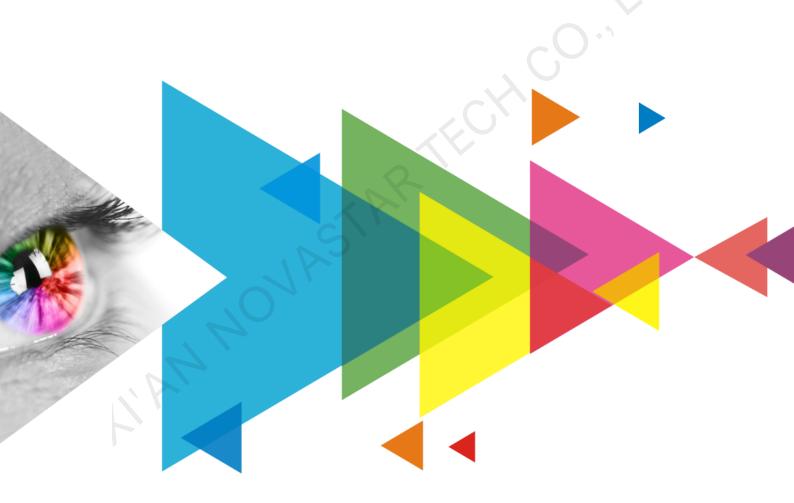


# NovaLCT LED Configuration Tool for Multimedia Player



## **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

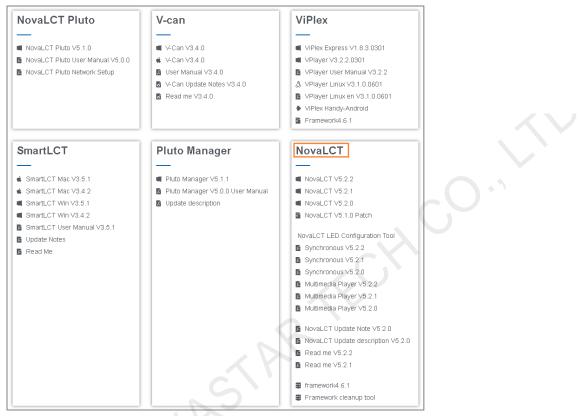
After the PC and control system product are connected, users can perform any operations with the PC. NovaLCT displays the corresponding functions and parameters according to the different hardware models and programs. During configuration, various kinds of configuration files can be used to complete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

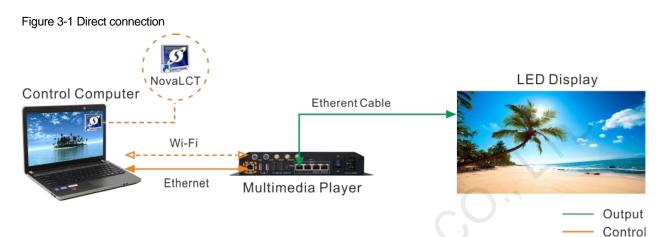
## Verifying Installation

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

## **3** Device Connection

The PC with NovaLCT installed sends the control commands, parameters, and configuration files to the multimedia players via Ethernet cable or Wi-Fi. Figure 3-1 and Figure 3-2 use the TB6 Taurus series multimedia player as an example to show the typical connections.

## Direct Connection via Ethernet Cable and Wi-Fi



#### Direction connection via Ethernet cable

The control computer is directly connected to the multimedia player via Ethernet cable.

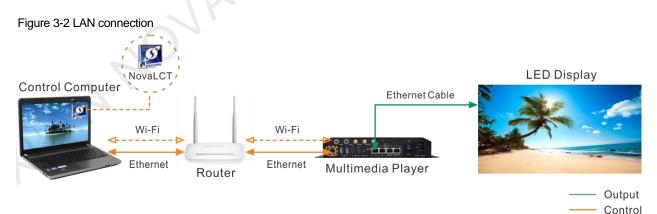
This method requires that DHCP must be enabled on the multimedia player and you must choose **Plug-in** > **DHCP Service** in NovaLCT, select the IP address of the PC and turn on the **DHCP Service** switch.

#### Direction connection via Wi-Fi

The control computer is directly connected to the multimedia player via Wi-Fi AP.

When the multimedia player has built-in Wi-Fi AP, you can use this method without the need for configuration.

## Wired and Wireless LAN Connection



#### Wired LAN connection

The control computer and multimedia player are connected to the same wired LAN via Ethernet cable.

If this method is used, configuration is not required.

#### Wireless LAN connection

The control computer and multimedia player are connected to the same wireless LAN via Wi-Fi.

This method is available when the multimedia player supports Wi-Fi Sta. The DHCP of the multimedia player must be enabled. You must log in to the multimedia player with the configuration software (such as ViPlex) and connect the player to the Wi-Fi AP of the router on the network configuration page.



## 4 User Login

Users must log in to the multimedia player first and then configure the player.

## **Operating Procedure**

Step 1 Open NovaLCT.

If the software is not the latest version, an **Online Update** dialog box will pop up. You can click **Update** to update the software.

Step 2 On the menu bar, choose User > Media Player Login.

Figure 4-1	Main	window	(Not	logged	in)	)
------------	------	--------	------	--------	-----	---

System( <u>S</u> ) Setti	ngs ( <u>C</u> ) Too	ols(T) Plug-in (P	) User(U)	Language( <u>L</u> )	Help( <u>H</u> )	r	]
	*		8	~^/~		<u>~</u>	
Cloud Monitoring	Brightness	Screen Control	Local Backup F	iles Monitoring	Multi-function Card	Test Tool	
Local System Inform	nation						
Control System	0	Other Dev	rice 0	V	iew Details of Device		
Monitor Information							
	1	lo screen,	click here	for confi	guration		$\mathbf{G}$
Service Status: Serv	ice version:3.1	.1					

Step 3 In the **Terminal List** dialog box, click **Refresh**.

Figure 4-2 Terminal lis
-------------------------

-	
Terminal List	×
Sort by name in descending	○ Sort by name in ascending
Name	G
	OVAS
	Refresh

Step 4 Select a multimedia player from the list and click **Connect System**.

If the terminal and NovaLCT are not on the same network segment but they can be pinged, click **I** next to **Refresh**, select **Specify IP**, enter an IP address and click **Search**.

#### Figure 4-3 Selecting a terminal

Terminal List		×
Sort by name in descending	○ Sort by name in ascending	
Name		
Taurus-40002453		
	Refresh	lystem

Step 5 Enter the user name and password, and then click **OK**.

For example, the login user name and the default password of Taurus series multimedia players are "admin" and "123456", respectively.

After successful connection, the NovaLCT main window displays the multimedia player quantity and monitoring information, as shown in Figure 4-4.

Figure 4-4 Main window (Logged in)

System(S)	Settings (C	) Tools(T)	Plug-in (P)	User(U)	Language(L)	Help(	H)		
		*				8	~/~		
Screen Co		Brightness	Calibration	Screen Cor	Itrol Local Ba	ckup Files	Monitoring	Multi-function Card	Ţ
Local System	Information								
Control Sy	stem	1	Other Devi	ce (	D	View De	tails of Devic	e	
Monitor Inform	nation								
	<b>F</b>			<b>[!!</b> ]					
	٠			•					
			a para						
Service Status	: Service ver	rsion:3.1.1							.4

## **Other Operations**

View Details of Device

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

Reconnect multimedia player

Choose System > Reconnect.

Log out

Choose User > Logout.

## **5** Screen Configuration

If users already have an appropriate configuration file, follow the operations in 5.1 Load Configuration File to finish screen configuration quickly. If manual screen configuration is required, follow the operations in 5.2 Configure Screen Manually in order.

## 5.1 Load Configuration File

## **Applications**

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

## **Applicable Products**

All receiving cards and multimedia players

## **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 Log in to the multimedia player. For login operations, see 4 User Login.



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

Screen Configuration		×
Select Communication	Port	
Current Operatio	172.18.12.29:5200 ~	
Configure Screen		
Cloud Restore	~	
O Local Restore		Browse
	Next	Close

- Step 3 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.

Receiving Card Screen Connecton	Restore Configuration File-192.	.168.41.1:5200		-		×
Screen selection         Screen1	Receiving Card Screen Connection					
Screen1 <ul> <li>Full</li> <li>Select by Pix</li> <li>Select by Topology</li> <li>Select Operatin</li> </ul> Operate All Pixels		/sical Address				
Current Screen LocationX=0, Y=0 Size1152W×384H						
Send to Specified	▶ Screen1			Operatin.		
			 Operate All Pix	Send to 5	Specifier	
				Send to a		

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

elect Communication	
Current Operatio	172.18.12.29:5200 🗸
•••	nfiguring screen, please wait(1/3)
<ul> <li>Con</li> <li>Con</li> <li>Clou</li> <li>Clou</li> <li>Local Restore</li> </ul>	nfiguring screen, please wait(1/3) C:WsersWova001157/DesktopWCTRL4K2.scfg

## 5.2 Configure Screen Manually

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

#### Note

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



#### NovaLCT LED Configuration Tool for Multimedia Player User Manual

## 5.2.1 Step 1 Light a Screen

## 5.2.1.1 One-Click Screen Configuration

## **Applications**

Load a receiving card configuration file from the cloud platform or local computer to quickly light a screen.

## **Applicable Products**

All receiving cards

## **Prerequisites**

- The receiving card firmware supports the module chip.
- If you want to load a receiving card configuration file from the cloud platform, the control PC must be connected to the Internet.
- If you want to load a receiving card configuration file from the local computer, the configuration file (.rcfgx/.rcfg) must be prepared.

## **Related Information**

The configuration file cloud platform is specially used to store the receiving card configuration files. The files can be searched and download, which is convenient for users to use the configuration files.

## **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.



Step 2 Click Quick Configuration to open the dialog box shown in Figure 5-2.

Figure 5-2 Choosing	communication port

One-Click Screen Confi	guration	C V	×
- Select Communication F	Port	2	
Current Operatio	172.18.12.90:5200	~	
		•	
42		Next	Close

Step 3 Click **Next** to open the dialog box shown in Figure 5-3. Figure 5-3 One-click screen configuration



In the bottom-left corner of the page, the status of connection between NovaLCT and cloud platform is displayed. Step 4 Perform any of the following operations as required to load a configuration file.

#### Load from cloud platform

Enter a keyword and click Search.

- When only one configuration file is found, the file will be automatically downloaded and then loaded.
- When multiple configuration files are found, click after it is downloaded.

🖳 One-Click Scr	reen Configuration			_	×
rcfg				earch	
Fil	e Name		Remarks	Status	^
2017TD.rcfgx		2017TD			- 11
2033.rcfgx		2033		<b>±</b>	
2053.rcfgx		2053		<b>±</b>	
2055.rcfgx		2055			
Module Informat	tion				
Chip	ICN2053		Scanning Type	1/27 scan	
Size	48W×27H		Decoding T	LS9739_Common	
Parameter Infor	mation				
Refresh Rate:	2760		GrayDepth:	14 Bit	
Cabinet Informa	tion				
Width (Pixel)	192		Module Colu	4	
Height (Pixel)	216		Module Row	8	
Version Informa	tion				
Current Receivin	ng Card MRV316_V4	4.5.9.0			
				Send to Rec	
💎 Cloud server co	nnected successfully				

#### Load from local computer

Click Load and select the target configuration file from the local computer.

inter the module	e number/configuration file name		earch Load
	C		
lodule informat	tion		
Chip	ICND2055/ICND2059	Scanning Type	1/27 scan
Size	120W×27H	Decoding T	74HC138 Decoding
arameter Infor	mation		
Refresh Rate:	3660	GrayDepth:	8 Bit
abinet Informa	tion		
Vidth (Pixel)	480	Module Colu	4
Height (Pixel)	270	Module Row	10
ersion Informa	tion		
ourrent Receivin	ng Card MRV316_V4.5.9.0		
			Send to Rec

If the file is a module configuration file, you can edit the numbers of module rows and columns. If it is a cabinet configuration file, you cannot edit them.

- Step 5 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 multimedia player. 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.

<b>F</b> <sup>1</sup>	<b>F</b> 4	0		4 -		
Flaure	5-4	Sendina	parameters	tO	receiving	card
	• •	ee	p a. a	•••		

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

- Step 6 After successful sending, click **OK** to close the prompt box. The screen is now lighted.
- Step 7 If necessary, click **Advanced** in the bottom-right corner to enter the **Screen Configuration** page and perform more settings for the screen.

On the Screen Configuration page, you can click Back to One-Click Configuration to return to the One-Click Screen Configuration page.

Figure 5-5 Ac	dvanced settings		
🖳 One-Click Scr	reen Configuration		- 🗆 🗙
Enter the module	e number/configuration file name	Se	arch
Module Informat	tion		
Chip	ICND2055/ICND2059	Scanning Type	1/27 scan
Size	120W×27H	Decoding T	74HC138 Decoding
Parameter Infor	mation		
Refresh Rate:	3660	GrayDepth:	8 Bit
Cabinet Informa	tion		
Width (Pixel)	480	Module Colu	4
Height (Pixel)	270	Module Row	10
Version Informa	tion		
Current Receivir	ng Card MRV316_V4.5.9.0		
I'A			Send to Rece
		For adv	anced <u>Advanced</u>
穼 Cloud server co	nnected successfully		.::

## 5.2.1.2 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 Log in to the multimedia player. For login operations, see 4 User Login.



Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar to open the dialog box shown in Figure 5-6.

Figure 5-6 Screen configuration method

Screen Configuration		×
Select Communication	Port	
Current Operatio	172.18.12.29:5200 ~	
Configure Screen		
O Cloud Restore	~ <b>`</b>	
O Local Restore	Bro	wse
	Next	ose
	Next	ose

- Step 3 Select Configure Screen and click Next.
- Step 4 On the Screen Configuration page, click the Receiving Card tab.

igure 5-7 Sc	-									
Screen Config	uration-192.1	68.41.1:5200					—		×	
Receiving Card Scr	een Connection									
Module Inform									^	
Chip: Direction:	SM16259 Horizontal	Size: Data Grou	128W 2	×64H		nning I <mark>st R</mark>	1/32 scan		>	
Cabinet Inform	nation							Set F	Rota.	
<ul> <li>Regular</li> </ul>				Irregula	r					
Width (Pix.	1 🚖	<=256		Width:	128	Height:	64			
Height (Pi		<=128				Ũ				
Module Ca	From Right to	$\sim$		Constru	uct	View	Cabinet			
Performance		tin	☑ Bi	?		□ 18	3bit+			
Refresh	2460		Grayso	ale Le	14Bit					
DCLK Fr	12.5	<u>v</u> .	DCLK	Duty C	50	~				
Data Pha	2 >	<u>v</u> .	Refres	h Rate	8	$\sim$				
Row Blan	25	<b>€</b> (=2.00u	GCLK	Freque	12.5	$\sim$	MHz			
Line Cha	E	(0~19)	GCLK	Duty C	50	$\sim$				
GCLK Ph	5		Ghost	Control	20	-	(1~24)			
Mode sel	0 >	1								
Brightnes	83.47%								~ \	
Smart Setti		Load fr	om F	Receiving	Save	to File	ead from	Send to	Re.	
<									> *	
			F	xport Scree	Cours	System	Save		ose	
				Apon ocree	Joave	System	Jave		550	

- Step 5 Click Load from File and select a configuration file from the local computer.
- Step 6 After successful loading, click OK.
- Step 7 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 Coordinate     Specify Receiving Card	Send	Car	icel

Step 8 After successful sending, click **OK** to close the prompt box. The screen is now lighted.

#### 5.2.1.3 Manual Screen Configuration

## 5.2.1.3.1 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.

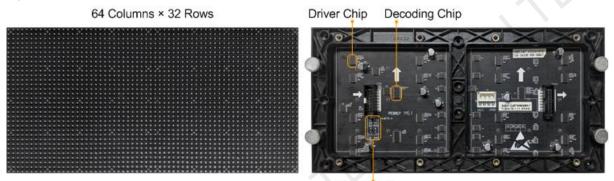
## **Related Information**

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 5-9.

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

Figure 5-9 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 Log in to the multimedia player. For login operations, see 4 User Login.

Step 2 Click screen Configuration or choose Settings > Screen Configuration from the menu bar to open the dialog box shown in Figure 5-10.

Figure 5-10 Screen configuration method

elect Communication	n Port	
Current Operatio	172.18.12.29:5200 ~	
Configure Screen		
Cloud Restore	~	
		Browse
O Local Restore		

Step 3 Select Configure Screen and click Next.



Step 4 On the Screen Configuration page, click the Receiving Card tab.

eceiving Card Scr	reen Connection								
Module Inform								^	
Chip: Direction:	SM16259 Horizontal	Size: Data Grou	128W×64H 2		nning <u>st R</u>	1/32 scan		>	
Cabinet Inform	nation						Set F	Rota	
Regular			Irregul	ar			0011		
Width (Pix		<=256	Width	: 128	Height:	64			
Height (Pi.	1 🌲	<=128							
Module Ca	From Right to	$\sim$	Const	truct	View	Cabinet			
Performance	Settings		1						
Data Grou	p More Sett		🗹 Bi 🕜			01.11.			
	p	<b>III</b>	⊻ Ы 😗		18	SDIT+			
Refresh	2460	<b></b>	Grayscale Le	14Bit		SDIT+			
				14Bit 50		SDIC+			
Refresh	2460 12.5 ~		Grayscale Le			SDIC+			
Refresh DCLK Fr	2460 12.5 ~ 2 ~		Grayscale Le DCLK Duty C Refresh Rate	50	~	MHz			
Refresh DCLK Fr Data Pha	2460 12.5 ↓ 2 ↓ 25 ↓	<ul> <li>(=2.00u</li> <li>(0~19)</li> </ul>	Grayscale Le DCLK Duty C Refresh Rate	50 8	~ ~ ~	MHz			
Refresh DCLK Fr Data Pha Row Blan	2460 12.5 2 25 0	<ul> <li>(=2.00u</li> <li>(0~19)</li> </ul>	Grayscale Le DCLK Duty C Refresh Rate GCLK Freque	50 8 12.5	~ ~ ~				
Refresh DCLK Fr Data Pha Row Blan Line Cha	2460 12.5 ↓ 2 ↓ 25 ↓	<ul> <li>(=2.00u</li> <li>(0~19)</li> </ul>	Grayscale Le DCLK Duty C Refresh Rate GCLK Freque GCLK Duty C	50 8 12.5 50	~ ~ ~	MHz			
Refresh DCLK Fr Data Pha Row Blan Line Cha GCLK Ph	2460       12.5       2       25       6       5       6	<ul> <li>(=2.00u</li> <li>(0~19)</li> </ul>	Grayscale Le DCLK Duty C Refresh Rate GCLK Freque GCLK Duty C	50 8 12.5 50	~ ~ ~	MHz			
Refresh DCLK Fr Data Pha Row Blan Line Cha GCLK Ph Mode sel	2460       12.5       2       25       6       5       6	<ul> <li>(=2.00u</li> <li>(0~19)</li> </ul>	Grayscale Le DCLK Duty C Refresh Rate GCLK Freque GCLK Duty C	50 8 12.5 50	~ ~ ~	MHz		5	
Refresh DCLK Fr Data Pha Row Blan Line Cha GCLK Ph Mode sel	2460       12.5       2       25       6       5       6	<ul> <li>(=2.00u</li> <li>(0~19)</li> </ul>	Grayscale Le DCLK Duty C Refresh Rate GCLK Freque GCLK Duty C Ghost Control	50 8 12.5 50 20	> > > \$	MHz	Send to	D Re.	
Refresh DCLK Fr Data Pha Row Blan Line Cha GCLK Ph Mode sel Brightnes	2460       12.5       2       25       6       5       6	(=2.00u (0~19)	Grayscale Le DCLK Duty C Refresh Rate GCLK Freque GCLK Duty C Ghost Control	50 8 12.5 50 20	> > > \$	MHz (1~24)	Send to	PRe. Y	

#### Figure 5-11 Screen configuration

#### Step 5 Click Smart Settings.

Step 6 Select option 1 and click Next.

Option 1: Enter smart settings.

Figure 5-12 Smart settings options

- 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**.

Smart Settings Selection	×
Note:	
(1).Option 1, click 'Next' to begin smart settings!	
(2).Option 2 or 3; load module information to software.	
Option 1: Make the module on by smart settings	
Option 2: Load module information from file	
File Path:	Browse
O Option 3: Load module information from cabin	
Cabinet Databa	Browse
Selected Module:	Select Module
View Module Next	Close

Step 7 On the Smart Settings Guide 1 page, set the parameters and click Next.

Figure 5-13 Smart Settings Guide 1

Sm	nart Settings Guide 1
	Module Chip 1:
	Module Chip Common Chip  Select chip type
	Data Type
	Data Type: Varallel drive V
	Module Information
	Module Type
	Quantity of Pixels (virtual s X: 32 🗣 y: 32 🗣
	Row Decoding Type LS9739_Common 🗸 Select 🗌 New v
	Working Mode of Receiving Card
	Hub Mode:      O Normal      O 20 Gr      O 24 Gr      O 28 Gr
	Ghost Control Signal
	Next

- 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 8 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 5-14 Smart Settings Guide 2

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

Step 9 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 5-15 Smart Settings Guide 3

	-	
Smart Se	ttings Guide 3	×
Automotion	omatic switchin 🔘 Manual switchi	i <b>n</b>
Please	select the module color in each status:	
1	Red A	$\sim$
O 2	Green	~
<u> </u>	Blue	$\sim$
04	Red B or black	~
	Back Next	Cancel

- If they are the same, click **Next** to go to Step 10.
- If they are different, select a color corresponding to the module display color from the drop-down list to make them the same.
- Step 10 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.

$\sim$

Step 11 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 5-17 Smart Settings Guide 5

Step 12 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.

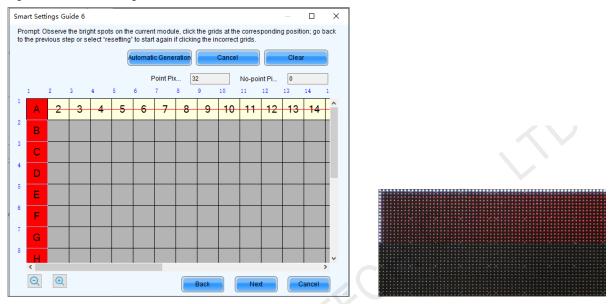
Generally, you only need to draw pixel position for the first row of pixels. If the flashing pixels are on the other row or column, click the corresponding cells in the grid.

- 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 5-18. 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.
- 🔍: Zoom out the grid.
- 🔍: Zoom in the grid.

#### Figure 5-18 Smart Settings Guide 6



Step 13 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 14 Click Next and click OK.
- Step 15 (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 5-19 Saving module information

Save Module Information	×
Prompt: You can save module information to file or cabinet database for direct loading nex time.	t
Module Name: © Option 1: Save module information to file File Path:	irowse
O Option 2: Save module information to cabi Cabinet Datab	View
View Module Save Comp	lete



Note

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

- In the Module Information area, click local 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.

#### 5.2.1.3.2 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 detailed operations, see 5.2.1.3.1 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 5-20 Cabinet information

Cabinet Information	Set Rotation
Regular	O Irregular
Width (Pixel) 128	Width: ?? Height: ??
Module Casc From Right to L V	Loading error. Please try to adjust pe Construct Ca View Cabinet

#### 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 5-21.
- 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 Module Alignment Module Spacing Zoom Cabinet Information Center Vertical O Horizontal Align Left Alian Ria Quantity of... 0 1 ÷ Clear Space ame Space Cabinet Si... 0×0 Add Module From Cabinet D... From File Delete Module Delete the Selec.. Clear Module Operation of Data Groups Delete Clea 1 Quick Operation Sorting Rules Vertical. O Horizont Operation Rules O Module. O Data or. Data Row Extracting Location in C Simple Mode Advanced Number of Data Rows 1 ÷ Module Information OE Driver Chip Delete Clear Encoding Four-color Parameters Data Total Quantity of Pixels Scanning Scanning Line Load Cance Short-Key prompts

#### Figure 5-21 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 multimedia player. 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 5-22 Sending parameters to receiving card

Send Parameters	-	-		×	
<ul> <li>All Recei</li> <li>Specify Receivin</li> </ul>	Reset the Starting Coordinate g Card	Send		Canc	el

- 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).

#### 5.2.2 Step 2 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**

All multimedia players

## **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 multimedia player load the different areas of the same screen, set the screen quantity to **1**. If the multiple output ports of the multimedia player 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 3 columns and 2 rows respectively, as shown in Figure 5-23.

#### Figure 5-23 Column and row quantity of receiving cards

ing Card Screen Connection						Quantit	1	Configu
en1						Quantit		
creen Type: <ul> <li>Standard Scre</li> </ul>	en 🔿 Co	mplex Screen						
Sending Card Number	Basic Inf	ormation						
1	Coordin	ate: X: 0	Y: 0	/irtual 🗌 F				
Ethernet Port No.	Column	s 10 Ro	ows 5	Reset All	Hide Rec	· ~ 🏡 🗲	5	
1 2 3 4		1	2	3	4	5	6	7 ^
Receiving Card Size Width: 64  Apply to E	▶ 1	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Si (
Height: 32 🚖 Apply to E		Receiving	Receiving	Receiving	Receiving	Receiving	Receiving	Re
Set Blank Apply to the cur	2	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Si (
	_	Receiving	Receiving	Receiving	Receiving	Receiving	Receiving	Re
김 미 드 미	3	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	SI
	ľ	Receiving	Receiving	Receiving	Receiving	Receiving	Receiving	Re
	4	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Sending Card: Port:	Si (
	<	Receiving	Receiving	Receiving	Receiving	Receiving	Receiving	Re <b>`</b>
	700m<		>	1 Note:	Click or	drag the	e left mo	use .
ct Comm Read the Num			Ena	ble Map Load	d from F., Sav	ve to File Rea	ad from Se	nd to HV

Step 4 Choose an output port.

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

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

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

Figure 5-24 Receiving card connection and size

Screen Configuration-172.18.12.90:5200							- 0	×
Receiving Card Screen Connection								^
Receiving Card Screen Connection								
						Quantity o 1	~ Configur	
Screen1	_							
Screen Type: 💿 Standard Screen	O Co	nplex Screen						
Sending Card Number	Basic Info	mation						
1	Coordina	e: X: 0 Y: 0	Virtual M	o 🗌 E	•••			
Ethernet Port No.	Columns	3 Rows	2	ResetAll	] Hided [	Red ∨ ☆ 🗲 5		
1 2 3 4		1 2	3					ń. I
Receiving Card Size		Sending Card:1 Send	ng Card:1 S	ending Card:				
Width: 64 🖨 Apply to Entir	1		Port:1	Port: Receiving				
Height: 32 🖨 Apply to Entir		Card:2 C	and:3 idta:64	Card: Width:0				
Set Blank Apply to the current.				ending Card:				
		Po <mark>t:1 I</mark>	Pot:1	Port:				
Quick Connection	▶ 2		allying ard:4	Receiving Card:				
김 미 의 미		Width:64 W	idth:64	Width:0				
فغا لصا ليغف لسم								
	Zoom: <		> 1	Note: C	lick or	drag the left mouse	button to.	

- Apply to Entire Column: Apply the loading capacity width of the selected receiving card to all the receiving cards in the same column.
- Apply to Entire Row: Apply the loading capacity height of the selected receiving card to all the receiving cards in the same row.
- Apply to the Current Port: Apply the current loading capacity width and height to all the receiving cards connected to the current output port.
- Reset All: Reset all the receiving card connections and blanks.
- Hided Mapping Line: Hide the receiving card mapping line (namely the connections).
- 📩 : Mark the receiving card.
- E Return to the previous step of connection.
- 5: 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 5-25. If you do not need to set blank, skip this step.

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

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

The blank size must be set based on the loading capacities of the neighbor receiving cards.

Figure 5-25 Setting receiving card blank

Screen Configuration-172.18.12.90:5200		- 0	×
Receiving Card Screen Connection			
	Quantity o 1	Configur	
Screen1			
Screen Type: 💿 Standard Screen	🔿 Complex Screen		
Sending Card Number	Basic Information		
1	Coordinate: X: 0 Y. 0 Virtual Mo 🗆 E		
Ethernet Port No.	Columns 3 Rows 2 ResetAll Hided Red V 🙀 🧲 ᠫ		
1 2 3 4	1 3		
Receiving Card Size	Sending Card:1 Sending Card: Port:1 Port:		
Width: 64 🔶 Apply to Entir	1 Receiving Receiving Card:		
Height: 32 🚖 Apply to Entir	Cald X Width:0 Width:64 Height0		
Set Blank Apply to the current.	Sending Card:1 Sending Card:1 Sending Card: Polt1 Port1 Port		
Quick Connection	2 Recover and Receiving Card:		
	Card:1 Card:3 Width:0 Width:64 Width:64 Height0		
	Zoom < > 1 Note: Click or drag the left mouse	button to.	• • •

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

For example in Figure 5-26, 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.

Screen Configuration-172.18.12.90:5200							-		×
Receiving Card Screen Connection		<u>c</u>				Quantity o 1	~	Configur	
Screen1									
Screen Type: <ul> <li>Standard Screen</li> </ul>	-	mplex Screen							
Sending Card Number	Basic Infor		f: 0 Virtua	al Mo 🗌 E	•••				
Ethernet Port No.	Columns	3 Rov	vs 2	ResetAll	Hided	Red v 📩 🗲 Ⴢ			
Receiving Card Size Width: 64 C Apply to Entir Height: 32 C Apply to Entir	▶ 1	1 Sending Card:1 Port:1 Receiving Card:3 Width:64	2	3 Sending Card:1 Port:2 Rectoring Card:2 Width:64					
Quick Connection	2	Sendin, Card:1 Pot:1 Rec <mark>S</mark> ving Card:1 Width:64	Sending Card:1 Port:1 RedDring Card:3 Width:64	Sending Card:1 Polt:2 RecSving Card:1 Width:64					
티미리미									
	Zoom: <		>	1 Note: C	lick or	r drag the left mous	e but	ton to.	

Figure 5-26 Configuration completed

#### Note

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 5-27.

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

Figure 5-27 Configuration of complex sc	creen
---	-------

Screen Configuration-192.168.41.1:5200					_		ı ×
Receiving Card Screen Connection							
		Q	uantit	1		$\sim$	Configur
Screen1							
Screen Type: O Standard Screen   Complex Screen							
Red 🗸 🖂 Hided							
Receiving Card Settings           10p         20p         30p         40p	Senc	Port	Rece	Start x	Start	Widt	Heigl
1-1-2 1-2-2	1	1		0		64	32
- (0, 0) (12, 0) - 11 1-1-3 11	1		-	0	-	64	32
- (0, 32) (64, 32) (128, 32)	1		-	64		64	32
	1	-	1 2	128 128		64 64	32 32
Virtual  Enable		Add		)•	Delet		Clear
Detect Comm Read the Num Enable Map Load from F	Sa	ive to F	ile F	Read f	rom	Sen	d to HW
Export Sci	ee	Save S	Syster	n.,	Save		Close

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 screen monitoring 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 detailed operations, see 7.1.2.1 Register by Using Local Backup Files (Recommended).

Figure 5-28 Successful saving	
	×
Information saved to hardware successfully. Do you want to back up the screen monitoring parameters?	
I 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 used to display the cabinet No. and the Ethernet port the cabinet is connected to on the cabinet. In this way, you can obtain the connection information.
- 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.

## 5.2.3 Step 3 (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 multimedia players

## **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 7.2.1 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 5-29.

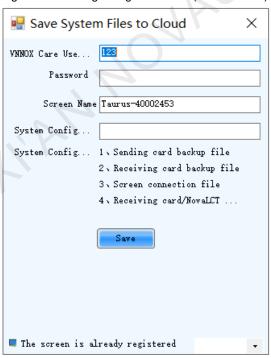


Figure 5-29 Saving configuration files (online screen)

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



Step 4 Do the corresponding operation below based on the multimedia player firmware version.

- Firmware version V3.3.0 or later: After the configuration file is saved, close the prompt box. No further action is required.
- Firmware version earlier than V3.3.0: Go to Step 5.
- Step 5 Do any of the following operations to upgrade the firmware version and save the configuration file to cloud and local PC. (The device will automatically restart during upgrade.)

#### Figure 5-30 Upgrade prompt

🖳 Upgrad	e Prompt		-	×
1	The current device v Please upgrade the the complete data in	device befo	re che	
	Online Upgrade	Local Upgr	ade	

- Online upgrade
  - a. Click Online Upgrade.
  - b. In the pop-up dialog box, click **Upgrade**.
  - c. After successful upgrade, close the dialog box.
- Local upgrade
  - a. Click Local Upgrade.
  - b. Select a firmware package from local PC and click Open.
  - c. After verification, click Upgrade in the pop-up dialog box.
  - d. After successful upgrade, close the dialog 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.

Save As			×	
$\leftarrow \rightarrow \checkmark \uparrow$ This PC $\rightarrow$ Documents	✓ Ö Search Docume	nts	م	-
Organize 🔻 New folder			e pta.	:
🕂 Downloads 🖈 ^ Name	Date modified	Туре	^	
🗄 Documents 🖈 🔤 Adobe	9/29/2018 5:05 PM	File folder		
Pictures     P	12/11/2019 7:18 PM	File folder		
0624 F8 Nova Star	2/15/2019 5:49 PM	File folder		
en-US NovaCLB	5/14/2019 8:29 PM	File folder		
System32 NovaLCT 2012	7/2/2021 2:01 PM	File folder		-
Pixelhue	5/7/2019 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	3/1/2020 12:08 PM	File folder		
Studio 2019	12/2/2019 9:33 AM	File folder	>	
A Makarah V K			>	
File name:			~	
Save as type: System configuration file(*.scfg)			V	
∧ Hide Folders	Save	Cancel		
Brightnes 83.47%			.::	
Smart Setti Load from Receiving	Save to File Rea	d from S	end to Re.	
		(	>	×

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 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 Log in to the multimedia player. For login operations, see 4 User Login.

Step 2 Click Screen Configuration from the menu bar to open the dialog box shown in Figure 5-32.



Figure 5-32 Screen configuration method

Screen Configuration		×
-Select Communication	Port	
Current Operatio	172.18.12.29:5200 ~	
Configure Screen		
O Cloud Restore	~	
O Local Restore		Browse
	Next	Close

- Step 3 Select Configure Screen and click Next.
- Step 4 Click the Receiving Card tab and click Read from Receiving Card to obtain the latest configuration information.
- Step 5 If you have a receiving card configuration file (.rcfgx/.rcfg), click **Load from File** to complete the configuration quickly. If do not have the file, preform the subsequent operations to manually configure the performance.
- Step 6 In the **Performance Settings** area, set the performance parameters.

-Performance Setting: Data Group E	s More Settings			🗌 18bit+	C
Refresh Rate	480 ~	, Hz	Refresh Rate Ti	4 ~	
Grayscale Level	Normal 4096	•	Grayscale Mode	Refreshing Rate Fir $\!$	
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	(0~23)			
Minimum OE w	80 ns				
Brightness Effi	68.24%				

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

- Refresh Rate: Indicates the rate of updating the image on the display. Increasing refresh rate reduces image flickering, allowing for a more stable image.
- Grayscale Level: Indicates the shading of display. The higher the grayscale level, the more brightness levels the display will have. For example, if the grayscale level is 16bit, the display can express 65,536 levels of brightness.
- Grayscale Mode: Indicates the grayscale display mode. It includes brightness first, refreshing rate first, grayscale first and performance balancing.
- DCLK Frequency: Indicates the frequency of shift clock.
- DCLK Duty Cycle: Indicates the duty cycle of shift clock. Set it to 50% in general.
- DCLK Phase: Indicates the phase of shift clock. When there are mismatching or flashing pixels, adjust this
  parameter to fix the problem.
- Refresh Rate Times: Indicates the times of refresh rate.
- Low Grayscale Compensation: Indicates the compensation for the grayscale in low grayscale conditions, allowing for more precise grayscale.
- Row Blanking Time: Used to adjust the ghost problem of the scanning type display. If the ghost problem is serious, increase the parameter value.
- Line Changing Time: Works with row blanking time to adjust the ghost of the scanning type display.
- Ghost Control Ending Time: Works with row blanking time and line changing time to adjust the ghost of the scanning type display.
- Line break trimming: Works with row blanking time to adjust the ghost of the scanning type display.
- GCLK Frequency: Indicates the frequency of grayscale clock.
- GCLK Duty Cycle: Indicates the duty cycle of grayscale clock.



- GCLK Phase: Indicates the phase of grayscale clock.
- Blanking Time Height: Used to eliminate the lower ghost
- Minimum OE Width: It is calculated from other performance parameters and can be viewed only.
- Brightness Efficiency: It is calculated from other performance parameters and can be viewed only.
- Step 7 After the settings are done, click Send to Receiving Card to send the performance parameters to the hardware.
- Step 8 After the display effect meets the expectation, click Save to save the performance parameters to the hardware.
- Step 9 After successful saving, choose whether to save the screen monitoring 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 detailed operations, see 7.1.2.1 Register by Using Local Backup Files (Recommended).

Figure 5-33 Successful saving

Information sa	ved to hardware successfully. Do you want to back up the screen monitoring parameters?	
-	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.

	A	
1	5	
▶ 2	6	
3	3	
4	4	
5	1	
6	2	
7	7	
8	8	
ndicat	tion: Fill in the lists of data set exchange according to the figures di	
		Reset da



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 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.

ata set exch	ange(group mode) ×	
Serial	A	
1	5	
▶ 2	6	
3		
4		
5		
6		
7		
8		
	R	
dication: Ob	serve the position of the white display area in the large screen, then click the correspon	
aroanon. ob.		
Current cho	s 6 Undo No flashing Reset data	
🗹 Enable d	at 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 Extens	ion ×
Output Mode Symmetrical Outputs Triple Strip Outputs Quadruple Strip Outputs	
Data Group Extension 20 Data Groups 24 Data Groups 28 Data Groups 32 Data Groups Serial 128 Data Groups	
Ghost Control Signal Signal Switch:   Open Signal Polarity:  High	O Close O Low
Hub Mode	<ul> <li>20 Groups</li> <li>28 Groups</li> <li>Output in the dir</li> </ul>
ОК	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.

		Monitoring Data Line Transfer Data Line Sig	inal
	Data Line 1	Red	$\sim$
	Data Line2	Green	$\sim$
	Data Line 3	Blue	$\sim$
	Data Line 4	Virtual Red	$\sim$
	5		

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 EMC Function: Linear	<ul> <li>Eliminate</li> <li>Close</li> <li>Open</li> <li>Enable</li> <li>Enable</li> <li>Enable</li> <li>Enable</li> </ul>
Calibrati ☑ Enable R: 0 ♥ B: 0 ♥	G: 0 🗭 VR: 0 🗣
Delay Time of ABCDE Signals	
Delay of ABC signals:	🔘 Enable
Delay of DE signals:	🔘 Enable
No delay:	Enable
Delay time:	0 ≑ Ons
	Apply
ок	Cancel

EMC function setting is optional. 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.

vsical Arrangement And S	etting of Modu	le Flash					- 🗆 ×	<
Number of Fl 3	Number of	Fl 3				Back	ResetAll	
9US		1	2	3				
1 2 3 4		BUS 1 Serial	BUS 1 Serial	BUS 1 Serial				
5 6 7 8	3	numt <mark>S -0</mark> Width 64	Width 64	numbor 2 Width 64				
9 10 11 1	2	Height 32 BUS 1	Height 32 BUS 1	Heigh 32 BUS 1				
13 14 15 1	6 2	Serial numbe <del>r 5</del>	Serial	Serial				
		Width 54 Heigh 32	Width 64 Height 32	Width 64 Height 32				
		BUS 1 Serial	BUS 1 Serial	BUS 1 Serial				
	4 > 3	numbe <del>r 6</del> Width 64 Height 32	Width 64 Height 32	numk[] 8 Width 64 Height 32				
<b>25</b> 26 27 2	8	Height 32	Height 32	Height 32	I			
<b>29</b> 30 <b>31</b> 3	2							
ash Control Size								
eight 32								
Apply to Currer								
dule Parameters								
umber of d 2								
Apply to Curr	ren							
<u> </u>								
	-							
tarting Y Co 64								
rompt:After setting	width and I	neight, click	or drag lef	ît mouse bu	tton or			
rection button to s	et the inform	nation of ea	ach Flash,	and click rig	ght mou	ок	Cancel	

- 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.

	Monitoring card d	-	Х
~		A	^
	1	5	
	2	6	-
	3	3	-
	4	4	-
	5	1	-
	▶ 6	2	
	7	7	-
	8	8	-
	9	9	-
	10	10	
	11	11	
	12	12	
	13	13	
	14	14	
	15	15	
	16	16	~
	Reset	Send Apply Cancel	

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.

# 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 multimedia players

## **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 Log in to the multimedia player. For login operations, see 4 User Login.



Step 2 Click calibration or choose Tools > Calibration on the menu bar.

#### Figure 6-1 Screen calibration

Screen Calibration		_		×
Single-Screen Mode Combined-Sc	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients			
Current Operation Communication Port 192.168.41.1:5200	Network Setting         Port         8080         Reconnect			
Current Screen	Communication Information			
Screen1	20:50.09 Enable network monitoring successfully			
Settings of Displaying Image				
Position to Display Image:				
Primary Display				
<ul> <li>Extended Display</li> </ul>				
Device Response Time:				
100 🗘 ms				
Use input source for display				
Enable/Disable Calibration				
Brightnes				
O Chroma				
O Full-Graysc	Expor	tion	Clear	
Dark or Save	Expo		Cieal	



- Step 3 Select the Single-Screen Mode tab or Combined-Screen Mode tab.
- Step 4 In single-screen mode, select the screen you want to operate. In combined-screen mode, skip this step.
- Step 5 Select **Disable Calibration**, **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 Log in to the multimedia player. For login operations, see 4 User Login.



- Step 2 Click Calibration or choose Tools > Calibration on 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.

Screen Calibration		
Single-Screen Mode Combined-Sc 4 >	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients	
Current Operation Communication Port 192.168.41.1:5200	Display Area Screen:1 Starting coordinateX=0, Y=0 Size64W×32H	
Current Screen		
Screen1	Column Nu 0 Display 100 🗢 Row Number 0 Display 100	Display Hide
	Average Calibration Coefficient	
	0 0 0	
	0 0 0	
	0 0 0	Get Average C
	Display Parameters	
	Mode All V	
Settings of Displaying Image	Color 🔍 Red 💭 Green. 🔍 🖲 Blue 🛞 White 🔍 🕒 Black	
Position to Display Image:	Brightness < 40 🌩 %	
Primary Display		
<ul> <li>Extended Display</li> </ul>		
Device Response Time:		
100 🚖 ms		
🖂 Use input source for display		
Enable/Disable Calibration		
O Disable		
Brightnes		
O Chroma		
Full-Graysc		
Dark or Save		

Figure 6-2 Offline calibration

- 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 and multimedia players

## **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 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 Click calibration or choose **Tools** > **Calibration** on 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 192.168.41.1:5200 V Current Screen	Select Operation
Screen1	Save calibration coefficients to database
	Set coefficients for a new receiving card
	Set coefficients for a new module
	Adjust coefficients (Color is not uniform on screen)
Settings of Displaying Image	✓ Erase or reload calibration coefficients
Position to DisplayIng Image Primary Display	C Reset calibration coefficients
O Extended Display	Upload coefficinets (for factory use)
Device Response Time :	📥 Module Flash
Use input source for display	
Enable/Disable Calibration	
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: Not supported currently

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 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 receiving cards and modules based on their addresses or the topology.

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

When **Auto Upload Module** 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.

#### Note

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 Size64V×32H	
○ Full	
(1,1)	Zoom:
	^
	~
	¥
	1.0

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

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 specify an area with the software, you can select Select Area on Screen to specify an area on the display window.

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

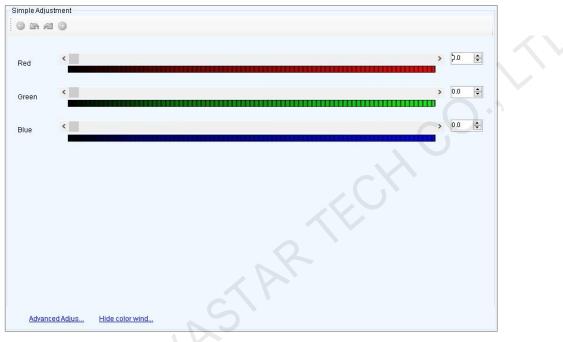
#### Simple Adjustment

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

#### Advanced Adjustment

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





#### Figure 6-6 Advanced adjustment

-Advanced Adjust	tment								
6 🖪 🖉									
Color adjustme	ent of red	, green and blue							
		Red		🔘 Green		O Blue			
Brightness	<						>	0.0	-
Saturation	<						>	0.0	-
Hue	<						> 11	0.0	-
- Color matching	) of red, <u>c</u>	reen and blue (Color Te	emperature Adjustme	nt)					
		O Yellow	🔘 Cyan		🔘 Magenta	<ul> <li>White</li> </ul>			
Red	<						>	0.0	•
Green	<						>	0.0	÷
Blue	<						>	0.0	÷
Note: Display d	lifferent c	olors for observing the e	effect				-		
<u>Simple Adj</u>	ustm	Hide color wind							

# 6.1.4 Manage Double Calibration Coefficients

## **Applications**

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

## Applicable Products

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

## **Prerequisites**

None

## **Related Information**

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

## **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.

- Step 2 Click Calibration or choose **Tools** > **Calibration** on the menu bar.
- Step 3 Select the Single-Screen Mode tab or Combined-Screen Mode tab.
- Step 4 In single-screen mode, select the screen you want to operate. In combined-screen mode, skip this step.
- Step 5 Select the **Double Calibration Coefficients** tab.

Screen Calibration × Single-Screen Mode Combined-Sc · Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients Current Operation Communication Port 172.18.12.29:5200 Current Screen Screen1 view calibration coeffin. View calibration coeffin. Acquisition of factory Settings of Displaying Image Position to Display Image: Primary Display 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  $\sim$ Dark or

#### Figure 6-7 Managing double calibration coefficients

Step 6 Perform the following operations as required.



View calibration coefficients in application area

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

View calibration coefficients in factory area

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

Get calibration coefficients in factory area

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

Save calibration coefficients to factory area

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

# 6.2 Adjust Brightness

#### **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**

All receiving cards and multimedia players

#### **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 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 Click Brightness or choose Settings > Brightness on the menu bar.
- 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.

ghtness Adjustment				×	
72.18.12.90∶5200—S¢	reenl			1	
Brightness					
Brightness	¢		> 76	(29.8%)	
	111		40		
	Grayscale	Cont	rast		
Advanced Settings	Color Te C	color Spa			
Gamma	9-627000000000000000000000000000000000000				
Gamma Gamma					
-	K		> 2.8		
Gamma	< Configuration	]	> 2.8	100 1	
Gamma Gamma Valu		]	> 2.8		
Gamma Gamma Valu		)		e to HW	

# Adjust Gamma

Select **Gamma Value Adjustment**, drag the slider to adjust the Gamma value, or set a custom Gamma by referring to the description in Custom Gamma.

#### 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 temperature, see the description in Custom Color Temperature.

Adjust color space

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

 Disable
 PAL
 NTSC
 Cus...

 .
 To set custom color space, see the description in 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.

a Adjustment			×
amma Adjustme.O White <ul> <li>Red Gamma</li> </ul>	O Green	🔿 Blue Gamma	
rayscale Bit Val 14 ~			
mma table can be generated quickly by adjusting	Gamma table can	be fine-adjusted by editing	g the values
axis Range 0 🚖 _ 255 🖨	x	Y	Move Up
axis Range 0 🔹 _ 65535 🔹	▶ 0	0	Move Op
	1	4	Move Dow
mma < 2.8	2	8	
commended Gamma	3	12	Save
Original 🔿 Mode A 🔿 Mode B	4	16	Load
	5	20	
ure Quality	6	24	
Soft Mode O Enhanced Mode	7	28	
1	8	32	
/	9	36	
	10	40	
	11	44	
	12	48	
	13	52	
	14	56	
	15	60	C
	16	64	

- 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 maximum range is 0–255.
  - Y-axis Range: It indicates the range of Y-axis for Gamma curve. The maximum range is 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

dvanced (	Color Configurat	on					- 🗆 🗙	
Screen	172.18.12.90:	200-Screen1	Import	Export			Refresh	
	erature Table							
	on prompts							
		ame box of selected co	lor temperature section is ye	low				
	dd color tempera							
		ted color temperature :	section					
			tion (including the deletion of	the selected row, clea	ar the information in ti	ne current color tem	perature section)	
			,,				,	
Color te	mperature Brig	htness value 🛛 R gair	n Gigain	B gain	R brightness	G brightness	B brightness	
Add	Edit	Delete Clear					Saved to local	
2019/12/12	(17:24:29The s)	reen information has l	been read successfully					
								Z
		een read successfully						

- 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  $\times$ Color Temperatu... 3600 Green gain Red brightness Green Blue Add Brightness Brightness Red gain Blue gain brightness brightness Edit 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	×
Set Color Temperature Information Brightness Value 10 % Current Gain	
Cullent Gain	
R <	> ~ %
G	> ~ %
8 <	> ~ %
Synchronize	
Brightness Component	
R <	> 229 ≑ (89.80%)
G <	> 229 🚖 (89.80%)
8 <	> 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.

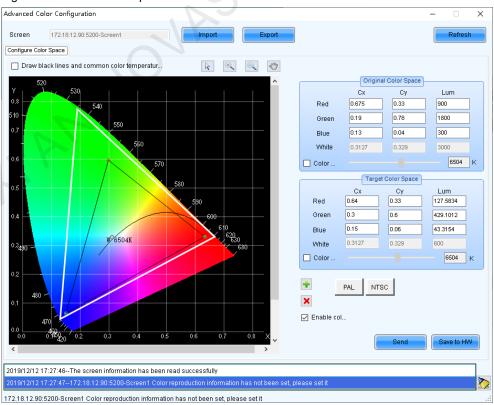


Figure 6-13 Custom color space

Step 2 Set the original color space.

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.

# 6.3 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 multimedia players

#### 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 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 On the menu bar, choose **Tools** > **More** > **Brighter Pixel Correction**.

#### Figure 6-14 Brighter pixel correction

😸 Brighter Pixel Correction						-		×
Topology Simulati	🗹 Sho	Show	2	- Select Display Display:	1		~	
					Main	O Extende		
1				Screen b	<b></b>		30%	
				Import Databas	e			
				Database	Cabinet	O Full		
				Database			Browse	
				Cabinet			$\sim$	
						Read	Coefficients	a
								J
				Coefficie A	dvanced			
				Select			Reset	J
				N0.	Colurr Row	Red Gre	en Blue	
								1
				<b></b>	_		100	% -
					Averade			
				F	R: B:			
				Liniand	Save to I		ave Datab	
				Upload	Save to I	100	ave Datab	j j

- Step 3 Select a screen.
- Step 4 Select a position to display image.
- Step 5 Set the brightness of the display window.
- Step 6 Select a database type, for example, Cabinet.
- Step 7 Click Browse and select a database file. For example, select a cabinet calibration database file and click Open.
- Step 8 On the **Topology** page, select an area and then select the **Simulation Diagram** tab.
- Step 9 Click brighter pixels or select the area where there are brighter pixels and click V.
  - Click to select a brighter pixel.
  - Select brighter pixels by clicking and dragging the mouse to form a selection box.
  - Select brighter pixels by clicking and dragging the mouse to form a selection oval.

#### Figure 6-15 Selecting brighter pixels

😸 Brighter Pixel Correction				-		Х
Topology Simulat	Select Displar Display:	1				2
	Display	Main	0	Extende	 <b>-</b> ] 30%	
	Screen b				30%	,
	Database	ase . ( © Cabinet		Full		
	Database	GILCT资料(			Brov	wse
	Cabinet	1-1		_	~	
				Read	Coefficie	ents
	Coefficie	Advanced				
	Select				Rese	et
	No.	Colun Row	/ Red	Green	Blue	^
	1	34 15	2047	2047	2047	1
	2	34 16	2047	2047	2047	
	2 3	34 17	2047	2047	2047	
	4	34 18	2047	2047	2047	
	5	34 19	2047	2047	2047	-
	<ul> <li>Ø</li> <li>Ø</li> <li>Ø</li> </ul>	35 15 35 16	2047	2047	2047 2047	-
	2 8	35 17	2047	2047	2047	-
	M 9	35 18	2047	-	2047	~
					-	
					1	100%
		Average R:2047 G:204	7 0.2047			
		n.2047 0.204	0.2047			
	Uploa	d Save	e to HW	Sa	ave Datal	ib



Step 11 After the settings are done, click Upload to save the configuration to the hardware.

Step 12 Click **Save to HW** to save the configuration information to the hardware.

Step 13 (Optional) Click Save Database to save the configuration to the current database file.

# 6.4 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 multimedia players

## **Prerequisites**

None

#### **Related Information**

None

## **Operating Procedure**

- Step 1 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 On the menu bar, 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.

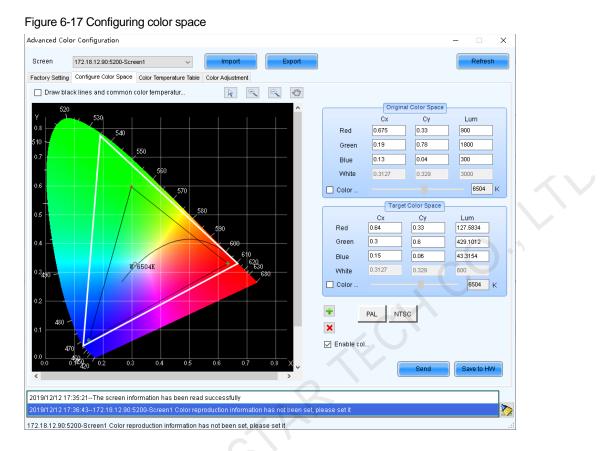
vanceu con	or Configuration	
Screen	172.18.12.90:5200-Screen1	Export
Current C R G	ynchronize	> 100 % > 100 % > 100 % Default Value
R	٢	> 255 (100.0%)
G	٢	> 255 (100.0%)
в	¢	> 255 (100.0%)
🗆 s	iynchronize	
		Save to HW



- Current Gain: This is a module parameter and can be set when supported by module chips. Clicking Default Value can reset the value.
- RGB Brightness: This is a receiving card parameter.

If Synchronize is selected, the R, G and B parameters will be set to the same value.

Step 5 Select Configure Color Space to set color space.



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 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.

- 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 6-18 Color temperature table

0								
Advanced Color C	Configuration						- 0	×
Screen 17	2.18.12.90:5200-Screen1	~	Import	Export			Refre	sh
Factory Setting Co	onfigure Color Space Color	Temperature Table (	Color Adjustment					
Operation pror	mpts							
	perature name box of sel	lected color tempera	ature section is yello	W				
	or temperature section							
	e the selected color temp ne selected color tempera		ing the deletion of th	he colorted row close	the information in th	o current color tomo	oratura cartian)	
	te selected color tempera	atore section (includ	ing the deletion of t	ne selected row, clear	ne mornauon in u	ie caneni color temp	erature section)	
Color tempera	ture Brightness value	R gain	G gain	B gain	R brightness	G brightness	B brightness	
Add	Edit Delete C	lear					Saved to lo	Ical
2019/12/12 17:35	:21The screen informati	ion has been read s	uccessfully					
2019/12/12 17:36	:43172.18.12.90:5200-8	Screen1 Color repro	duction information	has not been set, ple	ase set it			>
172.18.12.90:5200	)-Screen1 Color reproduc	tion information has	s not been set, plea:	se set it				

- 1. Click **Add** to open the dialog box shown in Figure 6-19.
- 2. Click Add Brightness to open the dialog box shown in Figure 6-20.
- 3. 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.

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

Figure 6-19 Adding color temperature information

1	Add Color Ten	nperature In	formation					×
	Color Temper	ratu <mark>9600</mark>						
	Brightness	Red gain	Green gain	Blue gain	Red brightness	Green brightness	Blue brightness	Add Brightness
	100%	100.00%	100.00%	100.00%	255(100	255(100	255(100	Edit
	$\langle \cdot \rangle$							Delete
								Clear
ľ								
								ОК
								Exit

Figure 6-20 Adding brightness information

Add Brightness Information	×
Set Color Temperature Information Brightness Value 🔟 %	
Current Gain	
R <	> ~ %
G	> ~ %
B	> ~ %
Synchronize	
Brightness Component	
R <	> 229 🔶 (89.80%)
G <	> 229 🚖 (89.80%)
8 <	> 229 🚖 (89.80%)
Synchronize	
Add	Exit

Step 7 (Optional) Click Export to save the configuration as a file.

# 6.5 Adjust Screen Effect

## **Applications**

Enable 18bit+, ClearView and receiving card low latency 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
- Receiving card low latency: Applicable to the A5s Plus, A6s, A8s, A10s Plus and AT60 receiving cards

#### **Prerequisites**

None

## **Related Information**

The multimedia player does not support the sending card low latency and HDR functions.

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 receiving card low latency can reduce the delay by one frame.

## **Operating Procedure**

- Step 1 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 Choose Settings > Adjust screen effect to open the dialog box shown in Figure 6-21.



172.18.12.90:5200-Screen1         Parameter Settings         Enable 18         Enable sending car         Enable sending car         HDR Parameter Settings         Enable         Restore defaul         Peak Screen         Ambient Light:         Low Graysca         115         Tip: Current source is not HDR10. Please connect an HDR10 video source.	
Enable 18 Enable Enable sending car Enable sending car Enable Restore default Peak Screen Peak Screen Peak Screen 1000 cd/m2 Ambient Light: Ambient Light: Tip: Current source is not HDR10. Please connect an HDR10 video source. Screen Information	
Enable     Save to HW      Enable sending car  HDR Parameter Settings      Enable     Restore defau      Peak Screen     You compare the sender of the sen	
Enable sending car      Enable sending car      HDR Parameter Settings      Enable      Peak Screen      Peak Screen      Peak Screen      Peak Screen      Screen Information      Screen Information	
HDR Parameter Settings	
Enable       Restore defau         Peak Screen       1000 cd/m2         Ambient Light:       30 Lux         Low Graysca       15         Tip: Current source is not HDR10. Please connect an HDR10 video source.         Screen Information	
Peak Screen        1000 cd/m2         Ambient Light:        30 Lux         Low Graysca        15         Tip: Current source is not HDR10. Please connect an HDR10 video source.         Screen Information	
Ambient Light:  Ambient Light:	lts
Low Graysca	
Tip: Current source is not HDR10. Please connect an HDR10 video source.  Screen Information	
Screen Information	
2019/12/12 17:46:52Read receiving card low latency parameters success	
2019/12/12 17:46:52Reading HDR parameters	
2019/12/12 17:46:52HDR parameters read successfully.	
	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 receiving card low latency
 Select Enable receiving card low latency and click Save to HW.

# 6.6 Set Image Booster Engine

After the receiving card parameters are adjusted and the configuration file is generated, you can use the Image Booster Engine to further improve the display effect.

## 6.6.1 Screen Calibration

# Applications

Use a colorimeter to measure the LED screen and set the Image Booster Engine functions to improve the display color and grayscale precision, and allow for free switching of display color gamut.

## **Applicable Products**

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

Allow you to freely switch the color gamut of LED display between multiple color gamuts to let the colors be displayed more precisely. Apart from the standard and custom color gamuts, this function also supports the "LED.recommend" color gamut which is specially launched by NovaStar for the LED display.

#### Precise Grayscale

Correct the 65,536 levels of grayscale (16bit) of driver IC individually to fix the display problems at low grayscale conditions, such as brightness spikes, brightness dips, color cast and mottling. This function can also better assist other display technologies, such as 22bit+ and individual Gamma adjustment for RGB, allowing for a smoother and uniform image.

#### 💠 22bit+

Improve the LED display grayscale by 64 times to solve the grayscale loss problem due to low brightness and allow for more details in dark and bright areas, presenting a smoother image.

#### 💠 18bit+

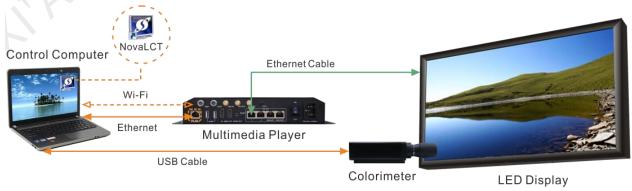
Improve the LED display grayscale by 4 times to effectively handle the grayscale loss problem due to low brightness, presenting a smoother image.

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 6-22 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

#### Figure 6-22 Colorimeter connection



# **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.



Output Control 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 screen that you want to calibrate.
  - Image Booster. ? X Screen 0.8 172.17.187.194:5200 510 COM Port: 0.7 Screen 1 Image Booster Switch Color G DCI-P3 6504K > 6504 🚔 К Color. < Precise G. 0.0 Display Mode Standard 0.4920 0.3 0.2 0.4 0.8 Famut Co Whitep 30.15% 6504

Figure 6-23 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 6-24.

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 6-25.

ie 💽 Export Quality	Adjustment File		Colorimeter Colorimeter CS100A 🗸 Disconnect 🧭 Con	nected
or Analysis Briefing	Grayscale Data Distribut	tion	<ul> <li>↑ Measurement Settings</li> <li>Data ✓ Gamut (Auto)</li> <li>Gumut (Manual)</li> <li>✓ Grayscale</li> <li>2 Data Measurement</li> </ul>	
			×	
Brightness				
809.0500	0. 6900	0.3000	Start Time Remaining: -:-	
1796.5700	0.1700	0. 7300	• 3 View Effect	
291.3800	0. 1300	0.0800	Color G Original Color Gasatt V 🔍 Evaluate Color	
3120.0000	0.2863	0.2949		
	Management Time: Gumut Coverage: Gumut Usage: Whitepoint:		Grayseel* Freeise Grayso** <b>()</b> 22bit* <b>()</b> Standard <b>v</b>	
	or Analosis Brisfins  Brightness 809.0500 1798.5700 291.3800 3120.0000 or*** Tgt. Gw	Brightness         Cx           809.0500         0.6900           1796.5700         0.1700           291.3800         0.2863           or***         Tgt. Gunut           Gamut Coverage:         Gamut Usage:           Whitepoint:         Whitepoint:	Prightness     CK     Cy       B909 0500     0.6600     0.3000       1796.5700     0.1700     0.7500       291.5800     0.3000     0.6600       3120.0000     0.2863     0.2949	or soulpris briefing       Greyscale Data Distribution         brightness       Cx       Cy         809 0500       0.6900       0.3000         1796.5700       0.1700       0.7900         291.3800       0.1300       0.6900         3120.0000       0.2863       0.2948         or:**       Tg. Gaat       Color C**         Greyscale       Frecise Grayze**       225it+         Masgement Time:       Grayt Strate:         Greyscale       Frecise Grayze**       225it+         Masgement Time:       Grayt Strate:         Grayt Strate:       Thispoint:         Brightness:       Not Koreage:         Grayt Strate:       Strate:         Brightness:       Not Koreage:         Grayt Strate:       Strate:         Thispoint:       Resurved Brightness:

Figure 6-24 Colorimeter connected



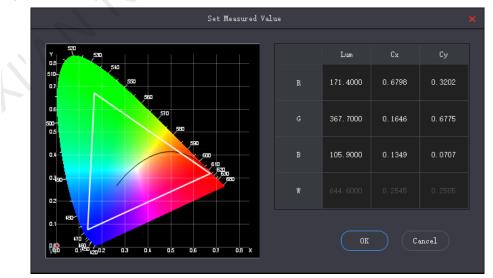
#### Figure 6-25 Colorimeter not connected

💿 Image Booster Engine		_ ×
👔 Import Quality Adjustment File 🛛 📝 Export Qu	ality Adjustment File	Colorineter Colorineter C5100A 🗸 Connect 📀 Not conn <sup>ere</sup>
Color Analysis Briefing Original Color Ganut Data	Grayscale Data Distribution	↑ 1 Mexamement Settings     Bata Gowat (Mate)
Brightness		
Red 809.0500	0.6900 0.3000	Start Time Remaining: -:-
Green 1796.5700	0.1700 0.7300	• 3 View Effeot
Blue 291.3800	0.1300 0.0800	Color G. Original Color Gamut 🗸 📿 Evaluate Color
White 3120.0000	0.2863 0.2949	
- Original Color** - Tet.	Gamut Management Time: Gamut Covarage: Gamut Usaga: Vhitepoint:	Graynoile Presize Grayno <sup></sup> 22bit+ 💽 Stundard 🗸
22 0,1 00 10 10 10 10 10 10 10 10 10 10 10 10 1	Measured Brightness:	

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.

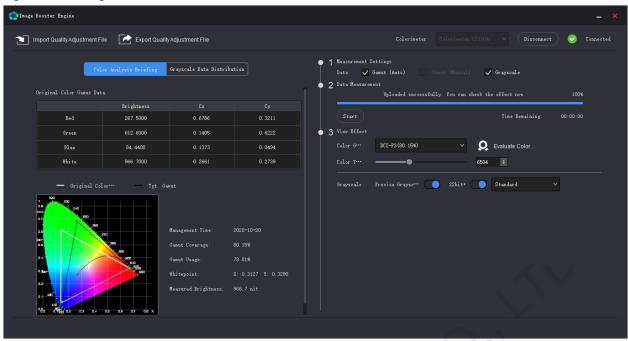
Figure 6-26 Setting measured value



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



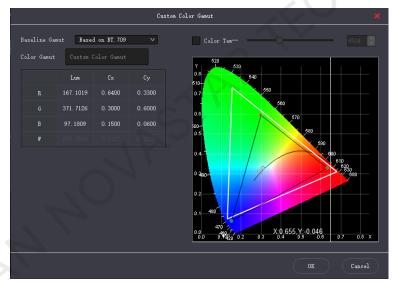
#### Figure 6-27 Viewing effect



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 1	DCI-P3 V					
Start Evaluation				Display Demo Au	to Switching Interval 2s	
Standard Color	Color Value	CIE31 (Ley)	Measured Value Before …	DeltaE	Measured Value (Lxy)	DeltaE
	#745244					
	#d9792£					
	#2e3e95					
	#f6f3ed					
	#c49582					
	#455ca3					
	#45924a					
	#c8c8c7					
	#5c799b					
	#c65562					
	#b12d38					
	#9e9e9f					
	#5b6b45					
	#5a3d67					
	#ebc32f					
	#777978					
	#827fac					
	#9db848					
	#bd5290					
	#535454					
	#5dbaa8					
	#e39e34					
	#0083@2					
	#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					
LVardate Ganat 1						
Start Evaluation	Export Report			Display Demo	Auto Switching Interval 2s	
Standard Color	Color Value	CIE31 (Ley)	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
	#d9792£	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
	#5 a3 d67	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
	#0083a2	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.

## 6.6.2 Quick Setting

#### Applications

Quickly set the Image Booster Engine functions to improve the display color and grayscale precision, and allow for free switching of display color gamut.

## Applicable Products

- Color management and 18bit+ functions: Applicable to the A5s Plus and A7s Plus receiving cards
- Color management, precise grayscale and 22bit+ functions: 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 screen calibration operations, see 6.6.1 Screen Calibration.

## <u>Notice</u>

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.

www.novastar.tech



#### Color Management

Allow you to freely switch the color gamut of LED display between multiple color gamuts to let the colors be displayed more precisely. Apart from the standard and custom color gamuts, this function also supports the "LED.recommend" color gamut which is specially launched by NovaStar for the LED display.

#### Precise Grayscale

Correct the 65,536 levels of grayscale (16bit) of driver IC individually to fix the display problems at low grayscale conditions, such as brightness spikes, brightness dips, color cast and mottling. This function can also better assist other display technologies, such as 22bit+ and individual Gamma adjustment for RGB, allowing for a smoother and uniform image.

💠 22bit+

Improve the LED display grayscale by 64 times to solve the grayscale loss problem due to low brightness and allow for more details in dark and bright areas, presenting a smoother image.

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**

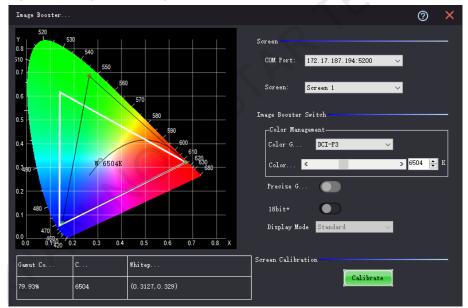
Step 1 Log in to the multimedia player. For login operations, see 4 User Login.

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

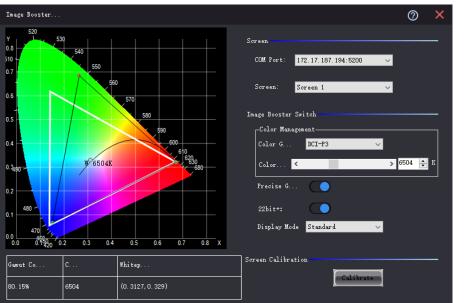
Image Booster Engine

Step 3 Select a screen that you want to set.

Figure 6-28 Image Booster Engine



#### Figure 6-29 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 6-29.

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 the color gamut and the switch status until the display effect meets the actual needs.

These settings are the final display effect configurations.

# 6.7 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 multimedia players

#### **Prerequisites**

None

#### **Related Information**

None

#### **Operating Procedure**

- Step 1 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 From the menu bar, choose Tools > More > Device Settings.

Figure 6	-30 Batch	checking	calibration	effects

Select Function				×
🗆 Destase estituetion mode	Select	COM Port 192.168.41.1:5200	Device T6	Device Quantity
Restore calibration mode				
Enable/Disable calibration				
Disable calibration				
O Brightnes				
<ul> <li>Chroma calibration</li> </ul>				
Select all	Select all			
				Setting

- Step 3 In the device list, select the device of which you want to check the calibration effects.
- Step 4 Select Enable/Disable calibration and click Setting.
- Step 5 Click **OK** to close the prompt box.
- Step 6 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

## **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 multimedia players

## **Prerequisites**

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

## **Related Information**

None

## **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.



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
------------	--------	---------------

Screen Configuration		×
-Select Communication	Port	
Current Operatio	172.18.12.29:5200 🗸	
Configure Screen		
O Cloud Restore	~	
O Local Restore		Browse
	Next	Close

- Step 3 Select Configure Screen and click Next.
- Step 4 On the Screen Configuration page, click Save System Configuration File to open the dialog box shown in Figure 7-2.

Figure 7-2 Saving configuration files

💀 Save System Files to Cloud	×
VNNOX Care Use 123 Password	
Screen Name Taurus-40002453	
System Config	
System Config 1、Sending card backup file	
2、Receiving card backup file	
3. Screen connection file	
4 . Receiving card/NovaLCT	
Save	
The screen is already registered	•

- Step 5 Enter your VNNOX Care user name and password, set the screen name and system configuration file name, and select a server node
- Step 6 After the parameter settings, cick **Save**.
- Step 7 Do the corresponding operation below based on the multimedia player firmware version.
  - Firmware version V3.3.0 or later: After the configuration file is saved, close the prompt box. No further action is required.
  - Firmware version earlier than V3.3.0: Go to Step 8.
- Step 8 Do any of the following operations to upgrade the firmware version and save the configuration file to cloud and local PC. (The device will automatically restart during upgrade.)

Figure 7-3 Upgrade prompt

Upgrade Prompt – D X The current device version is too early. Please upgrade the device before checking the complete data in VNNOX Care. Online Upgrade Local Upgrade	0				
Please upgrade the device before checking the complete data in VNNOX Care.	🖳 U	Jpgrade Prompt	-		Х
Online Upgrade Local Upgrade		Please upgrade the device before	re ch	-	
		Online Upgrade Local Upgra	ade		

- Online upgrade
  - a. Click Online Upgrade.
  - b. In the pop-up dialog box, click Upgrade.
  - c. After successful upgrade, close the dialog box.
- Local upgrade
  - a. Click Local Upgrade.
  - b. Select a firmware package from local PC and click **Open**.
  - c. After verification, click Upgrade in the pop-up dialog box.
  - d. After successful upgrade, close the dialog 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 7.2.1 Monitoring.

#### 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 backpu files to register the screens with VNNOX Care.

#### **Applicable Products**

All receiving cards and multimedia players

## **Prerequisites**

You have a valid VNNOX Care account.

#### **Related Information**

None

#### **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.



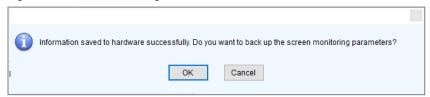
Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar to open the dialog box shown in Figure 7-4.

Figure 7-4 Screen configuration method

Screen Configuration		×
Select Communication	Port	
Current Operatio	172.18.12.29:5200 ~	
Configure Screen	0	
O Cloud Restore	×	
O Local Restore		Browse
191	Next	Close

- Step 3 Select Configure Screen and click Next.
- Step 4 On the Screen Configuration page, click Save.
- Step 5 After successful saving, click OK to save the screen monitoring backup file to the local computer.

Figure 7-5 Successful saving



Step 6 After successful saving, click Close.

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



Figure	7-6	Saved	successfully
--------	-----	-------	--------------

🖷 Prompt	$\times$
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 scree to VNNOX Care after the PC is connected to the Internet.	n
Close	.::

Step 7 When the control PC can access the Internet normally, click Local Backup Files on the main window to open the dialog box shown in Figure 7-7.

igure	7-7 Local back	up files			
🖳 Loc	al Backup Files				- 🗆 🗙
Save		e screen configurat	ion. The backu	file saved in the local o file is convenient for	
	Device SN	Device Model	Remarks	Saved	Binding Status
	BZSA17375J18400	T6		9/27/2021 4:54 PM	Unbound
		Bin	d	Delete	

Step 8 Enter a remark.

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

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

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

Figure 7-8 Binding to VNNOX Care



🖶 Bind to VNNOX Ca	ire		×
Vser Name			
Password			
	OK		
		American	
		American	•

# **Related Operations**

Both in the logged in and not logged in statuses, you can click Local Backup Files to enter the Local Backup Files dialog box to check the device binding status and delete configuration files.

Ø

## 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 multimedia players

## **Prerequisites**

You have a valid VNNOX Care account.

## **Related Information**

None

## **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.



Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar to open the dialog box shown in Figure 7-9.

Figure 7-9 Screen configuration method

Port	
172.18.12.29:5200	~
	~
	Browse
Next	Close

- Step 3 Select Configure Screen and click Next.
- Step 4 On the Screen Configuration page, click Export Screen Monitoring Data to open the dialog box shown in Figure 7-10.

Figure 7-10 Exporting screen monitoring data

Export Screen Monitoring Data	
File Name	
Location	C:\Vsers\zlkf-gy01\Desktop
File Content	<ol> <li>Screen monitoring data</li> <li>Sending card backup file</li> </ol>
	3. Receiving card backup file
	4. Screen connection file
	5. Receiving card/NovaLCT versions
	Save

- Step 5 Set a file name, click with to select a location and click **Save**.
- Step 6 After successful saving, click OK to close the prompt box.
- Step 7 When the control PC can access the Internet normally, log in to VNNOX Care.
- Step 8 Go to My Services > Screen Management to enter the screen management page.
- Step 9 Click Add Screen, select the exported screen monitoring data file and click Upload.

# 7.2 View and Configure Monitoring

#### 7.2.1 Monitoring

#### **Applications**

View the monitoring information and configure the monitoring parameters to monitor the statuses of multimedia players, receiving cards, receiving card temperatures, monitoring devices, as well as humidity, smoke, fans, power supplies, cables, cabinet doors, modules, iCare, 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 module 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 product 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 Log in to the multimedia player. For login operations, see 4 User Login.



Step 2 Click Monitoring or choose **Tools** > **Monitoring** on the menu bar.

#### Figure 7-11 Monitoring type

Mc	onitoring	×
	~	1
	Monitoring	Monitoring (Trial)
		A A

Step 3 Click **Monitoring** 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 7-12 Monitoring			
MonitorSite V2.6			×
172.18.12.90:5200-Screen1			
		Zooming	
		0.40	
Image: Second system         Image: Second system			
		Normal	
<b>S</b>		Fault	
		Voltage E	
Time of Acquiring the Current M	Monitoring Data 17:35:18	Unknown	
Statistical Information			-
Total Quantity of Receivin	1		
Fault (alarm) Information Quantity of Faulted Receiving Cards:	Quantity of Receiving ( 0 with Voltage Exception	Card : 0	Monitoring R Configuration
Screen Name		🛛 😏 💟 🚺 🚯	
172.18.12.90:5200-Screen1		$\odot$ $\odot$ $\odot$	$\odot$ $\odot$
			0
Care status:Offline		CXY	

#### Note:

- 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 4 Click Configuration to set the monitoring parameters.
  - Refresh Period

MonitorSite - Setti	ngs	
Refresh Period		
	Refresh Period	
Mardware Settings		
	Automatic Refresh 60 🖨 S	
	Kefresh reriod.	
Alarm	Set Rereading Times	
Email	When failing to read status, the <b>O</b> Times	
	Software will read	
Email Log	Link to NovaiCare	
	Link to NovaiCare	
	- NovaiCare	
		Save

Set the necessary items below 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.

For multimedia players, there is no need to select Link to NovaiCare.

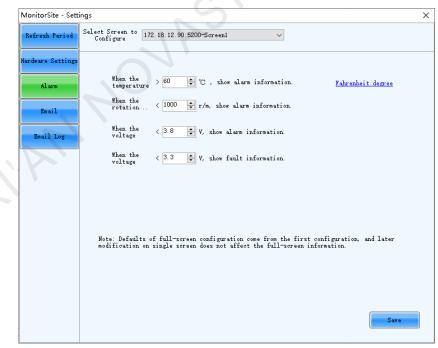
#### Hardware Settings

MonitorSite - Setti	ngs	×	
Refresh Period	Select Screen to T72, 18, 12, 90;5200-Screen1 V		
Hardware Settings Alarm	Connect to Monitori Connect to HUB Monitoring Connect to Smart Module Use 2 receiving car		
Email Email Log	Refresh Backup Power Supply Backup Power Supply Quantity		
	Refresh Humidity     Refresh Smoke       Refresh Ribbon Cable     Refresh Cabinet Door Status		
	Refresh Fan       Fan Pulse:       1       Set fan quantity uniformly       Set fan quantity individually       Set fan quantity individually		
	Set ran quantity individually     Setting       Refresh Power Supply of Monitoring Card       The numbers of power supplies on eac		
	O Set power supply quantity individually Setting		
	Save		

Set the necessary items below 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, 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.

💠 Email



orSite - Settin				×
sh Period	Enable Email Notification Send er	nail when same fault/	3 v <sup>Tir</sup>	nes sending
	Enable System Recovery Notification			
e Settings	Enable Sending System Report Email			
	Send system report email regularly			
larm	-Email Sender			
	Email Address novalot@novastar.tech	Port	25	
mail	SMTP Server smtp. qiye. 163. com	SSL Encryption	Enable	
il Log	Modify Sender			Use Default
	Recipient			
	Name 111 nova_huixy@13	Email address		
	-Email Information-			
	Sending Email A-1	(e.g.:Neighborhood A,	Square B)	
	Tip: If the display has been registered with B	KovaiCare, please disabl	e local Email	notification Save

Select Enable Email Notification. Set the necessary items below 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 then click Send system report email regularly to set the email sending period and time.
- Click **Modify Sender** to change the email service related settings.
- Add, edit or delete the recipients.
- Set where the email is sent from.

#### Email Log

MonitorSite - Setti Refresh Period	Log Time	- 2019年12月1	2日		Refresh Delete Lo
Hardware Settings	Notification Time	Recipients	Title	Notific	ation Content
Alarm					
Email	$\sim$				
Email Log					
	<				

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

# 7.2.2 Monitoring (Trial)

## **Applications**

View the monitoring information and configure the monitoring parameters to monitor the statuses of the multimedia player, receiving cards, receiving card temperatures, monitoring devices, as well as humidity, smoke, fans, power supplies, flat cables, cabinet doors, modules, etc., 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 module 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 product 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.

### **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 Log in to the multimedia player. For login operations, see 4 User Login.



Step 2 Click Monitoring or choose **Tools** > **Monitoring** on the menu bar.

#### Figure 7-13 Monitoring type

Monitoring		$\times$
	1	
Monitoring	Monitoring (Trial)	

Step 3 Click Monitoring (Trial) to open the monitoring page.

# Figure 7-14 Monitoring (Trial)

Monitor				
	1 -	+ (	) Refresh d	ata
Alarm Info: Start reading the screen information. 2020-01-19 10:57:03				
			P	

#### Step 4 Add a monitoring page.

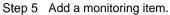
- 7. On the top right of the page, click +.
- 8. Right click the monitoring page name and choose Rename from the displayed menu.

In the displayed menu, you can also choose to refresh or delete the monitoring page.

9. Enter a name and press Enter or click on the other position on the page.

If necessary, you can add multiple monitoring pages. The figure below has two monitoring pages added and their names are **Home0** and **Home1**, respectively.





1. In the dashed box, click + to open the Add Monitoring Item dialog box.



			Add Monito	ring Item	×
		Туре	Primary RV Card Backup RV Card	Grade	
		Real-Time Monitoring	Search	✓ Fault	
			172.18.12.90:5200-0	✓ Alarm	
				✓ Normal	
			Title		
			Inte		
					Cancel Add
	2.	Select the communicat	ion port and monitoring	grade, set a title and c	lick Add.
		The Backup RV Card	button is currently unav	/ailable.	
	3.	Click <b>OK</b> .			
		If necessary, you can a	dd multiple monitoring	items.	
Step 6	Chec	k the monitoring inform	ation.		
	1.	Click Refresh data to a	obtain the monitoring in	formation.	
	2.	Check the monitoring ir	nformation summary.		
		Monitor			= ×
		Home0 Home1			+ 🗘 Refresh data
		Real-Time Monitoring-172.18.12.90:5200-0	×		
		Ф Ф 1*т6 Ф Ф			
		0	+		
		Cabinet: Total: 1 Fault: 0 Alarm: 0	- C		

The displayed items in the summary are relevant to the monitoring parameters. For configuration of monitoring parameters, see Step 7.

Description of the monitoring information summary:

- In the first row of the label, you can see the monitoring information of the multimedia player. In the figure above for example, you can see that the multimedia player Ethernet port is normal (
- In the second row of the label, you can see statuses of the receiving card, receiving card temperature, monitoring device, humidity, smoke, fans, power supplies, flat cables, cabinet doors, modules, etc. The figure above indicates that the receiving card status is normal (!!!).

Description of icon colors:

- Green: Normal
- Yellow: Alarm
- Red: Fault
- Gray: Unknown
- 3. Click a monitoring item to check the detailed monitoring information.



Monitor		=	-	×
÷	Screen Screen Brightness 76/255 29.8% Ambient Light Unknown			
172.18.12.90:5200-	Sending Card Primary 1722.812905200-0			
	Transmission	Fault Info: Working status Normal 1 Fault 0 Alarm 0		

The displayed items in the detailed information are relevant to the monitoring parameters. For configuration of monitoring parameters, see Step 7.

Description of the detailed information:

- Check the screen brightness and ambient brightness.
- Check the monitoring information of the multimedia player.
- Check the monitoring information related with the cabinet, receiving card, module and transmission, and perform LED error detection on the module.
- Step 7 On the top right of the page, click \_\_\_\_\_ to configure the monitoring parameters.

Figure 7-15 Monitoring configuration

	Monitoring Configuration	
Monitoring Policy	Refresh Method	
Hardware Configuratic	Nellesh meulou	
Alarm Threshold	Refresh manually     O Refresh periodically     O Refresh on schedule	
Monitoring Control		
LED Error Detection	When failed to refresh monitoring data, refresh 1 time(s) again	
1'P	Save	

#### Monitoring Policy

Select a refresh method and click Save after the settings are done.

- Refresh manually: Click **Refresh data** to manually refresh the monitoring information.
- Refresh periodically: Set the refresh period and the system will automatically refresh the monitoring information according to the set refresh period.
- Refresh on schedule: Set the rule of refreshing the monitoring information on schedule.
- When failed to refresh monitoring data, refresh xx time(s) again: Set how many times the system rereads the monitoring information from the receiving card when it fails to read the information.
- Hardware Configuration

	Monitoring Configuration	$\times$
Monitoring Policy	Select Screen 172.18.12.90:5200-0 *	
Hardware Configurati	Connected with monitoring card Settings	
Alarm Threshold Monitoring Control	Connected with Hub monitoring Connected with smart module	
LED Error Detection	~ Cabinet	
	Use multiple power supplies for backup	
	^ Module	
	Save Apply to All Screens	

Perform any of the operations below and click Save or Apply to All Screens after the settings are done.

- Select Connected with monitoring card and set the monitoring items. Click Settings to set the number of monitoring cards connected to each cabinet. The number is 0 or 1.
- Select **Connected with Hub monitoring** and set the monitoring items.
- Select Connected with smart module and set the monitoring items.
- Select Connected with Hub monitoring and Connected with smart module, and set the monitoring items.

#### Alarm Threshold

	Monitoring Configuration	×
Monitoring Policy	Select Screen 172.18.12.90:5200-0 *	
Hardware Configuration	Temperature	
Alarm Threshold Monitoring Control	-30 120 When temperatur $60^{+}$ C , show an alarm Set temperature scale of all to $^{\circ}$	
LED Error Detection	Fan Speed 0 1000 When speed < 1000 RPM, show an alarm	
	Voltage 0 348 5.5 When voltage < 3.8 V, show an alarm When voltage < 3.4 V or > 5.5 V, show a fault	
4	Alarm Notification Method	
	Text on top Pop-up box in st Sound Flashing in template  Save  Apply to All Screens	

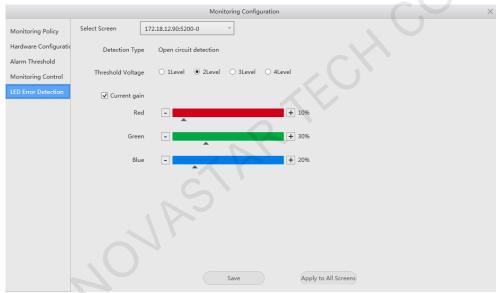
Perform any of the operations below and click Save or Apply to All Screens after the settings are done.

- Set the alarm thresholds for temperature, fan rotating speed and voltage. When the threshold value is
  exceeded, faults or alarms will be displayed.
- Set the alarm notification method.
- Monitoring Control

	Mo	onitoring Configuration	×
Monitoring Policy	Select Screen 172.18.12.90:5200-0	v	
Hardware Configuratio	Condition	Action	# #
Monitoring Control	Avq temperature ~ 0 °C ≤ Temperature	e < 0 Adjust screen brightness to 0 Manage Power	$\checkmark$ $\times$
LED Error Detection			
		Save Apply to All Screens	

Set the rules for automatic control of average temperature, maximum temperature, smoke and 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 **Save** or **Apply to All Screens**.

### LED Error Detection



Set the LED error detection parameters. After the settings are done, click Save or Apply to All Screens.

Detection Type: The detection types supported by the driver chip

Threshold Voltage: The level of 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. You can adjust the current gain.

# 8 Screen Management

# 8.1 Multi-function Card Management

## **Applications**

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

## **Applicable Products**

The MFN300 multifunction card

#### **Prerequisites**

Hardware connections for the multifunction card are done.

#### **Related Information**

None

#### **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.



Step 2 Click Multi-function Card or choose Settings > Multi-function Card on the menu bar.

#### Figure 8-1 Multifunction card management

Step 3 Click Add and select the connection type of 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 multimedia player or receiving card.



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

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 4 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**.

Figure	8-2 Adding	multifunction card
riguic		indiano do in cara

Add Multi-function Carc	ł	×
		_
Communication Port	172.18.12.90:5200	
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 conn	ection			
Multi-function Card Management				×
Add Remove Refresh Rename	Time of Powe	ment Monitoring Data Peri er Management Board Sunday 04:54:24	ipheral Device Load Pr Read Set	rogram Set Notes Start Delay
		••••	Refresh	StartAll Emergency St
	Manual	🔿 Automati		Advanced
	Switch 1	Start	Please select	~
	Switch 2	Start	Please select	~
	Switch 3	Start Stop	Please select	$\checkmark$
	Switch 4	Start Stop	Please select	~
	Switch 5	Start Stop	Please select	~
	Switch 6	Start Stop	Please select	~
	Switch 7	Start Stop	Please select	$\sim$
	Switch 8	Start Stop	Please select	$\sim$
			Send	Readback
/ r		19:14Read the status of all t 19:19Read the status of all t		
Read the status of all the powers in multifuncti	on card:Successful!			

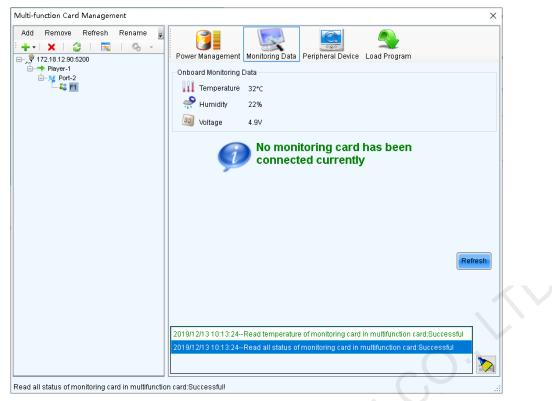
Step 5 Use any of the following functions as needed.

Power Management

Multi-function Card Management					×	
Add Remove Refresh Rename	Time of Powe	ment Monitoring D er Management Boa Sunday 04:54:24		d Program	Start Delay	
	) Manual	O Autom	Refresh	StartAll	Emergency St	
	Switch 1		Please select	~		
	Switch 2	Start	Please select	$\sim$		
	Switch 3	Start	Please select	$\sim$		
	Switch 4	Start 🗧	Please select	~		
	Switch 5	Start 🗧	Please select	~		
	Switch 6	Start 🗧	Please select	$\sim$		
	Switch 7	Start 🗧	Please select	$\sim$		
	Switch 8	Start 🗧	Please select	$\sim$		$\langle \setminus$
			Send	Readback		
			ers of multifunction card:Succe		^	
	2019/12/13 10:1	0:37FuncCard_S	etPowerPortCtriTotal:Success	iful	Ş 🏷	
Read emergency control status of power in mult	ifunction card:Succ	essful!				

- 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.
- Advanced: Set the time for the automatic time synchronization between the multifunction card and PC.

#### Monitoring Data



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

#### Peripheral Device

Add Remove Refresh Rename		nitoring Data Peripheral Devi	Load Program
	Peripheral device 1	No external device $\sim$	
	Peripheral device 2	No external device $\sim$	
	Peripheral device 3	No external device $\sim$	
	Peripheral device 4	No external device $\sim$	
	Peripheral device 5	No external device $\sim$	
	Peripheral device 6	No external device $~\sim~$	
			Refresh Save

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



Multi-function Card Management X	
Add Remove Refresh Rename	
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 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.

Add Remove Refresh Rename		Refres
		Exit Prows Chang
Read all status of monitoring card in multifunction	eard Susceedul	



# 8.2 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 multimedia players

#### **Prerequisites**

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

### **Related Information**

None

#### **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.

#### Step 2 On the menu bar, choose Settings > Prestore Screen.

#### Figure 8-4 Prestore picture settings

Prestore Picture Settings	
Communication Port Selection	-
Communic 172.18.12.90:5200 V	
Screen1	_
Prestore Picture Settings	
Select Pi Browse	
Effect Settings	
Screen Effect Stretch	
O Single Cabin Stretch Test Effect	
Extende Save to HW Check Stored Picture	
Function Settings Start-up Picture	
Enable Time 2 🛟 Se	
Disconnect Cable	
Black     C Last Frame     O Prestor	
No DVI Signal	
Black     C Last Frame     Prestor	
Send Save to HW	

#### 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.
  - 2. 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.

# 8.3 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 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 On the menu bar, choose Settings > Receiving Card Relay.

Figure 8-5 Setting receiving card relay			
Setting of Receiving Card Relay	_		$\times$
- Serial Port Selection			
Serial Port 172.18.12.90:5200			~
Screen1			
Parameter of Receiving Card Relay			
Disconnected			
○ Connected			
O Automatic			
Temperature Under Automatic Mode			
Temperature of Connected Relay	30	4	°Ċ
Refresh		Send	
Receiving Card Timing Clearing			
Record Time 11Days 8Hours 26Minutes			
Refresh	Timin	g Resetti	ng

Step 3 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.

# 8.4 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 Log in to the multimedia player. For login operations, see 4 User Login.

Step 2 On the menu bar, choose Settings > Configure Information Management.



Figure 8-6 Configuration file management

Configuration File Management	×
Import Configuration Export Configuration	Cancel

Step 3 Perform any of the following operations as required.

Import Configuration

Click Import Configuration and 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**.

# 8.5 Screen Control

#### **Applications**

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

#### **Applicable Products**

All receiving cards and multimedia players

#### **Prerequisites**

None

#### **Related Information**

None

#### **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login.

Step 2 Click see or choose **Tools** > Screen Control on the menu bar.

#### Figure 8-7 Screen control

Screen Control	×
172.18.12.90:5200-Screen1	
Display Control Black Out Freeze	Normal
Self-Test: Normal V	Send
Cabinet LCD Backlight Control	
🔲 Turn off cabinet LCD	Send
	Close

Step 3 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.

# 8.6 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 5.3 Set Performance Parameters.

#### **Related Information**

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

#### **Operating Procedure**

- Step 1 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 On the menu bar, choose **Tools** > **Module ID setting**.
- Step 3 Click Refresh to view the module IDs.

#### Figure 8-8 Viewing module ID

🖳 Module ID settings	XY	– 🗆 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 settings pane.



#### Figure 8-9 Setting module IDs

🛃 Module ID settings		– 🗆 X
USB@Port_#0003.Hub_#0001-Screen1		
		Scaling rate
		ID
Sending cardl Ethernet port1	Sending card1 Ethernet port1	
Receiving card1	Receiving card2	~
BUS:1 Flash No.:1	BUS:1 Flash No.:1	ID Setting
ID: 0-0	ID: 1-0	Prefix
		Sort   Type Z
		O Type N O No.
		by cabinet
		Generate Save to HW
		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.
    - Type Z: Generate module IDs from left to right for all the rows from top to bottom. The ID format is "receiving card number-module number".
    - Type N: 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".
  - 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.

# **9** Screen Maintenance

# 9.1 Hardware Program Update

## **Applications**

Update the hardware programs for the receiving cards.

## Applicable Products

All receiving cards

## **Prerequisites**

The program update package is obtained.

## **Related Information**

None

### **Operating Procedure**

- Step 1 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 Type "admin" to pop up the program loading window as shown in Figure 9-1.

#### Figure 9-1 Program loading

ram loadingthe curr	rent communication port has device accessed		-	
rogram loading				
Select the communicati	on port for operation			
Communication port for the current operati	172.18.12.90:5200	Device q 1	R	econnect
Program updating				
Program Pat G:\D/	ATA_A10s_V4.5.2.7		Br	owse
Advanced				pdate
Extend the operation ite	n			
Read-back of recei				
ardware Program Versio	n Information			
🕽 Refres 🔿 Refres.	. Sendi 1 💠 Outp 1 💠 Recei 1	≑ 🗌 Refres	. [	Refresh
formation Console				
				Clear
				Clear

If you need to reconnect the multimedia player, click Reconnect.

Step 3 Specify the refreshing range, and click **Refresh** to view the current program version of the hardware.

Refresh All: View the program versions of all receiving cards.

• Refresh Specified: View the program versions of the specified receiving cards.

If the module has an MCU, select Refresh Module MCU to view the MCU version.

Figure 9-2	Viewing prog	ram version

Program loadingthe d	current communication port ha	as device accessed		_	×	
Program loading						
	cation port for operation					
Communication por for the current opera		~	Device q 1	Reconnect		
Program updating						
Program Pat G	:\DATA_A10s_V4.5.2.7			Browse		
Advanced				Update		
Extend the operation	item					
Read-back of recei						
– Hardware Program Ver	sion Information					
	es Sendi 1 ᆃ Out	p 1 ᆃ Recei 1	🗧 🗌 Refres	Refresh		
🖲 Refres 🔾 Refr	es Sendi 🔽 🔽		Refres.	Reiresh		
<mark>⊟-</mark> Hardware program						
T .	.0 Total1,Remarks:2019.05.20 MRV3	16 MCH V1 2 3 0				
Receiving (						
	.0 Total1,Remarks:2018.10.15 MRV3	16 FPGA V4.5.8.0				
Information Console						
	ending Card1 Output port1 Receiving ending Card1 Output port1 Receiving					
				Clear		
					:	

- Step 4 Click Browse, select a program package, and click OK .
- Step 5 Click Advanced, select the items to be updated, and click OK.

Figure 9-3 Advanced settings

Select file	File type	File name	Version
	MCU	A10s_MCU_V1.2.2.1_nda.dat	4.5.2.7
	FPGA	A10s_FPGA_V4.5.2.5.dat	4.5.2.7
	Font	FontLib.dat	4.5.2.7
	Table	GammaTable.dat	4.5.2.7

Step 6 Click Update.

Step 7 Choose to update the programs of all receiving cards or the specified receiving card, and then click OK.

#### Figure 9-4 Selecting send mode

igure e i Gereeting certa		
🖳 Select a send mode		×
<ul> <li>All receiving cards</li> </ul>		
O Specified receiving c	ard	
Sending card	1	
Ethernet port:	1	
Receiving card:	1	
ОК	Cancel	
Specified broadcast data ope	rating tips:	
Broadcast corrsponding value	es: sending card(256); Et 🥝	

- Step 8 After the programs are updated successfully, click OK.
- Step 9 If the receiving card supports program readback, perform the following operations to save the receiving card program to your local drive; otherwise, skip this step.
  - 1. Click Read-back of receiving card program.
  - 2. Specify the receiving card, and click **OK**.

🖳 Select receive card	- 🗆	×
Sending card	1	
Ethernet port:	1	
Receiving card:	1	
ок	Cancel	Ģ

- 3. Select the file save path, and click **OK**.
- 4. After the settings are done, click **OK**.

# 9.2 LED Error Detection

#### **Applications**

Detect the damaged LED lights and locate them on the screen.

## Applicable Products

The MRV320 and MRV560 receiving cards

#### **Prerequisites**

- The module driver chip must be support LED error detection.
- 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**

The multimedia player does not support smart module monitoring.

#### **Operating Procedure**

Step 1 Log in to the multimedia player. For login operations, see 4 User Login. www.novastar.tech



Led Error Detection						- 0 X	
Communication Port Sel							
Communication Port	192.168.0.10:5200	~					
Screen1							
Screen Topological Dia	gram						
						Zoom	
						^	
						✓ 1.0	
						Unknown	
						Error	
						Normal	
						No Monito	
Led Error Detection Par	ameters						
Detection Type	Open Circuit an	d Short Circuit Detect	ion				
Threshold Voltage	۱ ا	O 2	O 3	○ 4			
Current Gain	🗹 Enable	Change Setting	L				
Bi-Color LED Error	🗌 Enable						
		Save Co	nfi	Led error d	Pause	Stop	
		6					
Information					C		

Figure 9-5 Led Error Detection

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					- 🗆 X	
ommunication Port Sele	ection					
communication Port	192.168.0.10:5200	~				
Screen1						
Screen Topological Diag	gram					
					Zoom	
					^	
24582						
					✓ 1.0	
					Unknown	
					Error	
					Normal	
					No Monito	
					ind monito	
Led Error Detection Para	ameters					
Detection Type	Open Circuit an	d Short Circuit Detecti	on			
Threshold Voltage	O 1	O 2	О з	. 4		
Current Gain	🗹 Enable	Change Setting				
Bi-Color LED Error	🔲 Enable					
		Save Cor	ni	Led error d	ause Stop	
		C				
2019-11-08 05:16:03Sci	reen1:Led error deteo	tion is being initialize	d, please wait		^	
2019-11-08 05:16:14Sci	reen1:Completed led	error detection! The r	number of receiving	cards which have received	l led error detect 🥊 🕅	
Information					· · · · · · · · · · · · · · · · · · ·	
Information						

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

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



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

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

# 9.3 Reset Run Time

#### **Applications**

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



# **Applicable Products**

All receiving cards

#### **Prerequisites**

None

## **Related Information**

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

#### **Operating Procedure**

- Step 1 Log in to the multimedia player. For login operations, see 4 User Login.
- Step 2 On the menu bar, choose Tools > More > Reset Run Time.

#### Figure 9-8 Resetting run time

Reset Run Time	
Current Communic 172.18.12.90:520 V Soreen List: screen1	Cabinet Run Time on LCD Cabinet Run Time on LCD: 11 day 8 hour 55 minut Reset

- Step 3 Select a screen.
- Step 4 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 Log in to the multimedia player. For login operations, see 4 User Login.

 $Step \ 2 \quad On \ the \ menu \ bar, \ choose \ \textbf{Tools} > \textbf{More} > \textbf{Bit Error Detection.}$ 

Step 3 Click Manually as shown in Figure 9-9.



it Error Detection						-	
Device			_				
→ All - 172, 18, 12, 90:5200	Auto Refres		.y			C1	ear
Sending card1	Bit Error Inf	ormation					
	Status	Sending card	Ethernet Port	Receiving Card	Error Details	Locate	Clear Errors
	1	72.18.12.90:5200-Sending card1	Port1	Receiving cerd1	Errors:0 2019年12月13日 10:56:28	Locate	Clear

Step 4 If the communication is abnormal, perform any of the following operations as required. If the communication is normal, skip this step.

View error details 4

Click the link in the Error Details column and view the detailed error information in the displayed dialog box.

4 Locate display area

Click Locate to view the display area on the screen.

4 **Clear errors** 

Click Clear Errors to reset the error quantity to 0.

Step 5 (Optional) Select Auto Refresh and set the refreshing period.

# 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 multimedia players

#### **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 Log in to the multimedia player. For login operations, see 4 User Login.



- Step 2 Click Test Tool or choose Plug-in > Test Tool on the menu bar.
- Step 3 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	ar					—		×
Window	Pure Color	Gradual Change	Grid	Orientation	Help					
x	<		,	0 🛊	Width	<		>	64	+
¥	<		>	0	Height	<		>	32	* *
. \							Show		Hi de	

Step 4 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.
Gradual Change	• Select a color.
	Select a grayscale level.



Tab Name	Function Description
	Set the test pattern stretching times.
	• Set the gradient moving style.
	<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	• Set the line moving speed.
	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.
	Set the module width and height.
	Set the module columns and rows in the receiving card.
	• 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 Orientation 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, starting column number, as well as the widths of the module and receiving card lines.

# Figure 10-2 Setting orientation parameters

Magnetic Tool of LED Screen-Novastar							-		$\times$		
Window	Pure Color	Gradual Change	Grid	Orientation	Help						
Orie	ntation	Module Width 6	4 +	Height	32	•	Loading Module o			2	•
Advanc	ed Setting	Color Fo	nt		Modul	e Line		Receivi	ng Card Line		
		Background		0	Backgro	<b>u</b>			<ul> <li>From Left t</li> <li>From Right</li> </ul>	-	
~											

Note:

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 www.novastar.tech

## **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 P	rogram	×
Common		
		Cancel

Step 2 Click **I**.

Figure 10-4 Adding external programs

Add External Progr	am		x
Program P			
Command			
ОК		Cancel	

Step 3 Select the program path and enter the command line parameter as required, and then click OK.

If the external program is successfully added, the shortcut icon of the program will be displayed in Figure 10-3. www.novastar.tech 100

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N	0	÷	Δ	
	U		6	

Select an external program icon and click 🔀 to remove the program.

Step 4 Click OK.



# **11** Software Settings

# 11.1 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 11-1 Setting starting position coordinates

Starting Position Se	tting	×
X Coordinates	32	
Y Coordinates	35	ć
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.

# 11.2 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.

# 11.3 View Help Documents and Update Program Online

### **Applications**

View the user manuals, update log and software information of the current version of NovaLCT, and perform online update for NovaLCT.

#### **Applicable Products**

N/A

#### **Prerequisites**

None

#### **Related Information**

The user manuals include NovaLCT LED Configuration Tool for Synchronous Control System User Manual and NovaLCT LED Configuration Tool for Multimedia Player User Manual.

When NovaLCT is started, an **Online Update** dialog box will pop up if the software is not the latest version. Click **Update** to update the software. If you want to update the program later, follow the subsequent operating procedure to perform online update.

#### **Operating Procedure**

- Step 1 On the menu bar, choose Help.
- Step 2 Perform the following operations as required.
  - View User Manual

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.

#### Update NovaLCT

Choose **Online Update** to check whether a software update is available in the displayed dialog box. If there is a software update, click **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 <a href="https://screen.configuration">screen Configuration</a> 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

Bin Properties		×	
General Sharing Security	Previous Versions	Customize	
Object name: C:\Users\ <u>G</u> roup or user names:	Admin \App Data \Roa	ming\Nova Star\Nc	
2000 of data Haines. SYSTEM る外文组 (DESKTOP-34FJNBB\Admin) 総 Administrators (DESKTOP-34FJNBB\Administrators)			
To change permissions, cli	ck Edit.	<u>E</u> dit	
Permissions for SYSTEM	Allov	w Deny	
Full control	~	~	
Modify	~		
Read & execute	~		
List folder contents	~		
Read	~		
Write	~	~	
For special permissions or a click Advanced.	advanced settings,	Ad <u>v</u> anced	
	OK Cance	Applý	

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

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

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	Object Types
From this location:	
DESKTOP-34FJNBB	Locations
Enter the object names to select ( <u>examples</u> ):	
C N	Check Names
Advanced	Cancel

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

#### Figure 12-5 Advanced settings

•	0		
Select Users or Groups			×
<u>S</u> elect this object type: Users, Groups, or Built-in	n security principals		<u>O</u> bject Types
From this location:			
DESKTOP-34FJNBB			Locations
Common Queries			
Name: Starts	with $\sim$		<u>C</u> olumns
Description: Starts	with $ \smallsetminus $		Find <u>N</u> ow
Disabled accounts	3		Stop
Non expiring pass	word		
Days since last logon	$\sim$		<del>9</del> 7
Search res <u>u</u> lts:			OK Cancel
Name	In Folder		^
Access Control Assi Admin Administrator Administrator Administrators ALL APPLICATION ANNYMOUS LO Authenticated Users Authentication auth Backup Operators BACH	DESKTOP-34FJ DESKTOP-34FJ DESKTOP-34FJ	I	
AL CATION			*

- 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\Admi	n\AppData\Roaming	Nova Star\N
Group or user names:		
SYSTEM		
▲ 外文组 (DESKTOP-34FJN)		
Administrators (DESKTOP-	34FJNBB\Administra	tors)
	Add	Remove
Permissions for Everyone	Allow	_
	Allow	Deny
Full control		Deny
· · · · · · · · · · · · · · · · · · ·		
Full control		
Full control Modify		
Full control Modify Read & execute		
Full control Modify Read & execute List folder contents		
Full control Modify Read & execute List folder contents		

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

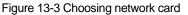


#### <u>Answer</u>

- 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.



- Step 4 On the taskbar, right click 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 Settir	ng proxy	
System Setting		×
🗌 Enable Proxy	Test Proxy	
Proxy Address		
Proxy Port	0	
Setting	Close	

- Step 2 Select Enable Proxy.
- Step 3 Enter the proxy address and port.
- Step 4 Click Test Proxy.
- Step 5 After the test succeeds, click Setting.

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