
Ba	cku	p Fil	e: novastarScree	enBackup	File.zip	Software V	ersion:	NovaLCT V5.4.4.	.1982.T1(F	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 dialog box shown below is closed automatically.

Screen Configuration		×
-Select Communication	Port	
Current Operatio	COM99 ~	
Con Con	figuring screen, please wait(1/3)	
Local Restore	C:\Users\Nova001157\Desktop\MCTRL4K2.scfg	owse
	Next	ose

# 5.2 Configure a Common 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 to open the dialog box shown in Figure 5-2.

#### Figure 5-2 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 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 Select Configure Screen and click Next to open the Screen Configuration page.

Figure 5-3 Screen config	uration
--------------------------	---------

Screen Configuration-USB@P	Port_#0002.Hub_#0001		- 🗆 X
Sending Card Receiving Card	Screen Connection		
Display Mode Current Display Mode Sending Card 1920 :	x 1080(1080P) Graphics Out	put R.,. 1366 x 768	Refresh
Select Input Source Video Input			
Automati	HDMI ~ Send		
Refresh Rate T 60 Source Backu S Hot Backup Verification	× 1080 px V Custo		x 768 🗘
Redundancy Set the Current Devi	Set as Primary	Set as Backup Backup	Set
	-		,
Serial Number of Primary Sending Card		Serial Number of Backup Sending Card	Serial Number of Backup Port
Refresh	end	Add	Edit Delete
Restore Factor Restore S	syste Back Up Syste Export	Screen M Save System C	Co Save Close

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

#### Figure 5-4 Input source information

Display Mode	Refresh
Current Display Mod	16
Sending Card	1280 x 720(720P) Graphics Output R 1920 x 1080 Curre HDMI
-Select Input Source Video Input Automati	HDMI Send Enable Settings
Source Configuratio	n
Source:	HDMI 🗸
Resolution:	1920 x 1080 px 🗸 🖸 Custom 1920 🖨 x 1080 🖨
Refresh Rate T	60 V Hz Input Source Bit De 8 Bit V

- Step 6 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 7 Click **Send** to send the configuration information to the hardware.
- Step 8 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 9 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 10 For the MCTRL660 PRO and MCTRL R5, you can perform the following operations to set input source backup if necessary. Otherwise, skip this step.



- 2. Select Start source backup.
- 3. Set the input source backup relation and click OK.

#### Figure 5-5 Source backup settings

Source backup setting		Х
🗹 Start source backu	q	
SDI	HDMI $\sim$	
HDMI	SDI 🗸	
HDBaseT	NULL $\sim$	
DVI	NULL $\sim$	
04	Cancel	

- Step 11 Click Set to send the configuration information to the hardware.
- Step 12 Click Refresh to confirm the result of input source setting.
- Step 13 Click Save to save the configuration information to the hardware.
- Step 14 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 11.1 Configure the Save Function.

Figure 5-6 Successful saving

		x
1	Saved successfully. Do you want to back up the system configuration file?	
	Galicer	

#### 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

### 5.2.2.1 Loading from File

# Applications

Quickly light a screen by loading a receiving card configuration file saved in the local computer.

# **Applicable Products**

All receiving cards

# **Prerequisites**

- The receiving card firmware supports the module chip.
- The necessary file is prepared (.rcfgx/.rcfg).



# **Related Information**

None

# **Operating Procedure**

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

#### Figure 5-7 Screen configuration

ending Card Re	ceiving Card Scree	n Connection				
Module Inform	ation					Construc
Chip:	Common C	Size:	64W×32H	Scanning Typ	e 1/16 scan	
Direction:	Horizontal	Data Groups	2	Adjust RG		Check M
Cabinet Inform	ation					Set Rotation
O Regular				Irregular		
Width (Pixe	1	€ <=256		Width: 64	Height: 64	
Height (Pix		<=128		Widdi. 04	neight. 04	
			_			
Module Ca	SC From Right	to Left 🛛 🗸		Construct Ca	View Cabinet Ne	
Performance S	ettings					
Data Grou	p E More Set	ttings	🔲 Big	0	🗌 18bit+	
Refresh Rate	480	V Hz:	Refresh Rate Ti	4 ~		
Grayscale Le	vel Normal 4096	~	Grayscale Mode	Refreshing Rate Fir ${\scriptstyle\checkmark}$		
Shift Clock Fi	re 12.5	✓ MHz	Duty Cycle	50 ~	(25~75) %	
Phase Positi	on 2	~	Low Grayscale C	0		
Row Blankin	g 25	(=2.00us)	Ghost Control En	24 😫	(1~24)	
Line Changir	1g 3	€ (0~23)				
Minimum OE	W 80 ns					
Brightness E	ffi 68.24%					
Smart Settin	gs	Receiving	Car. Load from File	e Save to File Re	ad from Re Send to Recei	Apply
0			· · HB			Restore Facto
Current Rec	eiving MRV31	16_V4.5.9.0 Fi	rmware versio MR	V310		Restore Facto

- Step 2 Click Load from File and select a configuration file from the local computer.
- Step 3 After successful loading, click OK.
- Step 4 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 5-8 Sending parameters to receiving card

Send Parameters to Receiving Card	_		×
All Recei     Reset the Starting of Specify Receiving Card	Coordinate Send	Can	cel

Step 5 After successful sending, click OK to close the prompt box. The screen is now lighted.

# 5.2.2.2 Manual Screen Configuration

5.2.2.2.1 Light Module

# **Applications**

Set the receiving card parameters to light a new module.

# **Applicable Products**

All receiving cards

# **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 5-9 and Figure 5-10. 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 5-9 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
Landscape $\lor$
Multiple displays
Multiple displays
Duplicate these displays $\sim$

Figure	5-10	PC	display	settings	2

NVIDIA Control Panel File Edit Desktop Display Help			- 0 X
🔇 Back 🝷 🜍  🐔			
Back      Configure Settings with preview     Manage 3D settings     Gongure Surround, Physix     Display     Gongure Surround, Physix     Configure S	2. CROOSE THE PESOLUTION. Connector: HDMI - HDTV Resolution: Dynamic Super Resolution 1080p, 3840 × 2160 , HD (4.00x) 10800, 3840 × 2160 , HD (4.00x) 10800, 3840 × 2160 , HD (4.00x) 10800, 1920 × 1080 10800, 1920 × 1080 10800, 1920 × 1080 10800, 1768 × 992 Customize Customize Customize Customize O Use default color settings O Use NVIDIA color settings Desktop color depth: Highest (32-bit)	Refresh rate:	Manage 3D settings page.
	Output color format:	Output dynamic range: Full	
	<		>

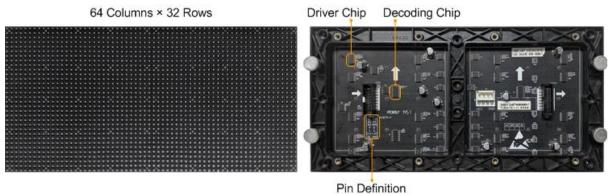
# **Related Information**

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 5-11.

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

#### Figure 5-11 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 5-12 Screen configuration

ending Card	Receiving Card	Screen C	onnection				
Module Info	rmation						Construc.
Chip:	Commo	on C	Size:	64W×32H	Scanning Typ	e 1/16 scan	
Direction:	Horizon	tal	Data Groups	2	Adjust RG		Check M
Cabinet Info	ormation						Set Rotation
O Regular	r				Irregular		
Width (F	Pival)		€ <=256		Width: 64	Height: 64	
Height (			<=128			inorgin. Of	
Module							
would	From From	n Right to L	eft 🗸		Construct Ca	View Cabinet Ne	
Performanc	e Settings		No.				
Data Gr	oup E	ore Setting	)s	🔲 Big	0	🗌 18bit+	
Refresh R	tate 480	,	✓ Hz:	Refresh Rate Ti	4 ~		
Grayscale	Level Norma	4096	~	Grayscale Mode	Refreshing Rate Fir $\!$		
Shift Clock	k Fre 12.5		✓ MHz	Duty Cycle	50 ~	(25~75) %	
Phase Po:	sition 2	,	~	Low Grayscale C	0		
Row Blank	king 25		(=2.00us)	Ghost Control En	24	(1~24)	
Line Chan	nging 3		(0~23)				
Minimum	OE w 80 ns						
Brightness	s Effi 68.24	%					
Smart Se	ttings		Receiving	Car. Load from File	e Save to File Re	ad from Re. Send to Recei.	Apply
C			<u></u>				
Current R	Receiving	MRV316_	V4.5.9.0 Fi	rmware versio MR	V316		Restore Facto

#### 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 5-13 Smart settings options

mart Settings Selection		$\times$
Note:		
(1).Option 1, click 'N	lext' to begin smart settings!	
(2).Option 2 or 3; lo	ad module information to software.	
Option 1: Make the r	nodule on by smart settings	
_		
Option 2: Load mod	ule information from file	-
File Path:		Browse
Option 3: Load mod	ule information from cabin	
Cabinet Databa		Browse
Selected Module:		Select Module
Selected Module:		Select Module

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

Module Chip 1:-	-		
Module Chip	Common Chi	ip 🗸 Sele	ct chip type
Data Type			
Data Type:	Parallel	l drive	~
Module Informat	tion		
Module Type		Regular Module	🔘 Irregular Module
Quantity of Pixel	s (virtual s	х: 32 🔹	y: 32
Row Decoding	Туре	LS9739_Common 🗸	Select New v
Working Mode (	of Receiving C	Card	
Hub Mode:	No	rmal 🔿 20 Gr	○ 24 Gr ○ 28 Gr
Ghost Control S	Signal	● High 🛛 Lo	w

Figure 5-14 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 5-15 Smart Settings Guide 2

Smart Settings Guide 2		x
The current display modu	ule is:	
Full Black	🔿 Display	
	Back Next	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 5-16 Smart Settings Guide 3

Smart Set	ttings Guide 3		×
Auto	omatic switchin	O Manual switchin.	
Please	select the module cold	or in each status:	
<b>I</b>	Red A		~
O 2	Green		~
03	Blue		~
○ 4	Red B or black		~
	Back	Next	Cancel

- 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 5-17 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 5-18 Smart Settings Guide 5

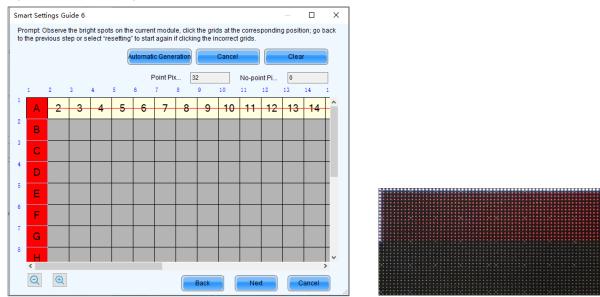
5	Smart Settings Guide 5	×
	Lighted rows (or columns) on the module	
	Quantity 1	
	Back Next Cancel	

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 5-19. 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.
- Isom out the grid.
- Image: Zoom in the grid.

#### Figure 5-19 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 5-20 Saving module information

Save Module Information	×
Prompt: You can save module information to file or cabinet database for direct loading next time. Module Name:	
Option 1: Save module information to file     File Path:     Option 2: Save module information to cabi	
Cabinet Datab View	
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.

#### 5.2.2.2.2 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

All receiving cards

#### **Prerequisites**

- A module is lighted. For details, see 5.2.2.2.1 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 5-21 Cabinet information

- Cabinet Information

Cabinet mornation		Set Rotation
O Regular		Irregular
Width (Pixel) Height (Pixel)	1 <=256 1 <=128	Width: 64 Height: 64
Module Casc	From Right to Left $~~\vee~$	Construct Ca View Cabinet Ne

#### 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 5-22.
- 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.

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

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.

Construct Irregular-Cabinet					_		×
Data Groups of Cabinet	Align Left Center Align R	Module Spacing Vertical	O Horizontal	200m	Cabinet Inform Quantity of		
Add Module	Top Align Middle Ali Bottom	AI Same Space	Clear Space		Cabinet Si	0×0	
From Cabinet D From File							^
Delete the Selec Clear Module							
Operation of Data Groups     Delete     Clear							
Quick Operation Sorting Rules Vertical O Horizont							
Operation Rules Data or O Module Apply							
Data Row Extracting Location in C Simple Mode O Advanced							
Number of Data Rows 1	<						>
Add Delete Clear	Module Information OE Encoding Data Scanning		Driver Chip Four-color Parameters Total Quantity of Pixels Scanning Line				
	Short-Key prompts		Load Save	e Oł		Cancel	

Figure 5-22 Constructing irregular cabinet

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.

- 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 5-23 Sending parameters to receiving card	

Send Parameters to Receiving Card			×
All Recei     Reset the Starting Coordinate     Specify Receiving Card	Send	Can	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), or click **Receiving Card is configured with U disk file** to save the information as a USB drive file (.bin).

# 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 5-24.

Screen Configuration-172.18.12.162:5200 × Sending Card Receiving Card Screen Connection Configu Quantity o... 1 V Screen1 Standard Screen O Irregular Screen O Complex Screen Screen Type: **Basic Information** Sending Card Number Enabl... 1 Y: 0 Virtual Mo... E... Screen Ar... 1920 x 1080 Coordinate: X: 0 Ethernet Port No ResetAll Hided .... Red ∨ 🛠 ← 5 10 5 Columns Rows 2 3 1 4 1 2 3 4 5 6 7 6 7 8 5 Receiving Receiving Receiving Rei 10 11 12 ▶ 1 Receiving Receiving 9 Card: Width:0 Card Width:0 Width:0 Width:0 16 Width:0 Width:0 13 14 15 ¥ Sending Card Receiving Card Size Receiving Card: Receiving Card: Receiving Card: Receiving Card: Receiving Card: Receiving Card: Rei 64 Apply to Entir. 2 -Width: 32 + Apply to Entir Height Width:0 Width:0 Width:0 Width:0 Width:0 Sending Card Sending Card Port Sending Card Port: Sending Card Sending Card Apply to the current Set Blank Receiving Receiving Receiving Rei 3 Receiving Quick Connection Card: Card Card Card Width: Width:0 Width: Sending Card Sending Card Sendi Sending Card Receiving Card Receiving Card: Receiving Card: Receiving Card: Receiving Card: Receiving Card: Rec 4 Midth Zoom: < Note: Click or drag the left mouse button t... > 1 Enable Mapping Detect Communic... Read the Number .. Test Pattern Add Load from File Save to File Read from HW Send to HW Restore Factor Export Screen M. Save System Co.

Figure 5-24 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 5-25 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.

Right clicking a receiving card cancels the configuration of the card.

						Qua	ntity o 1	~ Configur			
creen1 Screen Type:	Star	idard Screen	O Irregular Scre	n () Com	olex Screen						
Screen type.	- Basic Info		U inegular Scre		Diex Screen						
	Coordinate: X: 0 Y: 0 Virtual Mo E Enabl Screen Ar 1920 x 1080										
Ethernet Port No.							5				
	Columns	10 Ro	ws 5	ResetAll	Hided Rec	·	5				
		1	2	3	4	5	6	7			
5         6         7         8           9         10         11         12           13         14         15         16         ×	▶ 1	Sending Card:1 Port:1 Receiving Card:5 Widh:64	Sending Card: Port Receiving Card: Width:0	Sending Card: Port Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	1-1013	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0			
Receiving Card Size Width: 64 ÷ Apply to Entir Height: 32 ÷ Apply to Entir	2	Sending Card:1 Port:1 Receiving Card:4 Width:64	Sending Card:1 Port:1 Receiving Card:6 Width:64	Sending Card: Port Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	1-1-12	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0			
Set Blank Apply to the current.	3	Sending Card:1 Polt:1 Receiving Card:3 Widh:64	Sending Card: Port Receiving Card: Width:0	Sending Card:1 Port:1 Receiving Card:7 Width:64	Sending Card: Port: Receiving Card: Width:0	1-1-11	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0			
김미 <u></u> 김미 김미 <u></u> 김미	4	Sending Card:1 Pot:1 Receiving Card:2 Width:64	Sending Card: Port Receiving Card: Width:0	Sending Card: Port Receiving Card: Width:0	Sending Card:1 Port:1 Receiving Card:8 Width:64	1-1-10	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0			
النظ تصب تعتد تعصد	5	Sending Card:1 Port:1 Rec <mark>S</mark> ing Card:1 Width:64	Sending Card: Port Receiving Card: Width:0	Sending Card: Port Receiving Card: Width:0	Sending Card: Port Receiving Card: Width:0	Sending Card:1 Pot1 Receiving Card:9 Width:64	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0			
	< Zoom: <		>	1 Note: (	Click or dr	ag the left	mouse but	> ton to con.			
etect Communic Read the Number	at Pattern		Enable Mappir	g Add	Load from File	e Save to File	Read from H	W Send to HW			

Figure 5-25 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.
- Exeturn 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.
- Step 6 Set the specified receiving cards blank and set the blank size, as shown in the example in Figure 5-26. 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 5-27 is N shape. The areas in red boxes are loaded by the neighbor receiving cards. Therefore, their blank size is set to 0.



#### Figure 5-26 Setting receiving card blank

ing Card Receiving Card Screen Connection								
reen1							Quantity o 1	Configur
Screen Type:	Star	idard Screen 🛛 🔿 I	Irregular Screen	O Complex Screen				
Sending Card Number	Basic Info Coordina	rmation te: X: 0 Y. [	0 Virtual Mo	🗆 E 💽 🕻	] Enabl Screen	Ar 1920 x 108	60	
Ethernet Port No.	Columns	10 Rows	5 Re:	setAll 🔲 Hided	Red 🗸 🛧 🧲	- 5		
1 2 3 4		1	2	3	4	5	6	7
5     6     7     8       9     10     11     12       13     14     15     16	1	Sending Card:1 Port:1 Receiving Card:5 Widh:64 Height:32	Sending Card: Port: Receiving Card:Blank Width:64 Height:32	Sending Card: Port Receiving Card:Blank Width:64 Height:32	Sending Card: Port: Receiving Card:Blank Width:64 Height:32	Sending Card:1 Port:1 Receivin®Card:13 Width:64 Height:32	Sending Card: Port: Receiving Card: Width:0 Height:0	Sending Card: Port: Receiving Card: Width:0 Height:0
Receiving Card Size       Width:     64       Height     32       Set Blank     Apply to Entir	2	Sending Card:1 Polt:1 Receiving Card:4 Width:64 Height:32	Sending Card:1 Port:1 Receiving Card:6 Width:01 Height:32	Sending Card: Port: Receiving Card:Blank Width:64 Height:32	Sending Card: Port Receiving Card:Blank Width:64 Height:32	Sending Card:1 Polt1 Receiving Card:12 Width:64 Height:32	Sending Card: Port Receiving Card: Width:0 Height:0	Sending Card: Port Receiving Card: Width:0 Height:0
Quick Connection	3	Sending Card:1 Polt:1 Receiving Card:3 Width:64 Height:32	Sending Card: Port: Receiving Card:Blank Width:64 Height:32	Sending Card:1 Port:1 Receiving Card:7 Width:04 Height:32	Sending Card: Port Receiving Card:Blank Width:64 Height:32	Sending Card:1 Polt1 Receiving Card:11 Width:64 Height32	Sending Card: Port Receiving Card: Width:0 Height:0	Sending Card: Port: Receiving Card: Width:0 Height:0
马山己山	4	Sending Card:1 Polt:1 Receiving Card:2 Width:64 Height:32	Sending Card: Port: Receiving Card:Blank Width:64 Height:32	Sending Card: Port: Receiving Card:Blank Width:64 Height:32	Sending Card:1 Port:1 Receiving Card:8 Width:04 Height:32	Sending Card:1 Polt:1 Receiving Card:10 Width:64 Height:32	Sending Card: Port Receiving Card: Width:0 Height:0	Sending Card: Port Receiving Card: Width:0 Height:0
	▶ 5	Sending Card:1 Polt1 Receivi.S Card:1 Width:64 Height:32	Sending Card: Port: Receiving Card:Blank Width:64 Height:32	Sending Card: Port Receiving Card:Blank Width:64 Height:32	Sending Card: Port Receiving Card:Blank Width:64 Height:32	Sending Card:1 Polt1 Receiving Card:9 Width:64 Height:32	Sending Card: Port: Receiving Card: Width:0 Height:0	Sending Card: Port: Receiving Card: Width:0 Height:0
	< Zoom: <		> 1 N	lote: Click or	drag the lef	t mouse butto	1 to configur	> e the screen.
ect Communic	est Pattern			Enable Mapping	Add	oad from File	e to File Read from	m HW Send to HW

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

For example in Figure 5-27, the receiving cards connected by the green line are loaded by output port 1 and the receiving cards connected by the yellow line are loaded by output port 2.

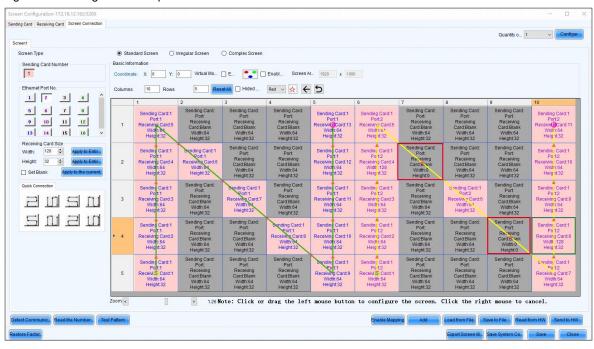


Figure 5-27 Configuration completed

#### 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 5-26 is shown as the diagram in Figure 5-28.

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 5-2	28 Configu	ration of	complex	screen

ding Card	Receiving Card	Screen Connection											
creen1								c	Quantity	0 1		~ [	Configu
Screen Receiv	Type: ing Card Setting	s	○ Standard Scr		regular Screen ed 🗸 🔆	Complex Scr Hided	een						
			200	1111	300	· · ·	Sendi Card	Port	Recei Card	Startir X	Startir Y	Width	Heigh
-	1-1-5				1-1-13		1	1	1	0	128 6	64	32
	Width: 64 Height: 32				Wide: 64 Height: 32		1	1	2	0	96 6	54	32
-	1-4	1-1-6			1-1-12		1	1	3	0	64 6	64	32
_	Width: 64 Height: 32	Width: 64 Height: 32			Width: 64 Height: 32		1	1	4	0	32 6	64	32
	1-1-3	Theight.	1-1-7		1-1-11	-	1	1	5	0	0 6	64	32
	Width: 64		Width: 64		Width: 64		1	1	6	1997	1.1.1.1		32
	Height: 32	L	Height: 32	1-1-8	Height: 32	-	1	1	7				32
	Width: 64			Width: 64	Width: 64		1	1	8	-	-		32
_	Height: 32			Height: 32	Height: 32	-	1	1	9				32
_	Wid S: 64				Width: 64		1	1	10		-	-	32
-	Height: 32				Height: 32		1	1	11 12	7.5.5.1		100	32 32
							1	1	12				32
<pre></pre>		programment a	Zoom	1		>							<i>~2</i>
Virtua		•	<	Enable Ma	> 1.6	Load from F		Add ave to F		dit Read fro	Delete		Clear d to HV

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 11.1 Configure the Save Function.

Figure 5-29 Successful saving

		x
1	Saved successfully. Do you want to back up the system configuration file?	
	OK Cancel	

### **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.



- 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: Set the layout of LEDs.
- 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 5-30.

Figure 5-30 Saving configuration files (online screen)				
💀 Save System File	s to Cloud	×		
VNNOX Care Use				
Password				
Screen Name	USB@Port_#0002. Hub_#00	01-Screen1		
System Config				
System Config	1 . Receiving card back	up file		
	$2 \ensuremath{ \mathrm{v}}$ Screen connection f:	ile		
	3 . Receiving card/Noval	ωт		
	Save			
🖪 The screen is no	ot registered Am	erican 🔹		

- 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 5-31.

ave As				
ave As				
← → · ↑ 🖹 > 1	This PC > Documents	~ Ō	Search Document	is ,o
Organize 👻 New fol	lder			III - (
🕂 Downloads  🖈 🗖	Name	Date	modified	Туре
🔮 Documents 🖈	Adobe	9/29	/2018 5:05 PM	File folder
📰 Pictures 🛛 🖈	Custom Office Templa		1/2019 7:18 PM	File folder
0624 F8	Nova Star		/2019 5:49 PM	File folder
en-US	NovaCLB	5/14	/2019 8:29 PM	File folder
System32	NovaLCT 2012	7/2/2	2021 2:01 PM	File folder
Systemsz	Pixelhue	5/7/2	2019 3:22 PM	File folder
	QQPCMgr	1/16	/2019 1:44 PM	File folder
📥 OneDrive	SDL	8/19	/2019 10:55 AM	File folder
This PC	Snaglt	3/1/2	2020 12:08 PM	File folder
	Studio 2019	12/2	/2019 9:33 AM	File folder
- Makanada 🛛 💆				
File name:				
Save as type: Syst	tem configuration file(*.scfg)			
			Save	Cancel
<ul> <li>Hide Folders</li> </ul>			Save	Cancer
Primary Sending Card	Serial Number of	Backup Sending Card	Serial Nun Backup	
Guid		Gara		
Refresh	Send	Add	Edit	Delete

Figure 5-31 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 Configure an Irregular Screen

# 5.3.1 Step 1 Construct Modules

# **Applications**

Construct modules of the irregular screen by drawing pixel position or cropping.

# **Applicable Products**

All receiving cards

# **Prerequisites**

- The receiving card firmware supports the module chip.
- If you want to load a module configuration file from the local computer, the file (.module) must be prepared.

# **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 to open the dialog box shown in Figure 5-43.

Figure 5-32 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	СОМ99 ~	
Configure Screen		
Cloud Restore	~	
C Local Restore		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 Select Configure Screen and click Next.
- Step 5 On the Screen Configuration page, click the Receiving Card tab.

Figure 5-33 Screen configuration

Module Information Chip: Col		nnection				
Chip: Co						6)
	mmon C	Size:	64W×32H	Scanning Typ	e 1/16 scan	Construc.
Direction: Ho	rizontal [	Data Groups	2	Adjust RG		Check M
Cabinet Information						Set Rotation
O Regular				Irregular		Ser Rotation
VALUES (PROVIDE)	1	<=256		Width: 64	Height 64	
wider (Fixer)	1		× 11.1.4	Width. 64	Height: 64	
Height (Pixel)		<= 128				
Module Casc	From Right to Le	ft 🗸		Construct Ca	View Cabinet Ne	
Performance Settings						
Data Group E	More Settings		🔲 Big	0	🗌 18bit+	
Refresh Rate	180 V	Hz:	Refresh Rate Ti	4 ~		
Grayscale Level	Vormal 4096 🔍 🗸		Grayscale Mode	Refreshing Rate Fir ${\sim}$		
Shift Clock Fre	12.5 ~	MHz	Duty Cycle	50 ~	(25~75) %	
Phase Position 2	2 ~		Low Grayscale C	0		
Row Blanking 2	5	(=2.00us)	Ghost Control En	24	(1~24)	
Line Changing 3	<b>\$</b>	(0~23)				
Minimum OE w 8	0 ns					
	8.24%					

Step 6 Click Construct Module.

#### Figure 5-34 Constructing module

	Module Info									
Drawing mode	Chip:	Common Chip 🗸	Select Chip	Size:	2 🔹 \star 2 🔹	Scanning Ty	16 🜩	Module Na	dengban1	
) Crop mode	Decoder:	74HC138 Decod 🗸	Select Decoder	Data Direction:	Horizontal V	Data Groups:	2	Chip Configu	ration	
Operation										
Load Module	🗹 All p	~	v.	Insert Virtual Pixel	🗄 🛛 Undo	Redraw pixel Curre	nt cursor:0,0			
Save module										
1 2										

Step 7 Select Drawing mode or Crop mode, and do the corresponding operations below.

#### Construct modules in drawing mode

- a. Set the module information, including driver chip, decoder chip, module size, data direction, scanning type, number of data groups and module name, and set the number of driver chips corresponding to each data group in **Chip Configuration**.
- b. Click the blank grid in order as needed to draw the pixel position (shortcuts:  $\uparrow, \downarrow, \leftarrow, \rightarrow$ ). To insert virtual pixels, click the **Insert Virtual Pixel** button after drawing.

To insert multiple virtual pixels, you can set the number of virtual pixels first and then click the **Insert Virtual Pixel** button. Or, you can click the button multiple times directly.

To undo the previous operation, click the Undo button.

c. (Optional) Set the applying range and click Redraw pixel.

The applying range can be set to all pixels, or specified data groups and scan lines.

#### Construct modules in crop mode

- a. Click Load Module, select a module configuration file, click Open and then click OK.
- b. Select pixels, and click Crop.

To undo the previous operation, click the Undo button. To redo the previous operation, click Redo.

To use shortcuts, see the prompt information on the user interface.

#### Step 8 After settings, click Save Module.

#### Figure 5-35 Saving module

Save Module Inform	nation	×
Prompt:		
You can save m time.	nodule information to file or cabinet database for direct loading next	
Module Name:	Module 1	
File Path:	Browse	
	Save	

Step 9 Click Browse, select a location, enter a file name and click Save.

Step 10 0	Click	Save	and	click	OK.
-----------	-------	------	-----	-------	-----

Step 11 Click Complete.



# 5.3.2 Step 2 Construct Cabinets

# **Applications**

Construct cabinets of the irregular screen.

# **Applicable Products**

All receiving cards

# **Prerequisites**

If you want to load a module configuration file (.module) from the local computer, the file that is saved from constructing irregular modules must be prepared.

Data group mapping is applicable to the DH7516-S receiving card.

# **Related Information**

If you have a cabinet configuration file (.mcl/.cabinet), you can complete cabinet related configurations quickly by loading the file.

# **Operating Procedure**

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

Figure 5-36 Screen configuration

	ving Card Scree	en Connection				
odule Informati Chip:	on Common C	Size:	64W×32H	Scanning Typ	e 1/16 scan	Construc.
Direction:	Horizontal	Data Groups	2	Adjust RG	ie into scan	Check M
		Data Groups	2	<u>Adjustito</u>		Oneckmin
abinet Informati	on					Set Rotation
Regular				<ul> <li>Irregular</li> </ul>		
Width (Pixel)	1	€ <=256		Width: 64	Height 64	
Height (Pixel)	1	⇒ <=128				
Module Case	-	to Left				
	Prom Regin	to Leit		Construct Ca	View Cabinet Ne	
erformance Set	tings					
Data Group E	More Se	ttings	🔲 Big	. 🕐	🗌 18bit+	
Refresh Rate	480	V Hz:	Refresh Rate Ti	4 ~		
Grayscale Leve	Normal 4096	~	Grayscale Mode	Refreshing Rate Fir ${\sim}$		
Shift Clock Fre	12.5	→ MHz	Duty Cycle	50 ~	(25~75) %	
Phase Position	2	~	Low Grayscale C	0		
Row Blanking	. 25	(=2.00us)	Ghost Control En	24	(1~24)	
Line Changing	3	<b>(0~23)</b>				
Minimum OE w.	- 80 ns					
Brightness Effi.	. 68.24%					
Smart Settings		Receiving	Car. Load from File	e Save to File Re	ad from Re. Send to Recei.	Apply
-	ing MRV3	16_V4.5.9.0 Fi	rmware versio MR	V316		Restore Facto

- Step 2 In the Cabinet Information area, select Irregular.
- Step 3 Select New version and click Construct Cabinet.

Constructing Irregular	Cabinet								٥	$\times$
Operation of Data Gr	oups	Zoom	Edit			Module Alignment				
Data Group Mode	Parallel drive	QÐ	Add Delete Edit	Clear No.	Redo	Align Left Center	Align Right Align Top Align	Mid Align Bott.		
Data Group	Hub Mapping									
	indo mapping									
J1 J2 J3	J4 J5									^
J6 J7 J8	J9 J10									
J11 J12 J13	3 J14 J15									
J16										
Module Info										
Module Name:	Unknown									
Chip Name:	Unknown									
Scans:	Unknown									
Module Size:	Unknown									
Module Start	Unknown									
Rotate	0 🔹 •									
O Mirror	Top-bo $\sim$									
	( A = = 1	_								
Cabinet Info										
Cabinet Size:	0W×0H									
Module Start P	(0,0)	<								~
Quantity of Mo Data Groups:	0									,
Data Groups.	0		Short-Ke	Show dat	Topology 🔽 C	abin Loa	Id Save	ок	Cancel	

Step 4 Do the corresponding operations below as needed to set the data group. Otherwise, skip this step.

#### Data Group Extension

For serial data, select Data Group Extension to display the extended data group.

#### Data group swapping

Click **Hub Mapping**. In the display dialog box, click the data group number in the **Swap Address** column, change the number, and click **Complete**.

🚽 Hub Mapı	ping		- 🗆 X
јх	Address	Swap Address	A 🗌 Data Group Mapping
1	0	0	
1	1	1	
2	2	2	
2	3	3	
3	4	4	
3	5	5	
4	6	6	
4	7	7	
5	8	8	
5	9	9	
6	10	10	
6	11	11	
7	12	12	
7	13	13	
•	1.4	14	~

#### Data group mapping

Click **Hub Mapping**. In the displayed dialog box, check **Data Group Mapping**. This operation enables data group mapping on all data groups by default. Each group will show the color of red, green, blue and white in order. That is, data group 0 shows red, data group 1 shows green, data group 2 shows blue, data group 3 shows white, data group 4 shows red, data group 5 shows green, and so on.

To enable data group mapping on only one data group, select the target data group on the left and select a color for the data group. Other data groups turn black.

#### Figure 5-37 Constructing cabinet



🖳 Hub Mappi	ng		– 🗆 X
јх	Address	Swap Address	🔺 🗹 Data Group Mapping
1	0	0	● Red
1	1	1	🔿 Green
2	2	2	O Blue
2	3	3	🔿 White
3	4	4	
3	5	5	
4	6	6	
4	7	7	
5	8	8	
5	9	9	
6	10	10	
6	11	11	
7	12	12	
7	13	13	
	1.4	14	¥
			Complete Cancel

Step 5 Click Add, select a module configuration file (.module), and click Open.

Step 6 Set the number of module rows and columns, and click OK.

Step 7 After the module is selected, do the corresponding operations below as needed to adjust the module.

#### Copy the module

Press the Ctrl+C and Ctrl+V shortcuts in order.

#### **Delete the module**

- Press Delete.
- Click Delete.
- Right click the module and select **Delete Module** from the pop-up menu.

#### • Crop the module

- Click Edit, select Crop and click OK. In the displayed dialog box, select the pixels and click Crop. After the operations, click Apply.
- Right click the module and select Crop from the pop-up menu. In the displayed dialog box, select the
  pixels and click Crop. After the operations, click Apply.

#### Rotate the module

- On the left panel, select **Rotate**, set the rotation angle and click **Apply**.
- Click Edit. In the displayed dialog box, select Rotate. Then, select Left or Right, set the rotation angle, and click OK.
- Right click the module, select Rotate module from the pop-up menu and then select a rotation method.

#### Mirror the module

- On the left panel, select Mirror, select Top-bottom or Left-right, from the drop-down menu and click Apply.
- Click Edit. In the displayed dialog box, select Mirror. Then, select Mirror top-bottom or Mirror left-right, and click OK.
- Right click the module, select Mirror module from the pop-up menu and then select Mirror left-right or Mirror top-bottom.

#### Move the module

Drag the module to directly move it, or right click the module, select **Move module** from the pop-up menu and then set the coordinates on the displayed page.

#### Align the modules

Drag the modules or select the modules and use the alignment buttons on the page.



#### Align the display image

Click Edit. In the displayed dialog box, select Alignment, select an alignment mode, and click OK.

 For the module with some pixels cropped, after alignment settings, the display image pixels will be aligned with the valid LEDs on the data scanning direction.

For example, if 8 LEDs from left to right on row 2 of the module are cropped, the alignment is aligning left and data scanning direction is from left to right, then LED No. 9 and subsequent ones will display pixel No. 1 and subsequent ones, respectively.

 For the module with some pixels cropped, after scattering settings, the same number of display image pixels will be extracted evenly on the data scanning direction.

For example, if 8 LEDs on row 2 of the module are cropped and data scanning direction is from left to right, then 8 image pixels will be extracted evenly on row 2 of the image.

#### Stretch the display image

Click Edit. In the displayed dialog box, select Stretch, set the stretch range and target width/height, and click OK.

If the target width/height is less than the original width/height, the image will be stretched; otherwise, the image will be compressed.

#### Convert to arc

On the left panel, set the arc radius and click Convert to Arc.

#### Arc Rotate

On the left panel, set the rotation angle and click **Arc Rotate**. Before this operation, conversion to arc should be done for the module.

#### Note

Click  $\bigcirc$  or  $\textcircled{\oplus}$  to zoom out or in the operation area.

To see the shortcuts, click Short-Key prompt at the bottom of the page.

Check or uncheck **Show data group**, **Topology** and **Cabinet Border** at the bottom of the page to set the content shown.

Click Undo to delete the previous operation and Redo to restore the previous operation.

Step 8 Select the data group and click the module. Repeat the operations until all the modules are connected.

The connected modules will display a No., for example, (2, 2). It means the second module of the second data group. To clear a specified No., select the corresponding module and click **Clear No.** To clear all the No., click **Clear No.** directly.

Step 9 After the configuration, click **Save**.

#### Figure 5-38 Saving the configuration

Select Operatio	on Type
Cabinet Nam	Irregular Cabinet
Select Path	
	inet to database
Path	C:\Users\Nova001157\Desktop\Cabinet\Irregular Cabinet.mcl
🔘 Save cab	pinet to file
Path	Browse
	OK

Step 10 Set the cabinet name, select **Save cabinet to database** or **Save cabinet to file**, click **Browse**, enter a file name, and click **Save**.

Step 11 Click OK.

Step 12 Click **OK** to close the pop-up dialog box.

Step 13 Click **OK** to complete cabinet construction.

Step 14 On the Receiving Card tab page, click Save to File, enter a file name and click Save.



Step 15 Click OK to close the dialog box and complete saving of the receiving card configuration file.

# 5.3.3 Step 3 Connect Screen

# **Applications**

Connect the receiving cards logically.

# **Applicable Products**

All sending cards

# **Prerequisites**

If you want to load a receiving card configuration file (.rcfgx) from the local computer, the file must be prepared.

# **Related Information**

In NovaLCT, you can configure up to 20 screens.

If a screen connection file (.scr) is available, you can load the file to quickly complete the screen connection related configurations.

# **Operating Procedure**

- Step 1 On the Screen Configuration page, click the Screen Connection tab.
- Step 2 Set the screen quantity and click **Configure**.
- Step 3 Select Irregular Screen.

### Figure 5-39 Connecting screen

Screen Confi	iguration-COM	99						-		×
Sending Card	Receiving Card	Screen Connection								
Screen1							Quantity o	. 1 ~ (	Configu	IL
Screen T	Туре:		🔘 Standa	rd Screen 💿 I	rregular Screen	O Complex Scree	en			
+	— €	Q	Show Borders Topol	☐ Coordin ✓ Cabin	Rotate and Mirro Rot Righ Mirror Left	t ~	Arc Rotate     OK	C	inet Topo lear I ndo	M Y
										^
<									>	*
Detect Com	munic Read	the Number	est Pattern	Enable M	apping Add	Load from Fil	e Save to File Re	ad from HW	Send to H	N
Restore Fact	tor					Export Scree	en M Save System Co.	Save	Clos	se

Step 4 Click +.



### Note

You can also click **Load from File** to load the screen connection file (.scr), or click **Add** to load one more screen connection file.

Step 5 Set the cabinet start coordinates and quantity, click Browse to select a cabinet configuration file, and click Open.

### Figure 5-40 Loading cabinet configuration file

Set Receiving Card of Com	plex Screen	$\times$
Start X Coordinate:	0 Start Y Coordinate: 0	
Horizontal Qty:	1	
Vertical Qty:	1	
Cabinet File:	Browse	
	Add	

- Step 6 Click Add. You can click this button multiple times to add multiple cabinets.
- Step 7 After adding, close the dialog box.
- Step 8 After the cabinet is selected, do the corresponding operations below as needed to configure the cabinet.

#### Copy a cabinet

Press the Ctrl+C and Ctrl+V shortcuts in order.

### Rotate the cabinet

Select Rotate, select Right or Left from the drop-down options, set the rotation angle, and click OK.

#### Mirror the cabinet

Select Mirror, select Left-right or Top-bottom from the drop-down options and click OK.

### Arc Rotate

Select **Rotate**, select **Right** or **Left** from the drop-down options, set the rotation angle, and click **Arc Rotate**. Before this operation, conversion to arc should be done for the cabinet.

#### Delete the cabinet

Select the cabinet and click or press the **Delete** button to delete the selected cabinet. Or click **Delete All Cabinets** to delete all the cabinets.

### Select cabinets on the same Ethernet port

Right click a cabinet and select **Select Port Cabinets** to select all the cabinets on the same Ethernet port as the current cabinet.

#### Select the top cabinet

Select multiple cabinets that are completely overlapped, right click on them, and select **Select Top Cabinets** to select the top cabinet for subsequent operations.

### Check cabinet location

Right click a cabinet and select **Check Cabinet Location** from the pop-up menu to check the cabinet related information and change the cabinet coordinates.

#### Align the display image

Right click a cabinet, select Align (Data Scan Direction) and select an alignment mode.

For the cabinet with some pixels cropped, after alignment settings, the display image pixels will be aligned with the valid LEDs on the data scanning direction. For example, if 8 LEDs from left to right on row 2 of the cabinet are cropped, the alignment is aligning left and data scanning direction is from left to right, then LED No. 9 and subsequent ones will display pixel No. 1 and subsequent ones, respectively.

### Scatter the display image

Right click a cabinet, select Scatter (Data Scan Direction) and select a scattering mode.



For the cabinet with some pixels cropped, after scattering settings, the same number of display image pixels will be extracted evenly on the data scanning direction. For example, if 8 LEDs on row 2 of the cabinet are cropped, scattering method is scattering all and data scanning direction is from left to right, then 8 image pixels will be extracted evenly on row 2 of the image.

### Stretch/compress the display image

Right click the cabinet, select **Stretch/Compress** from the pop-up menu, set the stretch range and target width/height, and click **OK**.

If the target width/height is less than the original width/height, the image will be stretched; otherwise, the image will be compressed.

### Convert to arc

Right click the cabinet and select **Convert to Arc** from the pop-up menu. In the displayed dialog box, set the arc radius and click **OK**.

### Note

Click e or q to zoom in or out the operation area.

Check or uncheck Borders, Coordinates, Topology and Cabinet No. to set the content shown.

Click Expand Canvas to make the cabinet canvas larger.

Step 9 Select an Ethernet port, click Manual, and click cabinet one by one to draw topology.

If **Sort after deletion** is selected, after the cabinets in the middle of the topology are deleted, the No. of subsequent cabinets will be adjusted automatically to continuous No.

Other operations:

- Clear: Select the cabinet and click **Clear**. In the status of drawing topology manually, clearing topology or undoing topology, when you click the first cabinets on the last topology line, this line can be cleared.
- Undo: Click this button, and the topology will go back to the previous step.
- Exit: Click this button or press the Esc button, and you will exit the operation of drawing topology manually, clearing topology or undoing topology.
- Cabinet Up: Select the cabinet and click this button to move forward the cabinet position in the topology.
- Cabinet Down: Select the cabinet and click this button to move backward the cabinet position in the topology.
- Step 10 After configuration, click Export Bitmap, enter a file name, and click Save.
- Step 11 Click Send to HW, set the options and click Send. If necessary, Click Save to File to save the configuration information as a file.

#### Figure 5-41 Option of sending data

🛃 Sending Data Option	×
Receiving Card Option	
🗹 Location and Topology Table	
🖂 Configuration Data	
Range Option	
Iroadcast	
O Selected cabinets	
Sending Card Option	
🖂 Configuration Data	
	Send

Step 12 After settings, 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 11.1 Configure the Save Function.



Figure 5-42 Successful saving

	x
Saved successfully. Do you want to back up the system configuration file?	
OK Cancel	

# **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: Control whether the screen displays images normally or blacks out, and set the test pattern.
- 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.

# 5.3.4 Step 4 (Optional) Save Configuration Files

See 5.2.4 Step 4 (Optional) Save Configuration Files.

# 5.4 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 or choose Settings > Screen Configuration from the menu bar to open the dialog box shown in Figure 5-43.

Figure 5-43 Screen configuration method

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

- Step 3 Choose a communication port.
- Step 4 Select Configure Screen and click Next.
- Step 5 On the Sending Card tab page, perform any of the following operations as required.

### Configure device redundancy

Set a single device

Dedundone

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

Reduituancy		
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		×
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.

Redundancy Settings				×
Serial Number of Primar Serial Number of Primar	1 <b>•</b>	Serial Number of Backu 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 6 (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 5-44.
  - 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 5-44 Hot backup verification

💀 Hot Backup Verification	×
Select sending cards for hot backup verification	
Select All	
	_
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 Cancel	

- Step 7 Click **Send** to send the configuration information to the hardware, or click **Save** to save the information to the hardware.
- Step 8 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 11.1 Configure the Save Function.

Figure 5-45 Successful saving

	x
3 Saved successfully. Do you want to back up the system configuration file?	
OK Cancel	

# 5.5 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 2 Click screen configuration or choose Settings > Screen Configuration from the menu bar to open the dialog box shown in Figure 5-46.

Figure 5-46 Screen configuration method

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

- Step 3 Choose a communication port.
- Step 4 Select **Configure Screen** and click **Next**.
- Step 5 On the Sending Card tab page, select Enable in the 3D Function area.

### Figure 5-47 Enabling 3D

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

Step 6 Click Settings next to Enable to open the dialog box shown in Figure 5-48.

Set 3D Parameters - X Video Source Format Side-by-side Top-and-bottom Prame sequential Eye Priority Right eye Left eye Mode Selection DVI DVI: DVI: DVI: Signal emitter Enable third-party emitter Signal Delay Time T R Ms C W (Range: 0-20 ms) Restore Defa Please set an appropriate delay time to make left and right eye Save Load from File Save to File		
<ul> <li>Side-by-side ● Top-and-bottom ● Frame sequential</li> <li>Eye Priority <ul> <li>Right eye</li> <li>Left eye</li> </ul> </li> <li>Mode Selection <ul> <li>DVI</li> <li>DVI:</li> <li>DVI2:</li> <li>R</li> </ul> </li> <li>3D signal emitter <ul> <li>Bnable third-party emitter</li> </ul> </li> <li>Signal Delay Time <ul> <li>T ⇒ ms ● ⇒ us (Range: 0-20 ms) Restore Defa.</li> <li>Please set an appropriate delay time to make left and right eye</li> </ul> </li> </ul>	Set 3D Parameters	- 🗆 X
Eye Priority Right eye Left eye Mode Selection DVI DVI1: DVI2: R 3D signal emitter I Enable third-party emitter Signal Delay Time 7    ms 0	Video Source Format	
<ul> <li>Right eye</li> <li>Left eye</li> <li>Mode Selection</li> <li>DVI</li> <li>DVI:</li> <li>DVI:</li> <li>DVI2:</li> <li>R</li> <li>3D signal emitter</li> <li>Inable third-party emitter</li> <li>Signal Delay Time</li> <li>I is no is us (Range: 0-20 ms) Restore Defa.</li> <li>Please set an appropriate delay time to make left and right eye</li> </ul>	○ Side-by-side	🔘 Frame sequential
Mode Selection DVI DVII: DVI2: R 3D signal emitter Inable third-party emitter Signal Delay Time 7 2 ms 0 2 us (Range: 0-20 ms) Restore Defa. Please set an appropriate delay time to make left and right eye	Eye Priority	
DVI DVI: DVI: DVI: DVI: DVI: DVI: DVI: DVI: DVI: DVI: Restore Defa. Please set an appropriate delay time to make left and right eye	● Right eye ○ Left eye	
<ul> <li>DVI1: L DVI2: R</li> <li>3D signal emitter</li> <li>Bnable third-party emitter</li> <li>Signal Delay Time</li> <li>7  ms 0  wu (Range: 0-20 ms) Restore Defa.</li> <li>Flease set an appropriate delay time to make left and right eye</li> </ul>	Mode Selection	
3D signal emitter Enable third-party emitter Signal Delay Time 7   ms 0   us (Range: 0-20 ms) Restore Defa Please set an appropriate delay time to make left and right eye	DVI	
☐ Enable third-party emitter Signal Delay Time 7	● DVI1: L DVI2: R	
Signal Delay Time 7   ms 0   us (Range: 0-20 ms) Restore Defa. Please set an appropriate delay time to make left and right eye	3D signal emitter	
7 📻 ms 0 😝 us (Range: 0-20 ms) Restore Defa Please set an appropriate delay time to make left and right eye	Enable third-party emitter	
Please set an appropriate delay time to make left and right eye	Signal Delay Time	
Please set an appropriate delay time to make left and right eye	7 🌲 ms 0 🜲 us (Range: 0-20 m	ms) Restore Defa
		ha laft and might and
Save Load from File Save to File	liease set an appropriate deray time to max	ke feft and fight eye
Save Load from File Save to File		
Save Load from File Save to File		
Save Load from File Save to File		
Save Load from File Save to File		
Save Load from File Save to File		
Save Load from File Save to File		
Save Load from File Save to File		
Save Load from File Save to File		
Save Load from File Save to File		
Save Load from File Save to File		
	Save	from File Save to File

Figure 5-48 Setting 3D parameters

Step 7 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 top-and-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 8 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 9 (Optional) Click Save to File to save the configuration information as a file on the local computer.

# 5.6 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

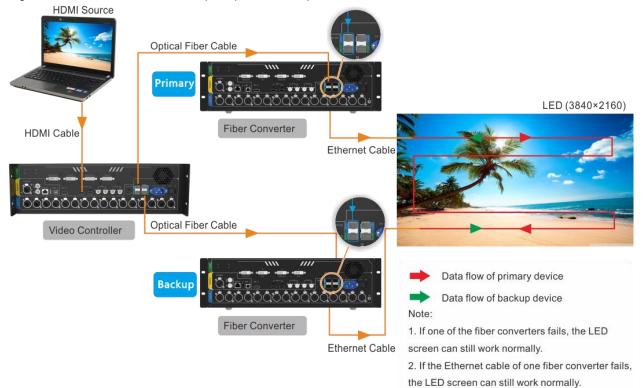
# **Related Information**

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.

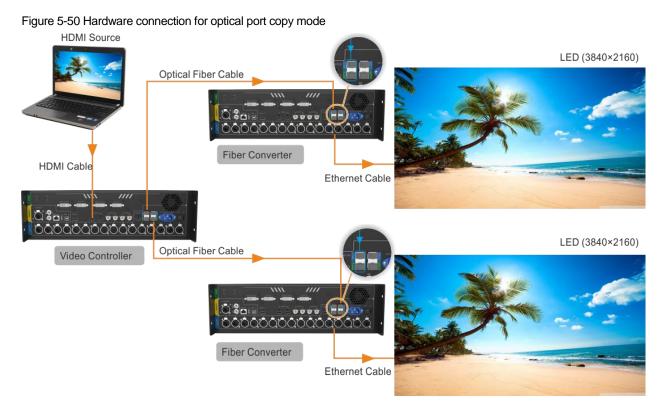
Figure 5-49 and Figure 5-50 are illustrations of the two optical port working modes, using the NovaPro UHD Jr as an example.

- 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 5-49 Hardware connection for optical port hot backup mode







# **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 to open the dialog box shown in Figure 5-51.

Figure 5-51 Screen configuration method

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

- Step 3 Choose a communication port.
- Step 4 Select Configure Screen and click Next.
- Step 5 On the Sending Card tab page, click Set Working Mode.

Figure 5-52 Working mode

Verify Working Mode Set Working	
---------------------------------	--

Step 6 Select the sending card and set the working mode to sending card mode or fiber converter mode.



### Figure 5-53 Setting working mode

	×
Working Mode	
🖲 Sendinα Card	○ Fiber Converter
Workina Mode of Opti	ical Port
Please select	
	OK Cancel
	Workina Mode of Opt

- Step 7 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 8 Click OK.

# 5.7 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 from the menu bar to open the dialog box shown in Figure 5-54.

Figure 5-54 Screen configuration method

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



- Step 3 Choose a communication port.
- Step 4 Select Configure Screen and click Next.
- Step 5 Click the Sending Card tab.
- Step 6 Select Enable zoom and click OK.

Figure 5-55 Enabling zoom	
Zoom Output Reso 0 🗘 x 0 🗘 F	x Set 🗸 Enable Zoom

- Step 7 Set the output resolution.
- Step 8 Click Set and click OK.

# 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 Breen Configuration or choose Settings > Screen Configuration from the menu bar to open the dialog box shown in Figure 5-56.

#### Figure 5-56 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.
- Step 4 Select Configure Screen and click Next.
- Step 5 Click the Receiving Card tab and click Read from Receiving Card to obtain the latest configuration information.



- Step 6 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 7 In the **Performance Settings** area, set the performance parameters.

Performance Setting	Performance Settings						
Data Group E	More Setting	s	□ 18bit+				
Refresh Rate	480	→ Hz	Refresh Rate Ti	4 ~			
Grayscale Level	Normal 4096	$\sim$	Grayscale Mode	Refreshing Rate Fir $ \smallsetminus $			
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 8 After the settings are done, click Send to Receiving Card to send the performance parameters to the hardware.
- Step 9 After the display effect meets the expectation, click **Save** to save the performance parameters 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 11.1 Configure the Save Function.



Figure 5-57 Successful saving

	×
Saved successfully. Do you want to back up the system configuration file?	
OK Cancel	

# 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.

#### 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.

Data se	et exchange(intuition mode) X
	A
1	5
▶ 2	6
3	3
4	4
5	1
6	2
7	7
8	8
Indicat	ion: Fill in the lists of data set exchange according to the figures displayed in large screen
	nable dat Close
	мариу Снове

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.

D	ata set	exchange	e(group mo	ode)					×
	Serial					A			
	1					5			
	▶ 2					6			
	3								
	4								
	5								
	6								
	7								
	8								
In	dication	Observe	the positio	n of the wt	aite display are	a in the l	arge screen th	en click the corr	00000
ľ	luicatioi	. Observe	ule positio	ii oi uie wi	inte uispiay are		arge screen, ur		espon
	Curren	t chos	6		Undo		No flashing	Reset d	ata
	🗹 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	
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: 💿 Open 🛛 Close	
Signal Polarity:   High O Low	
Hub Mode	
Normal O 20 Groups	
○ 24 Groups ○ 28 Groups	
Graphics Output	
Output by Scanni     Output in the dir	
OK Cancel	)

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.

Adjustment of Monitoring Data Line				
	Enable Adjustment of f	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 Cance	el	

### Additional Function

Enable or disable some additional functions of receiving card.

Additional Function	
Isolated Pixel Afterglow Indicator Light of Rec Shorten the synchroni Brightness becomes	Eliminate Close Open Enable
EMC Function:	Disat ~
Linear Connection	Enable
Calibrati 🗹 Enable	
R: 0 🜩	G: 0 🖨
B: 0 🗭	VR: 0
Delay Time of ABCDE Sig	nals
Delay of ABC signals:	<ul> <li>Enable</li> </ul>
Delay of DE signals:	O Enable
No delay:	Enable
Delay time:	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.
- 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.

 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.

umber of Fl 3 Numb	er of Fl 3				 3ack	ResetA
s	1	2	3			
1 2 3 4	BUS 1 Serial	BUS 1 Serial	BUS 1 Serial			
5 6 7 8	1 numtS 9 Width 64 Height 32	Vidth 64 Height 32	Width 64 Heigh 32			
9 10 11 12	BUS 1 Serial	BUS 1 Serial	BUS 1 Serial			
13 14 15 16	2 numbe <del>r 5</del> Width 54 Heigh 32	Width 64 Height 32	- <del>∉umbe</del> r 3 Width 64 Height 32			
17         18         19         20           21         22         23         24	BUS 1 Serial 3 numbe <del>r 6</del>	BUS 1 Serial	BUS 1 Serial			
25 26 27 28	Width 64 Height 32	Width 64 Height 32	Width 64 Height 32			
11h 64 🔶						
Apply to Curren						
dule Parameters mber of d 2						
Apply to Curren						
rting X Co						
ting Y Co 0 🚖						
ompt:After setting width a	nd height click	or drag let	t mouse butt	on or		

- 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.
- f. If necessary, adjust the start coordinates of the flash memory, otherwise skip this step.
- 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.

Enable monit	oring 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 🗸				

- 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	mation 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	

# **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**

- 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.

Single-Screen Mode       Continue-GSC*1       Online Calibration       Online Calibration         Current Operation       Current Screen       Image: Continue-GSC*1       Image: Continue-GSC*1       Image: Continue-GSC*1         © Screen1       Image: Continue-GSC*1       Image: Continue-GS	Screen Calibration		-		×
Communication Port       Local IP       Port       B000       Reconnect         Usage/ort_B003_blb_s001       Corrent Screen       Communication Information       Information         © Screen1       Information       Information       Information         Settings of Displaying Image       Position to Display Image:       Position to Display Image:         © Primary Display       Extended Display       Device Response Time:         Image:       Image:       Image:       Image:         Image:       Image:       Image:       Image:       Image:         Image:       Image:       Image:       Image:       Image:       Image:	Single-Screen Mode Combined-Sc · ·	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients			
UsagePort_Booos Hub_stool       Local IP       172:15:153:194       Port       Boool       Reconnect         Current Screen       Communication Information         Istraction for the store of t		Network Setting			
Current Screen Communication Information Us17:22 Enable network membring successfully Communication Information Us17:20 Enable Information Us17:20		Local IP 172.18.163.194 V Port 8080 Reconnect			
Screen1       1617.222. Enable network moniformg successfully         Settings of Displaying Image       1617.222. Enable network moniformg successfully         Settings of Displaying Image       Position to Display Image:         © Primary Display       Extended Display         Device Response Time:       100         100       ms         Classle       Use input source for display         Disable       Disable         © Brightnes       Expont Loog         Chroma       Full-Graysc					
Settings of Displaying Image Position to Display Image: Pinmary Display Catended Display Device Response Time: Device Response Time: Device Response Time: Display Enable/Disable Catibration Display Brightnes Pull-Graysc Export Log	Survive Second	Communication Information			
Position to Display Image:	Screen1	16:17:22 Enable network monitoring successfully			
Position to Display Image:					
Position to Display Image:					
Position to Display Image:					
Position to Display Image:					
Position to Display Image:					
Position to Display Image:					
Position to Display Image:					
Position to Display Image:					
Position to Display Image:					
<ul> <li>● Primary Display</li> <li>● Extended Display</li> <li>Device Response Time:</li> <li>100</li></ul>					
<ul> <li>Ctended Display</li> <li>Device Response Time:</li> <li>100</li></ul>					
Device Response Time: 100	Primary Display				
100       ms         Image: State of the s	O Extended Display				
Use input source for display Enable/Disable Calibration Disable Brightnes Chroma Full-Graysc Export Log Clear	Device Response Time:				
Use input source for display Enable/Disable Calibration Disable Brightnes Chroma Full-Graysc Export Log Clear	100 🜩 ms				
Enable/Disable Calibration O Disable Brightnes C Chroma Full-Graysc Export Log					
O Disable       Image: Brightnes       O Chroma       Full-Graysc       Export Log       Clear					
Brightnes     Chroma     Full-Graysc     Export Log     Clear					
O Chroma  Full-Graysc Export Log Clear	-				
Clear					
Export Log Clear	O Chroma				
Darkor Save	O Full-Graysc	Expedien		lear	
	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.

Figure 6-1 Screen calibration

- 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.
- Use input source for display: Select this option if you want to use a signal source for display. Deselect this
  option if you want to use hardware for display.
- Enable/Disable Calibration: Disable calibration, or select brightness calibration or chroma calibration. Dark or Bright Line Correction can be selected 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.

### Figure 6-2 Offline calibration

Screen Calibration							_		×
Single-Screen Mode Combined-Sc · ·	Online Calibration Offi	ine Calibration Manage Co	oefficients Dou	ble Calibration Coeffici	ients				
Current Operation Communication Port USB@Port_#0003.Hub_#0001 ~	Display Area	Starting co	ordinat	teX=0, Y=0	Si	ze128W×64H			
© Screen1	Column Nu Row Number	0	Display Display	100	* *			Display Hide	y
	Average Calibrat	ion Coefficient 0	0	0					
		0	0	0				et Averag	e C
	Display Parameters	0	0	0				ernverag	
	Mode All Color	Red Green	Blue	White		Black			
-Settings of Displaying Image Position to Display Image :	Brightness <			() White	> 4				
Primary Display									
Extended Display Device Response Time:									
100 🔹 ms									
Use input source for display     Enable/Disable Calibration									
O Disable									
Brightnes									
Chroma									
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.
- 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**

- 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		- 🗆 X
Single-Screen Mode Combined-Sc · ·	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients	
Current Operation Communication Port 172.18.12.162:5200	Select Operation	
Current Screen	O Upload coefficients	
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	
<ul> <li>Extended Display</li> </ul>	Upload coefficinets (for factory use)	
Device Response Time 100 🔹 ms	📥 Module Flash	
Use input source for display	O Upload thermal compensation coefficients	
Enable/Disable Calibration <ul> <li>Disable</li> </ul>		
O Brightnes		
O Chroma		
O Full-Graysc		
Dark or Save		



Step 6 Perform the following operations as required. During the operation, you can select **Disable Calibration**, **Brightness Calibration** or **Chroma Calibration** on the left. **Dark or Bright Line Correction** can 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.

### 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 in the cabinet calibration database file to the corresponding cabinets in turn according to the imported cabinet ID and export a screen calibration database file. Stable uploading takes more time than fast uploading, but it is more stable and 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 normal coef, low-grayscale coef, and full-grayscale 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 normal coefficient, low-grayscale coefficient and full-grayscale 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.

Figure 6-4 Selecting an area for coefficient management

Screen:1	Starting coordinateX=0, Y=0 Size64♥×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



# 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

Screen Calibration		-	$\times$
Single-Screen Mode Combined-Sc · ·	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients		
Current Operation Communication Port			
сом99 🗸			
Current Screen			
Screen1			
	View calibration coeffi View calibration coeffi Acquisition of factory		
Settings of Displaying Image			
Position to Display Image:			
Primary Display			
O Extended Display			
Device Response Time:			
100 🗘 ms			
Use input source for display			
Enable/Disable Calibration			
O Disable			
Brightnes			
O Chroma			
O Full-Graysc	Coef Type: Normal Coef V		
Dark or Save			

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.



# 6.2 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.
- 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.

Step 4 Click is to expand the advanced settings shown in Figure 6-8 and perform the following operations as required.



Figure 6-8	3 Manual	brightness	adjustment

	nt		×
@Port_#0002. Hub_	#0001-Screen1		
	Manual Adjustment	🔘 Auto Adjustment	
rightness			
Brightness	¢	> 255	(100%)
	Orayscale	Contrast	
	Color Te Color Spa		
Gamma			_
Gamma Jamma	Color Te Color Spa	2.8	
dvanced Settings Gamma Gamma Gamma Valu.	Color Te Color Spa	2.8	
Gamma Gamma ) Gamma Valu.	Color Te Color Spa	> 2.8	
Gamma 3amma ) Gamma Valu.	Color Te Color Spa		e to HW

Adjust Gamma

Drag the slider to adjust Gamma value.

### Adjust color temperature

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

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

Adjust color space

Disable	e col	or sp	bace,	enable	a standard	color space	(PAL/NTSC)	, or enable a	custom color	space,	such as
Disable		PAL	NTSC	Cus	1						

Precise A...

9600

### 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 6-9.

mma Adjustment				
Gamma Adjustme.O White	Red Gamma	O Green	🔘 Blue Gamma	
Grayscale Bit Val 14	~			
Gamma table can be generated qu	lickly by adjusting	Gamma table ca	an be fine-adjusted by edit	ing the valu
X-axis Range 0 🖨 🗕	255	X	Y	^ Move
Y-axis Range 0 😫	65535 🚖	▶ 0	0	Move
0		1	4	Move E
	> 2.8	2	8	Save
Recommended Gamma		3	12	
Original O Mode A	Mode B	4	16	Loa
Picture Quality		5	20	
-	Enhanced Mode	6	24	
Son Mode O E	Ennanced Mode	7	28	
	/	8	32	
		9	36	
		10	40	
		11	44	
		12	48	
		13	52	
		14	56	
/		15	60	

#### Figure 6-9 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.
  - Load a Gamma configuration file

Click Load to load a Gamma configuration file.

Adjust the Gamma curve manually

Drag the slider to adjust the Gamma curve.

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 Set relevant parameters.

- Grayscale Bit Value: Use the default value.
- X-axis Range: It indicates the range of X-axis for Gamma curve. The X-axis ranges for 8-bit, 10-bit and 12-bit input sources are 0–255, 0–1023 and 0–4095 respectively.
- Y-axis Range: It indicates the range of Y-axis for Gamma curve. The range is always 0–65535.
- Recommended Gamma: The original mode is contrast preferred and Mode A is grayscale preferred. Mode B falls between those two modes.
- Picture Quality: When the Gamma curve is in Mode A or B, the picture quality can be set to soft mode or enhanced mode.
- Step 6 After the settings are done, click **Send** to send the configuration to the hardware.
- Step 7 (Optional) Click **Save** to save the Gamma information as a configuration file.

# 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 6-10.



### Figure 6-10 Custom color temperature

nceu co	olor Config	uration					-	
een	USB@Pc	ort_#0002.Hub_#0001-Screen1	Import	Export				Refresh
r Tempera	ature Table							
	n prompts							
The colo	r temperat	ure name box of selected co	olor temperature section is	yellow				
dd'- add	d color tem	perature section						
)elete'- (	delete the :	selected color temperature s	section					
Edit' - to e	edit the sel	ected color temperature sec	ction (including the deletion	n of the selected row, clea	r the information in ti	ne current color temp	perature se	ction)
olor tem	nperature	Brightness value R gair	n Gigain	B gain	R brightness	G brightness	B brigh	tness
Add	Edit	Delete Clear					Sav	ed to loca
		Delete Clear	been read successfully				Sav	ed to loca
			been read successfully				Sav	ed to loca

- 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 6-11.

### Add Color Temperature Information × Color Temperatu... 9600 Red Green Blue brightness brightness Green Add Brightness Brightness Red gain Blue gain gain Edit 100.00% 100.009 Delete Clear 0k Exit

Figure 6-11 Adding color temperature information

Step 5 Click Add Brightness to open the dialog box shown in Figure 6-12.



Figure 6-12 Adding brightness information

Add Brightness Information	×
add Brightness miornation	^
Set Color Temperature Information	
Brightness Value 🔟 🕺	
Current Gain	
R	> ~ %
6 <	> ~ %
Β <	> ~ %
Synchronize	
Brightness Component	
R <	> 229 🚖 (89.80%)
6 <	> 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 6-13.

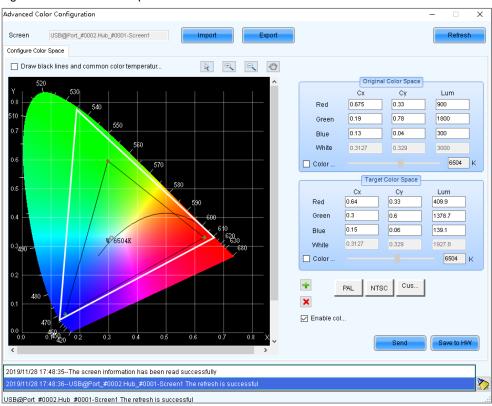


Figure 6-13 Custom color space

Step 2 Set the original color space.

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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**

1

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 Set	tings	-	-		Х
Automatically Adjustment Table		Add		Clear I	int
				Clear	151
Start Adjusting Time	Adjustment Method	Brightness (%)			
Please Note					
1. When computer is disconnected	d from hardware, the system will	turn to hardware a	adjustm	ient mo	)d
2. Only adjust brightness, but not (	color temperature and Gamma.				
3. Do not record brightness adjust	tment log.				
		Previous	F	inish	

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

Adjust the Tim	e Setting		×
Starting Ti	10:00		•
Adjust Type	Specified	Environme.	
Brightness	10		€ %
More Setting	<u>IS</u>		
		ОК	Cancel

c. 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.

d. 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>



e. 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 Co	nfiguration Tabl	e	Light Ser	nsor T	Refre	sh	Clear Faile	ed Li
Whether to Enable	Location	Environn Brightne		From		Remark	<	
Prompt: Please (								
🗹 When the lig	ht sensor fails,	the brightness	should b		5.0 🌻	%		
Brightness Mapp	ing Table (envi	ronment brighti	ness scree	n brightne	ss)	(	Fast Secti	on D
Environmental E	rightness (Lux)	1	Screen Bri	ghtness (9	6)		^	÷
20			40					-
1218			44					
2416			48					
3614			52					
4812			56					
6010			60					
7200			64				~	
Night mode				C	Offline w	ork is not	supported	ł
Brightness max	imum(%)	Start time(h)		End	d time(h)	1		-
								· *
					Previous		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.



✓ 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		mart Brightness Adjustment
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		🗹 Enable Brightness Grad
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	formation	Automatic brightness adjus
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	➡ S	Environment brightn
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	▲ ▼	Times of reading en
	ge value of light sensor after N justing the brightness of	<ul> <li>need to calculate the times of readings bef screen, and then adju</li> </ul>
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 6-14 Multi-batch adjustment

Multi-Batch Adjustment - Initialization	_	• ×
Operation Type		
Manual Adjustment	O Apply Adjustment File	
Colorimeter		
Select Colorimeter:	No Colorimeter 🗸 🗸	
	Ne	ext

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 6-15 Setting sample batch

Multi-Batch Adjustme	ent - Add Sample Batch — 🗌	×					
Add     Delete     Import     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 🗸 Select Displa LED Display1 🗸						
	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	J					

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	X=0. Y=0 Size64W>	32H			
🔿 Screen 🔘 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.
  - 3. 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 6-16	View the	preliminar	v ad	justment result

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

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 6-17	Fine	tuning	a sample	batch

Multi-Batch Adjustment - Sample Batch Adjustment - 🗆 🗙
Delete Export
Name       Display         Sample Batch       Image: Color         Sample Batch       Image: Color         Brightness:       Image: Color         Coefficient Adjustment       Image: Color         Adjustment Mode:       Image: Reg       HSI
Red Coefficient       Green Coefficient       Blue Coefficient         Red Brig        > 2033 ÷         Green C        > 0 ÷         Blue Co        > 0 ÷         Blue Co        > 0 ÷         Blanced       Balanced Description       Withdraw
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.

(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 b	lue		-	□ X
Reference Ba	ch Selection				
Reference	Batch: Sam	ple Batches1 $\sim$			
- Balanced Adju	stment (Red, Greer	n, Blue)			
Adjustmer	t Mode: 💿 F	(GB	O HSI		
Red Coefficie	nt Green Coefficient	Blue Coefficient			
Red Brig.	<			> 2047	÷
Green C	<			> 6	÷
Blue Co	<			> 0	-
			(	Cancel Adju	st
					Vext

### 6. Click Next.

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

Figure 6-18 Adjusting color temperature	Э
---	---

Multi-Batch Adjustment - Color Temperature Adjustment	_		×
Color Temperature Adjustment			
Color Temperat Effect View Brightness: Automatic Switching Interval Brightness: Color Temperat Second Switching (1-60 seconds)	K		
Previous	4	Vext	

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 6-19	Applying (	adjustment	effect

Multi-Batch Adjustmen	t - Appl	y of Adjustment Results				_	
Apply Adjustment							
Batch Name							1
Sample Batches1	No.	Regional Information	LED	Apply	Cancellati	Deletion	
Sample Batches2	1	USB@Port_#0003.Hub_#000	reen on Lł	Apply	Cancel	Delete	Display the C
							Add Areas
							Apply All
							Cancel All
	🗹 Er	nable Correction 🗌 Display	All Batches		Save	File	Save to Flash
					Previous		omplete

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 > Adjust Dark or Bright Lines.

If you have a configuration file for dark or bright line adjustment, choose **Recover Dark or Bright Lines** to quickly complete dark or bright line adjustment.

Step 2 Click the corresponding Quickly Adjust button according to the receiving card type and adjust dark or bright lines.



Figure 6-20 Adjusting dark or bright lines

Quickly Adjust Dark or Bright Lines		Х
Common Version	Ax series, MRV308, MRV328, MRV316, MRV366,DF30, Axs V4.4.0.0 and later versio	
Quickly Adjust	Quickly Adjust	

#### Common version

Quickly Adjust Da	rk or Bright Lines						- 🗆 X
- Select Screen -						Operation Instru	ctions and Attentions
	SB@Port_#0001.H⊨ ∨ Seria	I Numb 1 🗸 P	osition of O Main	scre 🗸 🗌 Modue	H Moduel Size	32 🜲 🗙 32	Drawing
Topology Graph Prompt: Yello	Stitching w means to select all pixel	s, while green means to	select some pixels	Sele	ection Op 🗹 Row	Di 🔽 Colum	2 2
1	2	3	4	5			
6	7	8	9	10			
11	12	13	14	15			
16	17	18	19	20			
21	22	23	24	25			
					splay Seri 🕅 Lo	ock Selection	Hide Topolo
Adjust Dark or B	-	0					
Method: Color	O Red, Green an	White Prior		© 10/1-14-			Save to HW
Adjust	<ul> <li>Red</li> <li>Red</li> </ul>	Green	) Blue	White 1.000			
	-	<u>1.000</u>			Save to user area	Restore to user	Saved to File

- a. Select a communication port and screen.
- b. Select a position to display image, including main screen and extended screen.
- c. To adjust dark or bright lines between modules, select **Module-level Adjustment**, set module size and then click **Drawing**. To adjust dark or bright lines between cabinets, skip this step.
- d. On the topology, select a target to adjust.

Selection methods: Click borders and corners, click and drag the mouse to select borders and corners, or double click borders to select pixels.

Deselection methods: Click selected borders and corners to deselect them or click is to deselect all the selected borders and corners.

Topology zooming: Click 📫 or 🗎	Γοροίοαν	zoomina: Click	3	or	3
--------------------------------	----------	----------------	---	----	---

Selection options: Select **Row Direction** to select horizontal borders and corners by clicking and drag the mouse. Select **Column Direction** to select vertical borders and corners by clicking and drag the mouse.

- e. (Optional) Select **Display Serial Number**, **Lock Selection** or **Hide Topology Graph** to display the cabinet or module numbers on the display window and lock or hide the topology.
- f. Select **Red**, **Green and Blue Priority** to adjust the coefficients of red, green and blue, or select **White Priority** to adjust the overall coefficient.
- g. After the settings are done, click Save to HW to save the configuration to receiving cards.
- h. (Optional) Click Save to File to save the configuration as a file.



#### **Notes**

- Clicking Save to user area saves the configuration to the application areas of receiving cards.
- Clicking Restore to user area restores the configuration of dark or bright lines according to the application areas of receiving cards.

#### Supported receiving cards: Ax series, MRV308, MRV328, MRV316, MRV366, DF30, Axs V4.4.0.0 and later

O Seam	Brightness	Adjustment																	-		×
Modu.	Cabi			Row (S)	Column (D)	с	<b>&gt;</b> lea F1)	Deselect (F2)	<b>**</b> Clea (F12)	Show (Z)	No. Show (X)		<b>S</b> - pration	O Show.	. Screen dis	Window Cal (Alt+C)	or	Screen B		200 韋	-
Screer	n1																				
																		► C			
									1	2	3	4	5	1							
									6	7	8	9	10								
									1	12	13	14	15								
									16	17	18	19	20								
									21	22	23	24	25								
	Selected A	rea Parameter	Adjustmi	ent				<u>1.000</u>	1.200	1.000 🗘	Precis	ion O.C	) 0	5	No Video S Note: Support o						
																		Sa	ive to H	v	

- a. Click to select module mode or click to select cabinet mode.
- b. Select a display color.
- c. Drag the slider to adjust screen brightness.
- d. Click **1** and choose to use the main screen or extended screen from the drop-down box for display.

bisable calibration, select chroma calibration or brightness calibration.

- Show or hide the display window.
- e. Click or select the borders to be adjusted.
  - : Select all the borders.
  - : Select horizontal borders.
  - : Select vertical borders.
  - Show or hide the flashing dotted borders on the display window.
  - No: Show or hide module or cabinet numbers.
  - Q: Zoom out the topology.
  - : Zoom in the topology.
  - 11: Map the topology to the display window (1:1).
  - E: Auto fit the topology to the canvas.
- f. Set the precision of adjustment and drag the slider to adjust the coefficient.
- g. After the settings are done, click Save to HW to save the configuration to the hardware.

## 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 On the menu bar, choose Tools > More > Brighter Pixel Correction.

Figure 6-21 Brighter pixel correction

💀 Brighter Pixel Correction				– 🗆 X
Topology Simulati	☑ Sho	🗹 Show   <u>द</u>	Select Display Display: 1	~
			Displav 💿 Main . Screen b	
			Import Database	0 30%
			Database   Cabir	net O Full
			Database	Browse
			Cabinet	~
				Read Coefficients
				read coemcienta
			Coefficie Advanced	
			Select	Reset
			No. Colum	Row Red Green Blue
			<b></b>	
			Avera	-
			R: 0:-	
			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.
  - E: Select brighter pixels by clicking and dragging the mouse to form a selection box.

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

•



#### Figure 6-22 Selecting brighter pixels

🖷 Brighter Pixel Correction					-	- 0	×
Topology Simulati	k 🗌 🔿 🛧 🛃	2 2	Select Display Display:	1	_		~
			Display Screen b	Main	⊖ Ext	ende 	.%
			-Import Databa	se			
			Database	Cabinet	🔿 Fu	II	
			Database	GILCT资料优化	(¿wiangtiCLE	3.db Bro	owse
			Cabinet	1-1			r
_					F	Read Coeffici	cients
			Coefficie	Advanced			
			Select			Res	set
			N0.	Colun Row	Red 0	Green Blue	• ^
			✓ 1	34 15		047 2047	_
			2	34 16		047 2047	_
			2 3	34 17		047 2047	_
			4	34 18		047 2047	_
			☑ 5	34 19		047 2047	_
			6	35 15		047 2047	_
			2 8	35 16 35 17		047 2047 047 2047	_
				35 18		047 2047	_
				155 110	2047 2	147 2047	
			<b></b>				100%
				Average			
				R:2047 G:2047	B:2047		
			Upload	Save	to HW	Save Data	tab

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**

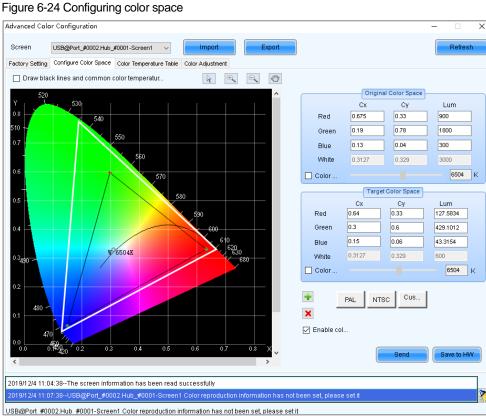
- Step 1 On the menu bar, choose User > Advanced Synchronous System User Login. Enter the password and click OK. The default password is "admin".
- Step 2 Choose Settings > Advanced Color Configuration.
- Step 3 Click **Import** to quickly complete the configuration or continue performing the following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

dvanced Cold	or Configuration		-
Screen	USB@Port_#0002.Hub_#0001-Screen1 V Import Export		Refresh
Factory Setting	Configure Color Space Color Temperature Table Color Adjustment		
Current	3ain		
R	¢	> 10	0 %
G	٢	> 10	0 %
в	٢	> 10	0 %
_ S	ynchronize	Defau	It Value
RGB Brig	htness		
R	٢	> 25	5 (100.0%)
G	¢	> 25	5 (100.0%)
в	٢	> 25	5 (100.0%)
🗆 S	ynchronize		
		Sav	e to HW
2010/12/4 11:0	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.

Select Configure Color Space to set color space. Step 5





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 6-25 Color temperature table

Advanced Colo	or Config	uration						-		×
Screen Factory Setting		rt_#0002.Hub_#0001 e Color Space Colo		Import Color Adjustment	Export				Refresh	
Operation										
		ire name box of se	lected color tempe	rature section is yel	low					
Add'- add (	olor temp	perature section								
Delete'- de	lete the s	elected color temp	perature section							
				iding the deletion of	the selected row, clear	the information in t	he current color tema	nerature ser	tion)	
Color temp	erature	Brightness value	R gain	G gain	B gain	R brightness	G brightness	B bright	ness	٦
										=
Add	Edit	Delete	lear					Save	d to local	
2019/12/4 11:1	3:40Rea	ad Receiving Card	Parameters,Resu	Its -Successful					^	1
			on has been read s						~	8
	rmotion b	as been read suc	resefully							<u>,</u>

- 1. Click Add to open the dialog box shown in Figure 6-26.
- 2. Click Add Brightness to open the dialog box shown in Figure 6-27.
- 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 6-26 Adding color temperature information

1	Add Color Ten	nperature Ini	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 6-27 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 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.



wanced Cold	r Configuration						- (	)
Bcreen	USB@Port_#0002.Hub_a	#0001-Screen1 ~	Import	Export			Re	efresh
actory Setting	Configure Color Space	Color Temperature Table	e Color Adjustment					
Hue Adjustr	ent							
Hue	<				>	0		
ContrastAdj	ustment							
Contrast	<				>	50	%	
Saturation A	djustment							
Saturatio	n <				>	50	%	
19/12/217:2	6:59The screen infor	mation has been read	i successfully					

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 to open the dialog box shown in Figure 6-29.

Figure 6-29 Screen effect adjustment

djust screen effect			_		$\times$
JSB@Port_#0001.Hub_	#0001-Screen1				
Parameter Settings					
Enable 18			_		_
Enable	<	> (	) Sa	ve to HW	
🗌 Enable sendir	α car 🗌 Enable receivin	a car			
HDR Parameter Se	ttings				
Enable	~		Rest	tore defau	ilts
Peak Screen	<	> 1000	) cd/m2		
Ambient Light:	<	> 30	Lux		
Low Graysca	<	> 15			
Tip: Current	source is not HDR10. Please connec	t an HDR10 vi	ideo sourc	e.	
Screen Information					
2020/1/19 16:03:1	7Read receiving card low latency par	rameters suc	cessf 🖍	•	
2020/1/19 16:03:1	7Reading HDR parameters				
2020/1/19 16:03:1	7HDR parameters read successfully	t.			
			>	, Clea	ar

- Step 3 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

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

HDR Parameter S	ettings –				
🗹 Enable	HDR10		$\sim$		Restore defaults
		_			
Peak Screen	<			>	4835 cd/m2
Ambient Light:	<			>	40 Lux
Low Graysca	<			>	26

6.8 Set Image Booster Engine (Applicable to Windows 7)

## 6.8.1 Screen Calibration

## **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

- Color management and 18bit+: Applicable to the A5s Plus and A7s Plus receiving cards
- Color management, precise grayscale and 22bit+: Applicable to the A8s and A10s Plus receiving cards

## **Prerequisites**

- The receiving card program package is updated.
  - A5s Plus and A7s Plus: V4.6.4.0 or later
  - A8s: V4.6.5.0 or later
  - A10s Plus: V4.6.5.0 or later. For detailed operation, see the NovaLCT V5.3.1 user manual.
- The original display color gamut can be measured manually or automatically. To measure it automatically, you must use the supported colorimeter and finish the colorimeter hardware connection.

Currently supported colorimeters: CA-410, CS-150, CS-100A and CS-2000

## **Notice**

Adjusting receiving card parameters affects the display effect.

## **Related Information**

The Image Booster Engine has the following 4 functions which improve the display effect (the actual effect depends on the driver IC) from different dimensions.

#### 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.

#### 💠 18bit+

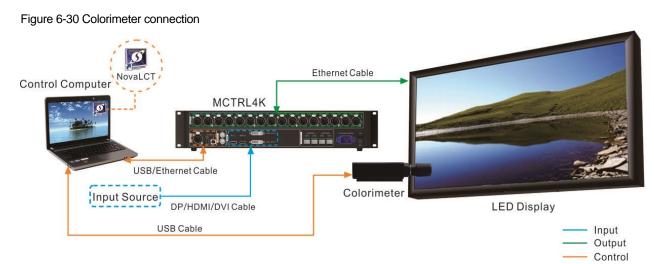
Improve the LED display grayscale by 4 times to effectively handle the grayscale loss problem due to low brightness, presenting a smoother image.

When you measure the color gamut and grayscale of LED screen, you must use the colorimeter to collect the grayscale data of red, green and blue in order. The supported colorimeters are described in Table 6-1. Figure 6-30 uses the CA-410 as an example to show the hardware connection.

Model	Measurement Distance (Darkroom)	Data Collection Speed
CA-410 (Recommended)	Touch the screen	About 7 min
CS-150	30 cm	About 3–4 h
CS-100A	1 m	About 3–4 h
CS-2000	1 m	About 3–4 h

#### Table 6-1 Colorimeters





## **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 I next to the rightmost function icon to open the drop-down list and then click

Image Booster Engine

Step 3 Select a communication port and a screen that you want to calibrate.

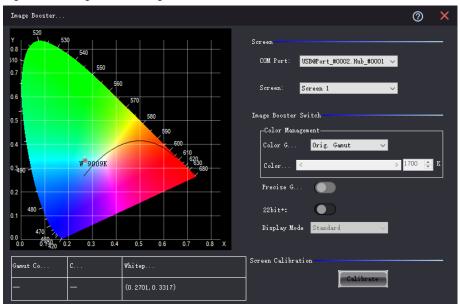


Figure 6-31 Image Booster Engine

If the connected receiving card supports the 18bit+ function, the **22bit+** displayed on the user interface will become **18bit+**. The **22bit+** user interface is used as an example in all the following operations.

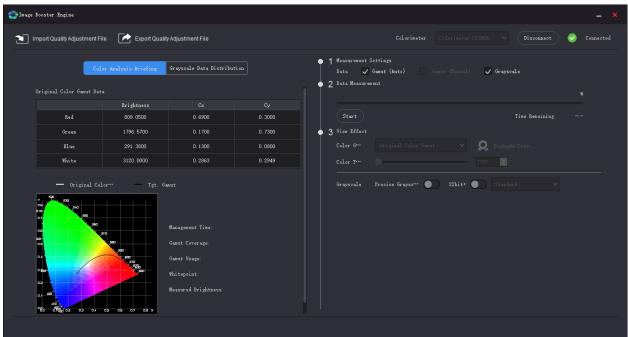
- Step 4 Click Calibrate to open the function page.
  - If you have finished colorimeter hardware connection, NovaLCT will automatically establish communication connection with the colorimeter. When you see Connected at the upper right, the connection is successful, as shown in Figure 6-32.

If the connection fails, see 12.4 Failed to connect colorimeter to troubleshoot the problem. To disconnect the colorimeter, click **Disconnect**.

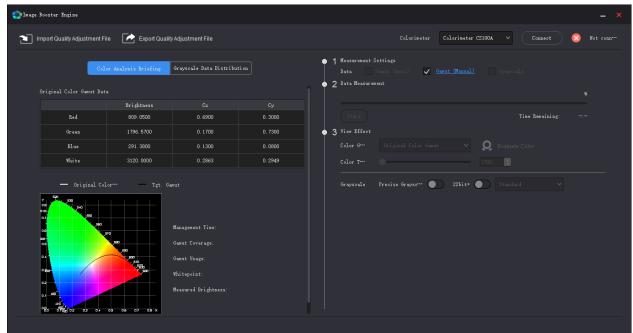
If you have not connected a colorimeter, the function page is as shown in Figure 6-33.



#### Figure 6-32 Colorimeter connected



#### Figure 6-33 Colorimeter not connected



Step 5 Do one of the following operations as required.

- If you do not have an image quality adjustment file, go to Step 6.
- If you have the file (.vglcx/.vglc), click **Import Quality Adjustment File** and go to Step 7.

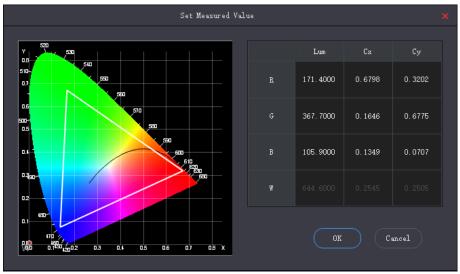
Step 6 Measure the display and transfer the measured data to the receiving card.

- Automatic measuring: Use the colorimeter to automatically measure the original color gamut. For the A8s receiving card, you can also choose to measure the grayscale.
  - a. Select Gamut (Auto). For the A8s, you can select Grayscale at the same time, if necessary.
  - b. Click Start to start measuring and transferring the measured data to the receiving card.
- Manual measuring: Manually measure and fill in the original color gamut values.
  - a. Select Gamut (Manual) and click the text link next to it.
  - b. On the Set Measured Value page that appears, double click the value and enter the measured value.

c. Click **OK** to transfer the measured data to the receiving card.



### Figure 6-34 Setting measured value



Step 7 In the View Effect area, set the Image Booster Engine related parameters and view the effect on the screen.

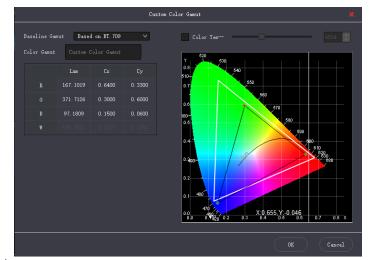
🚱 Image Booster Engine					
Import Quality Adjustment Fi	ile 💽 Export Quality/	djustment File			elorimeter CS100A 🗸 Disconnect 🧭 Connected
C.1	or Analysis Briefing	rayscale Data Distrib	ution	● 1 Measurement Settings Data 🗸 Gamut (Auto) 🦳 Gemu	et (Manual) 🗸 Grayscale
Original Color Gamut Dat				<ul> <li>2 Data Measurement</li> <li>Vploaded successfully.</li> </ul>	You can check the effect now. 100%
	Brightness				
Red	267.5000	0.6786	0.3211	Start	Time Remaining: 00:00:00
Green	612.6000	0.1405	0.6222	• 3 View Effect	
Blue	84.4400	0.1373	0.0494	Color G*** DCI-P3(80.15%)	<ul> <li>Evaluate Color</li> </ul>
White	966. 7000	0.2661	0.2739	Color T	6504 +
	20 20 20 20 20 20 20 20 20 20 20 20 20 2	st Management Time: Manut Coverago: Manut Usago: hitepoint: Measured Drightness:	2020-10-20 80 15% 78 81% X: 0.3127 Y: 0.3290 966.7 nit	Grayscule Precise Grayson 🔵	22bit+ 💽 Standard 🗸

Figure 6-35 Viewing effect

Color Gamut

Select a color gamut from the drop-down list. If you want to add a custom color gamut, do the following.

a. Click 📕 at the end of the drop-down list to open the Custom Color Gamut page.





- b. Select a baseline gamut.
- c. Set the color gamut name. The name cannot begin with a number.
- d. Double click the cells to change the values, or adjust the black triangle in the color gamut diagram. If you want to adjust the color temperature value, select **Color Temperature** and set it.
- e. After the settings are done, click **OK**.

The total number of color gamuts cannot be greater than 19. You can click 📕 to delete gamuts.

Color Temperature

Drag the color temperature slider to set the color temperature, or set it in the spin box.

Precise Grayscale

Turn on or off this function.

18bit+/22bit+

Turn on or off this function.

Display Mode

### Select Standard, Grayscale preferred, or Low-grayscale optimized.

After you select a gamut, the Color Analysis Briefing tab page will display the related information.

- Management Time: The date when the measuring is done
- Gamut Coverage: The LED screen color gamut coverage of the target color gamut, expressed as a percentage
- Gamut Usage: The LED screen color gamut coverage of the original color gamut, expressed as a percentage
- Whitepoint: The coordinates of white in the color gamut diagram
- Measured Brightness: The maximum brightness of whitepoint. Different color gamuts have the same maximum brightness of whitepoint.
- Step 8 Repeat Step 7 to change settings until the display effect meets the actual needs.

These settings are the final display effect configurations.

Step 9 (Optional) Click Export Quality Adjustment File to save the configuration information as a file.

Step 10 If you want to evaluate the color precision, do the following:

1. Click Evaluate Color Precision.

			Color Evaluation			
Color Evaluation						
Evaluate Gamut	DCI-P3 V					
Start Evaluation	on Export Report				Auto Switching Interval 2s	
Standard Color	Color Value	CIE31 (Lxy)	Measured Value Before …	DeltaE	Measured Value (Lxy)	DeltaE
	#745244					
	#d9792£					
	#2e3e95					
	#f6f3ed					
	#c49582					
	#455ca3					
	#45924a					
	#c8c8c7					
	#5с799Ъ					
	#c65562					
	#b12d38					
	#9e9e9f					
	#5b6b45					
	#5a3d67					
	#ebc32f					
	#777978					
	#827fac					
	#9db848					
	#bd5290					
	#535454					
	#5dbaa8					
	#e39e34					
	#0083s2					
	#363637					

- 2. Select a color gamut and click **Start Evaluation**.
- 3. After the evaluation is done, click **OK**.
- 4. Select Display Demo.



5. Click any of the colors in the table and check their effects 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.

			Color Evaluation			×
Color Evaluation						
Evaluate Gamut	DCI-P3 V					
Start Evaluation	n Export Report			Display Demo A	uto Switching Interval 2s	
Standard Color	Color Value	CIE31 (Lxy)	Measured Value Before …	DeltaE	Measured Value (Lxy)	DeltaE
	#745244	301.1084, 0.3595, 0.3477	342.4000, 0.3185, 0.2972	21.10	298.8000, 0.3609, 0.3489	0.55
	#d9792f	465.5032, 0.4342, 0.4049	537.6000, 0.3982, 0.3591	22.57	462.6000, 0.4360, 0.4065	0.91
	#2e3e95	221.5052, 0.2342, 0.2234	245.8000, 0.1967, 0.1774	25.25	219.6000, 0.2337, 0.2232	0.27
	#f6f3ed	825.7895, 0.3155, 0.3319	928.2000, 0.2697, 0.2769	32.02	822.7000, 0.3152, 0.3318	0.22
	#c49582	537.3173, 0.3483, 0.3430	609.3000, 0.3058, 0.2912	26.23	534.1000, 0.3486, 0.3435	0.31
	#455ca3	313.6041, 0.2530, 0.2587	347.0000, 0.2112, 0.2077	26.46	311.3000, 0.2526, 0.2588	0.31
	#45924a	416.4897, 0.2965, 0.4179	448.4000, 0.2343, 0.3499	28.47	413.9000, 0.2969, 0.4205	0.88
	#c8c8c7	678.8510, 0.3131, 0.3296	760.4000, 0.2673, 0.2743	30.23	675.5000, 0.3127, 0.3297	0.29
	#5с799Ъ	397.4107, 0.2746, 0.2986	438.7000, 0.2289, 0.2431	26.97	394.9000, 0.2744, 0.2990	0.33
	#c65562	379.9279, 0.3882, 0.3140	445.8000, 0.3546, 0.2731	21.87	375.9000, 0.3890, 0.3142	0.37
	#b12d38	258.3168, 0.4442, 0.3096	312.8000, 0.4189, 0.2782	17.32	254.5000, 0.4462, 0.3099	0.55
	#9e9e9f	536.7727, 0.3123, 0.3283	600.2000, 0.2666, 0.2732	27.91	533.0000, 0.3121, 0.3287	0.36
	#5b6b45	340.5750, 0.3277, 0.3807	375.4000, 0.2770, 0.3215	23.46	337.4000, 0.3287, 0.3830	0.83
	#5a3d67	240.9222, 0.3073, 0.2712	274.3000, 0.2697, 0.2259	21.93	238.6000, 0.3075, 0.2715	0.32
	#ebc32f	653.3165, 0.4121, 0.4520	733.9000, 0.3666, 0.3991	28.62	649.0000, 0.4127, 0.4540	0.93
	#777978	408.9675, 0.3118, 0.3300	456.5000, 0.2657, 0.2747	25.45	406.0000, 0.3118, 0.3309	0.51
	#827fac	445.6334, 0.2928, 0.2932	499.7000, 0.2500, 0.2415	27.22	442.5000, 0.2925, 0.2934	0.35
	#9db848	573.6304, 0.3560, 0.4310	632.8000, 0.3026, 0.3710	28.32	570.0000, 0.3566, 0.4334	0.95
	#bd5290	378.3084, 0.3490, 0.2733	443.9000, 0.3152, 0.2339	23.81	374.8000, 0.3486, 0.2735	0.48
	#535454	284.4359, 0.3116, 0.3290	316.8000, 0.2655, 0.2740	22.49	281.5000, 0.3118, 0.3309	0.83
	#5dbaa8	554.4133, 0.2694, 0.3437	601.3000, 0.2152, 0.2801	30. 78	551.6000, 0.2690, 0.3446	0.56
	#e39e34	561.6006, 0.4177, 0.4246	636.8000, 0.3760, 0.3746	25.45	556.6000, 0.4185, 0.4267	0.96
	#0083s2	351.2598, 0.1937, 0.2995	368.1000, 0.1381, 0.2319	31.69	348.9000, 0.1926, 0.3004	0.89
	#363637	183.6266, 0.3114, 0.3269	204.0000, 0.2652, 0.2729	19.20	181.0000, 0.3123, 0.3295	0.92

- 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
- 6. Deselect **Display Demo**, click **Export Report** to save the evaluation result as a file.

### 6.8.2 Quick Setting

### **Applications**

Quickly set the Image Booster Engine related effect parameters.

## **Applicable Products**

- Color management and 18bit+: Applicable to the A5s Plus and A7s Plus receiving cards
- Color management, precise grayscale and 22bit+: Applicable to the A8s and A10s Plus receiving cards

## **Prerequisites**

- The receiving card program package is updated.
  - A5s Plus and A7s Plus: V4.6.4.0 or later
  - A8s: V4.6.5.0 or later
  - A10s Plus: V4.6.5.0 or later. For detailed operation, see the NovaLCT V5.3.1 user manual.
- Before you set the precise grayscale and color management functions, the screen calibration must be done. For details, see 6.8.1 Screen Calibration.

## **Notice**

After the Image Booster Engine settings are done, adjusting receiving card parameters will affect the display effect.

## **Related Information**

The Image Booster Engine has the following 4 functions which improve the display effect (the actual effect depends on the driver IC) from different dimensions.

#### 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.

💠 18bit+

Improve the LED display grayscale by 4 times to effectively handle the grayscale loss problem due to low brightness, presenting a smoother image.

## **Operating Procedure**

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

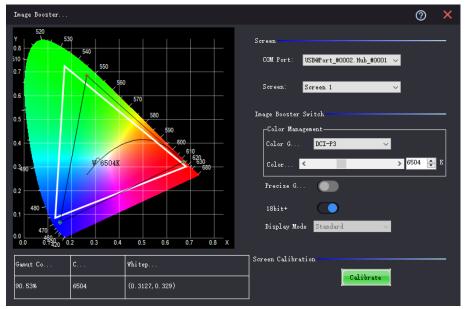
The default password is "admin".

Step 2 On the main window, click I next to the rightmost function icon to open the drop-down list and then click

Image Booster Engine

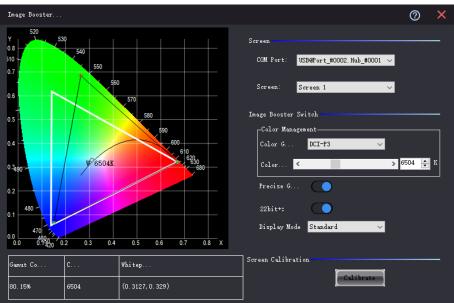
Step 3 Select a communication port and a screen that you want to set.

#### Figure 6-36 Image Booster Engine





#### Figure 6-37 Image Booster Engine (A8s)



Step 4 Set the color gamut, color temperature and 18bit+ switch, and view the effect on the screen.

For the A8s, **18bit+** will become **22bit+**, and you can set the color gamut, color temperature, precise grayscale, 22bit+ switch and display mode, as shown in Figure 6-37.

After you select a gamut, the page will display the related information.

- Gamut Coverage: The LED screen color gamut coverage of the target color gamut, expressed as a percentage
- Color Temperature: The color temperature value
- Whitepoint Coordinates: The coordinates of white in the color gamut diagram

The display mode can be set to Standard, Grayscale preferred, or Low-grayscale optimized.

Step 5 Repeat Step 4 to change settings until the display effect meets the actual needs.

These settings are the final display effect configurations.

## 6.9 Set Image Booster Engine (Applicable to Windows 10)

## **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 6-38.

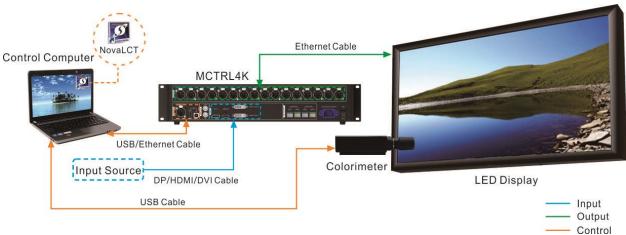


Figure 6-38 Colorimeter connection

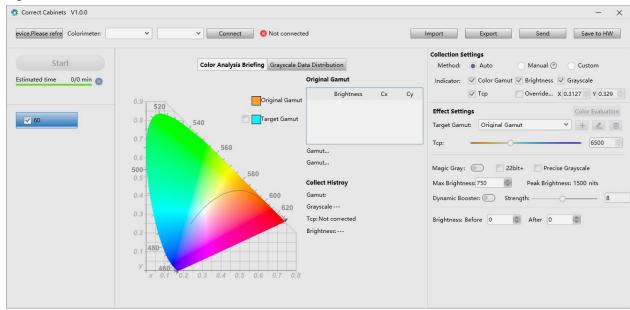
## **Operating Procedure**

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 🗐 next to the rightmost function icon to open the drop-down list and then click
- Step 3 On the Correct Cabinets screen, click Please refresh and select device located at the top left corner.

1



#### Figure 6-39 Cabinet correction

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

#### Figure 6-40 Device management

[	Devio	e Ma	anagement						$\times$
	Contr	roller	USB@Port_#0001.Hul	b_#0001	✓ Q Ref ?				
	Onlir	ne Cab	inets: 1 Selected	1					
	<b>~</b>	No.	Cabinet Location	Cabinet Manufactor	Cabinet Model 🖓	Rv Card Model 🖓	Firmware Version		5
	•	1	S1-P1-1	unknown		A10s Pro	V1.1.3.9 ⑦		
								Cancel	OK

- Step 5 Select the cabinet you want to operate and click OK.
- Step 6 On the left of the screen, select a frame rate.
- Step 7 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

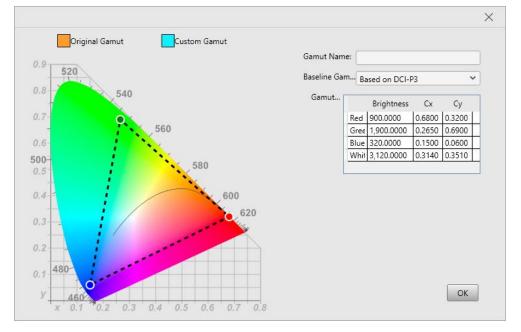
If an image quality file (.nrf/.vglcx) is available, you can click **Import** to import the image quality data and then adjust the effect parameter.

- 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 is 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 is to edit it, or click is 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.

Max Brightness

Set the max brightness of the screen in the entry box. **Peak Brightness** is the max brightness measured by the colorimeter.



Dynamic Booster

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

Brightness

Set the brightness before and after calibration to adjust the effect.

- 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.

valuate Colo	r Precision						
valuate Color:	~						
tart Evaluation	Export Report		Display Demo	Switching I	nterval 1 s	Start Demo	Sto
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	
	#455CA3			0		0	1
	#45924A			0		0	
	#C8C8C7			0		0	1
	#5C799B			0		0	1
	#B12D38			0		0	
	#5B6B45			0		0	
	#5A3D67			0		0	1
	#EBC32F			0		0	1
	#777978			0		0	
	#827FAC			0		0	
	#9DB848			0		0	
	#BD5290			0		0	
	#535454			0		0	
	#5DBAA8			0		0	
	#E39E34			0		0	
	#0083A2			0		0	
	#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.

## 6.10 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 www.novastar.tech



## **Related Information**

None

## **Operating Procedure**

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

#### Figure 6-41 Batch checking calibration effects

elect 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			

- 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 to open the dialog box shown in Figure 7-1.

#### Figure 7-1 Screen configuration method

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

- Step 3 Choose a communication port.
- Step 4 Select Configure Screen and click Next.
- Step 5 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 6 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 7 After the settings, click Save.
- Step 8 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 wontering 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 –	
USB@Port_#0003.Hub_#0001-Screen1         Image: Commission of Acquiring the Current Monitoring Data 15:13:41         Time of Acquiring the Current Monitoring Data 15:13:41         Statistical Information Total Quantity of Receivin 1	
Fault (alarm) Information Quantity of Faulted Receiving 0 Cards: 0 Quantity of Receiving Card with Voltage Exception: 0	Monitoring R Configuration
Soreen Name 🧱 🛄 🕼 📓 🥵 Ѵ 🚺 🗐	
USB@Fort_#0003.Hub_#0001-Screeni	3
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 - Settin	gs					Х
Refresh Period	Refresh Period					
Mardware Settings	Automatic Refresh	Refresh Period:	60	S S		
Alarm	Set Rereading Times -					
nitoring Con	When failing to rea software will read	ad status, the	0	≑ Times		
Email	Link to NovaiCare —					
Email Log	⊠ Link to NovaiCare					
					Save	
n the desk	top taskbar, rig	ht click	🌆 . se	elect Exit and	click <b>OK</b> .	

 $\sim \sim$ 

Step 7 Click Monitoring to start the monitoring function again.

Step 6





- 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: C	hina	User	:	Refresh
Screen Name	•	Width	Height	Registration State
USB@Port_#0002.	. 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.

Figure 7-6 Regist	ration information	
Screen Registration		×
Server	American 🗸	
User Name	Nova	
Password		
Soreen	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 to open the dialog box shown in Figure 7-7.

Figure 7-7 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.
- Step 4 Select Configure Screen and click Next.
- Step 5 On the Screen Configuration page, click Save.
- Step 6 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 11.1 Configure the Save Function.

Figure 7-8 Successful saving

		x
1	Saved successfully. Do you want to back up the system configuration file?	
	OK Cancel	

Step 7 After successful saving, click Close.

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

Figure 7-9 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.	ı
Close	

- Cloud Monitorin
- Step 8 When the control PC can access the Internet normally, click Cloud Monitoring on the main window and then click Local Backup Files to open the dialog box shown in Figure 7-10.

Figure 7-10 Local backup files

🖳 Local Backup Files				-		Х
The local backup file is the device system configuration file saved in the local PC when you click Save after completing the screen configuration. The backup file is convenient for you to batch bind screens to VNNOX Care after the PC is connected to the Internet.						
Device SN	Device Model	Remarks	Saved	Binding	g Status	
9912310000999999	MCTRL1600		2021/12/24 15:36	Unbound		
	Bind	Delet	e			

Step 9 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 10 Select the backup file records of one or multiple devices and click Bind.
- Step 11 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 7-11 Binding to VNNOX Care

💀 Bind to VNNOX Ca	re	×
	[]	
User Name		
Password		
	OK	
	UK	
		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 to open the dialog box shown in Figure 7-12.

Figure 7-12 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 3 Choose a communication port.
- Step 4 Select Configure Screen and click Next.
- Step 5 On the Screen Configuration page, click Export Screen Monitoring Data to open the dialog box shown in Figure 7-13.

Figure 7-13	Exporting scree	n monitorina	data

Export Screen Monitor	ing Data	×
File Name		
Location	C:\Users\zlkf-gyO1\Desktop	
File Content	1. Screen monitoring data	
	2. Sending card backup file	
	3. Receiving card backup file	
	4. Screen connection file	
	5. Receiving card/NovaLCT versions	
	Save	

- Step 6 Set a file name, click 🛄 to select a location and click Save.
- Step 7 After successful saving, click OK to close the prompt box.
- Step 8 When the control PC can access the Internet normally, log in to VNNOX Care.
- Step 9 Go to My Services > Screen Management to enter the screen management page.
- Step 10 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 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**



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

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

#### Figure 7-14 Monitoring

🔜 Monit	torSite V2.5	-		
PE	USB@Port_#0003.Hub_#0001-Screen1			
<u>[9]</u>	Zooming			
	0.40			
*				
	Normal			
8	Fault			
	Voltage E.			
Ππ	Time of Acquiring the Current Monitoring Data 15:13:41			
	Statistical Information	_		
	Total Quantity of Receivin 1			h
	Fault (alarm) Information Quantity of Faulted Receiving Quantity of Receiving Card Cards: 0 with Voltage Exception: 0		Monitoring R Configuration	
	Soreen. Name 🧱 🛄 🕵 🐻 🐼 💟 🚺 📲			_
USB@P	ort_#0003. Mub_#0001-Soreeni 🕘 💽 🌑 🚫 🚫 🚫 🚫 🚫	$\bigcirc$	3	
Care stat	tus: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 - Settir	ngs	×
Refresh Period		
Hardware Settings	Refresh Period	
	Automatic Refresh Refresh S	
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.

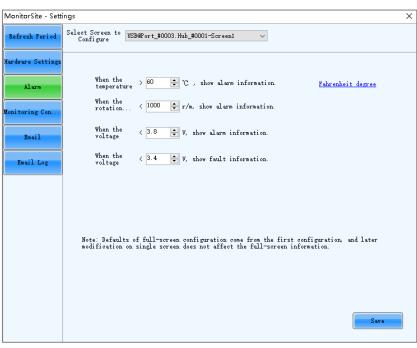
#### Hardware Settings

MonitorSite - Sett	ings	×
Refresh Period	Select Screen to USB@Fort_#0003.Hub_#0001-Screen1 V	
Hardware Settings	Connect to Monitori	
Alarm	Connect to NUB Monitoring	
Monitoring Con	Refresh Backup Power Supply	]
Email	Backup Power Supply Quantity	
Email Log	Refresh Humidity Refresh Smoke	
	Refresh Fan Fan Pulse: 1 🗘 PCS/r	
	Set fan quantity uniformly	
	Set fan quantity individually Refresh Power Supply of Monitoring Card	
	The numbers of power supplies on eac	
	Set power supply quantity individually Setting	
	Note: First time configuration is the default for full screen, later modification will not	

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.
- 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	ngs		×
Refresh Period	Select Soreen to Configure USB@Port_#0003.Hub_#0001-Son	reenl V	
Hardware Settings	Control Information List		
Alarm	Control type	Condition	
Monitoring Con			
Email			
Email Log			
	Add Edit Delete Clear list		OK

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**.

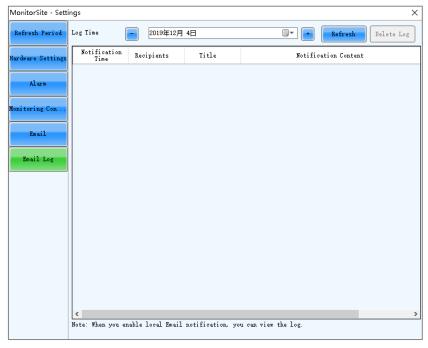
Refresh Period	Enable Email Notification	Send email when same fault/ $3  \checkmark$ Times sending
ardware Settings	Enable System Recovery Notification	
Alarm	Send system report email regularly Email Sender	
	Email Address novalct@novastar.tecl	a Port 25
onitoring Con	SMTP Server smtp. giye. 163. com	SSL Encryption Enable
Email	Modify Sender	Use Defaul
Email Log	Recipient	Email address
	111 nova_	huixy@126.com
	Email Information	
	Sending Email A-1	(e.g.:Neighborhood A, Square B)

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

4



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



# 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-function Card Management
Add Remove Refresh Rename + - X 2 Refresh Rename Power Management 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**.

5

Add Multi-function Carc	ł		×
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	ment Monitoring Data Peripheral Device Load Program Audio Management er Management Board Thursday 15:25:58 Read Set Set Notes Start Delay
	● ● ● ● Manual	O Automati     Start All     Emergency St       O Software Control     Advanced
	Switch 1	Start
	Switch 2	Start Stop
	Switch 3	Stat Stop
	Switch 4 Switch 5	Start Stop
	Switch 6	Start Stop
	Switch 7	Start
	Switch 8	Start
		5:23-Read the status of all the powers in multifunction card:Successful
	2013/12/3 13:23	1.28-read the status of all the powers in Hutkinonclion card.Succession
Read the status of all the powers in multifunction	card:Successful!	

Step 4 Use any of the following functions as needed.

#### Power Management

Add         Remove         Refresh         Rename            + • ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★	Time of Pow	ement Monitoring Data P er Management Board Thursday 15:30:49		n Audio Management
	🔹 🌢 🔮	Automati	Refresh S	tart 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	Start Stop		
	Switch 8	Start		
			ultifunction card:Successful	^
	2019/12/5/15:3	D:16FuncCard_SetPower		
ead emergency control status of power in mult	ifunction card:Suc	cessful!		

- 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

Multi-function Card Management		×
Multi-function Card Management Add Remove Refresh Rename  Add Remove Refresh Rename  USB@Port_#0003 Hub_#0001  Sending card-1  Port-2  Total Port-2	Power Management Monitoring Data Peripheral Device Load Program Audio Management Onboard Monitoring Data Temperature 32°C Humidity 25% Voltage 5V No monitoring card has been connected currently	×
	2019/12/5 15:34:32Read temperature of monitoring card in multifunction card:Successful         2019/12/5 15:34:32Read all status of monitoring card in multifunction card:Successful	
Read all status of monitoring card in multifunctior	n card:Successful!	

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

## Peripheral Device

Multi-function Card Management	×
Sending card-1	itoring Data Peripheral Device Load Program Audio Management
Peripheral device 1	No external device v
Peripheral device 2	No external device v
Peripheral device 3	No external device V
Peripheral device 4	No external device v
Peripheral device 5	No external device $\sim$
Peripheral device 6	No external device $\sim$
	Refresh Save
Read all status of monitoring card in multifunction card:Successful!	

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

#### Load Program

Multi-function Card Management X
Add Remove Refresh Rename         Image: Sending card-1         Image: Sending card-1
Read all status of monitoring card in multifunction card:Successful!

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	×
Multi-function Card Management	Vertice     V
	Select Program Program Name
	Program Version Program Path Browse
	Change
Read all status of monitoring card in multifunctio	
Read all status of monitoring card in multifunctio	n card.Successiun



#### Audio Management

Multi-function Card Management	×
Add Remove Refresh Rename	Power Management Monitoring Data Peripheral Device Load Program Audio Management Addio Management Monitoring Cata Peripheral Device Load Program Audio Management After hardware replacement, please select audio channel of Multi-function Card connection
	Audio channel of Multi-function Card connection
	O Independent Channel Settings
	HDMI Channel     Refresh
	2019/12/515:42:07Read system type of Multi-function Card connection.Successful
Read system type of Multi-function Card connecti	on:Successful!

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

# 8.2 Multiple-screen Management

## **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-scre	en manager	nent			
Configuration of Combined 9	Screen		_		×
Number of Combined	þ	Configurat	tion Clea	ir	
			ОК	Close	

- 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

Configuration of Combined S	creen		-		×
Number of Combined	1	Configuration	Clea	r	
Combined screen 1					
Name:	Combined screen 1				
Number of Screen:	2	Configuration	Rese	et	
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

<u> </u>			
Currently operating screen information			
Comm USB@Port_#0001.Hub_#000' V			
Screen list of designated			
1			
—			
Associated 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_# (t_#0003.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	Settings	
Select Pi		Browse
Effect Settings		
Screen Ef	fect Center	×
🔘 Single Ca	bin Center	Test Effect
Extende	Save to HW	Check Stored Picture
Function Setting	s	
Start-up Picture		
🔲 Enable	Time	30 🜩 Se
Disconnect Cab	ile	
🖲 Black	🔘 Last Frame	O Prestor
No DVI Signal <del>–</del>		
🖲 Black	🔘 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	-		×
Serial Port Selection			
Serial Port USB@Port_#0003.Hub_#0001			~
Screen1			
Parameter of Receiving Card Relay			
Disconnected			
○ Connected			
<ul> <li>Automatic</li> </ul>			
- Temperature Under Automatic Mode			
Temperature of Connected Relay	30	*	•~
Refresh	6	Bend	
Receiving Card Timing Clearing			
Record Time 10Days 6Hours 5Minutes			
Refresh	Timing	Resettir	ng

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 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 8-10 Configuration file management



- Step 2 Perform any of the following operations as required.
  - Import Configuration

Click Import Configuration, select a file in .zip format, and then click Open.

Export Configuration

Click Export Configuration, select the file save path and enter the file name, and then click Save.

# 8.6 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**

Stop 1 Click

Step 1 Click sciencontrol or choose **Tools** > **Screen Control** from the menu bar.



#### Figure 8-11 Screen control

Screen Control	×
USB@Port_#0003.Hub_#0001-Screen1	
Display Control Black Out Freeze	Normal
Self-Test: Normal 🗸	Send
Cabinet LCD Backlight Control	
Turn off cabinet LCD	Send
	Close

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.

Step 3 When the MCTRL660 PRO is connected, select a flipping option for the image of the Ethernet port as shown in Figure 8-12. The options include **Disable**, Left-Right, or **Top-Bottom**. If other devices are connected, skip this step.

Figure 8-	12 F	lipping	
-----------	------	---------	--

Screen Control				×
USB@Port_#0003.Hub_#0001-Screen1				
Display Control				
Black Out	reeze	Normal		
Self-Test: Normal	$\sim$	Send		
Cabinet LCD Backlight Control				
_				
Turn off cabinet LCD		Send		
Flip				
SelectAll		Disable	eft-Right Top-Bottom	
Communication Port	Sending Card	Port	Status	
		Port1	Disable	
		Port2	Left-Right	
USB@Port_#0003.Hub_#0001	1	Port3	Top-Bottom	
		Port4	Left-Right	
		Port5	Top-Bottom	
		Port6	Disable	
Tip: Make sure the low latency of s	onding cord in dioph	led during flip energies	0	
The make sure the low latence of s	enuniu calu is uisau		5.	
			Close	
			Close	



# 8.7 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.

nport the Configuration File of Controller Cabinet	×
Select Serial Port COM3 V	
Move Up         Move Down         Advanced C         Add Configuratio         Delete Configur         Rename File         Save the Chang	

Figure 8-13 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 8-14 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 8-15. If not supported, skip this step.

Figure 8-15	Renaming	sending	cards
i igule o-i o	rtenarming	Schuling	carus

Import the Configuration File of Controller Cabinet $ imes$
Select Serial Port USB@Port_#0002.Hub_#0001 ~
Move Up Move Down Advanced C Add Configuratio.
Rename File Save the Chang
Sending Card Name Setting ☑ Enable Naming
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.

# 8.8 Video Control

# **Applications**

Select an input source type for the video controller, and set the input, output and stitching.

# **Applicable Products**

The NovaPro HD video controller



# **Prerequisites**

None

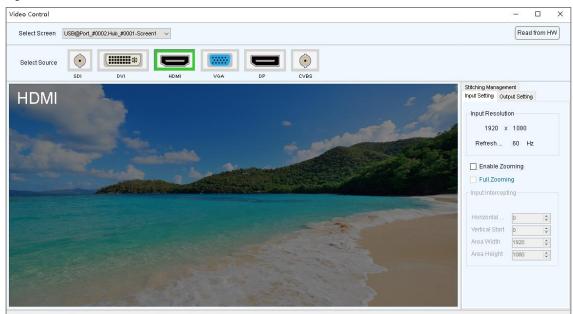
# **Related Information**

None

# **Operating Procedure**

## Step 1 On the menu bar, choose **Tools** > **Video Control**.

#### Figure 8-16 Video control



- Step 2 Choose a screen.
- Step 3 Click an icon to select an input source.
- Step 4 Perform any of the following operations as required to set the video control related parameters.

## Set input and output

- Disable zooming

You can set only the position of the output window.

Enable zooming

Select **Enable Zooming** to set the input intercepting position and size, as well as the output window position and size.

The output window size must be smaller than or equal to the LED screen size.

Full zooming

Select Enable Zooming and Full Zooming. Output parameter settings are not required.

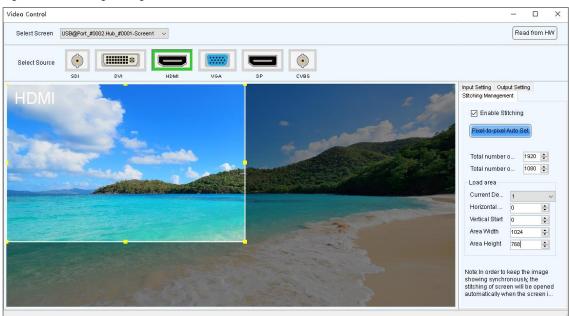
The output image will be adjusted to the same size as the LED screen after this function is enabled.

#### Set stitching

- a. Select Enable Stitching to set the total number of pixels of the LED screen.
- b. Set the position and size of the area loaded by current device, and then set the output window position and size. If you want to display the image in pixel-to-pixel mode, please click **Pixel-to-pixel Auto Set**.
- c. Set the positions and sizes of the areas loaded by other devices, and then set the output window positions and sizes.

The total size of the areas loaded by all devices must be the same as the total pixel number of the screen.





## Figure 8-17 Stitching management

# 8.9 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 8-18 Viewing module IDs

💀 Module ID settings		- 🗆 X
USB@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
		Refresh

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

#### Figure 8-19 Setting module IDs

🖷 Module ID settings	- 🗆 X
USB@Port_#0003.Hub_#0002-Screen1	
	Scaling rate
	ID Setting Prefix Sort ( Z-shape
	<ul> <li>N-shape</li> <li>Inverse Z-s</li> <li>Inverse N-s</li> <li>No.</li> </ul>
	● Ascen○ Descen
	by cabinet
	Generate Save to H
	Refresh

- Step 5 Select the ID generation method. Click **Generate** to set IDs for all the modules, or double click a single module and set its ID in the displayed dialog box, and then click **OK**.
  - 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.

# 8.10 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 8-20 Sending card relay

😸 Sending Card Relay Switch			×
Current Serial Port USB@Port_#0001.Hub_#0001 ~			
Sending Card List Sending Card1	Status Disconnect	Operation Start Stop	

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.

# 8.11 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

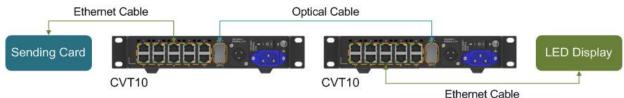
# **Prerequisites**

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 8-21 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 8-22 Optical port settings

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

Step 3 Choose a communication port.

Step 4 Click Enable.



# **9** Screen Maintenance

# 9.1 Firmware Program Update

# **Applications**

Check the current firmware program version of the receiving card and sending card, and update the program.

# **Applicable Products**

All receiving cards and sending cards

## **Prerequisites**

The program update package is prepared.

# **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 Type "admin" to open the program loading window as shown in Figure 9-1.

## Figure 9-1 Program loading

gram loadingthe cur	rent communication port has device accessed	- 0	×
Program loading			
	ation port for operation		
Communication por for the current operation		Reconnect	
Program updating			
Program Pat	\Users\Administrator\AppData\Roaming\WovaLCT 2012\unzip\DATA_DH7512-1_V4.7.2.26_093C	Browse	J
Advanced		Update	)
Extend the operation	item		
Read-back of recei			
Read-back offecer			
lardware Program Vers	sion Information		
Refres O Refre	s Sendi 1 🗘 Outp 1 🗘 Recei 1 🗘 🗌 Refres	Refresh	٦
formation Console			_
Iormation Console		٦	
			ר
		Clear	

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 9-2	Viewing	program	version

Hardware Program Version Information	
● Refres ○ Refres Sendi 1 🛊 Outp 1 🛊 Recei 1 🛊 🗆 Refres	Refresh
😑 Hardware program version information	
⊑ Sending Card	

- Step 5 Click Browse, select a program package, and click OK.
- 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 9-3 Selecting send mode

赔 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	rating tips:
Broadcast corrsponding value	əs: 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.

# **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 9-4 Led error detection

					- [	) X
ommunication Port Sele	ction					
ommunication Port	192.168.0.10:5200	~				
creen1						
Screen Topological Diag	ram					
					Zoom	
					^	
					✓ 1.0	
						known
					En	
						rmal
					No	Monito
ed Error Detection Para						
Detection Type	Open Circuit an	d Short Circuit Detection				
Detection Type Threshold Voltage	Open Circuit an	d Short Circuit Detection O 2	O 3	<b>4</b>		
			O 3	○ 4		
Threshold Voltage	<b>I</b>	O 2	<mark>()</mark> 3	○ 4		
Threshold Voltage Current Gain	<ul><li>● 1</li><li>☑ Enable</li></ul>	O 2	O 3	O 4	Pause S	top
Threshold Voltage Current Gain	<ul><li>● 1</li><li>☑ Enable</li></ul>	) 2 <u>Change Setting</u>			Pause 8	top
Threshold Voltage Current Gain	<ul><li>● 1</li><li>☑ Enable</li></ul>	) 2 <u>Change Setting</u>			Pause 8	top
Threshold Voltage Current Gain	<ul><li>● 1</li><li>☑ Enable</li></ul>	) 2 <u>Change Setting</u>			Pause	
Threshold Voltage Current Gain	<ul><li>● 1</li><li>☑ Enable</li></ul>	) 2 <u>Change Setting</u>			Pause 8	

- 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					— 🗆 🗙
Communication Port Sele	ection				
Communication Port	192.168.0.10:5200	~			
Screen1					
Screen Topological Diag	gram				
24582					Zoom 1.0
					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				
		Save Confi	Conduct led.	Led error d	Pause Stop
		Save Confi	Conduct led.	Led error d	
2019-11-08 05:16:038c	reen1:Led error deter	(		Led error d	Pause Stop
	No. Contractor and the second	Save Confi. ction is being initialized, H l error detection! The num	please wait		

Figure 9-5 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 9-6.



Figure 9-6 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

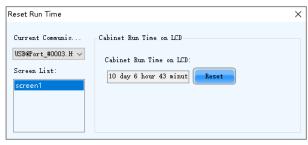
# **Related Information**

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 9-7 Resetting run time



Step 2 Choose a communication port and a screen.

Step 3 Click Reset.

# 9.4 Bit Error Detection

# **Applications**

Test whether the communication of the receiving card Ethernet port is normal.

# **Applicable Products**

All receiving cards

# **Prerequisites**

None

# **Related Information**

None

# **Operating Procedure**

- $Step 1 \quad On \ the \ menu \ bar, \ choose \ \textbf{Tools} > \textbf{More} > \textbf{Bit Error Detection.}$
- Step 2 Click Manually as shown in Figure 9-8.

it Error Detection						-	
Device ⊟-All	Auto Re:	fresh 1 🗘 Min Manua	11.			C	Lear
😑 - USB@Port_#0003. Hub_#							
-Sending card1	Bit Error	Information					
	Status	Sending card	Ethernet Port	Receiving Card	Error Details	Locate	Clear Errors
		USB@Port_#0003.Hub_#0001-Sendin cord1	g Port1	Receiving	Errors:0 2019年12月4日 17:00:02	Locate	Clear
					Data reading Dete	ction not	

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 (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 9-9	Hardware	information
------------	----------	-------------

Hardware Information			_	σ×
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	t			
Serial Number	SN Number			
▶ 1	1205-1C00-8002-0000 (18-5-2	8-0-640)		
			F	Reread
Llaudoura Durana Vancian	la fa una a fi a u			
Hardware Program Version				
● Refres ○ Refres	Sendi 1 🚔 Outp 1	Recei 1	🗧 🗌 Refres	Refresh
Information Console				
				]
				Clear

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.

#### Figure 9-10 Viewing program version

lardware Information				-		Х
ïme						
Current Time of Hardware	12/04/2019 17:02:42	Read	Set			
elect the Communication Po	t					
Current Operation C	SB@Port_#0003.Hub_#0001				$\sim$	
N Number of Sending Card						
Serial Number	SN Number					
• 1	1205-1C00-8002-0000 (18-5-2	8-0-640)				
			(			
				Re	read	
lardware Program Version In	formation					
Hardware Program Version In Refres     Refres		Recei 1	Refre	əs	Refr	esh
-	Sendi 1 文 Outp 1	Recei 1	💼 🗌 Refra	€S	Refr	esh
Refres     Refres	Sendi 1 文 Outp 1	Recei 1	🔹 🗌 Refre	9S	Refr	esh
Refres O Refres     Hardware program version	Sendi 1 文 Outp 1	Recei 1		əs	Refr	esh
Refres     Refres     Hardware program version     Sending Card     Sending Card MCU	Sendi 1 文 Outp 1			3S	Refr	esh
Refres     Refres     Hardware program version     Sending Card     Sending Card MCU	Sendi 1 Dutp 1		E Refre	3S	Refr	esh
Refres     Refres     Hardware program version     Sending Card     Gard MCU     G-Sending Card MCU     G-Sending Card FPG.	Sendi 1 Dutp 1	0 STD	E Refre	95	Refr	esh
Refres     Refres     Hardware program version     Sending Card     Gard MCU     G-Sending Card MCU     G-Sending Card FPG.	Sendi 1 Dutp 1 information Remarks:2019.07.04 MCTRL4K V1.2.4	0 STD	E Refre	95	Refr	esh
Refres      Refres     Hardware program version     Sending Card     Sending Card MCU     Sending Card MCU     Sending Card FPG     U 2.4.0 Total1     Sending Card FPG     U 2.4.0 Total1	Sendi 1 Dutp 1 information Remarks:2019.07.04 MCTRL4K V1.2.4	0 STD	E Refre	95	Refr	esh
Refres      Refres     Hardware program version     Sending Card     Sending Card MCU     Sending Card MCU     Sending Card FPG     U 2.4.0 Total1     Sending Card FPG     U 2.4.0 Total1	Sendi 1 Dutp 1 information Remarks:2019.07.04 MCTRL4K V1.2.4	0 STD	E Refre	95	Refr	esh
Refres O Refres      Hardware program version     Sending Card     Sending Card MCU     Sending Card MCU     Sending Card FPG     Sending Card FPG     Sending Card     Port 1.2.4.0 Total1     Receiving Card	Sendi 1 Outp 1 Information Remarks:2019.07.04 MCTRL4K V1.2.4 Remarks:2019.07.04 MCTRL4K V1.2.4	0 STD 0 STD		PS	Refr	esh
Refres      Refres     Refres     Hardware program version     Sending Card     Sending Card MCU     Sending Card MCU     Sending Card FPG,     Sending Card FPG,     Sending Card FPG,     Sending Card PG,     Sending Card PG,     Sending Card     Sending Card	Sendi 1 🕑 Outp 1 Information Remarks:2019.07.04 MCTRL4K V1.2.4 Remarks:2019.07.04 MCTRL4K V1.2.4	0 STD 0 STD n Succeeded 1 receiving card FPGA ve	rsion Succeeded	95 	Refr	esh
Refres      Refres     Refres     Hardware program version     Sending Card     Sending Card MCU     Sending Card MCU     Sending Card FPG,     Sending Card FPG,     Sending Card FPG,     Sending Card PG,     Sending Card PG,     Sending Card     Sending Card	Sendi 1 Outp 1 information Remarks:2019.07.04 MCTRL4K V1.2.4 Remarks:2019.07.04 MCTRL4K V1.2.4 ard1 Read sending card program versic	0 STD 0 STD n Succeeded 1 receiving card FPGA ve	rsion Succeeded	₽\$ 	Cle	

# 9.6 Send NCP Files

# **Applications**

Send the NCP file exported from the Cabinet Tool software to the receiving card to update its firmware program and configuration parameters.

## **Applicable Products**

All receiving cards

# **Prerequisites**

The NCP file (.cnp) is prepared and the applicable models in the file matches the currently used receiving card.

## **Related Information**

None

# **Operating Procedure**

Step 1 Choose Tools > More > Send NCP from the menu bar.

Figure 9-11 Selecting the communication port
--

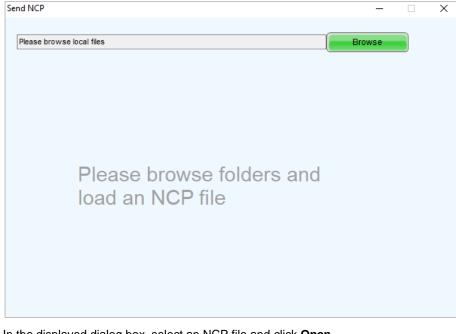
Screen Configuration			×
-Select Communication	n Port		
Current Operatio	10.41.200.45:5200	~	
		Next	ose

Step 2 Select a communication port and click Next.



#### Step 3 Click Browse.

Figure	9-12	Selecting	file
iguio	0 12	Colooung	mo.



- Step 4 In the displayed dialog box, select an NCP file and click **Open**.
- Step 5 Do the corresponding operations below as needed.
  - Send the configuration parameters in the display mode only
     Select a display mode from the drop-down list and click Switch Mode.
  - Send the firmware program and all the configuration parameters Click Send NCP.

#### Figure 9-13 Sending NCP

Send NCP		-		×
C:\Users\Administrator\De	esktop\a4.ncp	Browse		
Display Mode	Mode1 ~	Switch Mode		
	itching display mode, make sure the target cabi me NCP file as you loaded.	nets		
		Send	NCP	)

Step 6 Set to update all the receiving cards or the specified receiving card, and then click OK.

Figure 9-14 Selecting the sending method

😸 Select a send mode	×
All receiving cards	
O Specified receiving c	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 7 After successful operation, click **OK**.



# 10 Plug-in

# 10.1 Test Tool

# **Applications**

Use the test patterns to check whether the screen can display the image normally and locate the problems.

# **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**



Step 1 Click Test Tool or choose Plug-in > Test Tool from the menu bar.

Step 2 Click the **Window** tab to set the test pattern size according to the screen size, as well as set the test pattern position and set to show or hide the test pattern as shown in Table 10-1.

When the test pattern needs to be displayed on the extended display, adjust the **X** and **Y** values to move the test pattern to the extended display.

#### Figure 10-1 Setting window parameters

🐋 Test	Tool of LED	Screen-Novasta	r						×
Window	Pure Color	Gradual Change	Grid	Orientation	Help				
х	<		>	50 🜲	Width	<		> 805	-
							_		
А	<		>	<b>1</b> 1 <b>↓</b>	Height	<		> 508	÷
							Show	Hide	

Step 3 Select the Pure Color, Gradual Change, Grid or Orientation tab to set the test pattern style.

#### Table 10-1 Setting test pattern

Tab Name	Function Description
	Set a pure color test pattern.
	• Select a color.
Pure Color	<ul> <li>Set the grayscale changing method.</li> </ul>
	The grayscale changing options include <b>Manual</b> and <b>Automatic</b> . When <b>Automatic</b> is selected, you can set the changing speed, as well as set to start or pause the changing.
	Set a gradient test pattern.
	• Select a color.
Gradual Change	Select a grayscale level.
	<ul> <li>Set the test pattern stretching times.</li> </ul>
	<ul> <li>Set the gradient moving style.</li> </ul>



Tab Name	Function Description
	<ul> <li>Set the gradient sequencing and direction.</li> </ul>
	You can start or stop the moving of the gradient.
	Set a test pattern that has lines.
	• Select a color.
	Set the line style.
	Set the grayscale level.
Grid	<ul> <li>Set the line moving speed.</li> </ul>
	Select <b>Grid Overlaying</b> and select another pattern to display the overlaying grid effect. Click <b>Advanced Setting</b> to set the background color, line width and spacing, and the test patterns that can be used in blending measurement.
	Click <b>Ageing</b> and the screen displays the pure red, green, blue and white in sequence, which is mainly used by the screen manufacturer.
	Set the test patterns displayed in the actual positions of the receiving cards and modules. The receiving card serial numbers, receiving card lines and module lines are displayed, which can be used to locate the specific receiving cards or modules.
	<ul> <li>Set the module width and height.</li> </ul>
	<ul> <li>Set the module columns and rows in the receiving card.</li> </ul>
	• Set the colors for the receiving card serial numbers, module lines and receiving card lines.
Orientation	<ul> <li>Set the background color or background image.</li> </ul>
	<ul> <li>Set the receiving card numbering direction. The options include From Left to Right and From Right to Left.</li> </ul>
	If the test pattern is not displayed, click the <b>Orientation</b> button to display it.
	Click <b>Advanced Setting</b> to set the font size and font type for the receiving card serial number, starting row number, staring column number, as well as the widths of the module and receiving card lines.

## Figure 10-2 Setting orientation parameters

💐 Test Tool of LED	) Screen-Novastar				_	$\times$
Window Pure Color	Gradual Change Grid	Orientation	Help			
	Module			Loading Module of Re	ceiving Card	
Orientation	Width 64 🖨	Height	32	Number of 2	Number of 2	÷
	Color					
Advanced Setting	Font		Module Line	Re	ceiving Card Line	
	Background			Sec. 100	• From Left to Right	
	0	0	Backgrou		○ From Right to Left	

## Notes

Click the Help tab to view the descriptions of the shortcut keys used in Test Tool.

# 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 10-3 External program

External Program					
Common					
-	×	ок	Cancel		

Step 2 Click 🖻

## Figure 10-4 Adding external programs

Add External Program		×
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 10-3. www.novastar.tech 139

## Notes

Select an external program icon and click it is remove the program.

Step 4 Click OK.



# **11** Software Settings

# 11.1 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 11-1 Save to HW configuration

Save to HW Configuration	$\times$
Supported by V5.4.4 or later	
<ul> <li>Save to hardware only</li> <li>Save to hardware and back up</li> </ul>	
<ul> <li>Bart to hardware and back up</li> <li>Remind me to back up after saving to hardware</li> </ul>	
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 Se	tting	×
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 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.

# 11.4 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 www.novastar.tech

# **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.

# 11.5 Update Software

## 11.5.1 Online Update

# **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**

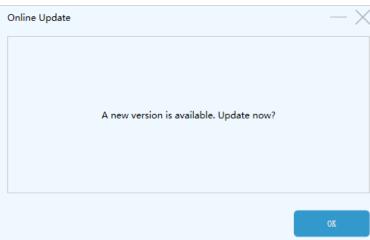
Step 1 From the menu bar, choose Help > Online Update.

#### 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 11-3 Online update





Step 2 Click OK.

#### Step 3 Click Get Update.

Step 4 After the update package is downloaded, click Install Update and wait for it to complete.

#### Figure 11-4 Installing update

Online Update		$\times$
[Supporting equipment]		^
1. Supported synchronization controllers		
MCTRL300/MCTRL R5/MCTRL500/MCTRL600/MCTRL660/MCTRL MCTRL4K/MCTRL1600/MCTRL660 PRO/Mee210/TU20	700/	
2. Supported video controllers		
3D HD/NovaPro HD/ NovaPro UHD Jr/VX2/VX2U/K2U/VX4/VX4S K4S/K4U/VX5s/V700/V800/V900S/VX16s/V1260/V1160/V1060/V9 V760/VX1000/K6s/K4S-N/VX 2S/VX6S/VX400S/VS1/VS2/VS3/VS7	960/V900/	~
Ownloaded	Install Upd	ate

# 11.5.2 Local Update

## **Applications**

When there is no Internet, upload the local NovaLCT update package from the local computer and install it.

# **Applicable Products**

N/A

# **Prerequisites**

The local update package is prepared.

## **Related Information**

None

## **Operating Procedure**

Step 1 From the menu bar, choose Help > Local Update.

#### Figure 11-5 Local update

Local Update			$-\times$
	Please select the	update package.	
	Select File	Update	



## Step 2 Click Select File.

- Step 3 In the displayed dialog box, select an update package and click **Open**.
- Step 4 After the package is verified, click **Update** and wait for it to complete.

#### Figure 11-6 Installing update

Local Up	date				$\times$
	File Name:C:\Users\No	va001847\	Desktop\NovaLCT_	V5.4.4.3.zip	
	Select Fil	e	Update		

# **12** Troubleshooting

# 12.1 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.

# **Solution**

Uninstall the current version, and then install the earlier one.

# 12.2 "No Screen" displayed in NovaLCT

# **Problem**

"No Screen" is displayed in NovaLCT as shown in Figure 12-1.

#### Figure 12-1 No screen



# **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.

# 12.3 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.

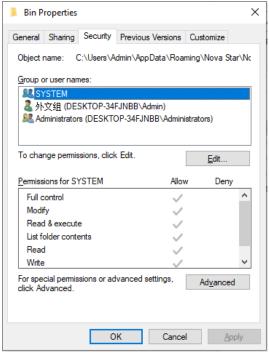


# **Solution**

Here, we use Windows 10 as an example to illustrate how to solve this problem.

- Step 1 Right click the desktop shortcut of NovaLCT and select **Open file location**.
- 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 12-2 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 12-3.

Figure 12-3 Changing permissions

Security Object name: C:\Users\Admin\ <u>G</u> roup or user names:	AppData\Roaming	]\Nova Star\Nc
	AppData\Roaming	]\Nova Star\Nc
Group or user names:		-
SYSTEM		
💄 外文组 (DESKTOP-34FJNBI		
Administrators (DESKTOP-34	FJNBB\Administra	tors)
	A <u>d</u> d	<u>R</u> emove
Permissions for SYSTEM	Allow	Deny
Full control	~	A
Modify	~	
Read & execute	$\checkmark$	
List folder contents	$\checkmark$	
Read	$\sim$	
L		

Step 7 Click Add to open the dialog box shown in Figure 12-4.

Figure 12-4 Selecting users or groups

Select Users or Groups	×
Select this object type: Users, Groups, or Built-in security principals	<u>Q</u> bject Types
<u>F</u> rom this location: DESKTOP-34FJNBB	Locations
Enter the object names to select ( <u>examples</u> ):	<u>O</u> heck Names
Advanced	OK Cancel

Step 8 Click Advanced to open the dialog box shown in Figure 12-5, and click Find Now.

#### Figure 12-5 Advanced settings

	-	
Select Users or Group	05	×
Select this object type:		
Users, Groups, or Built	t-in security principals	Object Types
From this location:		
DESKTOP-34FJNBB		Locations
Common Queries		
Name: Start	s with $\ ee$	<u>C</u> olumns
Description: Start	s with $\ ee$	Find <u>N</u> ow
Disa <u>b</u> led accour	nts	Stop
Non expiring pas	ssword	
Days since last logo	on: 🗸 🗸	<del>/</del> /
Search res <u>u</u> lts:		OK Cancel
Name	In Folder	^
Access Control Assi		
Admin	DESKTOP-34FJ DESKTOP-34FJ	
Administrator	DESKTOP-34FJ	
ALL APPLICATION		
ANONYMOUS LO		
Authenticated Users		
Backup Operators		
ВАТСН		~

- 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.

Permissions for Bin		>
Security		
Object name: C:\Users\Admin	NAppData\Roaming	g\Nova Star\Nc
Group or user names:		
Everyone		
SYSTEM		
▲ 外文组 (DESKTOP-34FJNE		tore)
Administrators (DESKTOP-3	4FJNDD VAUIIIIIIstra	tors)
	A <u>d</u> d	<u>R</u> emove
Permissions for Everyone	A <u>d</u> d Allow	<u>R</u> emove Deny
Permissions for Everyone	_	_
	Allow	_
Full control	Allow	_
Full control Modify	Allow	_
Full control Modify Read & execute	Allow	_
Full control Modify Read & execute List folder contents	Allow	_
Full control Modify Read & execute List folder contents	Allow	_

Figure 12-6 Setting permissions

Step 12 Click **OK** and close the properties dialog box.

# 12.4 Failed to connect colorimeter

# **Problem**

The colorimeter connection fails when the colorimeter is used to automatically measure the original color space of the screen.

# **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 12-7.

Figure 12-7 Setting CS-100A colorimeter



- Normal: Go to Step 2.
- Abnormal: Reconnect the colorimeter and make sure the colorimeter can work normally.
- Step 2 Check whether the colorimeter model selected in NovaLCT is correct.
  - Correct: Go to Step 3.
  - Incorrect: Select the correct model.
- Step 3 In NovaLCT, click Connect to reconnect the colorimeter.



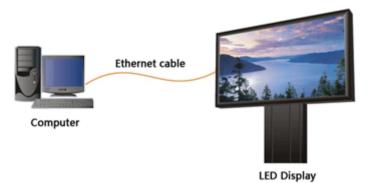
# 13 FAQs

# 13.1 How do I set the required parameters in no sending card mode?

# **Question**

The receiving card supports no sending card mode. When the hardware connection with no sending card is completed, how to set the required parameters?

Figure 13-1 No sending card mode



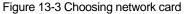
# **Answer**

- Step 1 Make sure the network card allows a data transmission rate of 1000 Mbps.
- Step 2 On the taskbar, right click and choose Detect Config.
- Step 3 Select Enable virtual controller and click **OK**.

Figure 13-2 Enabling virtual controller

🖳 Detect Config	<u> </u>		×
Auto Detect Config-			
🗹 Auto detect c	ontroller		
Detect Interval Conf	fig		
Detect interval:	30	<b>‡</b> S	
Virtual Controller C	Config —	_	
🗹 Enable virtus	l controlle	r	
OK	Can	cel	
			-

- Step 4 On the taskbar, right click Mark and choose Select Network Card.
- Step 5 Choose a network card and click **OK**.





# 13.2 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 i and choose System Setting.

#### Figure 13-4 Setting proxy

System Setting		×
🗌 Enable Froxy	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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