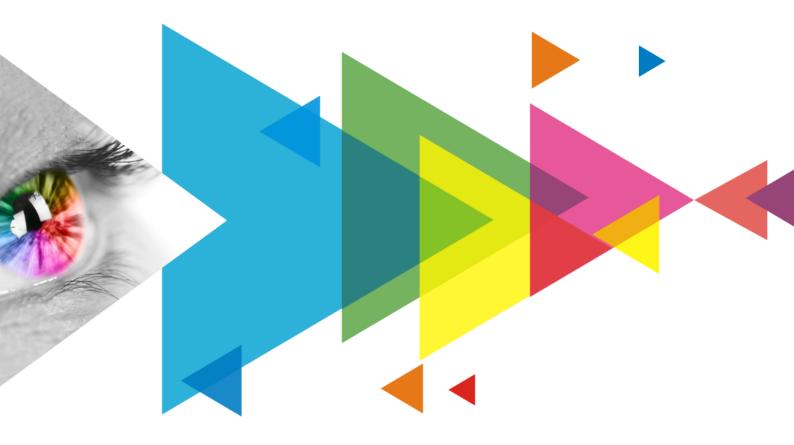


# **NovaLCT** LED Configuration Tool for Multimedia Player



## **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, multifunction card management and other configuration functions. Thanks to these functions, the screen can present optimal display effect and is easy to manage and maintain.

#### Wide scope of applications

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

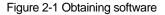
#### Efficient configuration

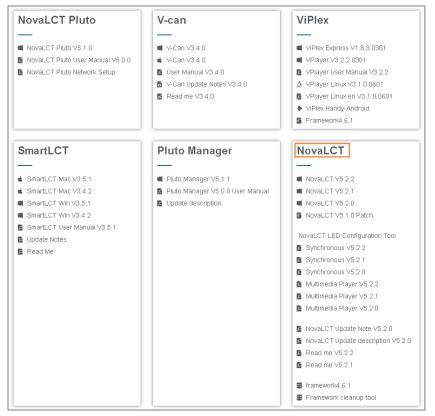
After the PC and control system product are connected, users can perform any operations with the PC. NovaLCT displays the corresponding functions and parameters according to the different hardware models and programs. During configuration, various kinds of configuration files can be used to complete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

## **2** Software Installation

## **Obtaining Software**

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





## **Installing Software**

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

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

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

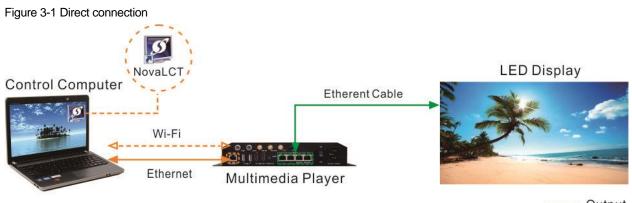
## **Verifying Installation**

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

## **3** Device Connection

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



Output
 Control

#### Direction connection via Ethernet cable

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

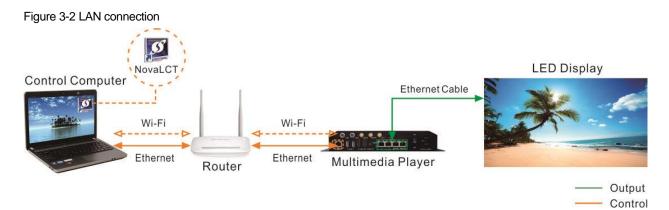
This method requires that DHCP must be enabled on the multimedia player and you must choose **Plug-in** > **DHCP Service** in NovaLCT, select the IP address of the PC and turn on the **DHCP Service** switch.

#### 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	s( <u>T</u> ) Plug-in ( <u>P</u> )	User( <u>U</u> ) La	anguage( <u>L</u> )	Help( <u>H</u> )
Cloud Monitoring	Brightness	Screen Control	Ionitoring Mu	Iti-function C	Card Test Tool
-		Screen Control	ionitoning Mu	Iu-Iuncuon C	Said Test tool
-Local System Inform	nation				
Control System	0	Other Devic	e O		View Details of Device
Monitor Information					
	N	o screen, cl	ick here f	or conf	figuration
Service Status: Serv	vice version:3.1	1			.:

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

#### Figure 4-2 Terminal list

Terminal List		×
Sort by name in descending	○ Sort by name in ascending	
Name		
	Refresh	nnect System

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 **v** 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 ascend	ing
Name		
Taurus-40002453		
	Refresh	Connect System

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( <u>S</u> )	Settings ((	<u>)</u> Tools( <u>T</u> )	Plug-in ( <u>P</u> )	User( <u>U</u> )	Language( <u>L</u> )	Help( <u>H</u> )		
	Screen Cor	<b>a</b> nfiguration	Brightness	Calibration	Screen Cont	trol Monitoring	· Multi-function Card	Test Tool	
F	Local System	Information	I						
	Control Sy	stem	1	Other Devi	ce O	Ŋ	/iew Details of Device		
ŀ	Monitor Inform	nation							
1					92				
		۲			۲		•		
l									
	Service Status	Service ve	rsion:3.1.1						.:

## **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

#### Notes

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

## 5.1 Load Configuration Files of Common Screens

## **Applications**

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

## Applicable Products

All receiving cards, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

## **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 details, 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		
O 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.

Re	estore Confi	iguration File-192.1	168.41.1:5200			_		×
Re	ceiving Card	Screen Connection						
	Send By Top		sicalAddress					
	Screen se							
	Screen1		© Full		=0, Y=0 Size1152W×384H	t Operatin		
					Operate All Pixels			
						Send to S		-
Ba	ickup File:	novastarScreenBac	kupFile.zip	Software Version:	NovaLCT V5.4.4.1982.T1(PingBoss)	Backu	ip Time:	

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.

creen Configuration Select Communication	Port	
Current Operatio	172.18.12.29:5200 🗸	
	nfiguring screen, please wait(1/3)	
C J CON	the set of	
Con     C	C:\Users\Nova001157\Desktop\MCTRL4K2.scfg Brows	P)(

## 5.2 Configure a Common Screen Manually

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

#### Note

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



## 5.2.1 Step 1 Light a Screen

### 5.2.1.1 Configuration through RCFG

#### Note

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

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

#### 5.2.1.1.1 Light Module

### **Applications**

Set the receiving card parameters to light a new module.

#### **Applicable Products**

For receiving cards that support .rcfgx or .rcfg files

#### **Prerequisites**

The receiving card firmware supports the module chip.

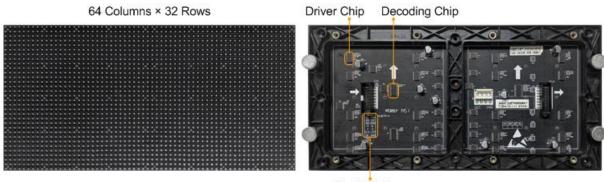
#### **Related Information**

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 5-2.

- 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 5-2 Module example



Pin Definition

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 details, see 4 User Login.

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

#### Figure 5-3 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 4 On the Screen Configuration page, click the Receiving Card tab.

#### Figure 5-4 Screen configuration

Card Screen Co	nnection					
ommon C	Size:	32W×16H	Scanning Typ	e 1/8 scan		
orizontal	Data Groups	2	Adjust RG		Che	eck M
				· · · · · · · · · · · · · · · · · · ·	Set R	otation
			Irregular			
1	-=256		Width: ??	Height: ??		
1	-=128					
From Dishter La	14					
From Right to Le	iπ ∨		Construct Ca	View Cabinet		
6						
More Setting	в 🗆 В	ig ? 🛛	18bit+		Send Pe	rform
480 ~	Hz:	Refresh Rate Ti	4 ~			^
Normal 4096 🔍	•	Grayscale Mode	Refreshing Rate Pre ~			
12.5 🗸	MHz	Duty Cycle	50 ~	(25~75) %		
6 ~	•	Low Grayscale C	0			
15	(=1.20us)	Ghost Control En		(1~14)		
house				( ,		
hann						
58.96%						~
	1 1 1 From Right to Le 3 More Setting 480 ~ Normal 4096 ~ 12.5 ~ 6 ~ 15. ÷ 3 160 ns	I     ←       1     ←       1     ←       1     ←       256     ←       1     ←       28     From Right to Left       From Right to Left     ✓       480     ✓       480     ✓       12.5     ✓       6     ✓       12.5     ✓       15     ←       (=1.20us)       3     ←       (0~12)       160 ns	Alternation of the section of the se	vrizontal Data Groups 2 Adjust RG 1  Construct Ca. 1  Constru	rizontal Data Groups 2 Adjust RG Adjust RG Adjust RG Adjust RG Adjust RG Adjust RG Width: ?? Height ?? Construct Ca View Cabinet Big Big Big Big Big Big Big Construct Ca View Cabinet Construct Ca Construct Ca Constr	vrizontal Data Groups 2 Adjust RG Set R 1  Construct Ca. View Cabinet Normal 4096 V Hz: Refresh Rate TI Normal 4096 V Grayscale Mode Construct Ca. View Cabinet Send Pe (25-75) % Construct Ca. (25-75) % Co

Step 5 Click Smart Settings.

Step 6 Select option 1 and click Next.

- Option 1: Enter smart settings.
- Option 2: Load a module configuration file to quickly configure the module.
- Option 3: Load the module configuration file in the cabinet database to quickly configure the module. After the configuration file is loaded, click **Send to Receiving Card**.

Figure 5-5 Smart settings options

Smart Settings Selection			$\times$
Note:			
(1).Option 1, click 'Next' to	begin sma	art settings!	
(2).Option 2 or 3; load mo	odule inforn	nation to software	
Option 1: Make the modul	e on by sm	art settings	
O Option 2: Load module in	formation fr	om file	
File Path:			Browse
O Option 3: Load module in	formation fr	om 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.

Module Chip       Common Chip       Select chip type         Data Type       Data Type:       Parallel drive         Module Information       Module Information       Module Information         Module Type       Irregular Module       Irregular Module         Quantity of Pixels (virtual s       x:       32       y:       32         Row Decoding Type       LS9739_Common        Select       Net	
Data Type Data Type: Parallel drive Module Information Module Type Quantity of Pixels (virtual s x. 32 y. 32	
Data Type: Parallel drive Module Information Module Type  Regular Module  Irregular Module  Quantity of Pixels (virtual s x. 32  y: 32	
Module Information Module Type	
Module Type   Regular Module   Irregular Module  Quantity of Pixels (virtual s x: 32   y: 32	
Quantity of Pixels (virtual s X. 32 文 y. 32	
, , , , , , , , , , , , , , , , , , ,	lule
Row Decoding Type	* *
	ew v
Working Mode of Receiving Card	
Hub Mode:   Normal  20 Gr  24 Gr	28 Gr
Ghost Control Signal	
Next	

Figure 5-6 Smart Settings Guide 1

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

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

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



Step 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 5-7 Smart Settings Guide 2

Smart Settings Guide 2		x
The current display modu	ile is:	
Full Black	🔘 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 5-8 Smart Settings Guide 3

Smart Set	ttings Guide 3	×
Auto	omatic switchin 🔘 Ma	anual switchin
Please	select the module color in eac	ch status:
1	Red A	~
O 2	Green	~
03	Blue	~
04	Red B or black	~
	Back	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.

#### Figure 5-9 Smart Settings Guide 4

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

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 5-10 Smart Settings Guide 5

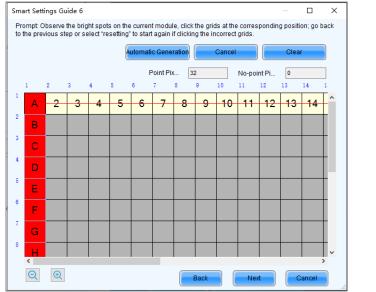
Smart Settings Guide 5	x
Lighted rows (or columns) on the module	
Quantity 1	
Back Next Cance	

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 5-11. 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.
- Isoom out the grid.
- Zoom in the grid.

#### Figure 5-11 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 5-12 Saving module information

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

#### Step 16 Click Complete.

#### Note

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

- In the Module Information area, click down 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.

#### 5.2.1.1.2 Set Cabinet

#### **Applications**

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

#### **Applicable Products**

For receiving cards that support .rcfgx or .rcfg files

#### Prerequisites

- A module is lighted. For details, see 5.2.1.1.1 Light Module.
- If the cabinet is irregular, the cabinet database file (.mcl) or module configuration file (.module) is prepared.

#### **Related Information**

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

### **Operating Procedure**

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

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



#### Figure 5-13 Cabinet information

Ca	hin	otl	Info	rm	atio
00	UIII	011	1110		auv

								Set Rotatio
Regular				Irregular				
Width (Pixel)	64	*	<=128	Width:	64	Height:	64	
Height (Pixel)	64	*	<=256					
Module Casc	From Rig	ht to Left	~	Construc	t Ca	View Cab	inet	

#### • Configure regular cabinet

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

#### • Configure irregular cabinet

- a. If you need to configure row extraction position, select **Big Control Mode**. If **Big Control Mode** is not displayed or you do not need to configure row extraction position, skip this step.
- b. Select Irregular, click Construct Cabinet to open the dialog box shown in Figure 5-14.
- 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.

Figure 5-14	Constructing	irregular	cabinet

Construct Irregular-Cabinet				_		×
Data Groups of Cabinet	Align Left Center Align Right	Module Spacing Vertical O Horizontal	Zoom	Cabinet Inform Quantity of		
1 Set	Top Align Middle Ali., Bottom Al.,	Same Space Clear Space	<i>P F</i>	Cabinet Si		
Add Module From Cabinet D From File						
Delete Module						^
Delete the Selec Clear Module						
Operation of Data Groups						
Delete						
1						
Quick Operation						
Sorting Rules Vertical  Horizont						
Operation Rules						
Apply						
Data Row Extracting Location in						
C Simple Mode O Advanced						
Number of Data Rows 1 🔷	5					<u> </u>
	Module Information					/
Add Delete Clear	OE Encodina	Driver Chip Four-color Param	eters			
	Data Scanning	Total Quantity of P Scanning Line	ixels			
	Short-Key prompts	Load	Save	ОК	Cancel	

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

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

- 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 5-15 Sending parameters to receiving card			
Send Parameters to Receiving Card	_		×
All Recei     Reset the Starting Coordinate     Specify Receiving Card	Send	Car	ncel

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

## 5.2.1.2 Configuration through NCP

## **Applications**

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

## **Applicable Products**

For receiving cards that support NCP files

## **Prerequisites**

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

## **Related Information**

None

## **Operating Procedure**

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

#### Notes

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

#### Figure 5-16 NCP management

Screen Configuration-COM99		- 0	×
Sending Card Receiving Card Screen Co	nnection		
There are receiving car	ds that only allow for conf	figuration	
Cabinet File			
Cabinet	Display	<b>~</b>	
Cabinet Info			
Manuf	Model	Versic	
Resoluti	Pixel Pitc	Max Fra	
SN	Rv Card	Driver IC	
Scans	Refresh Rati	Grayscal	
Adjust Parameters			
-	00° () 180° () 270°		
Rv Card On	Off	Send Pa	a
Exit NCP Manage	Load NCP	Read Cabinet I. Send to Rec. Restore NCP	
		Save to HW Off	

#### Step 2 Click Load NCP.

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

#### Figure 5-17 Load NCP

🔜 Load Cabinet File	_	×
NCP File Please browse local files	Browse	
Cabine 🗸 🗸		
Displa 🗸	]	
	Load	

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

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

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

#### Step 7 Click Save to HW.

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

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

🖳 Please Select Rece	eiving Card	-		$\times$
Please Set th				
-Receiving Card P	osition			
Sending Card Nu	Ethernet Port No.		iving I nu	
1	1	1		
Note: Reading cal	binet file infor	mation i	is not s	u
	OK		Cancel	
			Cancer	่่.

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

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

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

🖳 Restore NCP	-	-	×
Send by Sending Card Send By Topo	logy Send By Physical Address		
Select Sending Card			
Select All	Send to all cabinets of the selected sending care	d.	
	nen the receiving card is able to access the backup file. ple modes, only one backed up mode can be restored.		
Not selected	Selected		
Restorable			
Restored successfully.	Failed to restore.	to All Rv Car	

Set cabinet rotation

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

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

## 5.2.2 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, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

#### **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 10 columns and 5 rows respectively, as shown in Figure 5-18.

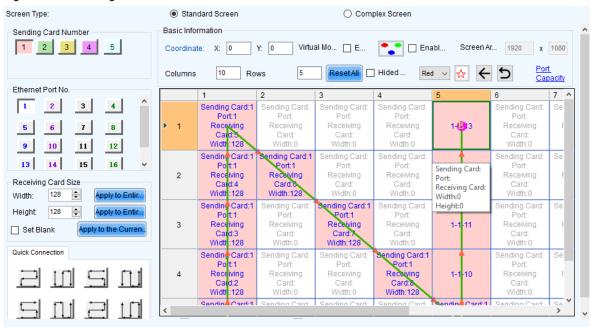
Sending Card Number	Basic Info		Y: 0 Virtu	al Mo 🗌 E	Ena	abl Screen A	r 1920 x	1080
Ethernet Port No.	Columns	10 Ro	ws 5	ResetAll		•		acity
1 2 3 4 ^		1 Sending Card:	2 Sending Card:	3 Sending Card:	4 Sending Card:	5 Sending Card:	6 Sending Card:	7 ^ Se
5     6     7     8       9     10     11     12	▶ 1	Port: Receiving Card: Width:0	Port: Receiving Card: Width:0	Port: Receiving Card: Width:0	Port: Receiving Card: Width:0	Port: Receiving Card: Width:0	Port: Receiving Card: Width:0	F
13 14 15 16 V Receiving Card Size	2	Sending Card: Port: Receiving	Se F					
Width: 128 + Apply to Entir		Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	
Height 128 Apply to Entir	3	Sending Card: Port: Receiving Card: Width:0	Sei F					
	4	Sending Card: Port: Receiving Card: Width:0	Se F					
Smen	<	Sending Card	Sending Cord:	Sanding Cord	Sanding Card	Sanding Cord	Sanding Card	

#### Figure 5-18 Column and row quantity of receiving cards

- Step 4 Choose an output port.
- Step 5 Set the receiving card size (loading capacity) and connection. For example, Figure 5-19 illustrates setting of the receiving cards loaded by output port 1.
  - Custom connection: In the table, click or drag the mouse.
  - Quick connection: Click a connection pattern and drag the mouse to select an area in the table.

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

Figure 5-19 Receiving card connection and size



 Apply to Entire Column: Apply the loading capacity width of the selected receiving card to all the receiving cards in the same column.

- Apply to Entire Row: Apply the loading capacity height of the selected receiving card to all the receiving cards in the same row.
- Apply to the Current Port: Apply the current loading capacity width and height to all the receiving cards connected to the current output port.
- Reset All: Reset all the receiving card connections and blanks.
- Hided Mapping Line: Hide the receiving card mapping line (namely the connections).
- Mark the receiving card.
- Exeturn to the previous step of connection.
- D: Clear all the connections of receiving cards connected to the current output port.
- Zoom: Zoom in or out the receiving card interface in the middle. When the interface is large enough, cabinet related information is displayed.
- Port Capacity: View the usage rate of Ethernet ports.
- Step 6 Set the specified receiving cards blank and set the blank size, as shown in the example in Figure 5-20. 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.

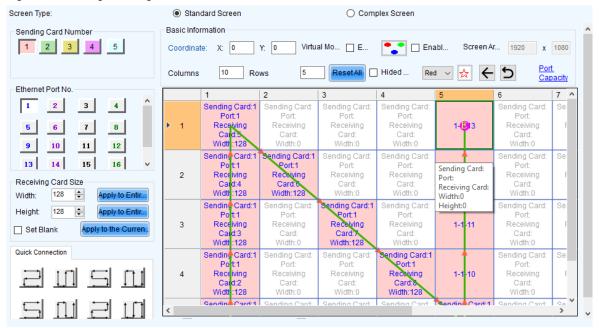


Figure 5-20 Setting receiving card blank

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

#### Screen1 Screen Type: Standard Screen O Complex Screen Basic Information Sending Card Number 1 2 3 4 5 Virtual Mo... 📃 E... Enabl... Screen Ar... 1920 x 1080 Coordinate: X: 0 Y: 0 Red ∨ 📩 🗲 ᠫ Port Columns 10 Rows 5 Reset All Hided ... Capacity Ethernet Port No 5 1 2 3 1 6 7 ending Card:1 1 2 3 4 Sending Card: Receivi 2 Rece 1-1-12 Rec 6 8 iving /ino 5 7 Card 9 10 11 12 Wid :128 Width:12 Wid 128 iding Card:1 Port:1 Sendin Card:1 Card<sup>2</sup> Sendir 13 14 15 16 ~ Rec Red 3 ving Receiving 1-1-11 ina Receiving Card Size Car C :128 Width:12 Wid Wid 128 128 + Width: Apply to Entir. Card Sendin ding Card: Sendir Card:2 128 Height: 1 Apply to Entir Pr Rece Rec 4 1-10 ving ing Set Blank Ca d:2 Wid 128 Widt 128 Quick Connection Card: endin Sendin ard Pot1 Rech Rec Rec<mark>S</mark>/ir Card:1 t ing /ina IT Card:9 Width:128 Width 128 Width:128 t.

#### Figure 5-21 Configuration completed

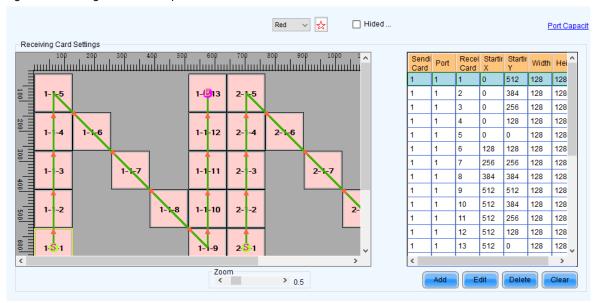
#### Note

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 5-21 is shown as the diagram in Figure 5-22.

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 5-22 Configuration of complex screen



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

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

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

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



This step is related with the configuration of the save function. See 11.2 Set Main Window Starting Position

## **Applications**

Set the coordinates of the top-left corner of the main window of NovaLCT on the desktop, and make the window display in the specified position when the software is started.

## **Applicable Products**

N/A

#### **Prerequisites**

None

#### **Related Information**

None

#### **Operating Procedure**

Step 1 On the menu bar, choose Settings > The Main Window Starting Position.

#### Figure 5-23 Setting starting position coordinates

Starting Position Set	ting	$\times$
X Coordinates	32	
Y Coordinates	35	
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.

Configure the Save Function

#### **Related Operations**

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

Set Virtual Mode	×
3-Color Mode 1	Layout Preview
	Balanced Mode Meeting Mode Image Mode
Prompt: Drag the round objects to swap Red LED Green LE Blue LED	

- Balanced Mode: Suited for standard display scenarios.
- Meeting Mode: Suited for displaying documents.
- Image Mode: Suited for displaying images and videos.

## 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, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

#### Prerequisites

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

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

#### **Related Information**

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

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

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

#### **Operating Procedure (Online Screens)**

Step 1 On the Screen Configuration page, click Save System Configuration File to open the dialog box shown in Figure 5-24.



Figure 5-24 Saving configuration files (online screen)

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

- 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 5-25 Upgrade prompt

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

- Online upgrade
  - e. Click Online Upgrade.
  - f. In the pop-up dialog box, click Upgrade.
  - g. 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 5-26.



reen Configuration-19	2.168.41.1:5200					
eiving Card Screen Connection						
lodule Information						
Save As						×
$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ 🗄 $\checkmark$ Th	is PC > Documents	~	ē	Search Documer	nts	Q
Organize 🔻 New fold	er					0
🕂 Downloads  🖈 ^	Name		1	Date modified	Туре	^
🔮 Documents 🖈	Adobe			9/29/2018 5:05 PM	File folder	
📰 Pictures 🛛 🖈	Custom Office Templates			12/11/2019 7:18 PM	File folder	
0624 F8	Nova Star		1	2/15/2019 5:49 PM	File folder	
en-US	NovaCLB		1	5/14/2019 8:29 PM	File folder	
System32	NovaLCT 2012		1	7/2/2021 2:01 PM	File folder	
	Pixelhue		1	5/7/2019 3:22 PM	File folder	
	QQPCMgr			1/16/2019 1:44 PM	File folder	
len OneDrive	SDL SDL		1	8/19/2019 10:55 AM	File folder	
This PC	🔜 Snaglt		3	3/1/2020 12:08 PM	File folder	
	Studio 2019			12/2/2019 9:33 AM	File folder	>
- Mak						
File name:						~
Save as type: System	m configuration file(*.scfg)					~

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

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

## 5.3 Set Redundancy

## **Applications**

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

## **Applicable Products**

Applicable to the T60 and TB60 multimedia players

## **Prerequisites**

Redundancy related hardware connection is completed.

#### **Related Information**

None.

## **Operating Procedure**

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

Step 2 Click Screen Configuration or choose Settings > Screen Configuration from the menu bar.

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

Figure 5-27 Screen configuration method

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

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

Figure 5-28 Screen redundancy

Primary Backup
Serial Number of Primary Sending Card Serial Number of Primary Port Card Serial Number of Backup Sending Card Serial Number of Backup Sending Card

#### Configure device redundancy

- Set a single device

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

Redundancy		
Set the Current Devi	Set as Primary	Set as Backup

- Set multiple devices

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

🖳 Redundancy settings		×
Set as Primary	○ Set as Backup	
Sending Card: ☑ Select all	🖪 Primary B Backup 🍔 Not set	
📔 🗹 Sending Card1		
📔 🗹 Sending Card2		
📔 🗹 Sending Card3		
📔 🗹 Sending Card4		
📔 🗹 Sending Card5		
	Set	

#### Notes

To set a single backup device as the primary device, deselect Set as Backup first, send the settings to



#### the hardware and then select Set as Primary.

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

#### Configure Ethernet port redundancy

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

Redundancy Settings			×
Serial Number of Primar Serial Number of Primar	1 ÷	Serial Number of Backu 1 🖨 Serial Number of Backu 2 🖨	-
Add		Close	

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

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

- c. After the configurations are done, click Close.
- Step 5 Click **Send** to send the configuration information to the hardware, or click **Save** to save the information to the hardware.
- Step 6 After successful saving, choose whether to save the backup file to the local computer.

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

This step is related with the configuration of the save function. See 11.2 Set Main Window Starting Position

### **Applications**

Set the coordinates of the top-left corner of the main window of NovaLCT on the desktop, and make the window display in the specified position when the software is started.

## **Applicable Products**

N/A

## **Prerequisites**

None

## **Related Information**

None

### **Operating Procedure**

Step 1 On the menu bar, choose Settings > The Main Window Starting Position.

Figure 5-29	Setting	starting	position	coordinates
-------------	---------	----------	----------	-------------

Starting Position Set	ting	×
X Coordinates	32	
Y Coordinates	35 🔶	
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.

Configure the Save Function

## 5.4 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 details, see 4 User Login.



Step 2 Click screen configuration from the menu bar.

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

#### Figure 5-30 Screen configuration method

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

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

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

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

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

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

This step is related with the configuration of the save function. See 11.2 Set Main Window Starting Position

## **Applications**

Set the coordinates of the top-left corner of the main window of NovaLCT on the desktop, and make the window display in the specified position when the software is started.



## **Applicable Products**

N/A

## **Prerequisites**

None

## **Related Information**

None

## **Operating Procedure**

Step 1 On the menu bar, choose Settings > The Main Window Starting Position.

#### Figure 5-31 Setting starting position coordinates

Starting Position Set	ting	×
X Coordinates	32	
Y Coordinates	35 韋	
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.

Configure the Save Function.

#### Data Group Exchange

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

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

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

#### 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.



D	ata se	et exchange(intuition mode)	×
		A	1
	1	5	
	<b>▶</b> 2	6	
	3	3	
	4	4	
	5	1	
	6	2	
	7	7	
	8	8	
	ndicati	ion: Fill in the lists of data set exchange according to the figures displayed in large screen	
		Apply Close	

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

#### Group Mode

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



#### Example:

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

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

Data set	exchange	(group mo	de)					×
Serial					А			
1					5			
▶ 2					6			
3								
4								
5								
6								
7								
8								
Indicatio	n: Observe	the position	n of the wh	nite display a	area in th	e large screen, th	en click the	correspon
		6				No flashing		et data
🗹 Ena	able dat			Send		Apply	C	lose



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

## More Settings

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

Symmetrical/Data Group Extension

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

Symmetrical/Data Group Extension	
Output Mode Symmetrical Outputs Triple Strip Outputs Quadruple Strip Outputs	
Data Group Extension         20 Data Groups         24 Data Groups         28 Data Groups         32 Data Groups         64 Data Groups         Serial 128 Data Groups	
Ghost Control Signal Signal Switch:   Open Close Signal Polarity: High Low	
Hub Mode Normal O 20 Groups O 24 Groups O 28 Groups	
Graphics Output     Output by Scanni     O Output in the dir	
OK	

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

#### Monitoring Card Data Line Adjustment

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

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

Transfer Data Line Signal     Data Line 1     Red     Zeen
Data Line2 Green 🗸
Data Line 3 Blue
Data Line 4 Virtual Red 🗸

#### Additional Function

Set some additional functions of the receiving card.



Additional Function	×
Isolated Pixel Afterglow Indicator Light of Rec Shorten the synchroni Brightness becomes EMC Function: Linear Connection Auto Upload Module C Calibrati	<ul> <li>Eliminate</li> <li>Close</li> <li>Enable</li> <li>Enable</li> <li>Disat </li> <li>Enable</li> <li>Enable</li> <li>Ena</li> </ul>
R: 0 🔷 R G: 0 🔶 G B: 0 🐳 B	Coef         1.000 ‡           Coef         1.000 ‡           R Coef         1.000 ‡
Note: some chips support Delay Time of ABCDE Signals Delay of ABC signals: Delay of DE signals: No delay: Delay time: 0 0 ns Apply	
ок	Cancel

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

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

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

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

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

#### Flash Arrangement

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

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

Number	of FI 4	Number of	Fl 4				Back	ResetAll
sus			1	2	3	4		
1	2 3	4	BUS 1 Serial numt 8-9-	BUS 1 Serial	BUS 1 Serial	BUS 1 Serial		
5	6 7	•	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16		
9		12 16 2	BUS 2 Serial numt <b>E</b> -9	BUS 2 Serial	BUS 2 Serial	BUS 2 Serial		
17		20	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16		
21		24 3	BUS 3 Serial numt E-9	BUS 3 Serial	BUS 3 Serial	BUS 3 Serial		
25	26 27	28	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16		
29	30 31	32	BUS 4 Serial numt <mark>B-9</mark>	BUS 4 Serial	BUS 4 Serial	BUS 4 Serial		
lash Con /idth	atrol Size	÷	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16	Width 32 Height 16		
leight	16	÷						
	Apply to Curr	en						
odule Pa umber	arameters 2	÷						
	Apply to Curr	en						
tarting X		÷						
tarting Y		÷						
us Data ( djust O	Group Order	er						

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

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

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

#### Monitoring Card Data Set Exchange

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

N	lonito	oring card d	ata set exchange	×
	🗹 Er	nable monito	ring ca	
			A	^
		1	5	
		2	6	
		3	3	
		4	4	
		5	1	
	►	6	2	
		7	7	
		8	8	
		9	9	
		10	10	
		11	11	
		12	12	
		13	13	
		14	14	
		15	15	
		16	16	~
		Reset	Send Apply 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.

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

## 5.5 Set Module Flash Parameters

### **Applications**

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

### Applicable Products

For receiving cards that support read-write flash module.

### **Prerequisites**

Modules with flash memory and the TBS 614 chip.

## **Related Information**

None

## **Operating Procedure**

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

1

Step 2 Click Screen Configuration from the menu bar.

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

### Figure 5-32 Screen configuration method

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



- Step 4 Click the Receiving Card tab and press the "NEC" (case sensitive) on your keyboard.
- Step 5 Click the **Write Flash Parameters** that appears on the interface.
  - Figure 5-33 Receiving card

	n-COM99					- 🗆
nding Card Receiv	ing Card Screen	Connection				
Module Informatio	n					
Chip:	Common C	Size:	32W×16H	Scanning Typ	oe 1/8 scan	
Direction:	Horizontal	Data Groups	2	Adjust RG		Check M.
Cabinet Informatio	'n					Set Rotation
Regular				Irregular	5 <sup>2</sup>	
Width (Pixel)	1	<=256		Width: ??	Height: ??	
Height (Pixel)		<=128		widui. ??	rieigiit.	
Module Casc.	From Right to	Left $\lor$		Construct Ca	View Cabinet	
erformance Setti	ngs					
Data Group E.	More Settin	ngs 🗌 E	Big 🕜 🗌	18bit+		Send Perform.
Refresh Rate	480	✓ Hz:	Refresh Rate Ti	4 ~		^
Grayscale Level	Normal 4096	$\sim$	Grayscale Mode	Refreshing Rate Pre $\sim$		
Shift Clock Fre	12.5	✓ MHz	Duty Cycle	50 ~	(25~75) %	
	6	$\sim$	Low Grayscale C	0		
Phase Position						
Phase Position Row Blanking	15	≑ (=1.20us)	Ghost Control En	13 🚖	(1~14)	
		(=1.20us)	Ghost Control En	13	(1~14)	
Row Blanking		Linned	Ghost Control En	13	(1~14)	

Step 6 Do the following as required.

#### Figure 5-34 Module flash parameters

🖷 Operation of Flash Parameter Version	$\times$
Send Parameter Parameter   (Length: 5) Save Parameters to F	
Parameter Readback Read Configuration b	
Parameter Readbac	
Note: Please make sure that the receiving card parameters are set correctl This command will save the receiving card parameters to the module flash.	.y.

Send Parameters

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

Read Parameters

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

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



# **6** Brightness and Chroma Adjustment

## 6.1 Calibration

## 6.1.1 Set Online Calibration Parameters

## **Applications**

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

## **Applicable Products**

- Full-grayscale calibration: Applicable to the A10s receiving card
- Low-grayscale calibration: Applicable to the A10s receiving card
- Dark or bright line correction: Applicable to the A8s receiving card
- Other functions: Applicable to all receiving cards, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

## **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 details, see 4 User Login.



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

Single-Screen Mode Combined-Sc + +	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients		
Current Operation Communication Port COM99 V	Network Setting         Example         Example		
Current Screen			
Screen1	Communication Information 1428.12 The current port is occupied. Please enter a new one.		
Settings of Displaying Image Position to Display Image:			
Position to Display Image: Primary Display ~			
Position to Display Image: Primary Display Device Response Time 100   ms			
Position to Display Image: Primary Display Device Response Time			
Position to Display Image: Primary Display V Device Response Time 100 R Method to Display Image:			
Position to Display Image: Primary Display V Device Response Time 100 © ms Method to Display Image: Hardware Test Pattern V Enable/Disable Calibration			
Position to Display Image: Primary Diaplay Device Response Time 100 Method to Display Image: Hardware Test Pattern Enable/Disable Calibration () Disable			

- 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, Chroma Calibration, or Full-grayscale Calibration. Dark or Bright Line Correction and Low-grayscale Calibration 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

Figure 6-1 Screen calibration

### **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 details, 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.

5		
Screen Calibration		- 🗆 ×
Single-Screen Mode Combined-Sc · ·	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients	
Current Operation Communication Port	- Display Area	h:1 Starting coordinateX=0, Y=0 Size512W×256H
СОМ99 ~	Screen:1 Starting coordinateX=0, Y=0 Size512W×256H	
Current Screen	Column Nu 0 🚖 Display 100 🚖	Disalau
Screen1		Display
-	Row Number 0 Display 100 🜩	(Hide
	Average Calibration Coefficient	
	-	
	0 0 0	
		Get Average C
	0 0 0	
	Display Parameters	
	Mode All 🗸	
	Color   Red   Green   Blue   White   Black	
Settings of Displaying Image		
Position to Display Image:	Brightness < 40 😨 %	
Primary Display $\sim$		
Device Response Time		Display Hide
100 🔺 ms		
Method to Display Image:		
Hardware Test Pattern $\sim$		
Enable/Disable Calibration		
Disable		
O Brightnes Low Gra		
O Chroma		
O Full-Graysc		
Dark or Save		

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**

- Full-grayscale calibration: Applicable to the A10s receiving card
- Low-grayscale calibration: Applicable to the A10s receiving card
- Dark or bright line correction: Applicable to the A8s receiving card
- Other functions: Applicable to all receiving cards, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

## **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 details, 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	-	×
Single-Screen Mode Combined-Sc + +	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients	
Current Operation Communication Port Comese v Current Screen © Screen1	Select Operation	
	Set coefficients for a new receiving card	
	Adjust coefficients (Color is not uniform on screen)  Erase or reload calibration coefficients	
Settings of Displaying Image		
Position to Display Image:	C Reset calibration coefficients	
Primary Display V Device Response Time 100 Image ms	Upload coefficients (for factory use)	
100 ms Method to Display Image: Hardware Test Pattern	📥 Module Flash	
	OUpload thermal compensation coefficients	
Enable/Disable Calibration		

Step 6 Perform the following operations as required. During the operation, you can select **Disable Calibration**, **Brightness Calibration**, **Chroma Calibration**, or **Full-grayscale Calibration** on the left. **Dark or Bright Line Correction** and **Low-grayscale Calibration** can 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: Database: Select the full-grayscale calibration database file from the local computer and stably upload the calibration coefficients to receiving cards.

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

### Save calibration coefficients to database



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

### Set coefficients for a new receiving card

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

### Set coefficients for a new module

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

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

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

#### Erase or reload calibration coefficients

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

#### Reset calibration coefficients

Set calibration coefficients to specified values.

### Upload coefficients (for factory use)

Upload the calibration coefficients in the cabinet calibration database file to the corresponding cabinets in turn according to the imported or read cabinet ID and export a screen calibration database file. Stable uploading takes more time than fast uploading, but it is more stable and reliable.

#### Module Flash

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

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

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

#### Upload thermal compensation coefficients

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

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

#### 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.

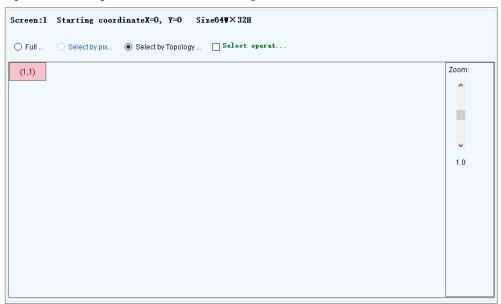
The **Coef Type** parameter value include brightness & chroma coefficient, low-grayscale coefficient and fullgrayscale coefficient. To set that parameter value to low-grayscale coefficient or full-grayscale coefficient, ensure that both the driver chip and receiving card support low-grayscale coefficient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

## **Related Operations**

During coefficient management, three methods are provided for you to select an area for coefficient management.



Figure 6-4 Selecting an area for coefficient management



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

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

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

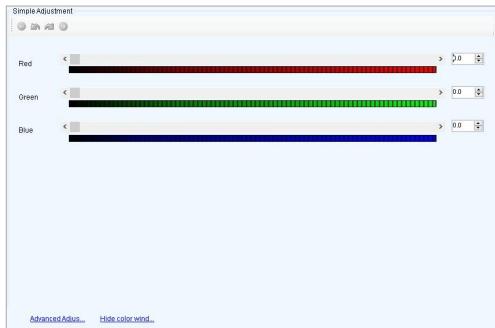
Two methods are provided for calibration coefficient adjustment. You can display or hide the color window during the adjustment.

• 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								
G 🖪 🖉 🤅									
Color adjustme	ent of red,	green and blue							
		Red		🔘 Green		O Blue			
Brightnes:	<						>	0.0	-
Saturation	<						>	0.0	-
Hue	<						> T	0.0	-
Color matching	) of red, g	reen and blue (Color <sup>-</sup>	Temperature Adjustmen	it)					
		O Yellow	🔿 Cyan		🔘 Magenta	O White			
Red	<						>	0.0	¢
Green	<						>	0.0	÷
Blue	<						>	0.0	÷
Note: Display d	lifferent c	olors for observing the	effect						
Simple Adj	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 details, 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	- 0	×
Single-Screen Mode Combined-Sc · Online Calibration Offline Calibration Manage Coefficients Double Calibration Coef	fficients	
Current Operation Communication Port		
COM99 V		
Current Screen		
Screen1		
0 00000		
View calibration coeffi View calibration	on coeffi Acquisition of factory	
Cottings of Displaying Image		
- Settings of Displaying Image		
Position to Display Image:		
Primary Display 🗸		
Device Response Time		
100 🔹 ms		
Method to Display Image:		
Hardware Test Pattern 🗸 🗸		
Enable/Disable Calibration		
Disable		
O Brightnes Low Gra		
O Chroma		
O Full-Graysc Coef Type: Brightness & Chror ∨		
Dark or		

Step 6 Perform the following operations as required.

#### View calibration coefficients in application area

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

View calibration coefficients in factory area

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

Get calibration coefficients in factory area

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

Save calibration coefficients to factory area

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

## 6.1.5 Set Thermal Compensation

### Applications

Enable or disable thermal compensation and adjust its application strength.

## Applicable Products

The A8s Pro receiving card

## **Prerequisites**

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

## **Related Information**

None

## **Operating Procedure**

- Step 1 Log in to the multimedia player. For details, see 4 User Login.
- Step 2 Choose **Settings** > **Thermal Compensation** from the menu bar.

### Figure 6-8 Thermal compensation

		-	>
COM Port	Canasa		
Send By Topology			
Screen selection-	Select Cabinet		
🖌 Select All	Full Screen     Select by Ethern     Select by Cabinet		
∑ Soreeni	Operate on all cabinets of the sc		

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

## 6.2 Adjust Brightness

## **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**

- Gamma interlink: Applicable to receiving cards with TBS6332 or TBS6336 chips.
- Other functions: All receiving cards, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

## **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 details, 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**. You can also set **Gamma Interlink** if the screen is using receiving cards with TBS6332 or TBS6336 chips.

	t			
M99-Screen1				
	Manual Adjustmer	nt O	Auto Adjustment	
Brightness				
Brightness	¢		> 2	55 (100%)
Advanced Setting Gamma	Grayscale s Color Te Colo		My O	
Gamma				
<ul> <li>Gamma</li> </ul>	<		>	2.8
		> 0.0%	>	2.8
🖲 Gamma		> 0.0%	>	2.8
Gamma Low Gravsca		> 0.0%	Refresh	2.8 Save to HW

Figure 6-9 Manual brightness adjustment

Step 4 Do the following as required:

💠 🛛 Adjust Gamma

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

. 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 6-10.

Figure 6-10 Custom Gamma adjustment  $\times$ Gamma Adjustment Gamma Adjus... O White Red Gamma 🔘 Green Gamma O Blue ... Gamma Curve Chart Gamma table can be fine-adjusted by editing the v... Х Υ Move Up Gamma ... 2.8 < 0 ⊳ Move Do.. 1 16 Low Gravsca... > 33.3% < 2 32 Save 3 48 4 Load 64 5 80 6 96 7 112 8 128 9 144 10 160 11 176 12 192 13 208 14 224 OK Cancel

- 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 manually

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

Adjust the Gamma table manually

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

- Step 5 After the settings are done, click **Send** to send the configuration to the hardware.
- Step 6 (Optional) Click **Save** to save the Gamma information as a configuration file.

## Custom Color Temperature

- Step 1 On the Color Temperature Adjustment page, select Precise Adjustment.
- Step 2 Click to open the dialog box shown in Figure 6-11.

#### Figure 6-11 Custom color temperature

Advanced Color Configuration Screen 172.18.12.90.5200-Screen1  Color Temperature Table Operation prompts The color temperature name box of selected color temperature section is yellow	Refresh
Color Temperature Table	Refresh
Color Temperature Table	
Operation prompts	
The color temperature name box of selected color temperature section is yellow	
Add'- add color temperature section	
Delete'- delete the selected color temperature section	
Edit' - to edit the selected color temperature section (including the deletion of the selected row, clear the information in the current color temperature	ire section)
Color temperature Brightness value R gain G gain B gain R brightness G brightness B	brightness
Signaloo laide Kyan o gan bygan Kanganoo o Mganoo	
	Saved to local
Add Edit Delete Clear	

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

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

Figure 6-12 Adding color temperature information

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

Figure 6-13 Adding brightness information

Add Brightness Information	×
Set Color Temperature Information Brightness Value 🔟 %	
Current Gain	
R	> ~ %
6 <	> ~ %
в <	> ~ %
🖂 Synchronize	
Brightness Component	
R <	> 229 🚖 (89.80%)
G <	> 229 🚖 (89.80%)
в <	> 229 🚖 (89.80%)
✓ Synchronize	
Add	Exit

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

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

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

## **Custom Color Space**

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

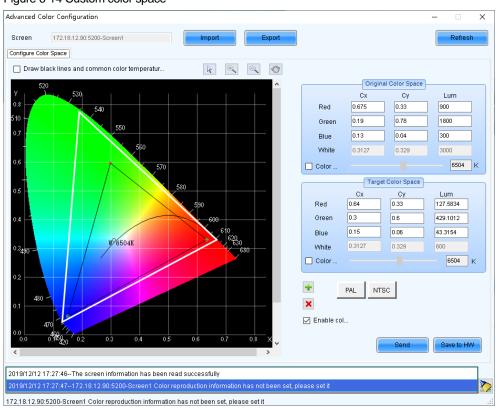


Figure 6-14 Custom color space

Step 2 Set the original color space.



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

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

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

#### Adjust the color space diagram manually

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

#### Adjust the color space values manually

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

- Step 4 After the configuration is done, select **Enable color space adjustment** to apply the target color space, and click **Send** to send the configuration information to the hardware.
- Step 5 Click **Save to HW** to save the information to the hardware.

## 6.3 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, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

### 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 details, see 4 User Login.
- Step 2 On the menu bar, choose Tools > More > Brighter Pixel Correction.

#### Figure 6-15 Brighter pixel correction

💀 Brighter Pixel Correction					-		×
Topology Simulati	🗹 Sho	🗹 Show 🛛 💽 😋	Select Display Display:	1		~	
			Display	<ul> <li>Main</li> </ul>	O Extende		
			Screen b			30%	
			- Import Databa	ise	-		
			Database	Cabinet	O Full		
			Database			Browse	
			Cabinet			$\sim$	
					Road C	oefficients	1
					(Leau C	venicients	J
			Coefficie	Advanced			
			Select		(	Reset	
			N0.	Colurr Row	Red Gree	n Blue	1
							1
						~	
			<u> </u>			1009	%
				Averade R: B: B:			
				0			
			Upload	I Save to I	HW	e Datab	

- 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 6-16 Selecting brighter pixels

💀 Brighter Pixel Correction					-	$\square$ ×
Topology Simulati	K 🗖 O 🔦 🛃	Select Disp Display:	lay 1			
Topology Onitiat		Display.		0.5	dende	~
		Screen b	<b>—</b> —	01		
		- Import Data			-	
		Database	🖲 Cabinet	0 F	ull	
		Database	G:LCT资料优	ȶ£∿xiangtiCl	LB.db	Browse
		Cabinet	1-1			$\sim$
					Dood C	oefficients
					Read Co	Demicients
		Coefficie	Advanced			
		Select			ſ	Reset
		No.	Colun Row	/ Red	Green	Blue ^
		2 1	34 15	2047 2	2047 2	2047
		2	34 16	2047	2047 2	2047
		2 3	34 17			2047
		4	34 18	_		2047
		5	34 19			2047
		6	35 15 35 16			2047
			35 16	_		2047
			35 18		2047 2	
					_	100%
			Averade			
			R:2047 G:204	/ B:2047		
		Uple	ad Save	e to HW	Save	e Datab



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, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

### **Prerequisites**

None

### **Related Information**

None

## **Operating Procedure**

Figure 6-17 Factory settings

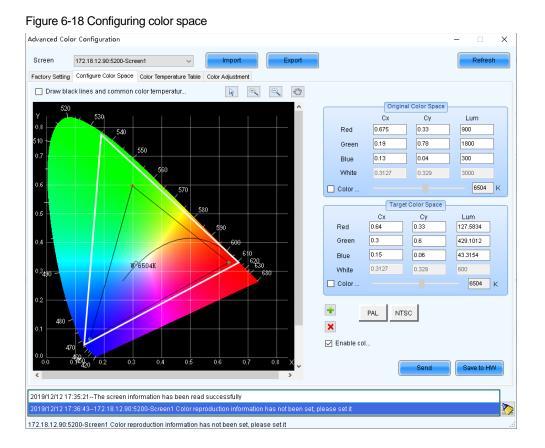
- Step 1 Log in to the multimedia player. For details, see 4 User Login.
- Step 2 On the menu bar, choose Settings > Advanced Color Configuration.
- Step 3 Click **Import** to quickly complete the configuration or continue performing the following operations to complete the configuration manually.
- Step 4 On the Factory Setting tab page, adjust parameters and then click Save to HW.

## Advanced Color Configuration Х Screen 172.18.12.90:5200-Screen1 Refresh $\sim$ Factory Setting Configure Color Space Color Temperature Table Color Adjustment 100 % 100 100 % Default Value Synchronize RGB Brightness > 255 (100.0%) > 255 (100.0%) > 255 (100.0%) < Synchronize Save to HW The screen information has been read successfully

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

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

Step 5 Select Configure Color Space to set color space.



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 6-19 Color temperature table

wanced Col	or Configu	Iration						_		×
Screen	172.18.12	.90:5200-Screen1	~	Import	Export				Refresh	
actory Setting	Configure	Color Space Colo	or Temperature Table	Color Adjustment						
Operation	prompts									
The color	temperatu	re name box of s	elected color tempe	rature section is ye	llow					
Add'- add	color temp	erature section								
		elected color tem								
Edit' - to e	dit the sele	cted color tempe	rature section (inclu	iding the deletion o	f the selected row, clear	the information in t	ne current color temp	erature se	ection)	
Color temp	perature	Brightness value	R gain	G gain	B gain	R brightness	G brightness	B bria	ntness	7
<u> </u>						-				=
Add	Edit	Delete	Clear					Sav	red to loc:	al
19/12/12 17	7:35:21Th	e screen informa	tion has been read	successfully						٦
					on has not been set, ple	ase set it				
			stice information b	as not been set, ple	ana aat it					1

- 1. Click Add to open the dialog box shown in Figure 6-20.
- 2. Click Add Brightness to open the dialog box shown in Figure 6-21.
- 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 6-20 Adding color temperature information

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

Figure 6-21 Adding brightness information

3		
Add Brightness Information		Х
– Set Color Temperature Informa Brightness Value 📴	ation %	
Current Gain		
R	> ~ %	
G <	> ~ %	
В <	> ~ %	5
Synchronize		
Brightness Component		
R <	> 229 🔶 (89.80%)	
G K	> 229 🚖 (89.80%)	
в <	> 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 details, see 4 User Login.
- Step 2 Choose Settings > Adjust screen effect to open the dialog box shown in Figure 6-22.



ljust screen effect			– 🗆 X
72.18.12.90:5200-Scr	reen1		
Parameter Setting:	5		
Enable 18			
Enable	<	>	0 Save to HW
🗌 Enable sendi	na car 🗌 Ei	nable receiving car	
HDR Parameter Se	ettings		
Enable		$\sim$	Restore defaults
Peak Screen	<	>	1000 cd/m2
Ambient Light:	<	>	30 Lux
Low Graysca	<	>	15
Tip: Curren	t source is not HDR10. Pl	lease connect an HD	R10 video source.
Screen Informatior	1		
2019/12/12 17:46	:52Read receiving card	low latency paramet	ers success ^
2019/12/12 17:46	:52Reading HDR paran	neters	
2019/12/12 17:46	:52HDR parameters rea	ad successfully.	Clear
			Ulear

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

## **Applications**

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

## Applicable Products

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

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

## **Prerequisites**

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

## **Notice**

Adjusting the receiving card parameters affects the display effect.

## **Related Information**

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



#### **Color Management** 4

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

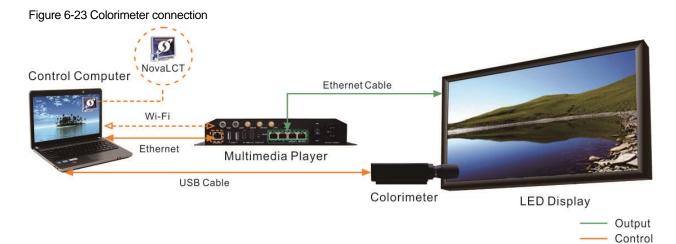
#### 4 **Precise Grayscale**

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

#### 4 22bit+

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

When you collect the screen data, ensure the colorimeter touches the screen closely. The hardware connection is illustrated in Figure 6-23.



## **Operating Procedure**

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

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

Step 3 On the Correct Cabinets screen, click Please refresh and select device located at the top left corner.

			Collect	tion Settings	
Start	Color Analysis B	riefing Grayscale Data Distribution			Manual ⑦ Custom
ti 0/0 min 🝈		Original Gamut	Indica		Brightness 🔽 Grayscale
	0.9 520	Brightness Cx			Override X 0.3127 V 0.32
✓ 60	0.8 540	Target Gamut		Settings	Color Evalua
	540		Target	t G Original Gamut	× + L 0
	0.7-	Gamut	Тср:		6500
	0.6	Gamut	Magic	Gray: 🕥 🕅 22bi	t+ 🦳 Precise
	500- 0.5	580 Collect Histroy			eak Bri 1500 nits
	0.4	600 Gamut:		nic Bo 🕥 Stren –	8
	0.3	620 Grayscale	- Dynam		<u> </u>
		Tcp: Not corrected	Bright	ne Before 0	After 0
	0.2	Brightness:			
	0.1 480				
	Y 460 X 0.2 0.3 0.4 0.5	0.6 0.7 0.8			
	x 0.1 0.2 0.3 0.4 0.5	0.6 0.7 0.8			

Figure 6-24 Cabinet correction

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

#### Figure 6-25 Device management

Device Management	×
Controller USB@Port_#0003.Hub_#0001 V 🗘 Re 🧭	Select Port
Online Cabinets: 1 Selected 1 Individual	
✓ No. Cabinet Locatic Cabinet Manufactc Cabinet Model Rv Card Model Firmware Version	<u>ت</u>
● 1 S1-P3-1 unknown A10SPro V1.2.0.0 ⑦	
	Cancel OK

- Step 5 Select the target cabinets, or toggle on Select Port to select all the cabinets of the Ethernet port and then click OK.
   You can also identify, update, or restart the cabinets through the interface where you choose cabinets via Ethernet port.
- Step 6 On the left of the screen, select a frame rate.

Step 7 Do the following according to the screen data collection method.

- Automatic
  - a. Set the collection method to Auto.
  - b. Select a colorimeter model from the drop-down list.

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

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

Notes

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

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

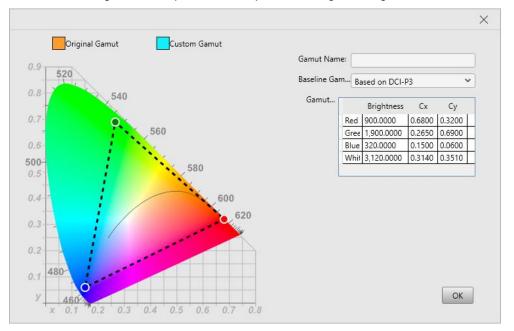


### Target gamut

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

Do the following to add custom gamut.

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



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

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

• Color Temperature

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

Magic Gray

Toggle switch to enable/disable this function. When this is enabled, **22bit+** and **Precise Grayscale** can be selected.

Max Brightness

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

Dynamic Booster

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

Brightness

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

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

aluate Colo/	r Precision						>
valuate Color:	•						
tart Evaluation	Export Report		🔲 Display Demo	Switching I	nterval 1 s 🗘	Start Demo	Stop
tandard Color	Color Value	CIE31(Lxy)	sured Value Before MGMT	DeltaE	Measured Value (Lxy)	DeltaE	
	#745244			0		0	
	#D9792F			0		0	1
	#2E3E95			0		0	1
	#F9F3ED			0		0	1
	#C49582			0		0	-
	#455CA3			0		0	1
	#45924A			0		0	1
	#C8C8C7			0		0	
	#5C799B			0		0	
	#B12D38			0		0	1
	#5B6B45			0		0	1
	#5A3D67			0		0	1
	#EBC32F			0		0	-
	#777978			0		0	
	#827FAC			0		0	7
	#9DB848			0		0	1
	#BD5290			0		0	7
	#535454			0		0	7
	#5DBAA8			0		0	1
	#E39E34			0		0	
	#0083A2			0		0	7
	#363637			0		0	

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

## 6.7 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, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

### **Prerequisites**

None

## **Related Information**

None

### **Operating Procedure**

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

Step 2 From the menu bar, choose Tools > More > Device Settings.



Figure 6-26	Batch	checking	calibration	effects

				×
Select Function	Select	COM Port	Device	Device Quantity
Restore calibration mode		192.168.41.1:5200	Т6	1
Enable/Disable calibration				
Disable calibration				
O Brightnes				
O Chroma calibration				
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 details, see 4 User Login.



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

Figure 7-1 Screen configuration

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

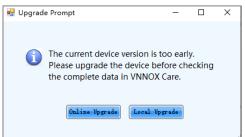
Step 4 On the Screen Configuration page, click Save System Configuration File to open the dialog box shown in Figure 7-2.

Figure 7-2 Saving configuration files

💀 Save System Files to Cloud 🛛 🗙
VNNOX Care Use
Password
Screen Name Taurus-40002453
System Config
System Config 1、Sending card backup file 2、Receiving card backup file
2 % necenving card backup file 3 % Screen connection file
4 Neceiving 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, click 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



- 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 View and Configure 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 backup 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 details, see 4 User Login.



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

Figure 7-4 Screen configuration method

Current Operatio	172.18.12.29:5200	
Configure Screen		
Cloud Restore	~	
		se

- 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.

This step is related with the configuration of the save function. See 11.2 Set Main Window Starting Position

## **Applications**

Set the coordinates of the top-left corner of the main window of NovaLCT on the desktop, and make the window display in the specified position when the software is started.

## Applicable Products

N/A

## **Prerequisites**

None



## **Related Information**

None

## **Operating Procedure**

Step 1 On the menu bar, choose Settings > The Main Window Starting Position.

### Figure 7-5 Setting starting position coordinates

Starting Position Set	ting	$\times$
X Coordinates	32	
Y Coordinates	35	
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.

Configure the Save Function.

Step 3 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
iguio	, 0	ouvou	ouccounting

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

Step 4 When the control PC can access the Internet normally, click Cloud Monitoring on the main window and then click Local Backup Files to open the dialog box shown in Figure 7-7.

Figure 7-7 Local backup files

🖶 Local Backup Files				—		$\times$
The local backup file is Save after completing the screens to VNNOX Care aft	e screen configurati	on. The backup file				
Device SN	Device Model	Remarks	Saved	Binding	Status	
BZSA17375J18400	T6		9/27/2021 4:54 PM	Unbound		
	Bind	Delete	2			

Step 5 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 6 Select the backup file records of one or multiple devices and click Bind.
- Step 7 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 C	are	×
User Name		
Password		
fassword		
	OK	
	American	•

### 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**

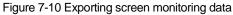
Step 1 Log in to the multimedia player. For details, see 4 User Login.

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

Figure 7-9 Screen configuration method

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

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



Export Screen Mo	onitoring Data ×
File Name	l
Location	C:\Vsers\zlkf-gyO1\Desktop
File Content	<ol> <li>Screen monitoring data</li> <li>Sending card backup file</li> <li>Receiving card backup file</li> <li>Screen connection file</li> <li>Receiving card/NovaLCT versions</li> </ol>
	Save

- Step 5 Set a file name, click 🛄 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

## **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 details, see 4 User Login.
  - $\sim \sim$
- Step 2 Click Monitoring or choose Tools > Monitoring on the menu bar to open the monitoring page.

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



Figure 7-11 Monitoring	_	пх
USB@Fort_#0003. Hub_#0002-Soreen1		
	40 rmal ult ltage E known	Module monit
Total Quantity of Receivin 2         Fault (alarm) Information         Quantity of Faulted Receiving 2         Quantity of Faulted Receiving 2		Monitoring R Configuration
Soreen Name         Image: Content of the second secon	()	<ul> <li>2</li> </ul>
L Care status:Online		.:

#### 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 3 Click Configuration to set the monitoring parameters.
  - Refresh Period

MonitorSite - Setti	ings	Х
Refresh Period		
	Refresh Period	_
Hardware Settings	Automatic Refresh 60 🔹 S	
Alarm		
<u> </u>	Set Rereading Times	_
Email	When failing to read status, the 0 💓 Times	
Email Log	Link to NovaiCare-	
	Link to 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.

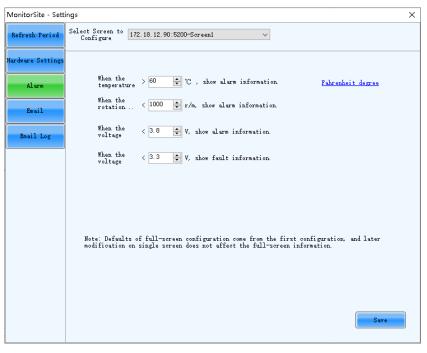
#### Hardware Settings

MonitorSite - Settin	gs	$\times$
Refresh Period	Select Screen to Configure COM99-Screeni	
Hardware Settings	Connect to Monitori Setting	
Alarm	Connect to HUB Monitoring Use 2 receiving car	
	Connect to Smart Module Common Chip 🗸	
Monitoring Con	Refresh Backup Power Supply	
Email	Backup Power Supply Quantity 2	
Email Log	Refresh Humidity	
	Refresh Ribbon Cable Refresh Cabinet Door Status	
	Refresh Fan	
	Fan Pulse:	
	Set fan quantity uniformly	
	O Set fan quantity individually	
	Refresh Power Supply of Monitoring Card	
	The numbers of power supplies on eac     3     ★	
	Set power supply quantity individually Setting	
	Note: First time configuration is the default for full screen, later modification will not	
	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. If the TBS 614 Chip is selected, you can click Module Monitoring in the monitoring interface to view and configure the information related to the module monitoring.
- Select Connect to HUB Monitoring and Connect to Smart Module, 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



MonitorSite - Sett	ngs		Х
Refresh Period	Enable Email Notification Send	d email when same fault/ 3 V Times sending	
Hardware Settings	Enable System Recovery Motification Enable Sending System Report Email Send system report email regularly		
Email	Email Sender Email Address novalot@novastar.tech SMTP Server smtp.give.163.com	Port 25 SSL Encryption <b>Enable</b>	
Email Log	Modify Sender	Use Defa	ault
	Name	Email address	
	111 nova_huixy	/@126. com	
	Email Information Sending Email <b>A-1</b>	(e.g.:Neighborhood A, Square B)	
	Tip: If the display has been registered wit	ch NovaïCare, please disable local Email notificatio	on

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.

#### 4 Email Log

MonitorSite - Setti	ings					×
Refresh Period	Log Time	- 2019年12月	12日	•	Refresh	Delete Log
Hardware Settings	Notification Time	Recipients	Title	Notifi	cation Content	
Alarm						
Email						
Email Log						
	<					>
		able local Email	notification, yo	u can view the log.		

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

# 7.3 Configure Module Monitoring

#### **Applications**

Configure the module monitoring parameters to monitor the module's temperature, voltage, and bit error. www.novastar.tech PAGE 71

# Applicable Products

All receiving cards.

### **Prerequisites**

- The module is equipped with a TBS 614 chip.
- You have selected **Connect to Smart Module** in the monitoring configuration, and along with the **TBS 614 Chip**.
- You have completed the Flash Arrangement. For more details, please refer to 5.4 Set Performance Parameters.

#### **Related Information**

None

#### **Operating Procedure**

Figure 7-12 Monitoring

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

Step 2 Click or choose **Tools** > **Monitoring** on the menu bar to open the monitoring page.

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

	- 0	$\times$
USB@Port_#0003. Hub_#0002-Screen1		
USer or Leouos. Au-eouocation	Zooming	oni t
	^	
	✓ 0.40	
	0.10	
	Normal	
	Fault	
	Voltage E	
	Unknown	
Time of Acquiring the Current Monitoring Data 17:52:31 Statistical Information		
Total Quantity of Receivin 2		
Fault (alarm) Information	Monitori	ng R
Quantity of Faulted Receiving Quantity of Receiving Card Cards: 2 with Voltage Exception: 0		
	Configur	ation
Soreen. Name 🧱 🖳 📢 🎆 🧱 🤧 (	🕥 🚺 🛃 📖 🐼	1
USB@Port_#0003. Hub_#0002-Screen1	$\circ$ $\circ$ $\circ$ $\circ$	
Care status:Online		

#### Step 3 Click Module Monitoring.

Step 4 On the **Module Info** dialog box, select **Temperature**, **Voltage** or **Bit Error** to view the corresponding monitoring information. Click on the text link of the monitor result to view the details.

**Related Operations:** 

- The monitoring information will be refreshed once when you select the items to be monitored. To refresh again, click **Manual**.
- Screen Display: Click **Normal display** in the **Action** column to switch to **Screen display**, which will show the test pattern in the load area of the corresponding receiving card.



• Clear Errors: Click **Clear Errors** in the respective column to reset the errors of the corresponding receiving card. To reset the errors of all receiving cards in the list, click **Clear** in the top right corner of the interface.

#### Figure 7-13 Module information

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

Step 5 (Optional) Select Auto Refresh and set the refresh interval.

#### Step 6 Click Thresholds.

Step 7 On the pop-up dialog box, set the alarm thresholds for temperature, voltage, and bit error. Clicking on **Celsius** or **Fahrenheit** allows you to switch temperature units.

Figure 7-14 Thresholds

🖳 Thresholds	5		_		×
When temperature When voltage	> 50 🔹 °C < 4.0 🗣 V	, show warning message. , show warning message.	<u>Ce</u>	<u>lsius</u>	
When bit error	> 1	, show warning message.		Save	

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

# 8 Screen Management

# 8.1 Multi-function Card Management

#### **Applications**

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

#### **Applicable Products**

The MFN300 multifunction card www.novastar.tech



### **Prerequisites**

Hardware connections for the multifunction card are done.

## **Related Information**

None

#### **Operating Procedure**

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



Step 2 Click Multi-function Card on the menu bar.

#### Figure 8-1 Multifunction card management

ld Remove Refresh Rename 🚽 🔗 👘	
··· 🗙 😂 🐘 🐨 👘 🐨 👘 🐨 🐨 🐨	
Power Management Monitoring Data Peripheral Device Load Program	

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

Add Multi-function Carc	ł	$\times$
Communication Port	172.18.12.90:5200 ~	
Sending Card	1	
Ethernet Port	1	
Name		
OK	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.

Add       Remove       Refresh       Rename         Image: Constraint of the second se
Image: Manual       Automati       Advanced         Switch 1       Start       Stop       Please select          Switch 2       Start       Stop       Please select          Switch 3       Start       Stop       Please select          Switch 4       Start       Stop       Please select
Switch 1     Start     Stop     Please select       Switch 2     Start     Stop     Please select       Switch 3     Start     Stop     Please select       Switch 4     Start     Stop     Please select
Switch 3     Start     Stop     Please select     ✓       Switch 4     Start     Stop     Please select     ✓
Switch 4 Start Stop Please select V
Switch 5 Start Stop Please select V
Switch 6 Start Stop Please select V
Switch 7 Start Stop Please select V
Switch 8 Start Stop Please select V
Send
2019/12/13 10:09:14Read the status of all the powers in multifunction card:Successful 2019/12/13 10:09:19Read the status of all the powers in multifunction card:Successful

#### Figure 8-3 Ethernet port connection

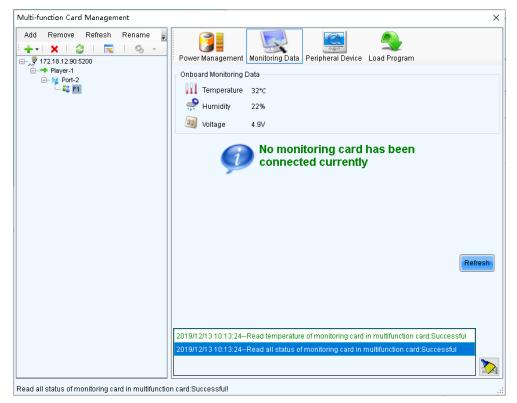
Step 5 Use any of the following functions as needed.

Power Management

Multi-function Card Management						×
Add Remove Refresh Rename		ment Monitor er Managemen Sunday 04:54:3	nt Board	ripheral Device Load P	rogram Set Notes	Start Delay
	🔹 🌢 🌢	• • •	utomati	Refresh	Start All	Emergency St Advanced
	Switch 1	Start	Stop	Please select	$\sim$	
	Switch 2	Start	Stop	Please select	$\sim$	
	Switch 3	Start	Stop	Please select	$\sim$	
	Switch 4	Start	Stop	Please select	$\sim$	
	Switch 5	Start	Stop	Please select	$\sim$	
	Switch 6	Start	Stop	Please select	$\sim$	
	Switch 7	Start	Stop	Please select	$\sim$	
	Switch 8	Start	Stop	Please select	$\sim$	
				Send	Readback	
				Iltifunction card:Success	ful	^
	2019/12/13 10:1	0:37FuncCa	rd_SetPowerf	PortCtrlTotal:Successful		-
Read emergency control status of power in mult	ifunction card Succ	essfull				

- 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

Multi-function Card Management	×
- * Payer-1	Load Program
Peripheral device 1 Peripheral device 2 Peripheral device 3 Peripheral device 4 Peripheral device 5 Peripheral device 6	No external device  Vo external device  No external device  No external device  No external device  No external device  Refresh Save
Read all status of monitoring card in multifunction card;Successful!	

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 options for program loading.

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

Multi-function Card Management		$\times$
G→ Player-1 G→ Port-2 L 2 F1	Power Management Monitoring Data Peripheral Device Load Program Multi-function Card Information Model of Multi-function C FPGA Version: FPGA Note of Multi-function Card	Refresh
		Exit Prowse
Read all status of monitoring card in multifunction ca	ard:Successfull	<b>&gt;</b>



# 8.2 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 details, see 4 User Login.
- Step 2 On the menu bar, choose Settings > Receiving Card Relay.

#### Figure 8-4 Setting receiving card relay

-	eiving Card Relay		-		Х				
– Serial Port Sele	ection								
Serial Port	172.18.12.90:5200				$\sim$				
Screen1									
Parameter of P	Receiving Card Relay								
◉ Disc	onnected								
🔿 Coni	nected								
🔿 Auto	matic								
- Temperature	Under Automatic Mode —								
Temperature Connected R	of <mark>60 🔶</mark> 🕫	Temperature of Disconnected Relay	30	*	۳Ċ				
		Refresh	S	end					
-Receiving Can	d Timing Clearing								
Reci	Record Time 11Days 8Hours 26Minutes								
		Refresh	Timing	Resettin	g				

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.

# 8.3 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, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

#### **Prerequisites**

None

#### **Related Information**

None

#### **Operating Procedure**

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

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

#### Figure 8-5 Screen control

172.18.12.90:5200-Screent       Display Control       Black Out       Freeze       Normal       Self-Test:       Normal       Cabinet LCD Backlight Control       Turn off cabinet LCD	Screen Control			×
Black Out     Freeze     Normal       Self-Test:     Normal     Send	172.18.12.90:5200-Screen1			
Cabinet LCD Backlight Control		Freeze	Normal	
	Self-Test: Norm	al ~	Send	
			Send	
Close				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.

# 8.4 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 5.4 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 details, 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 8-6 Viewing module ID

🖶 Module ID settings		- 0
Sending cardl Ethernet port1 Receiving cardl BUS:1 Flash No.:1 ID: 0-0	Sending card1 Ethernet port1 Receiving card2 BUS:1 Flash No.:1 ID: 1-0	Scaling rate
1D: 0-0	ID: 1-0	

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



Figure 8-7 Setting module ID (regular screen)



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

SDWI	Port_#0004.	Hub_#0002-	-Screen1										
St	Sendi	Outpu	Recei	BUS	X Coo	Y Coo	Width	Height	Flash No.	ID	1		
No	1	1	1	1	0	0	152	152	1	111-4			
No	1	1	1	2	152	0	152	152	1	111-3			
No	1	1	2	1	0	0	152	152	1	111-2			
No	1	1	2	2	152	0	152	152	1	111-1			
											ID Settin	9	
											Prefix [		
											Prefix [	g n Des	scen
											Prefix [	n) Des	

- Step 5 Select the ID generation method and then click **Generate** to set IDs for all the modules. When manually setting the ID, for regular screens, double click a single module and set its ID in the displayed dialog box, and then click **OK**; for complex screens, double-click the cell of ID column, set the ID and click any other place of the interface.
  - Prefix: Set the prefix of the module ID.
  - Sort: Select the sorting type for the module IDs.
    - Z-shape: Generate module IDs from left to right for all the rows from top to bottom. The ID format is "receiving card number-module number".
    - N-shape: Generate module IDs from bottom to top for all the columns from left to right. The ID format is *"receiving card number-module number"*.



- Inverse Z-shape: Generate module IDs from right to left for all the rows from top to bottom. The ID format is "receiving card number-module number".
- Inverse N-shape: Generate module IDs from top to bottom for all the columns from left to right. The ID format is "receiving card number-module number".
- No.: The ID format is "receiving card number-Flash number".
- Ascending: The module IDs are in ascending order.
- Descending: The module IDs are in descending order.
- By cabinet: Generate the IDs for all modules based on cabinets by Z type or N type, or number the modules by "sending card number-output port number-receiving card number-Flash number".
- Step 6 After the settings are done, click **Save to HW** to save the configuration information to the hardware.

# 9 Screen Maintenance

# 9.1 Firmware Program Update

## **Applications**

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

## **Applicable Products**

All receiving cards

## **Prerequisites**

The program update package is prepared.

## **Related Information**

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

#### Figure 9-1 Program update

	Receiving	g Card Scre	en Conne	ection						
Module Info	rmation									
Chip:	C	ommon C	Siz	e:	32W×16F	н	Scanning Typ	e 1/8 scan		100
Direction:	н	lorizontal	Da	ta Groups	2		Adjust RG			Check M
Cabinet Info	ormation									Set Rotation
Regular	r	<u></u>	<u>.</u>				gular			ocritotaton
Width (F	Pixel)	32	÷	<=65		Wi	dth: ??	Height: ??	,	
Height		16	¢	<=128			ading error Ples	- adjust pe		
Module		From Right	1-1-0	Program L	Jpdate			×		
module	0000	From Right	to Len	-1	,			abinet		
erformanc	e Settino	IS		Choose a	n upd					
Data Gr	oup E	More Se	ttings	Cloud	Update	connected to receiving car	the network, an d based o	1to		Send Perform
Data Gr Refresh R		More Se	ttings	Cloud	Update			1to		Send Perform
	Rate		~	Cloud	Update			1to		Send Perform
Refresh R	tate Level	480	~		Update the r	receiving car		ito)%		Send Perform
Refresh R Grayscale	Rate Level k Fre	480 Normal 4096	> >		Update the r	receiving car	d based o			Send Perform
Refresh R Grayscale Shift Clock	tate Level k Fre sition	480 Normal 4096 12.5	> > >		Update the r	receiving car	d based o			Send Perform
Refresh R Grayscale Shift Clock Phase Po	ate Level k Fre sition king	480 Normal 4096 12.5 6 15			Update the r	receiving car	d based o			Send Perform
Refresh R Grayscale Shift Clock Phase Po Row Blan	Rate Level k Fre sition king	480 Normal 4096 12.5 6 15 3	> > > >	Local	Update the r	receiving car	d based o			Send Perform
Refresh R Grayscale Shift Clock Phase Po Row Blan Line Char	Rate Level k Fre sition king nging OE w	480 Normal 4096 12.5 6 15 3 160 ns	> > > >	Local	Update the r	receiving car	d based o			Send Perform.
Refresh R Grayscale Shift Clock Phase Po Row Blan Line Char Minimum	Rate Level k Fre sition king nging OE w	480 Normal 4096 12.5 6 15 3 160 ns	> > > >	Local	Update the r	receiving car	d based o			Send Perform
Refresh R Grayscale Shift Clock Phase Po Row Blan Line Char Minimum Brightnes	Rate Level k Fre sition king nging OE w s Effi	480 Normal 4096 12.5 6 15 3 160 ns 68.96%		Local	Update the r	receiving car	d based o	)%		~
Refresh R Grayscale Shift Clock Phase Po Row Blan Line Char Minimum	Rate Level k Fre sition king nging OE w s Effi	480 Normal 4096 12.5 6 15 3 160 ns		Local	Update the r	receiving car	d based o	)%	d from Re.	Send Perform
Refresh R Grayscale Shift Clock Phase Po Row Blan Line Char Minimum Brightnes	Rate Level k Fre sition king nging OE w s Effi	480 Normal 4096 12.5 6 15 3 160 ns 68.96% Select Progr		Local (0~12)	Update the r	receiving car	d based o	)%		~

#### **Operating Procedure**

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

gram loadingthe curre	ent communica	ition port	nas dev	ice access	ed			_	
Program loading									
Select the communication	on port for opera	ation							
Communication port for the current operati	192.168.41.1:52	200			~	Device q	1		Reconnect
Program updating									
Program Pat								B	Irowse
Advanced									Jpdate
Extend the operation item	n								
Read-back of recei									
ardware Program Version	Information								
					Dani				
ardware Program Version Refres   Refres		<u> </u>	Dutp [	1	Recei	1	Refres		Refresh
		÷ (	Dutp [	1	Recei	1	Refres		Refresh
			Dutp [	1	Recei	1	Refres		Refresh
		¢ (	Dutp [	1	Recei	1	Refres		Refresh
		<u></u>	Dutp [	1	Recei	1 4	Refres		Refresh
		<u></u>	Dutp [	1	Recei	1	Refres		Refresh
			Dutp [	1	Recei	1	Refres		Refresh
		•	Dutp [	1	Recei	1	Refres		Refresh
			Dutp [	1	Recei	1	Refres	(	Refresh
		¢ (	Dutp [	1	Recei	1 *	Refres	(	Refresh
		÷.	Dutp [	1	Recei	1	Refres	(	Refresh
Refres Refres		<u></u>	Dutp [	1	Recei	1	Refres	(	Refresh
Refres Refres			Dutp [	1 <del>•</del>	Recei	1	Refres		Refresh
Refres Refres			Dutp [	1	Recei	1	Refres		Refresh

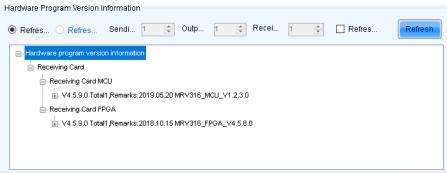
Step 3 Choose a communication port.

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

Step 4 Specify the refreshing range and click **Refresh** to view the current program version of the hardware.

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

#### Figure 9-3 Viewing program version



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

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

- Auto match: Select **Auto Match**, and the software will automatically select the appropriate package file based on the receiving card model, and the specified driver IC and decoding method.
- Manual selection: Unselect the Auto Match, and manually choose the required package file from the list.



Update Program	1	996			x
-Integrated Pa Integrated		B75E_V1.2.3.0.zip			
Select Chip Driver IC:	MBI5050	✓ Browse	Decodin	5953 Decoding	✓ Browse
Program P	DATA_MRV416	_V4. 9. 0. 0			🗌 Auto Match
		I	ntegrated Packa	ge	
		DA	TA_MRV412_V4.9.(	0.0	
	$\checkmark$	DA:	TA_MRV416_V4.9.(	0.0	
				Indata	Caral
				Update	Cancel

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

#### Figure 9-4 Selecting send mode

💀 Select a send mode	×
All receiving cards	
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 9 After the programs are updated successfully, click OK.

#### Note

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

# 9.2 LED Error Detection

#### **Applications**

 $\label{eq:lights} \mbox{Detect the damaged LED lights and locate them on the screen.} \\ www.novastar.tech$ 



## 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 details, see 4 User Login.
- Step 2 On the menu bar, choose **Tools** > Led Error Detection.

d Error Detection								>
ommunication Port Sele	ection							
ommunication Port	192.168.0.10:5200	$\sim$						
creen1								
Screen Topological Diag	gram							
						Zoom		
						^		
						× 1	.0	
							Unknov	'n
						=	Error	
						_	Normal	
							No Mon	ito
							No Mon	ito
_ed Error Detection Par:	ameters						No Mon	ito
ed Error Detection Para		d Short Circuit Detection					No Mon	ito
		d Short Circuit Detection	O 3	04			No Mon	ito
Detection Type	Open Circuit an			O 4			No Mon	ito
Detection Type Threshold Voltage Current Gain	Open Circuit an ● 1 ☑ Enable	O 2		O 4			No Mon	ito
Detection Type Threshold Voltage	Open Circuit an	O 2		O 4			No Mon	ito
Detection Type Threshold Voltage Current Gain	Open Circuit an ● 1 ☑ Enable	O 2		O 4	Pause		No Mon	ito
Detection Type Threshold Voltage Current Gain	Open Circuit an ● 1 ☑ Enable	O 2 Change Setting	O 3	_	Pause			ito
Detection Type Threshold Voltage Current Gain	Open Circuit an ● 1 ☑ Enable	O 2 Change Setting	O 3	_	Pause			ito
Detection Type Threshold Voltage Current Gain	Open Circuit an ● 1 ☑ Enable	O 2 Change Setting	O 3	_	Pause			

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**.



d Error Detection					— 🗆 🗙
communication Port Sele	ection				
communication Port	192.168.0.10:5200	~			
Screen1					
Screen Topological Diag	gram				
24582					Zoom
Led Error Detection Para	ameters				<ul> <li>1.0</li> <li>Unknown</li> <li>Error</li> <li>Normal</li> <li>No Monito</li> </ul>
Detection Type	Open Circuit an	d Short Circuit Detection			
Threshold Voltage	O 1	O 2	O 3	④ 4	
Current Gain	🗹 Enable	Change Setting			
Bi-Color LED Error	🔲 Enable				
		Save Confi	Conduct led.	Led error d	Pause Stop
	roont: Lod orror data	tion is being initialized, p	nlease wait		^

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 details, 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 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 details, 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						-		
Jevice		1 🜩 Min Manuall						
⊟-All ⊟-172.18.12.90:5200 Sending card1	Auto Refresh	Clear						
	Bit Error Information							
	Status	Sending card	Ethernet Port	Receiving Card	Error Details	Locate	Clear Errors	
	172	. 18. 12. 90:5200-Sending card1	Port1	Receiving card1	<u>Errors:0 2019年12月13日 10:56:28</u>	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

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

Locate display area

Click Locate to view the display area on the screen.

Clear errors

Click Clear Errors to reset the error quantity to 0.

Step 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, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

#### **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 details, see 4 User Login.

~

Step 2 Click Test Tool or choose **Plug-in** > **Test Tool** on the menu bar.

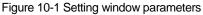


#### Note

For TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro, please refer to *Test Tool User Manual* for more detailed instructions.

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.



述 Test	Tool of LED	Screen-Novasta	r					-		×
Window	Pure Color	Gradual Change	Grid	Orientation	Help					
Х	<		>	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.

	1 Setting test pattern					
Tab Name	Function Description					
	Set a pure color test pattern.					
	• Select a color.					
Pure Color	<ul> <li>Set the grayscale changing method.</li> </ul>					
	The grayscale changing options include <b>Manual</b> and <b>Automatic</b> . When <b>Automatic</b> is selected, you can set the changing speed, as well as set to start or pause the changing.					
	Set a gradient test pattern.					
	• Select a color.					
	Select a grayscale level.					
Gradual Change	<ul> <li>Set the test pattern stretching times.</li> </ul>					
	<ul> <li>Set the gradient moving style.</li> </ul>					
	<ul> <li>Set the gradient sequencing and direction.</li> </ul>					
	You can start or stop the moving of the gradient.					
	Set a test pattern that has lines.					
	• Select a color.					
	• Set the line style.					
	Set the grayscale level.					
Grid	<ul> <li>Set the line moving speed.</li> </ul>					
	Select <b>Grid Overlaying</b> and select another pattern to display the overlaying grid effect. Click <b>Advanced Setting</b> to set the background color, line width and spacing, and the test patterns that can be used in blending measurement.					
	Click <b>Ageing</b> and the screen displays the pure red, green, blue and white in sequence, which is mainly used by the screen manufacturer.					
	Set the test patterns displayed in the actual positions of the receiving cards and modules. The receiving card serial numbers, receiving card lines and module lines are displayed, which can be used to locate the specific receiving cards or modules.					
<b>0</b> • • • •	<ul> <li>Set the module width and height.</li> </ul>					
Orientation	<ul> <li>Set the module columns and rows in the receiving card.</li> </ul>					
	• Set the colors for the receiving card serial numbers, module lines and receiving card lines.					
	<ul> <li>Set the background color or background image.</li> </ul>					
	• Set the receiving card numbering direction. The options include From Left to Right and					

Table 10-1 Setting test pattern



Tab Name	Function Description
	From Right to Left.
	If the test pattern is not displayed, click the <b>Orientation</b> button to display it.
	Click <b>Advanced Setting</b> to set the font size and font type for the receiving card serial number, starting row number, starting column number, as well as the widths of the module and receiving card lines.

Figure 10-2 Setting orientation parameters

🞿 Test	Tool of LED	Screen-Novas	ar						-		×
Window	Pure Color	Gradual Chang	e Grid	Orientation	Help						
		Module					Loading Module of	f Receivi	ng Card		
Orie	ntation	Width	64 韋	Height	32	-	Number of 2	-	Number of	2	÷
		Color									
Advance	ed Setting	1	ont		Modul	e Line		Receivi	ing Card Line		
Auvalied Setting		Background —		0	Backgro	u			<ul> <li>From Left</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

#### **Related Information**

None

#### **Operating Procedure**

On the menu bar, choose Plug-in > Calculator to open the Windows calculator.

# 10.3 External Program

## **Applications**

Add the shortcut icons for the commonly-used programs to NovaLCT user interface.

## Applicable Products

N/A

#### **Prerequisites**

None



# **Related Information**

None

## **Operating Procedure**

Step 1 On the menu bar, choose Plug-in > External Program.

#### Figure 10-3 External program

External	Program				x
Common					
-		0	ĸ	Can	cel

Step 2 Click 💼

#### Figure 10-4 Adding external programs

Add External Program	x
Program P	
Command	
ОК	Cancel

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

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

Note:

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

Step 4 Click OK.

# **11** Software Settings

# 11.1 Configuration Information Management

# **Applications**

Import and export the NovaLCT configuration files for quick configuration in NovaLCT.

#### **Applicable Products**

N/A

## **Prerequisites**

None

## **Related Information**

None

## **Operating Procedure**

- Step 1 Log in to the multimedia player. For details, see 4 User Login.
- Step 2 On the menu bar, choose Settings > Configure Information Management.

#### Figure 11-1 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.

# 11.2 Set Main Window Starting Position

#### **Applications**

Set the coordinates of the top-left corner of the main window of NovaLCT on the desktop, and make the window display in the specified position when the software is started.

## Applicable Products

N/A

#### **Prerequisites**

None

## **Related Information**

None



## **Operating Procedure**

Step 1 On the menu bar, choose Settings > The Main Window Starting Position.

Figure 11-2 Setting starting position coordinates

Starting Position Set	ting	$\times$
X Coordinates	32	
Y Coordinates	35	
ок	Cancel	

Step 2 Set the coordinates of the top-left corner of the main window on the desktop, and click **OK**.

After the settings are done, the main window moves to the specified position. When next time NovaLCT is started, the main window will be displayed in the target position.

# 11.3 Configure the Save Function

#### **Applications**

Configure the Save function that is in the Screen Configuration dialog box.

#### **Applicable Products**

All receiving cards, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro

#### **Prerequisites**

None

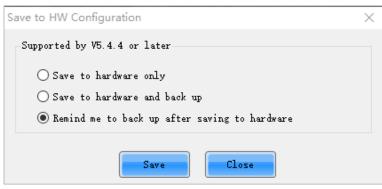
#### **Related Information**

None

#### **Operating Procedure**

- Step 1 On the menu bar, choose Settings > Screen Configuration Backup Settings.
- Step 2 Select an option and click **Save**.

#### Figure 11-3 Save to HW configuration



# 11.4 Cloud Server Configuration

## **Applications**

Configure the cloud server address to VNNOX Care or a custom domain name. The custom domain can only be used to restore the configuration file from the cloud when setting up the screen and does not support other cloud-based functions.

## **Applicable Products**

All receiving cards, multimedia players, TU20 Pro, TU15 Pro, SMP6 Pro, and SMP4 Pro.

#### **Prerequisites**

To configure the server address as a custom domain name, you need to have an available domain.

#### **Related Information**

None

#### **Operating Procedure**

Step 1 On the menu bar, choose Settings > Server Configuration.

Figure 11-4 Server configuration

Server Configuration		×
Select server address:		
VNNOX Care		
🔘 Custom domain name		
	OK	Cancel

Step 2 Select VNNOX Care or select Custom domain name and enter you domain name.

- Step 3 Click OK once you are done.
- Step 4 Restart the NovaLCT for the change to take effect.

# 11.5 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.

# 11.6 Obtain Help Information

## **Applications**

Check the user manuals, update log and software information of the current version of NovaLCT, and contact online customer service.

#### **Applicable Products**

N/A

#### **Prerequisites**

None

#### **Related Information**

None

#### **Operating Procedure**

Choose **Help** from the menu bar and do the corresponding operations below as needed.

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.

#### Contact online customer service

Choose Online Support. On the displayed page, chat with the customer service online.

# 11.7 Update Software

#### **Applications**

When the Internet is available, download the NovaLCT update package from the cloud and install it.

#### **Applicable Products**

N/A

#### **Prerequisites**

The control computer is connected to the Internet.

#### **Related Information**

None



#### **Operating Procedure**

#### Notes

If NovaLCT is not up to date, after NovaLCT is opened, an "Online Update" dialog will be displayed.

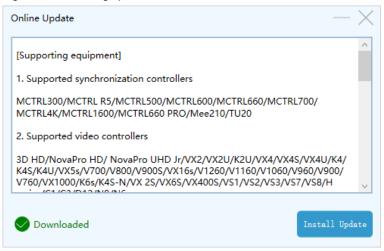
If there is an available new version, an 😑 icon is displayed in front of the **Online Update** menu name.

#### Figure 11-5 Online update

Online Update		$-\times$
A new version is a	vailable. Update now?	
	OK	Close
Do not show again		

- Step 2 Click OK.
- Step 3 Click Get Update.
- Step 4 After the update package is downloaded, click Install Update and wait for it to complete.

Figure 11-6 Installing update



# 11.8 Export Log

#### Applications

Export the logs of NovaLCT.



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

# **Applicable Products**

N/A

# **Prerequisites**

None

# **Related Information**

None

# **Operating Procedure**

On the menu bar, choose Help > Export Log. On the pop-up window, choose a save path and click OK.

# **12** Troubleshooting

## 12.1 Installation Problems

### 12.1.1 Failed to install NovaLCT of earlier versions

#### **Problem**

The installation of NovaLCT fails when the version to be installed is earlier than the current version.

## **Possible Causes**

None.

## **Solution**

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

#### 12.1.2 .NET Framework is missing

#### **Problem**

When installing NovaLCT, you run into a system prompt like "To run this application, you must first install one of the following versions of the .NET Framework." (This typically appears on computers that have not previously installed NovaLCT.)

#### **Possible Causes**

The required .NET Framework version is missing on the computer where NovaLCT is installed.

#### **Solution**

Visit NovStar's official website (www.novastar.tech) and download the required .NET Framework. Download path: Downloads > Software > Framework

#### Figure 12-1 Download .NET Framework

garo 12 i Bolinioad inter i hamonom	
EX LED Control System Processors Nova Cloud Software Ca	ibrations Accessories Discontinued 🔀 Safety Manual
NovaLCT	
NovaLCT	NovaLCT
V5.4.8	V5.4.7.1
NovaLCT V5.4.8	NovaLCT V5.4.7.1
Configuration Tool User Manual Synchronous V5.4.8	Configuration Tool User Manual Synchronous V5.4.7.1
Configuration Tool User Manual Multimedia Player V5.4.8	Configuration Tool User Manual Multimedia Player V5.4.7.
Test Tool User Manual	Release Note V5.4.7.1
Release Note V5.4.8	S framework

Driver

# 12.1.3 "DeleteFile failed" error

S framework

Drivei

#### **Problem**

When installing NovaLCT, you run into a system prompt like "An error occurred while trying to replace the existing file. DeleteFile failed with code 5. Access denied."



## Possible Causes

The monitoring daemon is still running after shutting down NovaLCT, causing some files to be unable to be deleted.

#### Solution

Open the task manager, right-click on "MonitorDaemon", select "End task" from the pop-up menu, then click "Retry" to proceed with the installation of NovaLCT.

#### Figure 12-2 Task manager

Processes	Performance	App history	Startup	Users	Details	Services					
	^					17	%	95%	7%	0%	
Name			Statu	IS		CI	PU	Memory	Disk	Network	
Apps (5)	)										1
> 🔳 Ma	onitorDaemon					0.2	2%	8.9 MB	0 MB/s	0 Mbps	Γ
> <u> ø</u> No	vaLCT (32 bit)	(3)				C	0%	127.8 MB	0.1 MB/s	0.1 Mbps	

#### 12.1.4 Prompts to run DPinst.exe

#### Problem

At the end of the installation process for NovaLCT, when starting the installation of the driver, you run into a system prompt like "You need to run the 64-bit version of DPinst.exe on this computer. Please contact the software developer who provided you with this software package." (This typically appears on computers that have not previously installed NovaLCT.)

#### Possible Causes

**NovaLCT** 

The required driver is missing on the computer where NovaLCT is installed.

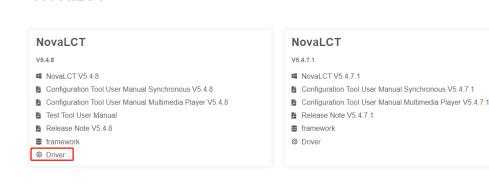
## **Solution**

Proceed with the installation disregarding the issue at hand. Once completed, test if NovaLCT is able to connect to the device via the USB cable.

- If you are able to connect to the device with no issue, there is no need for any further action as NovaLCT can be used as intended.
- If you are unable to connect to the device, visit NovStar's official website (www.novastar.tech) and download the
  required driver. Please contact NovaStar if the problem persists after installing the driver.

Download path: Downloads > Software > Driver

# Figure 12-3 Download driver COEX LED Control System Processors Nova Cloud Software Calibrations Accessories Discontinued Safety Manual





# 12.2 Other Problems

# 12.2.1 "No Screen" displayed in NovaLCT

## **Problem**

"No Screen" is displayed in NovaLCT as shown in Figure 12-4.

Brightness Adjustment( <b>No</b> Hardware)	×
Sereen 1	
No Screen	

## **Possible Causes**

Failed to read screen configuration or no screen has been configured.

#### **Solution**

- If the LED screen has been configured already, click screen Configuration and select the Screen Connection tab, and then click Read from HW to read the configurations from the LED screen.
- If the screen has not been configured yet, configure it first.

## 12.2.2 Permission error

#### **Problem**

After NovaLCT is installed on the system disk of the computer that runs Windows 8 or later version, some functions in NovaLCT cannot work normally.

#### Possible Causes

File permission denied.

#### **Solution**

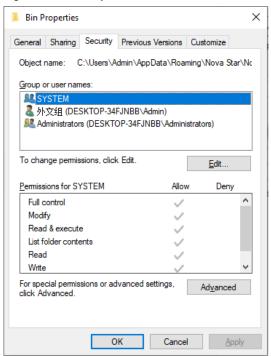
Here, we use Windows 10 as an example to illustrate how to solve this problem.

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 12-5 Security



Step 5 Check whether there is current user or Everyone in the Group or user names area.

- Yes: Go to Step 11.
- No: Go to Step 6.
- Step 6 Click Edit to open the dialog box shown in Figure 12-6.

Figure 12-6 Changing permissions

Permissions for Bin		×
Security		
Object name: C:\Users\Admin\	AppData\Roamin	g\Nova Star\Nc
<u>G</u> roup or user names:		
SYSTEM 多小文组 (DESKTOP-34FJNBE)	3∖Admin)	
Administrators (DESKTOP-34		ators)
	A <u>d</u> d	<u>R</u> emove
Permissions for SYSTEM	Allow	Deny
Full control	$\checkmark$	□ <u>^</u>
Modify	~	
Read & execute	$\checkmark$	
List folder contents	~	
Read	$\sim$	
ОК	Cancel	<u>A</u> pply

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



Figure 12-7 Selecting users or groups

Select Users or Groups		×
select osers of oloups		~
Select this object type:		
Users, Groups, or Built-in security principals		Object Types
From this location:		
DESKTOP-34FJNBB		Locations
Enter the object names to select ( <u>examples</u> ):		
		Check Names
		_
Advanced	OK	Cancel
<u>A</u> dvanced	ОК	Cancel

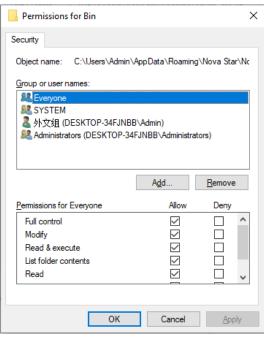
Step 8 Click Advanced to open the dialog box shown in Figure 12-8, and click Find Now.

Figure 12-8 Advanced settings

3	<b>J</b>			
Select Users or Groups				×
Select this object type:				
Users, Groups, or Built-i	n security principals	Object 1	Types	
From this location:				
DESKTOP-34FJNBB		<u>L</u> ocati	ons	
Common Queries				
Name: Starts	with $ \smallsetminus $		<u>C</u> olumns	
Description: Starts	with se	_	Find Now	
			~	
Disa <u>b</u> led account			Stop	
Non expiring pass	word			
Days since last logor	. ~		<del>,</del>	
Search res <u>u</u> lts:		OK	Cancel	
Name	In Folder			
Access Control Assi	DESKTOP-34FJ			
Admin	DESKTOP-34FJ			1
Administrator Administrators	DESKTOP-34FJ DESKTOP-34FJ			
ALL APPLICATION				
ANONYMOUS LO				
Authenticated Users				
Authentication auth				
Backup Operators	DESKTOP-34FJ			
				1

- Step 9 Select current user or Everyone in the search result, and click OK.
- Step 10 Click OK.
- Step 11 Select all for the Allow column and click OK.

Figure 12-9 Setting permissions



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

#### 12.2.3 Failed to connect colorimeter

#### **Problem**

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

#### Possible Causes

- The colorimeter connection is abnormal.
- The model of the colorimeter selected is incorrect.

### **Solution**

Step 1 Check whether the hardware connection of the colorimeter is normal.

When the colorimeter model is CS-100A, follow the subsequent descriptions to make sure the colorimeter auto mode is turned on.

Turning on auto mode: Set switch to ON while pressing the F button. When you see a C letter on the LCD, the auto mode is turned on, which is shown in Figure 12-10.

Figure 12-10 Setting CS-100A colorimeter





- 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.

#### 12.2.4 No available server for VNNOX Care

#### **Problem**

No available server from the dropdown list for VNNOX Care services.

Figure 12-11 VNNOX Care services

Screen Registration		×
Server	~	
Enter User	Entwined	
Password		
Screen	192.168.1.64:5200-Screen1	
	Register	

#### **Possible Causes**

The network or antivirus software may be the cause of the issue.

#### **Solution**

You can try the following methods to resolve this issue:

- Disable your computer's firewall or your company's network firewall and try again. Or try from a different computer
  if the problem persists.
- Uninstall the antivirus software (release the quarantined files) and reinstall NovaLCT.



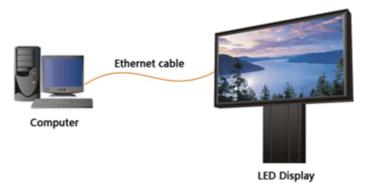
# 13 FAQs

# 13.1 How do I set the 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



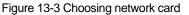
#### <u>Answer</u>

- 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.

#### Figure 13-2 Enabling virtual controller

🔡 Detect Config	<u> </u>		×
Auto Detect Config			
☑ Auto detect cont Detect Interval Config			
Detect interval: 3	10	ᅌ S	
Virtual Controller Cont	fi g ———		
🗹 Enable virtual o	controlle	r	
OK	Can	cel	

- 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 🏜 and choose System Setting.

System Setting		×
🗌 Enable Froxy	Test Froxy	
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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Official website www.novastar.tech

Technical support support@novastar.tech