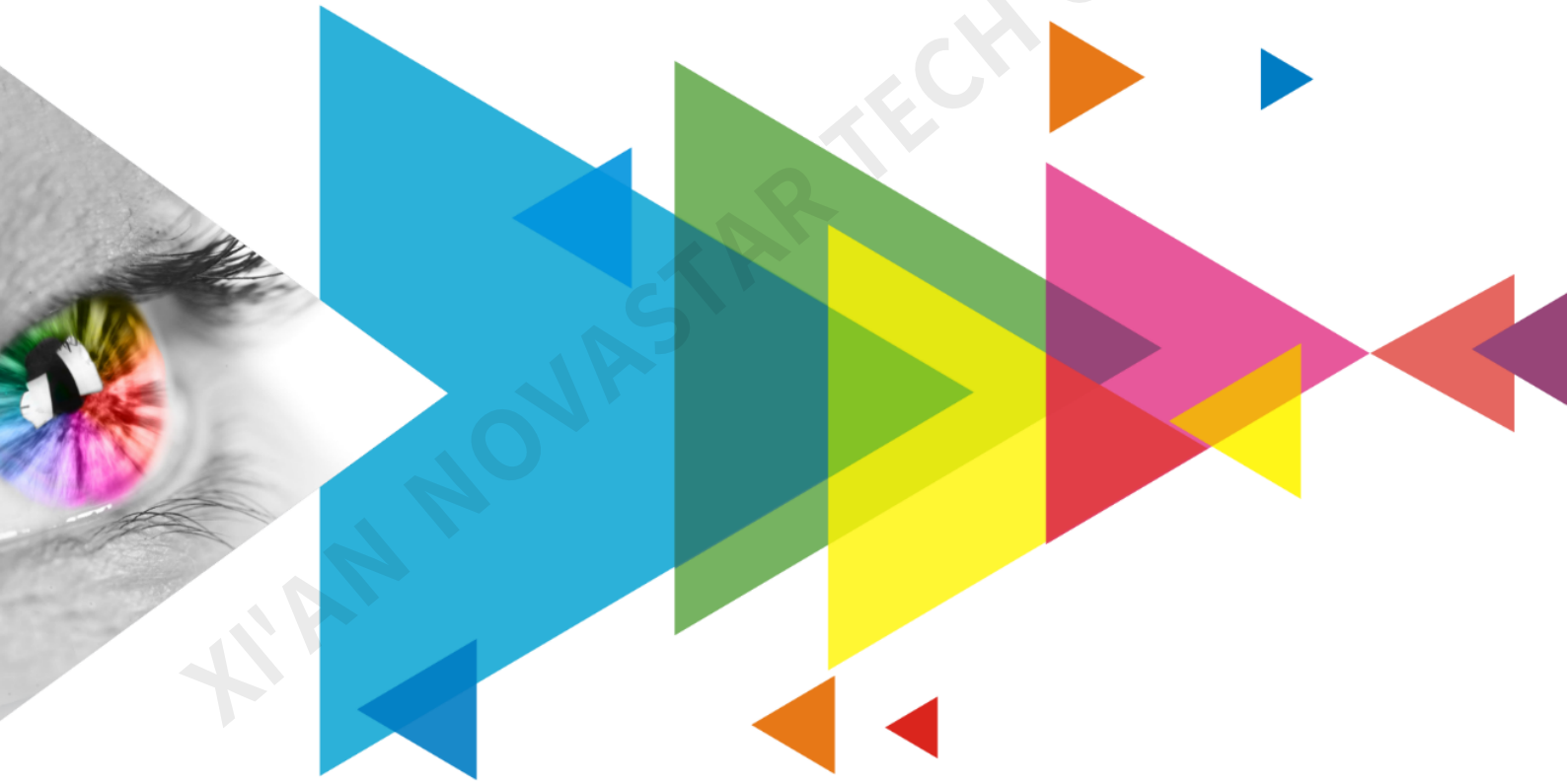
NovaLCT

LED Configuration Tool for Multimedia Player



User Manual

Contents

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**

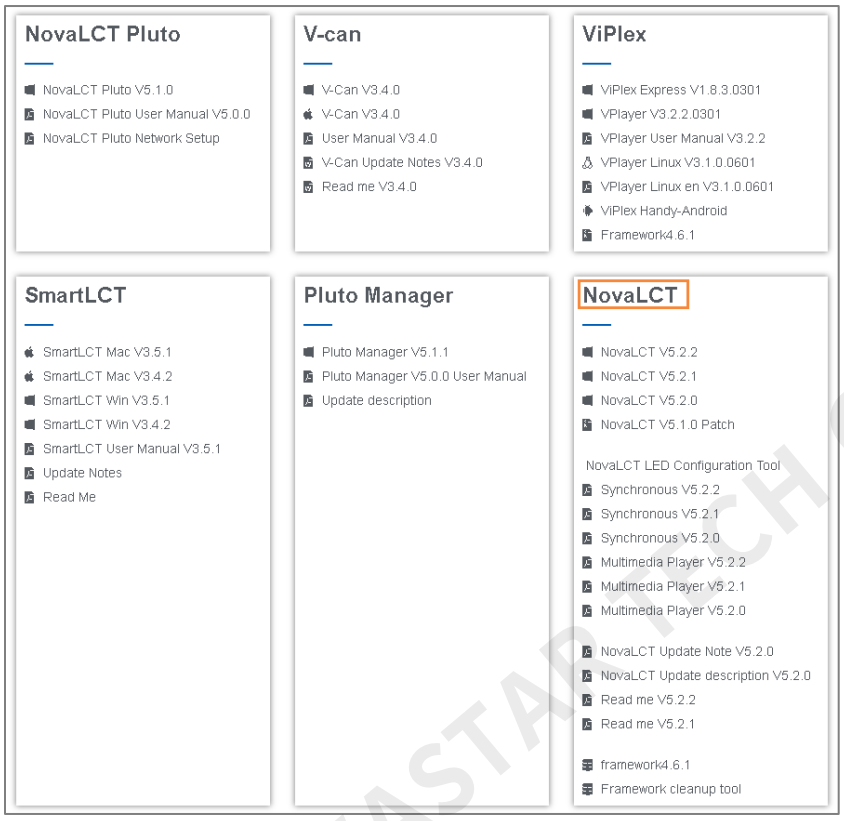
  After the PC and control system product are connected, users can perform any operations with the PC. NovaLCT displays the corresponding functions and parameters according to the different hardware models and programs. During configuration, various kinds of configuration files can be used to complete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

Figure 2-1 Obtaining software



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 

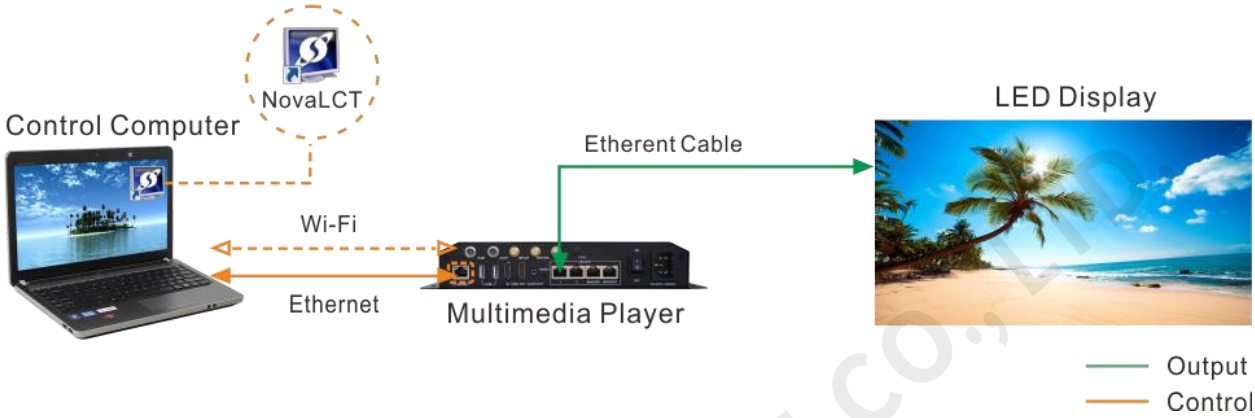
appears on the desktop, and  and  icons appear on the taskbar.

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

Figure 3-1 Direct connection



- **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.

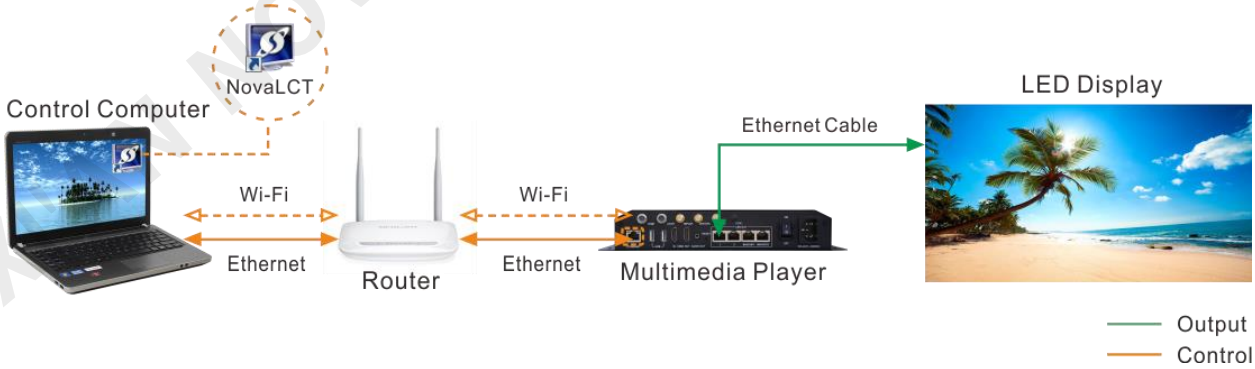
- **Direction connection via Wi-Fi**

  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

Figure 3-2 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.

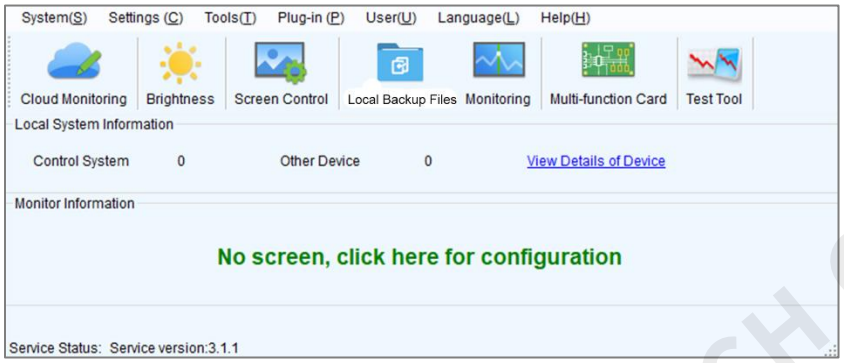
Operating Procedure

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.

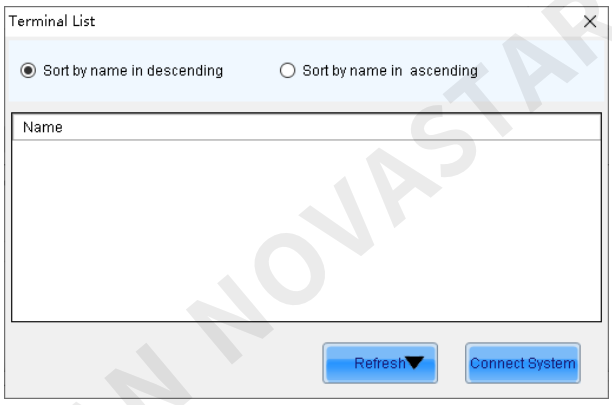
Step 2 On the menu bar, choose **User** > **Media Player Login**.

Figure 4-1 Main window (Not logged in)



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

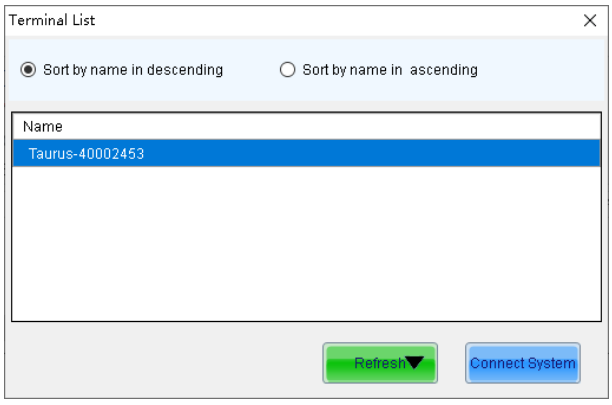
Figure 4-2 Terminal list



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 ▼ next to **Refresh**, select **Specify IP**, enter an IP address and click **Search**.

Figure 4-3 Selecting a terminal

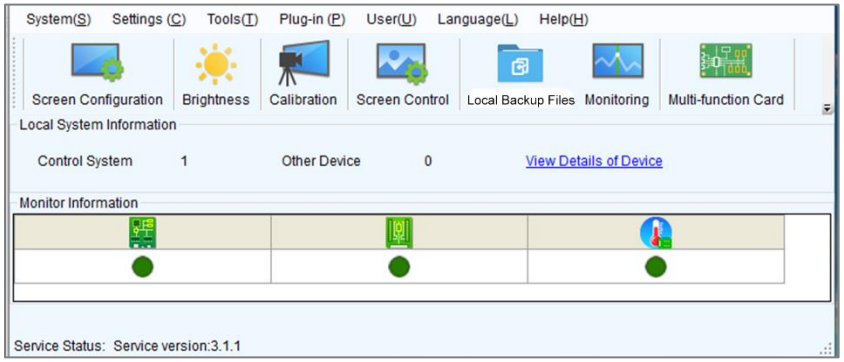


Step 5 Enter the user name and password, and then click **OK**.

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)



Other Operations

- **View Details of Device**

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

- **Reconnect multimedia player**

  Choose **System** > **Reconnect**.

- **Log out**

  Choose **User** > **Logout**.

5 Screen Configuration

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

5.1 Load Configuration File

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

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

Related Information

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

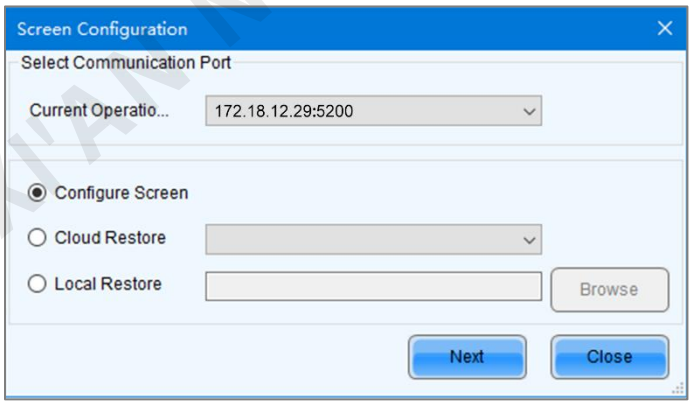
Operating Procedure

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

Step 2 Click 

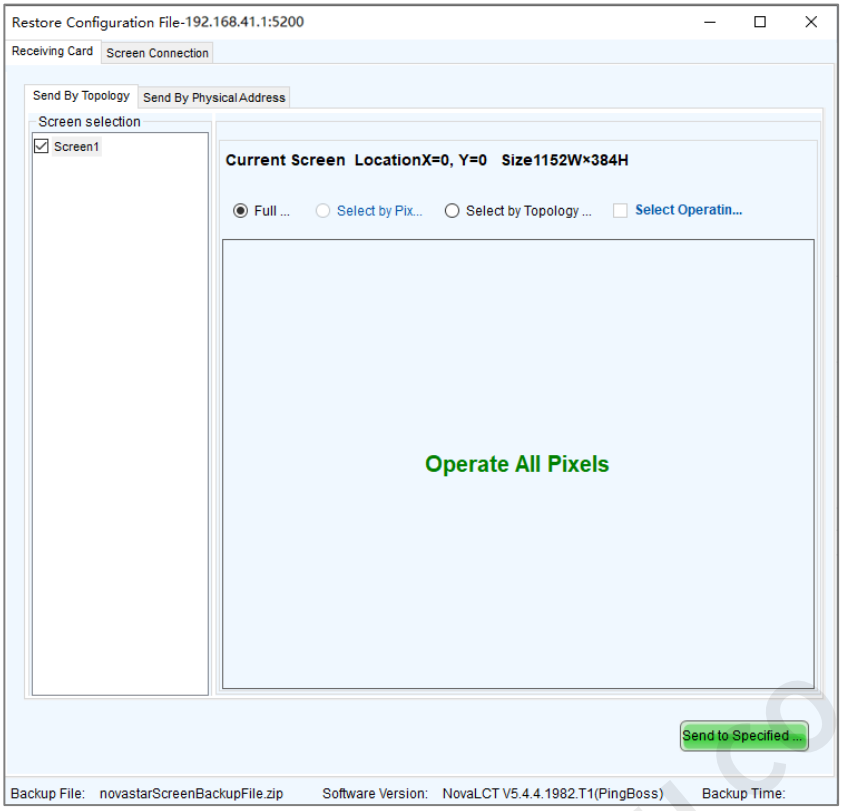
or choose **Settings** > **Screen Configuration** from the menu bar to open the dialog box shown in Figure 5-1.

Figure 5-1 Screen configuration



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.



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**

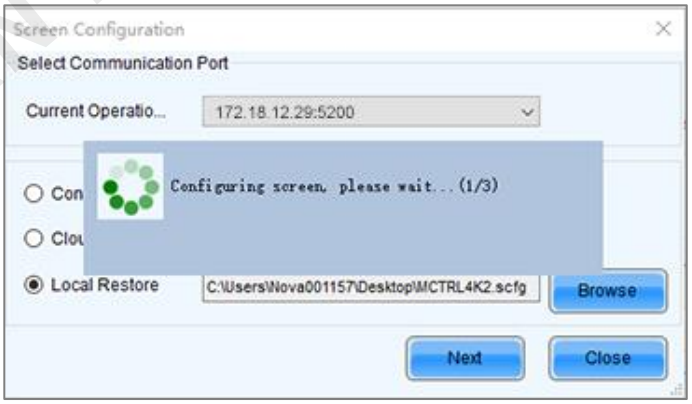
a. Select **Local Restore**.

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.



5.2 Configure Screen Manually

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

Note

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

5.2.1 Step 1 Light a Screen

5.2.1.1 One-Click Screen Configuration

Applications

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

Applicable Products

All receiving cards

Prerequisites

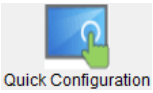
- The receiving card firmware supports the module chip.
- If you want to load a receiving card configuration file from the cloud platform, the control PC must be connected to the Internet.
- If you want to load a receiving card configuration file from the local computer, the configuration file (.rcfgx/.rcfg)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

Related Information

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

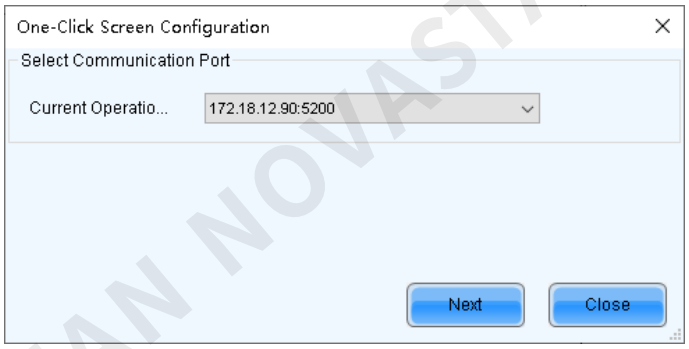
Operating Procedure

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

Step 2 Click 

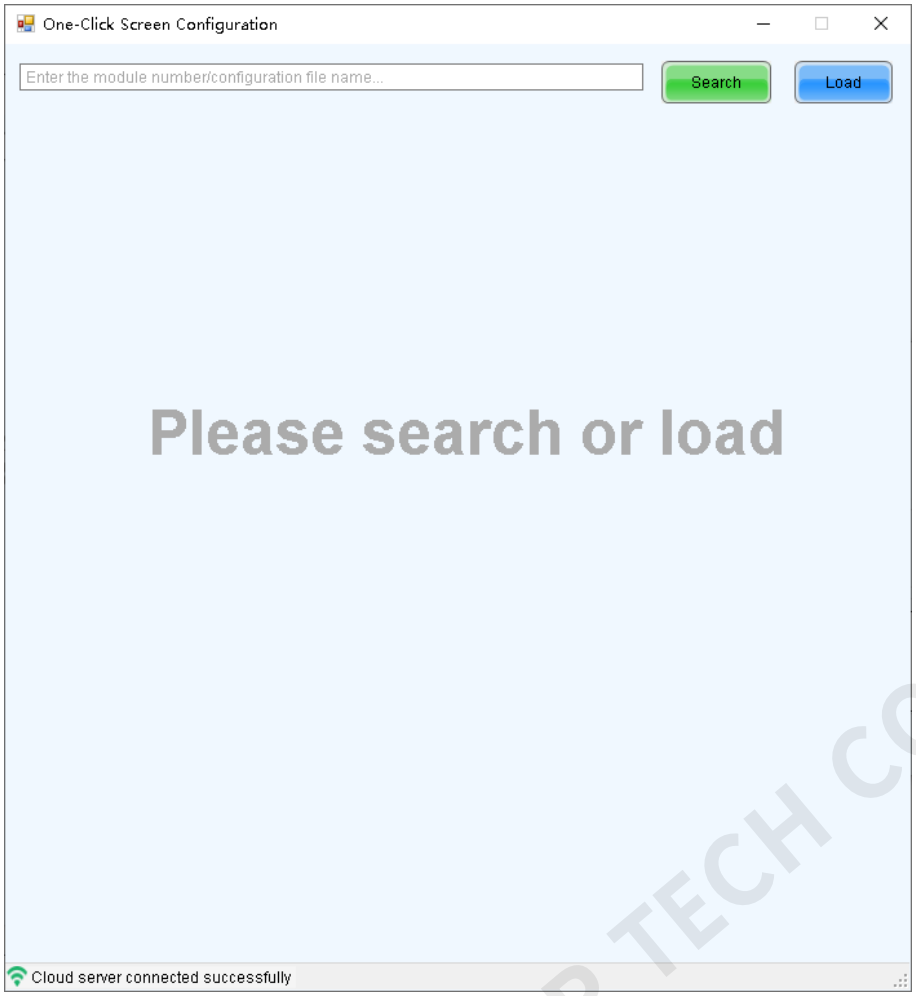
to open the dialog box shown in Figure 5-2.

Figure 5-2 Choosing communication port



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

Figure 5-3 One-click screen configuration



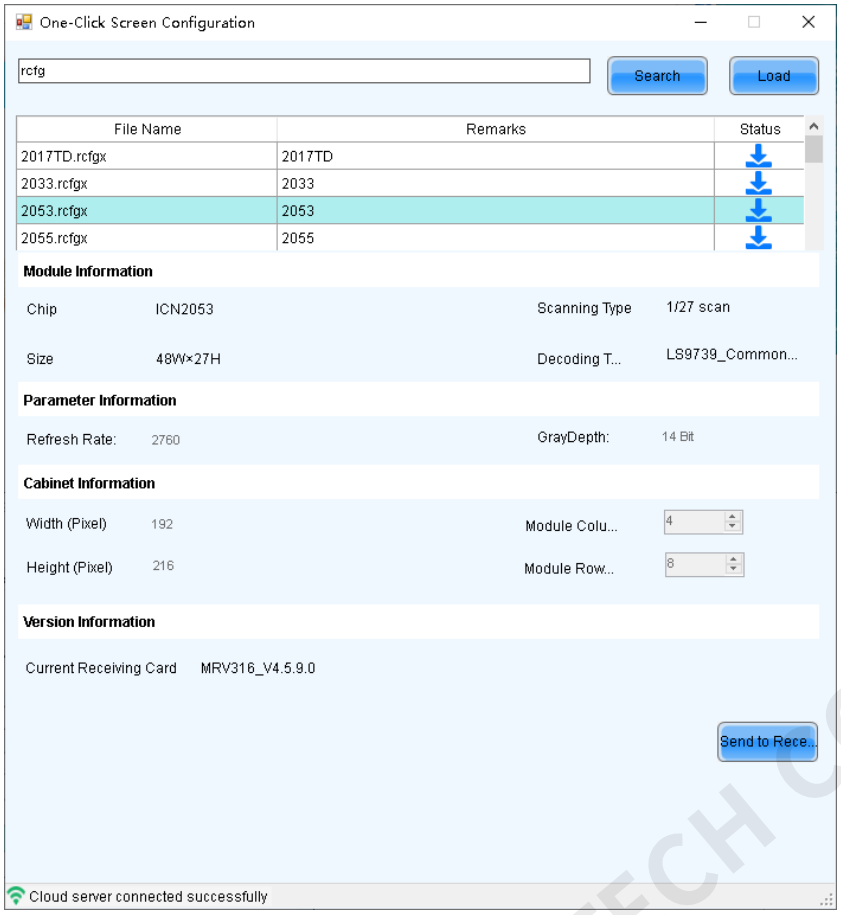
In the bottom-left corner of the page, the status of connection between NovaLCT and cloud platform is displayed.

Step 4 Perform any of the following operations as required to load a configuration file.

- **Load from cloud platform**

  Enter a keyword and click **Search**.

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



- **Load from local computer**

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

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

Step 5 Click **Send to Receiving Card**. In the displayed dialog box, select **All Receiving Card** or specify receiving cards, and click **Send**.

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

Figure 5-4 Sending parameters to receiving card

Step 6 After successful sending, click **OK** to close the prompt box. The screen is now lighted.

Step 7 If necessary, click **Advanced** in the bottom-right corner to enter the **Screen Configuration** page and perform more settings for the screen.

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

Figure 5-5 Advanced settings

5.2.1.2 Loading from File

Applications

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

Applicable Products

All receiving cards

Prerequisites

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

Related Information

None

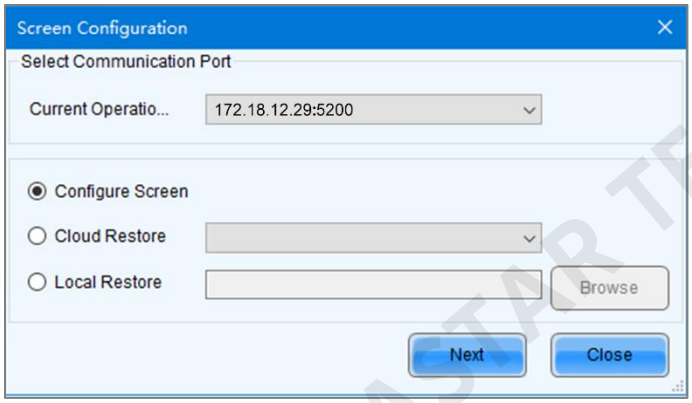
Operating Procedure

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

Step 2 Click 

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

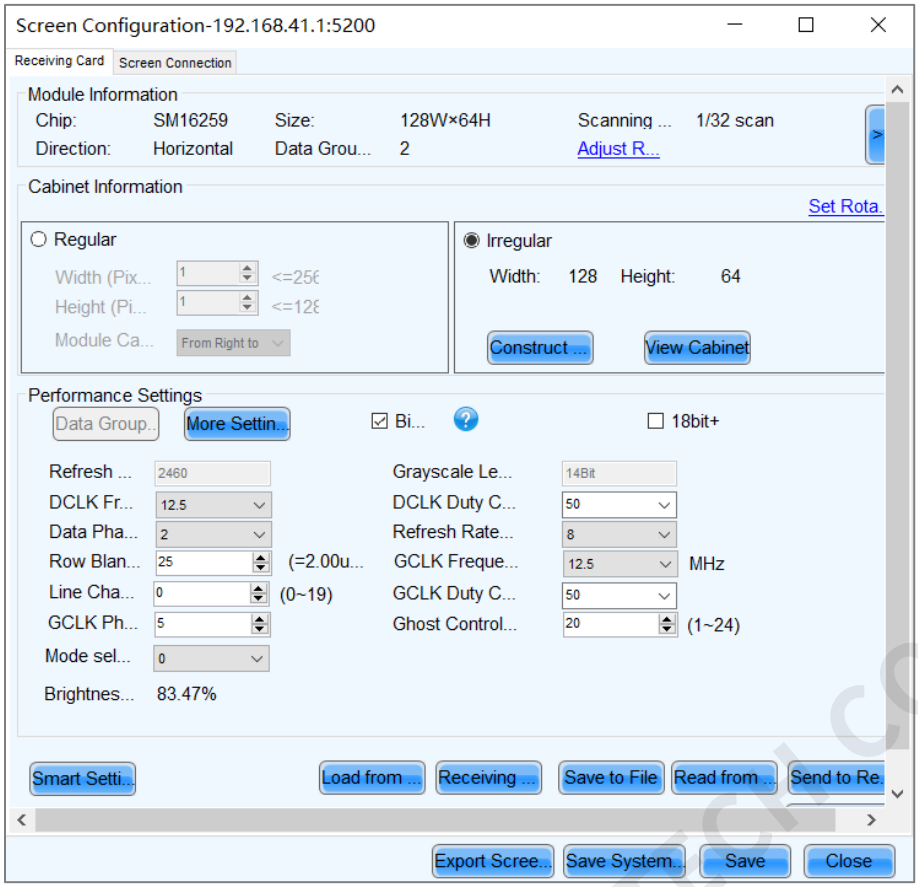
Figure 5-6 Screen configuration method



Step 3 Select **Configure Screen** and click **Next**.

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

Figure 5-7 Screen configuration



Step 5 Click **Load from File** and select a configuration file from the local computer.

Step 6 After successful loading, click **OK**.

Step 7 Click **Send to Receiving Card**. In the displayed dialog box, select **All Receiving Card** or specify receiving cards and click **Send**.

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

Figure 5-8 Sending parameters to receiving card

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

5.2.1.3 Manual Screen Configuration

5.2.1.3.1 Light Module

Applications

Set the receiving card parameters to light a new module.

Applicable Products

All receiving cards

Prerequisites

The receiving card firmware supports the module chip.

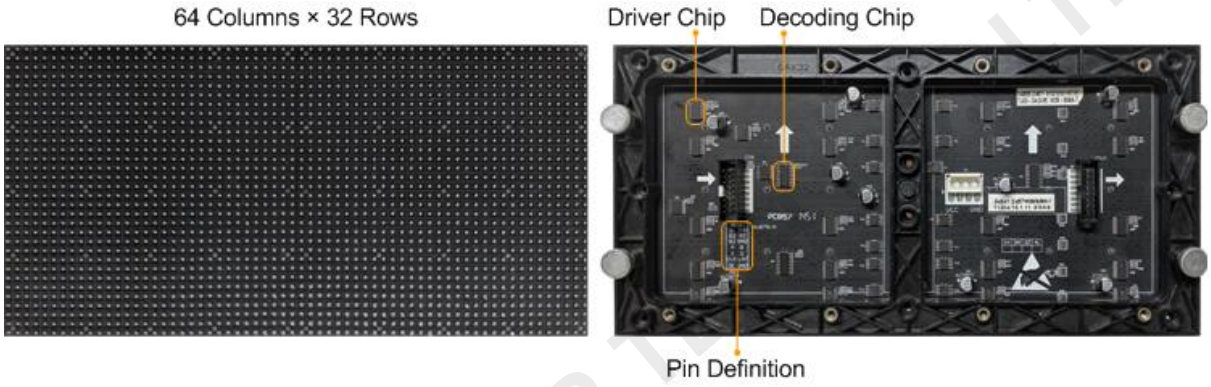
Related Information

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

For example, the following information can be obtained from the module shown in Figure 5-9.

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

Figure 5-9 Module example



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

An irregular module has any of the following features:

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

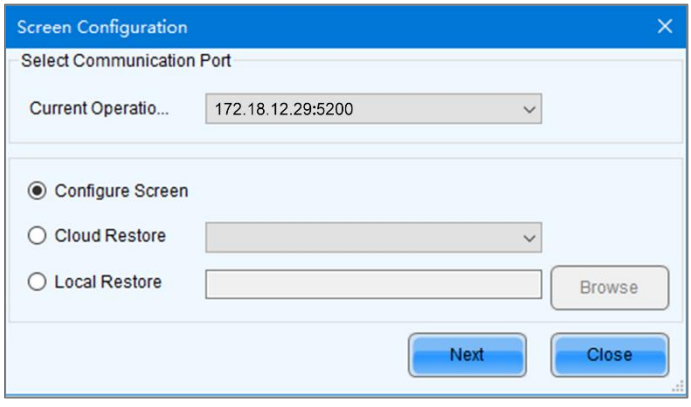
Operating Procedure

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

Step 2 Click 

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

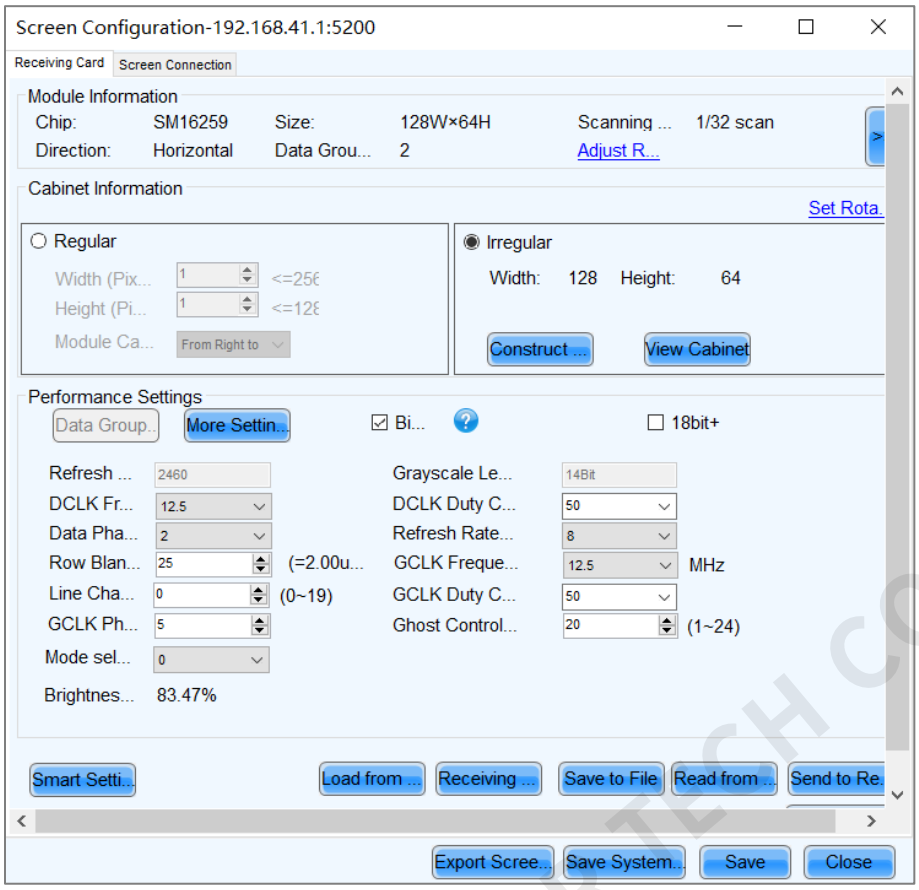
Figure 5-10 Screen configuration method



Step 3 Select **Configure Screen** and click Next.

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

Figure 5-11 Screen configuration



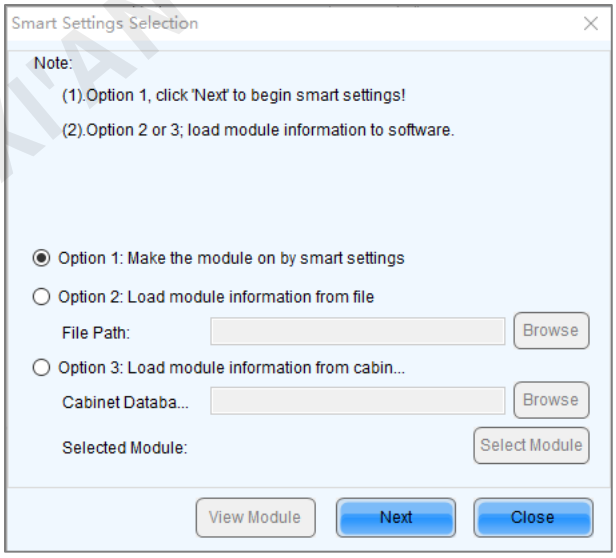
Step 5 Click **Smart Settings**.

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.

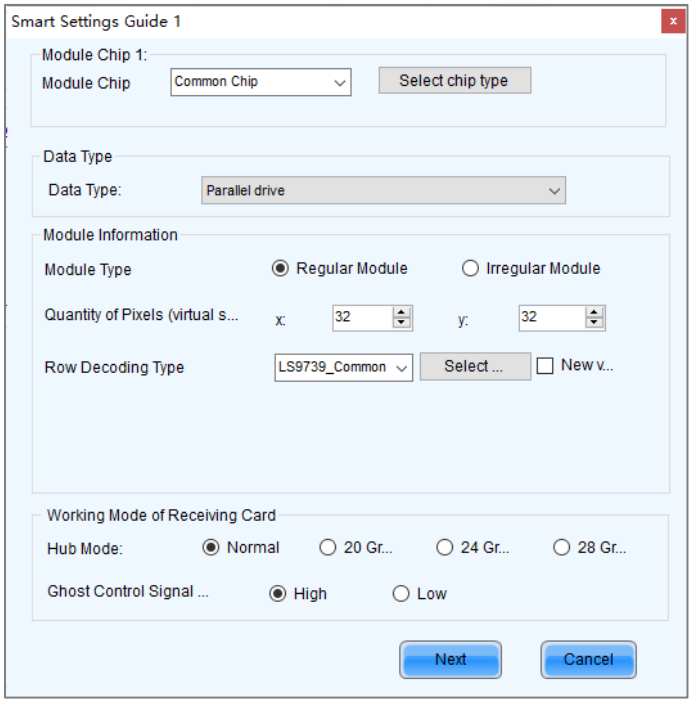
After the configuration file is loaded, click **Send to Receiving Card**.

Figure 5-12 Smart settings options



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

Figure 5-13 Smart Settings Guide 1



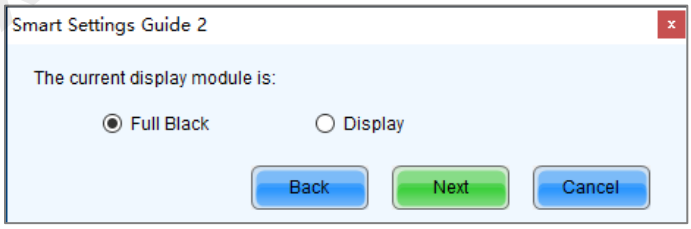
- Module Chip: Select the type of module driver chip. You can click **Select chip type** to open the chip table and select the desired chip. If the table does not have the type of chip you want, select **Common Chip**.
- Data Type: Select the data type of the module. Parallel data indicates that the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

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

Step 8 On the **Smart Settings Guide 2** page, select one option based on the current display on the module and click **Next**.

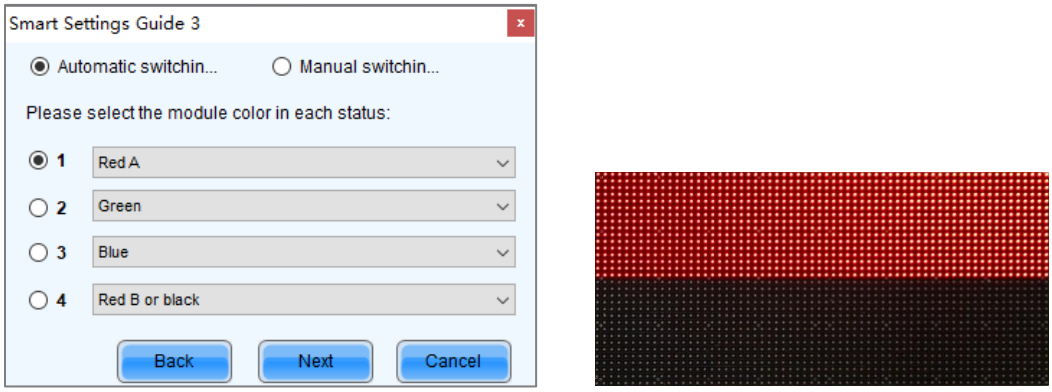
When you are viewing the display on the module, view the first module loaded by the first receiving card connected to the first Ethernet port.

Figure 5-14 Smart Settings Guide 2



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

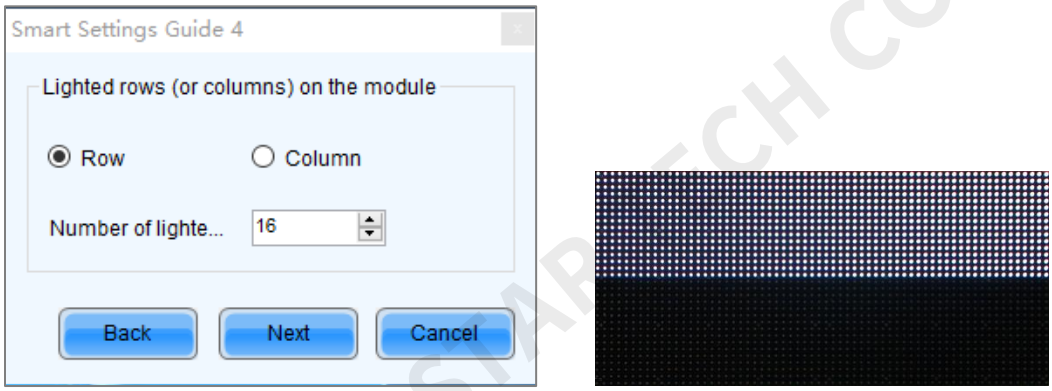
Figure 5-15 Smart Settings Guide 3



- 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.

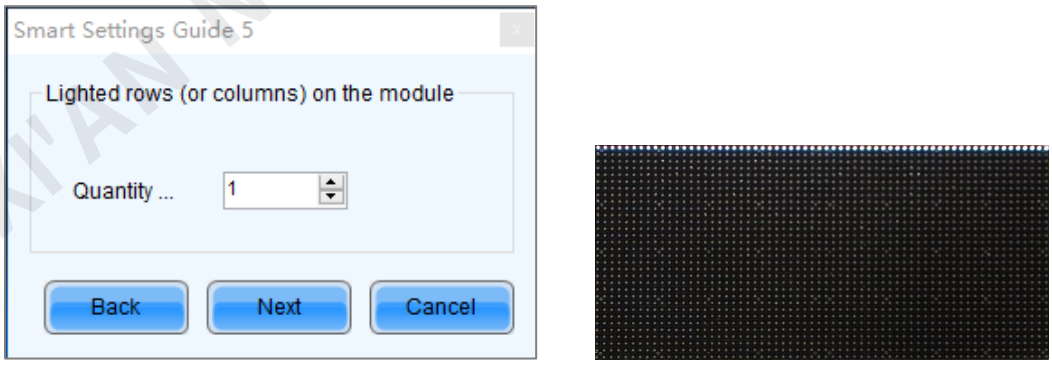
Step 10 On the **Smart Settings Guide 4** page, set the parameters based on the number of lighted rows (or columns) on the module and click **Next**.

Figure 5-16 Smart Settings Guide 4



Step 11 On the **Smart Settings Guide 5** page, set the parameters based on the number of lighted rows (or columns) on the module and click **Next**.

Figure 5-17 Smart Settings Guide 5



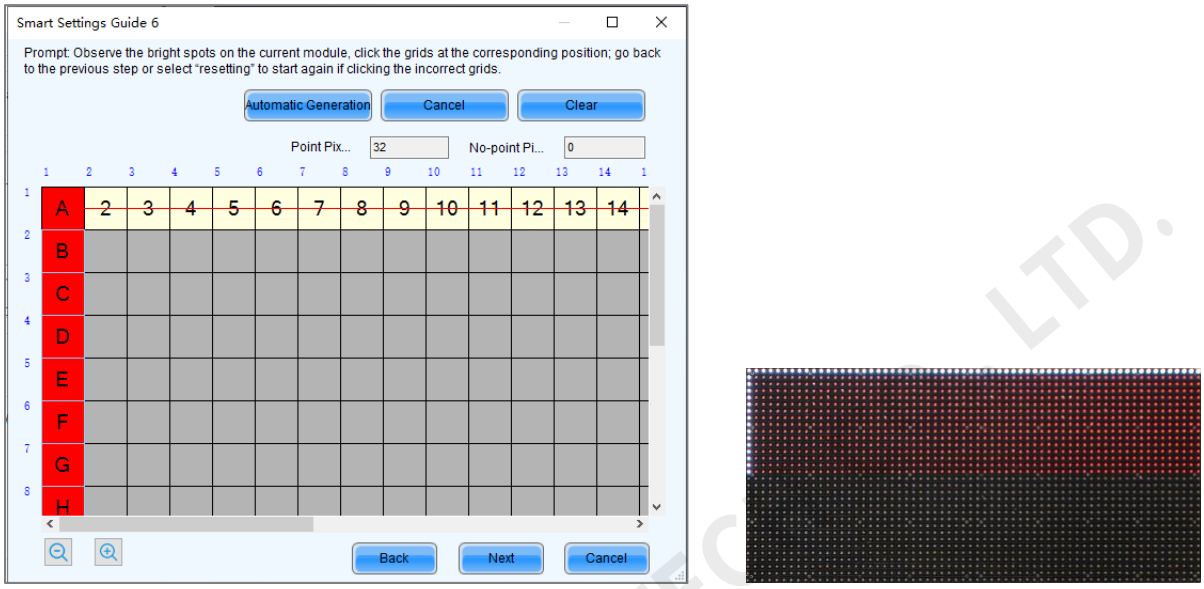
Step 12 On the **Smart Settings Guide 6** page, view the flashing pixel in the first row on the module and click the corresponding cell in the grid to draw the pixel position.

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

- Automatic Generation: Complete pixel position drawing for the first row of pixels quickly.
- Cancel: Clear the last pixel position drawing.
- Clear: Clear all the pixel position drawing.
- Lighted Pixels: Display the total number of lighted pixels on the current module.

- Unlighted Pixels: For regular modules, the value of this parameter is always 0. For irregular modules, a **No corresponding LED** button is added to the page shown in Figure 5-18. When a pixel cannot be lighted during pixel position drawing, you can click **No corresponding LED** and the number of **Unlighted Pixels** increases by 1.
- : Zoom out the grid.
- : Zoom in the grid.

Figure 5-18 Smart Settings Guide 6



Step 13 View the flashing pixel in the first column on the module and click the corresponding cell in the grid to draw the pixel position (You can also use the keyboard arrow key to quickly draw the position), and click **OK** after the drawing is done.

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

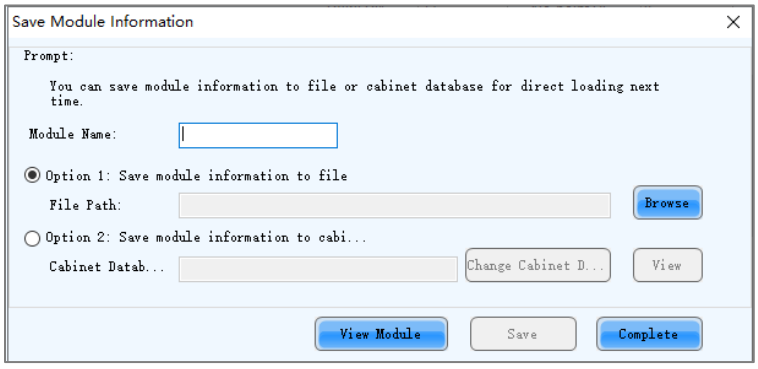
Step 14 Click **Next** and click **OK**.

Step 15 (Optional) Enter a module name and save the module configuration as a file or save the module configuration to the cabinet database.

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

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

Figure 5-19 Saving module information



Step 16 Click **Complete**.

Note

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

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

5.2.1.3.2 Set Cabinet

Applications

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

Applicable Products

All receiving cards

Prerequisites

- A module is lighted. For detailed operations, see 5.2.1.3.1 Light Module.
- If the cabinet is irregular, the cabinet database file (.mcl) or module configuration file (.module) is prepared.

Related Information

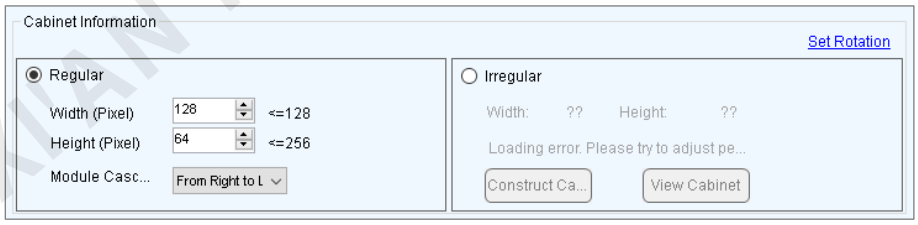
If a cabinet is rectangle and the specifications of all the modules are the same, the cabinet is a regular cabinet, otherwise it is an irregular cabinet. For an irregular cabinet, the configuration file must be used to construct the cabinet.

Operating Procedure

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

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

Figure 5-20 Cabinet information



- **Configure regular cabinet**

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

- **Configure irregular cabinet**

  a. If you need to configure row extraction position, select **Big Control Mode**. If **Big Control Mode** is not displayed or you do not need to configure row extraction position, skip this step.

  b. Select **Irregular**, click **Construct Cabinet** to open the dialog box shown in Figure 5-21.

  c. If you have a cabinet configuration file (.mcl/.cabinet), click **Load** to configure the cabinet quickly. If you do not have the file, preform the subsequent operations to manually configure the cabinet.

  d. Set **Data Groups of Cabinet** according to the number of data groups actually used by the cabinet and click **Set**.

  e. Click **From Cabinet Database** or **From File** to load modules.

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

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

You can adjust the module positions by directly dragging the modules or using the functional buttons in the **Module Alignment** and **Module Spacing** areas. Currently, the position adjustment operations cannot be undone.

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

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

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

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

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

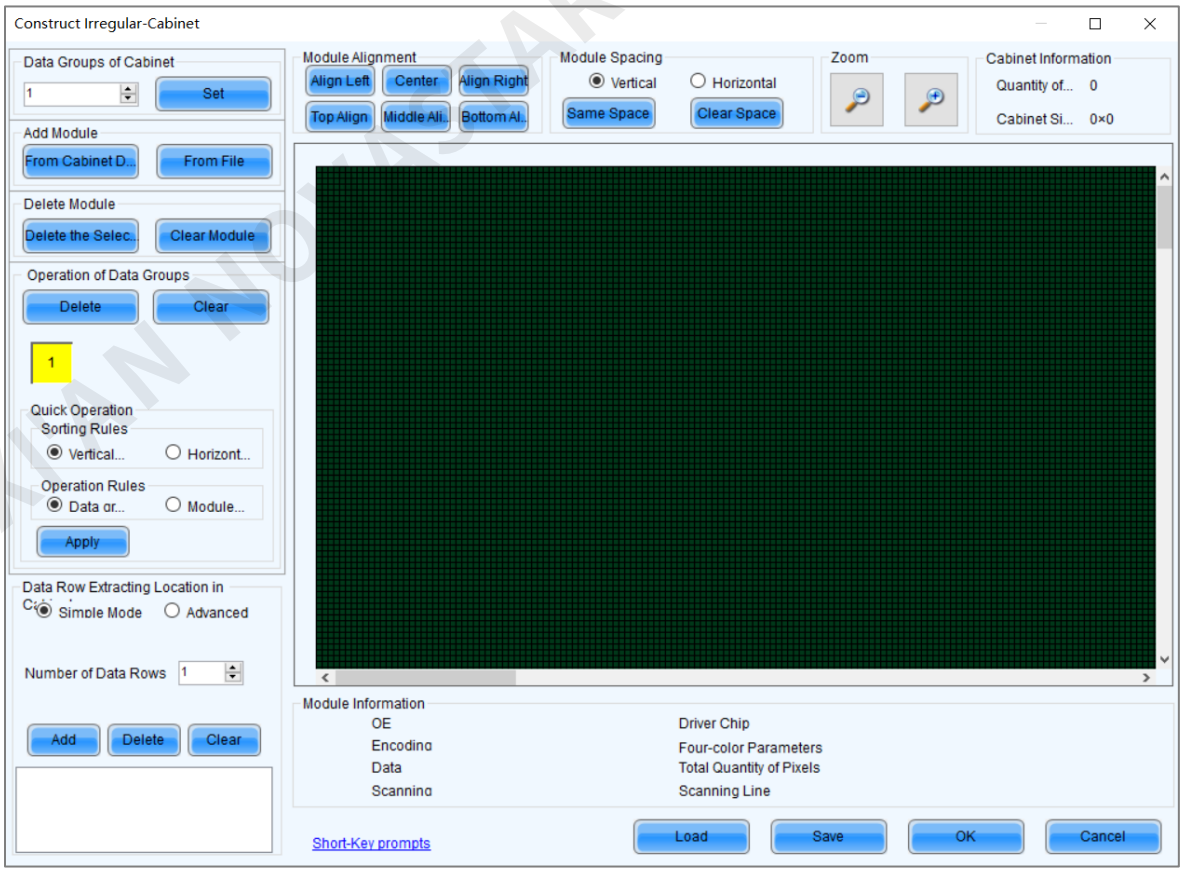
Simple Mode: Set the row extraction position of cabinet and click **Add**. For example, if you set the parameter to **2**, the second row in the cabinet will be extracted during row extraction and the second column will be extracted during column extraction.

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

i. After the configurations are done, click **OK**. If necessary, click **Save** to save the cabinet configuration information to the cabinet database or save the information as a file.

j. (Optional) Click **View Cabinet** to view the cabinet information.

Figure 5-21 Constructing irregular cabinet



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

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

Step 4 After the settings are done, click **Send to Receiving Card**. In the displayed dialog box, select **All Receiving Card** or specify receiving cards, and click **Send**.

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

Figure 5-22 Sending parameters to receiving card

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

Step 6 (Optional) Click **Save to File** to save the configuration information as a receiving card configuration file (.rcfgx), or click **Receiving Card is configured with U disk file** to save the information as a USB drive file (.bin).

5.2.2 Step 2 Connect Screen

Applications

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

Applicable Products

All multimedia players

Prerequisites

None

Related Information

In NovaLCT, you can configure up to 20 screens.

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

Operating Procedure

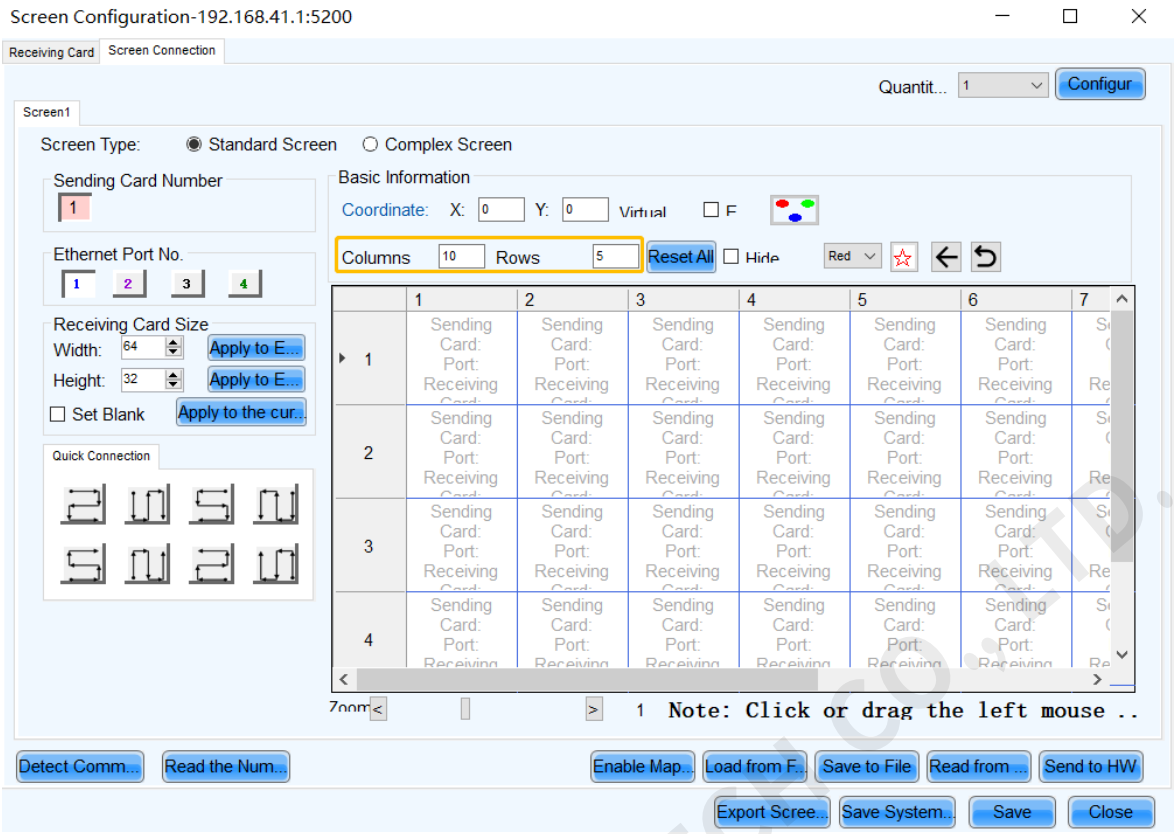
Step 1 On the **Screen Configuration** page, click the **Screen Connection** tab.

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

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

Step 3 On the **Standard Screen** page, set the column and row quantity of receiving cards. For example, set them to 3 columns and 2 rows respectively, as shown in Figure 5-23.

Figure 5-23 Column and row quantity of receiving cards



Step 4 Choose an output port.

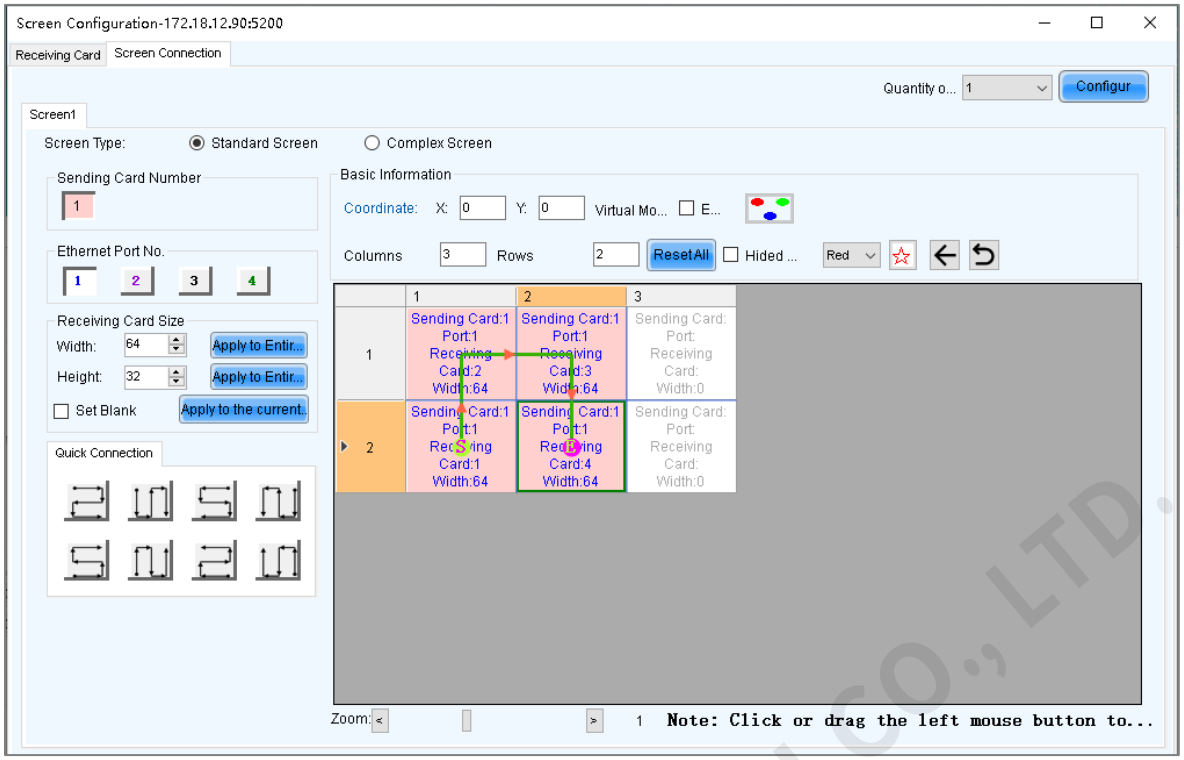
Step 5 Set the receiving card size (loading capacity) and connection. For example, Figure 5-24 illustrates setting of the receiving cards loaded by output port 1.

- Custom connection: In the table, click or drag the mouse.
- Quick connection: Click a connection pattern and drag the mouse to select an area in the table.

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

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

Figure 5-24 Receiving card connection and size



- 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.
- : Return to the previous step of connection.
- : Clear all the connections of receiving cards connected to the current output port.
- Zoom: Zoom in or out the receiving card interface in the middle. When the interface is large enough, cabinet related information is displayed.

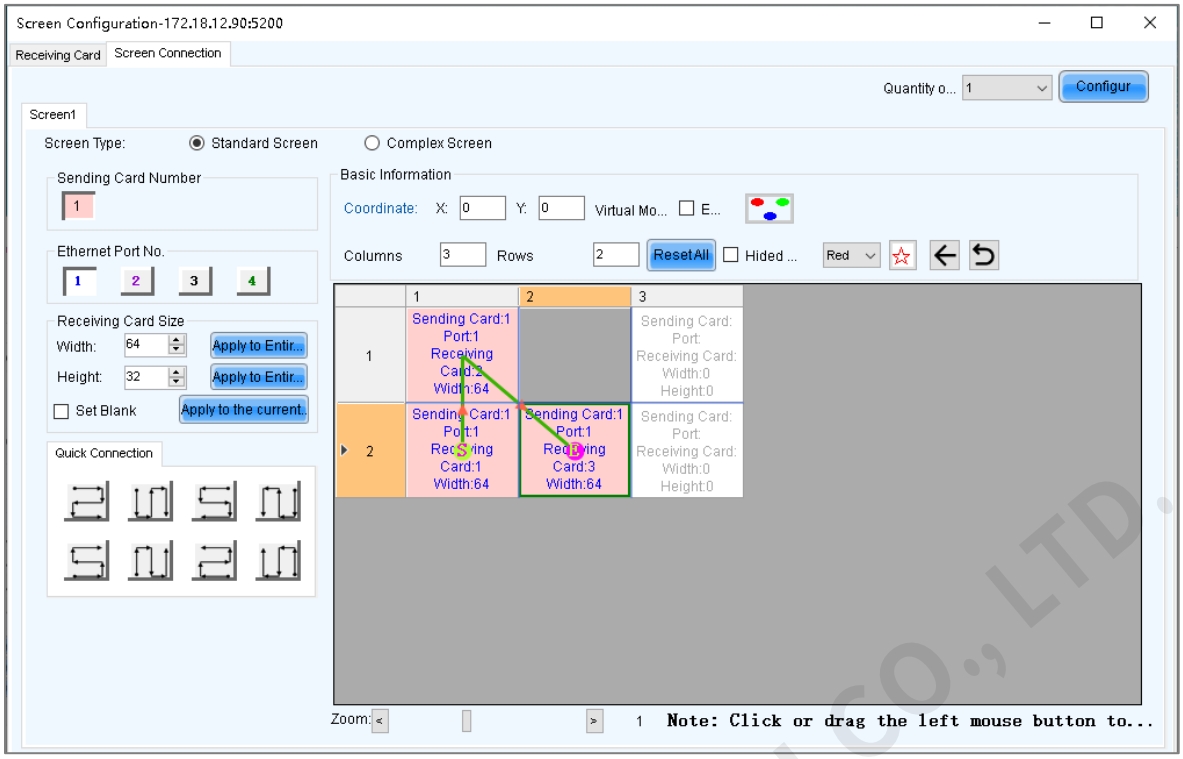
Step 6 Set the specified receiving cards blank and set the blank size, as shown in the example in Figure 5-25. If you do not need to set blank, skip this step.

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

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

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

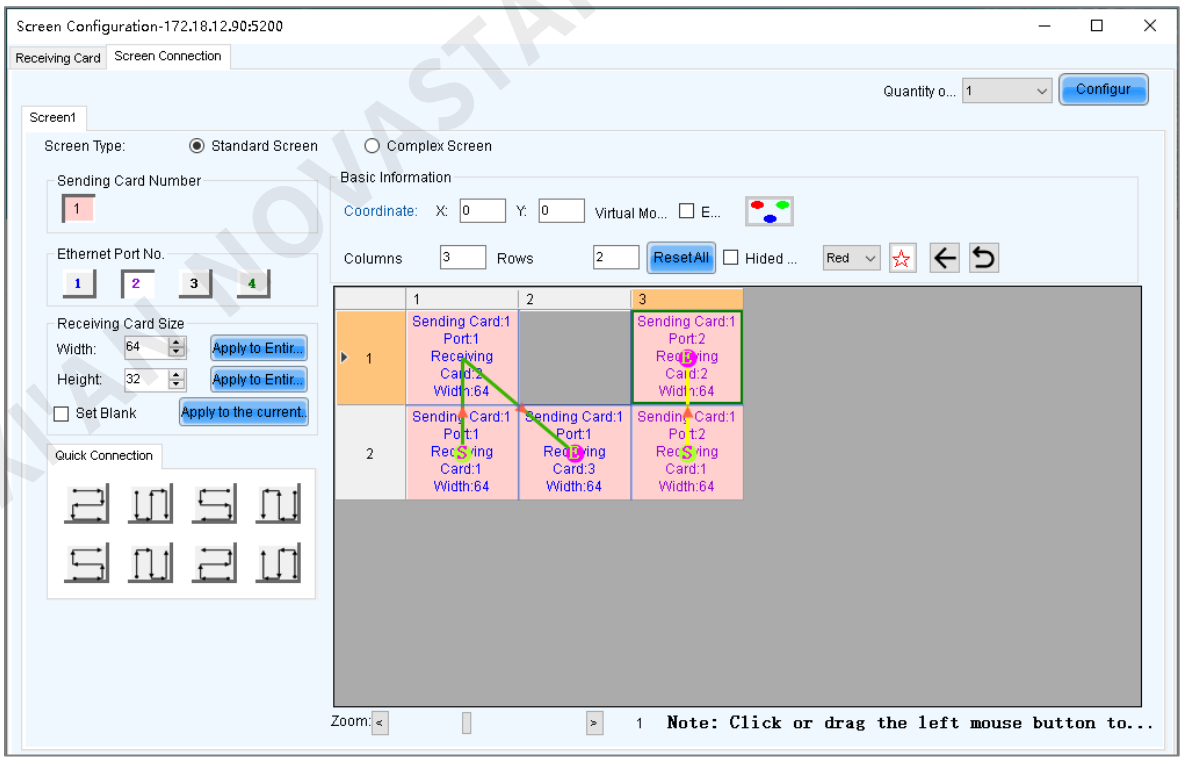
Figure 5-25 Setting receiving card blank



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

For example in Figure 5-26, the receiving cards connected by the green line are loaded by output port 1 and the receiving cards connected by the yellow line are loaded by output port 2.

Figure 5-26 Configuration completed



Note

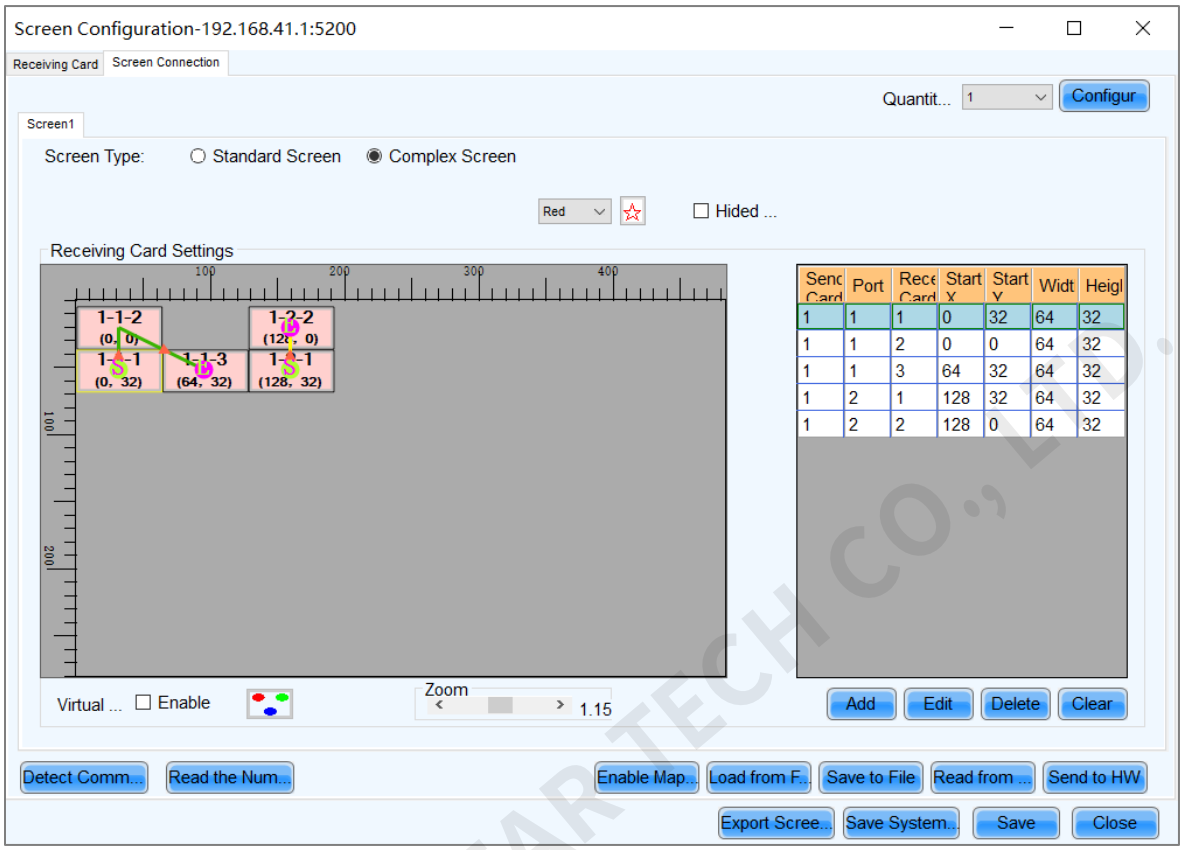
To configure a complex screen efficiently, you are advised to configure a standard screen first and then configure the complex screen based on the standard screen by following the operations below.

After the standard screen is configured, select **Complex Screen**. The **Complex Screen** page shows the connection diagram of the standard screen. The connection diagram in Figure 5-26 is shown as the diagram in

Figure 5-27.

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

Figure 5-27 Configuration of complex screen



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

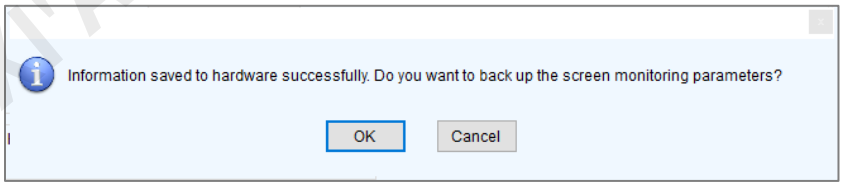
Empty cabinets cannot exist before saving configuration. You can set the empty cabinets blank.

Step 9 After the settings are done, click **Save** to save the configuration information to the hardware.

Step 10 After successful saving, choose whether to save the screen monitoring backup file to the local computer.

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

Figure 5-28 Successful saving



Related Operations

- Detect Communication Status: Detect the status of connection between the receiving card and Ethernet port.
- Read the Number of Receiving Cards: Read the number of receiving cards connected to the current Ethernet port.
- Enable Mapping: Enable the Mapping function. The Mapping function is used to display the cabinet No. and the Ethernet port the cabinet is connected to on the cabinet. In this way, you can obtain the connection information.
- Read from HW: Read the current configuration information in the hardware.
- Coordinate: Set the start position of the display image on screen.

- Virtual Mode: Set the layout of LEDs.

5.2.3 Step 3 (Optional) Save Configuration Files

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

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

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

Related Information

When saving the configuration files of a screen that is not registered with the cloud, the screen will be registered with VNNOX Care automatically. During registration, NovaLCT will automatically enable **Automatic Refresh** and **Link to NovaiCare** in the monitoring configuration. If you want to set the refresh period, please see 7.2.1 Monitoring.

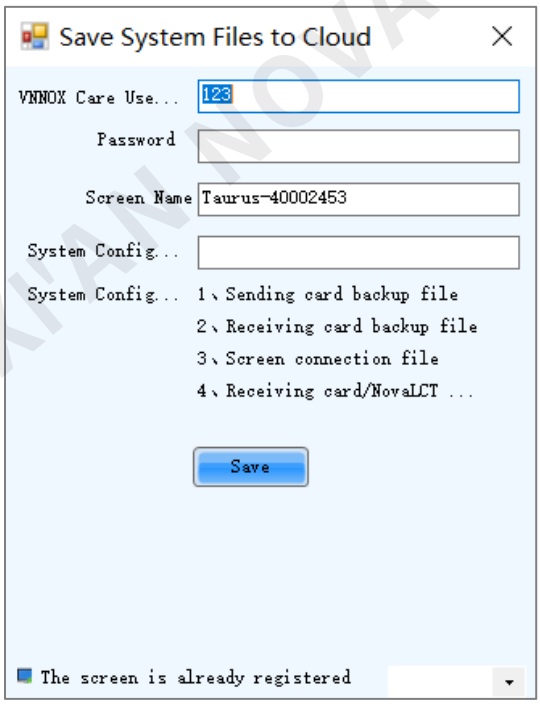
The configuration files saved to the cloud include the receiving card configuration file (.rcfgx), screen connection file (.scr), version file (.cfg), etc. The version file contains the version information about NovaLCT and the receiving card program package.

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

Operating Procedure (Online Screens)

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

Figure 5-29 Saving configuration files (online screen)



Step 2 Enter your VNNOX Care user name and password, set the screen name and system configuration file name, and select a server node.

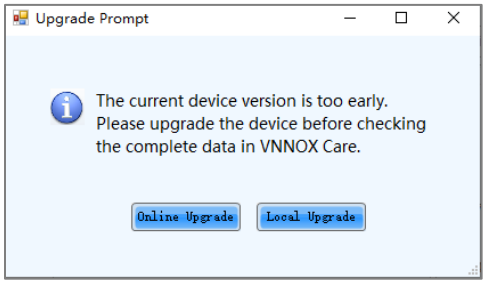
Step 3 After the parameter settings, click **Save**.

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

- Firmware version V3.3.0 or later: After the configuration file is saved, close the prompt box. No further action is required.
- Firmware version earlier than V3.3.0: Go to Step 5.

Step 5 Do any of the following operations to upgrade the firmware version and save the configuration file to cloud and local PC. (The device will automatically restart during upgrade.)

Figure 5-30 Upgrade prompt

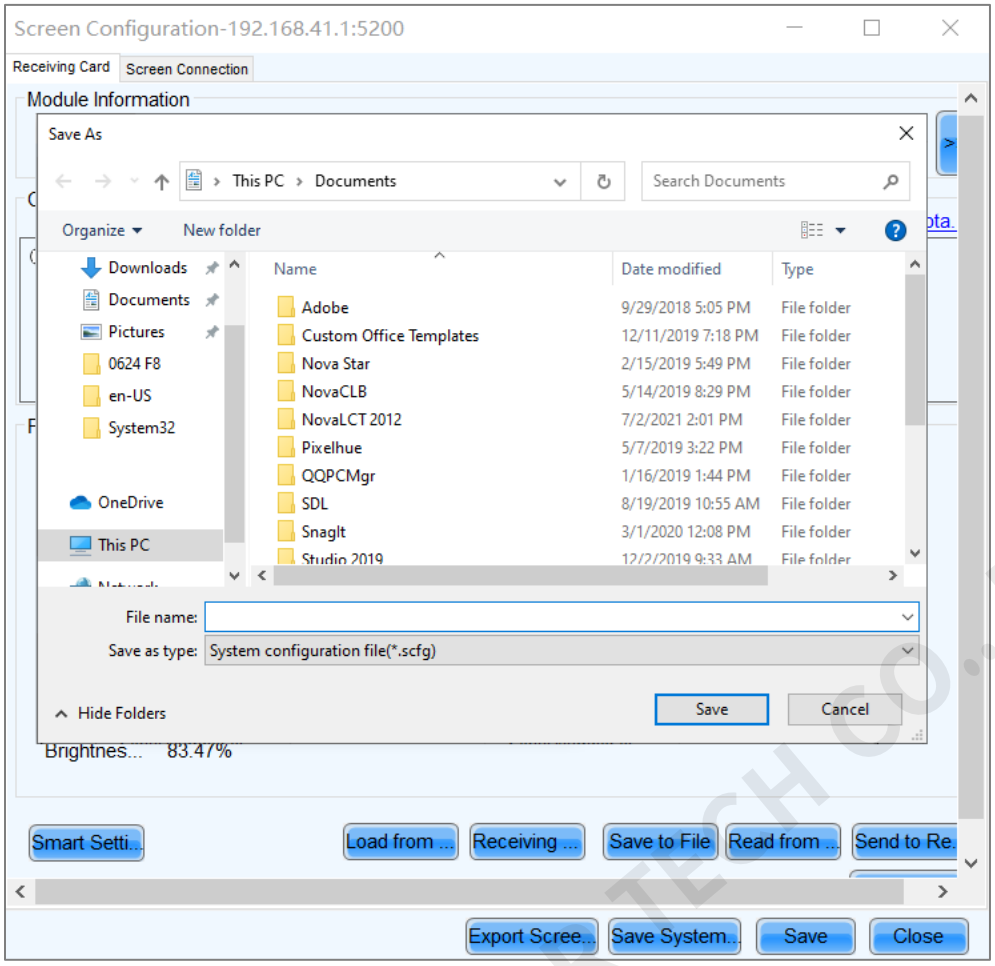


- Online upgrade
  a. Click **Online Upgrade**.
  b. In the pop-up dialog box, click **Upgrade**.
  c. After successful upgrade, close the dialog box.
- Local upgrade
  a. Click **Local Upgrade**.
  b. Select a firmware package from local PC and click **Open**.
  c. After verification, click **Upgrade**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

Operating Procedure (Offline Screens)

Step 1 On the **Screen Configuration** page, click **Save System Configuration File** to open the dialog box shown in Figure 5-31.

Figure 5-31 Saving configuration files (offline screen)



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

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

5.3 Set Performance Parameters

Applications

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

Applicable Products

All receiving cards

Prerequisites

None

Related Information

None

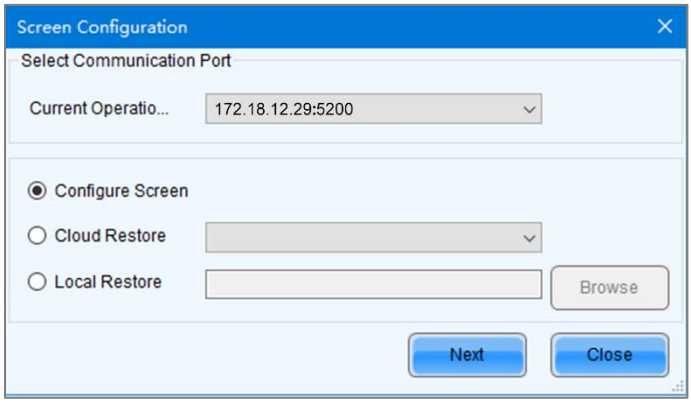
Operating Procedure

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

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar to open the dialog box shown in Figure 5-32.

Figure 5-32 Screen configuration method

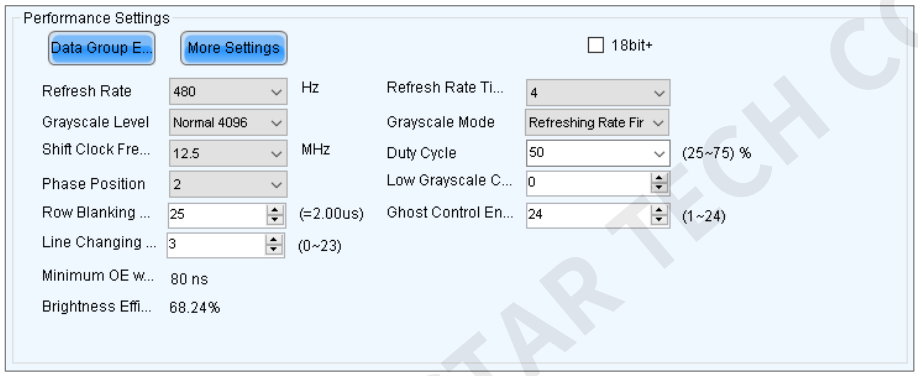


Step 3 Select **Configure Screen** and click **Next**.

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.



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

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

- GCLK Phase: Indicates the phase of grayscale clock.
- Blanking Time Height: Used to eliminate the lower ghost
- Minimum OE Width: It is calculated from other performance parameters and can be viewed only.
- Brightness Efficiency: It is calculated from other performance parameters and can be viewed only.

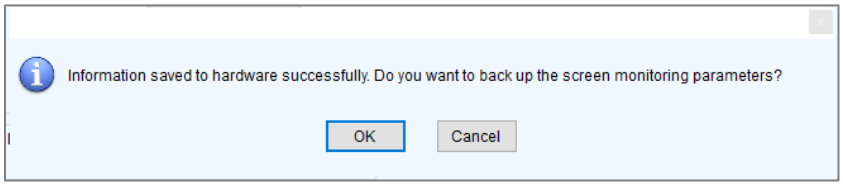
Step 7 After the settings are done, click **Send to Receiving Card** to send the performance parameters to the hardware.

Step 8 After the display effect meets the expectation, click **Save** to save the performance parameters to the hardware.

Step 9 After successful saving, choose whether to save the screen monitoring backup file to the local computer.

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

Figure 5-33 Successful saving



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.

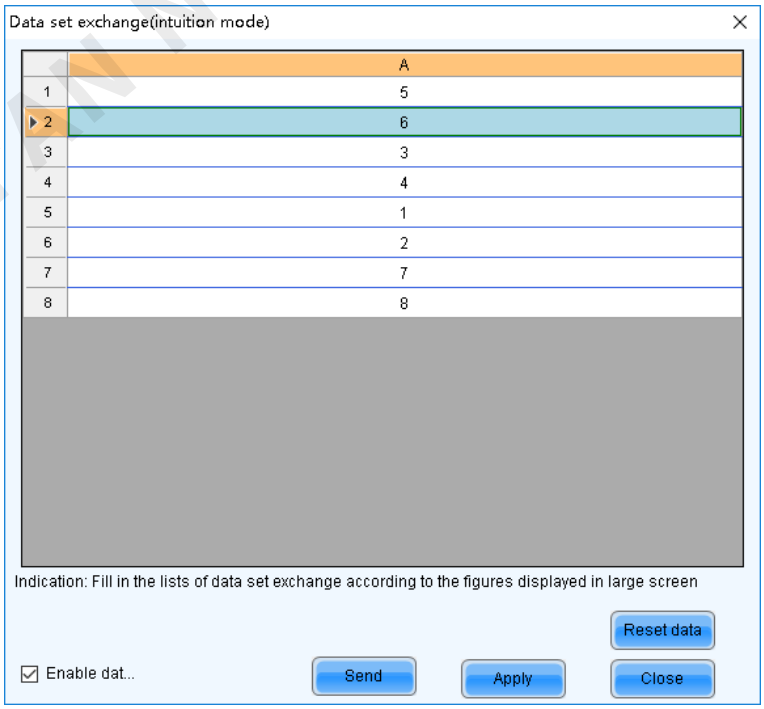
- **Intuition Mode**

  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.

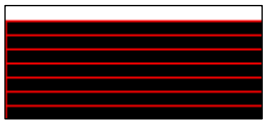
  In the **Data set exchange** dialog box, change **5** to **1**, **6** to **2**, **1** to **5**, and **2** to **6**, as shown in the figure below.



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

- **Group Mode**

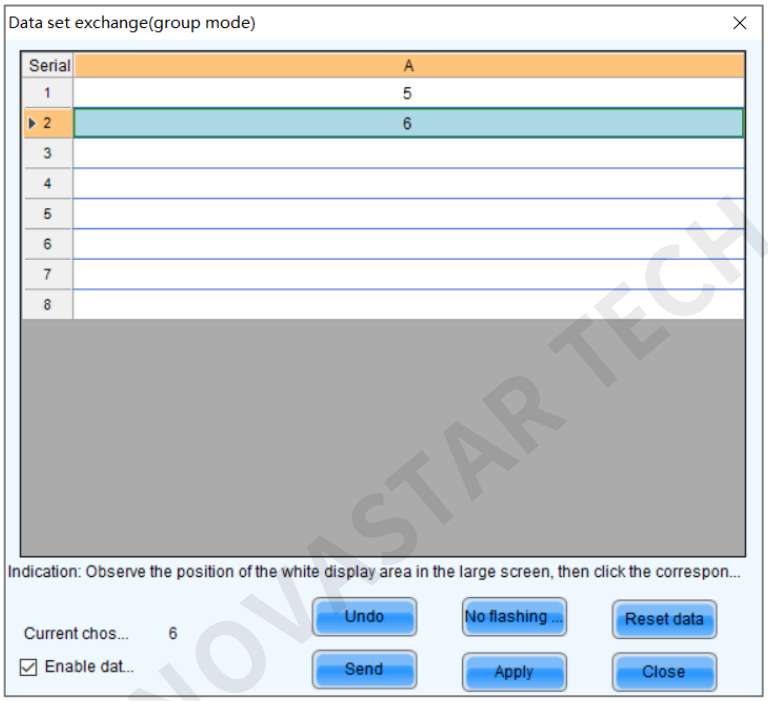
Select **Enable data exchange** and check whether the screen has a white area. If it has no white area, click **No flashing area**. The white row in the red table moves to the next data group. If it has a white area, click the the data group you want to exchange in the **Data set exchange** dialog box.



Example:

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

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



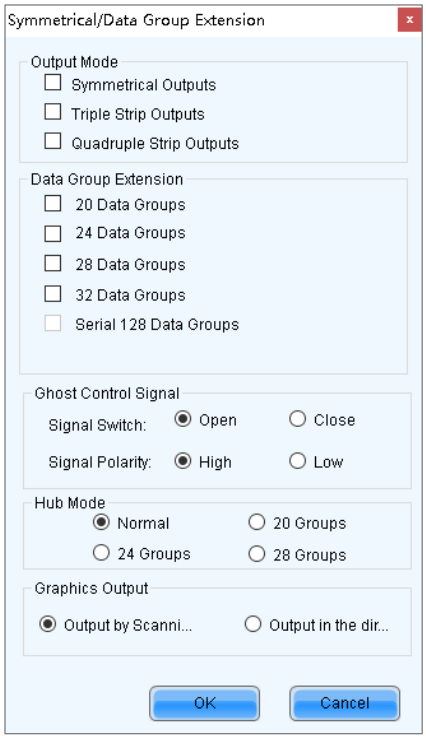
After the settings are done, click **Send** to send the configuration information to receiving cards.

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.

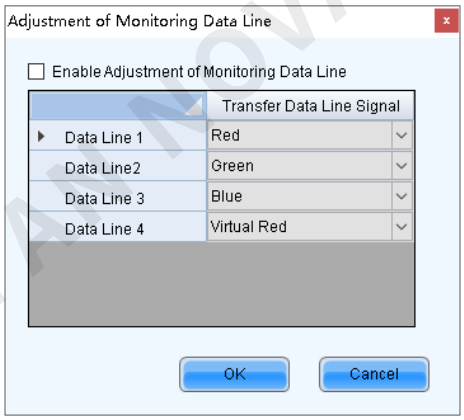


- Output Mode: If the screen is very wide and the receiving card cannot load the entire width, set the output mode to symmetrical outputs, triple strip outputs or quadruple strip outputs.
- Data Group Extension: If the receiving card supports data group extension, select the corresponding option according 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

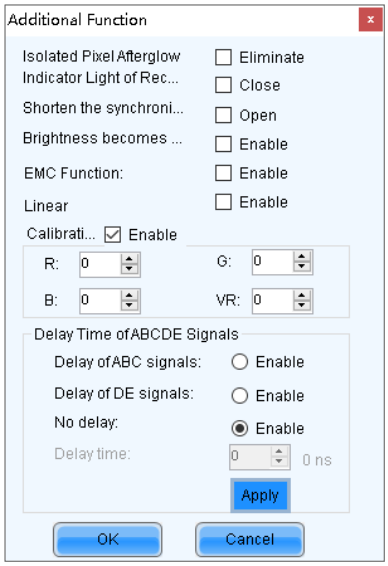
Adjust the data lines used by red, green, blue and virtual red LEDs during LED error detection.

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**.



Additional Function

Enable or disable some additional functions of receiving card.



EMC function setting is optional. The other functions are described as follows.

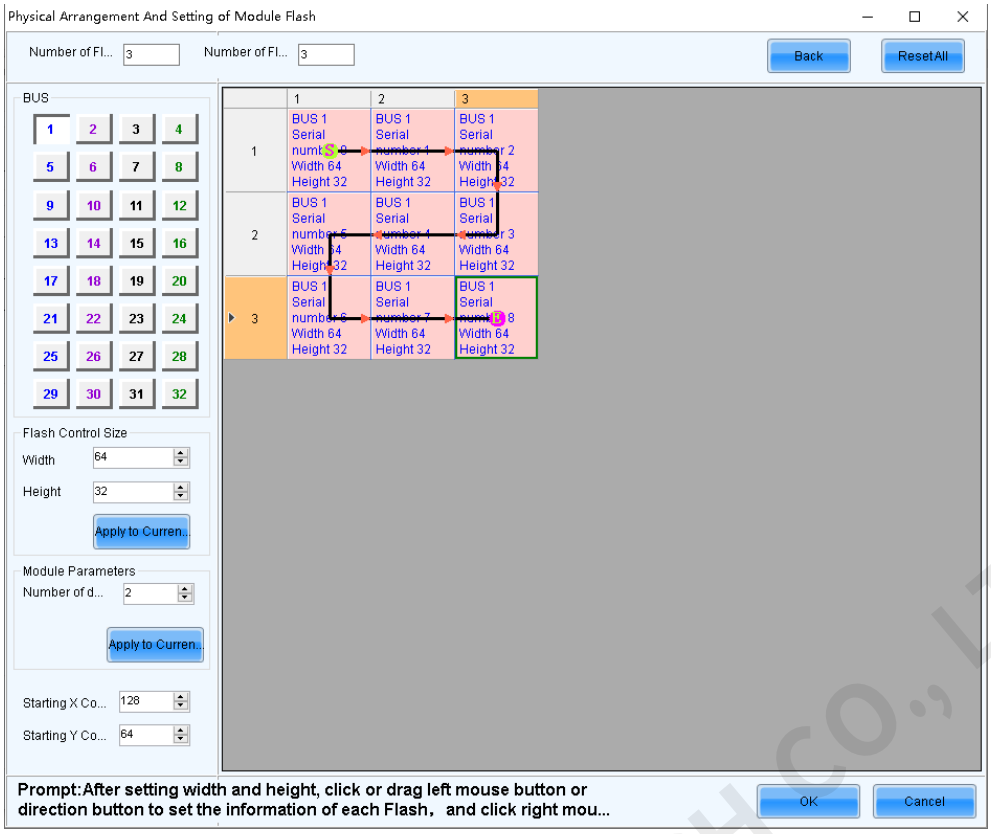
- Isolated Pixel Afterglow: Eliminate the afterglow problem of isolated pixels.
- Indicator Light of Receiving Card: Turn off the operating status indicator of receiving card.
- Shorten the synchronization time: Shorten the frame interval time during data output of receiving card.
- Brightness becomes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

  The R, G, and B values are hexadecimal and the largest value is FFFF. Before setting them, check the Y-axis 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.



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.

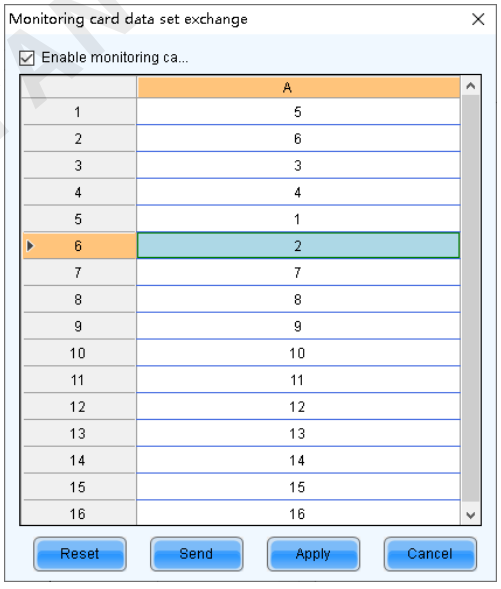
e. Set the number of data groups of the module.

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.



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

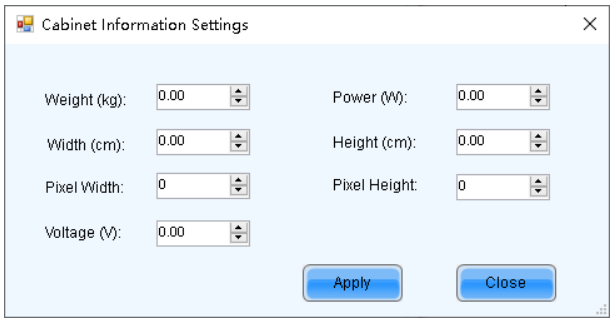
b. In the **Monitoring card data set exchange** dialog box, select **Enable monitoring card data set exchange**.

c. Double click the row in the second column and change the value. For example, change **1** to **5**, **2** to **6**, **5** to **1**, and **6** to **2**, indicating that data group 1 is exchanged with data group 5 and data group 2 is exchanged with data group 6.

d. After the settings are done, click **Send** to send the configuration information to the monitoring card.

- **Cabinet Information Settings**

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



6 Brightness and Chroma Adjustment

6.1 Calibration

6.1.1 Set Online Calibration Parameters

Applications

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

Applicable Products

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

Prerequisites

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

Related Information

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

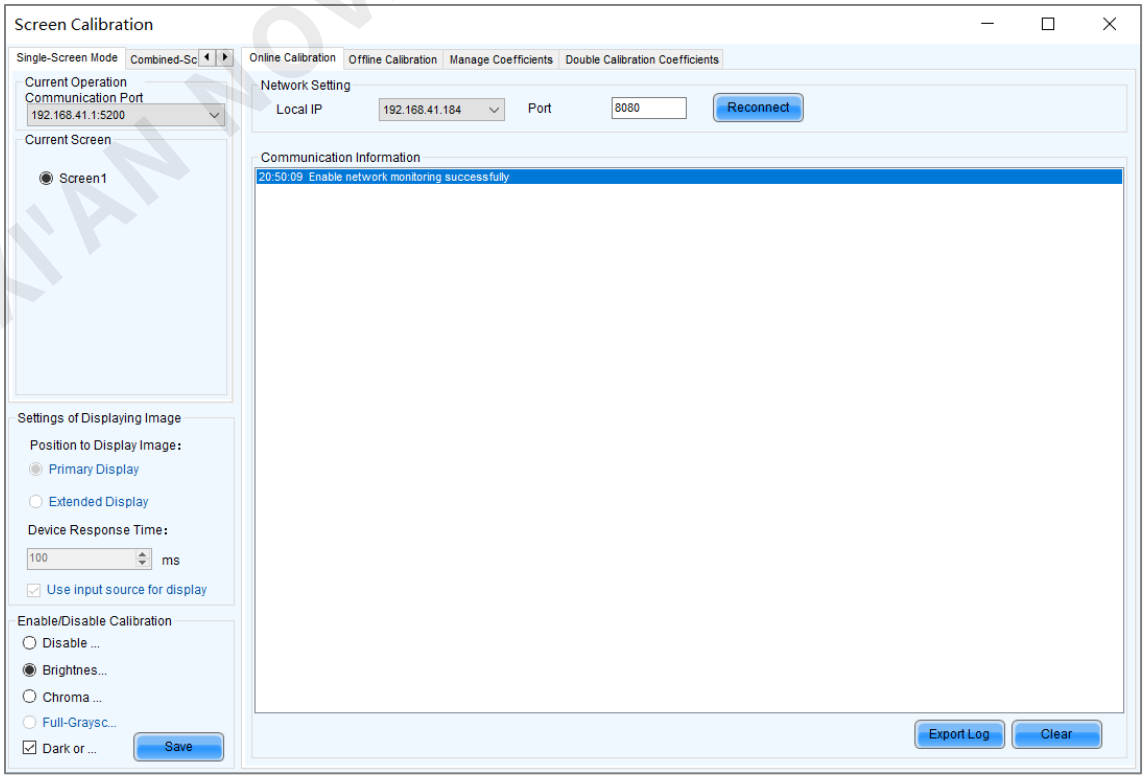
Operating Procedure

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

Step 2 Click 

or choose **Tools** > **Calibration** on the menu bar.

Figure 6-1 Screen calibration



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

Step 4 In single-screen mode, select the screen you want to operate. In combined-screen mode, skip this step.

Step 5 Select **Disable Calibration**, **Brightness Calibration** or **Chroma Calibration**. **Dark or Bright Line Correction** can be selected at the same time. Click **Save** to apply your settings.

Step 6 If network monitoring succeeds, open NovaCLB and enter the local IP address and port number displayed on the **Online Calibration** tab page of NovaLCT to connect NovaCLB to NovaLCT.

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

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

6.1.2 Get Average Coefficients

Applications

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

Applicable Products

All receiving cards

Prerequisites

None

Related Information

Offline calibration is not available for combined screens.

Operating Procedure

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

Step 2 Click 

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.

Figure 6-2 Offline calibration

Step 6 Specify an area where you want to get the average calibration coefficients.

Step 7 Click **Get Average Coefficients**.

Step 8 After the average calibration coefficients are obtained successfully, click **OK**.

Step 9 (Optional) Click **Display** or **Hide** to show or hide the display window.

6.1.3 Manage Calibration Coefficients

Applications

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

Applicable Products

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

Prerequisites

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

Related Information

Calibration coefficient management is not available for combined screens.

Pixel level calibration database files fall into two types:

- **Screen calibration database file**

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

- **Cabinet calibration database file**

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

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

Operating Procedure

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

Step 2 Click 

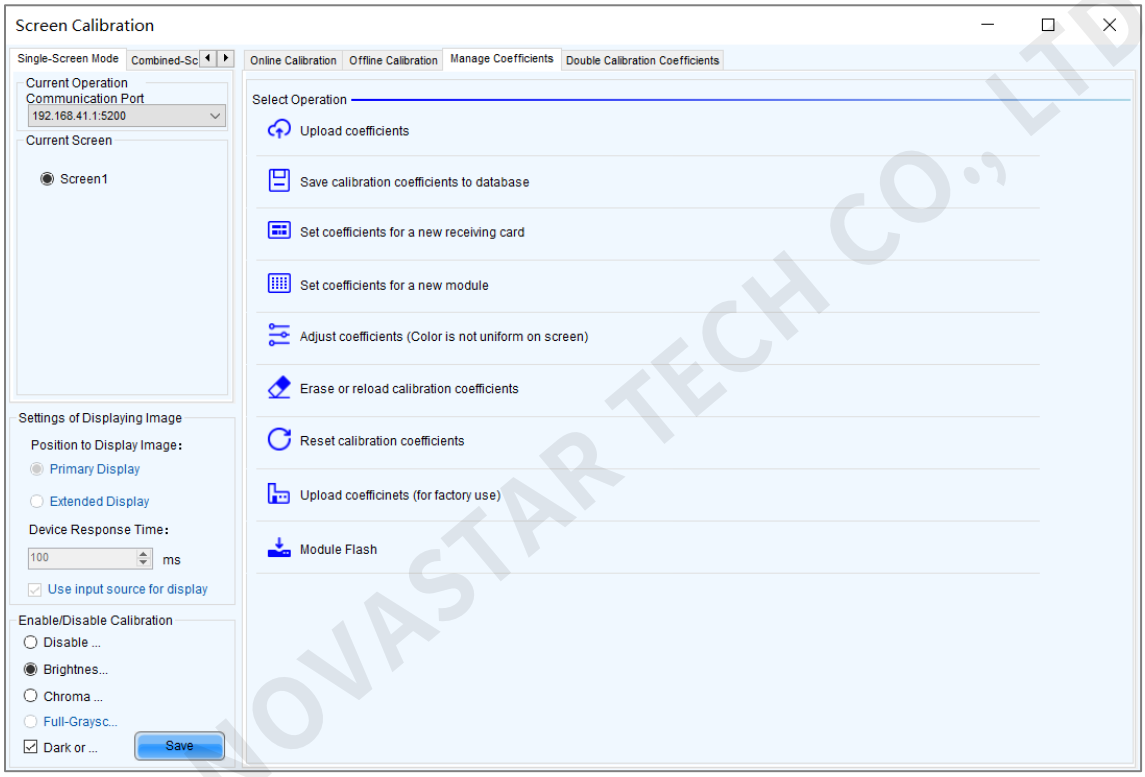
or choose **Tools** > **Calibration** on the menu bar.

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



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

- **Upload coefficients**
  - Pixel level calibration database: Select the cabinet or screen calibration database file from the local computer and fast or stably upload the calibration coefficients to receiving cards.
  - Dark or bright line database: select the dark or bright line correction database file from the local computer and stably upload the calibration coefficients to receiving cards.
  - Full-Grayscale Calibration Database: Not supported currently

  Stable uploading takes more time than fast uploading, but it is more stable and reliable.
- **Save calibration coefficients to database**

  Save the calibration coefficients in the receiving cards to an existing or new database.
- **Set coefficients for a new receiving card**

  Get calibration coefficients by uploading calibration database file or referring to one or more surrounding cabinets. Adjust and save the coefficients to receiving cards as required.
- **Set coefficients for a new module**

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

- **Adjust coefficients (Color is uniform on screen)**

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

- **Erase or reload calibration coefficients**

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

- **Reset calibration coefficients**

  Set calibration coefficients to specified values.

- **Upload coefficients (for factory use)**

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

- **Module Flash**

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

  Type “admin” with your keyboard. A **Save Calibration Coefficients to Module** button is displayed.

  When **Auto Upload Module** is selected, if the system detects that a cabinet ID is changed after the control system is powered on, the calibration coefficients in the module flash memory will be automatically uploaded to the receiving card.

Note

Types and causes of module flash memory check errors:

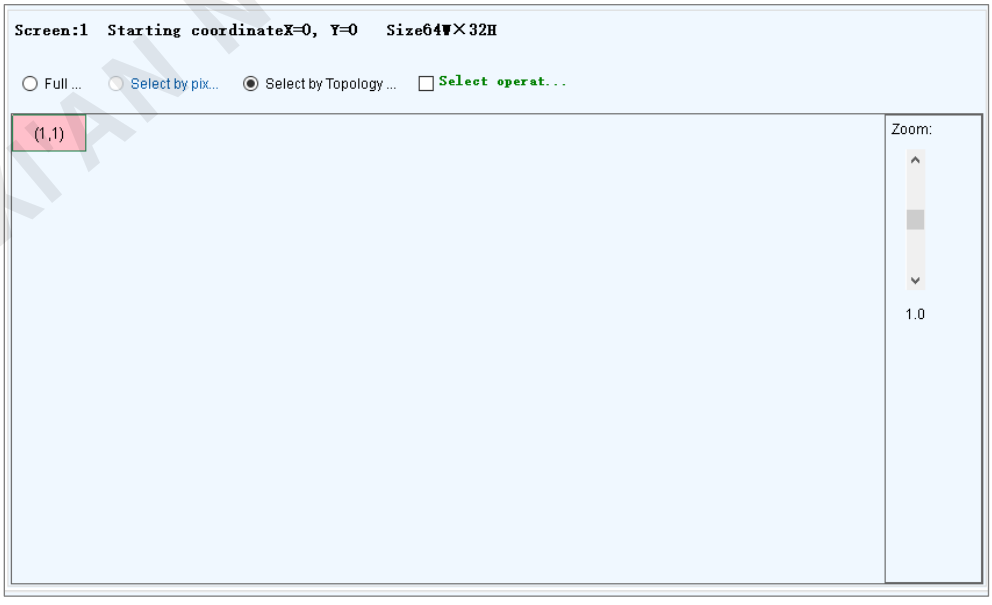
- Hardware Fault: Screen configuration or flash topology is not consistent with the actual condition.
- Communication Error: There is a problem with hardware connection.
- Flash Topology Error: The module does not have flash memory or no flash topology is configured in **Screen Configuration**.

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

Related Operations

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

Figure 6-4 Selecting an area for coefficient management



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

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

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

  - **Simple Adjustment**

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

  - **Advanced Adjustment**

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

Figure 6-5 Simple adjustment

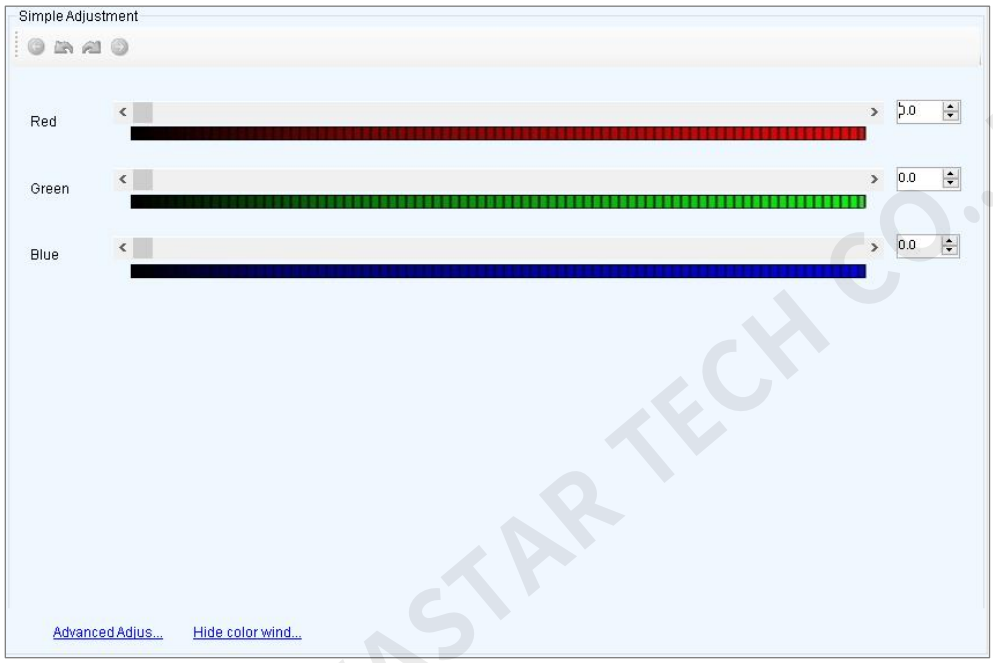


Figure 6-6 Advanced adjustment

6.1.4 Manage Double Calibration Coefficients

Applications

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

Applicable Products

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

Prerequisites

None

Related Information

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

Operating Procedure

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

Step 2 Click 

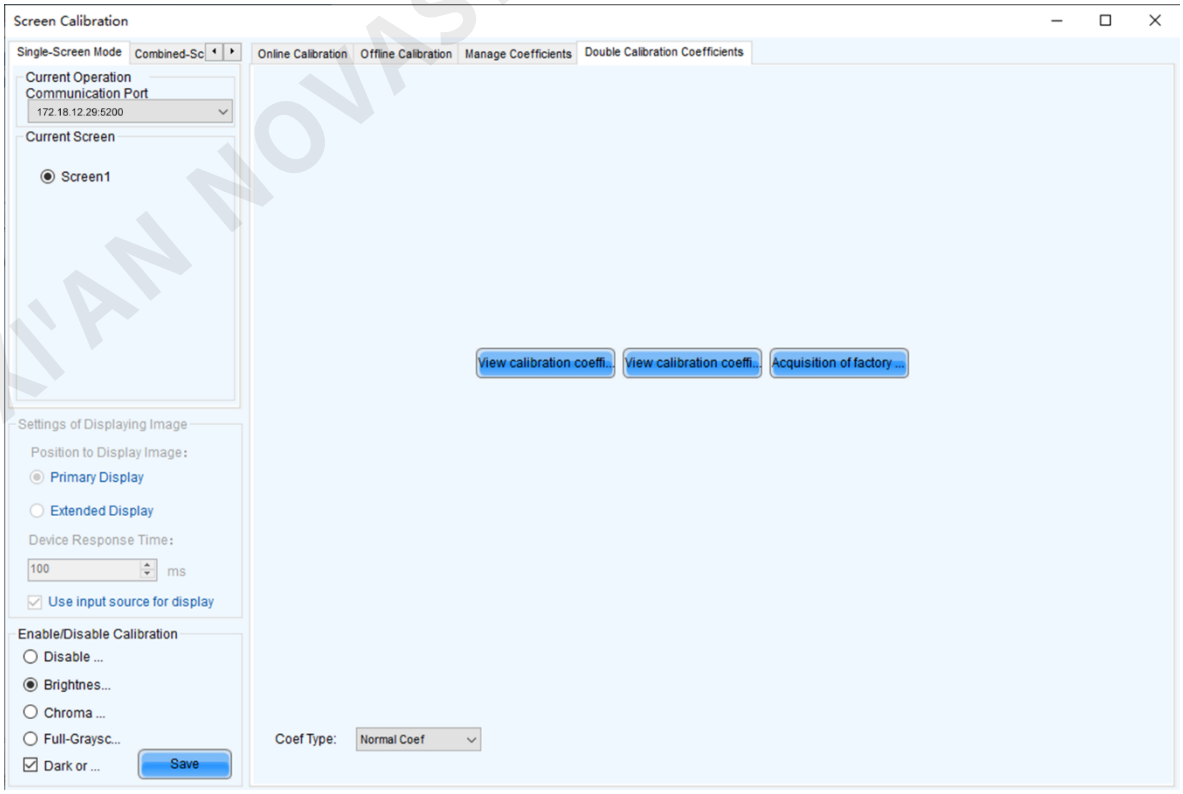
or choose **Tools** > **Calibration** on the menu bar.

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



Step 6 Perform the following operations as required.

- **View calibration coefficients in application area**

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

- **View calibration coefficients in factory area**

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

- **Get calibration coefficients in factory area**

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

- **Save calibration coefficients to factory area**

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

6.2 Adjust Brightness

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

None

Related Information

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

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

Operating Procedure

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

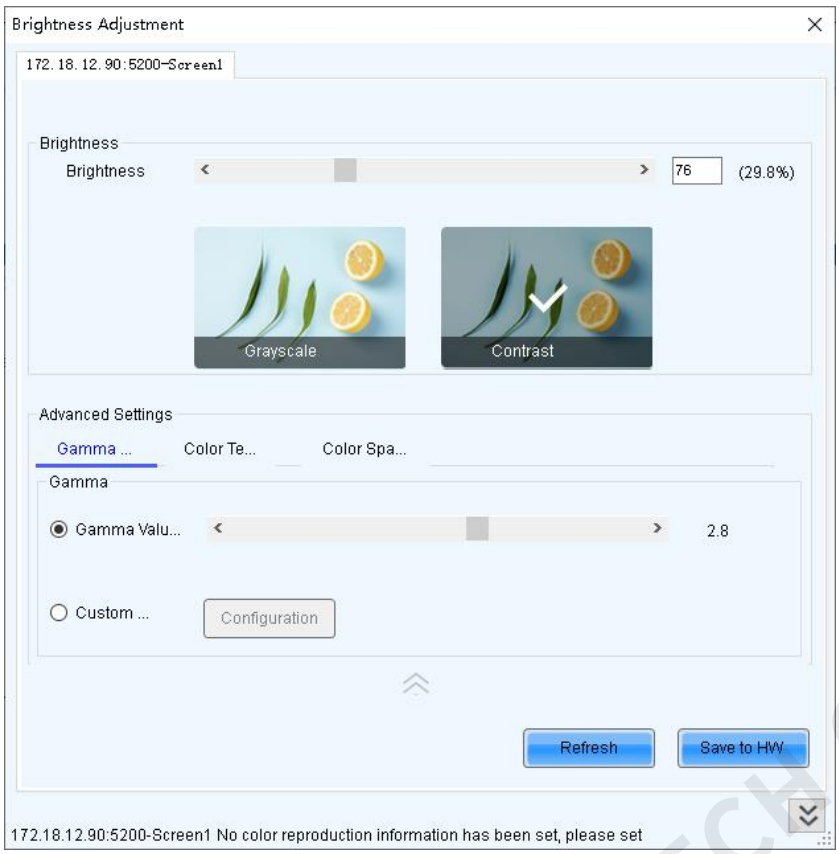
Step 2 Click 

or choose **Settings** > **Brightness** on the menu bar.

Step 3 Drag the slider to adjust brightness and select **Grayscale** or **Contrast**.

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

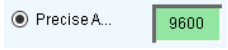
Figure 6-8 Manual brightness adjustment



- **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 

. To set custom color temperature, see the description in Custom Color Temperature.

- **Adjust color space**

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

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

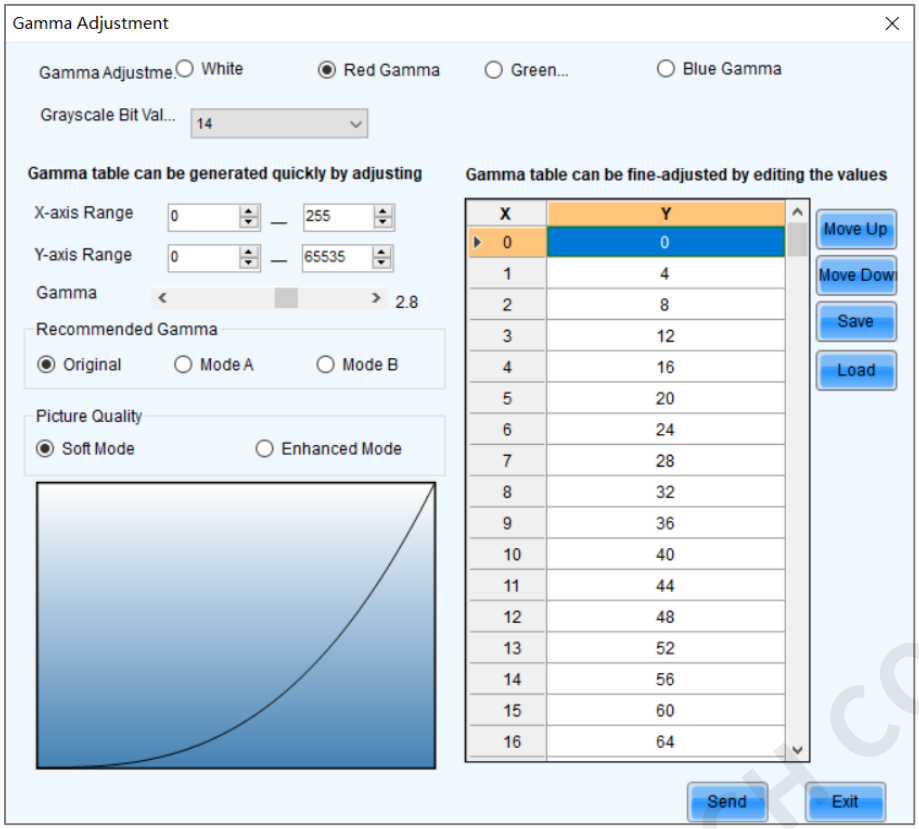
Step 5 After the configuration is done, click **Save to HW** to save the configuration to the hardware.

Custom Gamma

Step 1 On the **Gamma Adjustment** page, select **Custom Gamma Adjustment**.

Step 2 Click **Configuration** to open the dialog box shown in Figure 6-9.

Figure 6-9 Custom Gamma adjustment



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

Step 4 Perform any of the following operations as required to configure the Gamma curve.

- **Load a Gamma configuration file**

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

- **Adjust the Gamma curve manually**

  Drag the slider to adjust the Gamma curve.

- **Adjust the Gamma table manually**

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

Step 5 Set relevant parameters.

- Grayscale Bit Value: Use the default value.
- X-axis Range: It indicates the range of X-axis for Gamma curve. The 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.

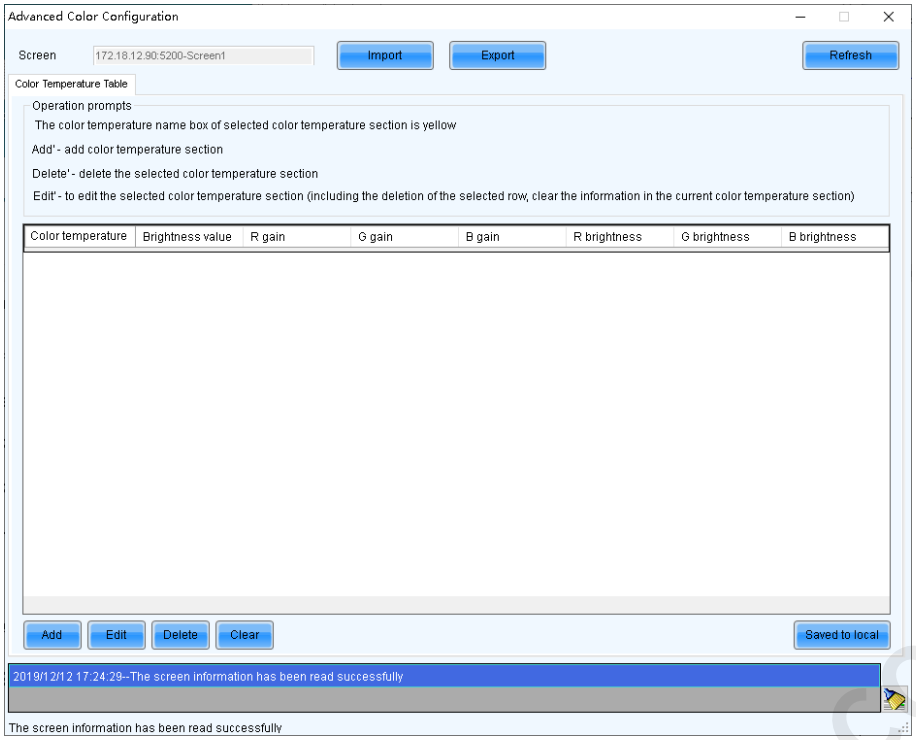
Step 7 (Optional) Click **Save** to save the Gamma information as a configuration file.

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.

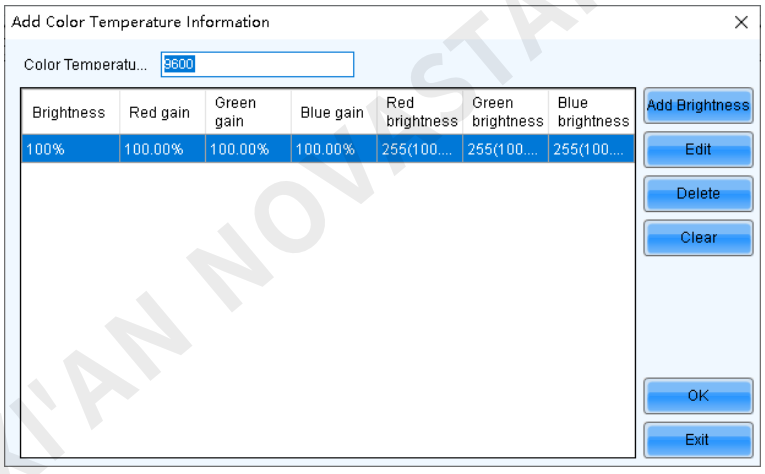
Figure 6-10 Custom color temperature



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.

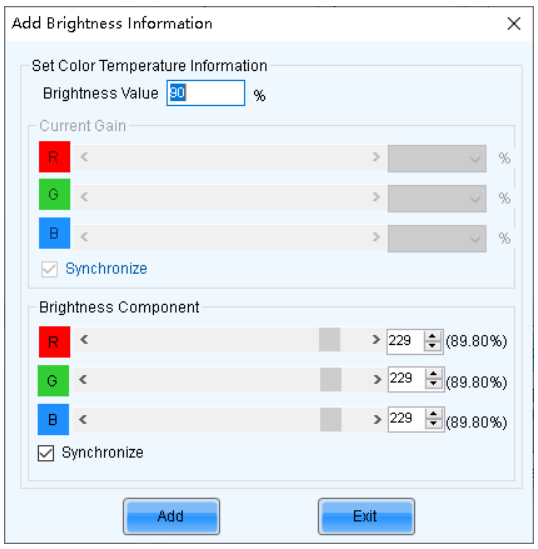
Step 4 Click **Add** to open the dialog box shown in Figure 6-11.

Figure 6-11 Adding color temperature information



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

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.

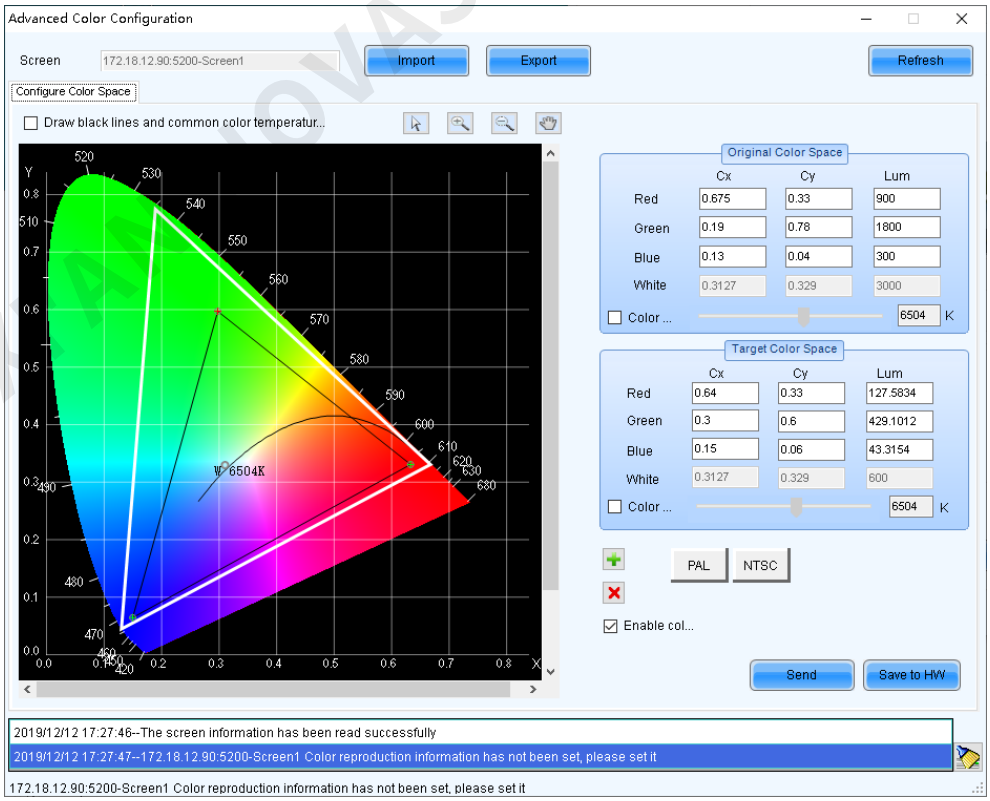
Step 7 After the configuration is done, click **Save to local** to save the custom color temperature. A corresponding button will be displayed next to **Precise Adjustment**.

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.

Figure 6-13 Custom color space



Step 2 Set the original color space.

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

Step 3 Perform any of the following operations as required to set custom color space.

- **Select a standard color space**

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

- **Select an existing custom color space**

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

- **Adjust the color space diagram manually**

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

- **Adjust the color space values manually**

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

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

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

6.3 Correct Brighter Pixels

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

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

Related Information

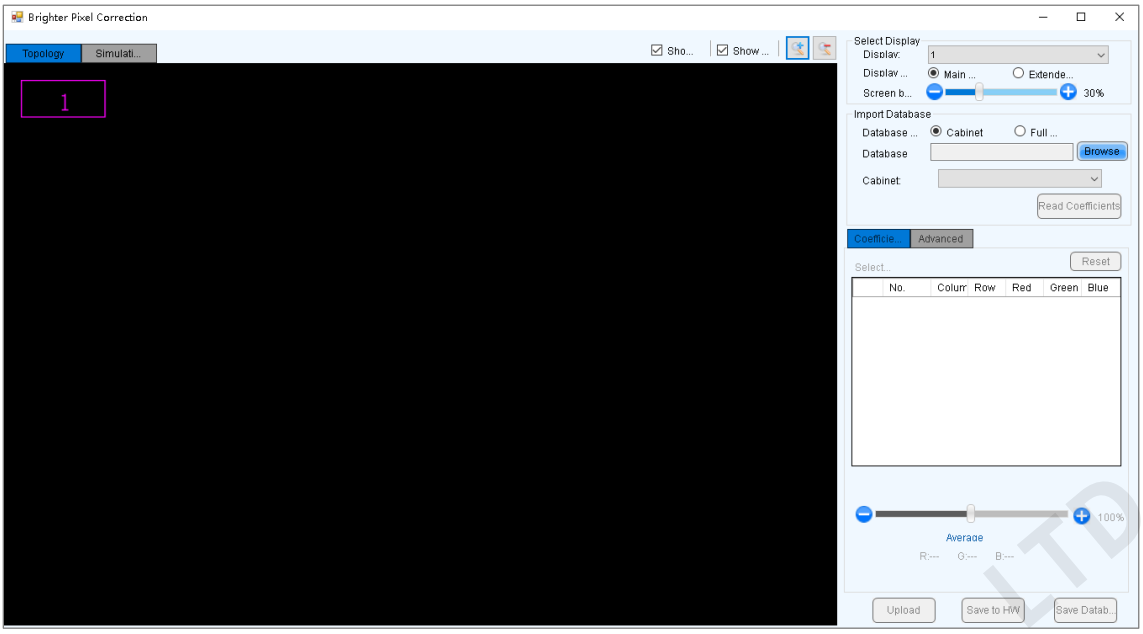
None

Operating Procedure

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

Step 2 On the menu bar, choose **Tools** > **More** > **Brighter Pixel Correction**.

Figure 6-14 Brighter pixel correction



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**.

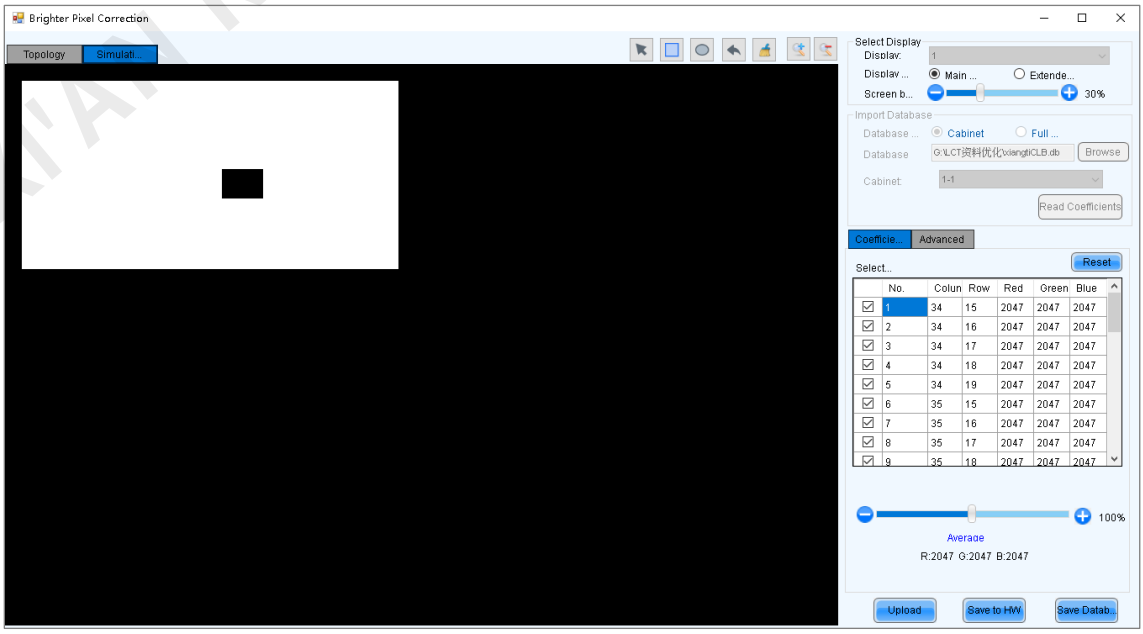
Step 7 Click **Browse** and select a database file. For example, select a cabinet calibration database file and click **Open**.

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 .

- : 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



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

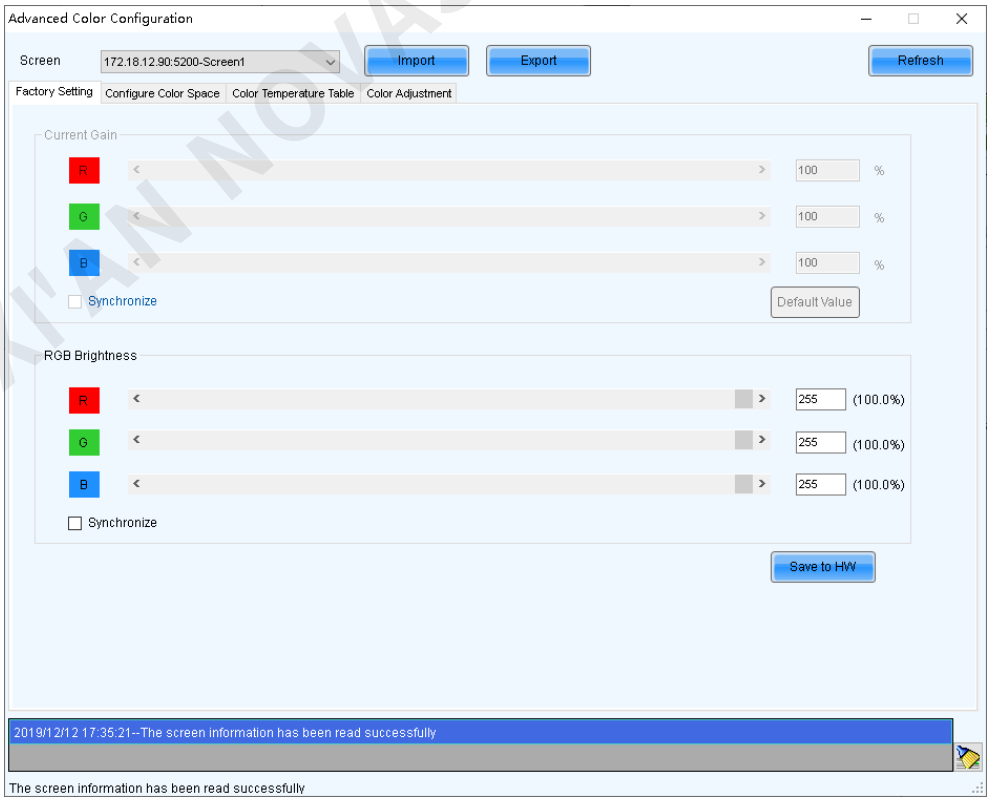
Step 1 Log in to the multimedia player. For login operations, see 4 User Login.

Step 2 On the menu bar, choose **Settings** > **Advanced Color Configuration**.

Step 3 Click **Import** to quickly complete the configuration or continue performing the following operations to complete the configuration manually.

Step 4 On the **Factory Setting** tab page, adjust parameters and then click **Save to HW**.

Figure 6-16 Factory settings

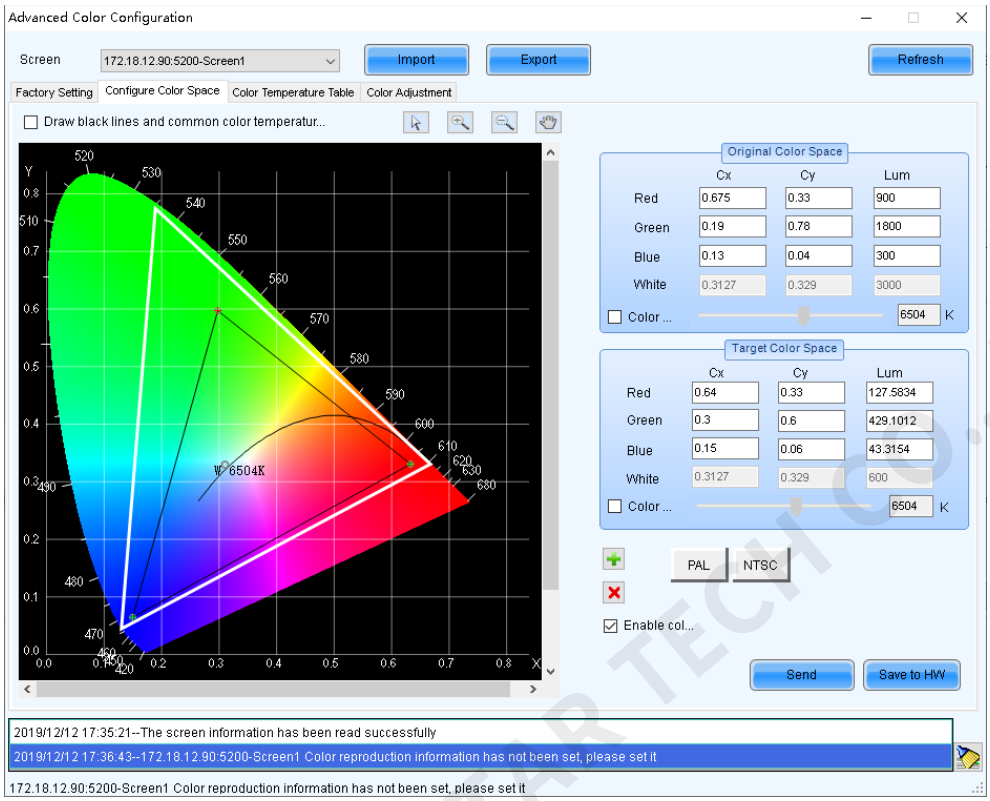


- Current Gain: This is a module parameter and can be set when supported by module chips. Clicking **Default Value** can reset the value.
- RGB Brightness: This is a receiving card parameter.

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

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

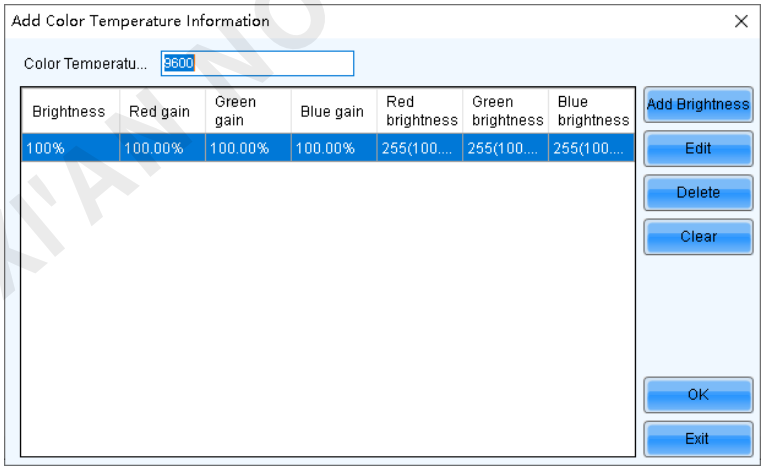
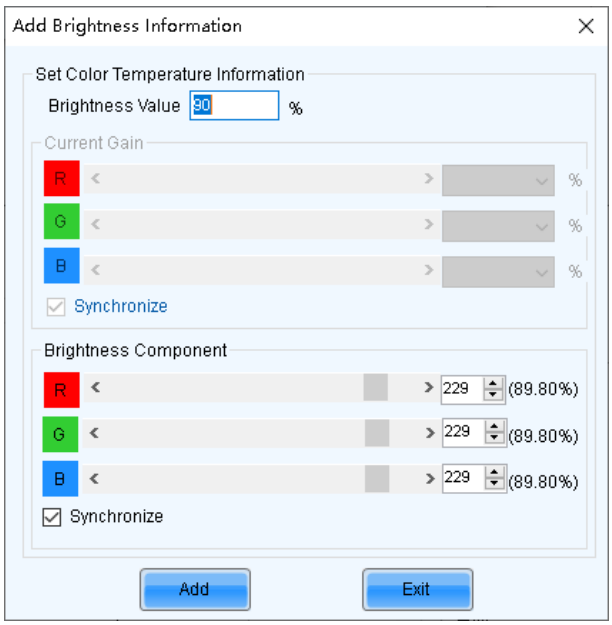


Figure 6-20 Adding brightness information



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

6.5 Adjust Screen Effect

Applications

Enable 18bit+, ClearView and receiving card low latency to improve display effect.

Applicable Products

- 18bit+: Applicable to the A5s Plus, A7s Plus, A8, A8s, A10s Plus and DH7512 receiving cards
- ClearView: Applicable to the A8, A8s and A10s Plus receiving cards
- Receiving card low latency: Applicable to the A5s Plus, A6s, A8s, A10s Plus and AT60 receiving cards

Prerequisites

None

Related Information

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

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

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

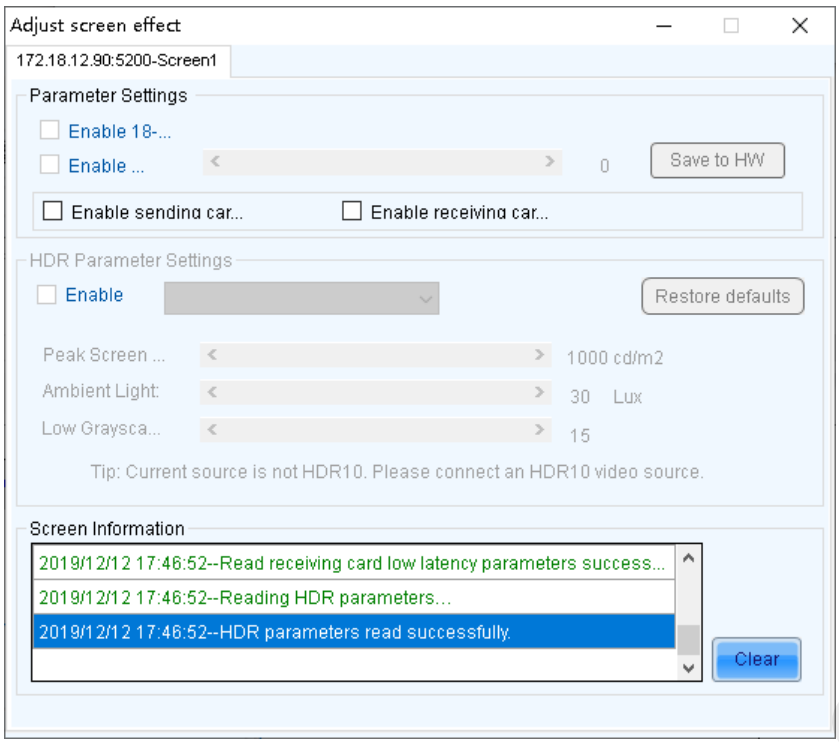
Enabling receiving card low latency can reduce the delay by one frame.

Operating Procedure

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

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

Figure 6-21 Screen effect adjustment



Step 3 Perform any of the following operations as required.

- **Enable 18-bit mode (18Bit+)**

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

- **Enable ClearView**

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

- **Enable receiving card low latency**

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

6.6 Set Image Booster Engine

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

6.6.1 Screen Calibration

Applications

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

Applicable Products

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

Prerequisites

- The receiving card program package is updated.
  - A5s Plus and A7s Plus: V4.6.4.0 or later
  - A8s: V4.6.5.0 or later
  - A10s Plus: V4.6.5.0 or later. For detailed operation, see the NovaLCT V5.3.1 user manual.

- The original display color gamut can be measured manually or automatically. To measure it automatically, you must use the supported colorimeter and finish the colorimeter hardware connection.

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

Notice

Adjusting receiving card parameters affects the display effect.

Related Information

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

- **Color Management**

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

- **Precise Grayscale**

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

- **22bit+**

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

- **18bit+**

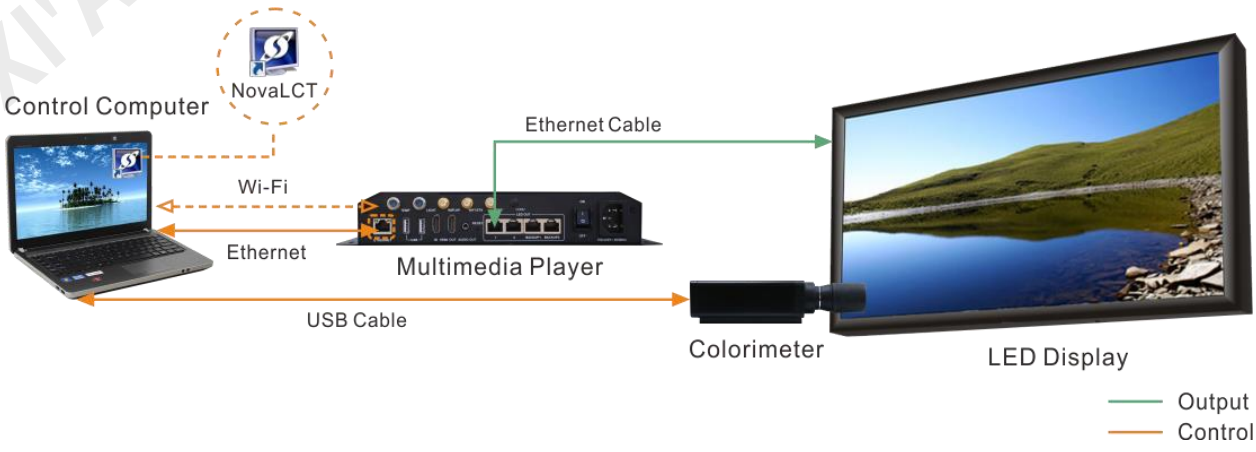
  Improve the LED display grayscale by 4 times to effectively handle the grayscale loss problem due to low brightness, presenting a smoother image.

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

Table 6-1 Colorimeters

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

Figure 6-22 Colorimeter connection



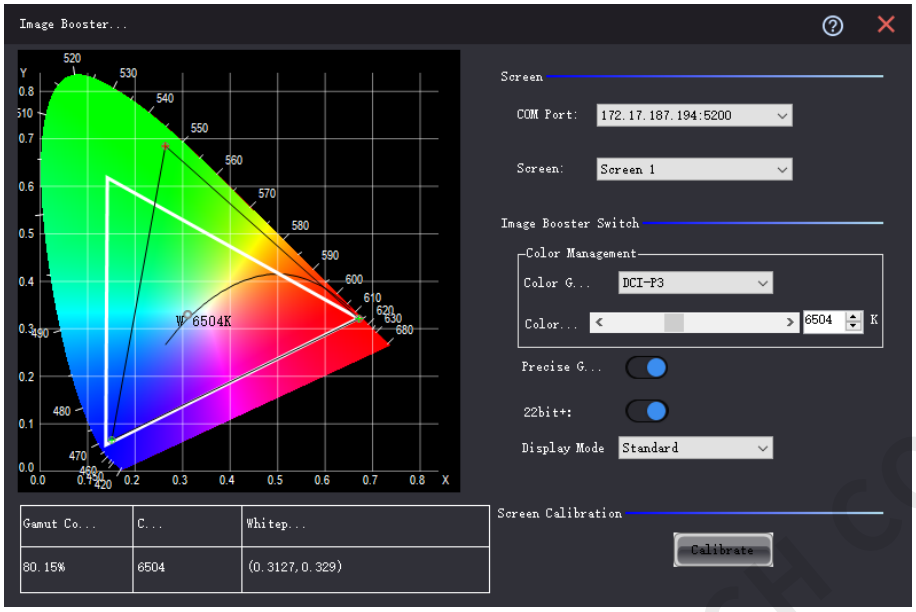
Operating Procedure

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

Step 2 On the main window, click 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

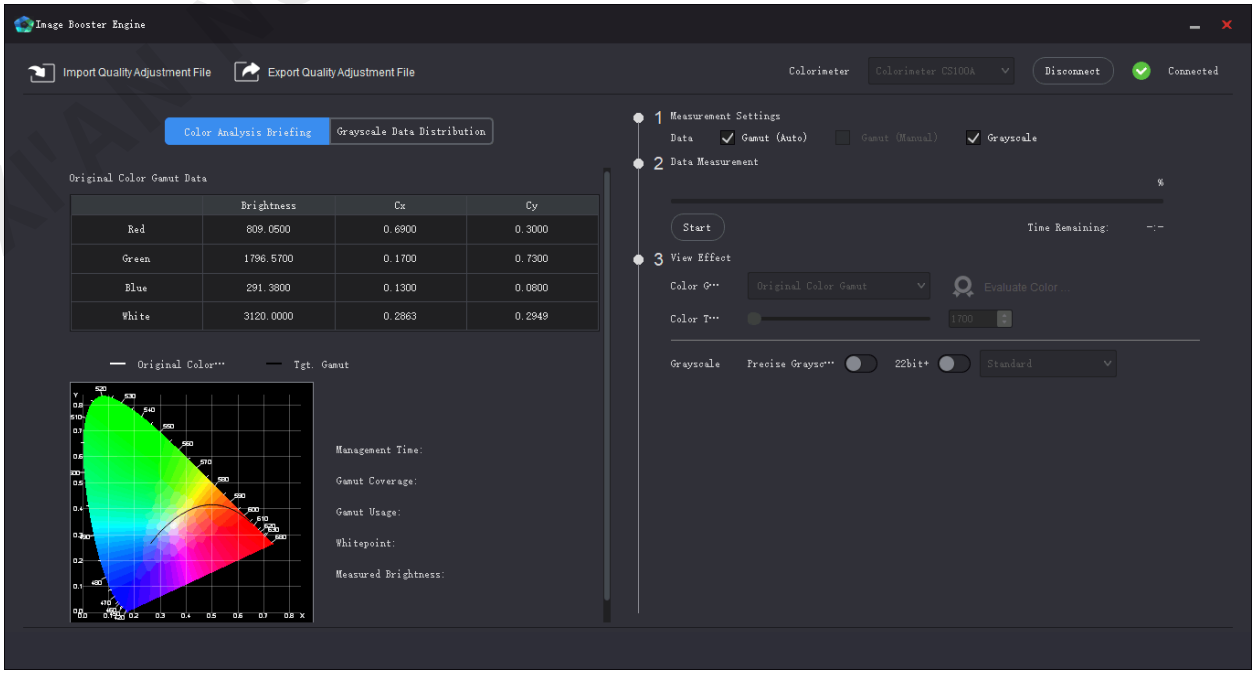
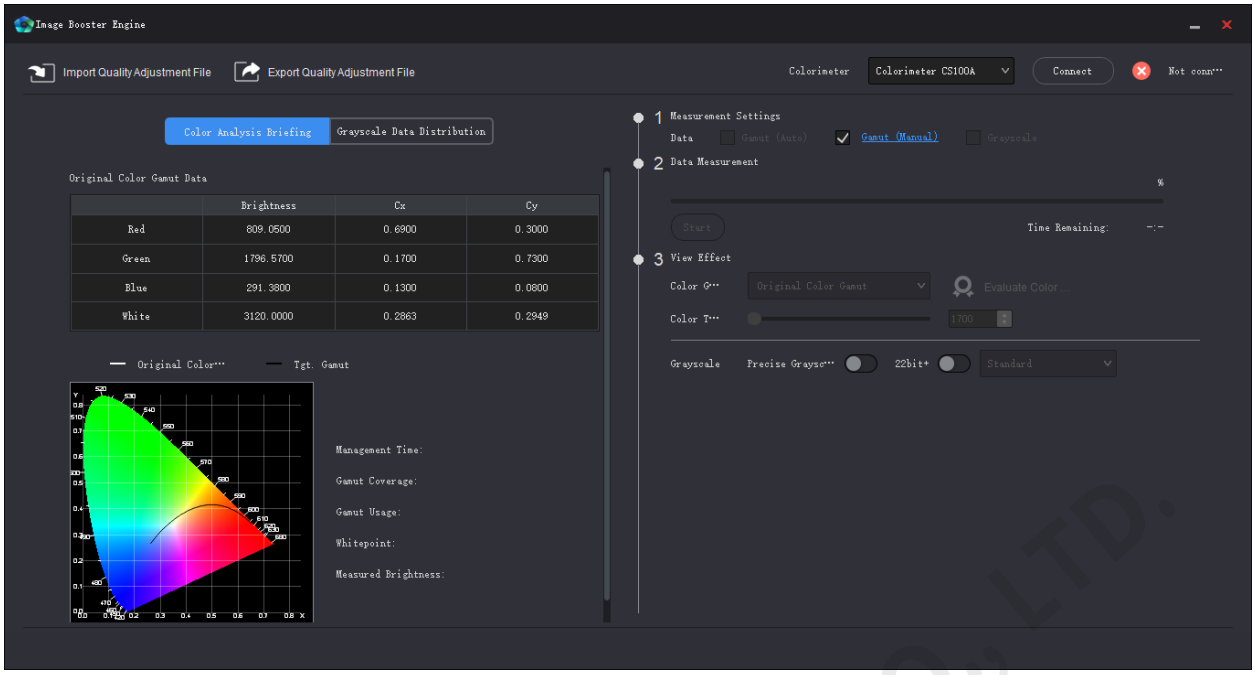


Figure 6-25 Colorimeter not connected



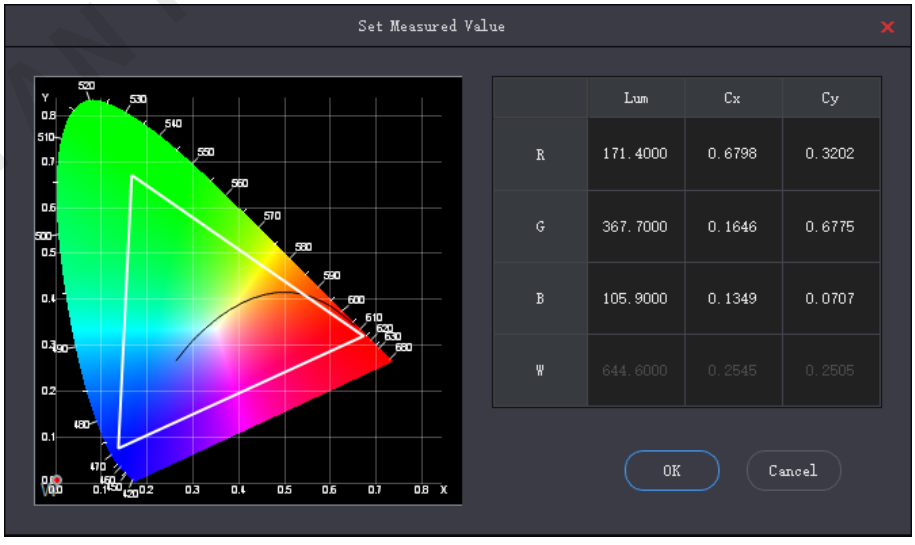
Step 5 Do one of the following operations as required.

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

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

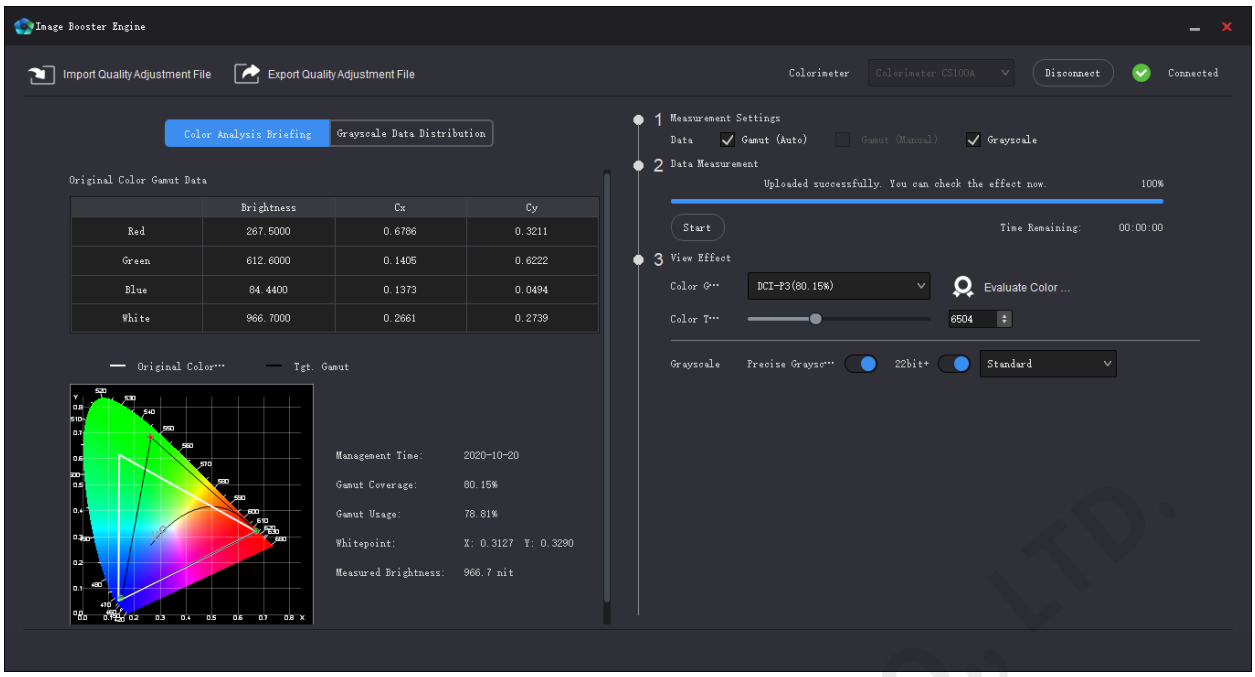
- Automatic measuring: Use the colorimeter to automatically measure the original color gamut. For the A8s receiving card, you can also choose to measure the grayscale.
  a. Select **Gamut (Auto)**. For the A8s, you can select **Grayscale** at the same time, if necessary.
  b. Click **Start** to start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

Figure 6-26 Setting measured value



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

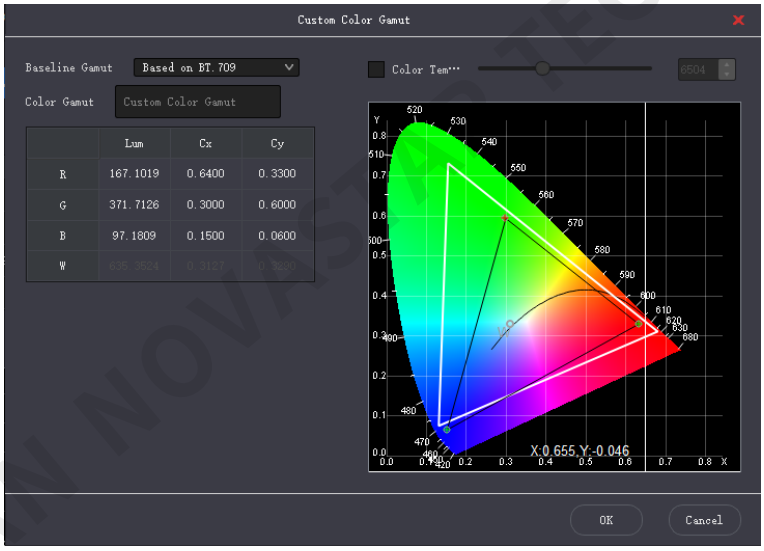
Figure 6-27 Viewing effect



- Color Gamut

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

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



  b. Select a baseline gamut.

  c. Set the color gamut name. The name cannot begin with a number.

  d. Double click the cells to change the values, or adjust the black triangle in the color gamut diagram. If you want to adjust the color temperature value, select **Color Temperature** and set it.

  e. After the settings are done, click **OK**.

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

- Color Temperature

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

- Precise Grayscale

  Turn on or off this function.

- 18bit+/22bit+

  Turn on or off this function.

- Display Mode

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

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

- Management Time: The date when the measuring is done
- Gamut Coverage: The LED screen color gamut coverage of the target color gamut, expressed as a percentage
- Gamut Usage: The LED screen color gamut coverage of the original color gamut, expressed as a percentage
- Whitepoint: The coordinates of white in the color gamut diagram
- Measured Brightness: The maximum brightness of whitepoint. Different color gamuts have the same maximum brightness of whitepoint.

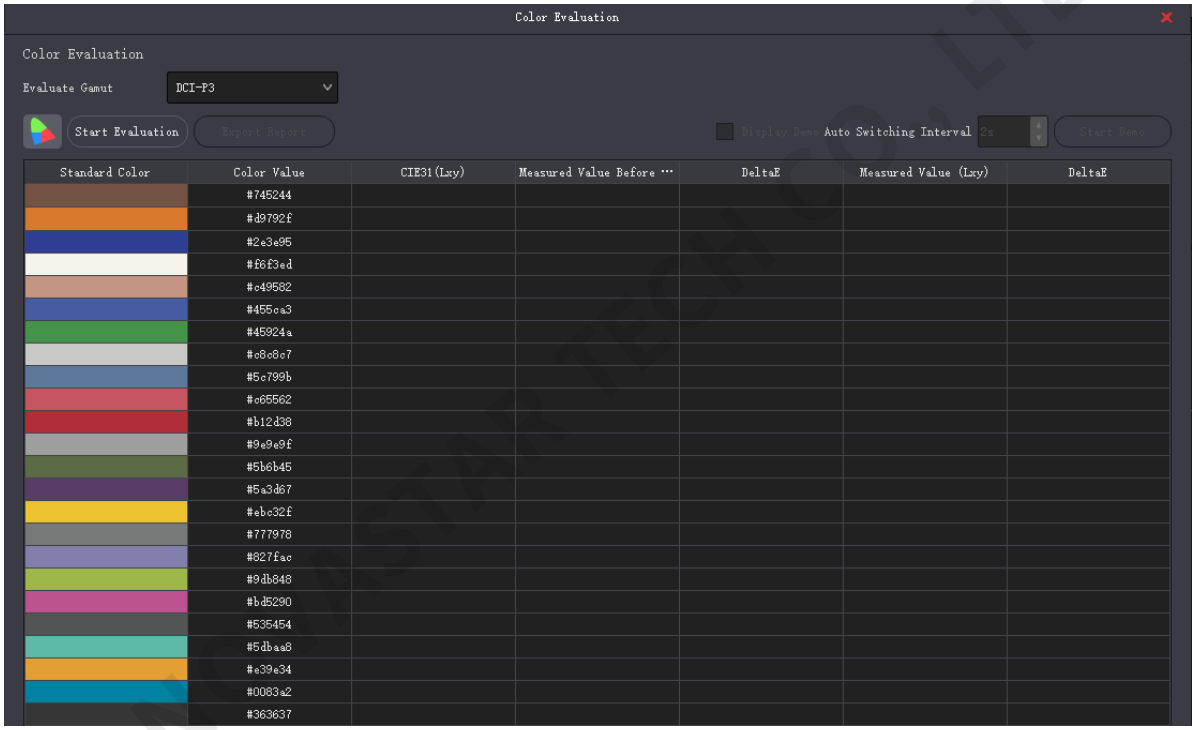
Step 8 Repeat Step 7 to change settings until the display effect meets the actual needs.

These settings are the final display effect configurations.

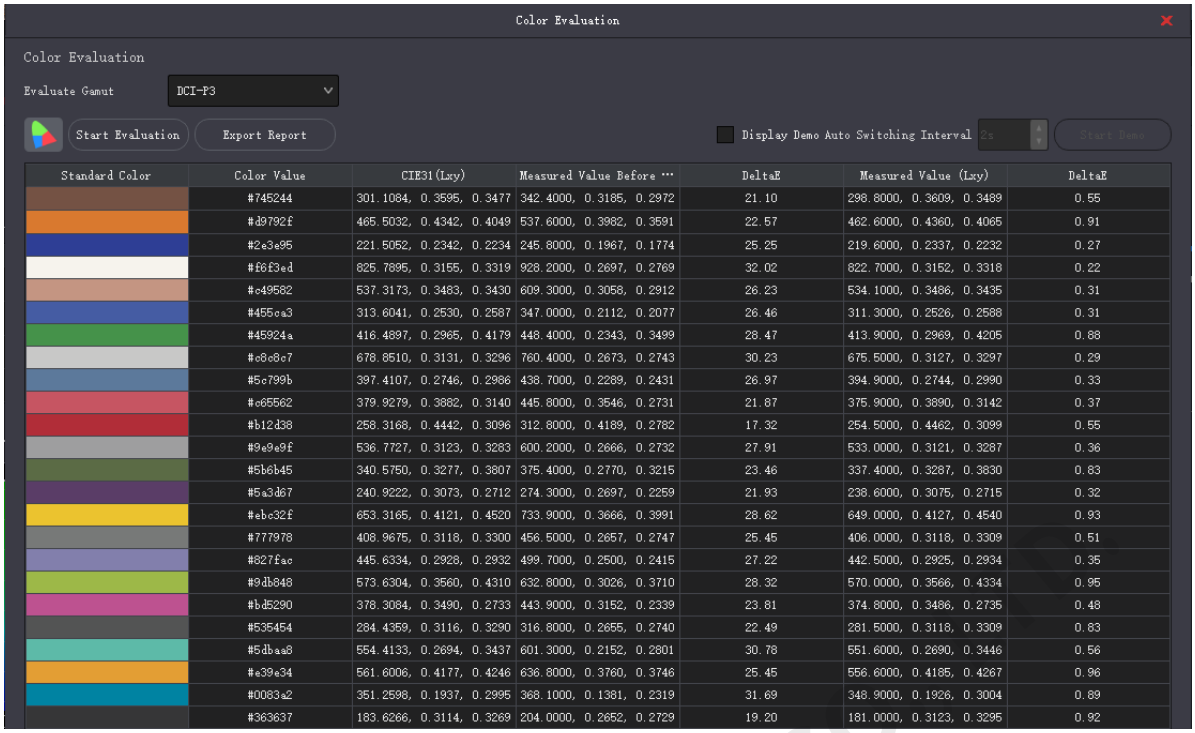
Step 9 (Optional) Click **Export Quality Adjustment File** to save the configuration information as a file.

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

1. Click **Evaluate Color Precision**.



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.



Standard Color	Color Value	CIE31(Lxy)	Measured Value Before ···	DeltaE	Measured Value (Lxy)	DeltaE
	#745244	301.1084, 0.3595, 0.3477	342.4000, 0.3185, 0.2972	21.10	298.8000, 0.3609, 0.3489	0.55
	#d9792f	465.5032, 0.4342, 0.4049	537.6000, 0.3982, 0.3591	22.57	462.6000, 0.4360, 0.4065	0.91
	#2e3e95	221.5052, 0.2342, 0.2234	245.8000, 0.1967, 0.1774	25.25	219.6000, 0.2337, 0.2232	0.27
	#f6f3ed	825.7895, 0.3155, 0.3319	928.2000, 0.2697, 0.2769	32.02	822.7000, 0.3152, 0.3318	0.22
	#c49582	537.3173, 0.3483, 0.3430	609.3000, 0.3058, 0.2912	26.23	534.1000, 0.3486, 0.3435	0.31
	#455ca3	313.6041, 0.2530, 0.2587	347.0000, 0.2112, 0.2077	26.46	311.3000, 0.2526, 0.2588	0.31
	#45924a	416.4897, 0.2965, 0.4179	448.4000, 0.2343, 0.3499	28.47	413.9000, 0.2969, 0.4205	0.88
	#c8c8c7	678.8510, 0.3131, 0.3296	760.4000, 0.2673, 0.2743	30.23	675.5000, 0.3127, 0.3297	0.29
	#5c799b	397.4107, 0.2746, 0.2986	438.7000, 0.2289, 0.2431	26.97	394.9000, 0.2744, 0.2990	0.33
	#c65562	379.9279, 0.3882, 0.3140	445.8000, 0.3546, 0.2731	21.87	375.9000, 0.3890, 0.3142	0.37
	#b12d38	258.3168, 0.4442, 0.3096	312.8000, 0.4189, 0.2782	17.32	254.5000, 0.4462, 0.3099	0.55
	#9e9e9f	536.7727, 0.3123, 0.3283	600.2000, 0.2666, 0.2732	27.91	533.0000, 0.3121, 0.3287	0.36
	#5b6b45	340.5750, 0.3277, 0.3807	375.4000, 0.2770, 0.3215	23.46	337.4000, 0.3287, 0.3830	0.83
	#5a3d67	240.9222, 0.3073, 0.2712	274.3000, 0.2697, 0.2259	21.93	238.6000, 0.3075, 0.2715	0.32
	#ebc32f	653.3165, 0.4121, 0.4520	733.9000, 0.3666, 0.3991	28.62	649.0000, 0.4127, 0.4540	0.93
	#777978	408.9675, 0.3118, 0.3300	456.5000, 0.2657, 0.2747	25.45	406.0000, 0.3118, 0.3309	0.51
	#827fac	445.6334, 0.2928, 0.2932	499.7000, 0.2500, 0.2415	27.22	442.5000, 0.2925, 0.2934	0.35
	#9db848	573.6304, 0.3560, 0.4310	632.8000, 0.3026, 0.3710	28.32	570.0000, 0.3566, 0.4334	0.95
	#bd5290	378.3084, 0.3490, 0.2733	443.9000, 0.3152, 0.2339	23.81	374.8000, 0.3486, 0.2735	0.48
	#535454	284.4359, 0.3116, 0.3290	316.8000, 0.2655, 0.2740	22.49	281.5000, 0.3118, 0.3309	0.83
	#5dbaa8	554.4133, 0.2694, 0.3437	601.3000, 0.2152, 0.2801	30.78	551.6000, 0.2690, 0.3446	0.56
	#e39e34	561.6006, 0.4177, 0.4246	636.8000, 0.3760, 0.3746	25.45	556.6000, 0.4185, 0.4267	0.96
	#0083a2	351.2598, 0.1937, 0.2995	368.1000, 0.1381, 0.2319	31.69	348.9000, 0.1926, 0.3004	0.89
	#363637	183.6266, 0.3114, 0.3269	204.0000, 0.2652, 0.2729	19.20	181.0000, 0.3123, 0.3295	0.92

- CIE31: The standard value of brightness, Cx and Cy of the color
- Measured Value Before MGMT.: The measured value of brightness, Cx and Cy of the color in the original color gamut
- Measured Value: The measured value of brightness, Cx and Cy of the color in the target color gamut
- DeltaE: The deviation between the measured value and standard value

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

6.6.2 Quick Setting

Applications

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

Applicable Products

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

Prerequisites

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

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+**

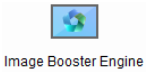
  Improve the LED display grayscale by 64 times to solve the grayscale loss problem due to low brightness and allow for more details in dark and bright areas, presenting a smoother image.

- **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 login operations, see 4 User Login.

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

Step 3 Select a screen that you want to set.

Figure 6-28 Image Booster Engine

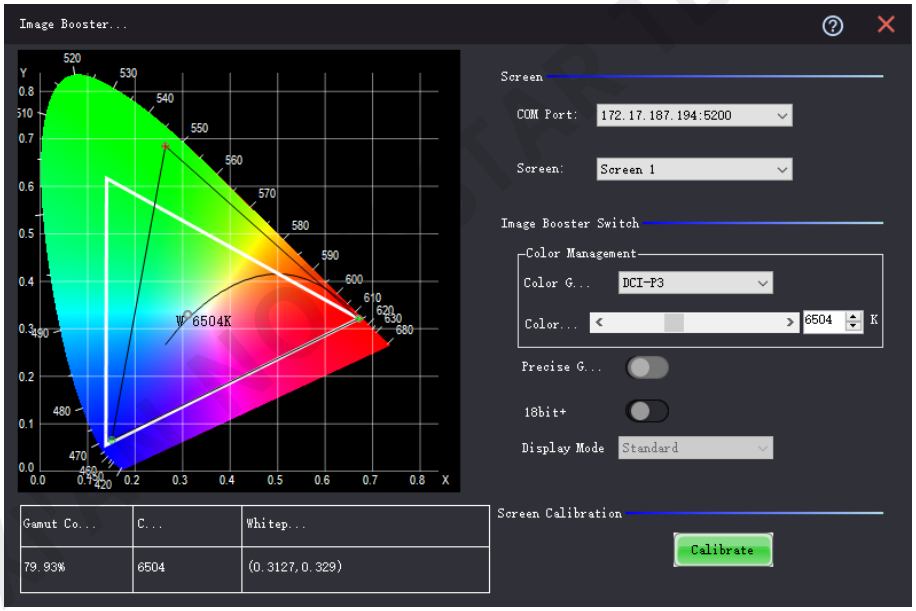
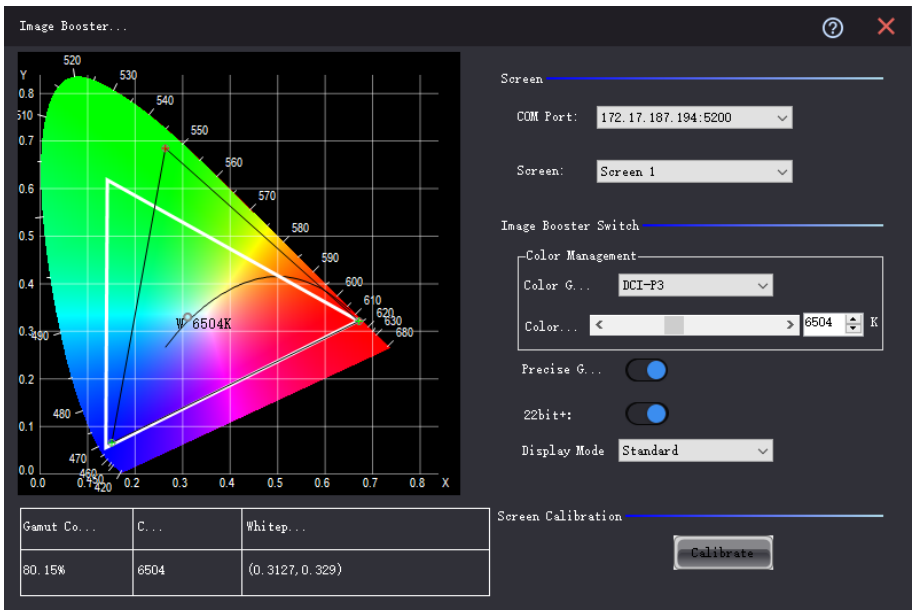


Figure 6-29 Image Booster Engine (A8s)



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

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

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

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

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

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

These settings are the final display effect configurations.

6.7 Batch Check Calibration Effects

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

None

Related Information

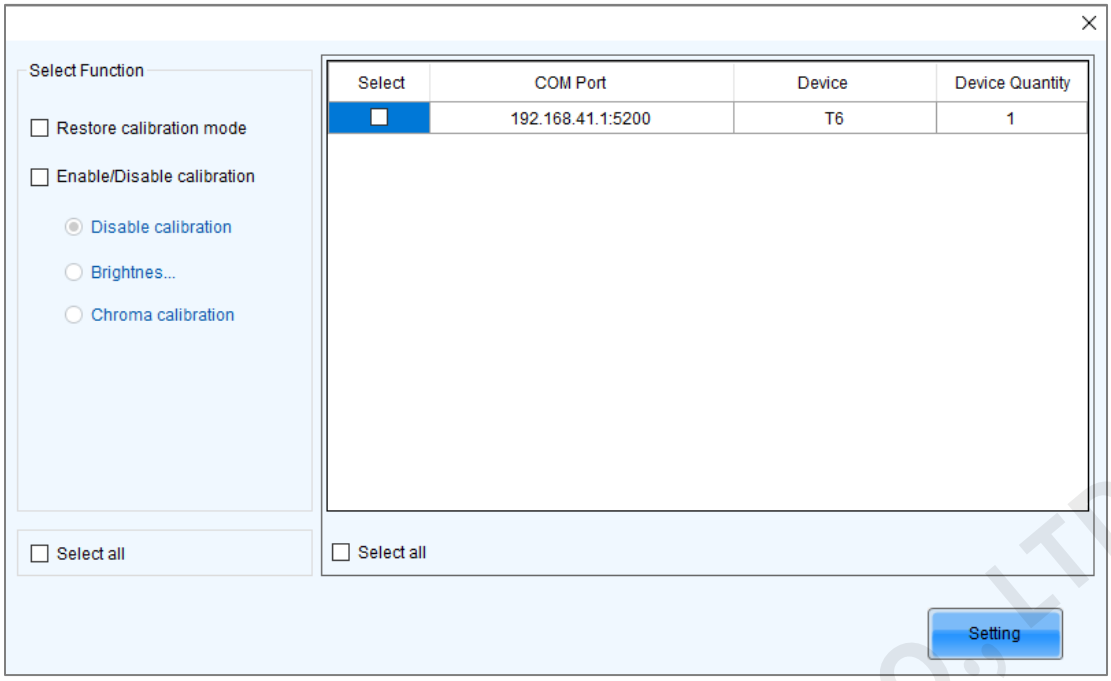
None

Operating Procedure

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

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

Figure 6-30 Batch checking calibration effects



Step 3 In the device list, select the device of which you want to check the calibration effects.

Step 4 Select **Enable/Disable calibration** and click **Setting**.

Step 5 Click **OK** to close the prompt box.

Step 6 Select **Disable calibration**, **Brightness calibration** or **Chroma calibration** and check the corresponding display effects on the LED screen.

7 Screen Monitoring

7.1 Register Screens with VNNOX Care

7.1.1 Register Online Screens

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

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

Related Information

None

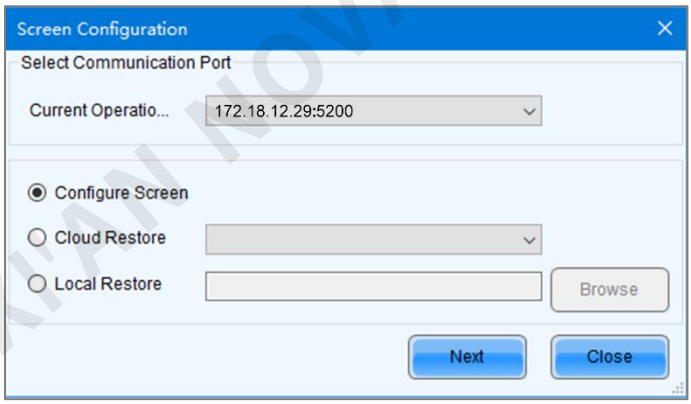
Operating Procedure

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

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar to open the dialog box shown in Figure 7-1.

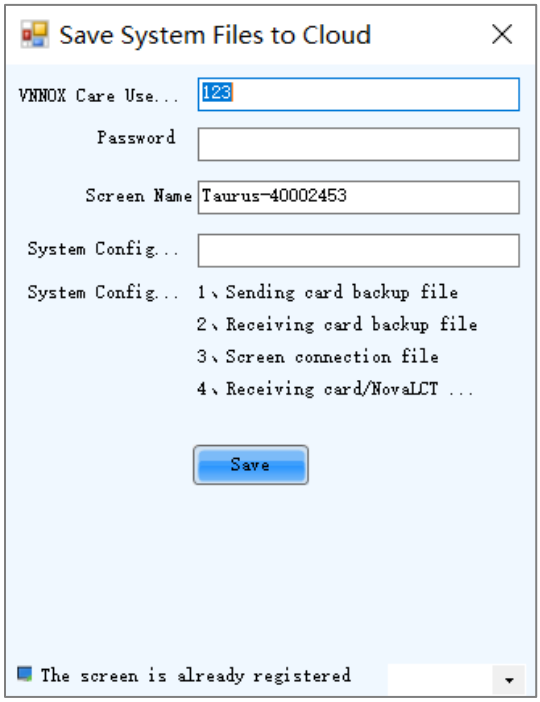
Figure 7-1 Screen configuration



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



Step 5 Enter your VNNOX Care user name and password, set the screen name and system configuration file name, and select a server node

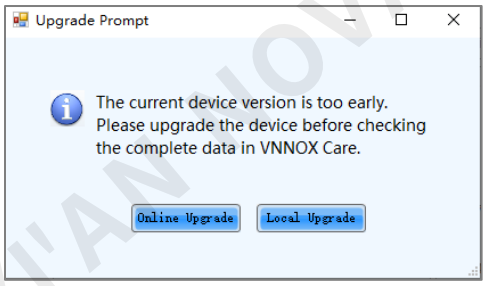
Step 6 After the parameter settings, cick **Save**.

Step 7 Do the corresponding operation below based on the multimedia player firmware version.

- Firmware version V3.3.0 or later: After the configuration file is saved, close the prompt box. No further action is required.
- Firmware version earlier than V3.3.0: Go to Step 8.

Step 8 Do any of the following operations to upgrade the firmware version and save the configuration file to cloud and local PC. (The device will automatically restart during upgrade.)

Figure 7-3 Upgrade prompt



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

Notes

During registration, NovaLCT will automatically enable **Automatic Refresh** and **Link to NovaiCare** in the

monitoring configuration. If you want to set the refresh period, please see 7.2.1 Monitoring.

7.1.2 Register Offline Screens

7.1.2.1 Register by Using Local Backup Files (Recommended)

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

You have a valid VNNOX Care account.

Related Information

None

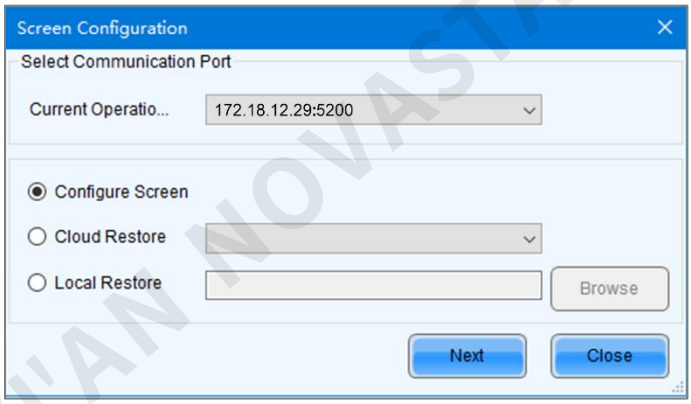
Operating Procedure

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

Step 2 Click 

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

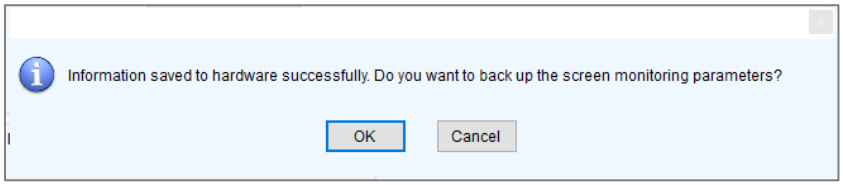


Step 3 Select **Configure Screen** and click **Next**.

Step 4 On the **Screen Configuration** page, click **Save**.

Step 5 After successful saving, click **OK** to save the screen monitoring backup file to the local computer.

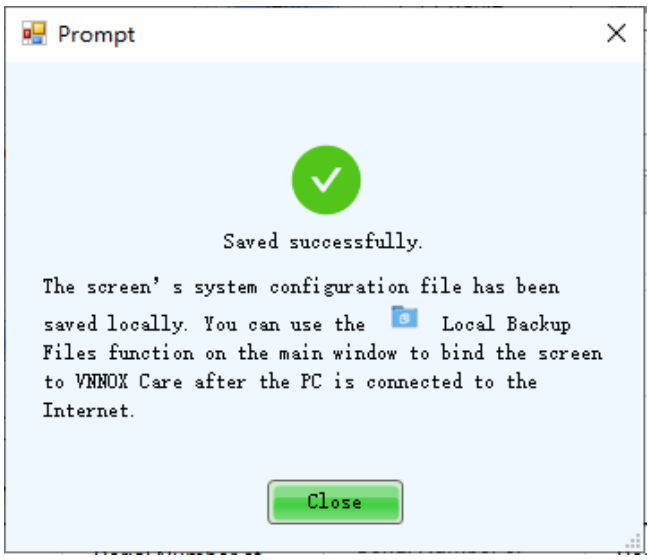
Figure 7-5 Successful saving



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

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

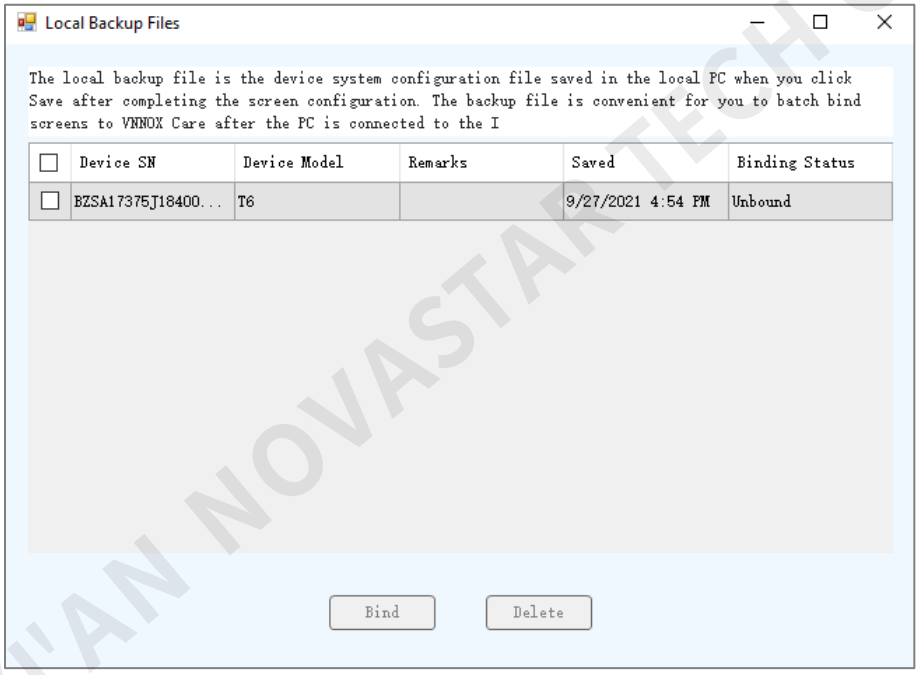
Figure 7-6 Saved successfully



Step 7 When the control PC can access the Internet normally, click 

on the main window to open the dialog box shown in Figure 7-7.

Figure 7-7 Local backup files



Step 8 Enter a remark.

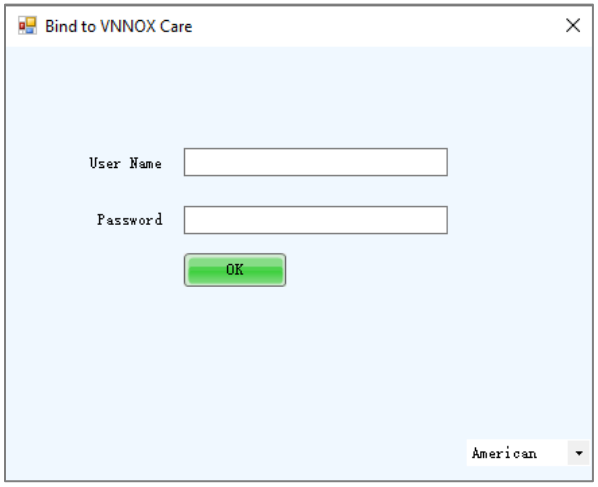
The remark will be the name of the successfully bound screen. If the remark is empty, the device SN will be the screen name.

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



Related Operations

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

7.1.2.2 Register by Using Screen Monitoring Data

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

You have a valid VNNOX Care account.

Related Information

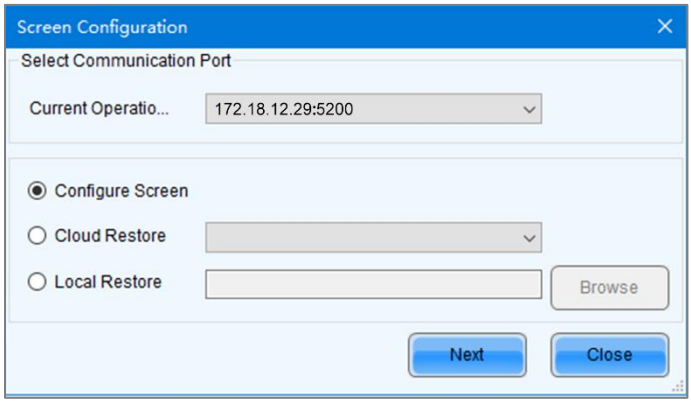
None

Operating Procedure

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

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

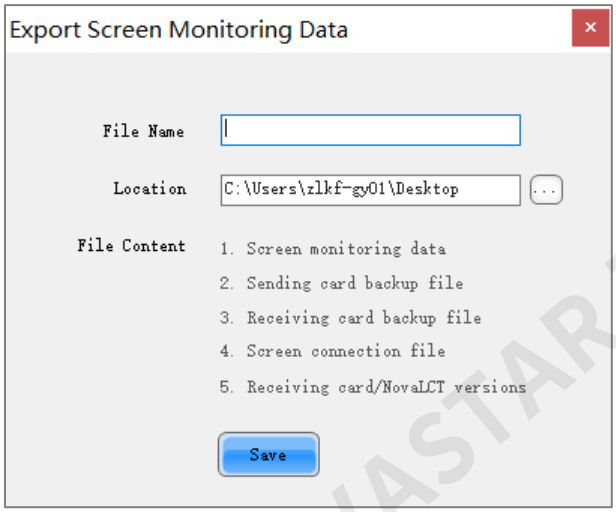
Figure 7-9 Screen configuration method



Step 3 Select **Configure Screen** and click **Next**.

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

Figure 7-10 Exporting screen monitoring data



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

7.2.1 Monitoring

Applications

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

Applicable Products

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

- Use hub product for monitoring: Applicable to the A4, A4s, A5, A5s, A7, A7s, A8, A8s, A9s, A10s Plus, XC200 and XC100 receiving cards. Using hub product for monitoring is an optional function of the receiving cards.

Prerequisites

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

Related Information

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

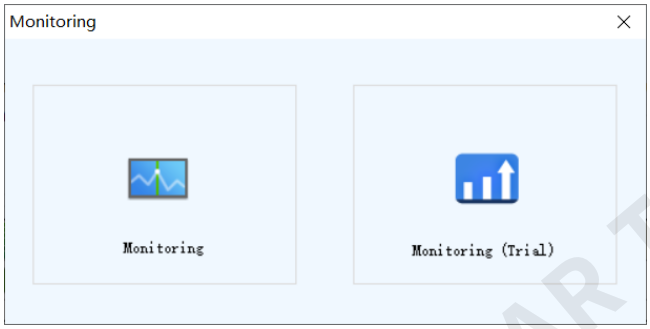
Operating Procedure

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

Step 2 Click 

or choose **Tools** > **Monitoring** on the menu bar.

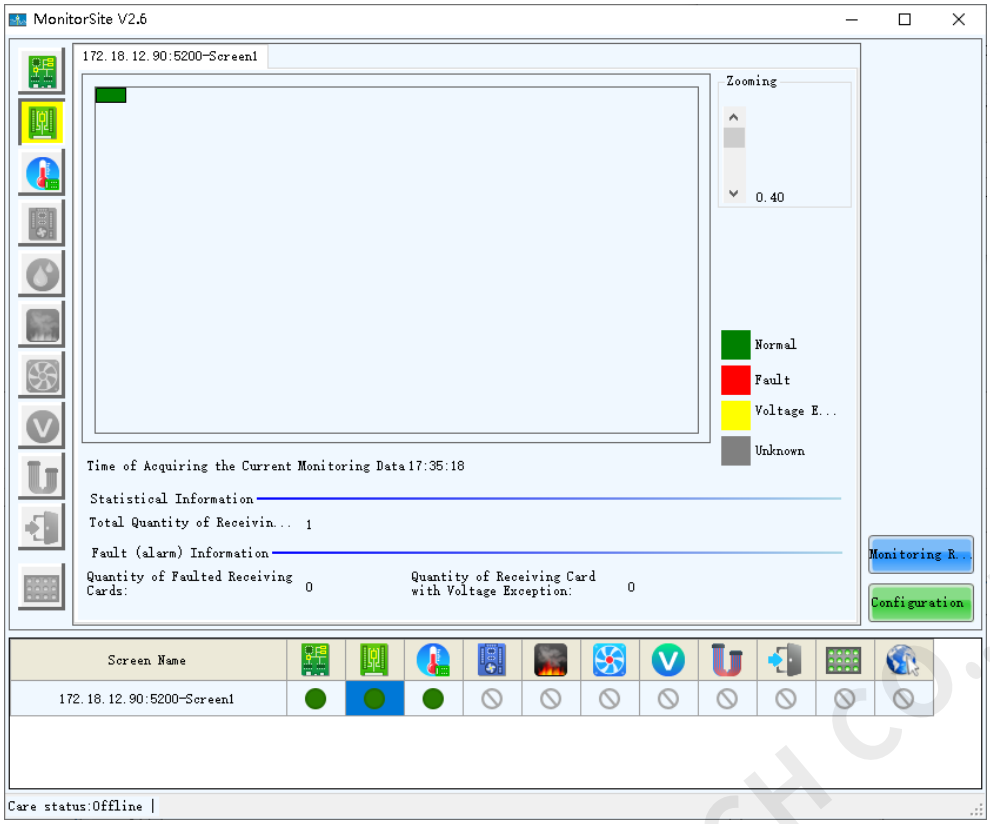
Figure 7-11 Monitoring type



Step 3 Click **Monitoring** to open the monitoring page.

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

Figure 7-12 Monitoring

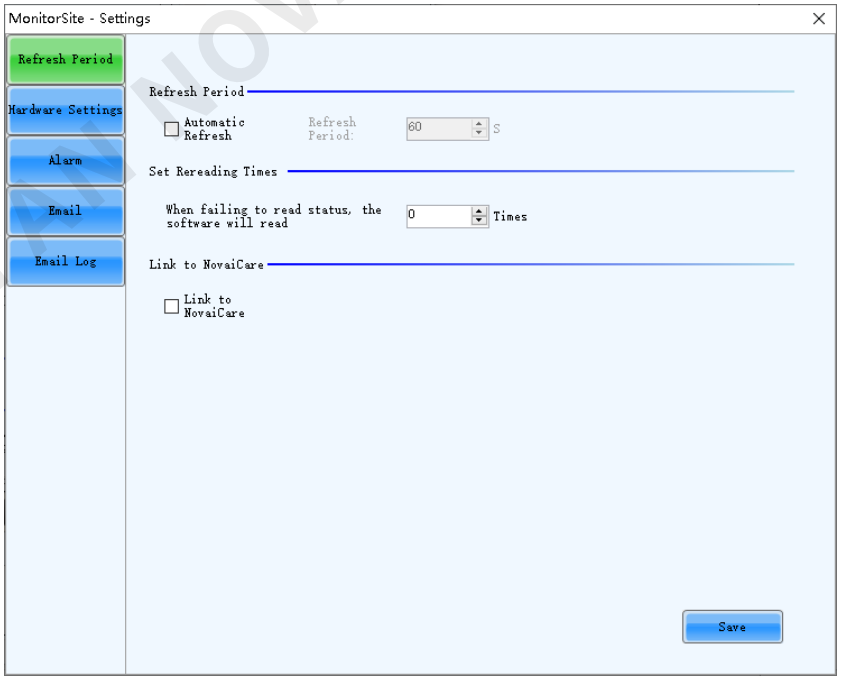


Note:

- Click **Monitoring Refresh** to manually refresh the monitoring information.
- On the desktop taskbar, right click  and select **Reload Screen** to refresh the receiving card topology diagram.

Step 4 Click **Configuration** to set the monitoring parameters.

Refresh Period



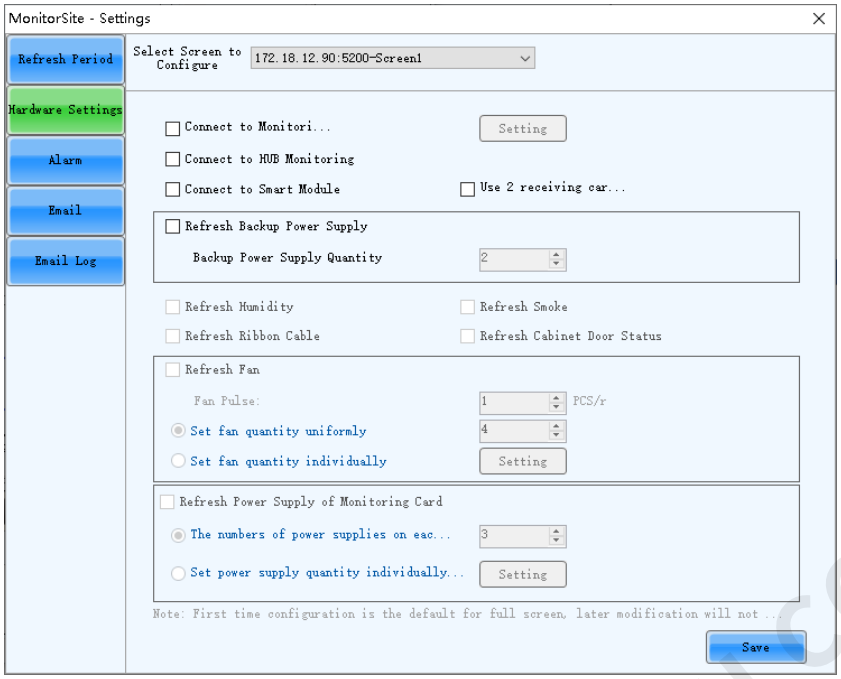
Set the necessary items below and click **Save** to save the settings.

- 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



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

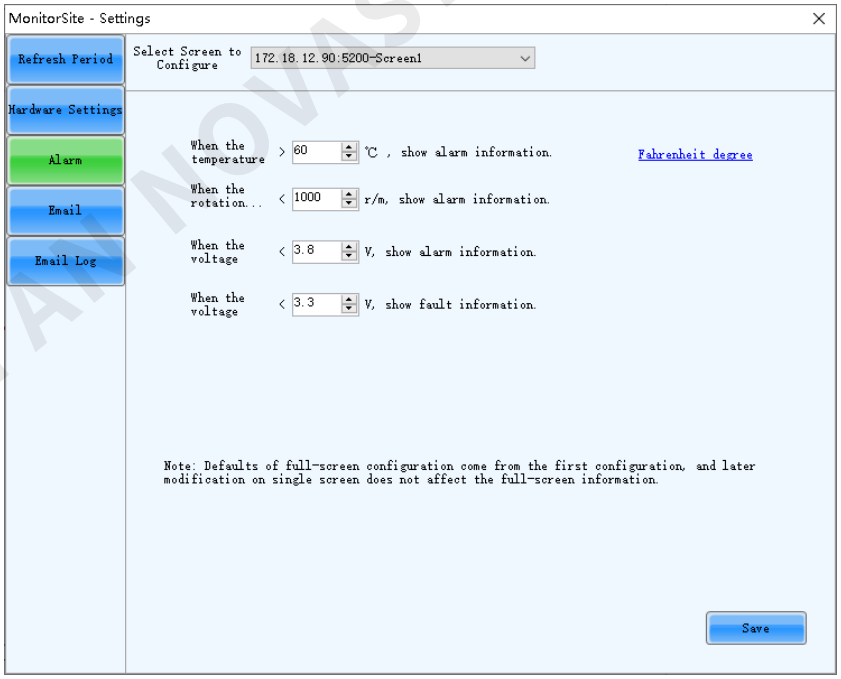
– Select **Connect to Monitoring Card** and set the monitoring items. Click **Setting** to set the number of monitoring cards connected to each cabinet. The number is 0 or 1.

– Select **Connect to HUB Monitoring** and set the monitoring items.

– Select **Connect to Smart Module** and set the monitoring items.

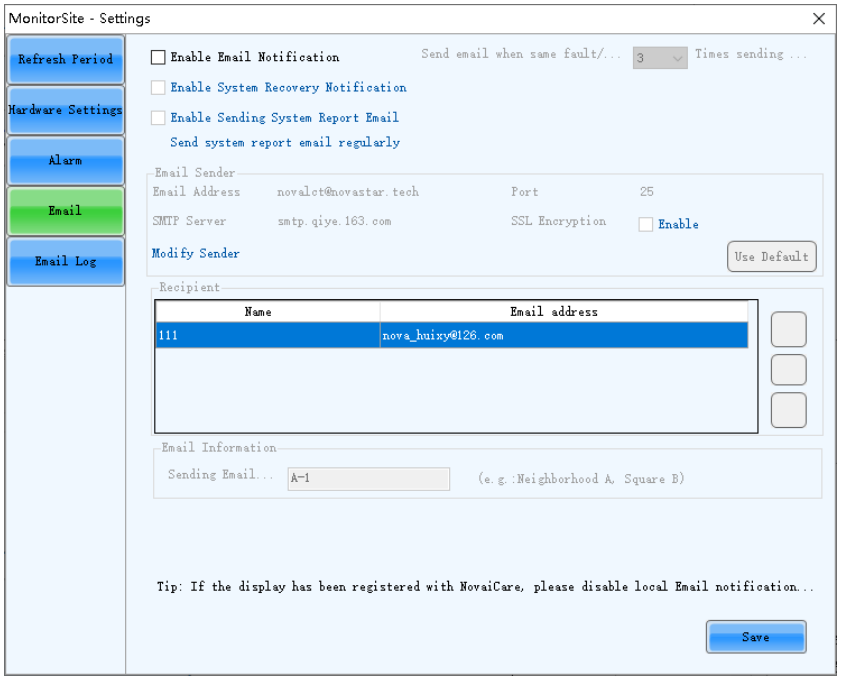
– Select **Connect to HUB Monitoring** and **Connect to Smart Module**, then set the monitoring items.

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.

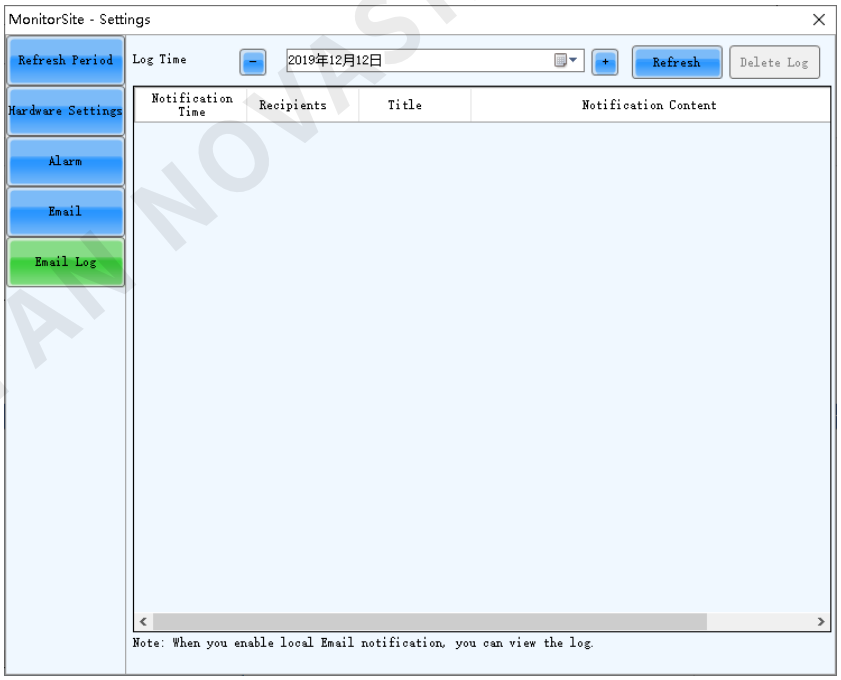
Email



Select **Enable Email Notification**. Set the necessary items below and click **Save** to save the settings.

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

Email Log



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

7.2.2 Monitoring (Trial)

Applications

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

Applicable Products

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

Prerequisites

If you want to use the monitoring function of monitoring card, a monitoring card should be used between the module and receiving card.

Related Information

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

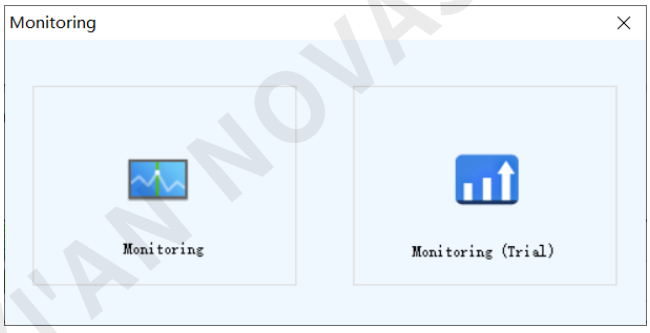
Operating Procedure

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

Step 2 Click 

or choose **Tools** > **Monitoring** on the menu bar.

Figure 7-13 Monitoring type



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

Figure 7-14 Monitoring (Trial)

Step 4 Add a monitoring page.

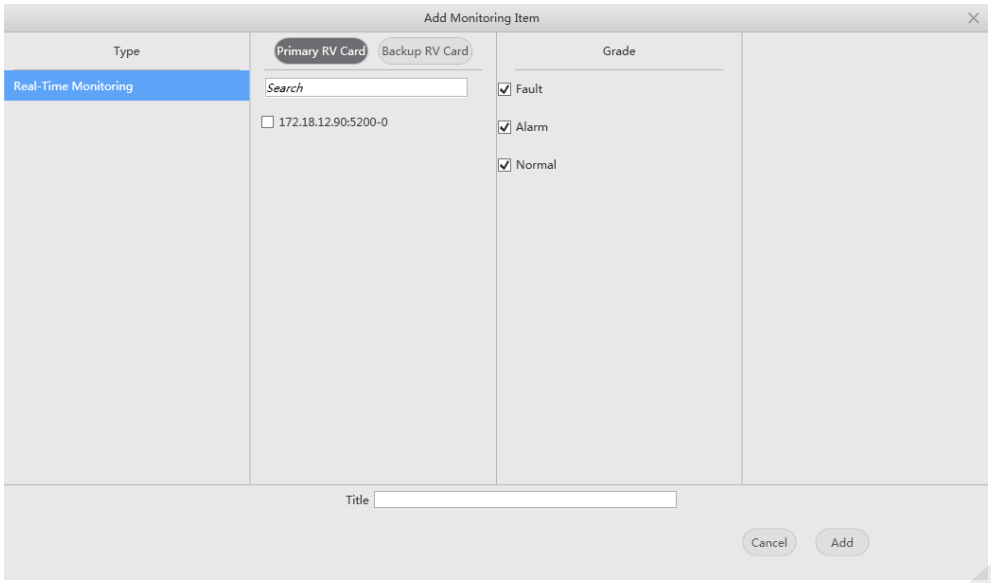
7. On the top right of the page, click +.
8. Right click the monitoring page name and choose **Rename** from the displayed menu.

   In the displayed menu, you can also choose to refresh or delete the monitoring page.
9. Enter a name and press **Enter** or click on the other position on the page.

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

Step 5 Add a monitoring item.

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



2. Select the communication port and monitoring grade, set a title and click **Add**.

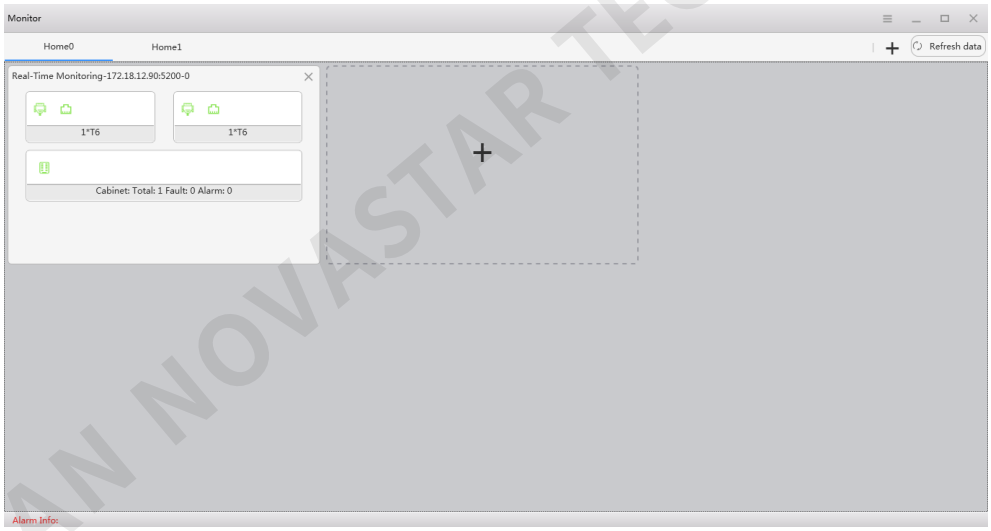
   The **Backup RV Card** button is currently unavailable.

3. Click **OK**.

   If necessary, you can add multiple monitoring items.

Step 6 Check the monitoring information.

1. Click **Refresh data** to obtain the monitoring information.
2. Check the monitoring information summary.



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

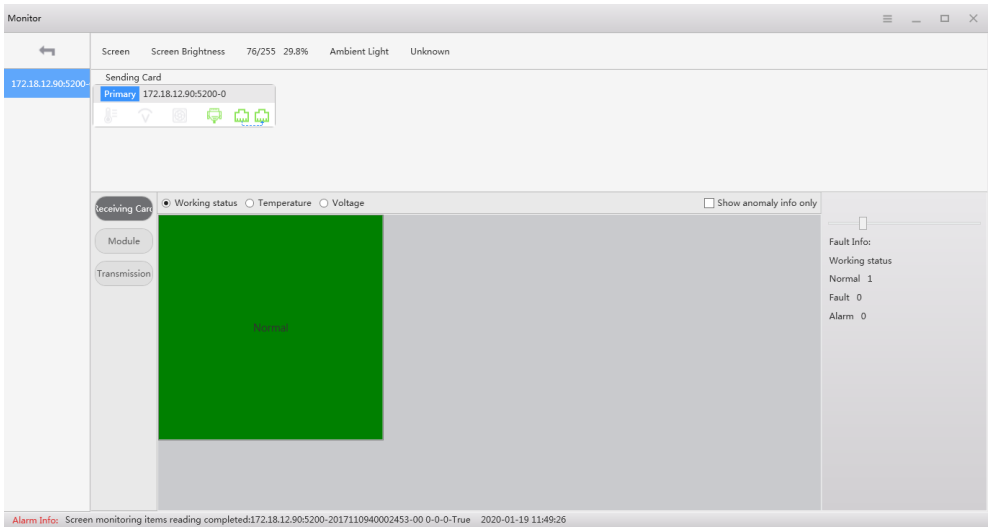
Description of the monitoring information summary:

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

Description of icon colors:

- Green: Normal
- Yellow: Alarm
- Red: Fault
- Gray: Unknown

3. Click a monitoring item to check the detailed monitoring information.



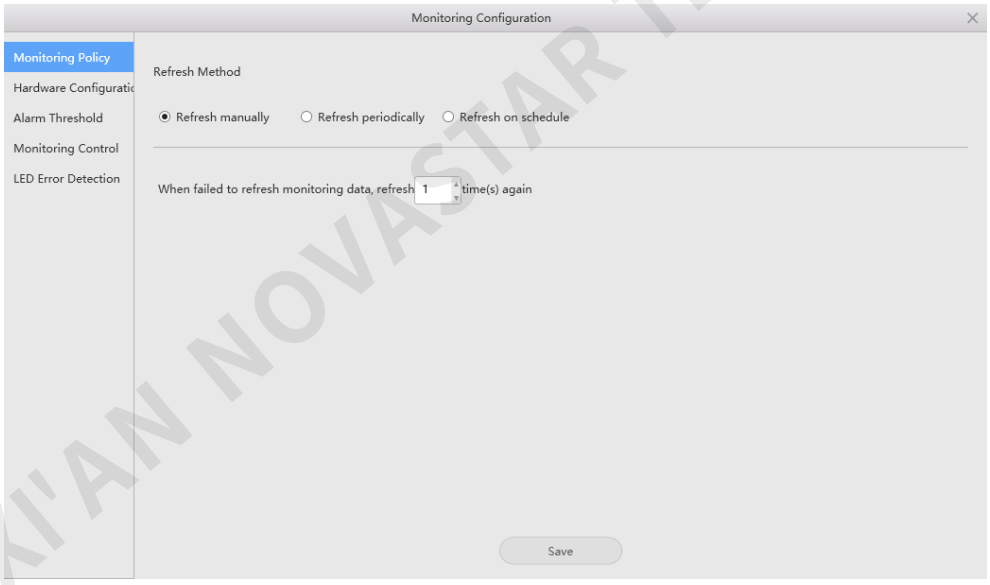
The displayed items in the detailed information are relevant to the monitoring parameters. For configuration of monitoring parameters, see Step 7.

Description of the detailed information:

- Check the screen brightness and ambient brightness.
- Check the monitoring information of the multimedia player.
- Check the monitoring information related with the cabinet, receiving card, module and transmission, and perform LED error detection on the module.

Step 7 On the top right of the page, click  to configure the monitoring parameters.

Figure 7-15 Monitoring configuration

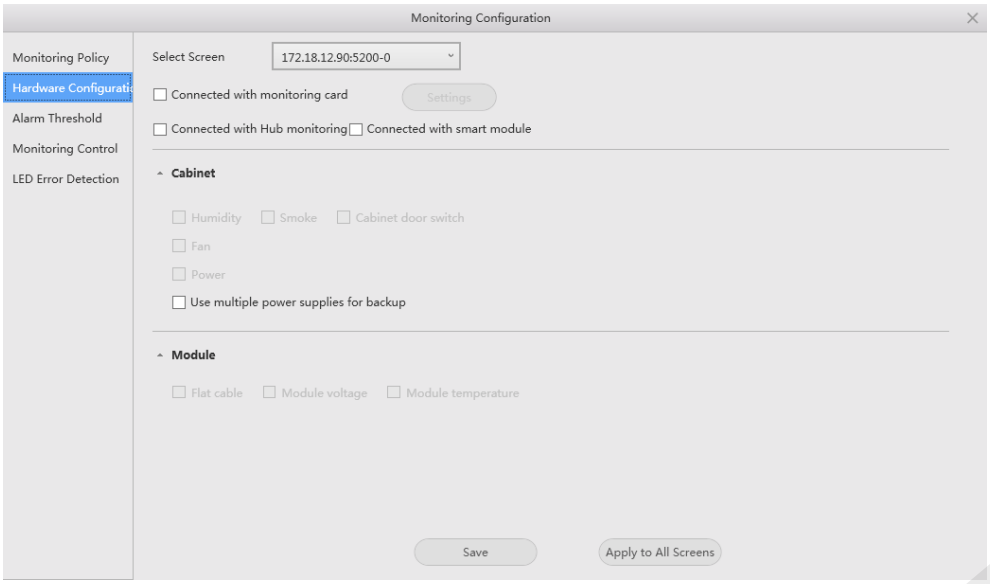


- **Monitoring Policy**

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

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

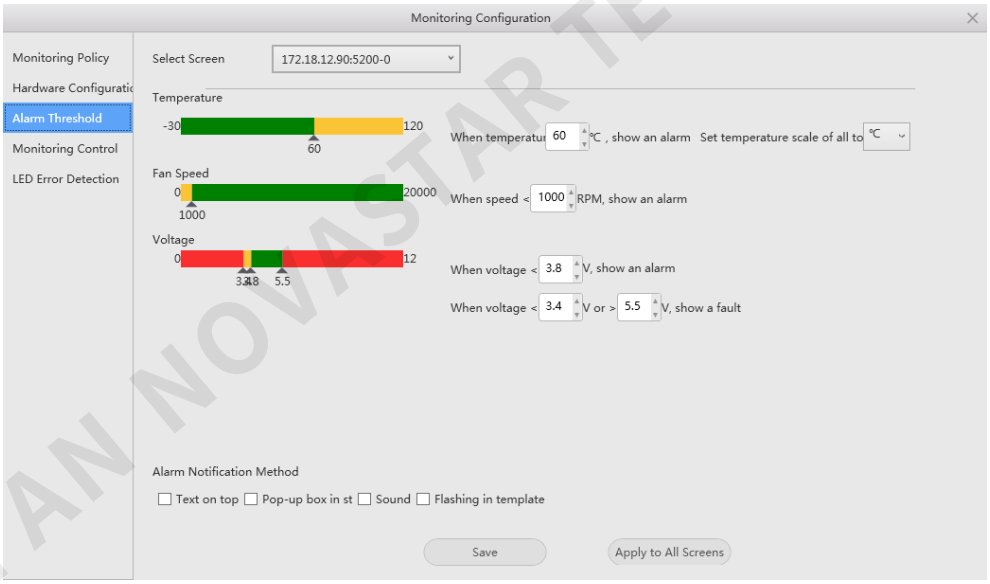
- **Hardware Configuration**



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

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

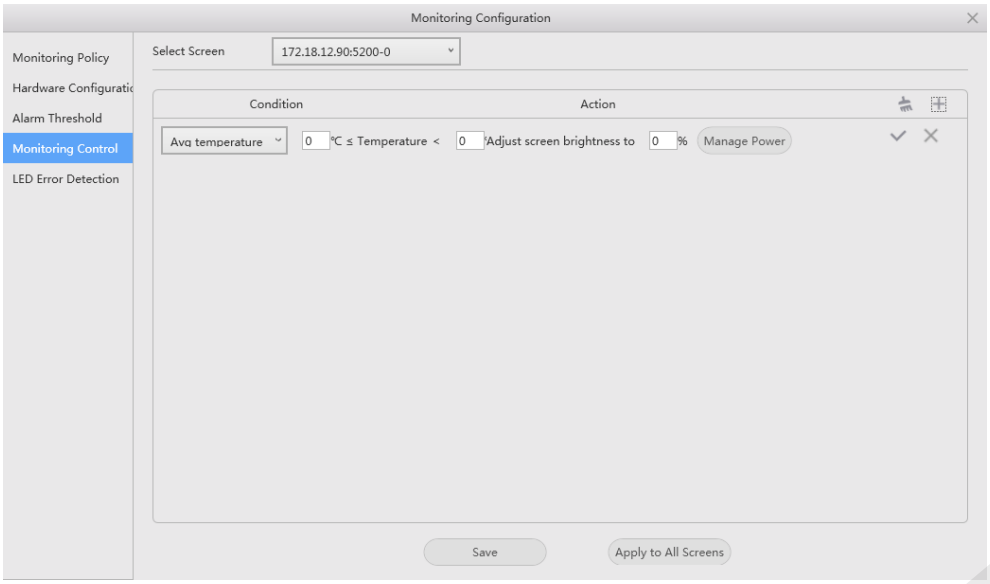
Alarm Threshold



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

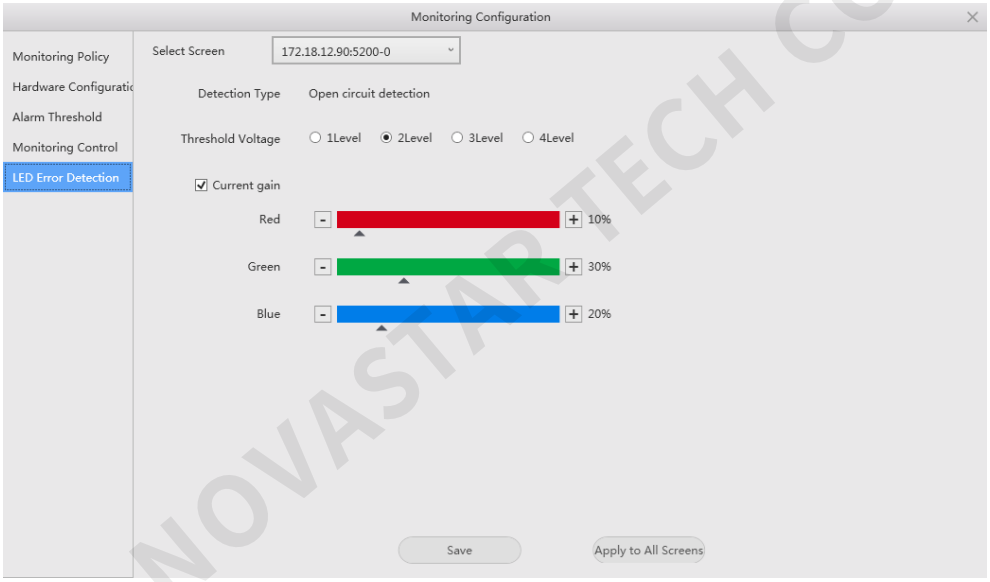
- Set the alarm thresholds for temperature, fan rotating speed and voltage. When the threshold value is exceeded, faults or alarms will be displayed.
- Set the alarm notification method.

Monitoring Control



Set the rules for automatic control of average temperature, maximum temperature, smoke and backup power supply. If the control type is set to smoke, a multifunction card must be configured in advance. After the settings are done, click **Save** or **Apply to All Screens**.

LED Error Detection



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

- Detection Type: The detection types supported by the driver chip
- Threshold Voltage: The level of the threshold voltage of the driver chip, which can be set based on the information provided by the screen manufacturer
- Current gain: Select whether to enable the current gain function. You can adjust the current gain.

8 Screen Management

8.1 Multi-function Card Management

Applications

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

Applicable Products

The MFN300 multifunction card

Prerequisites

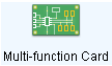
Hardware connections for the multifunction card are done.

Related Information

None

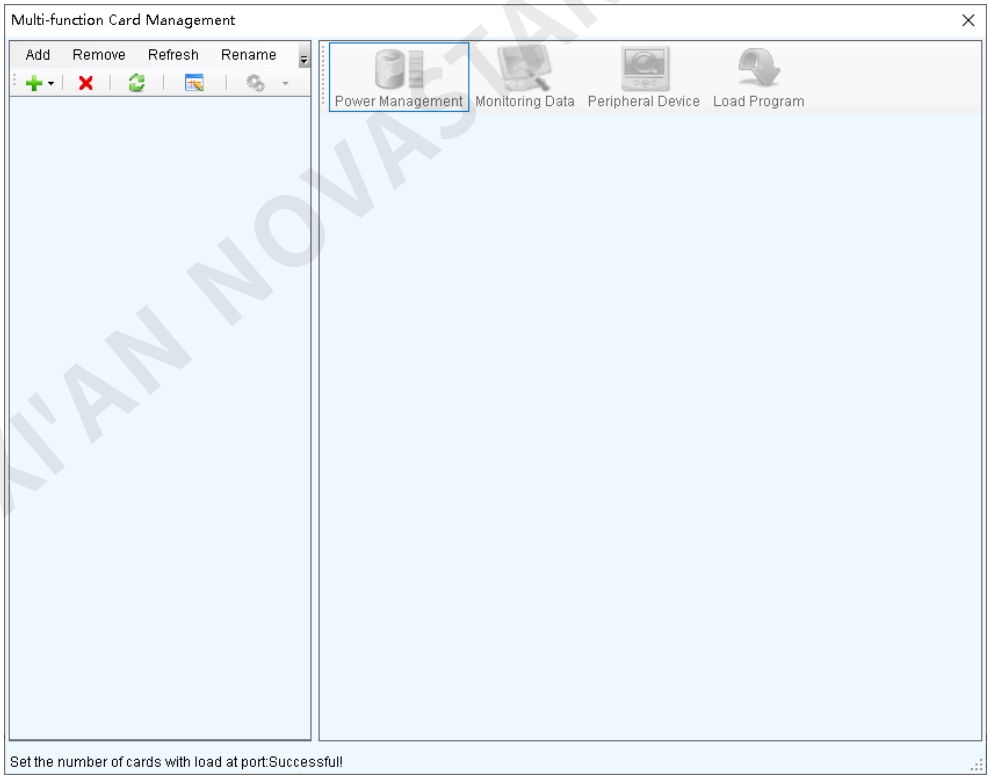
Operating Procedure

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

Step 2 Click 

or choose **Settings** > **Multi-function Card** on the menu bar.

Figure 8-1 Multifunction card management



Step 3 Click **Add** and select the connection type of the multifunction card.

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

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

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

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

Step 4 For serial port connection, choose a communication port and click **OK**. For Ethernet port connection, choose a communication port and set other parameters as shown in Figure 8-2, and then click **OK**.

Figure 8-2 Adding multifunction card

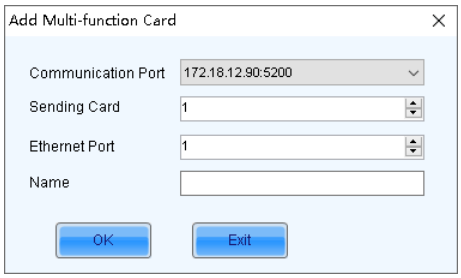
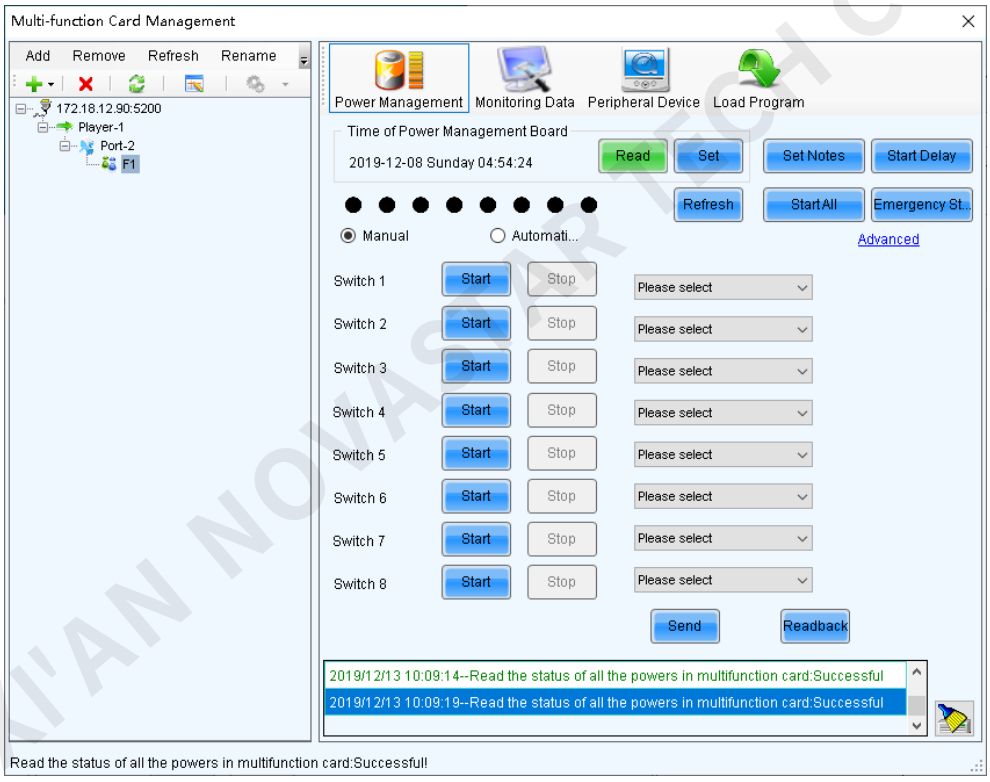


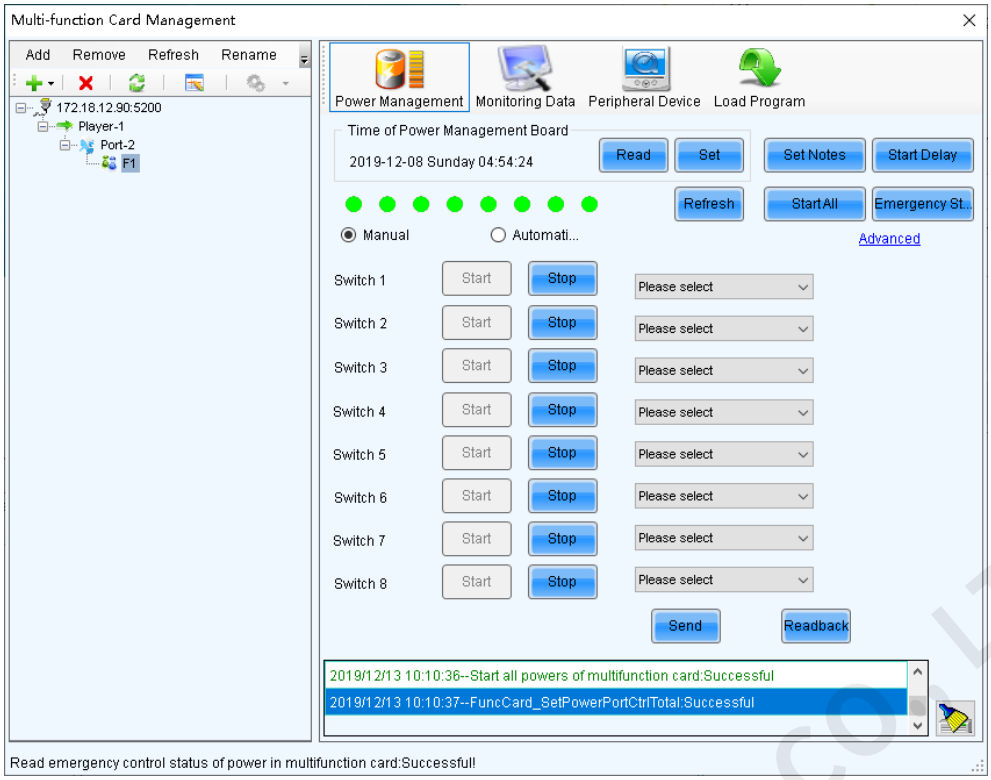
Figure 8-3 shows the user interface of an Ethernet port connection that is added successfully. The following procedure takes Ethernet port connection as an example to illustrate the function.

Figure 8-3 Ethernet port connection



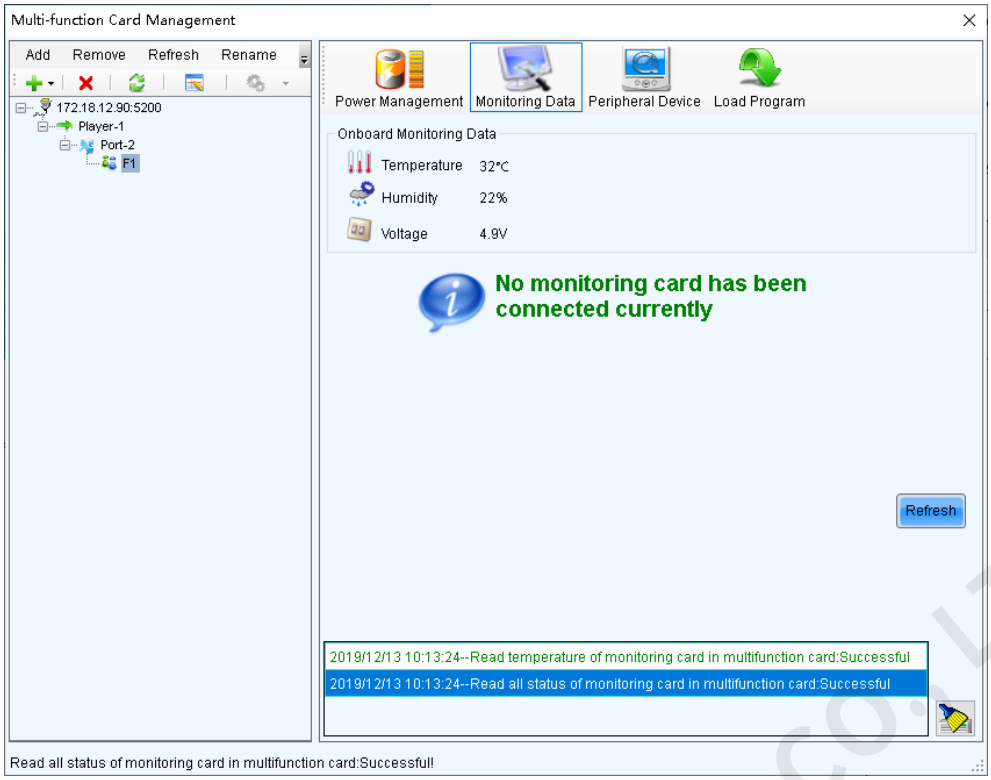
Step 5 Use any of the following functions as needed.

- **Power Management**



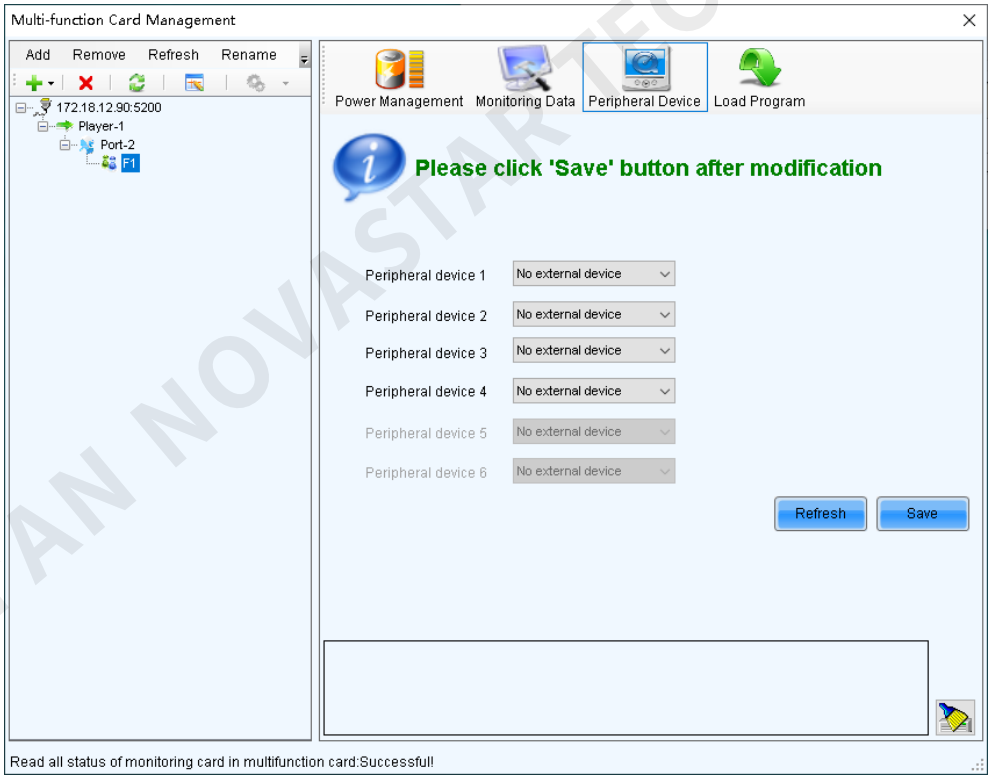
- Read: Read the time from the multifunction card.
- Set: Set the multifunction card time to the PC time.
- Set Notes: Write notes for the power supplies.
- Start Delay: Set the delay time for powering on the multifunction card.
- Refresh: Read back the multifunction card information.
- Start All: Start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

Monitoring Data



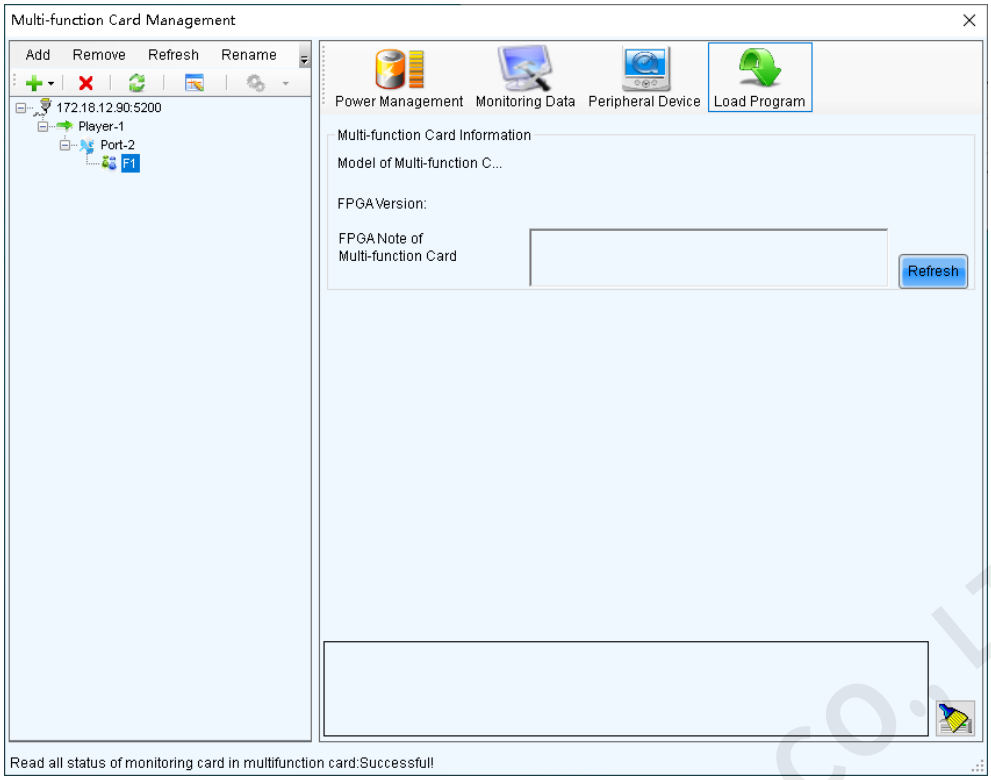
View the monitoring data of both multifunction card itself and its connected monitoring card.

- **Peripheral Device**



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

- **Load Program**



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

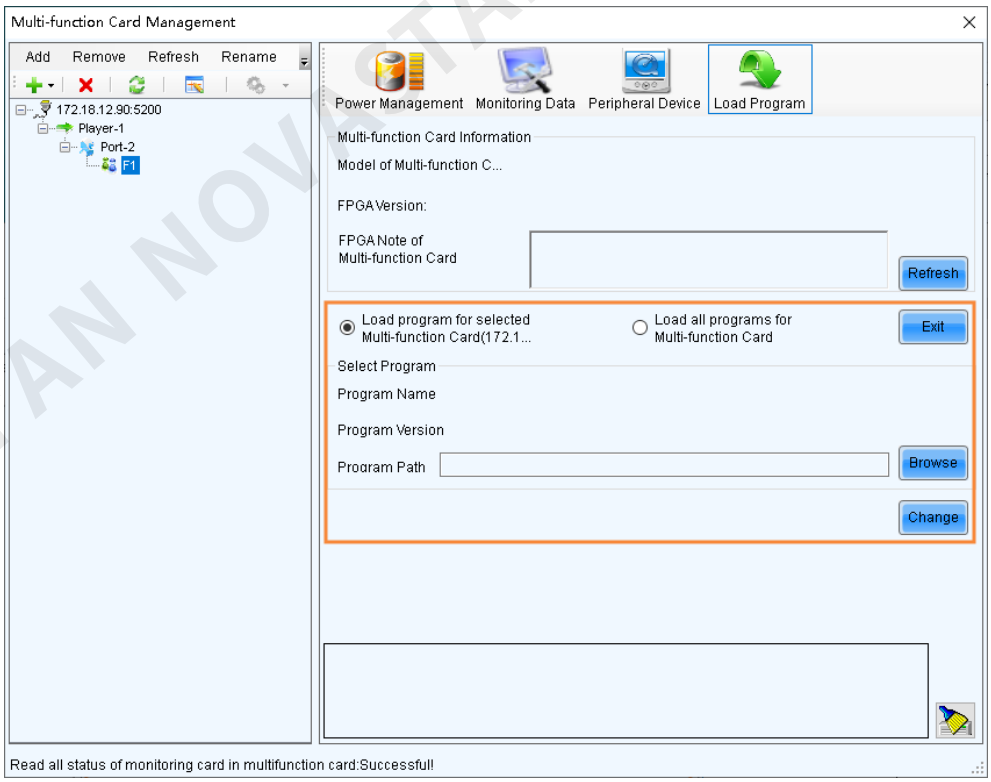
Type “admin” to access the the options for program loading.

a. Select **Load program for selected Multi-function Card** or **Load all programs for Multi-function Card**.

b. Click **Browse** to select the program package.

c. Click **Change** to load the selected program.

d. Click **Exit** to hide the program loading options.



8.2 Prestore Screen

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

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

Related Information

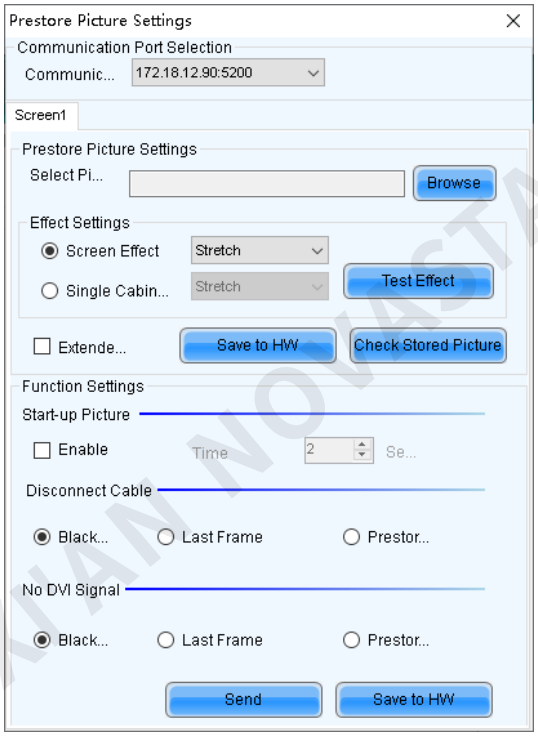
None

Operating Procedure

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

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

Figure 8-4 Prestore picture settings



Step 3 Set a prestore picture.

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

   Select **Extended Screen** to display the picture on the extended screen.
3. Click **Save to HW** to save the prestore picture to the hardware.
4. Click **Check Stored Picture** to view the current prestore picture.

Step 4 Set the picture displayed during startup process, or displayed when the Ethernet cable is disconnected or there is no video signal.

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

8.3 Receiving Card Relay

Applications

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

Applicable Products

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

Prerequisites

None

Related Information

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

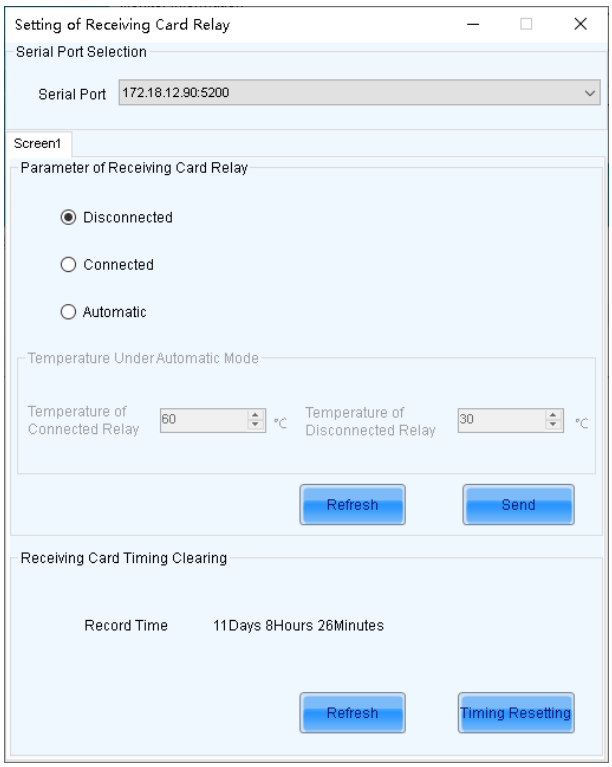
The running time is accumulated as the receiving card works, and will not be reset after the receiving card is powered off.

Operating Procedure

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

Step 2 On the menu bar, choose **Settings** > **Receiving Card Relay**.

Figure 8-5 Setting receiving card relay



Step 3 Perform the following operations as required.

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

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

8.4 Configuration Information Management

Applications

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

Applicable Products

N/A

Prerequisites

None

Related Information

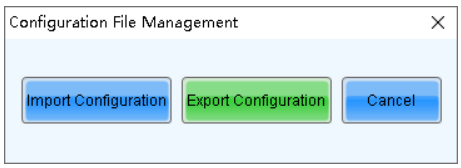
None

Operating Procedure

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

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

Figure 8-6 Configuration file management



Step 3 Perform any of the following operations as required.

- **Import Configuration**

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

- **Export Configuration**

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

8.5 Screen Control

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

None

Related Information

None

Operating Procedure

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

Step 2 Click 

or choose **Tools** > **Screen Control** on the menu bar.

Figure 8-7 Screen control

Step 3 Perform any of the following operations as required.

- **Set screen display**

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

- **Select test pattern**

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

- **Set LCD backlight status**

  Select or deselect **Turn off cabinet LCD** and click **Send**.

8.6 Module ID Settings

Applications

Set ID for the module containing a flash memory.

Applicable Products

The receiving cards that support module Flash or smart module

Prerequisites

The Flash arrangement is completed as described in 5.3 Set Performance Parameters.

Related Information

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

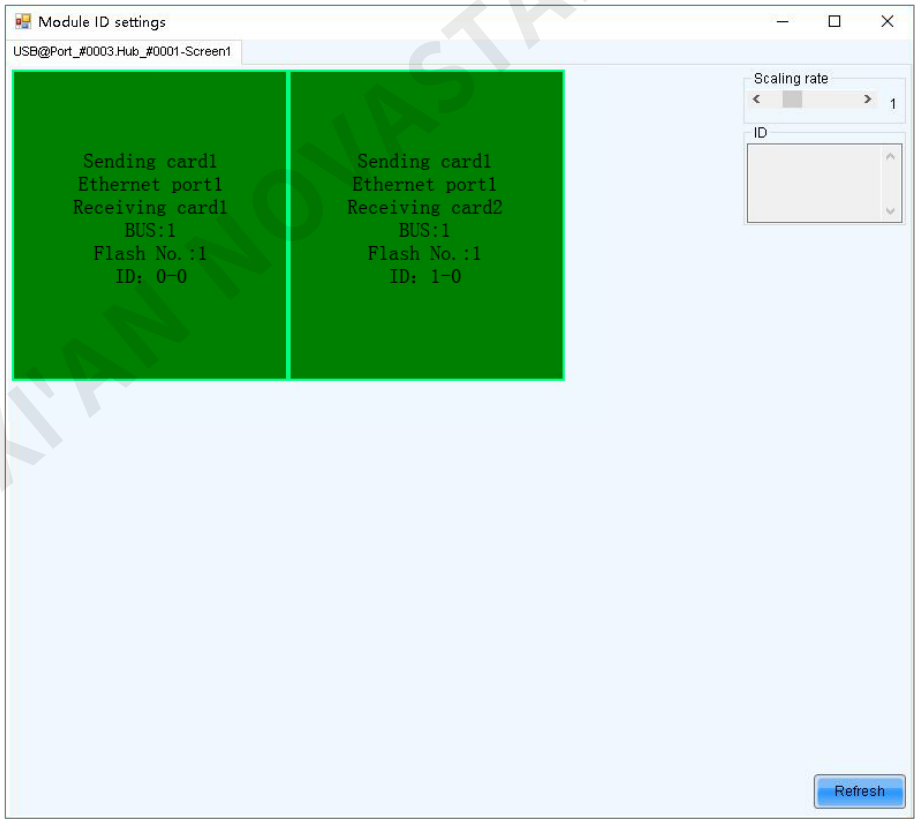
Operating Procedure

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

Step 2 On the menu bar, choose **Tools** > **Module ID setting**.

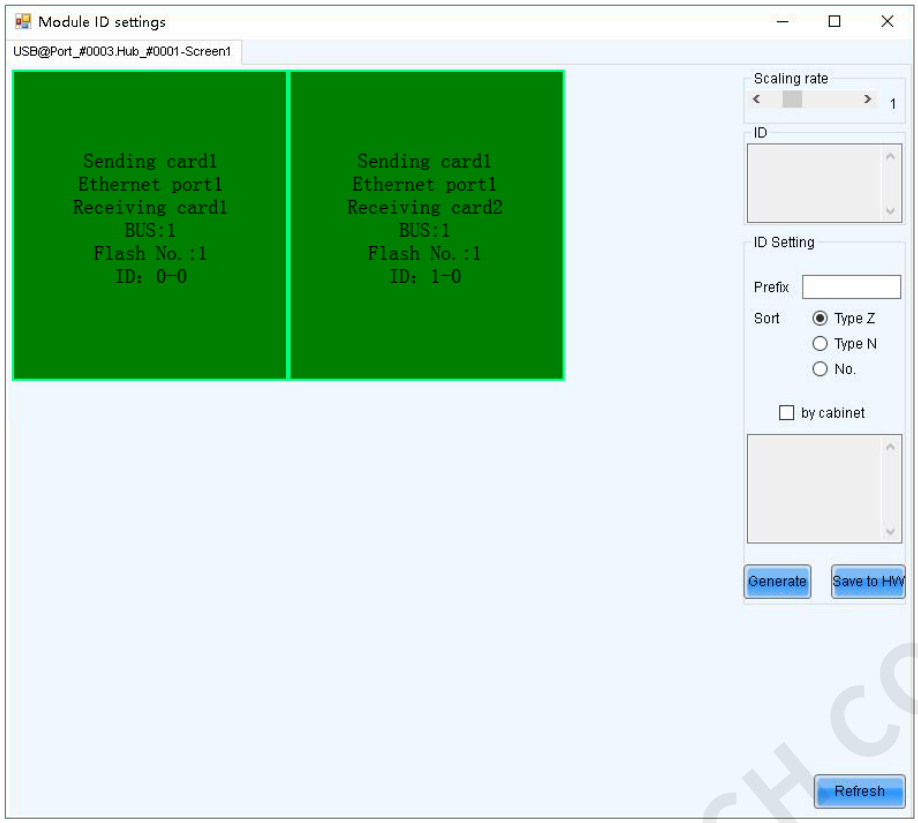
Step 3 Click **Refresh** to view the module IDs.

Figure 8-8 Viewing module ID



Step 4 Type “admin” to access the ID settings pane.

Figure 8-9 Setting module IDs



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

- Prefix: Set the prefix of the module ID.
- Sort: Select the sorting type for the module IDs.
  - Type Z: Generate module IDs from left to right for all the rows from top to bottom. The ID format is "*receiving card number-module number*".
  - Type N: Generate module IDs from top to bottom for all the columns from left to right. The ID format is "*receiving card number-module number*".
  - No.: The ID format is "*receiving card number-Flash number*".
- By cabinet: Generate the IDs for all modules based on cabinets by Z type or N type, or number the modules by "*sending card number-output port number-receiving card number-Flash number*".

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

9 Screen Maintenance

9.1 Hardware Program Update

Applications

Update the hardware programs for the receiving cards.

Applicable Products

All receiving cards

Prerequisites

The program update package is obtained.

Related Information

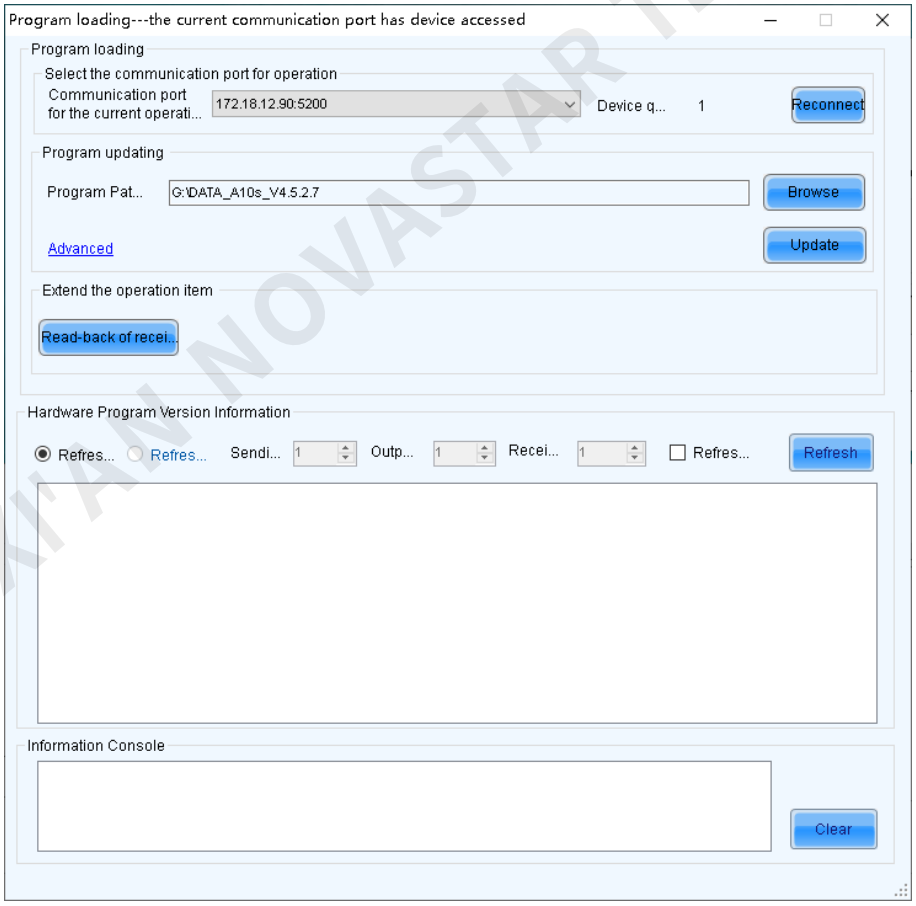
None

Operating Procedure

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

Step 2 Type “admin” to pop up the program loading window as shown in Figure 9-1.

Figure 9-1 Program loading



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

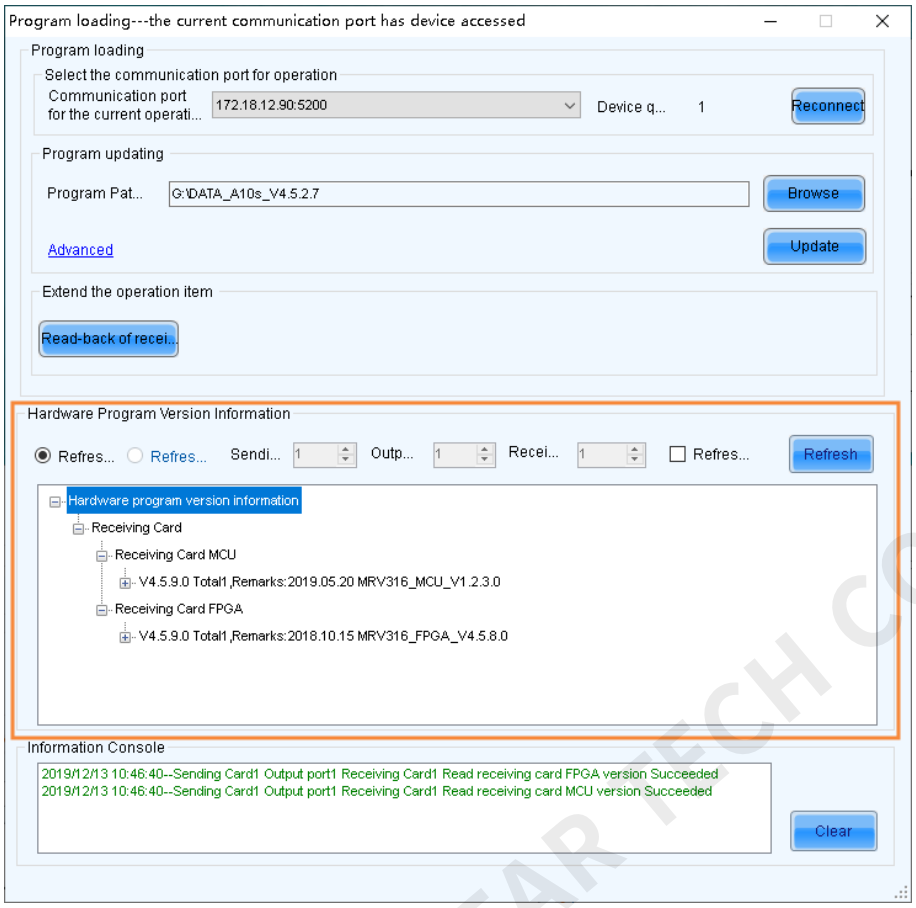
Step 3 Specify the refreshing range, and click **Refresh** to view the current program version of the hardware.

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

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

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

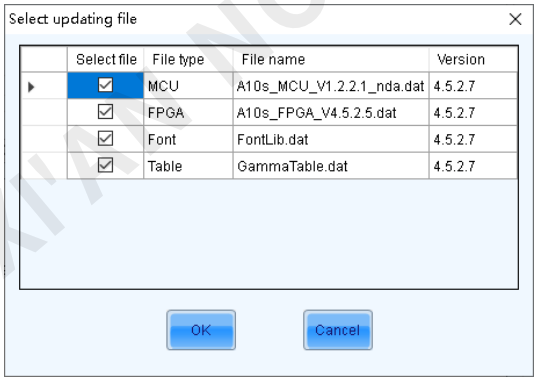
Figure 9-2 Viewing program version



Step 4 Click **Browse**, select a program package, and click **OK** .

Step 5 Click **Advanced**, select the items to be updated, and click **OK**.

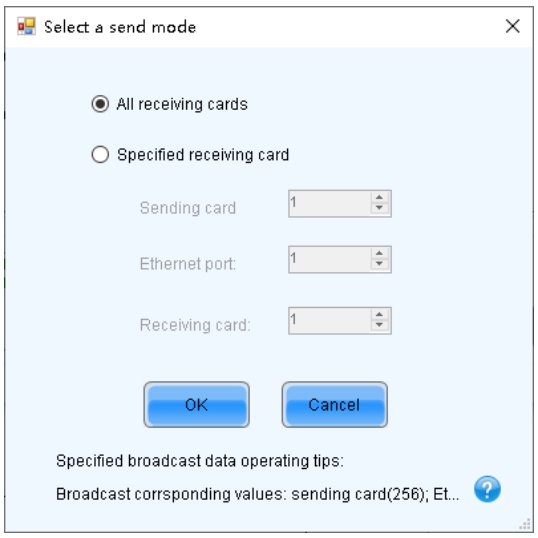
Figure 9-3 Advanced settings



Step 6 Click **Update**.

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

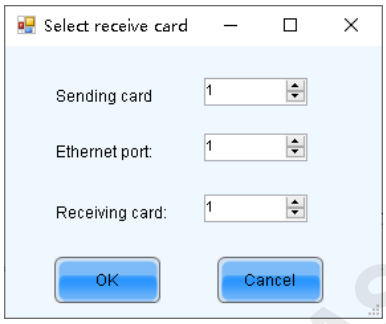
Figure 9-4 Selecting send mode



Step 8 After the programs are updated successfully, click **OK**.

Step 9 If the receiving card supports program readback, perform the following operations to save the receiving card program to your local drive; otherwise, skip this step.

1. Click **Read-back of receiving card program**.
2. Specify the receiving card, and click **OK**.



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

9.2 LED Error Detection

Applications

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

Applicable Products

The MRV320 and MRV560 receiving cards

Prerequisites

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

Related Information

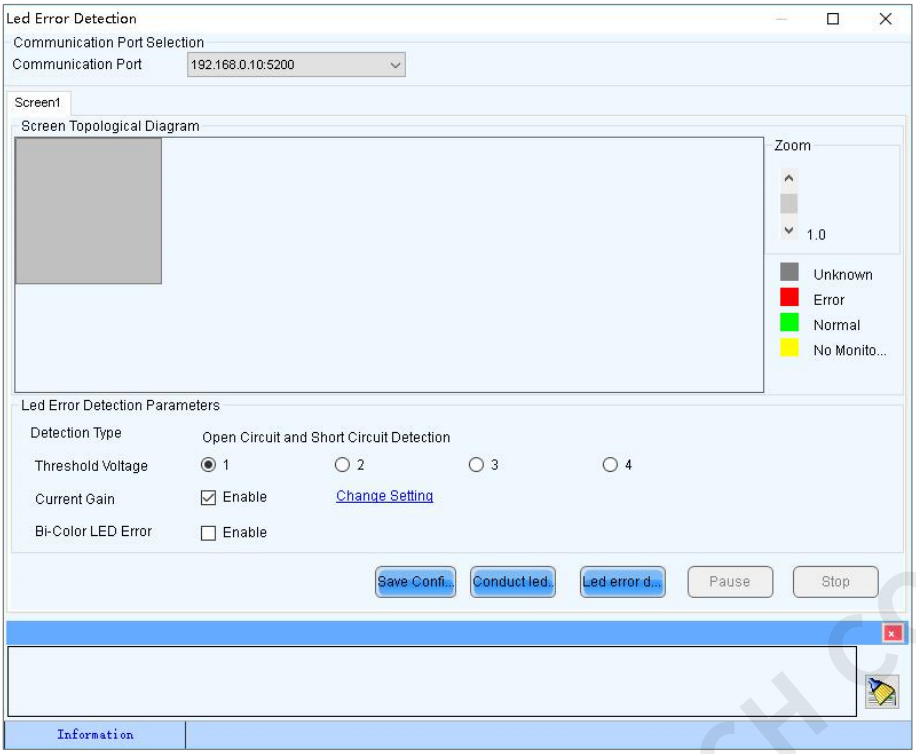
The multimedia player does not support smart module monitoring.

Operating Procedure

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

Step 2 On the menu bar, choose **Tools** > **Led Error Detection**.

Figure 9-5 Led Error Detection



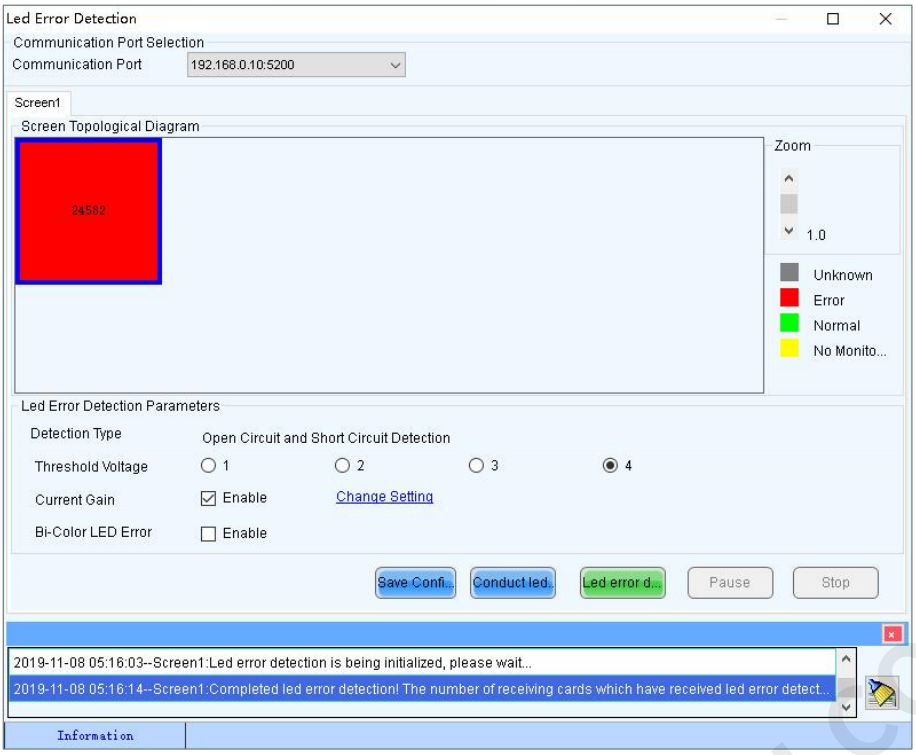
Step 3 Set Led error detection parameters.

- Detection Type: The detection types supported by the driver chip
- Threshold Voltage: The threshold voltage of the driver chip, which can be set based on the information provided by the screen manufacturer
- Current Gain: Select whether to enable the current gain function. Click **Change Setting** to adjust the current gain.
- Bi-Color LED Error: Select whether to detect only the red and green LED lights.

Step 4 Click **Conduct led error detection for full screen**, or select a cabinet on the screen topological diagram and click **Led error detection selection**.

Step 5 After the detection is done, click **OK**.

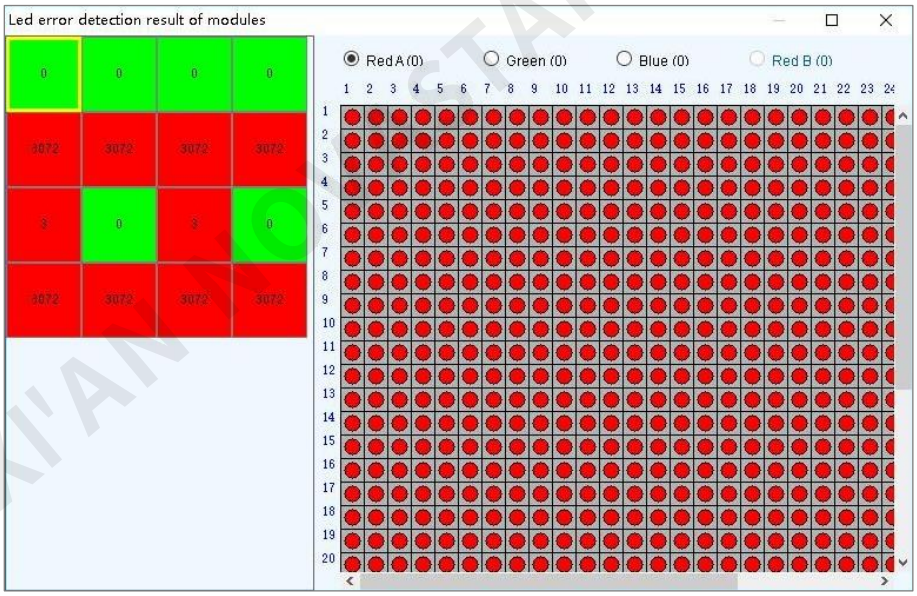
Figure 9-6 Result of the Led error detection for the whole screen



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

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

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



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

9.3 Reset Run Time

Applications

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

Applicable Products

All receiving cards

Prerequisites

None

Related Information

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

Operating Procedure

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

Step 2 On the menu bar, choose **Tools** > **More** > **Reset Run Time.**

Figure 9-8 Resetting run time

Step 3 Select a screen.

Step 4 Click **Reset**.

9.4 Bit Error Detection

Applications

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

Applicable Products

All receiving cards

Prerequisites

None

Related Information

None

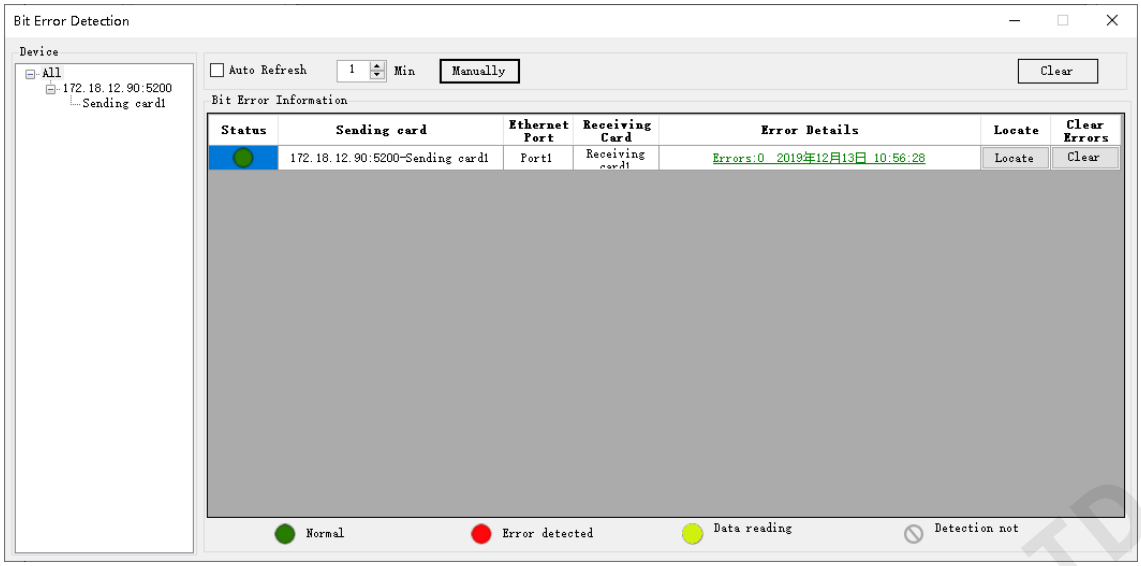
Operating Procedure

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

Step 2 On the menu bar, choose **Tools** > **More** > **Bit Error Detection.**

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

Figure 9-9 Bit error detection



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

- **View error details**

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

- **Locate display area**

  Click **Locate** to view the display area on the screen.

- **Clear errors**

  Click **Clear Errors** to reset the error quantity to 0.

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

10 Plug-in

10.1 Test Tool

Applications

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

Applicable Products

All receiving cards and multimedia players

Prerequisites

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

Related Information

None

Operating Procedure

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

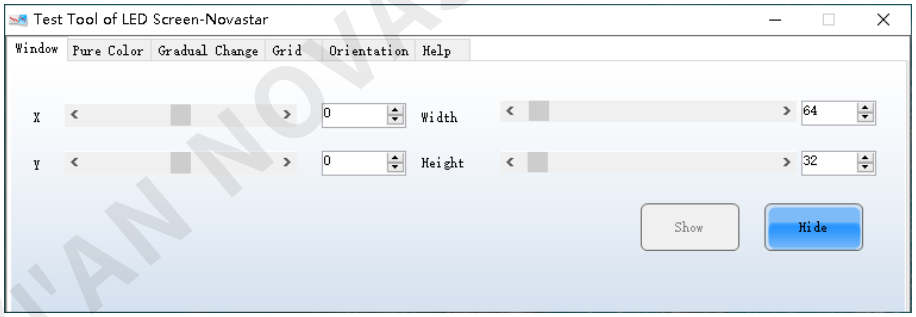
Step 2 Click 

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



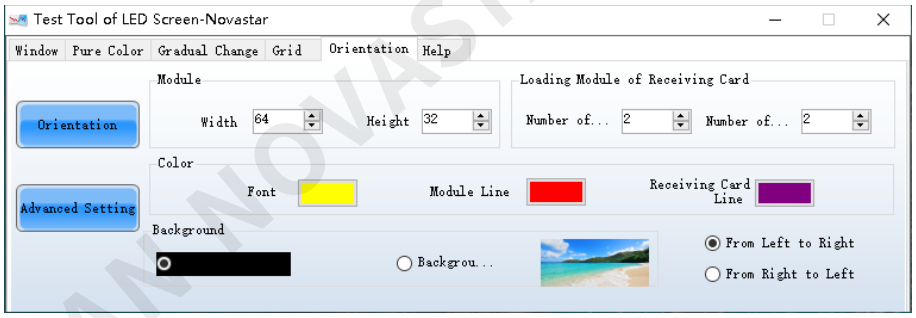
Step 4 Select the **Pure Color**, **Gradual Change**, **Grid** or **Orientation** tab to set the test pattern style.

Table 10-1 Setting test pattern

Tab Name	Function Description
Pure Color	Set a pure color test pattern. • Select a 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.
Gradual Change	Set a gradient test pattern. • 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.
Grid	Set a test pattern that has lines. • Select a color. • Set the line style. • Set the grayscale level. • 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.
Orientation	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. • 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, staring column number, as well as the widths of the module and receiving card lines.

Figure 10-2 Setting orientation parameters



Note:

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

10.2 Calculator

Applications

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

Applicable Products

N/A

Prerequisites

None

Related Information

None

Operating Procedure

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

10.3 External Program

Applications

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

Applicable Products

N/A

Prerequisites

None

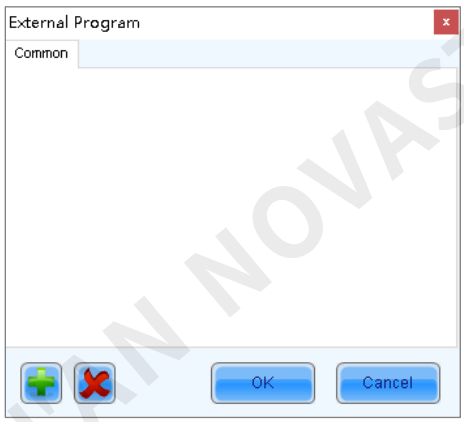
Related Information

None

Operating Procedure

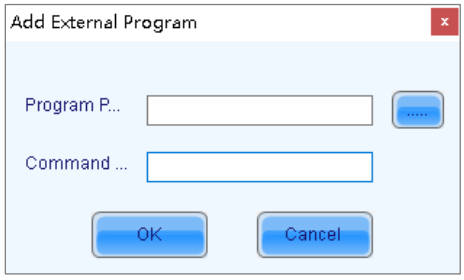
Step 1 On the menu bar, choose **Plug-in** > **External Program**.

Figure 10-3 External program



Step 2 Click  .

Figure 10-4 Adding external programs



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

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

Note:

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

Step 4 Click **OK**.

11 Software Settings

11.1 Set Main Window Starting Position

Applications

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

Applicable Products

N/A

Prerequisites

None

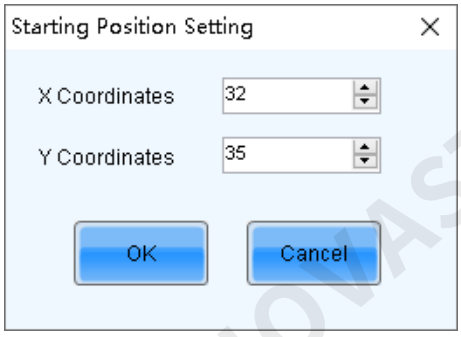
Related Information

None

Operating Procedure

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

Figure 11-1 Setting starting position coordinates



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

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

11.2 Change UI Language

Applications

Change the UI language for NovaLCT.

Applicable Products

N/A

Prerequisites

None

Related Information

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

Operating Procedure

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

11.3 View Help Documents and Update Program Online

Applications

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

Applicable Products

N/A

Prerequisites

None

Related Information

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

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

Operating Procedure

Step 1 On the menu bar, choose **Help**.

Step 2 Perform the following operations as required.

- **View User Manual**

  Choose **User Documents** and select the desired user manual.

- **View Update Log**

  Choose **Update Log** to view the update log in the displayed dialog box.

- **View Software Information**

  Choose **About** to view the software version and copyright information in the displayed dialog box. If needed, click the link to visit the official website of NovaStar.

- **Update NovaLCT**

  Choose **Online Update** to check whether a software update is available in the displayed dialog box. If there is a software update, click **Update**.

12 Troubleshooting

12.1 Failed to install NovaLCT of earlier versions

Problem

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

Solution

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

12.2 "No Screen" displayed in NovaLCT

Problem

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

Figure 12-1 No screen

Solution

- If the LED screen has been configured already, click 

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.

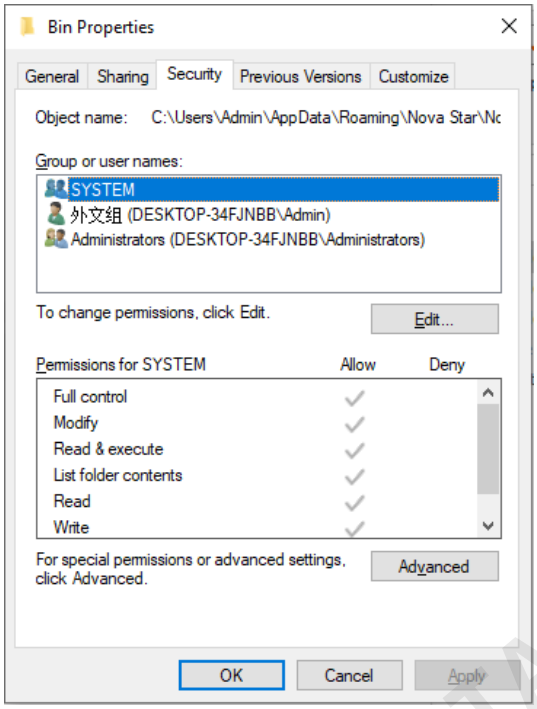
Step 1 Right click the desktop shortcut of NovaLCT and select **Open file location**.

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

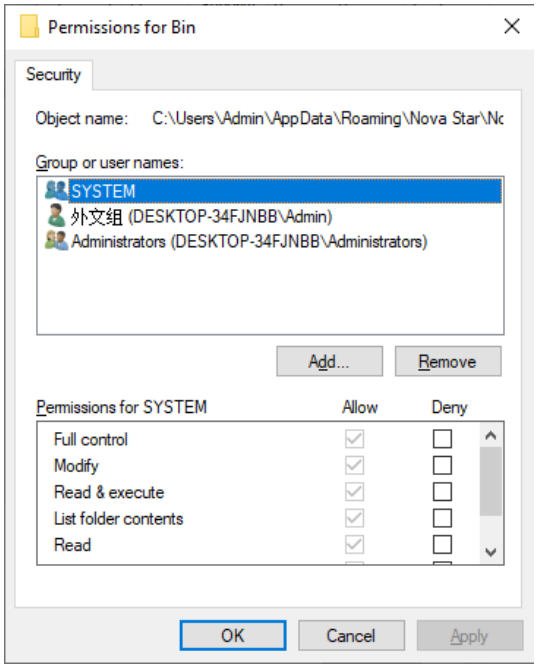


Step 5 Check whether there is current user or **Everyone** in the **Group or user names** area.

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

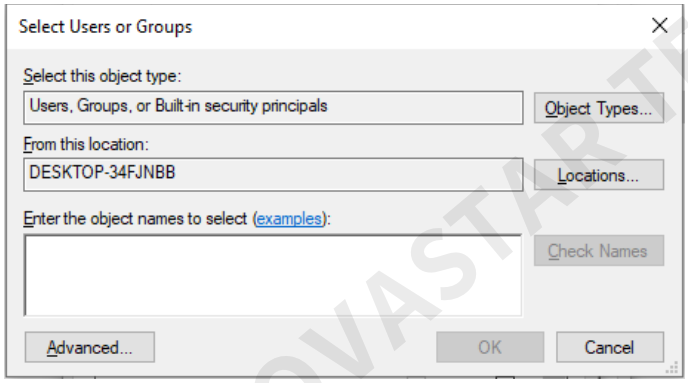
Step 6 Click **Edit** to open the dialog box shown in Figure 12-3.

Figure 12-3 Changing permissions



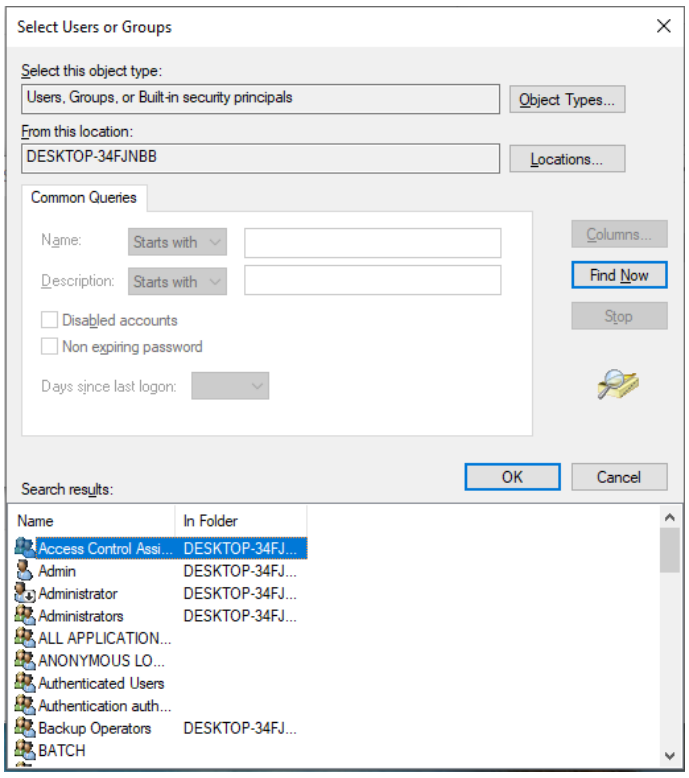
Step 7 Click **Add** to open the dialog box shown in Figure 12-4.

Figure 12-4 Selecting users or groups



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

Figure 12-5 Advanced settings

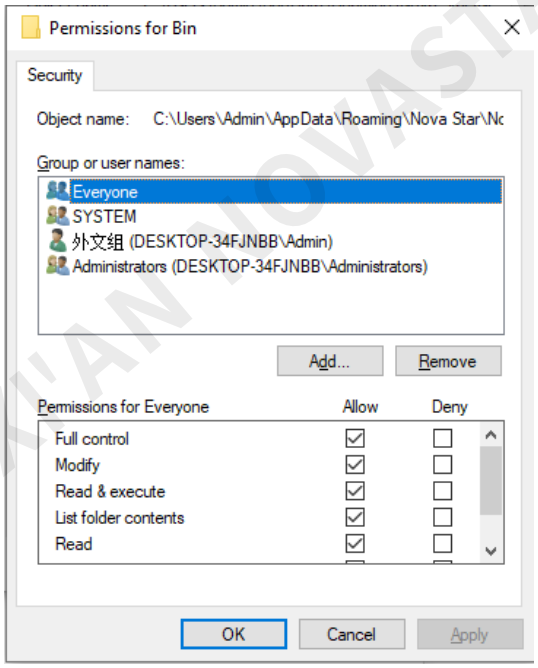


Step 9 Select current user or **Everyone** in the search result, and click **OK**.

Step 10 Click **OK**.

Step 11 Select all for the **Allow** column and click **OK**.

Figure 12-6 Setting permissions



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

12.4 Failed to connect colorimeter

Problem

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

Solution

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

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

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

Figure 12-7 Setting CS-100A colorimeter

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

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

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

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

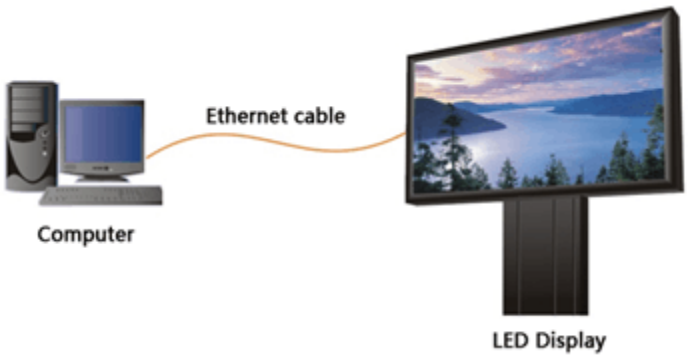
13 FAQs

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

Question

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

Figure 13-1 No sending card mode



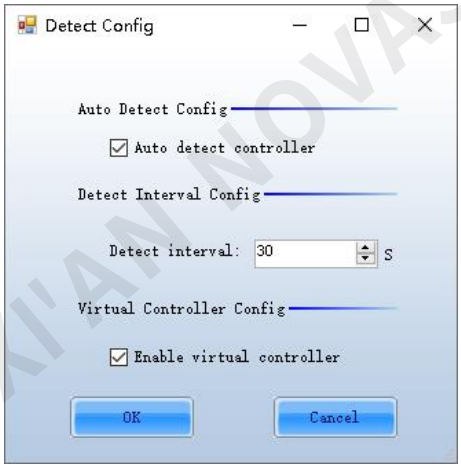
Answer

Step 1 Make sure the network card allows a data transmission rate of 1000 Mbps.

Step 2 On the taskbar, right click  and choose **Detect Config**.

Step 3 Select **Enable virtual controller** and click **OK**.

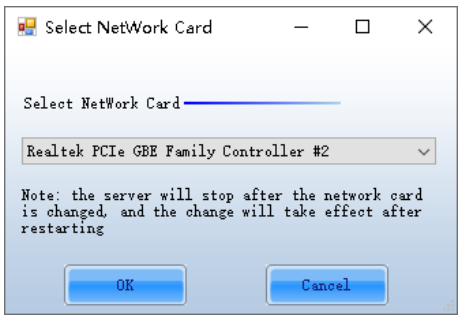
Figure 13-2 Enabling virtual controller



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?

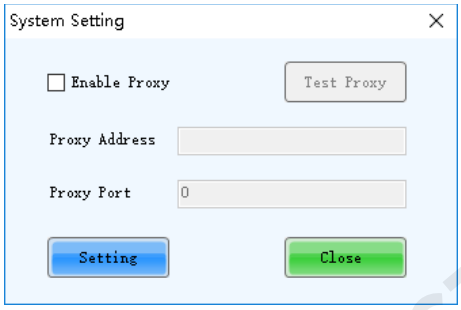
Question

When NovaLCT in LAN network needs to access WAN network, how to set the proxy?

Answer

Step 1 On the taskbar, right click  and choose **System Setting**.

Figure 13-4 Setting proxy



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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