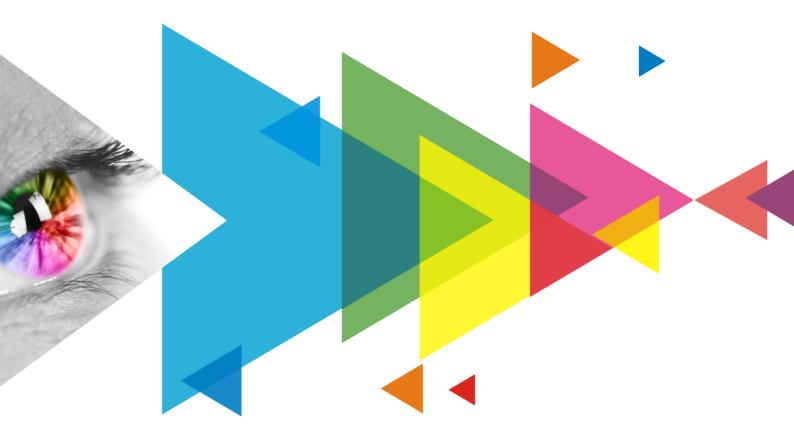


NovaLCT LED Configuration Tool for Multimedia Player



User Manual

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1 Software Introduction

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

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

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

Easy to install

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

Practical functions

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

Wide scope of applications

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

Efficient configuration

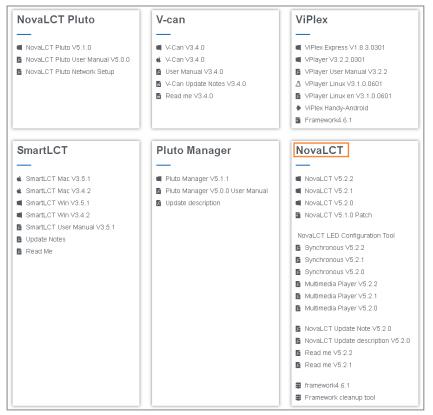
After the PC and control system product are connected, users can perform any operations with the PC. NovaLCT displays the corresponding functions and parameters according to the different hardware models and programs. During configuration, various kinds of configuration files can be used to complete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

2 Software Installation

Obtaining Software

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





Installing Software

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

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

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

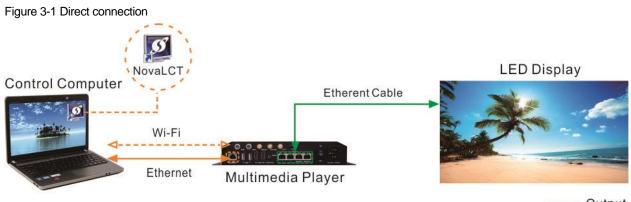
Verifying Installation

If the installation is successful, the shortcut 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.

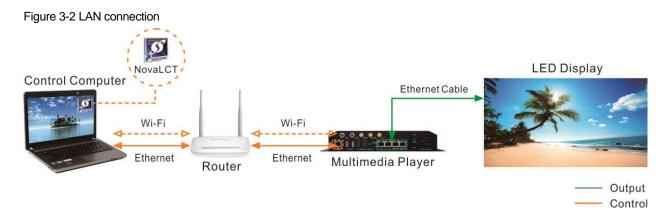
This method requires that DHCP must be enabled on the multimedia player and you must choose **Plug-in** > **DHCP Service** in NovaLCT, select the IP address of the PC and turn on the **DHCP Service** switch.

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>) Tool	s(<u>T</u>) Plug-in (<u>P</u>)	User(<u>U</u>) Lang	uage(<u>L</u>) I	Help(<u>H</u>)
Cloud Monitoring	Brightness	Screen Control	Aonitoring Multi-f	unction Car	rd Test Tool
-Local System Inform	nation				
Control System	0	Other Devic	e O	<u>Vie</u>	ew Details of Device
- Monitor Information					
	N	o screen, cl	ick here fo	^r config	guration
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	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 ascending
Name	
Taurus-40002453	
	Refresh

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)

Local System Information Control System 1 Other Device 0 <u>View Details of Device</u> Monitor Information										
Local System Information Control System 1 Other Device 0 View Details of Device Monitor Information	System(S)	Settings (C) Tools(<u>T</u>)	Plug-in (<u>P</u>)	User(<u>U</u>)	Language(<u>L</u>)	Help(<u>H</u>)			
Local System Information Control System 1 Other Device 0 <u>View Details of Device</u> Monitor Information	Screen Cor	a nfiguration	Brightness	Calibration	Screen Cont	trol Monitoring	Multi-functio	n Card	Test Tool	-
Monitor Information	Local System	Information								
	Control Sy	stem	1	Other Devi	ce O	1	View Details of [<u>Device</u>		
	Monitor Inform	nation								
Service Status: Service version:3.1.1										
Service Status: Service version:3.1.1 .::		۲			۲			٠		
Service Status: Service version:3.1.1 .:	L									
	Service Status	: Service ver	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

5.1 Load Configuration Files of Common Screens

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

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

Related Information

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

Operating Procedure

Step 1 Log in to the multimedia player. For 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	;	ĸ
Select Communication	Port	
Current Operatio	172.18.12.29:5200 🗸	
Configure Screen		
O Cloud Restore	v	
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	guration File-192.1	168.41.1:5200			_		×
Re	ceiving Card	Screen Connection						
	Send By Top		sicalAddress					
	Screen se							
	Screen1		© Full		 e0, Y=0 Size1152W×384H Select by Topology Select 	t Operatin.		
					Operate All Pixels	Send to S	Specified	
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.

Screen Configuration Select Communication	Part	×
Current Operatio	172.18.12.29:5200	
O Con O Clox	nfiguring zoreen, pleaze wait(1/3)	
Local Restore	C:WsersWova001157/Desktop/MCTRL4K2.scfg	se
	Next	se

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 Loading from File

Applications

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

Applicable Products

All receiving cards

Prerequisites

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

Related Information

None

Operating Procedure

Step 1 Log in to the multimedia player. For 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 5-2.

Figure 5-2 Screen configuration method

creen Configuration Select Communication		
Current Operatio	172.18.12.29:5200 ~	
Configure Screen		
Cloud Restore	~	
O Local Restore	Br	rowse

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

Screen Configuration-172.18.12.14:5200 X Receiving Card Screen Connection Module Information onstruc Common C... Size: Chip: 64W×32H Scanning Type 1/16 scan Horizontal Data Groups Adjust RG... Direction: 2 Cabinet Information Set Rotation O Regular Irregular -=256 Width (Pixel) Width: 64 Height: 64 Height (Pixel) 1 <=128 Module Casc... From Right to Left 🔍 onstruct Ca... View Cabinet Ne. Performance Settings 🔲 Big ... 18bit+ Data Group E... More Settings Refresh Rate Ti... 4 Refresh Rate 480 V Hz: Grayscale Mode Grayscale Level Normal 4096 V Refreshing Rate Fir V Shift Clock Fre... 12.5 VMHz Duty Cycle 50 (25~75) % V Phase Position 2 🗸 Low Gravscale C... 0 -+ (=2.00us) Ghost Control En... 24 Row Blanking ... 25 + (1~24) Line Changing ... 3 \$ (0~23) Minimum OE w... 80 ns Brightness Effi... 68.24% Load from File Save to File Read from Re... Smart Setting Receiving Car. Send to Recei Apply MRV316_V4.5.9.0 Firmware versio... MRV316. Restore Facto Current Receiving ... Export Screen M... Save System Co Close

- Step 5 Click Load from File and select a configuration file from the local computer.
- Step 6 After successful loading, click OK.

Figure 5-3 Screen configuration

- Step 7 Click Send to Receiving Card. In the displayed dialog box, select All Receiving Card or specify receiving cards and click Send.
 - All Receiving Card: Send the receiving card configuration information to all the receiving cards loaded by the current sending card. If you select **Reset the Starting Coordinate of Receiving Card**, the starting coordinates of all the receiving cards will be reset to (0, 0). As a result, all the receiving cards display the top-left image of the input source.
 - Specify Receiving Card: Send the receiving card configuration information to the specified receiving cards by topology or by physical address.

Figure 5-4 Sending parameters to receiving card

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

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

5.2.1.2 Manual Screen Configuration

5.2.1.2.1 Light Module

Applications

Set the receiving card parameters to light a new module.

Applicable Products

All receiving cards

Prerequisites

The receiving card firmware supports the module chip.

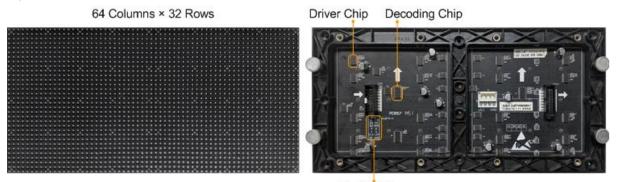
Related Information

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 5-5.

- 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 5-5 Module example





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

An irregular module has any of the following features:

- Some output pins of the driver chip are not used.
- The numbers of pixel rows or columns driven by each data group are different.
- The data groups do not drive the pixel rows or columns in order.

Operating Procedure

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

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

Figure 5-6 Screen configuration method

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

Step 3 Select Configure Screen and click Next.



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

Screen Configuration-172.18.12.14:5200 Receiving Card Screen Connection Module Information Construc 64W×32H Chip: Common C... Size: Scanning Type 1/16 scan Direction: Horizontal Data Groups 2 Adjust RG... Check M. Cabinet Information Set Rotation O Regular Irregular € <=256 Width (Pixel) Width: 64 Height: 64
 Width (Pixel)
 1
 <=256</td>

 Height (Pixel)
 1
 <=128</td>
 Module Casc... From Right to Left View Cabinet 🗌 Ne.. Construct Ca... Performance Settings 🔲 Big ... 🕜 Data Group E... More Settings 18bit+ Refresh Rate 480 V Hz: Refresh Rate Ti... 4 ~ Grayscale Level Normal 4096 V Grayscale Mode Shift Clock Fre... 12.5 V MHz Duty Cycle Refreshing Rate Fir $\, \sim \,$ 50 V (25~75) % Phase Position 2 V Low Grayscale C... 0 -Row Blanking ... 25 Line Changing ... 3 + (=2.00us) Ghost Control En... 24 + (1~24) \$ (0~23) Minimum OE w... 80 ns Brightness Effi... 68.24% Smart Settings Receiving Car., Load from File Save to File Read from Re., Send to Recei. Apply Current Receiving ... MRV316_V4.5.9.0 Firmware versio... MRV316... Export Screen M... Save System Co Close

Figure 5-7 Screen configuration

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 5-8 Smart settings options

Smart Settings Selection			\times
Note:			
(1).Option 1, click 'N	lexť to begin sma	art settings!	
(2).Option 2 or 3; loa	ad module inforn	nation to software.	
Option 1: Make the n	nodule on by sm	art settings	
Option 2: Load modu	ule information fr	om file	
File Path:			Browse
Option 3: Load modu	ule information 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.

Figure 5-9 Smart Settings Guide 1

Smart Settir	•					
Module						
Module	Chip Co	mmon Chip	~	Select	chip type	
Data Ty	pe					
Data Ty	/pe:	Parallel drive	•			\sim
Module	Information					
Module	Туре) Regular Mo	dule	🔘 Irregu	ular Module
Quantity	y of Pixels (vir	tuals _X	32	+	у:	32
Row De	ecoding Type	l	.S9739_Commo	on ~	Select	New v
Workin	g Mode of Re	ceiving Card				
Hub Mo	ode:	Normal	🔾 20 G	ir () 24 Gr	🔘 28 Gr
Ghost (Control Signa) High	O Low	/	
					lext	Cancel

- 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 5-10 Smart Settings Guide 2

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

Step 9 On the **Smart Settings Guide 3** page, select the module display color switching mode and check whether the current module display color is the same as the selected color.

Figure 5-11 Smart Settings Guide 3

Smart Se	ttings Guide 3	x
Auto	omatic switchin O Manual swit	tchin
Please	select the module color in each status:	
0 1	Red A	\sim
O 2	Green	~
03	Blue	~
O 4	Red B or black	~
	Back Next	Cancel

- If they are the same, click **Next** to go to Step 10.
- If they are different, select a color corresponding to the module display color from the drop-down list to make them the same.
- Step 10 On the Smart Settings Guide 4 page, set the parameters based on the number of lighted rows (or columns) on the module and click Next.

Figure 5-12 Smart Settings Guide 4	Figure	5-12	Smart	Settings	Guide 4
------------------------------------	--------	------	-------	----------	---------

Smart Settings Guide 4	
Lighted rows (or columns) on the module	
Row O Column Number of lighte	
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 5-13 Smart Settings Guide 5

Sr	mart Settings Guide 5	2
[Lighted rows (or columns) on the module	
	Quantity 1	
	Back Next Cancel	

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.

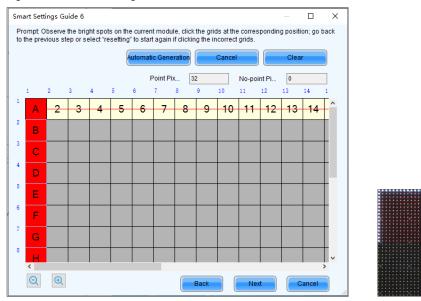
Generally, you only need to draw pixel position for the first row of pixels. If the flashing pixels are on the other row or column, click the corresponding cells in the grid.

- 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.

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- 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 5-14. When a pixel cannot be lighted during pixel position drawing, you can click No corresponding LED and the number of Unlighted Pixels increases by 1.
- 🔍: Zoom out the grid.
- 🔍: Zoom in the grid.

Figure 5-14 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 5-15 Saving module information

Save Module Informati	on	×
Prompt:		
You can save modu time.	le information to file or cabinet database for direct loading next	
Module Name:	l	
	hule information to file	
File Path:	Browse	
Option 2: Save mo	dule information to cabi	
Cabinet Datab	Change Cabinet D View	
	View Module Save Complete	



Note

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

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

5.2.1.2.2 Set Cabinet

Applications

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

Applicable Products

All receiving cards

Prerequisites

- A module is lighted. For details, see 5.2.1.2.1 Light Module.
- If the cabinet is irregular, the cabinet database file (.mcl) or module configuration file (.module) is prepared.

Related Information

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

Operating Procedure

- Step 1 On the Screen Configuration page, click the Receiving Card tab.
- Step 2 In the **Cabinet Information** area, perform the corresponding operations below based on the cabinet type.

Figure 5-16 Cabinet information

-Cabinet Information						Set Rotation
O Regular		Irregular				
Width (Pixel)	64 🔹 <=128	Width:	64	Height:	64	
Height (Pixel)	64 =256					
Module Casc	From Right to Left $\qquad \lor$	Construc	t Ca	View Cabi	net 🗌 Ne	

Configure regular cabinet

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

- Configure irregular cabinet
 - a. If you need to configure row extraction position, select **Big Control Mode**. If **Big Control Mode** is not displayed or you do not need to configure row extraction position, skip this step.
 - b. Select Irregular, click Construct Cabinet to open the dialog box shown in Figure 5-17.
 - 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.

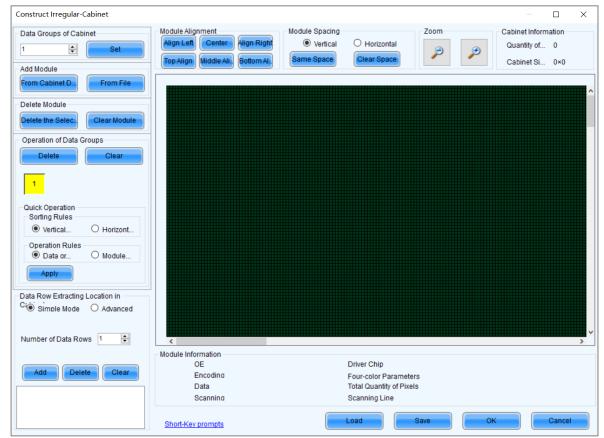


Figure 5-17 Constructing irregular cabinet

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

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

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

Figure 5-18 Sending parameters to receiving card

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

- Step 5 After successful sending, click OK to close the prompt box. The screen is now lighted.
- Step 6 (Optional) Click **Save to File** to save the configuration information as a receiving card configuration file (.rcfgx), or click **Receiving Card is configured with U disk file** to save the information as a USB drive file (.bin).

5.2.2 Step 2 Connect Screen

Applications

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

Applicable Products

All multimedia players

Prerequisites

None

Related Information

In NovaLCT, you can configure up to 20 screens.

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

Operating Procedure

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

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

Step 3 On the **Standard Screen** page, set the column and row quantity of receiving cards. For example, set them to 3 columns and 2 rows respectively, as shown in Figure 5-19.

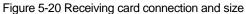
						Quantity o	1 ~	Configu
reen1						cuantity o		
Screen Type:	Star	ndard Screen	O Irregular Scre	en 🔾 Com	plex Screen			
Sending Card Number	Basic Info	ormation						
1	Coordina	ate: X: 0	Y: 0 Virtu	al Mo 🔲 E				
Ethernet Port No.	Columns	s 10 Ro	iws 5	ResetAll	Hided Re	t ~ ☆ ←	5	
1 2 3 4		1	2	3	4	5	6	7 1
Receiving Card Size		Sending Card: Port:	Sendi F					
Width: 128 🚖 Apply to Entir	▶ 1	Receiving	Receiving	Receiving	Receiving	Receiving	Receiving Card	Rec
Height: 128 🖨 Apply to Entir		Card: Width:0	Card; Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Width:0	C Wi
Set Blank Apply to the current.		Sending Card: Port:	Sendi					
Quick Connection	2	Receiving	Receiving	Receiving	Receiving	Receiving	Receiving	Rec
		Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	C Wi
		Sending Card:	Sending Card:	Sending Card:	Sending Card: Port	Sending Card:	Sending Card:	Sendi
	3	Port: Receiving	Port Receiving	Port: Receiving	Receiving	Port: Receiving	Port: Receiving	Rec
드미그미		Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	C Wi
		Sending Card:	Sendi					
	4	Port: Receiving	Port. Receiving	Port: Receiving	Port. Receiving	Port: Receiving	Port: Receiving	F Rec
		Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	Card: Width:0	C Wi V
	<	THIGHT	WIGHT.0	Thano	Thuat.o	Wider.o	THOMAS	>
	Zoom: <		>	1 Note: (Click or dr	ag the left	t mouse but	ton t.

Figure 5-19 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 5-20 illustrates setting of the receiving cards loaded by output port 1.
 - Custom connection: In the table, click or drag the mouse.
 - Quick connection: Click a connection pattern and drag the mouse to select an area in the table.

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

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



Screen Configuration-172.18.12.14:5200	X
Receiving Card Screen Connection	Quantity o 1 Configur
Screen Type: Sending Card Number	Standard Screen Irregular Screen Complex Screen Basic Information Coordinate: X: 0 Y: 0 Virtual Mo E
Ethernet Port No.	Columns 3 Rows 2 ResetAll Hided Red V 🙀 🧲 5
Width: 64 - Apply to Entir Height: 32 - Apply to Entir	Port Port 1 Receiving Cadd2 Cadd3 Width:64 Width:64 Sending Card:1 Sending Card:1
	Polt1 Polt1 Polt1 Polt1 RecSing RecEing Card:1 Card:4 Card:4 Width:64 Width:64 Width:0
리미되미	
Detect Communic Read the Number	Zoom: > 1 Note: Click or drag the left mouse button t st Pattern Enable Mapping Add Load from File Save to File Read from HW Send to HW
e l'hann me maai listaadika	Export Screen M. Save System Co. Save Close

- Apply to Entire Column: Apply the loading capacity width of the selected receiving card to all the receiving cards in the same column.
- Apply to Entire Row: Apply the loading capacity height of the selected receiving card to all the receiving cards in the same row.
- Apply to the Current Port: Apply the current loading capacity width and height to all the receiving cards connected to the current output port.
- Reset All: Reset all the receiving card connections and blanks.
- Hided Mapping Line: Hide the receiving card mapping line (namely the connections).
- 🖄: Mark the receiving card.
- E: Return to the previous step of connection.
- D: Clear all the connections of receiving cards connected to the current output port.
- Zoom: Zoom in or out the receiving card interface in the middle. When the interface is large enough, cabinet related information is displayed.
- Step 6 Set the specified receiving cards blank and set the blank size, as shown in the example in Figure 5-21. 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 5-21 Setting receiving card blank

Screen Configuration-172.18.12.14:5200		X
Receiving Card Screen Connection		
Screen1		Quantity o 1 🗸 Configur
Screen Type: Sending Card Number	Basic Infor	ate: X: 0 Y: 0 Virtual Mo E
1 2 3 4 Receiving Card Size Width: 64 Apply to Entir Height: 32 Apply to Entir Set Blank Apply to the current.	► 1	1 2 3 1 2 3 Sending Card:1 Port Port:1 Port Receiving Card:2 Width 64 Height 32 Height 0
	2	Sending Card:1 Sending Card:1 Sending Card:1 Polt:1 Port:1 Port: Receiving Card:1 Receiving Card:3 Width:64 Width:64 Width:64 Width:0 Height:32 Height:0 Height:0
	Zoom: <	> 1.31 Note: Click or drag the left mouse button t
Detect Communic Read the Number	st Pattern	Enable Mapping Add Load from File Save to File Read from HW Send to HW

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

For example in Figure 5-22, the receiving cards connected by the green line are loaded by output port 1 and the receiving cards connected by the yellow line are loaded by output port 2.

een Configuration-172.18.12.14:5200	
creen1	Quantity o 1 🗸 Configur
Screen Type:	Standard Screen O Irregular Screen O Complex Screen
Sending Card Number	Basic Information
1	Coordinate: X: 0 Y: 0 Virtual Mo E
Ethernet Port No.	Columns 3 Rows 2 ResetAli Hided Red V 📩 🧲 ڬ
	1 2 3
Receiving Card Size Width: 64 - Apply to Entir	Sending Card:1 Sending Card:1 Port: Port:2
Height: 32 🖨 Apply to Entir.	Receiving Death Receiving
Set Blank Apply to the current	Width.04
Quick Connection	
	Sending Card:1 Sending Card:1 Polt:1 Polt:2
	2 Receivit Card:1 Receivit Card:1 Width:64 Width:64
	Height 32 Height 32 Height 32
<u> 5 N 2 N</u>	
	Zoom < > 1.31 Note: Click or drag the left mouse button t
tect Communic Read the Number	Test Pattern Enable Mapping Add Load from File Save to File Read from HW Send to HW
	Export Screen M., Save System Co., Save

Figure 5-22 Configuration completed

Note

Figure 5-23 Configuration of complex screen

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 5-22 is shown as the diagram in Figure 5-23.

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.

iving Card Screen Connection										
reen1					1	Quantity	0 1		~	Configu
Screen Type:	O Standard Screen	O Irregular Screen	Complex Scr	een						
		Red 🗸	Hided							
Receiving Card Settings	200	30p		r						
				Send Card	Port	Recei Card	i Startir X	Startir Y	Width	Heigh
- 1-1-2 - Width: 64	1-2-2 Widl: 64			1	1	1	0	32	64	32
- Height: 32	Height: 32			1	1	2	0	0	64	32
- 1-1-1 1-1-3 Wid S: 64 Wid B: 64	1-2-1 Wid\$: 64			1	1	3	64 128	32 32	64 64	32 32
Height: 32 Height: 32	Height: 32			1	2	1	128	0	64	32
<u> </u>										
	Zoom	1.52			Add		dit	Delet	te	Clear

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

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

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

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

This step is related with the configuration of the save function. See 11.1 Configure the Save Function.

Figure 5-24 Successful saving

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

OK
Cancel

Related Operations

Detect Communication Status: Detect the status of connection between the receiving card and Ethernet port.

- Read the Number of Receiving Cards: Read the number of receiving cards connected to the current Ethernet port.
- Enable Mapping: Enable the Mapping function. The Mapping function is for you to obtain the receiving card connection information conveniently.
- Read from HW: Read the current configuration information in the hardware.
- Coordinate: Set the start position of the display image on screen.
- Virtual Mode: Set the layout of LEDs.

5.2.3 Step 3 (Optional) Save Configuration Files

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

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

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

Related Information

When saving the configuration files of a screen that is not registered with the cloud, the screen will be registered with VNNOX Care automatically. During registration, NovaLCT will automatically enable **Automatic Refresh** and **Link to NovaiCare** in the monitoring configuration. If you want to set the refresh period, please see 7.2 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 5-25.

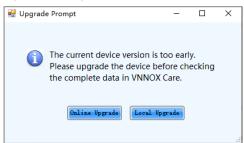
🖶 Save System	Files to Cloud \times
Password	23 aurus-40002453
2	Sending card backup file Receiving card backup file Screen connection file Receiving card/NovaLCT
	Save
📮 The screen is alre	eady registered 🗸 🗸

Figure 5-25 Saving configuration files (online screen)



- Step 2 Enter your VNNOX Care user name and password, set the screen name and system configuration file name, and select a server node.
- Step 3 After the parameter settings, click Save.
- Step 4 Do the corresponding operation below based on the multimedia player firmware version.
 - Firmware version V3.3.0 or later: After the configuration file is saved, close the prompt box. No further action is required.
 - Firmware version earlier than V3.3.0: Go to Step 5.
- Step 5 Do any of the following operations to upgrade the firmware version and save the configuration file to cloud and local PC. (The device will automatically restart during upgrade.)

Figure 5-26 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.

Operating Procedure (Offline Screens)

Step 1 On the Screen Configuration page, click Save System Configuration File to open the dialog box shown in Figure 5-27.

odule Information						
Save As						×
	is PC > Documents	~	ē	Search Documer	nts	Q
Organize 🔻 New fold	er					?
🕂 Downloads 🖈 ^	Name		D	ate modified	Туре	^
🚆 Documents 🖈	Adobe		9/	/29/2018 5:05 PM	File folder	
📰 Pictures 🛛 🖈	Custom Office Templates		13	2/11/2019 7:18 PM	File folder	
0624 F8	Nova Star		2,	/15/2019 5:49 PM	File folder	
en-US	NovaCLB		5/	/14/2019 8:29 PM	File folder	
System32	NovaLCT 2012		7,	/2/2021 2:01 PM	File folder	
	Pixelhue		5/	/7/2019 3:22 PM	File folder	
	QQPCMgr			/16/2019 1:44 PM	File folder	
OneDrive	SDL			/19/2019 10:55 AM	File folder	
💻 This PC	Snaglt			/1/2020 12:08 PM	File folder	
A Maturali	 Studio 2019 		13	2/2/2019 9:33 AM	File folder	>
File name:						~
Save as type: Syste	m configuration file(*.scfg)					~
 Hide Folders 				Save	Cance	I I
Brightnes 83.47%						.::
brightnes 03.47%						
mart Setti	Load from Red	ceiving	Sa	ve to File Read	d from S	end to I

Figure 5-27 Saving configuration files (offline screen)

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

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

5.3 Configure an Irregular Screen

5.3.1 Step 1 Construct Modules

Applications

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

Applicable Products

All receiving cards

Prerequisites

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

Related Information

None

Operating Procedure

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

Step 2 Click Screen Configuration from the menu bar to open the dialog box shown in Figure 5-39.

Figure 5-28 Screen configuration method

Select Communication Port Current Operatio	>
Configure Screen Cloud Restore	
O Cloud Restore	
O Local Restore	
	e
Next	

Step 3 Select Configure Screen and click Next.

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

ceiving Card Scree						
Module Information						Construc
	Common C	Size:	64W×32H	Scanning Typ	pe 1/16 scan	-
Direction:	Horizontal	Data Groups	2	Adjust RG		Check M
Cabinet Informatio	n					Set Rotatio
🔿 Regular				Irregular		Sector Starson
Width (Pixel)	1	€ <=256		Width: 64	Height: 64	
Height (Pixel)	1	€ <=128				
Module Casc						
module case	From Right to	o Left		Construct Ca	View Cabinet Ne	
Performance Settir	nas		16			
Data Group E.	More Sett	ings	🔲 Big	0	🗌 18bit+	
Refresh Rate	480	V Hz:	Refresh Rate Ti	4 ~		
Grayscale Level	Normal 4096	~	Grayscale Mode	Refreshing Rate Fir $\!$		
Shift Clock Fre	12.5	✓ MHz	Duty Cycle	50 V	(25~75) %	
Phase Position	2	~	Low Grayscale C	0		
Row Blanking	25	≑ (=2.00us)	Ghost Control En	24	(1~24)	
Line Changing	3	€ (0~23)				
Minimum OE w	80 ns					
Brightness Effi						
	00.2170					
Smart Settings		Receiving	Car Load from File	Save to File	ead from Re Send to Recei	Apply
						Restore Fac

Figure 5-29 Screen configuration

Step 5 Click Construct Module.

Figure 5-30 Constructing module

🔡 Edit Module Topo	- 🗆 X
	nogy Control C
Orawing mode	Chip: Common Chip 🗸 Select Chip Size: 2 🛊 2 🛊 Scanning Ty 16 🖨 Module Name: A8s Pro
○ Crop mode	Decoder: 74HC138 Decod 🗸 Select Decoder Data Direction: Horizontal 🗸 Data Groups: 2 🔄 Chip Configuration
Operation Load Module Save module	All pixels Insert Virtual Pixel 1 🔅 Undo Redraw pixel Current cursor 0.0

Step 6 Select Drawing mode or Crop mode, and do the corresponding operations below.

Construct modules in drawing mode

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

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

To undo the previous operation, click the Undo button.

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

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

• Construct modules in crop mode

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

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

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

Step 7 After settings, click Save Module.

Figure 5-31 Saving module

Save Module Informa	tion	×
Prompt:		
You can save mod time.	ule information to file or cabinet database for direct loading next	
Module Name:	Module 1	
File Path:	Browse	
	Save Complete	

Step 8 Click Browse, select a location, enter a file name and click Save.

Step 9 Click Save and cli	ick OK.
---------------------------	---------

Step 10 Click **Complete**.



5.3.2 Step 2 Construct Cabinets

Applications

Construct cabinets of the irregular screen.

Applicable Products

All receiving cards

Prerequisites

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

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

Related Information

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

Operating Procedure

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

Figure 5-32 Screen configuration

	Screen Connection					
lodule Infor Chip:	mation Common C	Size:	64W×32H	Scanning Typ	be 1/16 scan	Construc.
Direction:	Horizontal	Data Groups	2	Adjust RG		Check M
Cabinet Info	rmation					Set Rotation
) Regular				Irregular		
Width (P	ixel)	€ <=256		Width: 64	Height: 64	
Height (F	Pixel)	\$ <=128				
Module (Casc From Right t	o Left 🗸 🗸		Construct Ca	View Cabinet 🔲 Ne	
erformance	e Settings					
Data Gro	oup E	tings	🔲 Big	. 🕜	🗌 18bit+	
Refresh Ra	ate 480	→ Hz:	Refresh Rate Ti	4 ~		
Grayscale	Level Normal 4096	~	Grayscale Mode	Refreshing Rate Fir $ \sim $		
Shift Clock	Fre 12.5	✓ MHz	Duty Cycle	50 V	(25~75) %	
Phase Pos	aition 2	~	Low Grayscale C	0		
Row Blank		≑ (=2.00us)	Ghost Control En	24	(1~24)	
Line Chan		(0~23)				
Minimum C	DE W 80 ns					
	Effi 68.24%					

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

Figure 5-33 Constructing cat	binet
------------------------------	-------

Constructing Irregular Cabinet	- ¤ ×
Operation of Data Groups Data Group Mode Parallel drive	Zoom Edit Add Delete Edit Clear No. Undo Redo Align Redt Align Right Align Top Align Mid Align Both
Data Group	
J1 J2 J3 J4 J5	
J6 J7 J8 J9 J10	
J11 J12 J13 J14 J15	
J16	
Module Info	
Module Name: Unknown	
Chip Name: Unknown Scans: Unknown	
Scans: Unknown Module Size: Unknown	
Module Start Unknown	
Rotate O Top-bo	
Cabinet Info	
Cabinet Size: 0W×0H	
Module Start P (0,0)	
Quantity of Mo 0	
Data Groups: 0	Short-Ke Show dat I Topology I Cabin Load Save OK Cancel

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

Data Group Extension

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

Data group swapping

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

9		- 🗆 X
Address	Swap Address	A 🗌 Data Group Mapping
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	
11	11	
12	12	
13	13	
1.4	14	×
	0 1 2 3 4 5 6 7 8 9 10 11 12 13	0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 12 13 13

Data group mapping

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

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



JX	Address	Swap Address	🔨 🗹 Data Group Mapping
1	0	0	Red
1	1	1	🔿 Green
2	2	2	O Blue
2	3	3	🔿 White
3	4	4	
3	5	5	
4	6	6	
4	7	7	
5	8	8	
5	9	9	
6	10	10	
6	11	11	
7	12	12	
7	13	13	
•	1.4	1.4	~

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

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

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

Copy the module

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

Delete the module

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

Crop the module

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

• Rotate the module

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

Mirror the module

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

Move the module

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

Align the modules

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



Align the display image

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

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

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

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

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

Stretch the display image

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

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

Convert to arc

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

Arc Rotate

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

Note

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

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

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

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

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

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

Step 9 After the configuration, click Save.

Figure 5-34 Saving the configuration

Select Operation	т Туре
Cabinet Nam	e Irregular Cabinet
Select Path Save cabi	net to database
Path	C:\Users\Nova001157\Desktop\Cabinet\Irregular Cabinet.mcl Browse
🔘 Save cabi	net to file
Path	Browse
	OK

- Step 10 Set the cabinet name, select Save cabinet to database or Save cabinet to file, click Browse, enter a file name, and click Save.
- Step 11 Click OK.
- Step 12 Click **OK** to close the pop-up dialog box.
- Step 13 Click **OK** to complete cabinet construction.
- Step 14 On the **Receiving Card** tab page, click **Save to File**, enter a file name and click **Save**.

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

5.3.3 Step 3 Connect Screen

Applications

Connect the receiving cards logically.

Applicable Products

All multimedia players

Prerequisites

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

Related Information

In NovaLCT, you can configure up to 20 screens.

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

Operating Procedure

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

Figure 5-35 Connecting screen

Screen1				Quantity o 1	~ Configur
Screen Type:	O Standard Screen	Irregular Screen	n 🔿 Complex Screen		
$+- \oplus $	Show Source Coord Topol Cabi			Arc Rotate OK	Cabinet Topolc Clear M Undo
					^
<					>
Detect Communic., Read the Number .	Test Pattern	Enable Mapping	Add Load from File	Save to File Read from H	HW Send to HW
			Export Screen M.	. Save System Co S	ave

Note

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

screen connection file.

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

Figure 5-36 Loading cabinet configuration file

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

- Step 6 Click Add. You can click this button multiple times to add multiple cabinets.
- Step 7 After adding, close the dialog box.

Step 8 After the cabinet is selected, do the corresponding operations below as needed to configure the cabinets.

Copy a cabinet

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

Rotate the cabinet

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

Mirror the cabinet

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

Arc Rotate

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

Delete the cabinet

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

Select cabinets on the same Ethernet port

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

Select the top cabinet

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

Check cabinet location

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

Align the display image

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

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

Scatter the display image

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

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



Stretch/compress the display image

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

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

Convert to arc

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

Note

Click or \bigcirc to zoom in or out the operation area.

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

Click Expand Canvas to make the cabinet canvas larger.

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

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

Other operations:

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

Figure 5-37 Option of sending data

Sending Data Option

Configuration Data

Range Option

Selected cabinets

Sending Card Option

Configuration Data

Send

Send

Send

- Step 12 After settings, click Save to save the configuration information to the hardware.
- Step 13 After successful saving, choose whether to save the backup file to the local computer.

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

This step is related with the configuration of the save function. See 11.1 Configure the Save Function.



Figure 5-38 Successful saving

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

Related Operations

- Detect Communication Status: Detect the status of connection between the receiving card and Ethernet port.
- Read the Number of Receiving Cards: Read the number of receiving cards connected to the current Ethernet port.
- Test Pattern: Control whether the screen displays images normally or blacks out, and set the test pattern.
- Enable Mapping: Enable the Mapping function. The Mapping function is for you to obtain the receiving card connection information conveniently.
- Read from HW: Read the current configuration information in the hardware.

5.3.4 Step 4 (Optional) Save Configuration Files

See 5.2.3 Step 3 (Optional) Save Configuration Files.

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 to open the dialog box shown in Figure 5-39.

Figure 5-39 Screen configuration method

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

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

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

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

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

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



- GCLK Phase: Indicates the phase of grayscale clock.
- Blanking Time Height: Used to eliminate the lower ghost
- Minimum OE Width: It is calculated from other performance parameters and can be viewed only.
- Brightness Efficiency: It is calculated from other performance parameters and can be viewed only.
- Step 7 After the settings are done, click Send to Receiving Card to send the performance parameters to the hardware.
- Step 8 After the display effect meets the expectation, click Save to save the performance parameters to the hardware.
- Step 9 After successful saving, choose whether to save the backup file to the local computer.

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

This step is related with the configuration of the save function. See 11.1 Configure the Save Function.

Figure 5-40 Successful saving

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

Data Group Exchange

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

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

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

Intuition Mode

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

Example:

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

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

Data se	et exchange(intuition mode)
	A
1	5
▶ 2	6
3	3
4	4
5	1
6	2
7	7
8	8
Indicat	ion: Fill in the lists of data set exchange according to the figures displayed in large screen
	nable dat Electric and a contracting of the high of contracting of the high of contracting of the high of the h

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								
	01			14 1 1			-11-1-41-	
Indication	1: Observe	the position	i or the wh	iite display a	rea in th	e large screen, th	en click the d	correspon
Curren	t chos	6		Undo		No flashing	Rese	et data
🗹 Ena	ble dat			Send		Apply	Clo	ose



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 Output in the dir	
OK	J

- 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.

dj	ust	ment of Monitoring	Data Line	
		Enable Adjustment of I	Monitoring Data Line	
		_	Transfer Data Line Sigr	nal
	►	Data Line 1	Red	\sim
		Data Line2	Green	\sim
		Data Line 3	Blue	\sim
		Data Line 4	Virtual Red	\sim
l				
			OK Cano	el

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 Calibrati I Enable	 Eliminate Close Open Enable Disat Enable
R: 0 🚔	G: 0 ≑
B: 0 🜩	VR: 0
- Delay Time of ABCDE Sig	nals
Delay of ABC signals:	Enable
Delay of DE signals:	 Enable
No delay:	Enable
Delay time:	0 🗘 0 ns
	Apply
ОК	Cancel

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

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

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

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

Flash Arrangement

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

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



nysical Arrangement And Se	etting of Module	Flash					- 🗆 ×
Number of FI 3	Number of Fl	3				Back	ResetAll
BUS		1	2	3			
1 2 3 4		BUS 1 Serial numt <mark>S 9</mark>	BUS 1 Serial	BUS 1 Serial			
5 6 7 8		Width 64 Height 32	Width 64 Height 32	Width 64 Heigh 32			
9 10 11 12	_	BUS 1 Serial	BUS 1 Serial	BUS 1 Serial			
13 14 15 16	6 2	numbe r 5 Width 54 Heigh 32	Width 64 Height 32	Width 64 Height 32			
17 18 19 2 0	-	BUS 1 Serial	BUS 1 Serial	BUS 1 Serial			
21 22 23 24	-	numbe r S Width 64 Height 32	Number 7 Width 64 Height 32	numkD 8 Width 64 Height 32			
25 26 27 28 29 30 31 32	- 1						
Flash Control Size							
Avidth 64							
Height 32							
Apply to Curren							
Module Parameters	•						
Apply to Curr	en						
Starting X Co 128 😫							
Starting Y Co 64 😫							
Prompt:After setting	width and he	ight, click	or drag let	t mouse bu	tton or	ок	Cancel
direction button to se	et the informa	tion of ea	ch Flash,	and click rig	ght mou	UK	Cancer

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

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

- e. Set the number of data groups of the module.
- f. If necessary, adjust the start coordinates of the flash memory, otherwise skip this step.
- g. If necessary, click the other bus to continue setting. After the configurations are done, click OK

• Monitoring Card Data Set Exchange

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

N	Monitoring card data set exchange						
	🗹 Enable monito	ring ca					
		A	^				
	1	5					
	2	6					
	3	3					
	4	4					
	5	1					
	▶ 6	2					
	7	7					
	8	8					
	9	9					
	10	10					
	11	11					
	12	12					
	13	13					
	14	14					
	15	15					
	16	16	~				
	Reset	Send Apply	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 Inform	nation Settings			×
Weight (kg):	0.00	Power (W):	0.00	
Width (cm):	0.00 🖨	Height (cm):	0.00	
Pixel Width:	0	Pixel Height:	0	
Voltage (V):	0.00			
		Apply	Close	

6 Brightness and Chroma Adjustment

6.1 Calibration

6.1.1 Set Online Calibration Parameters

Applications

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

Applicable Products

- Dark or bright line correction: Applicable to the A8s receiving card
- Other functions: Applicable to all receiving cards and multimedia players

Prerequisites

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

Related Information

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

Operating Procedure

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



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

Figure 6-1 Screen calibration

Screen Calibration		_		Х
Single-Screen Mode Combined-Sc 4 +	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients			
Current Operation Communication Port 192.168.41.1:5200 V	Network Setting Local IP 192.168.41.184 V Port 8080 Reconnect			
Current Screen				
Screen1	Communication Information 20.50/09 Enable network monitoring successfully			
Settings of Displaying Image				
Position to Display Image:				
Primary Display				
 Extended Display 				
Device Response Time:				
100 🔶 ms				
Use input source for display				
Enable/Disable Calibration				
O Disable				
Brightnes				
O Chroma				
O Full-Graysc	Fro	ortLog	Clear	
Dark or Save			oreal	



- Step 3 Select the Single-Screen Mode tab or Combined-Screen Mode tab.
- Step 4 In single-screen mode, select the screen you want to operate. In combined-screen mode, skip this step.
- Step 5 Select **Disable Calibration**, **Brightness Calibration** or **Chroma Calibration**. **Dark or Bright Line Correction** can be selected at the same time. Click **Save** to apply your settings.
- Step 6 If network monitoring succeeds, open NovaCLB and enter the local IP address and port number displayed on the **Online Calibration** tab page of NovaLCT to connect NovaCLB to NovaLCT.

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

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

6.1.2 Get Average Coefficients

Applications

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

Applicable Products

All receiving cards

Prerequisites

None

Related Information

Offline calibration is not available for combined screens.

Operating Procedure

Step 1 Log in to the multimedia player. For 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.

-		
Screen Calibration	—	\Box \times
Single-Screen Mode Combined-Sc 4 +	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients	
Current Operation Communication Port		
Current Screen	Screen:1 Starting coordinateX=0, Y=0 Size64W×32H	
	Column Nu 0 Display 100	Display
Screen1	Row Number 0 Isplay 100	Hide
	Average Calibration Coefficient	
	0 0 0	
		Get Average C
	0 0 0 Display Parameters	
	Mode All V	
Settings of Displaying Image	Color Creen Blue White Black	
Position to Display Image:	Brightness < 40 🚖 %	
Primary Display		
 Extended Display 		
Device Response Time:		
100 🔶 ms		
Use input source for display		
Enable/Disable Calibration		
O Disable		
Brightnes		
🔘 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

- Dark or bright line correction: Applicable to the A8s receiving card
- Other functions: Applicable to all receiving cards and multimedia players

Prerequisites

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

Related Information

Calibration coefficient management is not available for combined screens.

Pixel level calibration database files fall into two types:

Screen calibration database file

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

Cabinet calibration database file

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



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

Operating Procedure

- Step 1 Log in to the multimedia player. For 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 172.18.12.14:5200 V Current Screen	Select Operation	
Screen1	Save calibration coefficients to database Set coefficients for a new receiving card	
	Set coefficients for a new module	
	Adjust coefficients (Color is not uniform on screen)	
	👲 Erase or reload calibration coefficients	
Settings of Displaying Image Position to Display Image: Primary Display	C Reset calibration coefficients	
O Extended Display	Upload coefficinets (for factory use)	
Device Response Time 100 ms	dule Flash	
✓ Use input source for display	Opload thermal compensation coefficients	
Enable/Disable Calibration Disable Disable Chroma		
O Full-Graysc Dark or Save		

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

Upload coefficients

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

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

Save calibration coefficients to database

Save the calibration coefficients in the receiving cards to an existing or new database.

• Set coefficients for a new receiving card

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



Set coefficients for a new module

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

Adjust coefficients (Color is not uniform on screen)

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

Erase or reload calibration coefficients

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

Reset calibration coefficients

Set calibration coefficients to specified values.

Upload coefficients (for factory use)

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

Module Flash

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

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

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

Upload thermal compensation coefficients

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

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

Note

Types and causes of module flash memory check errors:

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

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

Related Operations

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

Figure 6-4 Selecting an area for coefficient management

Screen:1 Starting coordinateX=0, Y=0 Size64W×32H	
○ Full ○ Select by pbc	
	Zoom:

- 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 Adjus	tment								
G 🖻 🖉 (Ð								
Color adjustm	ent of re	d, green and blue							
		Red		🔘 Green		O Blue			
Brightness	<						>	0.0	-
Saturation	<						>	0.0	÷
Hue	<						>	0.0	÷
Color matchin	g of red,	green and blue (Color	r Temperature Adjustm	ent)					
		O Yellow	🔘 Cyan		🔘 Magenta	O White			
Red	<						>	0.0	•
Green	<						>	0.0	*
Blue	<						>	0.0	* *
Note: Display (different	colors for observing th	e effect						
Simple Ad	justm	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.

Figure 6-7 Managing double calibration coefficients

Screen Calibration		-	\times
Single-Screen Mode Combined-Sc	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients		
Current Operation Communication Port 172.18.12.29:5200			
Current Screen			
Screen1			
	View calibration coeffi View calibration coeffi Acquisition of factory		
Settings of Displaying Image			
Position to Display Image:			
Primary Display			
 Extended Display 			
Device Response Time:			
100 🔹 ms			
Use input source for display			
Enable/Disable Calibration			
Isightnes			
O Chroma			
O Full-Graysc	Coef Type: Normal Coef 🗸		
Dark or Save			

Step 6 Perform the following operations as required.

View calibration coefficients in application area

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

View calibration coefficients in factory area

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

Get calibration coefficients in factory area

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

Save calibration coefficients to factory area

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



6.2 Adjust Brightness

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

None

Related Information

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

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

Operating Procedure

- Step 1 Log in to the multimedia player. For 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.
- Step 4 Click is to expand the advanced settings shown in Figure 6-8 and perform the following operations as required.

Figure 6-8 Manual brightness adjustment

ghtness Adjustmer	nt				
72.18.12.90:5200-5	Screen1				
Brightness					
Brightness	٢			>	76 (29.8%)
Advanced Settings			Contrast		
Gamma Gamma	Color Te	Color Spa			
🖲 Gamma Valu.	<			>	2.8
O Custom	Configura	ation			
		~			
				Refresh	Save to HW
					1



. To set custom color

Adjust Gamma

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

Adjust color temperature

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

Adjustment and click a custom color temperature to use it, such as temperature, see the description in Custom Color Temperature.

Adjust color space

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

 Disable
 PAL
 NTSC
 Cus...

 .
 To set custom color space, see the description in Custom Color Space.

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

Custom Gamma

- Step 1 On the Gamma Adjustment page, select Custom Gamma Adjustment.
- Step 2 Click **Configuration** to open the dialog box shown in Figure 6-9.

Figure 6-9 Custom Gamma adjustment

Gamma Adjustment			×
Gamma Adjustme. White Red Gamma	a 🔘 Gree	n 🔿 Blue Gamma	
Grayscale Bit Val 14			
14			
Gamma table can be generated quickly by adjusting	Gamma tal	ble can be fine-adjusted by editi	ng the values
X-axis Range 0 🜩 _ 255 🜩	X	Y	A Move Up
Y-axis Range 0 🔹 65535 🐳	▶ 0	0	Move Op
0	1	4	Move Down
2.8	2	8	Save
Recommended Gamma	3	12	Save
Original O Mode A O Mode B	4	16	Load
	5	20	
Picture Quality	6	24	
Soft Mode O Enhanced Mode	7	28	
	8	32	
	9	36	
	10	40	
	11	44	
	12	48	
	13	52	
	14	56	
	15	60	
	16	64	~
		Send	Exit

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

+ Load a Gamma configuration file

Click **Load** to load a Gamma configuration file.

Adjust the Gamma curve manually

Drag the slider to adjust the Gamma curve.

Adjust the Gamma table manually

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

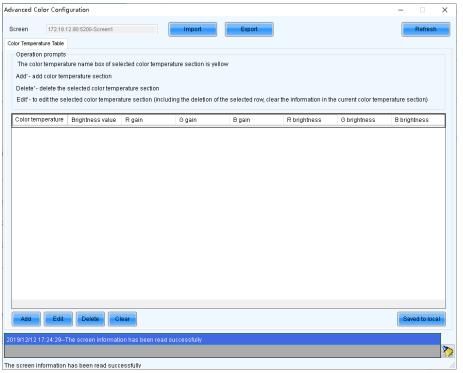
Step 5 Set relevant parameters.

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

Custom Color Temperature

- Step 1 On the Color Temperature Adjustment page, select Precise Adjustment.
- Step 2 Click to open the dialog box shown in Figure 6-10.

Figure 6-10 Custom color temperature



- Step 3 If you have a color temperature configuration file (.fcg), click **Import** to complete the configuration quickly. If you do not have a color temperature configuration file, continue performing the following operations to manually complete the configuration.
- Step 4 Click Add to open the dialog box shown in Figure 6-11.

Figure 6-11 Adding color temperature information

A	dd Color Terr	perature Ini	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

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

 Add Brightness Information
 ×

 Set Color Temperature Information

 Brightness Value

 B

 Current Gain

 B

 Synchronize

 Brightness Component

 B

 C

 P

 Synchronize

 B

 Synchronize

 B

 Synchronize

 B

 Synchronize

 B

 Synchronize

Figure 6-12 Adding brightness information

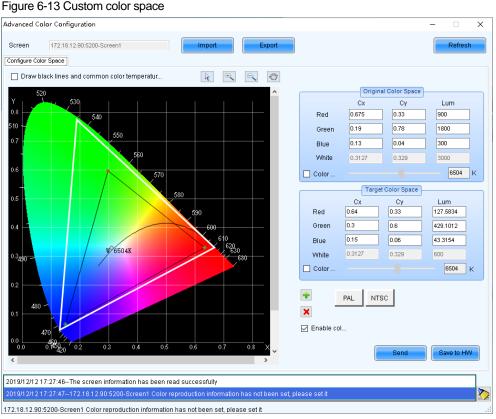
Step 6 Add color temperature information corresponding to the specified brightness values.

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

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

Custom Color Space

Step 1 On the Color Space Adjustment page, click to open the dialog box shown in Figure 6-13.



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.

4 Select a standard color space

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

4 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.

4 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.

4 Adjust the color space values manually

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

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

6.3 Correct Brighter Pixels

Applications

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

Applicable Products

All receiving cards and multimedia players



Prerequisites

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

Related Information

None

Operating Procedure

- Step 1 Log in to the multimedia player. For details, see 4 User Login.
- Step 2 On the menu bar, choose **Tools** > **More** > **Brighter Pixel Correction**.

Figure 6-14 Brighter pixel correction

💀 Brighter Pixel Correction				- 1	n x
Topology Simulati	🗹 Sho 🛛 🗹 Show 🛛 💽 💽		1	_	~
		Displav Screen b	Main	O Extende	30%
		Import Databas			
		Database	Cabinet	O Full	
		Database			Browse
		Cabinet			\sim
				Read Co	efficients
		Coefficie A	dvanced		
		Select			Reset
		No.	Colum Row	Red Green	Blue
		_		(100%
			Average		
		R	G B:		
		Upload	Save to H	-iw Save	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 M.
 - Click to select a brighter pixel.
 - Select brighter pixels by clicking and dragging the mouse to form a selection box.
 - Select brighter pixels by clicking and dragging the mouse to form a selection oval.

Figure 6-15 Selecting brighter pixels

💀 Brighter Pixel Correction						-		×
Topology Simulat		2 2	Select Display Display:	1				
			Display	Main	0	Extende	30%	
			Screen b	-			30%	
			Database	e © Cabinel		Full		
			Database	O:\LCT资料			Brow	vse
				1-1				_
			Cabinet	1-1			~	
						Read 0	Coefficie	nts
			Coefficie A	dvanced				
			Select				Rese	at
			N0.	Colun Ro		Green		^
			1	34 15	2047		2047	
			2	34 16	2047		2047	
			☑ 3 ☑ 4	34 17 34 18	2047		2047 2047	
			 ✓ 4 ✓ 5 	34 18 34 19	2047		2047	
			6	35 15	2047		2047	
			2 7	35 16	2047		2047	
			8	35 17	2047	2047	2047	
			M 9	35 18	2047	2047	2047	~
				-			1	000
			-	Averade			•	50.90
			F	R:2047 G:204	7 B:2047			
			Upload	Sav	e to HW	Sar	we Datat	o

- Step 10 Select Coefficient Adjustment or Advanced to adjust coefficients.
- Step 11 After the settings are done, click Upload to save the configuration to the hardware.
- Step 12 Click Save to HW to save the configuration information to the hardware.
- Step 13 (Optional) Click Save Database to save the configuration to the current database file.

6.4 Set Advanced Color

Applications

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

Applicable Products

- Color adjustment: Applicable to the NovaPro HD
- Other functions: Applicable to all multimedia players

Prerequisites

None

Related Information

None

Operating Procedure

- Step 1 Log in to the multimedia player. For 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.



dvanced Colo	r Configuration	-
Screen	172.18.12.90:5200-Screen1 v Import	Export
Factory Setting	Configure Color Space Color Temperature Table Color Adjustment	
Current G	ain	
R	<	> 100 %
G	<	> 100 %
в	<	> 100 %
_ S	nchronize	Default Value
R G B	< <	 255 (100.0%) 255 (100.0%) 255 (100.0%) 255 (100.0%)
	nchronize	
		Save to HW

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

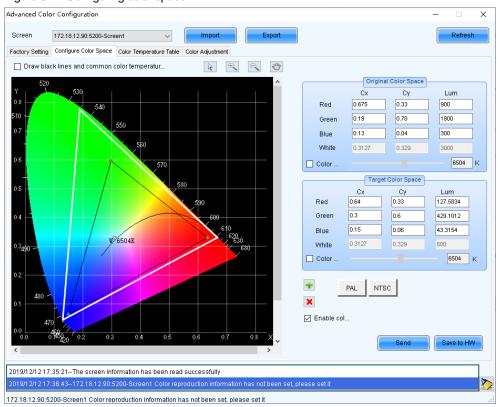


Figure 6-17 Configuring color space



1. Set the original color space.

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

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

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

Select an existing custom color space

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

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

Adjust the color space diagram manually

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

Adjust the color space values manually

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

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

Figure 6-18 Color temperature table

dvanced Col	or Config	guration							-		×
Screen Factory Setting		12.90:5200-Scre re Color Space		∽ nperature Table	Import Color Adjustment	Export				Refresh	
Operation	-										
The color	temperat	ure name box	ofselecte	ed color tempe	erature section is yel	low					
Add'- add	color terr	perature secti	on								
		selected color									
Edit' - to er	lit the se	lected color ter	mperature	e section (inclu	uding the deletion of	the selected row, clear	the information in th	ne current color temp	perature s	ection)	
Color temp	erature	Brightness v	alue R	! gain	G gain	B gain	R brightness	G brightness	B brig	htness	
Add	Edit	Delete	Clear	r					Sa	ved to loca	d
2019/12/12 17	:35:211	"he screen info	ormation I	has been reac	l successfully						
019/12/12 17	:36:431	72.18.12.90:5	200-Scre	en1 Color rep	roduction informatio	n has not been set, ple	ase set it				>
72 18 12 90.5	200-Scre	ent Color ren	roduction	information h	as not been set inle:	ase set it					

- 1. Click Add to open the dialog box shown in Figure 6-19.
- 2. Click Add Brightness to open the dialog box shown in Figure 6-20.
- 3. Add color temperature information corresponding to the specified brightness values.

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

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



Figure 6-19 Adding color temperature information

A	dd Color Temperature Information X							
	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 6-20 Adding brightness information

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

Step 7 (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.

Figure 6-21 Screen effect adjustment

Step 2 Choose Settings > Adjust screen effect to open the dialog box shown in Figure 6-21.

Adjust screen effect		– 🗆 ×
172.18.12.90:5200-Scr		
– Parameter Setting:	S	
Enable 18		
Enable	<	> 0 Save to HW
🗌 Enable sendi	na car 🗌 Enable r	eceivina car
-HDR Parameter S	ettings	
Enable	~	Restore defaults
Peak Screen	<	> 1000 cd/m2
Ambient Light:	<	> 30 Lux
Low Graysca	<	> 15
Tip: Curren	t source is not HDR10. Please c	connect an HDR10 video source.
Screen Informatior	1	
2019/12/12 17:46	:52Read receiving card low late	ency parameters success 🔦
2019/12/12 17:46	:52Reading HDR parameters.	
2019/12/12 17:46	:52HDR parameters read succ	
		Clear
		· · · · · ·

Step 3 Perform any of the following operations as required.

Enable 18-bit mode (18Bit+)

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

Enable ClearView

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

Enable receiving card low latency

Select Enable receiving card low latency and click Save to HW.

6.6 Set Image Booster Engine

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

6.6.1 Screen Calibration

Applications

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

Applicable Products

Color management and 18bit+: Applicable to the A5s Plus and A7s Plus receiving cards



• Color management, precise grayscale and 22bit+: Applicable to the A8s and A10s Plus receiving cards

Prerequisites

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

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

<u>Notice</u>

Adjusting receiving card parameters affects the display effect.

Related Information

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

• Color Management

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

Precise Grayscale

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

22bit+

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

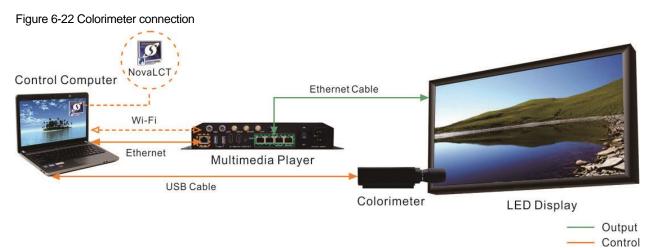
💠 18bit+

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

When you measure the color gamut and grayscale of LED screen, you must use the colorimeter to collect the grayscale data of red, green and blue in order. The supported colorimeters are described in Table 6-1. Figure 6-22 uses the CA-410 as an example to show the hardware connection.

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

Table 6-1 Colorimeters



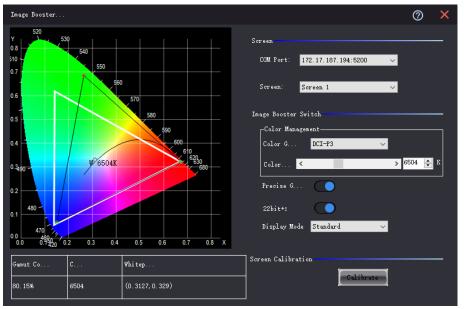
Operating Procedure

- Step 1 Log in to the multimedia player. For details, see 4 User Login.
- Step 2 On the main window, click A next to the rightmost function icon to open the drop-down list and then click

Image Booster Engine

Step 3 Select a screen that you want to calibrate.

Figure 6-23 Image Booster Engine



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

- Step 4 Click Calibrate to open the function page.
 - If you have finished colorimeter hardware connection, NovaLCT will automatically establish communication connection with the colorimeter. When you see
 Connected at the upper right, the connection is successful, as shown in Figure 6-24.

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

If you have not connected a colorimeter, the function page is as shown in Figure 6-25.

Figure 6-24 Colorimeter connected

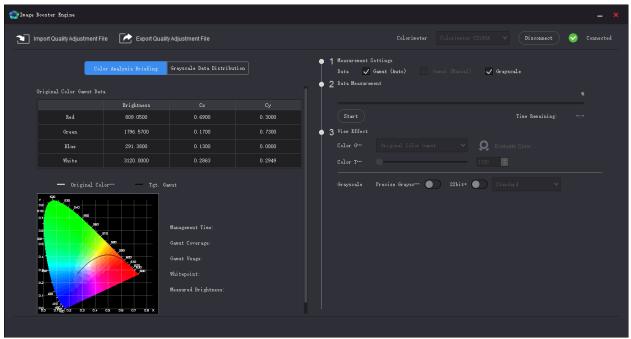


Figure 6-25 Colorimeter not connected

Mage Booster Engine					
Import Quality Adjustment File	Export Quality	Adjustment File		Colorimeter Colorim	neter CS100A V Connect 🙁 Not conn…
Color Original Color Gamut Data	Analysis Briefing	Grayscale Data Distribut	ion	• 1 Measurement Settings Data Ganus (Asto) V Ganut (May • 2 Data Measurement	
	Brightness				
Red	809.0500	0.6900	0.3000		Time Remaining: -:-
Green	1796.5700	0.1700	0. 7300	J View Effect	
Blue	291.3800	0.1300	0.0800		Y Q Evaluate Color
White	3120.0000	0.2863	0.2949		
- Original Calor		ut Management Time: Jamut Coverage: Jamut Usage: Phitepoint: Measured Brightness:		Grayscale Precise Grayse" (22)	it • • Etundard v

Step 5 Do one of the following operations as required.

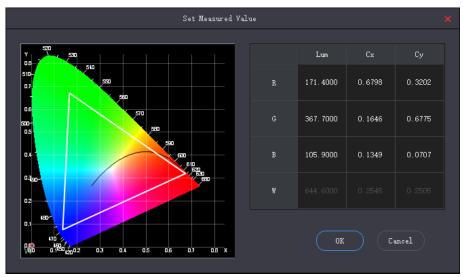
- If you do not have an image quality adjustment file, go to Step 6.
- If you have the file (.vglcx/.vglc), click **Import Quality Adjustment File** and go to Step 7.

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

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



Figure 6-26 Setting measured value



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

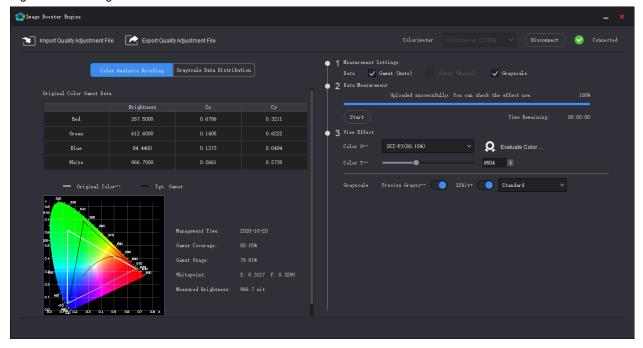


Figure 6-27 Viewing effect

Color Gamut

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

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

			C	istom Color Gamut 🗶
Baseline Gamu Color Gamut		on BT. 709	~	Color Ten*** 6504
G B	Lum 167.1019 371.7126 97.1809	Cx 0.6400 0.3000 0.1500 0.3127	Cy 0.3300 0.6000 0.0600	Y 540 540 540 540 540 540 540 540
				OK Cancel

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

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

• Color Temperature

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

Precise Grayscale

Turn on or off this function.

18bit+/22bit+

Turn on or off this function.

Display Mode

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

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

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

These settings are the final display effect configurations.

- Step 9 (Optional) Click Export Quality Adjustment File to save the configuration information as a file.
- Step 10 If you want to evaluate the color precision, do the following:
 - 1. Click Evaluate Color Precision.

NovaLCT LED Configuration Tool for Multimedia Player User Manual

			Color Evaluation			×
Color Evaluation						
Evaluate Gamut DC	I-P3 V					
Start Evaluation				Display Demo Au	to Switching Interval 2s	
Standard Color	Color Value	CIE31 (Lxy)	Measured Value Before …	DeltaE	Measured Value (Lxy)	DeltaE
	#745244					
	#d9792f					
	#2e3e95					
	#f6f3ed					
	#c49582					
	#455ca3					
	#45924a					
	#c8c8c7					
	#5с799Ъ					
	#c65562					
	#b12d38					
	#9e9e9f					
	#5b6b45					
	#5a3d67					
	#ebc32f					
	#777978					
	#827fac					
	#9db848					
	#bd5290					
	#535454					
	#5dbaa8					
	#e39e34					
	#0083a2					
	#363637					

- 2. Select a color gamut and click **Start Evaluation**.
- 3. After the evaluation is done, click **OK**.
- 4. Select Display Demo.
- 5. Click any of the colors in the table and check their effects on the LED screen. Or, you can set the auto color switching interval and then click **Start Demo** to check the effects of all colors on the screen.

			Color Evaluation			×
Color Evaluation						
Evaluate Gamut DCI	I-P3 V					
Start Evaluation	Export Report			Display Demo Aut	to Switching Interval 25	
Standard Color	Color Value	CIE31 (Lxy)	Measured Value Before …	DeltaE	Measured Value (Lxy)	DeltaE
	#745244	301.1084, 0.3595, 0.3477	342.4000, 0.3185, 0.2972	21.10	298.8000, 0.3609, 0.3489	0.55
	#d9792£	465.5032, 0.4342, 0.4049	537.6000, 0.3982, 0.3591	22.57	462.6000, 0.4360, 0.4065	0.91
	#2e3e95	221.5052, 0.2342, 0.2234	245.8000, 0.1967, 0.1774	25.25	219.6000, 0.2337, 0.2232	0.27
	#f6f3ed	825.7895, 0.3155, 0.3319	928.2000, 0.2697, 0.2769	32.02	822.7000, 0.3152, 0.3318	0.22
	#c49582	537.3173, 0.3483, 0.3430	609.3000, 0.3058, 0.2912	26.23	534.1000, 0.3486, 0.3435	0.31
	#455ca3	313.6041, 0.2530, 0.2587	347.0000, 0.2112, 0.2077	26.46	311.3000, 0.2526, 0.2588	0.31
	#45924a	416.4897, 0.2965, 0.4179	448.4000, 0.2343, 0.3499	28.47	413.9000, 0.2969, 0.4205	0.88
	#c8c8c7	678.8510, 0.3131, 0.3296	760. 4000, 0. 2673, 0. 2743	30.23	675.5000, 0.3127, 0.3297	0.29
	#5c799b	397.4107, 0.2746, 0.2986	438.7000, 0.2289, 0.2431	26.97	394.9000, 0.2744, 0.2990	0.33
	#065562	379.9279, 0.3882, 0.3140	445.8000, 0.3546, 0.2731	21.87	375.9000, 0.3890, 0.3142	0.37
	#b12d38	258.3168, 0.4442, 0.3096	312.8000, 0.4189, 0.2782	17.32	254.5000, 0.4462, 0.3099	0.55
	#9e9e9f	536.7727, 0.3123, 0.3283	600.2000, 0.2666, 0.2732	27.91	533.0000, 0.3121, 0.3287	0.36
	#5b6b45	340.5750, 0.3277, 0.3807	375.4000, 0.2770, 0.3215	23.46	337.4000, 0.3287, 0.3830	0.83
	#5a3d67	240.9222, 0.3073, 0.2712	274.3000, 0.2697, 0.2259	21.93	238.6000, 0.3075, 0.2715	0.32
	#ebc32f	653.3165, 0.4121, 0.4520	733.9000, 0.3666, 0.3991	28.62	649.0000, 0.4127, 0.4540	0.93
	#777978	408.9675, 0.3118, 0.3300	456.5000, 0.2657, 0.2747	25.45	406.0000, 0.3118, 0.3309	0.51
	#827fac	445.6334, 0.2928, 0.2932	499.7000, 0.2500, 0.2415	27.22	442.5000, 0.2925, 0.2934	0.35
	#9db848	573.6304, 0.3560, 0.4310	632.8000, 0.3026, 0.3710	28.32	570.0000, 0.3566, 0.4334	0.95
	#bd5290	378.3084, 0.3490, 0.2733	443.9000, 0.3152, 0.2339	23.81	374.8000, 0.3486, 0.2735	0.48
	#535454	284.4359, 0.3116, 0.3290	316.8000, 0.2655, 0.2740	22.49	281.5000, 0.3118, 0.3309	0.83
	#5dbaa8	554.4133, 0.2694, 0.3437	601.3000, 0.2152, 0.2801	30. 78	551.6000, 0.2690, 0.3446	0.56
	#e39e34	561.6006, 0.4177, 0.4246	636.8000, 0.3760, 0.3746	25.45	556.6000, 0.4185, 0.4267	0.96
	#0083s2	351.2598, 0.1937, 0.2995	368.1000, 0.1381, 0.2319	31.69	348.9000, 0.1926, 0.3004	0.89
	#363637	183.6266, 0.3114, 0.3269	204.0000, 0.2652, 0.2729	19.20	181.0000, 0.3123, 0.3295	0.92

- CIE31: The standard value of brightness, Cx and Cy of the color
- Measured Value Before MGMT.: The measured value of brightness, Cx and Cy of the color in the original color gamut
- Measured Value: The measured value of brightness, Cx and Cy of the color in the target color gamut
- DeltaE: The deviation between the measured value and standard value
- 6. Deselect **Display Demo**, click **Export Report** to save the evaluation result as a file.



6.6.2 Quick Setting

Applications

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

Applicable Products

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

Prerequisites

- The receiving card program package is updated.
 - A5s Plus and A7s Plus: V4.6.4.0 or later
 - A8s: V4.6.5.0 or later
 - A10s Plus: V4.6.5.0 or later. For details, see the NovaLCT V5.3.1 user manual.
- Before you set the precise grayscale and color management functions, the screen calibration must be done. For details, see 6.6.1 Screen Calibration.

Notice

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

Related Information

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

Color Management

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

Precise Grayscale

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

22bit+

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

💠 18bit+

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

Operating Procedure

- Step 1 Log in to the multimedia player. For details, see 4 User Login.
- Step 2 On the main window, click in next to the rightmost function icon to open the drop-down list and then click

Image Booster Engine

Step 3 Select a screen that you want to set.



Figure 6-28 Image Booster Engine

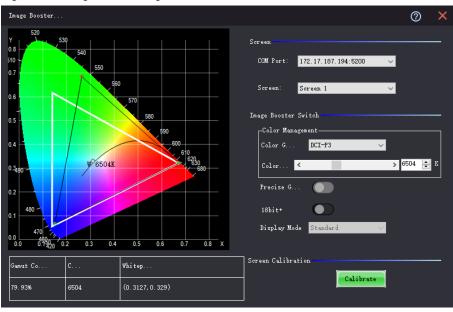
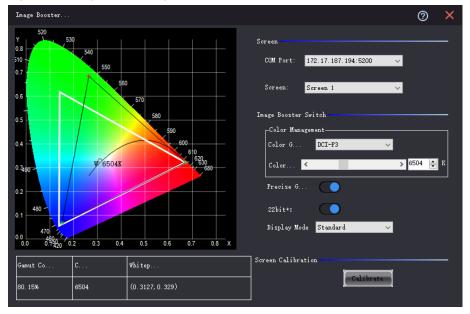


Figure 6-29 Image Booster Engine (A8s)



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

For the A8s, **18bit+** will become **22bit+**, and you can set the color gamut, color temperature, precise grayscale, 22bit+ switch and display mode, as shown in Figure 6-29.

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

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

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

Step 5 Repeat Step 4 to change the color gamut and the switch status until the display effect meets the actual needs.

These settings are the final display effect configurations.

6.7 Batch Check Calibration Effects

Applications

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



 \sim

Applicable Products

All receiving cards and multimedia players

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 6-30 Batch checking calibration effects

Select Function	Select	COM Port	Device	Device Quantity
Restore calibration mode		192.168.41.1:5200	T6	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 to open the dialog box shown in Figure 7-1.

Figure 7-1 Screen configuration

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

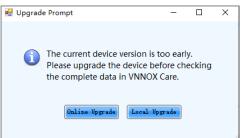
- Step 3 Select Configure Screen and click Next.
- Step 4 On the Screen Configuration page, click Save System Configuration File to open the dialog box shown in Figure 7-2.

Figure 7-2 Saving configuration files

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

- Step 5 Enter your VNNOX Care user name and password, set the screen name and system configuration file name, and select a server node
- Step 6 After the parameter settings, 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 to open the dialog box shown in Figure 7-4.

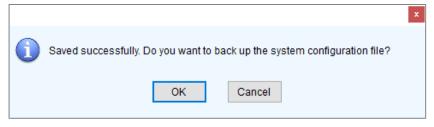
Figure 7-4 Screen configuration method

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

- Step 3 Select Configure Screen and click Next.
- Step 4 On the Screen Configuration page, click Save.
- 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 11.1 Configure the Save Function.

Figure 7-5 Successful saving



Step 6 After successful saving, click Close.

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

Figure 7-6 Saved successfu

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

Step 7 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.

🖳 Local Backup Files				-		×
The local backup file is the device system configuration file saved in the local PC when you click Save after completing the screen configuration. The backup file is convenient for you to batch bind screens to VMNOX Care after the PC is connected to the I						
Device SN	Device Model	Remarks	Saved	Binding S	Status	
BZSA17375J18400	Т6		9/27/2021 4:54 PM	Unbound		
	Bind	. Delete				

Step 8 Enter a remark.

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

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

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

Figure 7-8 Binding to VNNOX Care

🖳 Bind to VNNOX Ca	re	×
User Name		
Password		
	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 to open the dialog box shown in Figure 7-9.

Figure 7-9 Screen configuration method

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

Step 3 Select Configure Screen and click Next.



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

Export Screen Monitoring Data			
File Name			
Location	C:\Users\zlkf-gy01\Desktop		
File Content	 Screen monitoring data Sending card backup file Desire the file 		
	 Receiving card backup file Screen connection file Receiving card/NovaLCT versions 		
	Save		

Figure 7-10 Exporting screen monitoring data

- 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.



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

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

Figure	7-11	Monitoring
--------	------	------------

木

MonitorSite V2.6 -	• 🗆 X
172. 18. 12. 90;5200-Screenl Image: Comparison of the second s	
 O. 40 Wormal Fault Voltage E Unknown 	Monitoring R
Quantity of Faulted Receiving 0 Quantity of Receiving Card Cards: 0 with Voltage Exception: 0	Configuration
Screen Name 🔛 🛄 🕼 🗒 😂 🔍 🚺 🖏	
172.18.12.90:5200-Soreen1	\odot
Care status:Offline	

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	ngs	×
MonitorSite - Setti Refresh Period Hardware Settings Alarm Email Email Log	ngs Refresh Period Automatio Refresh Period: S Set Rereading Times When failing to read status, the Times Link to NovaiCare 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.

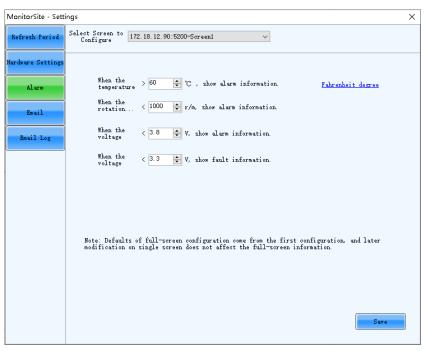
Hardware Settings

MonitorSite - Sett	ings	Х
Refresh Period	Select Screen to Configure 172.18.12.90:5200-Screeni V	
Hardware Settings Alarm	Connect to Monitori Connect to HUB Monitoring Connect to Smart Module	
Email Email Log	Refresh Backup Power Supply Backup Power Supply Quantity	
	Refresh Humidity Refresh Smoke Refresh Ribbon Cable Refresh Cabinet Door Status	
	Refresh Fan Fan Pulse: 1 Set fan quantity uniformly Set fan quantity individually	
	Refresh Power Supply of Monitoring Card Image: The numbers of power supplies on eac	
	O 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.
- 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 - Settir	ngs		×
Refresh Period	🗌 Enable Email Notification Send es	nail when same fault/	3 🗸 Times sending
<u> </u>	Enable System Recovery Notification		
Mardware Settings	Enable Sending System Report Email		
	Send system report email regularly		
Alarm	Email Sender		
	Email Address novalct@novastar.tech	Port	25
Email	SMTP Server smtp. giye. 163. com	SSL Encryption	Enable
Email Log	Modify Sender		Use Default
	Recipient		
	Name 111 nova_huixy@l	Email address	
	-Email Information-		
	Sending Email	(e.g.:Neighborhood A,	Square B)
	Tip: If the display has been registered with h	NovaiCare, please disabl	e local Email notification

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.



lete Log



8 Screen Management

8.1 Multi-function Card Management

Applications

4

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

Applicable Products

The MFN300 multifunction card

Prerequisites

Hardware connections for the multifunction card are done.

Related Information

None

Operating Procedure

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



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

Figure 8-1 Multifunction card management

Multi-function Card Management	×
Add Remove Refresh Rename	
Set the number of cards with load at port:Successful!	

- 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 multifunc	tion card
-----------------------------	-----------

Add Multi-function Carc	l	Х
Communication Port	172.18.12.90:5200 ~	
Sending Card	1	
Ethernet Port	1	
Name		
ок	Exit	

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

Aulti-function Card Management				:
Add Remove Refresh Rename	Time of Powe	ment Monitoring Data Pe rr Management Board Sunday 04:54:24	ripheral Device Load Pr	ogram Set Notes Start Delay
			Refresh	Start All Emergency St.
	l 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 5	Start Stop	Please select	~
	Switch 6	Start Stop	Please select	\sim
	Switch 7	Start Stop	Please select	~
	Switch 8	Start Stop	Please select	\sim
			Send	Readback
	2019/12/13 10:0	9:14Read the status of all	the powers in multifuncti	on card:Successful
	2019/12/13 10:0	9:19Read the status of all	the powers in multifuncti	on 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 Gunday 04:54:2	nt Board	ripheral Device Load P	rogram Set Notes	Start Delay
	🔹 🍨 🌢 💿 Manual	• • • • •	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	~	
				Send	Readback	
				Itifunction 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

Multi-function Card Management	>
Multi-function Card Management	Power Management Image: Constant of the second
Read all status of monitoring card in multifunction	Refresh 2019/12/13 10:13:24Read temperature of monitoring card in multifunction card:Successful 2019/12/13 10:13:24Read all status of monitoring card in multifunction card:Successful xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

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

Peripheral Device

Multi-function Card Management	×
□→ Player-1 □→ ¥ Port-2	itoring Data Peripheral Device Load Program
Peripheral device 1	No external device V
Peripheral device 2	No external device 🗸 🗸
Peripheral device 3	No external device v
Peripheral device 4	No external device V
Peripheral device 5	No external device \sim
Peripheral device 6	No external device \sim
	Refresh Save
Read all status of monitoring card in multifunction card:Successfull	

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

Load Program

Multi-function Card Management X
Multi-function Card Management × Add Remove Refresh Rename TOT 21812.90.5200 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
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		×
Add Remove Refresh Rename	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
	Load program for selected Multi-function Card(172.1 Card all programs for Multi-function Card Select Program Program Name Program Version Prooram Path	Exit Browse Change
Read all status of monitoring card in multifunction	n card:Successful!	



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

Setting of Rec	eiving Card Relay		-	×
-Serial Port Sele	ection			
Serial Port	172.18.12.90:5200			~
Screen1				
Parameter of F	Receiving Card Relay			
◉ Disc	onnected			
🔿 Con	nected			
🔾 Auto	matic			
- Temperature	Under Automatic Mode			
Temperature Connected R		Temperature of °C Disconnected Relay	30	* °C
		Refresh	Se	end
Receiving Car	d Timing Clearing			
Rec	ord Time 11Days	8Hours 26Minutes		
		Refresh	Timing F	Resetting

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

 $\label{eq:click} \mbox{Click Timing Resetting to record the receiving card running time from 0.}$

8.3 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 8-5 Configuration file management

Configuration File Man	agement	×
Import Configuration	Export Configuration	Cancel

Step 3 Perform any of the following operations as required.

Import Configuration

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

Export Configuration

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

8.4 Screen Control

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

None

Related Information

None



Operating Procedure

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

```
Step 2 Click Streen Control on the menu bar.
```

Figure 8-6 Screen control		
Screen Control		×
172.18.12.90:5200-Screen1		
Display Control Black Out Freeze	Normal	
Self-Test: Normal 🗸	Send	
Cabinet LCD Backlight Control		
Turn off cabinet LCD	Send	
		Close

Step 3 Perform any of the following operations as required.

Set screen display

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

Select test pattern

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

Set LCD backlight status

Select or deselect Turn off cabinet LCD and click Send.

8.5 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 8-7 Viewing module ID

💀 Module ID settings		– 🗆 X
USB@Port_#0003.Hub_#0001-Screen1		
Sending card1 Ethernet port1 Receiving card1 BUS:1 Flash No.:1 ID: 0-0	Sending card1 Ethernet port1 Receiving card2 BUS:1 Flash No.:1 ID: 1-0	Scaling rate
		Refresh

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

Figure 8-8 Setting module IDs

💀 Module ID settings	- 🗆 X
192.169.192.66:5200-Screen1	
	Scaling rate
	Ascen() Descend
	by cabinet
	Generate Save to H
	Refresh

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



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

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

None

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 9-1.

Figure 9-1 Program loading

Program loadingthe current communication port has device accessed				-		\times
Program loading						
Select the communication port for operation						
Communication port for the current operati 192.168.41.1:5200	\sim	Device q.	1		Reconnect	
Program updating						
Program Pat				В	rowse	
Advanced					Jpdate	
Extend the operation item						
Read-back of recei						
Hardware Program Version Information						
● Refres ○ Refres Sendi 1 ≑ Outp 1 ≑ Ret	cei 1	*	Refres		Refresh	
h farmañ a Oara la						
Information Console						
					Clear	

Step 3 Choose a communication port.

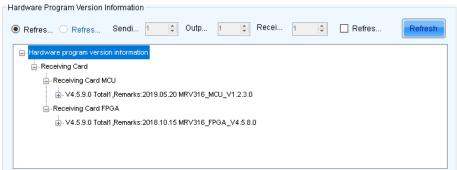
If you need to reconnect the multimedia player, click **Reconnect**.



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 9-2 Viewing program version



- Step 5 Click Browse, select a program package, and click OK.
- Step 6 Click Advanced, select the items to be updated, and click OK.
- Step 7 Click Update.
- Step 8 Choose to update the programs of all receiving cards or the specified receiving card, and then click OK.

Figure 9-3 Selecting	send mode

🖳 Select a send mode	×
All receiving cards	
 Specified receiving c 	ard
Sending card	1
Ethernet port:	1
Receiving card:	1
ОК	Cancel
Specified broadcast data ope	rating tips:
Broadcast corrsponding valu	es: sending card(256); Et 😯

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

Note

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

9.2 LED Error Detection

Applications

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

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.

Figure 9-4 Led Error Detection

d Error Detection					- 0
ommunication Port Sel	-	7			
ommunication Port	192.168.0.10:5200	~			
creen1					
Screen Topological Dia	gram				
					Zoom
					^
					✓ 1.0
					Unknown
					Error
					Normal
					No Monito
ed Error Detection Par.	ameters				
Detection Type	Open Circuit an	d Short Circuit Detection			
Threshold Voltage	1	O 2	O 3	O 4	
Current Gain	🖌 Enable	Change Setting			
Bi-Color LED Error	🗌 Enable				
		Save Confi.	Conduct led.	Led error d	Pause Stop
		(manual de la companya de la compan			
					3

Step 3 Set Led error detection parameters.

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

ed Error Detection							×
Communication Port Sel	ection						
communication Port	192.168.0.10:5200	~					
Screen1							
Screen Topological Dia	gram						
					Zoc	im	
					^		
24582							
					~	1.0	
						Unknow	n
						Error	
						Normal	
						No Moni	to
Led Error Detection Par	ameters						
Detection Type	Open Circuit an	d Short Circuit Detection					
Threshold Voltage	O 1	O 2	O 3	۰ 4			
Current Gain	🗹 Enable	Change Setting					
Bi-Color LED Error	🗌 Enable						
		C				Stop	
		Save Confi	Conduct led.	Led error d	Pause	Stop	
		Save Confi.	Conduct led.	Led error d	Pause	Stop	
019-11-08 05:16:03Sc	reen1:Led error dete	Save Confi		Led error d	Pause	atop	
			olease wait			^	 >>

Figure 9-5 Result of the Led error detection for the whole screen

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

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



Figure 9-6 Result of the Led error detection for all the modules

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

9.3 Reset Run Time

Applications

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



Applicable Products

All receiving cards

Prerequisites

None

Related Information

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

Operating Procedure

- Step 1 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 9-7 Resetting run time

Reset Run Time		×
Current Communic 172.18.12.90:5201 V Soreen List: Screen1	Cabinet Run Time on LCD Cabinet Run Time on LCD: 11 day 8 hour 55 minut Reset	

Step 3 Select a screen.

Step 4 Click Reset.

9.4 Bit Error Detection

Applications

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

Applicable Products

All receiving cards

Prerequisites

None

Related Information

None

Operating Procedure

Step 1 Log in to the multimedia player. For 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 9-8.



Error Detection						-	
ice All ⊡-172.18.12.90:5200 Sending card1	Auto Ref		у			C	lear
	Status	Sending card	Ethernet Port	Receiving Card	Error Details	Locate	Clear Error:
		172.18.12.90:5200-Sending card1	Port1	Receiving cond1	<u>Brrors: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

Figure 9-8 Bit error detection

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.

9.5 Send NCP Files

Applications

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

Applicable Products

All receiving cards

Prerequisites

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

Related Information

None

Operating Procedure

- Step 1 Log in to the multimedia player. For details, see 4 User Login.
- Step 2 Choose Tools > More > Send NCP from the menu bar.



Figure 9-9 Selecting the communication port

Screen Configuration		×
-Select Communication	Port	
Current Operatio	192.168.41.1:5200	~
		Next Close

Step 3 Select a communication port and click Next.

Step 4 Click Browse.

Figure 9-10 Selecting file

Send NCP	-	Х
Send NCP Please browse local files	Browse	×
Please browse folders and load an NCP file		

- Step 5 In the displayed dialog box, select an NCP file and click **Open**.
- Step 6 Do the corresponding operations below as needed.
 - Send the configuration parameters in the display mode only
 Select a display mode from the drop-down list and click Switch Mode.
 - Send the firmware program and all the configuration parameters Click Send NCP.

Figure 9-11 Sending NCP

					_
d NCP			—		
:\Users\Administrator\D	sktop\a4.ncp		Browse		
Display Mode	Mode1	~	Switch Mode		
	itching display mode, make sure the	e target ca	binets		
use the sa	me NCP file as you loaded.	_			
					_
			Send	NCP	
					-

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

🖷 Select a send mode	×
All receiving cards	
 Specified receiving of 	ard
Sending card	1
Ethernet port:	1
Receiving card:	1
ОК	Cancel
Specified broadcast data ope	erating tips:
Broadcast corrsponding valu	es: sending card(256); Et 😯

Figure 9-12 Selecting the sending method

Step 8 After successful operation, click **OK**.

10 Plug-in

10.1 Test Tool

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

When the display window is large, it is recommended you use an extended display to display the test pattern for easier operation of the software.

Related Information

None

Operating Procedure

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



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

Step 3 Click the **Window** tab to set the test pattern size according to the screen size, as well as set the test pattern position and set to show or hide the test pattern as shown in Table 10-1.

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

Figure 10-1 Setting window parameters

述 Test	🛛 Test Tool of LED Screen-Novastar							-		×
Window	Pure Color	Gradual Change	Grid	Orientation	Help					
x	<		>	0	Width	<		>	64	-
			>	0					20	
¥	<		>	0	Height	<		>	32	•
							Show		Hi de	

Step 4 Select the Pure Color, Gradual Change, Grid or Orientation tab to set the test pattern style.

Table 10-1 Setting test pattern

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



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

述 Test Tool of LED	Screen-Novastar			- 🗆 X
Window Pure Color	Gradual Change Grid	Orientation	Help	
	Module			Loading Module of Receiving Card
Orientation	Width 64	Height	32	Number of 2 🛓 Number of 2
	Color			
Advanced Setting	Font		Module Lin	ne Receiving Card Line
	Background	0	Backgrou	 From Left to Right From Right to Left

Note:

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

10.2 Calculator

Applications

Open the Windows calculator for users to do the necessary calculations.

Applicable Products

N/A

Prerequisites

None www.novastar.tech

Related Information

None

Operating Procedure

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

10.3 External Program

Applications

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

Applicable Products

N/A

Prerequisites

None

Related Information

None

Operating Procedure

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

Figure 10-3 External program

External	Program		x
Common			
	×	ок	Cancel

Step 2 Click

Figure 10-4 Adding external programs

Add External Pro	ogram		x
Program P			
Command			
	ж	Cancel	

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

If the external program is successfully added, the shortcut icon of the program will be displayed in Figure 10-3. www.novastar.tech 99

Note:

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

Step 4 Click OK.



11 Software Settings

11.1 Configure the Save Function

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

None

Related Information

None

Operating Procedure

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

Figure 11-1 Save to HW configuration

Save to HW Configuration	×
Supported by V5.4.4 or later	
🔿 Save to hardware only	
🔿 Save to hardware and back up	
• Remind me to back up after saving to hardware	
Save	

11.2 Set Main Window Starting Position

Applications

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

Applicable Products

N/A

Prerequisites

None

Related Information

None



Operating Procedure

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

Figure 11-2 Setting starting position coordinates

Starting Position Se	etting	Х
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 Change UI Language

Applications

Change the UI language for NovaLCT.

Applicable Products

N/A

Prerequisites

None

Related Information

NovaLCT supports Deutsch, English, Spanish, French, Japanese, Korean, Portuguese, Russian, Thai language, Traditional Chinese and Simplified Chinese.

Operating Procedure

On the menu bar, choose Language and select the target language from the sub-menu.

11.4 Obtain Help Information

Applications

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

Applicable Products

N/A

Prerequisites

None

Related Information

None

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.

11.5 Update Software

11.5.1 Online Update

Applications

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

Applicable Products

N/A

Prerequisites

The control computer is connected to the Internet.

Related Information

None

Operating Procedure

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

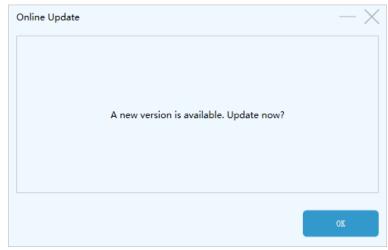
Notes

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

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



Figure 11-3 Online update

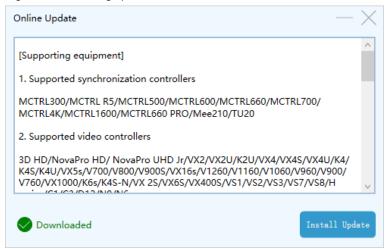


Step 2 Click OK.

Step 3 Click Get Update.

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

Figure 11-4 Installing update



11.5.2 Local Update

Applications

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

Applicable Products

N/A

Prerequisites

The local update package is prepared.

Related Information

None

Operating Procedure

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



Figure 11-5 Local update	Figure	11-5	Local	update
--------------------------	--------	------	-------	--------

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

Step 2 Click Select File.

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

Figure 11-6 Installing update

Local Update			- imes
File Name:C	:\Users\Nova001847	\Desktop\NovaLCT_V5.4.4.3	.zip
	Select File	Update	

12 Troubleshooting

12.1 Failed to install NovaLCT of earlier versions

Problem

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

Solution

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

12.2 "No Screen" displayed in NovaLCT

Problem

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

Figure 12-1 No screen



Solution



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

12.3 Permission error

Problem

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

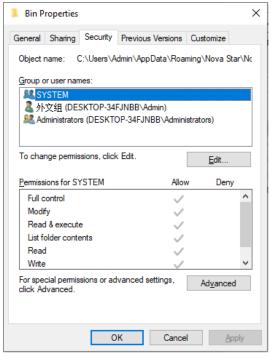


Solution

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

- Step 1 Right click the desktop shortcut of NovaLCT and select Open file location.
- Step 2 Go back to the upper level of current file directory, that is, "\Nova Star\NovaLCT".
- Step 3 Right click the **Bin** folder and select **Properties**.
- Step 4 Select the Security tab.

Figure 12-2 Security



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

- Yes: Go to Step 11.
- No: Go to Step 6.

Step 6 Click Edit to open the dialog box shown in Figure 12-3.



Figure 12-3 Changing permissions

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

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

Figure 12-4 Selecting users or groups

Select Users or Groups	×
<u>S</u> elect 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

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

Figure 12-5 Advanced settings

Select Users or Groups	×
Select this object type: Users, Groups, or Built-in security principals	<u>O</u> bject Types
From this location:	
DESKTOP-34FJNBB	Locations
Common Queries	
Name: Starts with \sim	<u>C</u> olumns
Description: Starts with <	Find <u>N</u> ow
Disa <u>b</u> led accounts	Stop
Non expiring password	
Days since last logon:	%
Search res <u>u</u> ts:	K Cancel
Name In Folder	^
Access Control Assi DESKTOP-34FJ	
Admin DESKTOP-34FJ	
Administrator DESKTOP-34FJ Administrators DESKTOP-34FJ	
Administrations DESKTOF-34F3 ALL APPLICATION ANNONYMOUS LO	
Authenticated Users	
Authentication auth Backup Operators DESKTOP-34FJ	
Backup Operators DESK TOP-34FJ	Ŷ

- 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.

Security Object name: C:\Users\Admin\A	ppData\Roaming	
Object name: C:\Users\Admin\A	ppData\Roaming	
		y\Nova Star\Nc
Group or user names:		
Everyone		
▲ 外文组 (DESKTOP-34FJNBB\		tors)
		(015)
	A <u>d</u> d	<u>R</u> emove
Permissions for Everyone	Allow	Deny
Full control	\checkmark	□ ^
Modify	\checkmark	
Read & execute	\checkmark	
List folder contents	\checkmark	
Read	\checkmark	□ v

Figure 12-6 Setting permissions

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



12.4 Failed to connect colorimeter

Problem

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

Solution

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

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

Turning on auto mode: Set switch to ON while pressing the F button. When you see a C letter on the LCD, the auto mode is turned on, which is shown in Figure 12-7.

Figure 12-7 Setting CS-100A colorimeter



- Normal: Go to Step 2.
- Abnormal: Reconnect the colorimeter and make sure the colorimeter can work normally.

Step 2 Check whether the colorimeter model selected in NovaLCT is correct.

- Correct: Go to Step 3.
- Incorrect: Select the correct model.

Step 3 In NovaLCT, click **Connect** to reconnect the colorimeter.



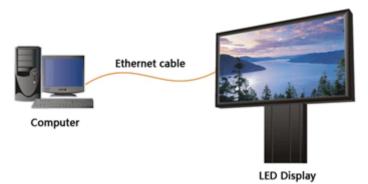
13 FAQs

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

Question

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

Figure 13-1 No sending card mode



<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
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coller		
Cane	el	
	ler roller Canc	\$

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

Figure 13-3 Choosing network card



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 Proxy	Test Proxy	
Proxy Address		
Proxy Port	0	
Setting	Close	

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

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