NovaLCT

LED Configuration Tool for Synchronous Control System



User Manual

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1 Software Introduction

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

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

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

- **Easy to install**

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

- **Practical functions**

  A lot of commonly used functions are provided, such as screen configuration, screen monitoring, redundancy settings, brightness adjustment, multi-batch adjustment, dark or bright line adjustment, multi-function 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**

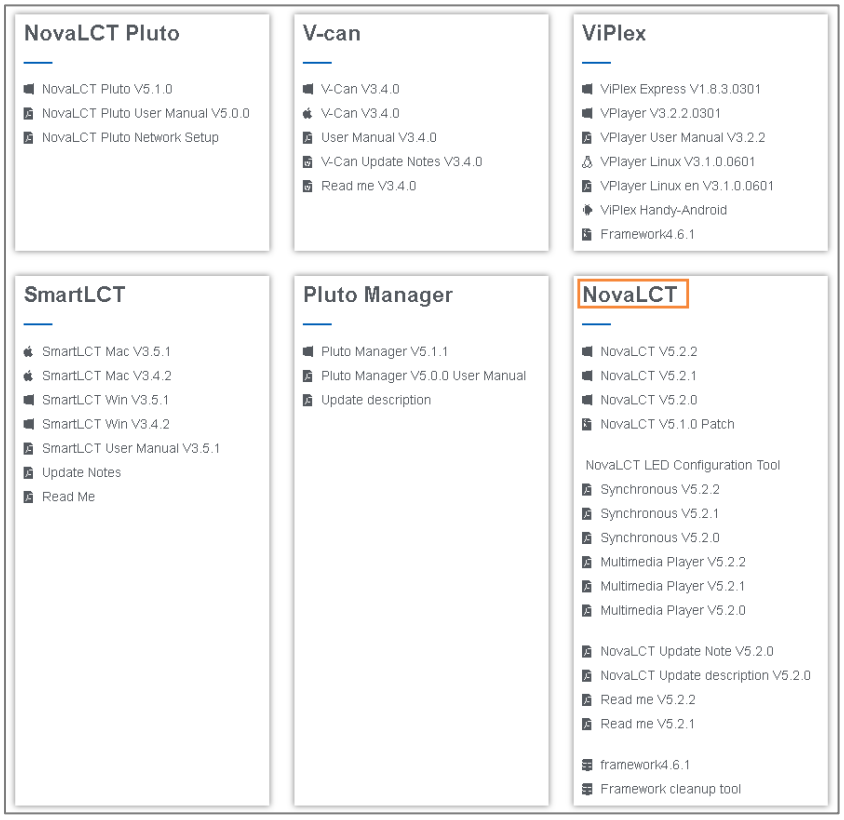
  After the PC and control system product are connected, users can perform any operations with the PC. NovaLCT displays the corresponding functions and parameters according to the different hardware models and programs. During configuration, various kinds of configuration files can be used to complete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



Prerequisites

Before installing NovaLCT, prepare a PC that meets the following configuration requirements and disable any antivirus software.

- Minimum requirements:
  - Operating System: Windows 7 (64-bit)
  - CPU: 5th Generation Intel i3 processor
  - RAM: 4 GB

- Recommended configuration:
  - Operating System: Windows 10 (64-bit) or above
  - Processor: 10th Generation Intel i5 processor or above
  - RAM: 8 GB or above

Installing Software

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

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

Verifying Installation

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

3 Device Connection

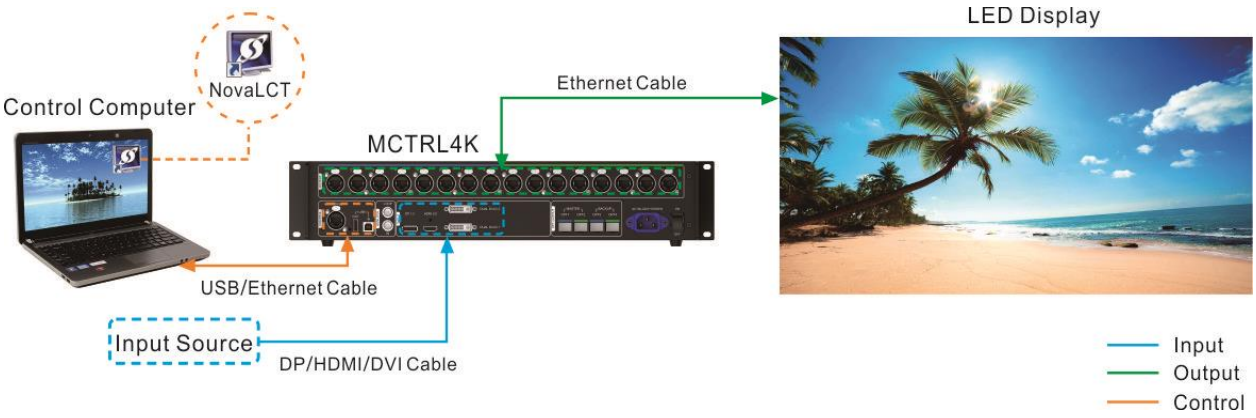
3.1 Connect PC to Sending Card

Connect the PC with NovaLCT installed to the sending card with control cable (USB cable or Ethernet cable), as shown in Figure 3-1 . The MCTRL4K is used as an example of sending device.

All control commands, parameters and configuration files are transmitted with the control cable.

The PC can also be connected to multiple sending cards with control cable. After selecting a target communication port in NovaLCT, you can operate the connected device.

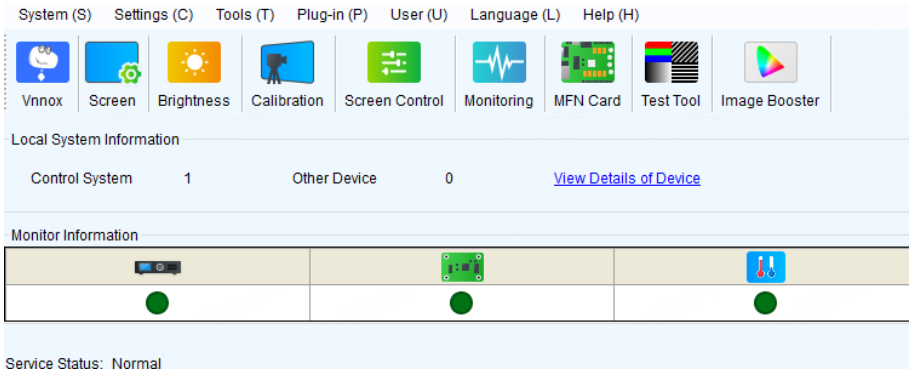
Figure 3-1 Hardware connection example



3.2 Connect NovaLCT to Sending Card

If the hardware connection is normal and the sending card is operating normally, NovaLCT connects to the sending card automatically. After successful connection, the NovaLCT main window displays the sending card quantity and monitoring information about the control system, as shown in Figure 3-2 .

Figure 3-2 Main window (Not logged in)



Click **View Details of Device** to view the communication port, device name, device quantity, SN, and take over the control of other devices. If the communication port information contains IP address, NovaLCT communicates with the device via Ethernet port. If it contains the keyword "USB", they communicate via USB port. "SN" is the unique identifier of the sending card.

Note

Currently, the takeover function is only available for MGT2000, MGT1000, MGT600. When a device is being controlled by another instance of NovaLCT and is not available for connection by your NovaLCT, you can click **Take Over** under **Operation** to assume control of the device.

Connection related operations:

- **Reconnect sending card**

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

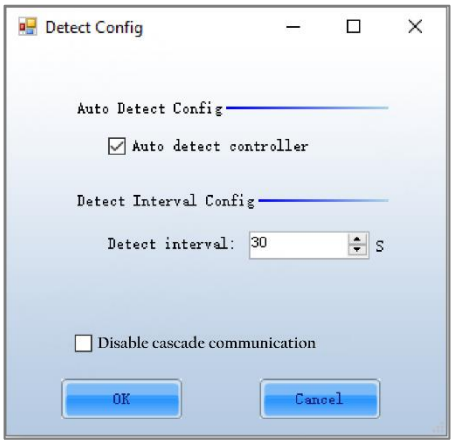
- **Restart server**

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

- **Set connection parameters**

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

  - Auto detect controller: When this is checked, the software automatically detects the connected devices at the specified intervals (Detect interval).
  - Disable cascade communication: In a setup with devices connected in cascade, checking this option allows the software to connect only to the first device and skip detection for other devices in the cascade, improving connection efficiency. If unchecked, the software will perform connection detection for all devices.


Detect Config
Auto Detect Config
Auto detect controller
Detect Interval Config
Detect interval:
30
S
Disable cascade communication
OK
Cancel

4 User Login

Sending Card Connected

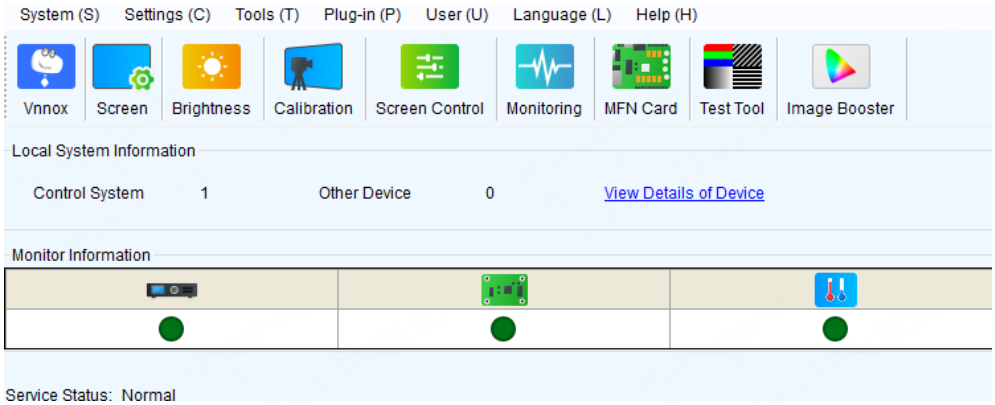
If the sending card is connected, users can directly use the available functions without login. To use the advanced functions, users must log in to NovaLCT.

Operations:

Choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**. The default password is “admin”.

After successful login, the main window is shown as Figure 4-1 .

Figure 4-1 Main window (Logged in)



Other Operations:

- To log out, choose **User** > **Logout**.
- To change the login password, choose **User** > **Change Password**.

Sending Card Not Connected

If the sending card is not connected and users want to learn about the functions, use the demonstration mode.

How to access demonstration mode:

Choose **User** > **Demonstration Login**. Enter the password “admin” and click **Login**.

Other operation:

Click **View Details of Device**, then in the pop-up window, click **Change Device Type** to switch the device in demonstration mode.

5 Screen Configuration

Note

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

5.1 Load Configuration Files

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

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

Related Information

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

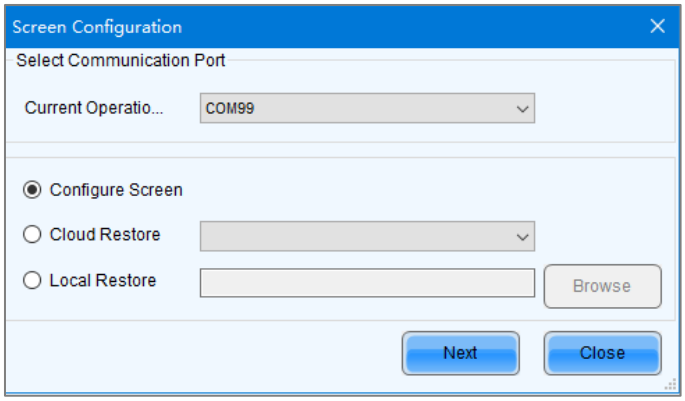
Operating Procedure

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

The default password is “admin”.

Step 2 Click Screen or choose **Settings** > **Screen Configuration** from the menu bar to open the dialog box shown in Figure 5-1 .

Figure 5-1 Screen configuration method



Step 3 Choose a communication port.

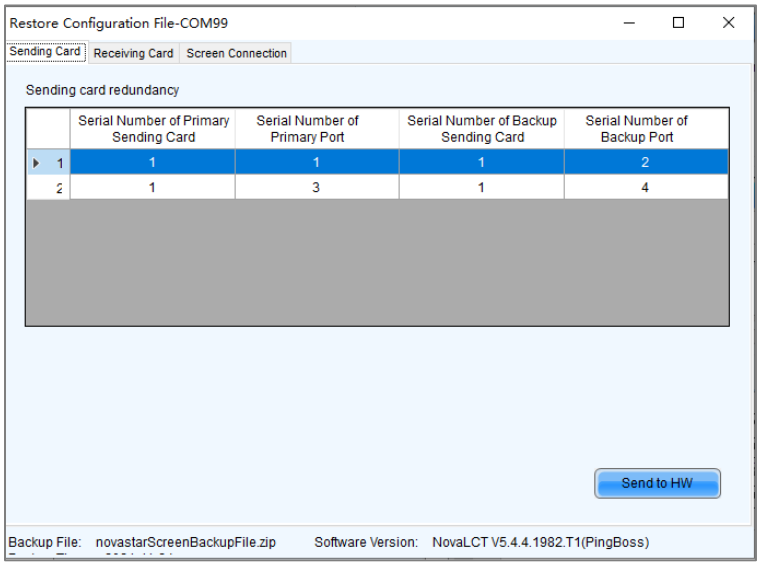
If the PC is connected to multiple sending cards with control cable, there are multiple ports in the drop-down list.

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

- **Load from cloud platform**

a. Select **Cloud Restore** and select a node from the drop-down list.

b. Click **Next** to open the **Restore Configuration File** dialog box.



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

Sending Card: Click **Send to HW** to send the Ethernet port redundancy configuration file of the sending card to the hardware.

Receiving Card: Select **Send by Topology** or **Send by Physical Address**, set the related parameters, and click **Send to Specified RV Cards** to send the receiving card configuration file to the hardware. When you have selected **Select by Topology or List**, if it is not convenient to select an area with the software, you can select **Select Operating Area on Screen** to select the area on the display window.

Screen Connection: Click **Send to HW** to send the screen connection file to the hardware.

d. In the displayed dialog box, click **Save to HW** or **Don't Save to HW**.

- **Load from local PC**

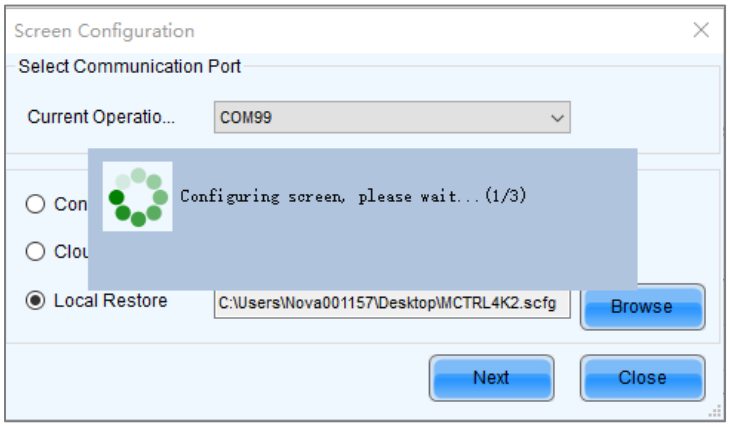
a. Select Local Restore.

b. Click **Browse**, select a configuration file, and click **Open**.

c. Click **Next**.

For the .zip local configuration file, see the figures and steps in the **Load from cloud platform** section.

For the .scfg local configuration file, the loading progress will be displayed. After the file is loaded, the dialog box shown below is closed automatically.



5.2 Configure a 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 sending card and receiving card.

5.2.1 Step 1 Set Input Source

Applications

Set the input source type, resolution, refresh rate and bit depth for the sending card to make the screen display the specified input source pixel to pixel.

Applicable Products

The V1160 and VX16s all-in-one devices, and other sending cards

Prerequisites

None

Related Information

If the resolutions of the sending card and screen are the same, the image can be displayed pixel to pixel.

If the refresh rate is too low, the screen flickers. A higher refresh rate helps stabilize the display image.

Operating Procedure

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

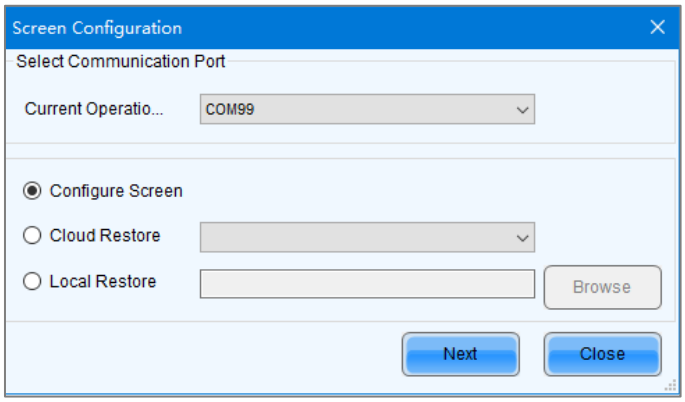
The default password is “admin”.

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar.

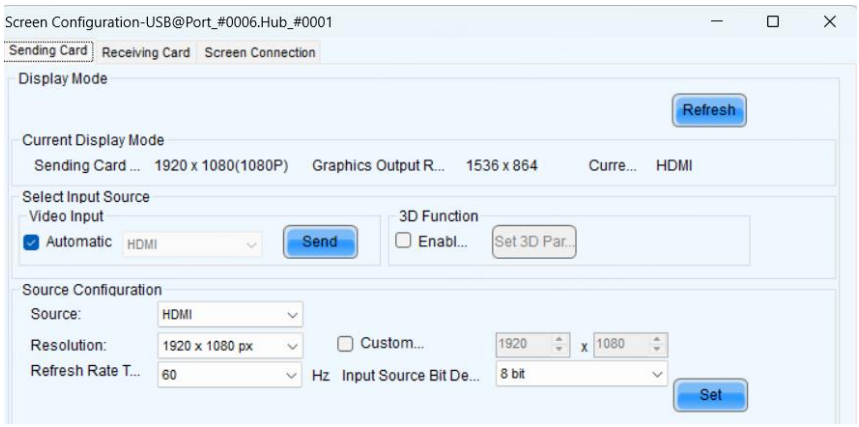
Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, click **Next**.

Figure 5-2 Screen configuration method



Step 4 On the **Sending Card** tab page, view the current display mode, as shown in Figure 5-3 .

Figure 5-3 Input source information



Step 5 Select **Automatic Selection** to allow NovaLCT to automatically select the input source according to the input signal, or select an input source from the drop-down list.

Step 6 Click **Send** to send the configuration information to the hardware.

Step 7 In the **Source Configuration** area, set the input source type and the corresponding resolution. You can select a resolution from the drop-down list or customize a resolution.

Step 8 Set the refresh rate and bit depth of input source.

After you change the refresh rate, you are advised to resend the performance parameters on the **Receiving Card** tab page to avoid the problem that the receiving card cannot automatically fit the refresh rate.

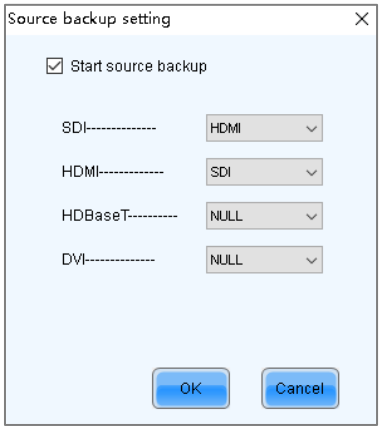
The recommended input source bit depth is 8 bit.

Step 9 For the MCTRL660 PRO and MCTRL R5, you can perform the following operations to set input source backup if necessary. Otherwise, skip this step.

1. Click Set next to Source Backup Setting.

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

Figure 5-4 Source backup settings



Step 10 Click **Set** to send the configuration information to the hardware.

Step 11 Click **Refresh** to confirm the result of input source setting.

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

Step 13 After successful saving, choose whether to save the backup file to the local computer.

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

This step is related to the configuration of the save function. See 11.3 Configure the Save Function.

Note

You can click **Restore Factory Settings** on the **Sending Card** tab page to reset the sending card configuration information to factory settings.

5.2.2 Step 2 Light a Screen

Note

When using the A10s Pro receiving card, please refer to 5.2.2.2 Configuration through NCP.

5.2.2.1 Configuration through RCFG

Note

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

When loading from the cloud, you can quickly find the configuration file by selecting the manufacturer and entering the unique module ID, or by selecting the manufacturer and entering the configuration file name. If the firmware version of the receiving card does not match the configuration file, you may choose whether to upgrade the firmware.

For the loaded configuration file, the current receiving card version information (if the receiving card is connected) and the version of the software used when configuring the file are displayed at the bottom left of the **Receiving Card** tab page.

5.2.2.1.1 Light Module

Applications

Set the receiving card parameters to light a new module.

Applicable Products

For receiving cards that support .rcfgx or .rcfg files

Prerequisites

- The receiving card firmware supports the module chip.
- The display settings on the PC are completed. For example, display settings on Windows 10 are shown in Figure 5-5 and Figure 5-6 . The resolution of PC graphics card must be set to be greater than or equal to the screen resolution based on the actual condition.

Figure 5-5 PC display settings 1

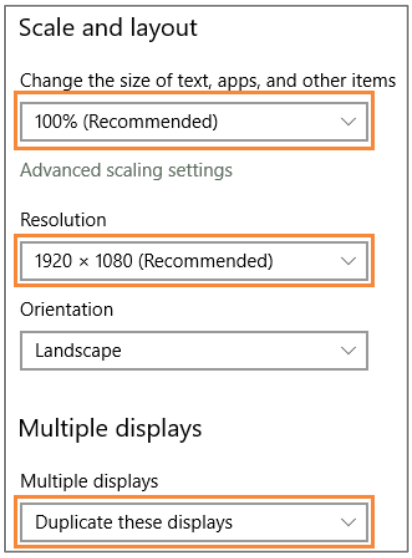
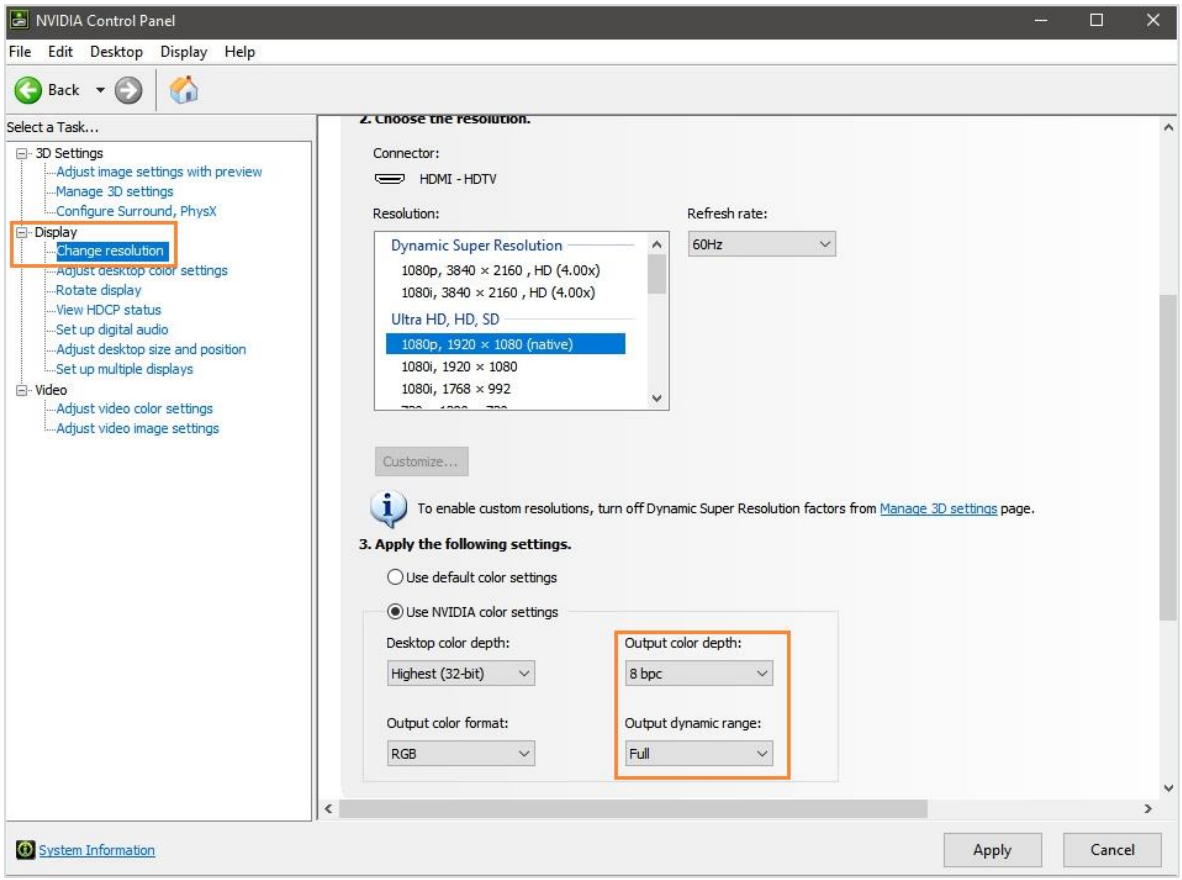


Figure 5-6 PC display settings 2



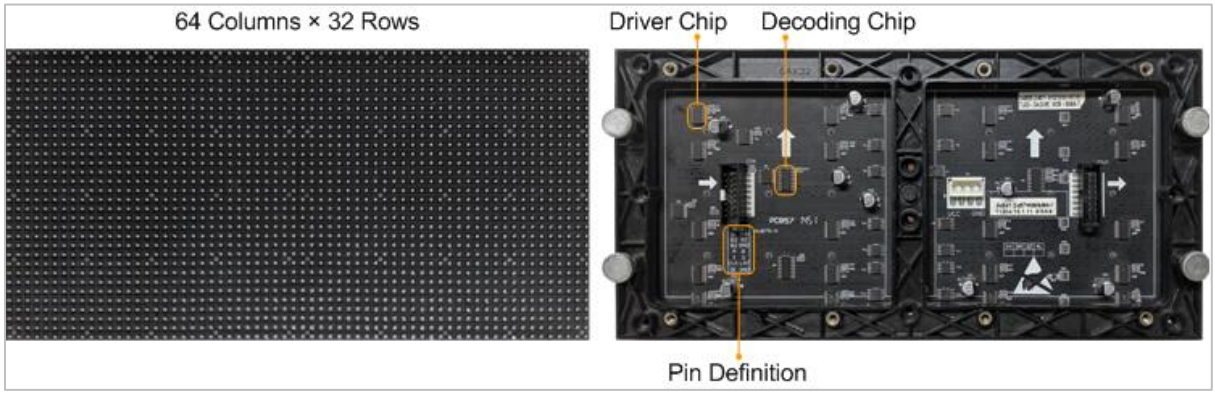
Related Information

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 5-7 .

- 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 5-7 Module example



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

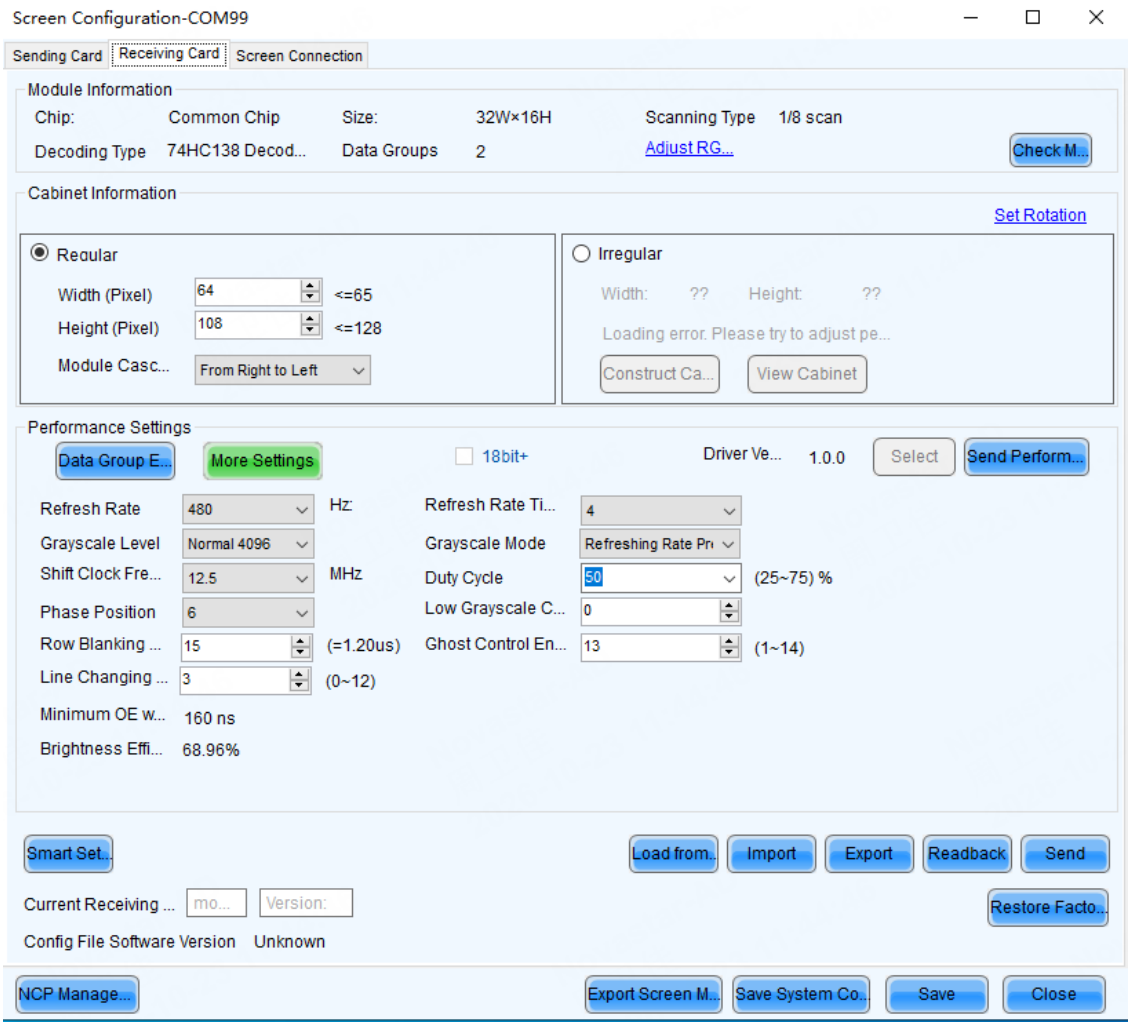
An irregular module has any of the following features:

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

Operating Procedure

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

Figure 5-8 Screen configuration



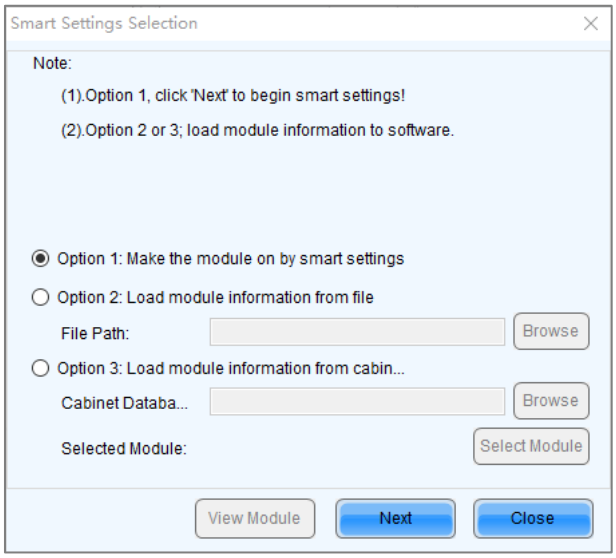
Step 2 Click **Smart Settings**.

Step 3 Select option 1 and click **Next**.

- Option 1: Enter smart settings.
- Option 2: Load a module configuration file to quickly configure the module.
- Option 3: Load the module configuration file in the cabinet database to quickly configure the module.

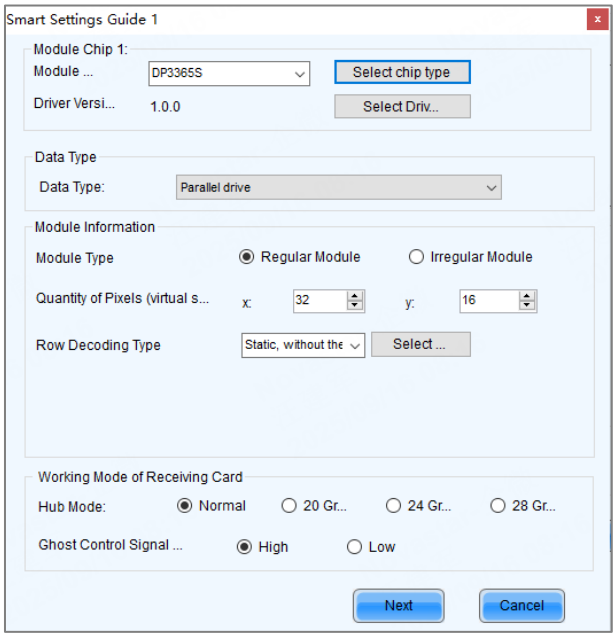
After the configuration file is loaded, click **Send**.

Figure 5-9 Smart settings options



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

Figure 5-10 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**.
- Driver Version: Select the version of the receiving card's driver program. If the receiving card supports V1.0.0 driver program, click on **Select Driver Version** and select **1.0.0**. If the receiving card supports V2.0.0 driver program, click on **Select Driver Version** and select **2.0.0**.

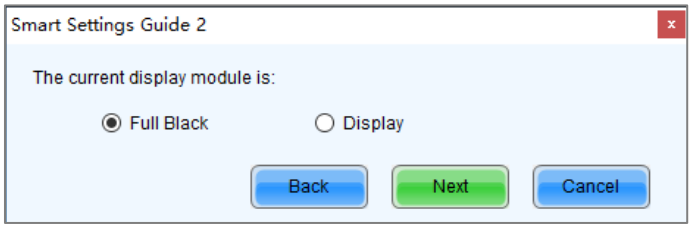
- Data Type: Select the data type of the module. Parallel data indicates that the data of the RGB three colors is transmitted parallelly, but serial data indicates that the data of the RGB three colors is transmitted serially.
- Module Type: Select the module type. Module type includes regular and irregular modules.
- Number of Driver Chips for One Scan and One Color: This parameter is available when irregular module is selected. It is calculated by the following formula.

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

Step 5 On the **Smart Settings Guide 2** page, select one option based on the current display on the module and click **Next**.

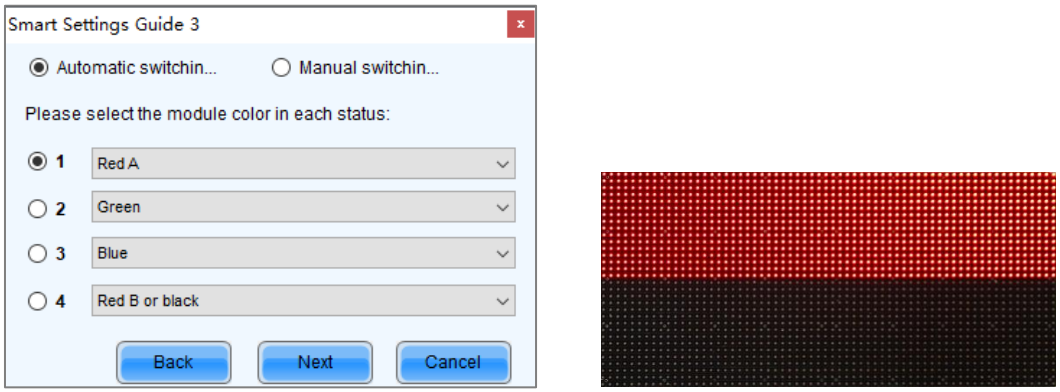
When you are viewing the display on the module, view the first module loaded by the first receiving card connected to the first Ethernet port.

Figure 5-11 Smart Settings Guide 2



Step 6 On the **Smart Settings Guide 3** page, select the module display color switching mode and check whether the current module display color is the same as the selected color.

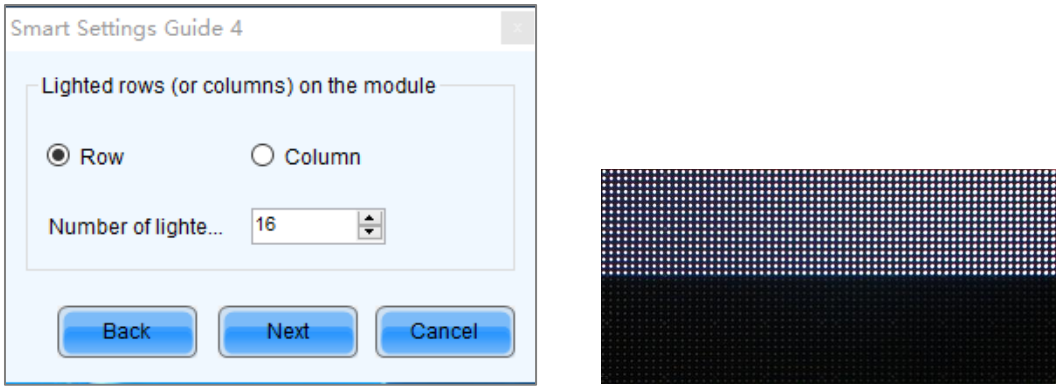
Figure 5-12 Smart Settings Guide 3



- If they are the same, click **Next** to go to Step 7.
- If they are different, select a color corresponding to the module display color from the drop-down list to make them the same.

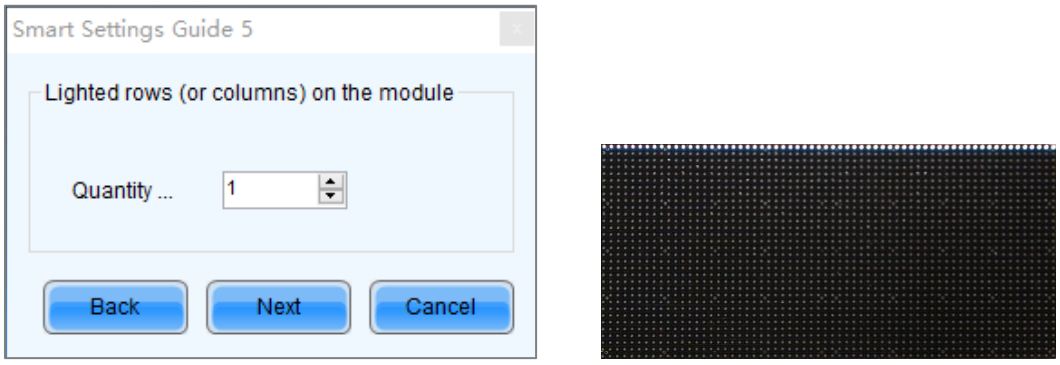
Step 7 On the **Smart Settings Guide 4** page, set the parameters based on the number of lighted rows (or columns) on the module and click **Next**.

Figure 5-13 Smart Settings Guide 4



Step 8 On the **Smart Settings Guide 5** page, set the parameters based on the number of lighted rows (or columns) on the module and click **Next**.

Figure 5-14 Smart Settings Guide 5

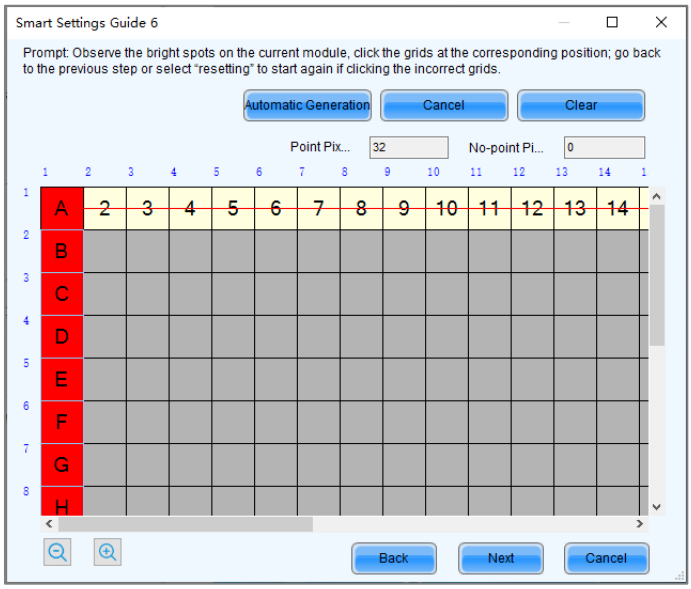


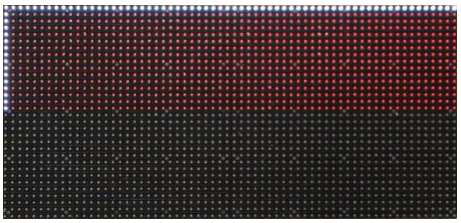
Step 9 On the **Smart Settings Guide 6** page, view the flashing pixel in the first row on the module and click the corresponding cell in the grid to draw the pixel position.

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

- Automatic Generation: Complete pixel position drawing for the first row of pixels quickly.
- Cancel: Clear the last pixel position drawing.
- Clear: Clear all the pixel position drawing.
- Lighted Pixels: Display the total number of lighted pixels on the current module.
- Unlighted Pixels: For regular modules, the value of this parameter is always 0. For irregular modules, a **No corresponding LED** button is added to the page shown in Figure 5-15 . 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 5-15 Smart Settings Guide 6





Step 10 View the flashing pixel in the first column on the module and click the corresponding cell in the grid to draw the pixel position (You can also use the keyboard arrow key to quickly draw the position), and click **OK** after the drawing is done.

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

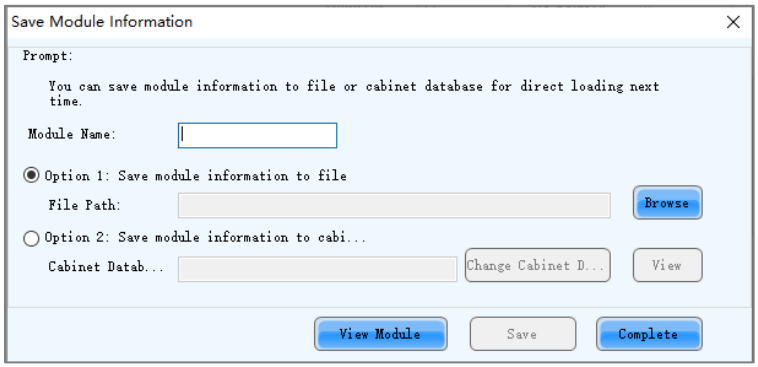
Step 11 Click **Next** and click **OK**.

Step 12 (Optional) Enter a module name and save the module configuration as a file or save the module configuration to the cabinet database.

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

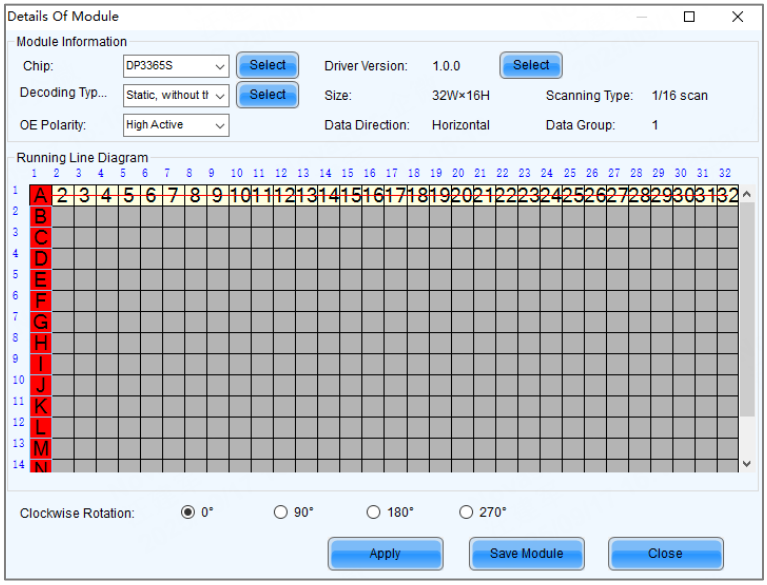
- Browse: Select the path to save the module configuration file.
- Change Cabinet Database: Open or create a cabinet database.
- View: View the module configuration file saved in the cabinet database.

Figure 5-16 Saving module information



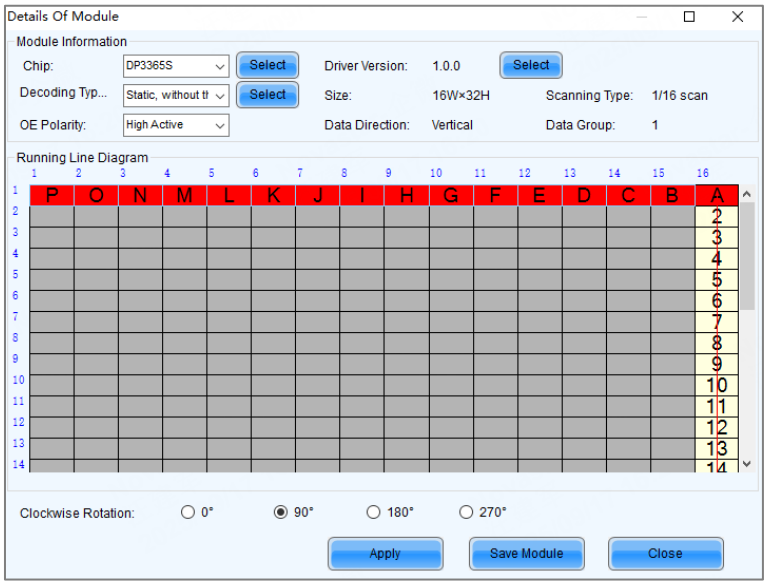
Step 13 On the **Save Module Information** page, click **View Module** to review the detailed configuration of the current module. The displayed parameters are those configured through the smart settings guide. If necessary, you can modify the relevant parameter configurations.

Figure 5-17 Viewing and modifying module information



Step 14 In the **Clockwise Rotation** area, set the module rotation angle, choosing from 0°, 90°, 180°, or 270°. After setting, the schematic diagram of the module wiring on the interface will change accordingly to reflect the actual configuration. For example, setting a 90° rotation will alter the wiring schematic from the above figure to the following:

Figure 5-18 Rotating module



Step 15 Click **Close** to exit the **Details of Module** page, then click **Complete**.

Note

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

- Click **Check Module** in the **Module Information** area to view the detailed module information and modify relevant parameters if necessary. You can also set the module rotation, as described in Step 14 above. Additionally, you can click **Save Module** to save the module configuration as a file.
- Click the **Select** button next to **Driver Version** to select the driver version. If the receiving card supports V1.0.0 driver program, select **1.0.0**. If the receiving card supports V2.0.0 driver program, select **2.0.0**.
- Click **Restore Factory settings** to reset the configuration information of all or specified receiving cards to factory settings.
- Type “admin” to show the **Save to factory area** button. This button is used to save some parameters to the factory area before delivering the cabinets to users. This function is supported only by some receiving cards.

5.2.2.1.2 Set Cabinet

Applications

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

Applicable Products

For receiving cards that support .rcfgx or .rcfg files

Prerequisites

- A module is lighted. For details, see 5.2.2.1.1 Light Module.
- If the cabinet is irregular, the cabinet database file (.mcl) or module configuration file (.module) is prepared.

Related Information

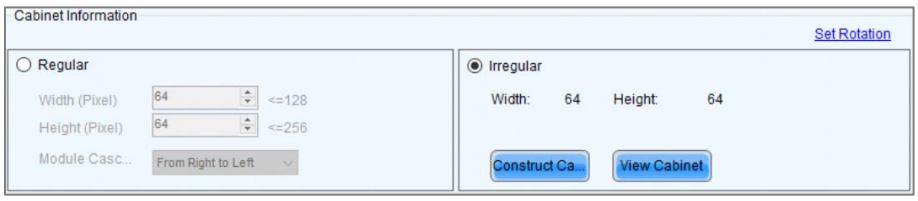
If a cabinet is rectangle and the specifications of all the modules are the same, the cabinet is a regular cabinet, otherwise it is an irregular cabinet. For an irregular cabinet, the configuration file must be used to construct the cabinet.

Operating Procedure

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

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

Figure 5-19 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 5-20 .

c. If you have a cabinet configuration file (.mcl/.cabinet), click **Load** to configure the cabinet quickly. If you do not have the file, perform 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. You can also adjust the display scale of the module to zoom in, zoom out, or fit automatically as needed in the **Zoom** section.

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

To display the test pattern by data groups, check the option **Enable Data Group Display**.

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.

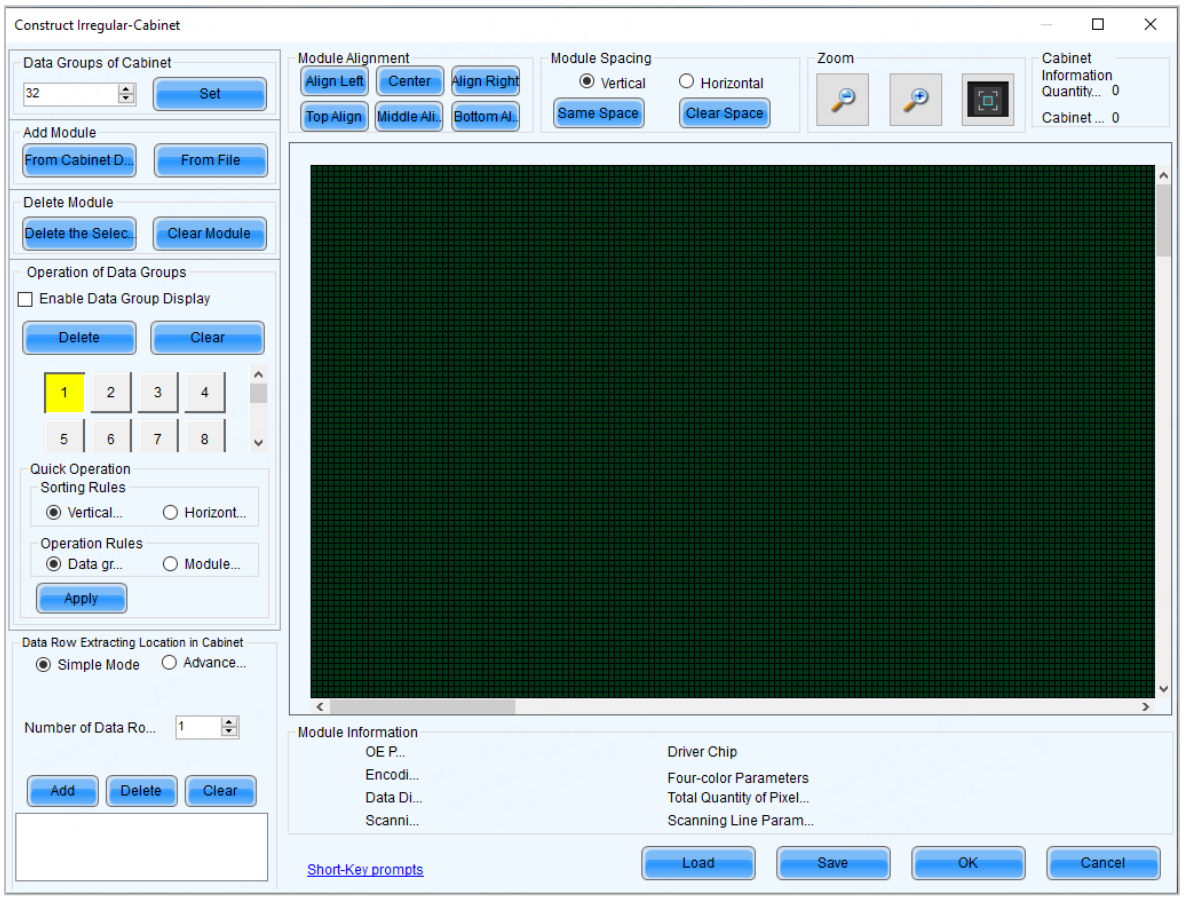
Simple Mode: Set the row extraction position of cabinet and click **Add**. For example, if you set the parameter to **2**, the second row in the cabinet will be extracted during row extraction and the second column will be extracted during column extraction.

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 5-20 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.

Figure 5-21 Set cabinet rotation



Step 4 After the settings are done, click **Send**. 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 5-22 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 **Export** to save the configuration information as a receiving card configuration file (.rcfgx).

5.2.2.2 Configuration through NCP

Applications

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

Applicable Products

For receiving cards that support NCP files

Prerequisites

- To load NCP files, ensure you have prepared the .ncp file and that its applicable model matches the current receiving card in use.

- To restore NCP files, confirm that the receiving card model is A8s Pro and that the firmware version is V1.2.0.0 or higher.

Related Information

None

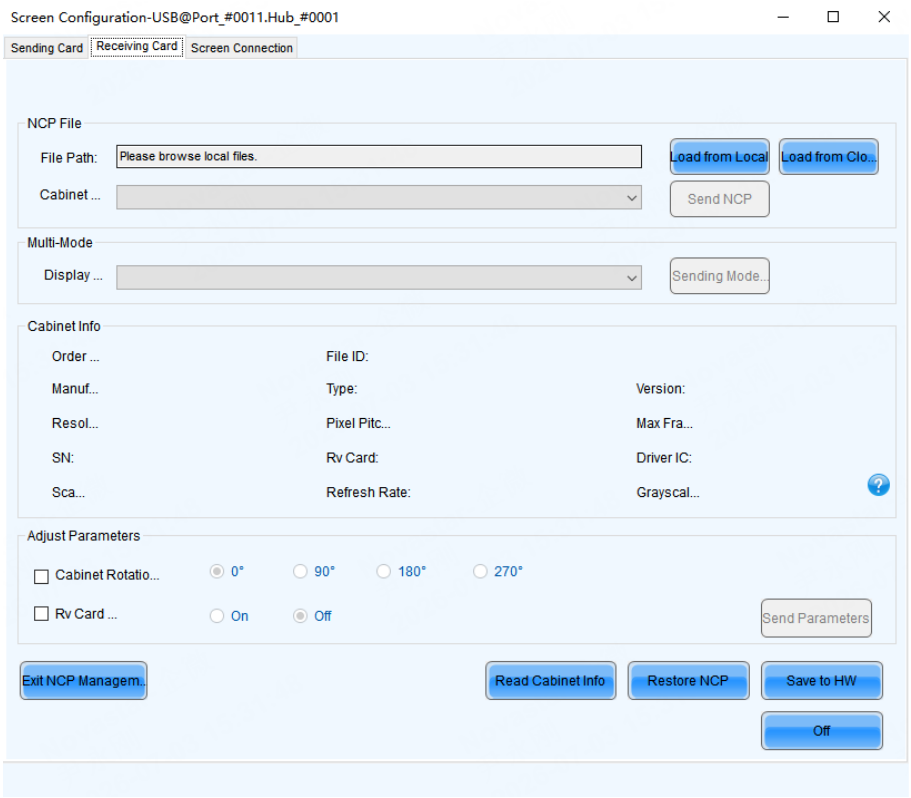
Operating Procedure

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

Note

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

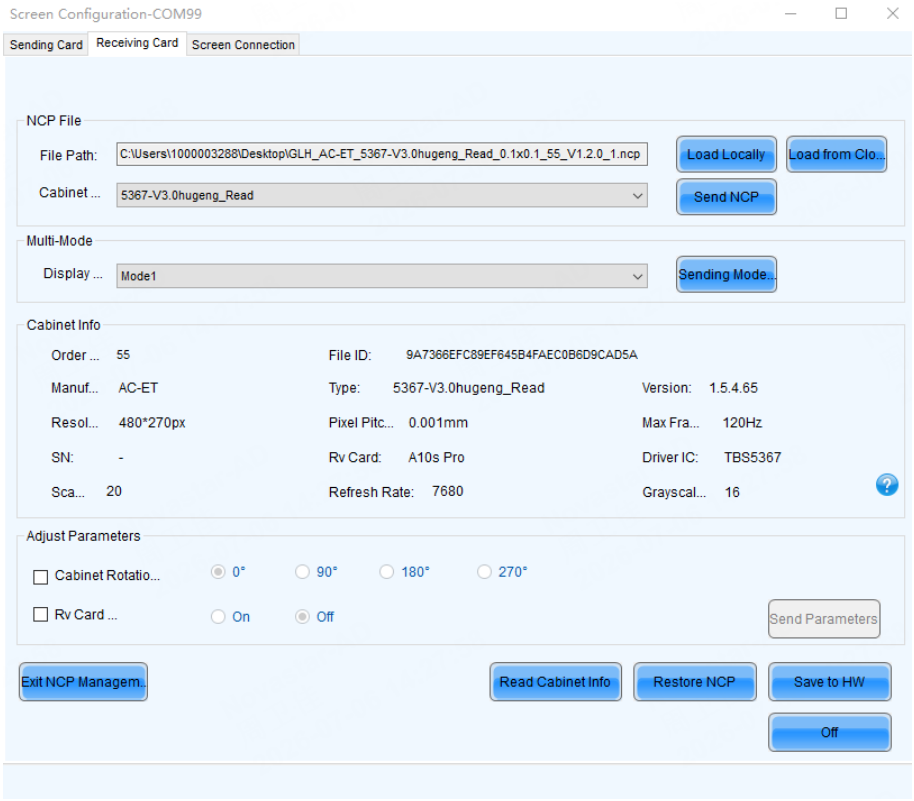
Figure 5-23 NCP management



Step 2 Click **Load from Local** or **Load from Cloud**.

- **Load from Local**: In the pop-up dialog, select an .ncp file and click **Open**.
- **Load from Cloud**: Enter the file ID or order number to search for the NCP.

Figure 5-24 Load NCP



Step 3 Send the cabinet file and display mode parameters.

- Select a cabinet file from the drop-down list and then click **Send NCP**.
- Select a display mode from the drop-down list and then click **Send Mode Parameters**.

Step 4 On the pop-up window, select the target receiving cards and click **Send**.

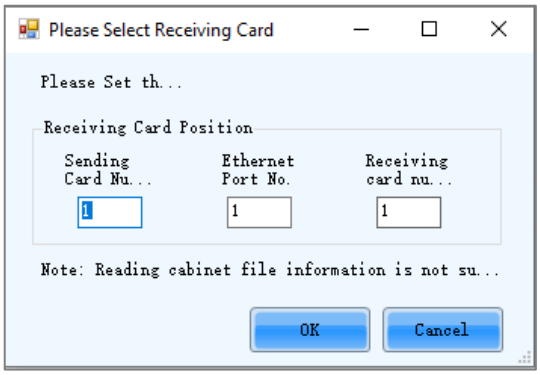
- All Receiving Card: Send the receiving card configuration information to all the receiving cards loaded by the current sending card. If you select **Reset the Starting Coordinate of Receiving Card**, the starting coordinates of all the receiving cards will be reset to (0, 0). As a result, all the receiving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

Step 5 Click **Save to HW**.

Step 6 Do the following as required.

- Read cabinet information

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



- Restore NCP

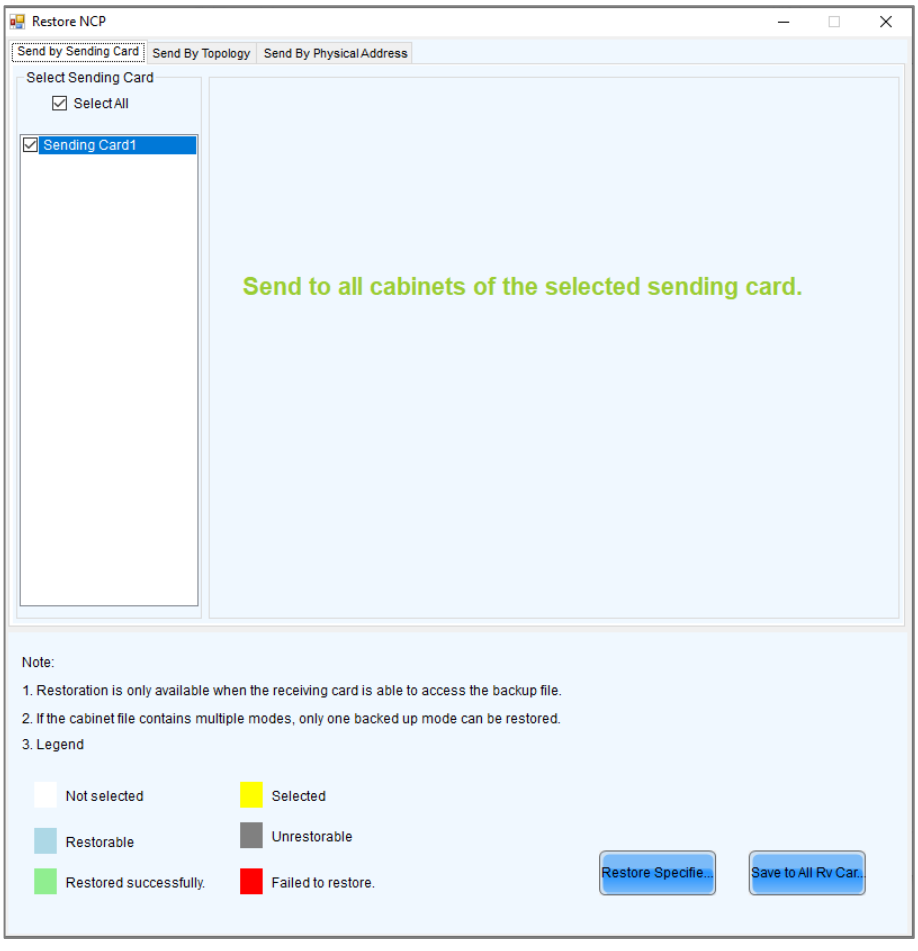
  a. Click **Restore NCP**.

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

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

  d. Click **Restore Specified Rv Cards** to restore the backup file in the factory area to DDR.

  e. Click Save to All Rv Cards.



- Set cabinet rotation

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

- Set receiving card indicator

  Select **Rv Card Indicator**, choose between **Enable** or **Disable**, and then click **Send Parameters**.

5.2.3 Step 3 Connect Screen

Applications

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

Applicable Products

- Configuration of standard screen: Applicable to all sending cards
- Configuration of complex screen: The DVI connector of the MCTRL1600 cannot be used to configure a complex screen. You must use its DP 1.2 connector. The E8000 cannot be used to configure a complex screen.

Prerequisites

None

Related Information

In NovaLCT, you can configure up to 20 screens.

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

Operating Procedure

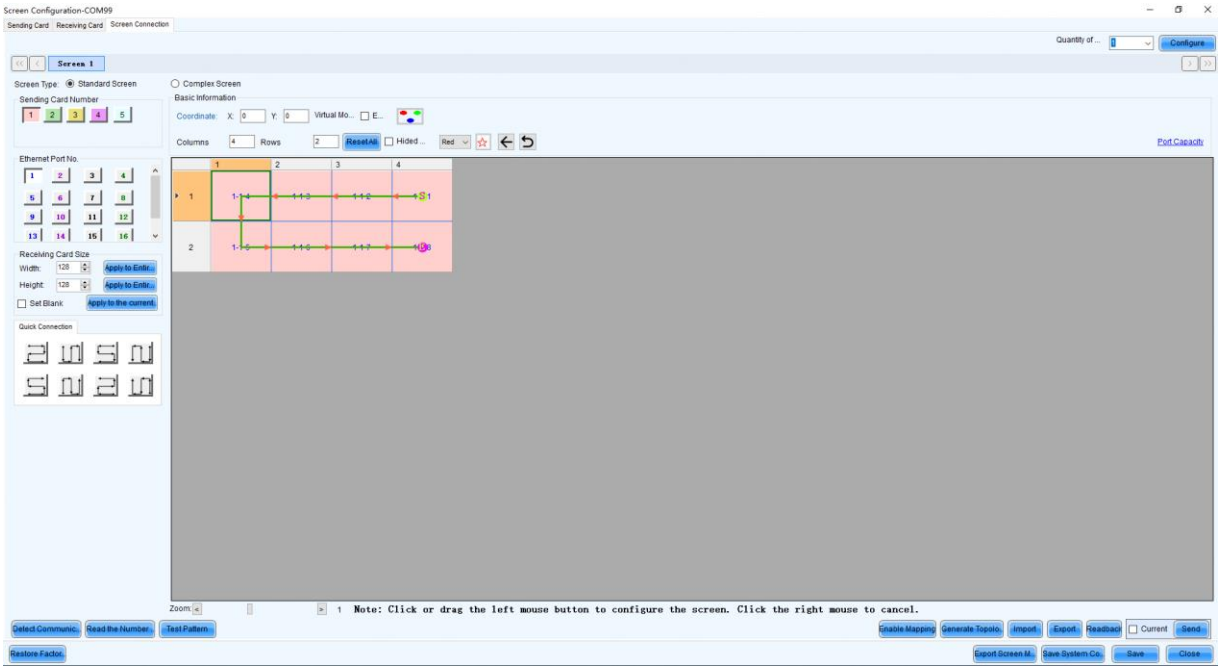
Step 1 On the **Screen Configuration** page, click the **Screen Connection** tab.

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

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

Step 3 On the Standard Screen page, set the column and row quantity of receiving cards in the Basic Information area. For example, set them to 4 columns and 2 rows respectively, as shown in Figure 5-25.Figure 5-25

Figure 5-25 Column and row quantity of receiving cards



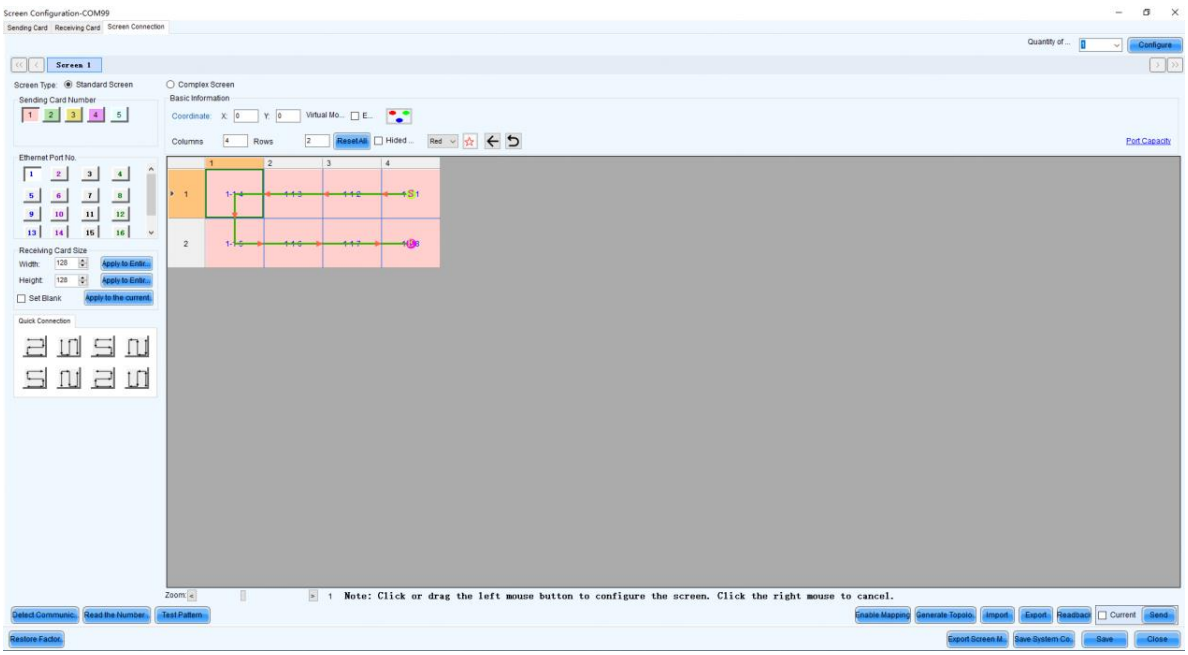
Step 4 Choose an output port.

Step 5 Set the receiving card size (loading capacity) and connection. For example, Figure 5-26 illustrates setting of the receiving cards loaded by output port 1.

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

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

Figure 5-26 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.
- Port Capacity: View the usage rate of Ethernet ports.

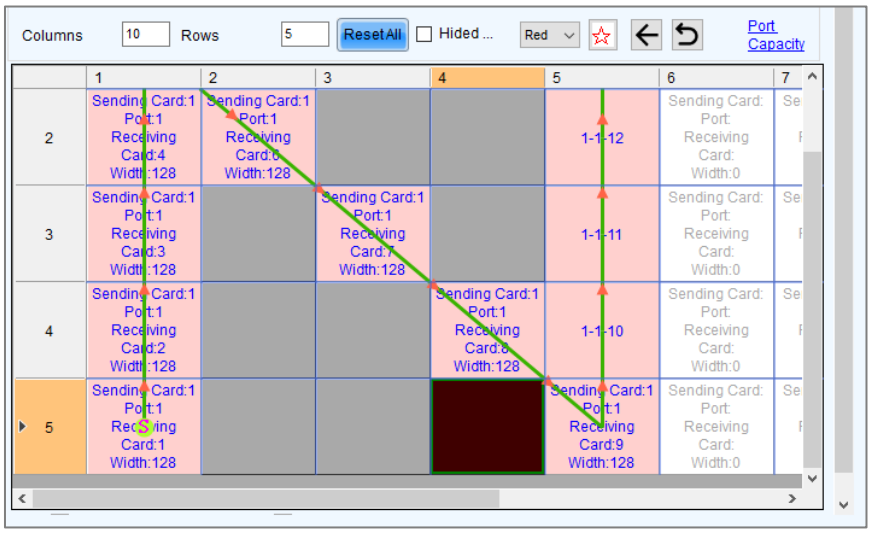
Step 6 (Optional) Set the specified receiving cards blank and set the blank size, as shown in the example in Figure 5-27. If you do not need to set blank, skip this step.Figure 5-27

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

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

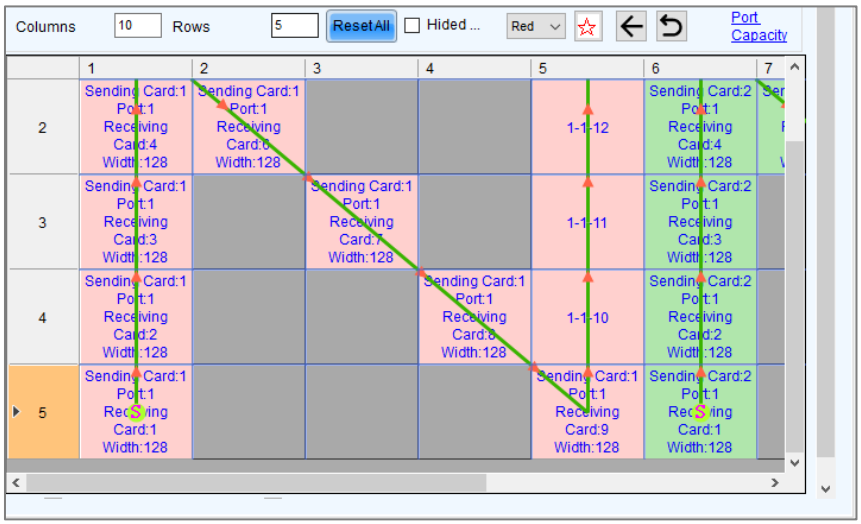
The blank size must be set based on the loading capacities of the neighbor receiving cards. For example, the display effect of both connection lines in Figure 5-28 is N shape. The areas in red boxes are loaded by the neighbor receiving cards. Therefore, their blank size is set to 0.

Figure 5-27 Setting receiving card blank



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

Figure 5-28 Configuration completed



Note

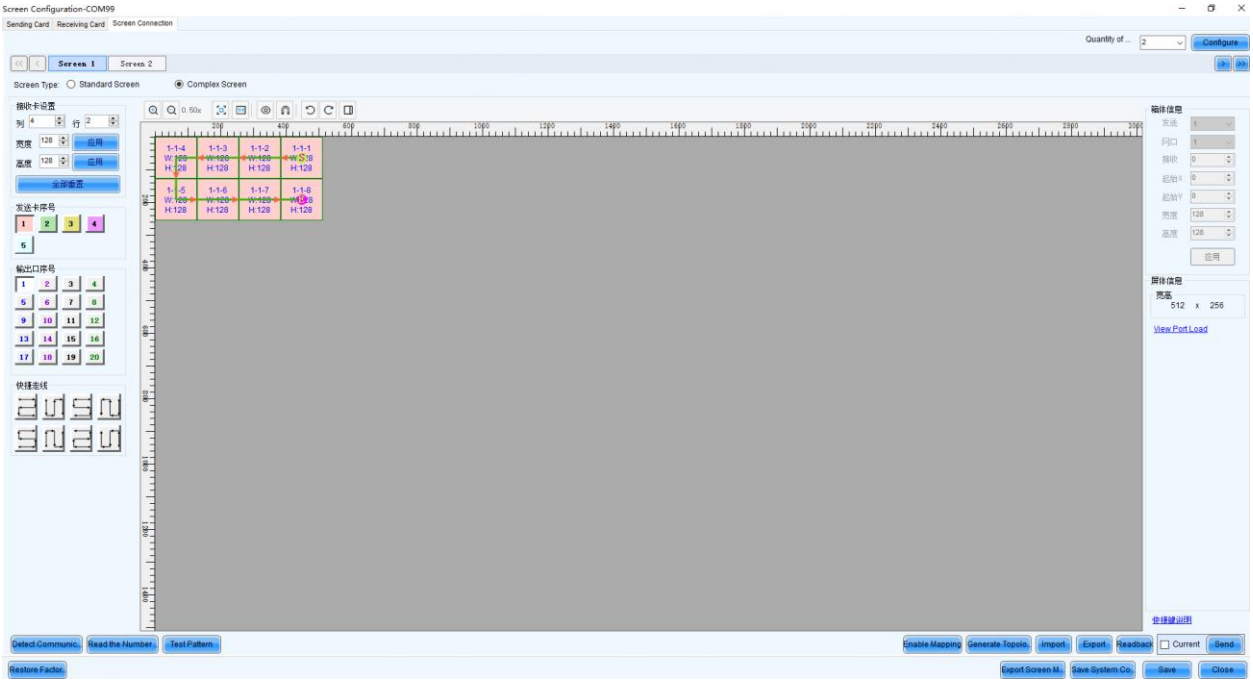
To configure a complex screen efficiently, you are advised to configure a standard screen first and then configure the complex screen based on the standard screen by following the

operations below.

After the standard screen is configured, select **Complex Screen**. The **Complex Screen** page shows the connection diagram of the standard screen.Figure 5-27 Figure 5-29

The **Complex Screen** page supports editing the **Cabinet Information** on the right to meet the actual screen configuration requirements.

Figure 5-29 Configuration of complex screen



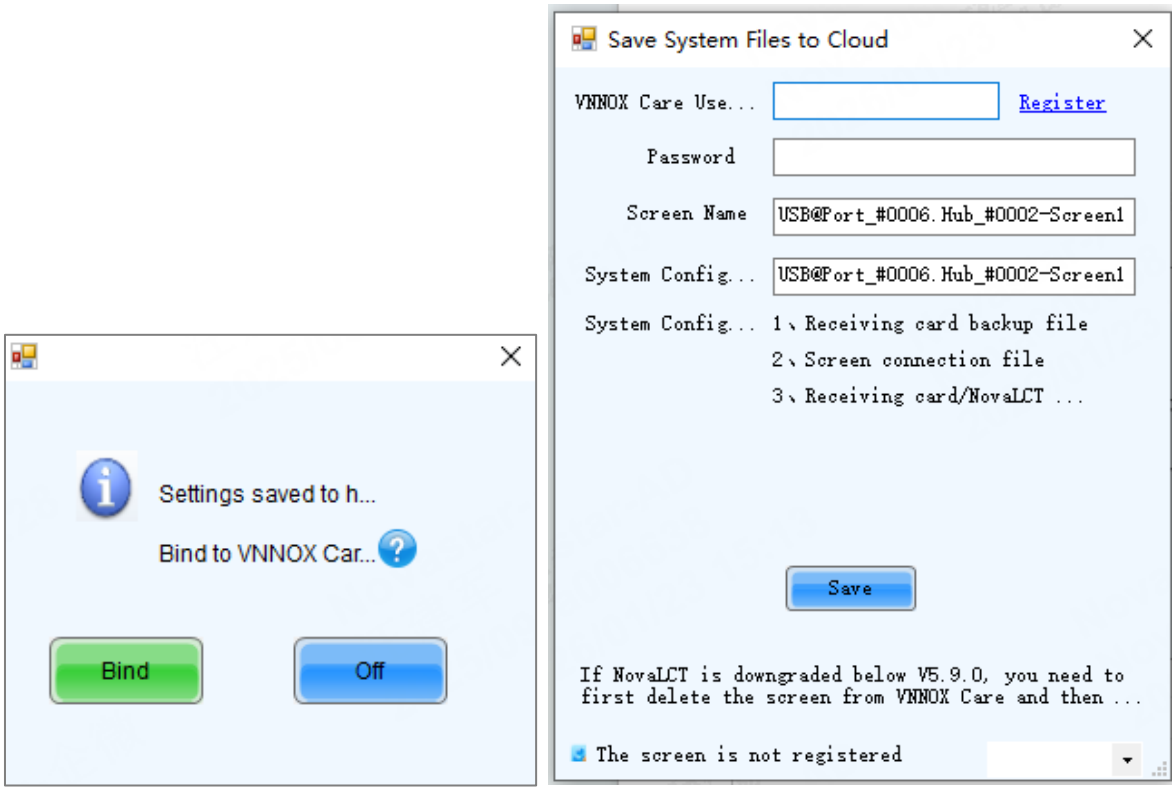
Step 8 Click **Send** to send the configuration information to the hardware. When **Current** is selected, only the configuration information of the current screen is sent. When **Current** is not selected, the configuration information of all configured screens is sent.

Note

When **Current** is selected and you click **Send**, if other screens are also configured under the sending card that the current screen belongs to, the configuration information of the related screens is sent together.

- Once sent to the hardware, the interface will prompt whether to bind to VNNOX Care. To bind the screen to VNNOX Care, click **Bind** in the pop-up dialog box. If the screen is not yet bound to VNNOX Care, enter the VNNOX Care user name and password, screen name, and system configuration file name. Then, select the node and click **Save**. If you do not have a VNNOX Care account, click **Register** in the upper right corner of the dialog box to navigate to VNNOX Care's official website for registration. For detailed instructions, please refer to VNNOX Care user manual.

Figure 5-30 Sending to hardware – whether bind to VNNOX Care, binding operation



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

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

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

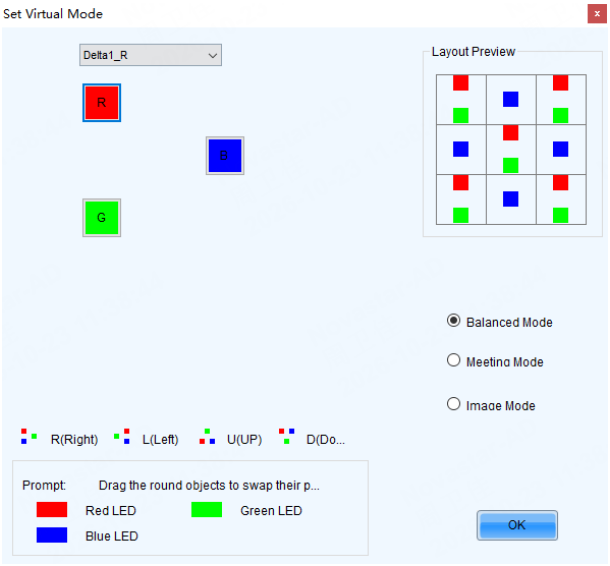
When the control computer can access the Internet, you can use the backup file to register screens to VNNOX Care. For details, see 7.1.2.1 Register by Using Local Backup Files (Recommended).

This step is related to the configuration of the save function. See 11.3 Configure the Save Function.

Related Operations

- Detect Communication Status: Detect the status of connection between the receiving card and Ethernet port.
- Read the Number of Receiving Cards: Read the number of receiving cards connected to the current Ethernet port.
- Test Pattern: Display test patterns through the sending card, receiving card, or Ethernet port. Additionally, you can perform screen controls like normal display or blackout.
- Enable Mapping: Enable the Mapping function. The Mapping function is for you to obtain the receiving card connection information conveniently.

- Generate Screen Layout Diagram: Generate a screen layout diagram in PDF or PNG format for reference at the construction site.
- Import: Import screen configuration files.
- Export: Export screen configuration files.
- Readback: Read the screen configuration information of the sending card back to the software interface.
- Send: Send the current screen configuration information to the hardware. When Current is selected, only the configuration information of the current screen is sent. When Current is not selected, the configuration information of all configured screens is sent.
- Save: Save the screen configuration parameters to the hardware.
- Coordinate: Set the start position of the display image on screen.
- Virtual Mode: For modules with shared pixels (dynamic sub-pixels), you can check the **Enable** checkbox and then click  to set the parameters for virtual pixels.



  - Balanced Mode: Suited for standard display scenarios.
  - Meeting Mode: Suited for displaying documents.
  - Image Mode: Suited for displaying images and videos.
- Back Up System Configuration: Back up some system configurations, sending card configurations and receiving card configurations to the local computer. This button is available for the MCTRL660 PRO device only.
- Restore System Configuration: Use the backup file (.pbk) to restore the system configurations, sending card configurations and receiving card configurations. This button is available for the MCTRL660 PRO device only.

5.2.4 Step 4 (Optional) Save Configuration Files

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

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

- You have a valid VNNOX Care account.
- The control PC is connected to the Internet.
- Product models listed in the following table are used if the user needs to save the configuration file to the cloud.

Table 1-1 Product models that support saving configuration files to the cloud (customized and discontinued models not included)

Product Series	Product Model
MCTRL series	MCTRL300 / MCTRL500 / MCTRL600 / MCTRL660 / MCTRL660 PRO / MCTRL660 ROE / MCTRL700 / MCTRL700 Pro / MCTRL4K / MCTRL4K-S / MCTRL4K_ViewPro / MCTRL R5
KT series	KT3, KT16_ZM, KT16E, KT8E, KT20L, KT16C
H series	H_16-port Ethernet + 2-port optical sending card / H_20-port Ethernet sending card / H_4-port optical sending card / H_4-port optical sending card (enhanced version)
All-in-one series	• VC series: VC2 / VC4 / VC6 / VC6 Pro / VC10 / VC10 Pro / VC16 • VX series: VX1 / VX400 / VX400s / VX400s-N / VX400 Pro / VX600 / VX600 Pro / VX1000 / VX1000 Pro / VX2000 Pro / VX16s
Other sending cards	MP8-JF, ASD200, E500, E510, MSD700, MSD700_1, LP10SD1600, SD2000E, GT4000, FTSC4000-E

Related Information

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

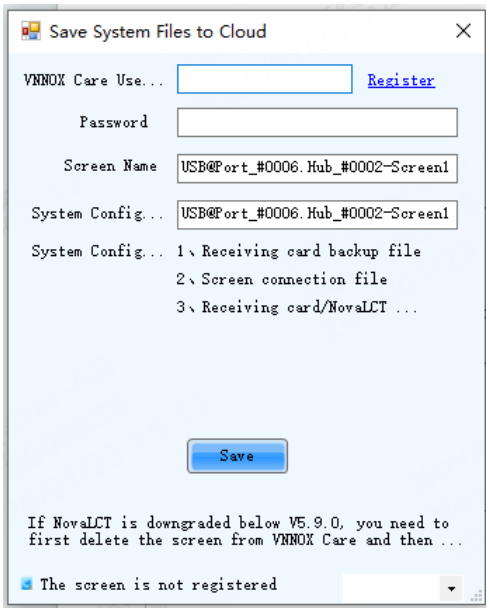
The configuration files saved to the cloud include the receiving card configuration file (.rcfgx), screen connection file (.scr), version file (.cfg), etc. The version file contains the version information about NovaLCT and the receiving card program package.

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

Operating Procedure (Online Screens)

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

Figure 5-31 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.

If you do not have a VNNOX Care account, click **Register** in the upper right corner of the dialog box to navigate to VNNOX Care's official website for registration. For detailed instructions, please refer to VNNOX Care user manual.

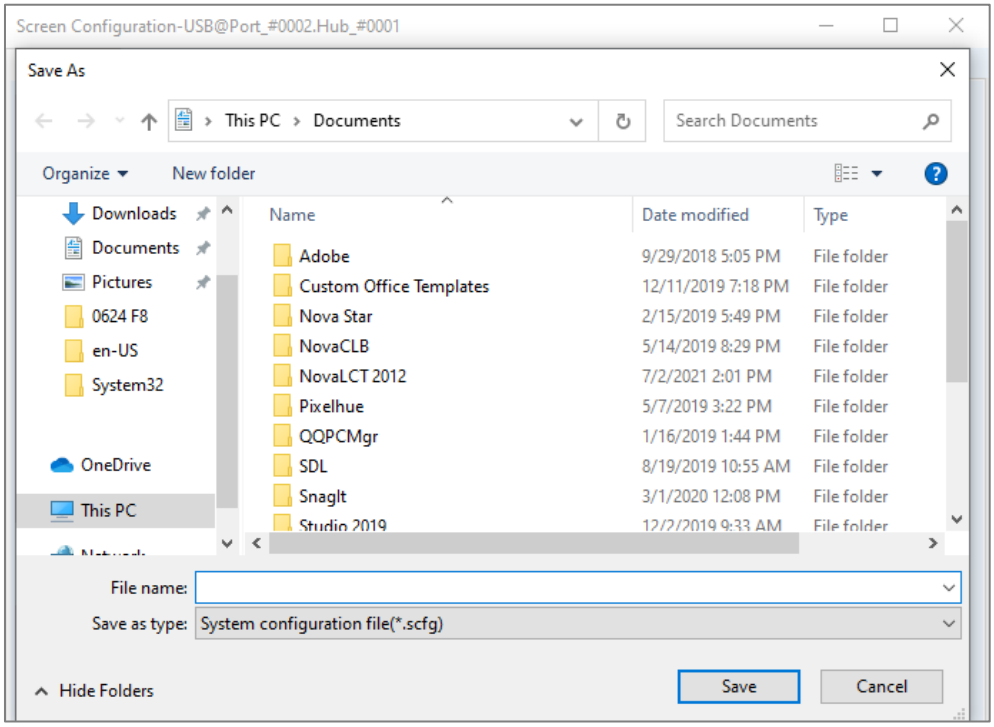
Step 3 After the parameter settings, click **Save**.

Step 4 After successful saving, close the prompt box.

Operating Procedure (Offline Screens)

Step 1 On the **Screen Configuration** page, click **Save System Configuration File** to open the dialog box shown in Figure 5-32 .

Figure 5-32 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 Redundancy

Applications

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

Applicable Products

- Redundancy: Applicable to all sending cards

- Hot backup verification: Applicable to the MCTRL4K, MCTRL R5 and KT8 sending cards, among others

Prerequisites

Redundancy related hardware connection is done. The devices are cascaded before you set device redundancy and Ethernet port redundancy between devices.

Related Information

Use the hot backup verification function to directly verify effectiveness of backup Ethernet ports without disconnecting and reconnecting Ethernet cables.

Operating Procedure

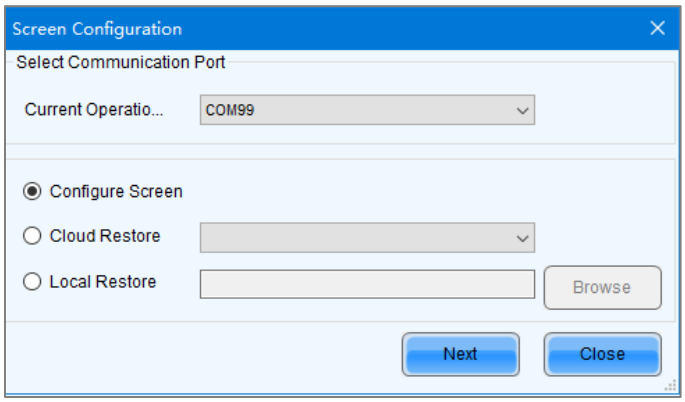
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **OK**.

The default password is “admin”.

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

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

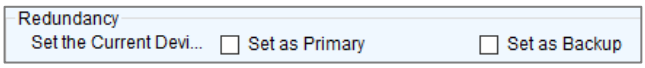
Figure 5-33 Screen configuration method



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

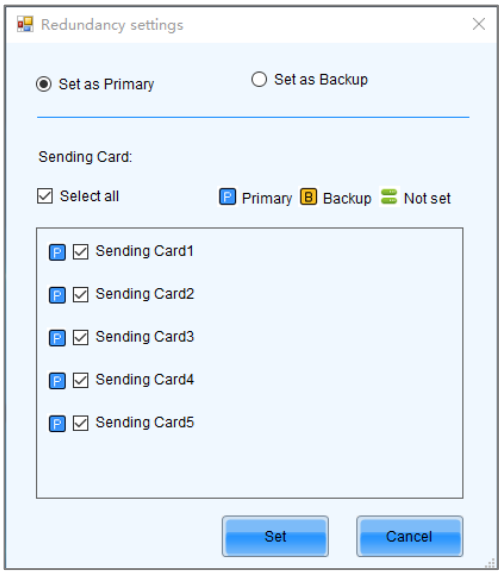
- **Configure device redundancy**
  - Set a single device

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



- Set multiple devices

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



Note

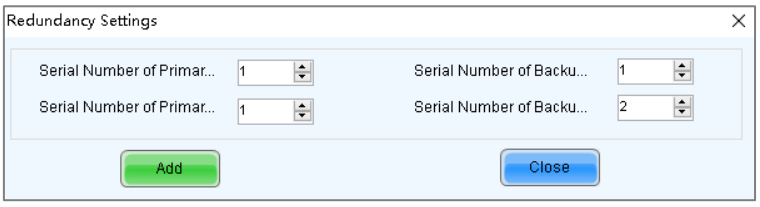
To set a single backup device as the primary device, deselect **Set as Backup** first, send the settings to the hardware and then select **Set as Primary**.

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

After configuring the backup device, when the primary device is operating normally and the backup device is inactive, the corresponding receiving card in the monitoring interface will be displayed in blue, indicating **Backing up**.

Configure Ethernet port redundancy

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



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

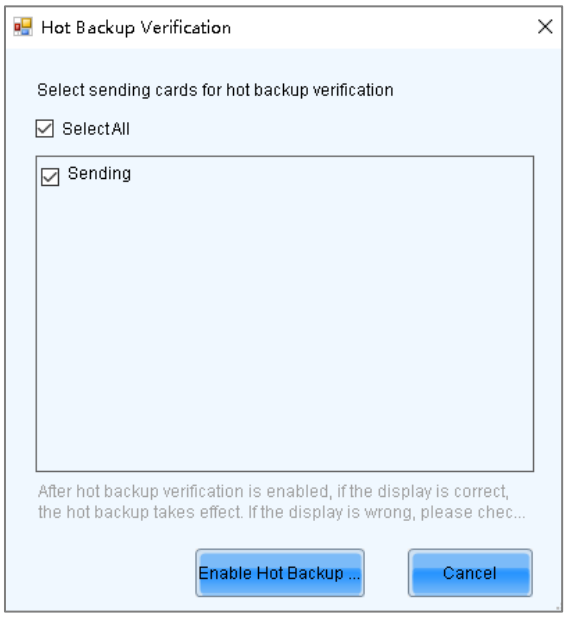
For Ethernet port redundancy within a sending card, enter the same value for serial numbers of the primary and backup sending card. For Ethernet port redundancy between sending cards, enter the actual serial numbers of the primary and backup sending cards after they are cascaded.

c. After the configurations are done, click **Close**.

Step 5 (Optional) After Ethernet port redundancy is configured, perform the following operations to verify hot backup.

1. Click **Verify** to open the dialog box shown in Figure 5-34 .
2. Select the sending card and click **Enable Hot Backup Verification**. If the display is normal, the backup Ethernet port is effective, otherwise it is not.
3. After verification, click **OK**.
4. Click Disable Hot Backup Verification and click OK.
5. Close the Hot Backup Verification dialog box.

Figure 5-34 Hot backup verification



Step 6 Click **Send** to send the configuration information to the hardware, or click **Save** to save the information to the hardware.

Step 7 After successful saving, choose whether to save the backup file to the local computer.

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

This step is related to the configuration of the save function. See 11.3 Configure the Save Function.

5.4 Enable 3D

Applications

Enable the 3D function and set the related parameters to let users wearing 3D glasses enjoy stereoscopic images.

Applicable Products

The MCTRL4K, MCTRL1600, KT8, KT8E, KT16E, KT16C, MEE200 and MEE400 sending cards, and H series products, among others

Prerequisites

The 3D and low latency functions cannot be enabled at the same time. The low latency function must be disabled before enabling 3D function.

The hardware connection is done and the 3D glasses are prepared.

Related Information

After the 3D function is enabled, the loading capacity of the sending card is reduced by half.

Operating Procedure

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

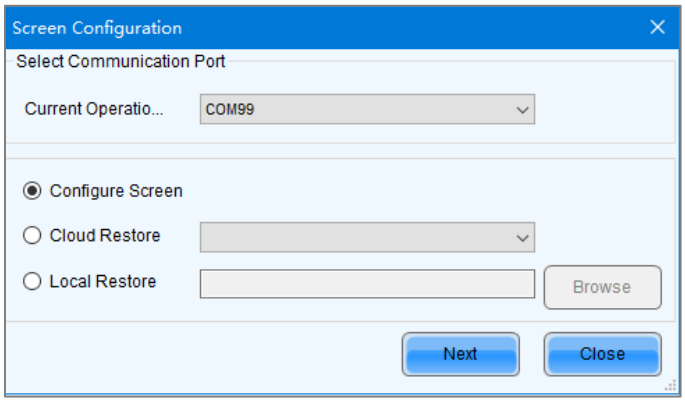
The default password is “admin”.

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar.

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

Figure 5-35 Screen configuration method



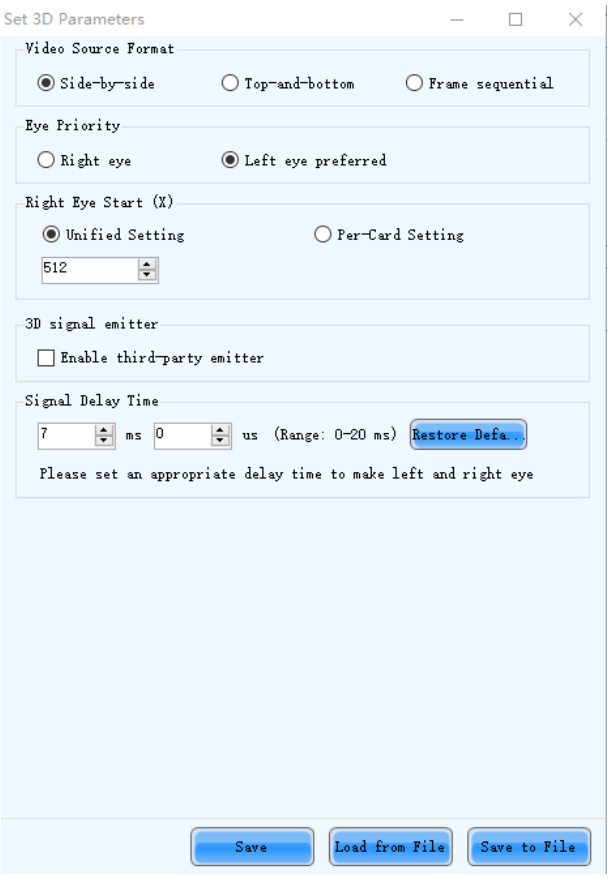
Step 4 On the **Sending Card** tab page, select **Enable** in the **3D Function** area.

Figure 5-36 Enabling 3D



Step 5 Click **Settings** next to **Enable** to open the dialog box shown in Figure 5-37 .

Figure 5-37 Setting 3D parameters



Step 6 Click **Load from File** to quickly configure the related parameters, or configure them manually.

- Video Source Format: Set the format of the video source to side-by-side, top-and-bottom or frame sequential according to the format of the used video source.
- Eye Priority: Set which image is sent first, the left eye image or the right eye image. Wear the 3D glasses and watch the display. If the display is abnormal, set the parameter value to the other one. If the display is normal, the setting is done.
- Right Eye Start (X): Set the start position of the right eye image. When the video source format is side-by-side or top-and-bottom and the left and right eye images are provided, this parameter can be set. Select **Unified Setting** or **Per-Card Setting** and enter the start position.
  - Unified Setting: Set the same right eye start position for all sending cards under the current communication port.
  - Per-Card Setting: Set a different right eye start position for each sending card under the current communication port.
- 3D signal emitter: If you use a third-party 3D emitter, select **Enable third-party emitter**. If you use the EMT200 emitter of NovaStar, do not select it.
- Signal Delay Time: Set the delay time of sending the synchronization signal from 3D signal emitter to the 3D glasses. This setting ensures that the switching between left and right eye images of the 3D glasses is in sync with the switching between the left and right images on the display. This parameter is applicable to both the NovaStar and third-party emitters.

Step 7 After the configurations are done, click **Save** to save the configuration information to the hardware.

The 3D parameters take effect on the hardware immediately after they are configured. If they are saved to the hardware, they will not be lost even after the device is powered off.

Step 8 (Optional) Click **Save to File** to save the configuration information as a file on the local computer.

5.5 Set Working Mode

Applications

Set the working mode to let the device switch to the sending card mode (also known as video controller mode) or the fiber converter mode.

Applicable Products

The MCTRL660 PRO, MCTRL1600, H9, NovaPro UHD Jr, K16, and MCTRL R5 sending cards, among others

Prerequisites

None

Related Information

For the MCTRL1600, H9, NovaPro UHD Jr and K16, after their working mode is set to sending card mode, you can further set the working mode of their optical ports. The working modes of optical port include hot backup mode and copy mode.

Figure 5-38 and Figure 5-39 are illustrations of the two optical port working modes, using the NovaPro UHD Jr as an example.

- Hot backup mode: The sending card sends the two duplicate optical signals to the same display through the primary and backup fiber converters to form a loop backup.
- Copy mode: The sending card sends the two duplicate optical signals to two displays through two fiber converters.

Figure 5-38 Hardware connection for optical port hot backup mode

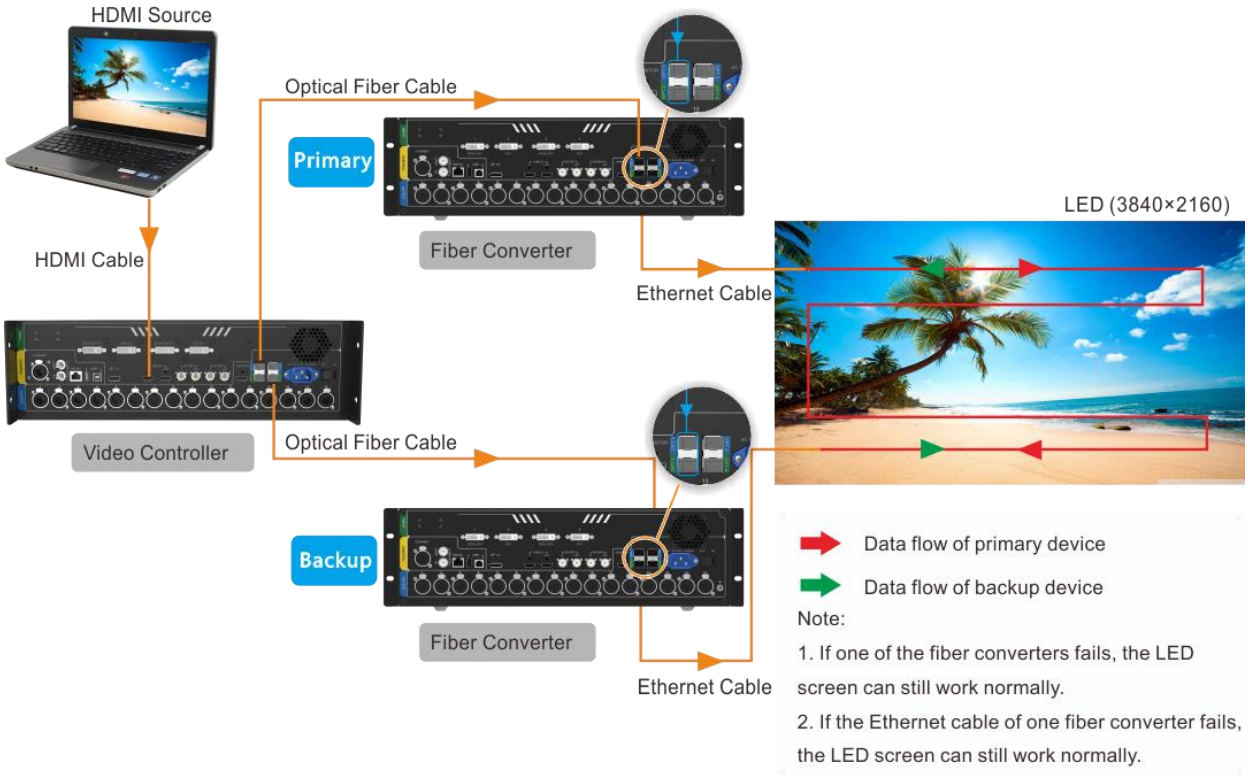
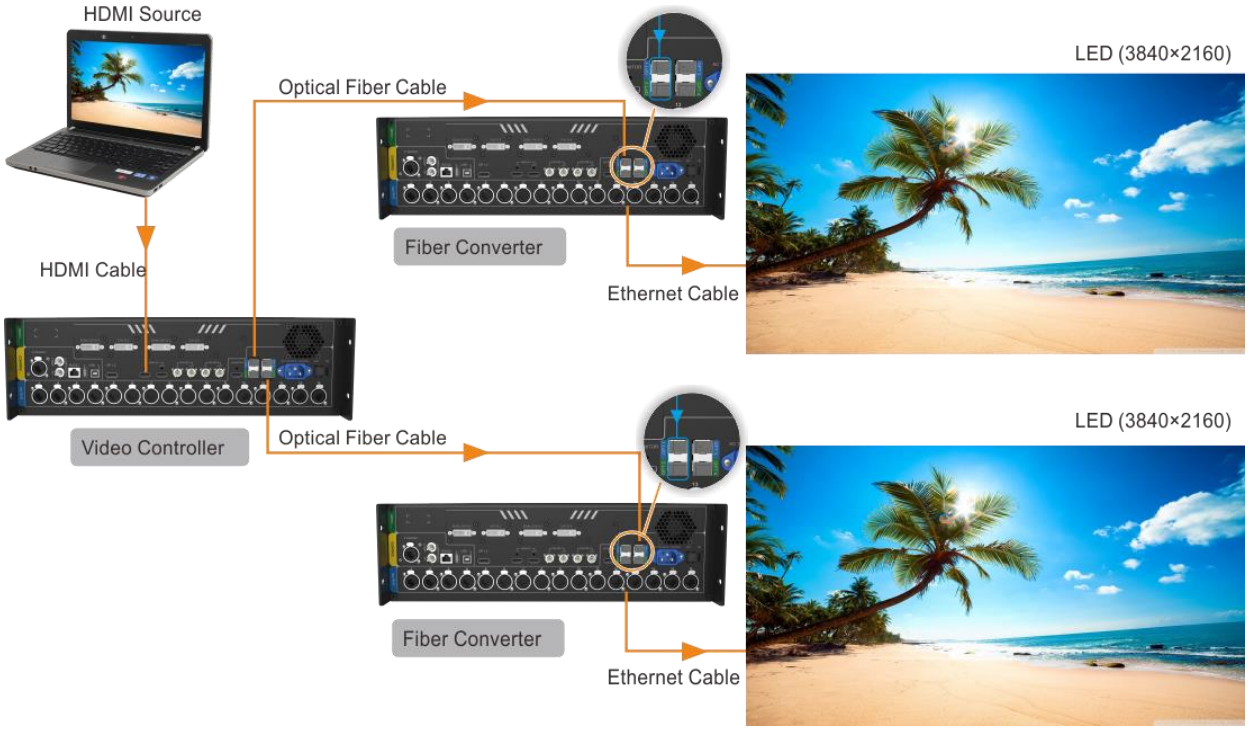


Figure 5-39 Hardware connection for optical port copy mode



Operating Procedure

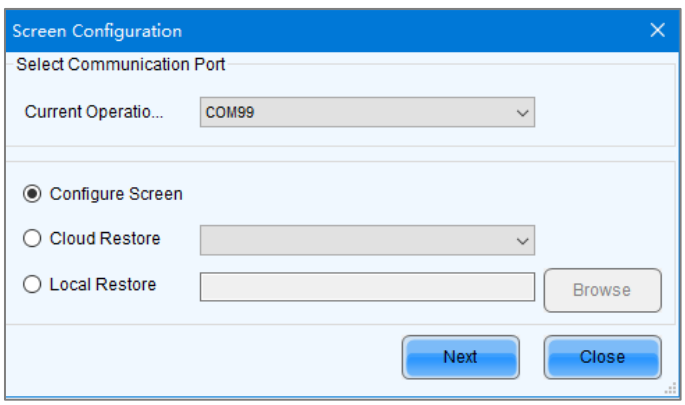
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **OK**.

The default password is “admin”.

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

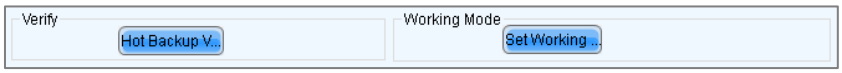
Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, select **Next**.

Figure 5-40 Screen configuration method



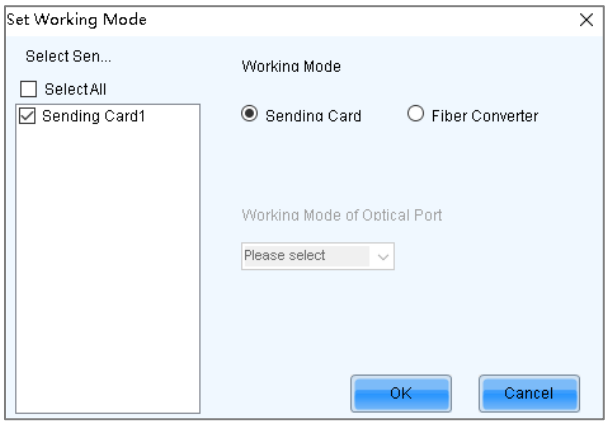
Step 4 On the **Sending Card** tab page, click **Set Working Mode**.

Figure 5-41 Working mode



Step 5 Select the sending card and set the working mode to sending card mode or fiber converter mode.

Figure 5-42 Setting working mode



Step 6 For the MCTRL1600, H9, NovaPro UHD Jr and K16, after their working mode is set to sending card mode, if necessary, set the working mode of their optical ports.

Step 7 Click **OK**.

5.6 Enable Zoom

Applications

Enable the zoom function and set the output resolution to let the image be displayed in a specified size.

Applicable Products

The KT8E, KT16E, KT16C, MEE200 and MEE400 sending cards, among others

Prerequisites

None

Related Information

None

Operating Procedure

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

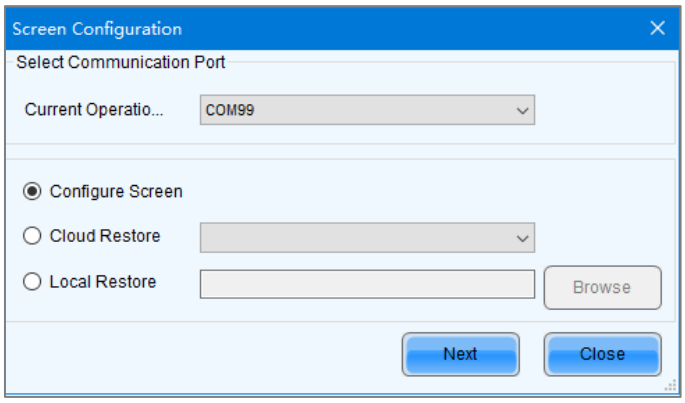
The default password is “admin”.

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar.

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

Figure 5-43 Screen configuration method



Step 4 Click the **Sending Card** tab.

Step 5 Select **Enable zoom** and click **OK**.

Figure 5-44 Enabling zoom



Step 6 Set the output resolution.

Step 7 Click **Set** and click **OK**.

5.7 Set Audio Input

Applications

Set the audio input to HDMI or external audio.

Applicable Products

The sending card MCTRL2000

Prerequisites

None

Related Information

None

Operating Procedure

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

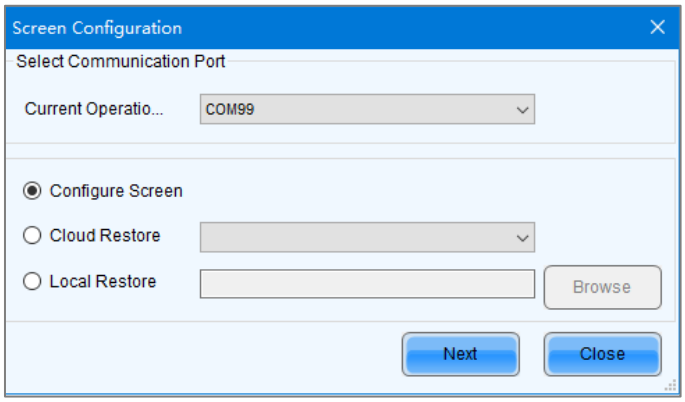
The default password is “admin”.

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar.

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

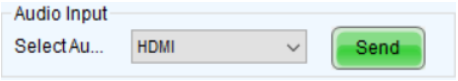
Figure 5-45 Screen configuration method



Step 4 Select the **Sending Card** tab.

Step 5 Select **HDMI** or **External Audio** from the drop-down list and then click **Send**.

Figure 5-46 Audio input



5.8 Set Performance Parameters

Applications

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

Applicable Products

All receiving cards

Prerequisites

None

Related Information

None

Operating Procedure

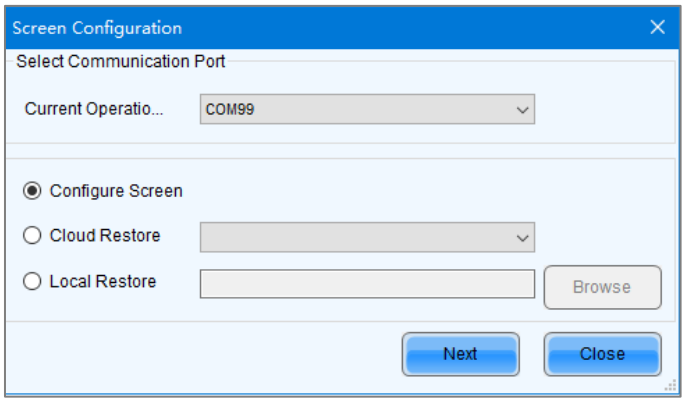
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **OK**.

The default password is “admin”.

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

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

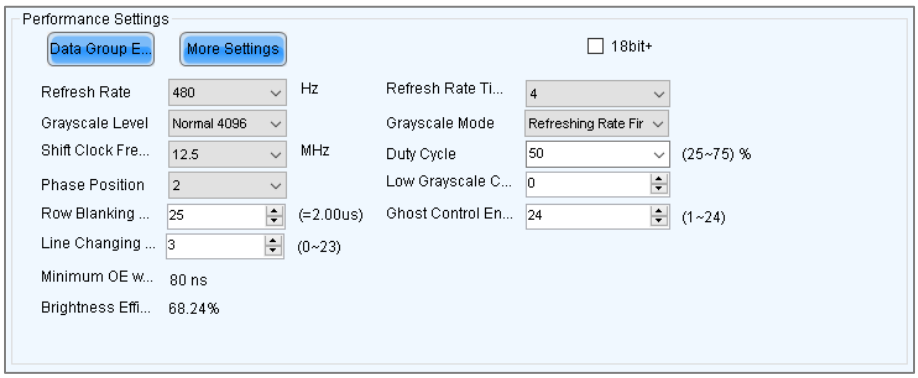
Figure 5-47 Screen configuration method



Step 4 Click the **Receiving Card** tab and click **Readback** 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 you do not have the file, perform 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 vary depending on the receiving card. The main parameters include the following.

- 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 16-bit, the display can express 65,536 levels of brightness.
- Grayscale Mode: Indicates the grayscale display mode. It includes brightness first, refreshing rate first, grayscale first and performance balancing.
- DCLK Frequency: Indicates the frequency of shift clock.
- DCLK Duty Cycle: Indicates the duty cycle of shift clock. Set it to 50% in general.
- DCLK Phase: Indicates the phase of shift clock. When there are mismatching or flashing pixels, adjust this parameter to fix the problem.
- Refresh Rate Times: Indicates the times of refresh rate.
- Low Grayscale Compensation: Indicates the compensation for the grayscale in low grayscale conditions, allowing for more precise grayscale.
- Row Blanking Time: Used to adjust the ghost problem of the scanning type display. If the ghost problem is serious, increase the parameter value.
- Line Changing Time: Works with row blanking time to adjust the ghost of the scanning type display.
- Ghost Control Ending Time: Works with row blanking time and line changing time to adjust the ghost of the scanning type display.
- Line break trimming: Works with row blanking time to adjust the ghost of the scanning type display.
- GCLK Frequency: Indicates the frequency of grayscale clock.
- GCLK Duty Cycle: Indicates the duty cycle of grayscale clock.
- GCLK Phase: Indicates the phase of grayscale clock.
- Blanking Time Height: Used to eliminate the lower ghost
- Minimum OE Width: It is calculated from other performance parameters and can be viewed only.
- Brightness Efficiency: It is calculated from other performance parameters and can be viewed only.

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

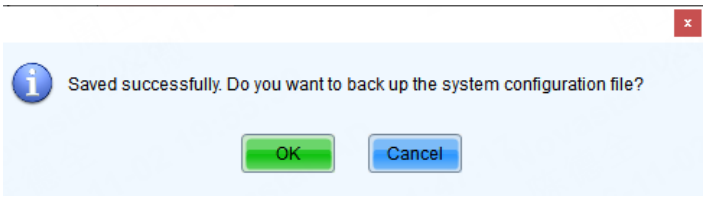
Step 8 After the display effect meets the expectation, click **Save** to save the performance parameters to the hardware.

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

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

This step is related to the configuration of the save function. See 11.3 Configure the Save Function

Figure 5-48 Saved successfully



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.

To display the test pattern by data groups, check **Enable Data Group Display** and specify the data group number.

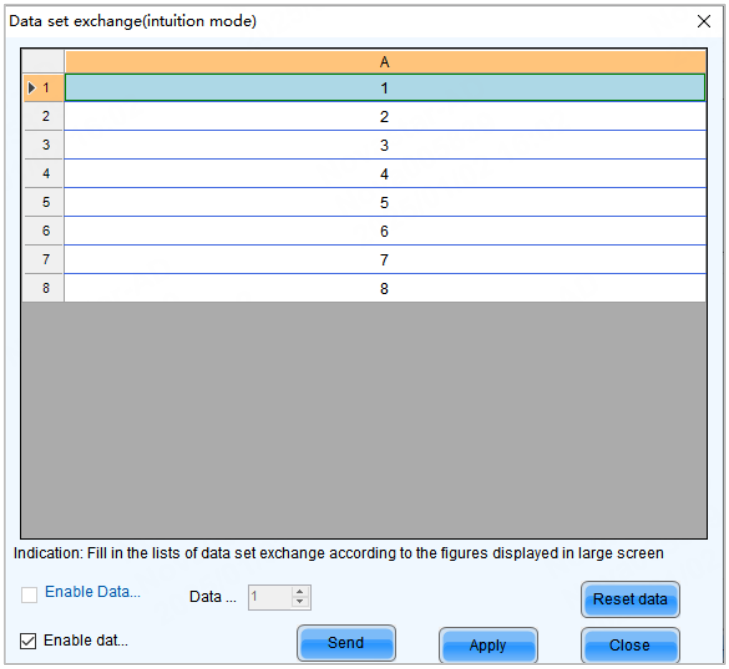
- **Intuition Mode**

  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.

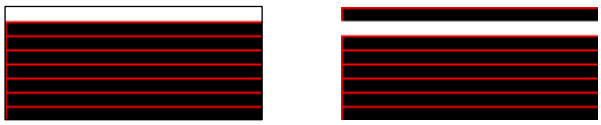
  In the **Data set exchange** dialog box, change **5** to **1**, **6** to **2**, **1** to **5**, and **2** to **6**, as shown in the figure below.



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

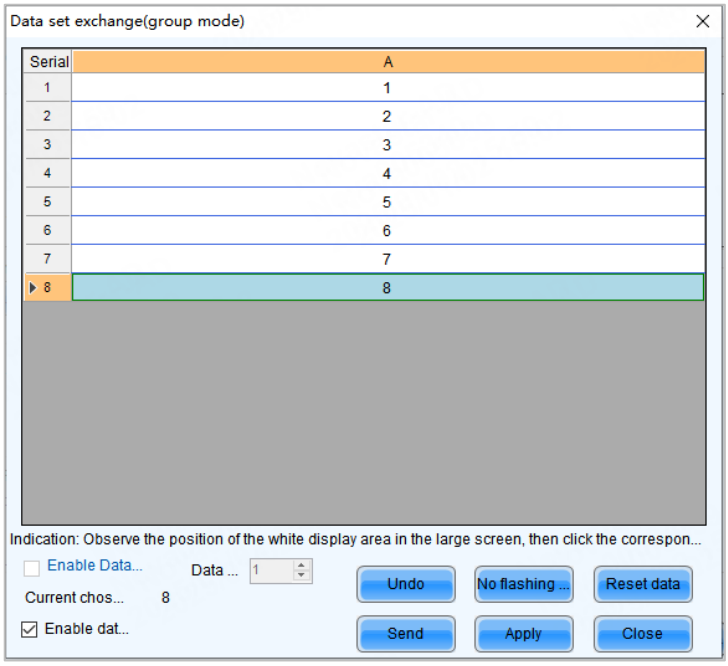
Select **Enable data exchange** and check whether the screen has a white area. If it has no white area, click **No flashing area**. The white row in the red table moves to the next data group. If it has a white area, click the data group you want to exchange in the **Data set exchange** dialog box.



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.



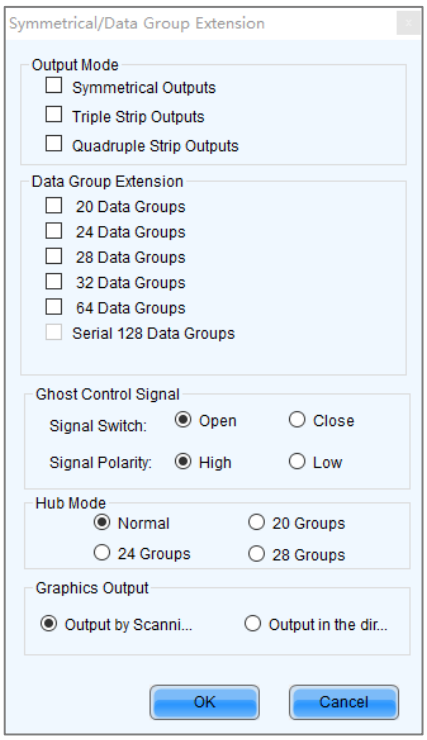
After the settings are done, click **Send** to send the configuration information to receiving cards.

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.

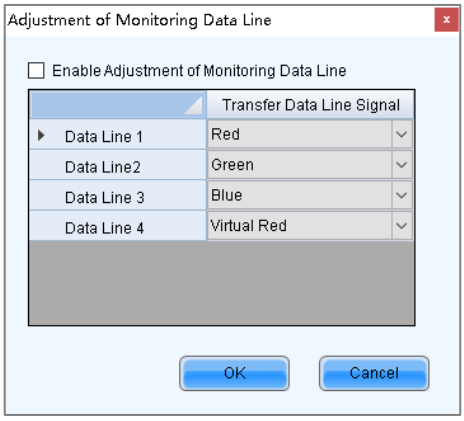


- Output Mode: If the screen is very wide and the receiving card cannot load the entire width, set the output mode to symmetrical outputs, triple strip outputs or quadruple strip outputs.
- Data Group Extension: If the receiving card supports data group extension, select the corresponding option according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

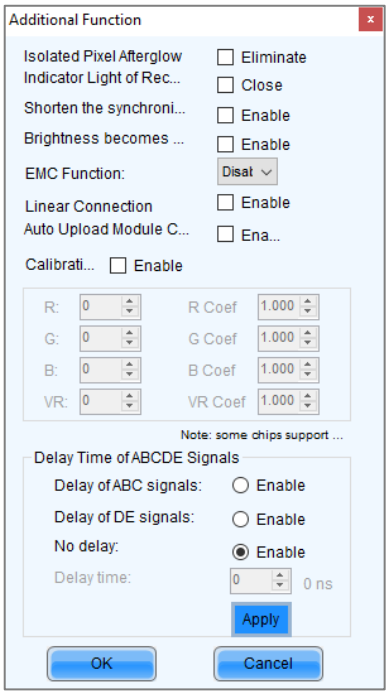
Adjust the data lines used by red, green, blue and virtual red LEDs during LED error detection.

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 cards.



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

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

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

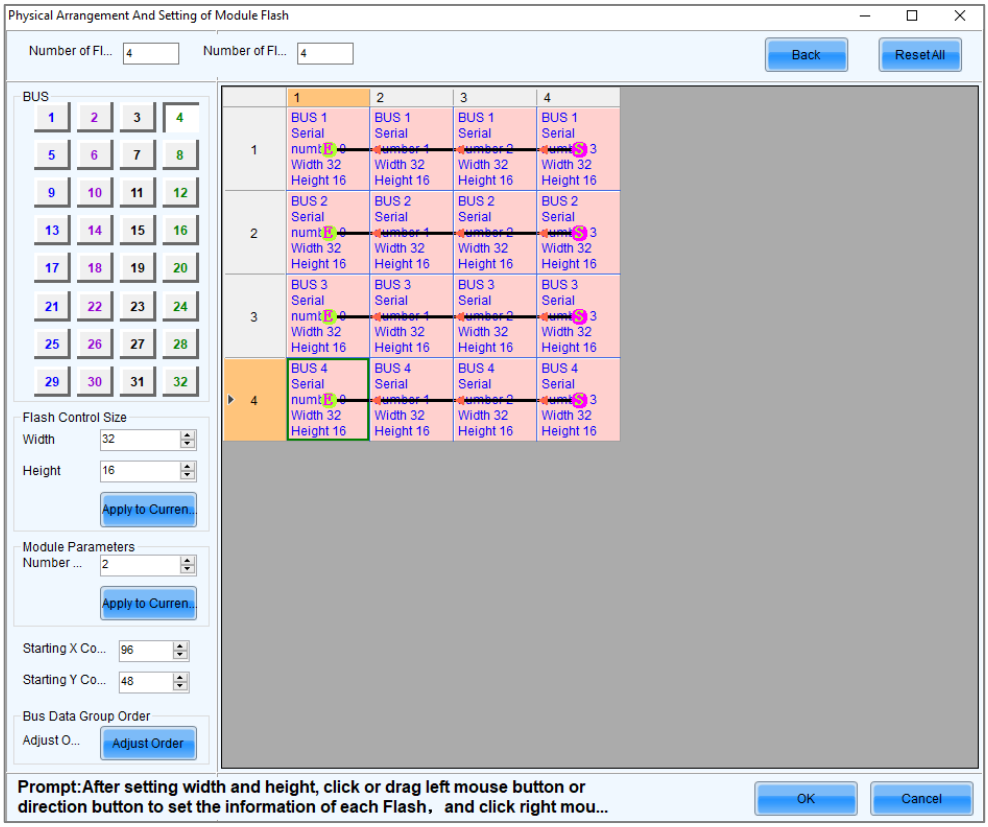
The threshold coefficient is used to determine the transition mode of pixel level calibration below the threshold value. The coefficient range is from 0.000 to 1.200, where 0 signifies no transition, rendering the pixel level calibration ineffective straightaway. The larger the value, the more gradual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

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

Flash Arrangement

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

Before connecting the modules that have flash memory, obtain the bus number. 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 number.

c. Set the width and height of the module controlled by the flash memory.

d. In the arrangement table, click the cells in order according to the actual module connection.

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

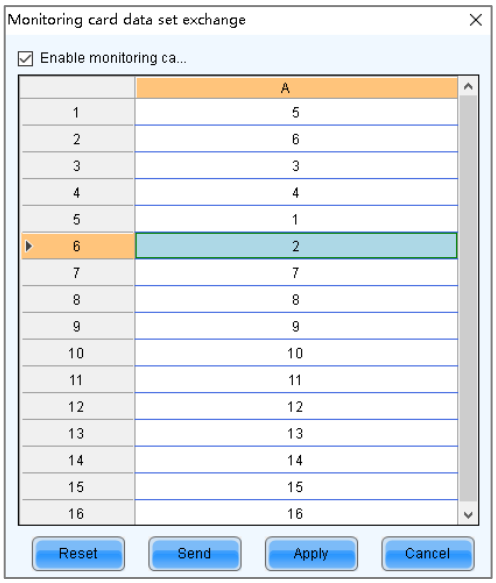
e. Set the number of data groups of the module and the start coordinates of the flash memory.

f. Click **Adjust Order** to arrange the data group numbers as necessary.

g. If necessary, click the other bus to continue setting. After the configurations are done, click **OK**.

Monitoring Card Data Set Exchange

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



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

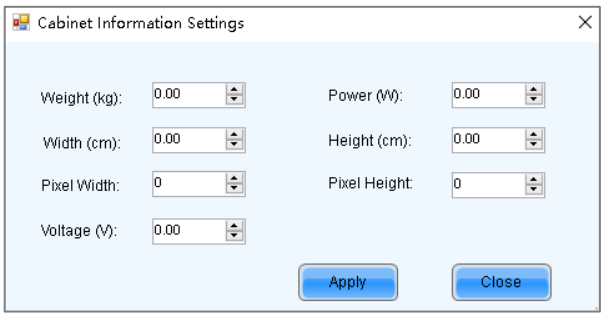
b. In the Monitoring card data set exchange dialog box, select Enable monitoring card data set exchange.

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 based on the actual situation.



5.9 Set Module Flash Parameters

Applications

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

Applicable Products

For receiving cards that support read-write flash module.

Prerequisites

Modules with flash memory and the TBS 614 chip.

Related Information

None

Operating Procedure

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

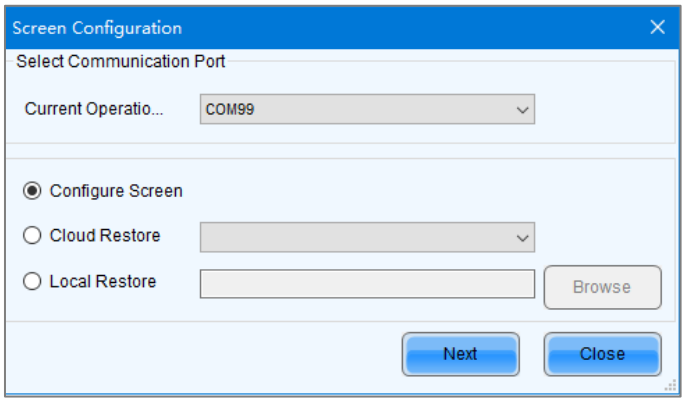
The default password is “admin”.

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar.

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

Figure 5-49 Screen configuration method

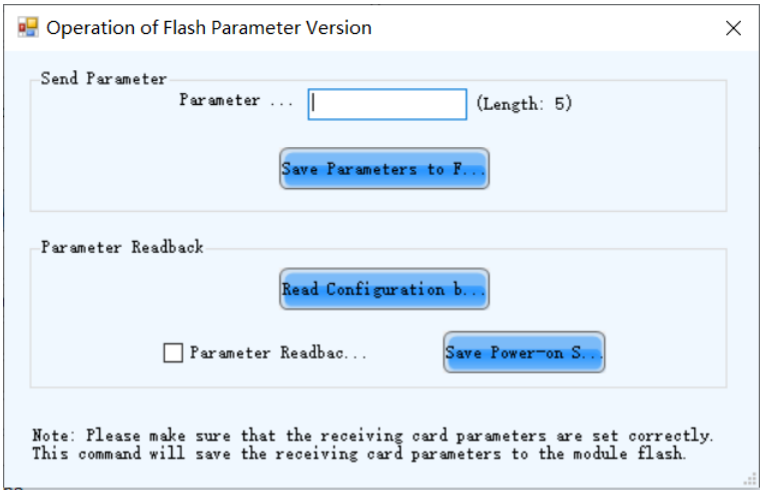


Step 4 Click the Receiving Card tab and type "NEC" (case sensitive) on your keyboard.

Step 5 Click the **Write Flash Parameters** that appears on the interface.

Step 6 Do the following as required.

Figure 5-50 Module flash parameters



- Send Parameters

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

- Read Parameters

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

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

6 Brightness and Chroma Adjustment

6.1 Calibration

6.1.1 Set Online Calibration Parameters

Applications

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

Applicable Products

- Full-grayscale calibration: Applicable to the A10s receiving card
- Low-grayscale calibration: Applicable to the A10s receiving card
- Dark or bright line correction: Applicable to the A8s receiving card
- Other functions: Applicable to all receiving cards and sending cards

Prerequisites

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

Related Information

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

Operating Procedure

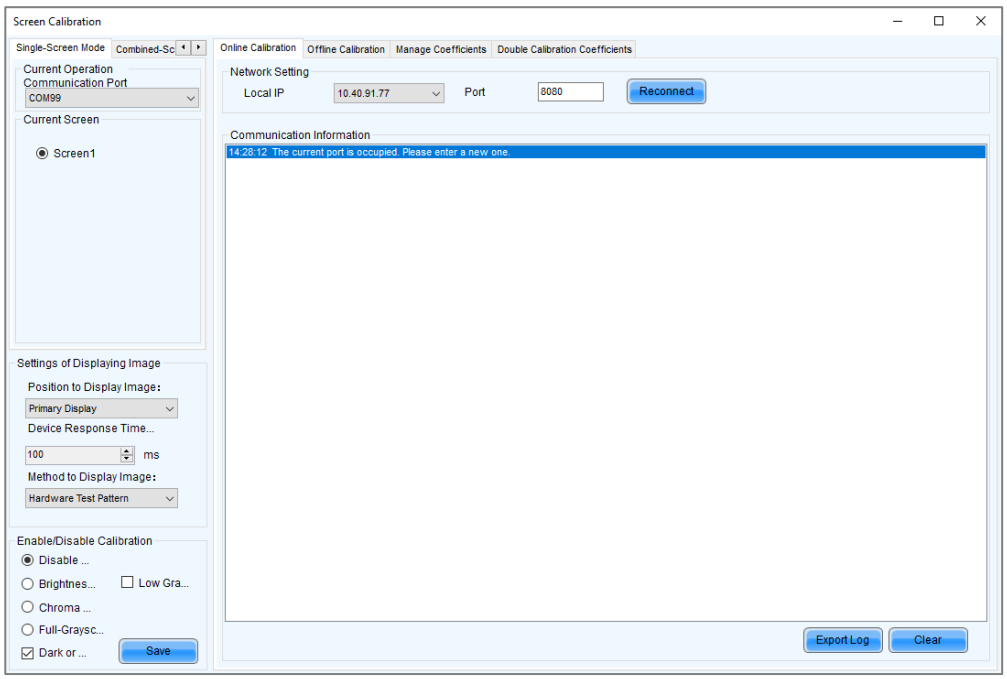
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **OK**.

The default password is “admin”.

Step 2 Click 

or choose **Tools** > **Calibration** from 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 a communication port and screen. In combined-screen mode, skip this step.

Step 5 Set the displayed parameters.

- Position to Display Image: Choose to display the image of the primary or extended monitor on the screen.
- Device Response Time: In combined-screen mode, setting this parameter allows the display window to fit well with the time for camera to take pictures.
- Method to Display Image: Select hardware test pattern or signal test pattern.
- Enable/Disable Calibration: You can select disable calibration, brightness calibration, chroma calibration, or full-grayscale calibration. You can also select dark or bright line correction and low-grayscale calibration at the same time. Click **Save** to apply your settings.

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

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

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

6.1.2 Get Average Coefficients

Applications

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

Applicable Products

All receiving cards

Prerequisites

None

Related Information

Offline calibration is not available for combined screens.

Operating Procedure

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

The default password is “admin”.

Step 2 Click 

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

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

Step 4 Select a communication port and screen.

Step 5 Select the **Offline Calibration** tab.

Figure 6-2 Offline calibration



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

Step 7 Click **Get Average Coefficients**.

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

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

6.1.3 Manage Calibration Coefficients

Applications

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

Applicable Products

- Full-grayscale calibration: Applicable to the A10s receiving card
- Low-grayscale calibration: Applicable to the A10s receiving card
- Dark or bright line correction: Applicable to the A8s receiving card
- Other functions: Applicable to all receiving cards

Prerequisites

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

Related Information

Combined screens only support calibration coefficient upload and do not support other calibration coefficient management features.

Pixel level calibration database files fall into two types:

- **Screen calibration database file**

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

- **Cabinet calibration database file**

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

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

Operating Procedure

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

The default password is “admin”.

Step 2 Click 

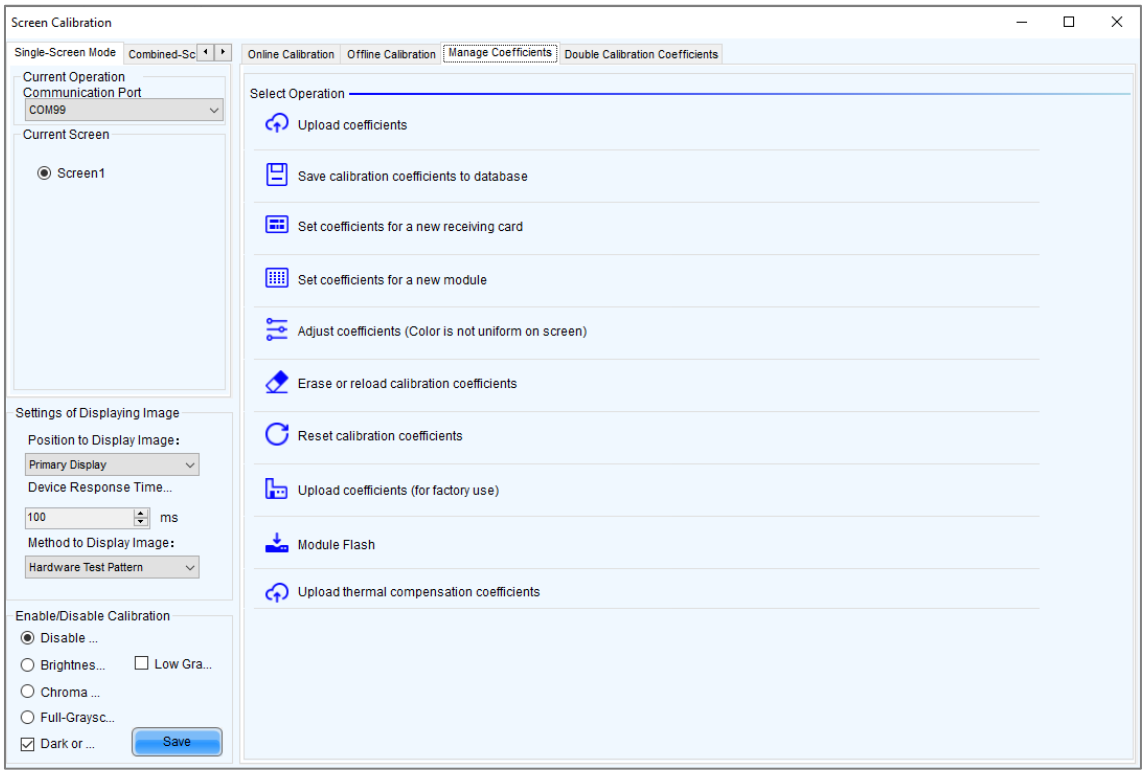
or choose **Tools** > **Calibration** from the menu bar.

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

Step 4 Select a communication port and screen.

Step 5 Select the **Manage Coefficients** tab.

Figure 6-3 Calibration coefficient management



Step 6 Perform the following operations as required. During the operation, you can select **Disable Calibration**, **Brightness Calibration**, **Chroma Calibration**, or **Full-grayscale Calibration** on the left. **Dark or Bright Line Correction** and **Low-grayscale Calibration** can also 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 upload the calibration coefficients to receiving cards in fast or stable mode.
  - Dark or bright line database: Select the dark or bright line correction database file from the local computer and upload the calibration coefficients to receiving cards in stable mode.
  - Full-Grayscale Calibration Database: Select the full-grayscale calibration database file from the local computer and upload the calibration coefficients to receiving cards in stable mode.
  - Full-Grayscale 2.0 Database: Select the full-grayscale 2.0 database file from the local computer and upload the calibration coefficients to receiving cards in stable mode.

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

- **Save calibration coefficients to database**

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

- **Set coefficients for a new receiving card**

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

- **Set coefficients for a new module**

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

- **Adjust coefficients (Color is not uniform on screen)**

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

- **Erase or reload calibration coefficients**

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

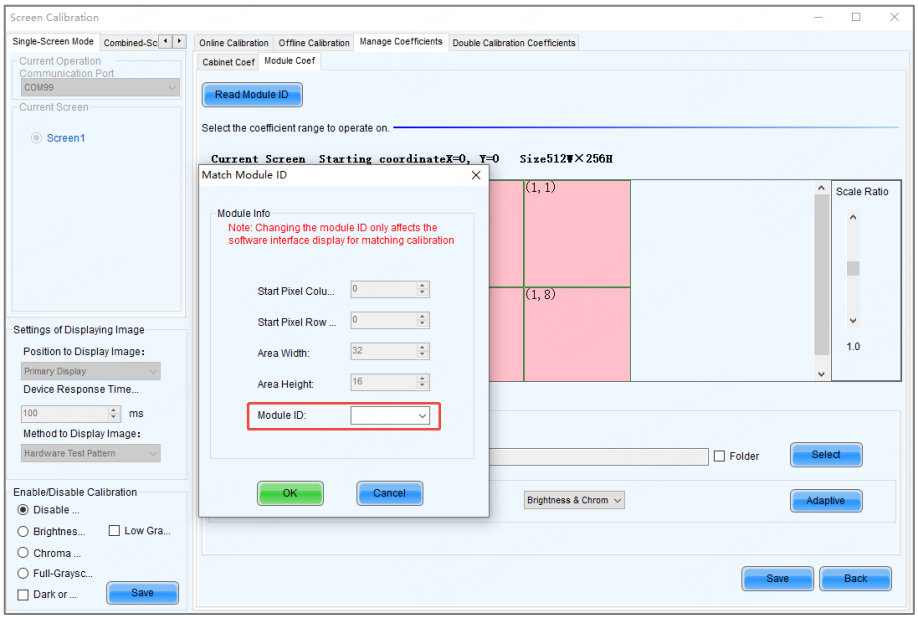
- **Reset calibration coefficients**

  Set calibration coefficients to specified values.

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

  Upload the calibration coefficients from the cabinet calibration database file to the matching cabinets based on the imported or read cabinet ID. Export the full-screen cabinet ID file and the full-screen calibration database file. For the module, read the module ID and upload the calibration coefficients from the module calibration database file to the corresponding modules. While stable uploading takes longer than fast uploading, it is more reliable.

  If the module ID in the database differs from the ID in the module's Flash, you can double-click the module and modify the ID in the pop-up **Match Module ID** dialog box. This action only changes the display in the software interface for matching calibration coefficient uploads and does not alter the ID stored in the hardware.



Module Flash

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

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

- Coef Type: The calibration coefficient type, including brightness and chroma coef, low-grayscale coef, full-grayscale coef, and adaptive coef.
- SPI Bit Rate Level: The speed level of reading and uploading the calibration coefficients, 4 levels included
- Auto Read Module Calibration Coefficients: When **Power-up** is selected, if the receiving card detects a change in the module ID upon power-up, the calibration coefficients in the module flash memory will be automatically read back to the receiving card. When **Hot Swap** is selected, if the receiving card detects a change in the module ID upon module hot swap, the calibration coefficients in the module flash memory will be automatically read back to the receiving card.

Upload thermal compensation coefficients

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

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

- Erase: Erase the thermal coefficients.

Note

Types and causes of module flash memory check errors:

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

The **Coef Type** parameter value include brightness and chroma 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.

  For full-grayscale calibration database file, the parameter **Upload by area** is displayed at the bottom of the page. If you want to upload the data of full-grayscale database split by the split tool to a certain location, please select **Upload by area** and set other parameters.
- Select by Topology or List: Manage the coefficients of a specified cabinet, module or pixels. For a standard screen, a cabinet topology is displayed. For a complex screen, a cabinet list is displayed. If it is not convenient to select an area with the software, you can select **Select Area on Screen** to select the area on the display window.

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

Simple Adjustment

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

Advanced Adjustment

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

Figure 6-5 Simple adjustment

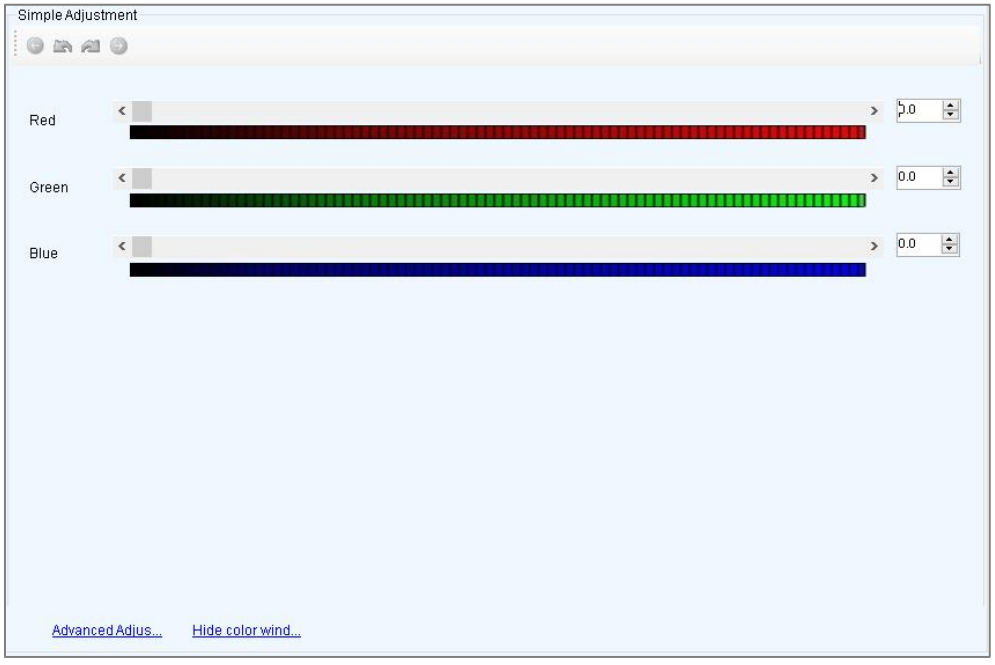


Figure 6-6 Advanced adjustment



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, among others

Prerequisites

None

Related Information

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

Operating Procedure

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

The default password is “admin”.

Step 2 Click 

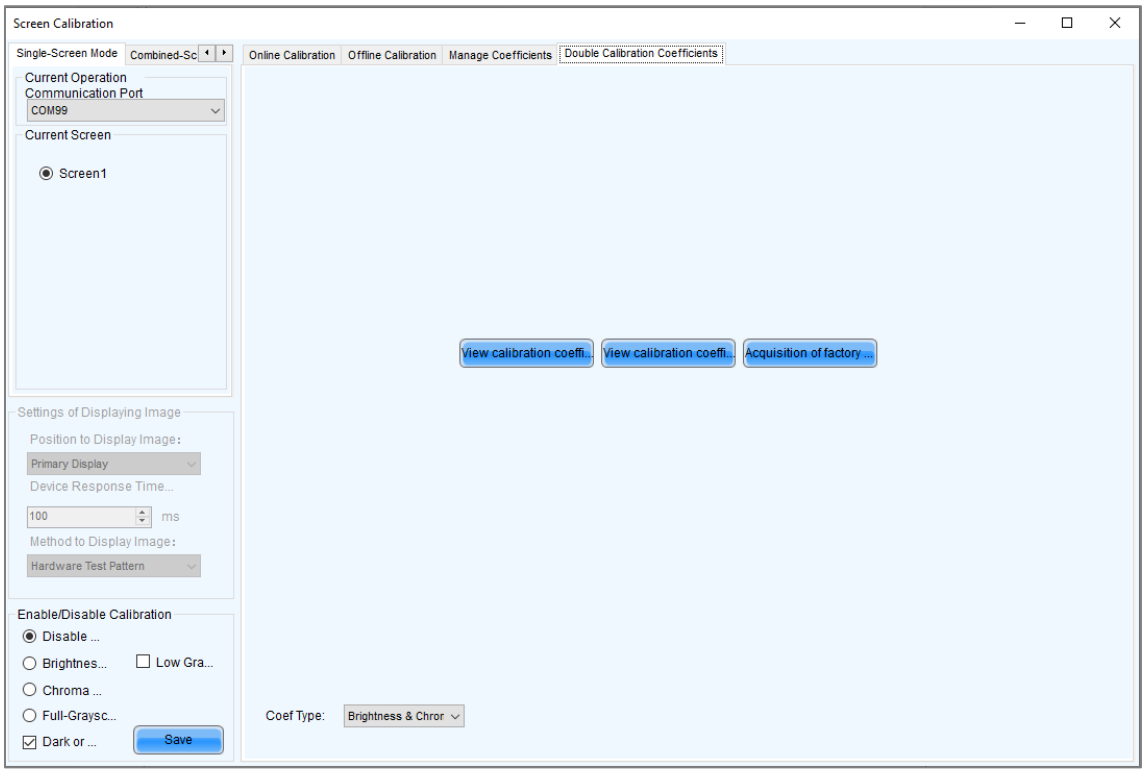
or choose **Tools** > **Calibration** from the menu bar.

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

Step 4 In single-screen mode, select a communication port and a screen. In combined-screen mode, skip this step.

Step 5 Select the **Double Calibration Coefficients** tab.

Figure 6-7 Managing double calibration coefficients



Step 6 Perform the following operations as required.

- **View calibration coefficients in application area**

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

- **View calibration coefficients in factory area**

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

- **Get calibration coefficients in factory area**

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

- **Save calibration coefficients to factory area**

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

6.1.5 Set Thermal Compensation

Applications

Enable or disable thermal compensation and adjust its application strength.

Applicable Products

Receiving cards: A8s Pro and A10s Pro

Prerequisites

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

Related Information

None

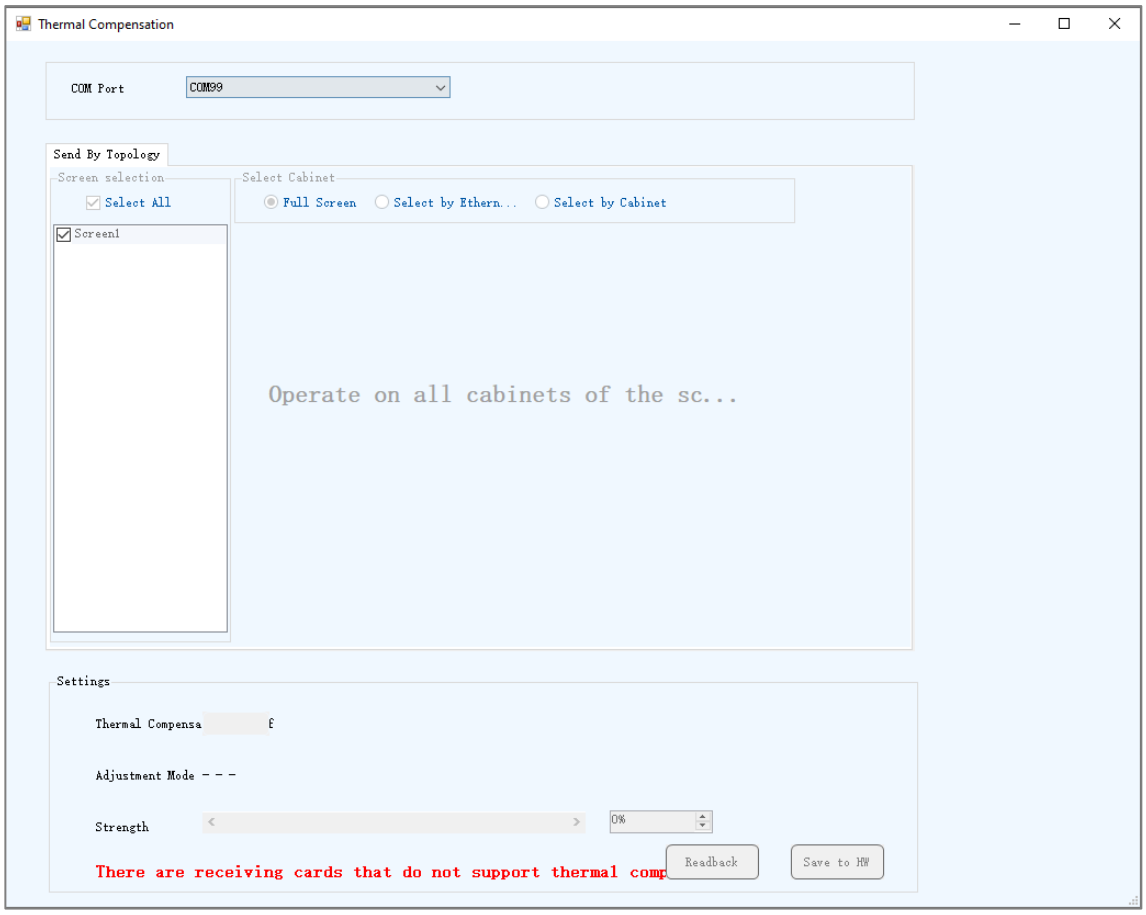
Operating Procedure

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

The default password is “admin”.

Step 2 Choose **Settings** > **Thermal Compensation** from the menu bar.

Figure 6-8 Thermal compensation



Step 3 Select a communication port from the drop-down list.

Step 4 To select the target cabinets, choose between **Full Screen**, **Select by Ethernet Port**, or **Select by Cabinet**.

Step 5 Toggle on **Thermal Compensation** and adjust the application strength.

Step 6 Click **Save to HW**.

Note

When the receiving card supports Thermal Compensation 3.0, the **Thermal Compensation** interface will be grayed out and non-operational.

6.2 Adjust Brightness

6.2.1 Adjust Brightness Manually

Applications

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

Applicable Products

- Individual Gamma adjustment for RGB:
  - If the bit depth of input source for the sending card is 8-bit, the applicable receiving cards include the A4, A4s, A5, A5s, A5s Plus, A7, A7s, A7s Plus, A8, A8s, A9s, A10s Plus, DH7512 and DH3208, among others.
  - If the bit depth of input source for the sending card is 10-bit or 12-bit, the applicable sending cards include the MCTRL1600, MCTRL4K, MCTRL660 PRO, KT8, KT8E, KT16E, KT16C, MCTRL R5, MEE200 and MEE400, among others.
- Gamma interlink: Applicable to receiving cards with TBS6332, TBS6336 and other chips.
- Other functions: Applicable to all receiving cards and sending cards

Prerequisites

None

Related Information

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

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

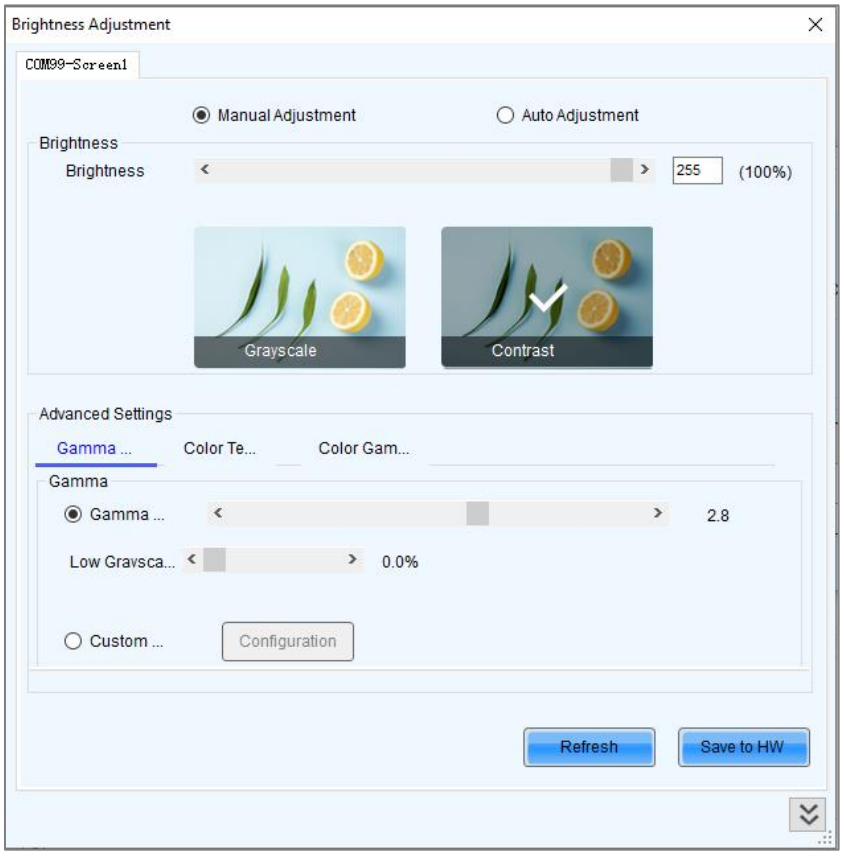
Operating Procedure

Step 1 On the main window, click Brightness, or choose Settings > Brightness from the menu bar.

Step 2 Select **Manual Adjustment**.

Step 3 Drag the slider to adjust brightness and select **Grayscale** or **Contrast**. You can also set **Gamma Interlink** if the screen is using receiving cards with TBS6332 or TBS6336 chips.

Figure 6-9 Manual brightness adjustment



Step 4 Do the following as required:

- **Adjust Gamma and low grayscale slope**

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

- **Adjust color temperature**

  Choose **Rough Adjustment** and drag the slider to adjust the color temperature. Or choose **Precise Adjustment** and click a custom color temperature to use it, such as 

.

- **Adjust color space**

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

.

Note

After logging in to NovaLCT, you can set custom Gamma, custom color temperature and custom color space. For details, see Custom Gamma, Custom Color Temperature and Custom Color Space.

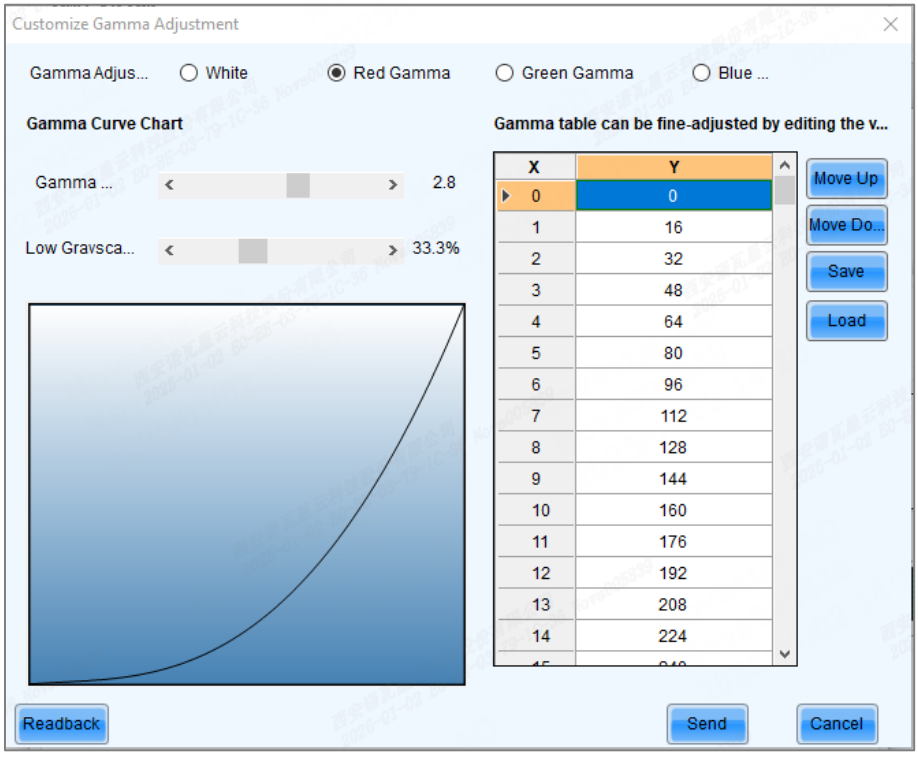
Step 5 After the configuration is done, click **Save to HW** to save the configuration to the hardware.

Custom Gamma

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

Step 2 Click **Configuration** to open the dialog box shown in Figure 6-10 .

Figure 6-10 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.

- **Gamma readback**

  Click Readback to read the gamma information.

- **Load a Gamma configuration file**

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

- **Adjust the Gamma manually**

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

- **Adjust the Gamma table manually**

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

Step 5 After the settings are done, click **Send** to send the configuration to the hardware.

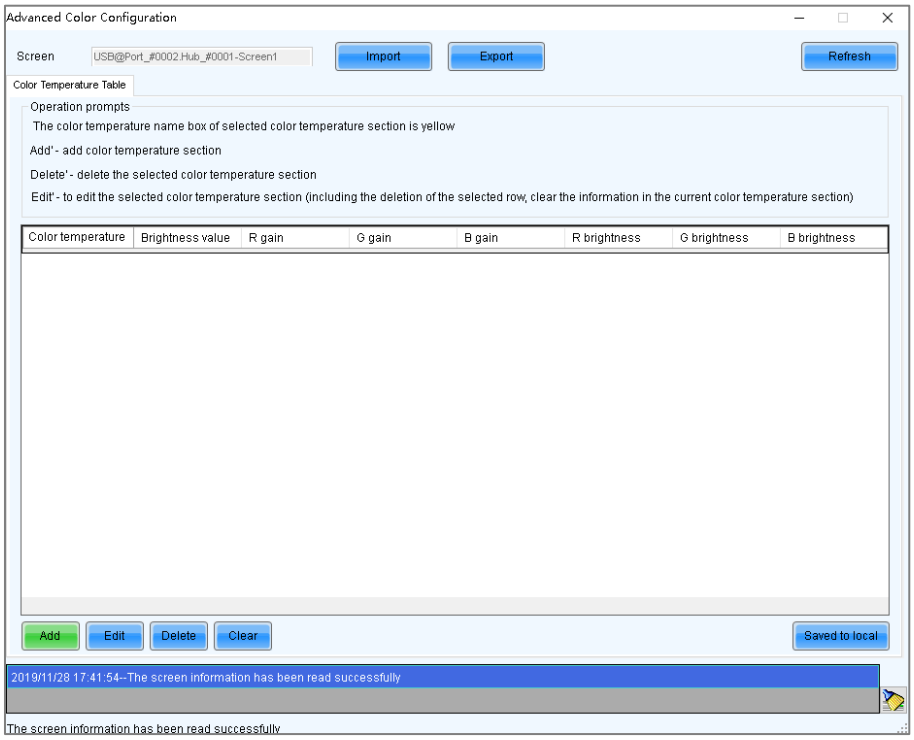
Step 6 (Optional) Click **Save** to save the Gamma information as a configuration file.

Custom Color Temperature

Step 1 On the **Color Temperature Adjustment** page, select **Precise Adjustment**.

Step 2 Click  to open the dialog box shown in Figure 6-11 .

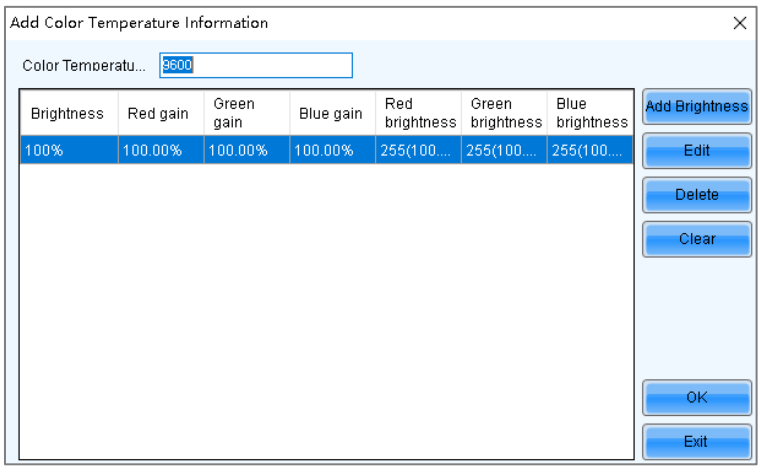
Figure 6-11 Custom color temperature



Step 3 If you have a color temperature configuration file (.fcg), click **Import** to complete the configuration quickly. If you do not have a color temperature configuration file, continue performing the following operations to manually complete the configuration.

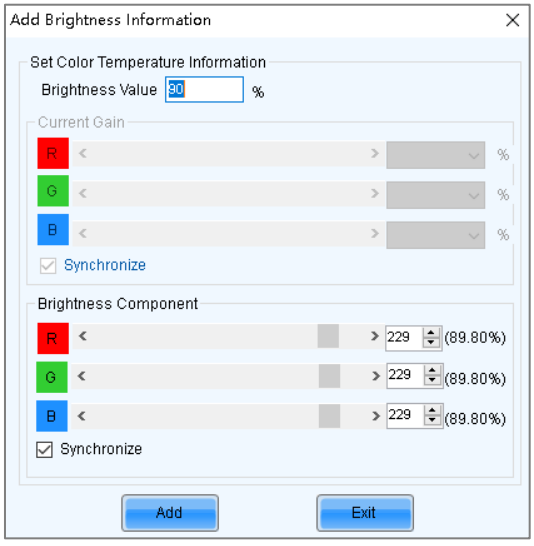
Step 4 Click **Add** to open the dialog box shown in Figure 6-12 .

Figure 6-12 Adding color temperature information



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

Figure 6-13 Adding brightness information



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

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

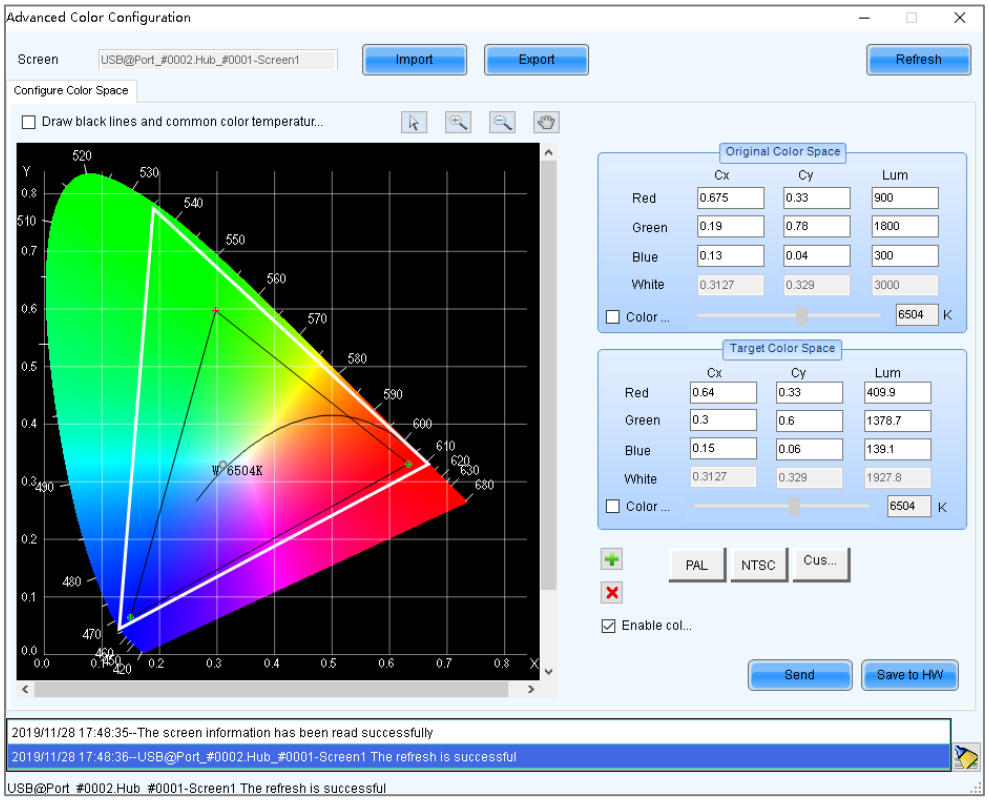
Step 7 After the configuration is done, click **Save to local** to save the custom color temperature. A corresponding button will be displayed next to **Precise Adjustment**.

Step 8 (Optional) Click **Export** to save the current color temperature information as a configuration file.

Custom Color Space

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

Figure 6-14 Custom color space



Step 2 Set the original color space.

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

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

- **Select a standard color space**

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

- **Select an existing custom color space**

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

- **Adjust the color space diagram manually**

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

- **Adjust the color space values manually**

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

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

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

6.2.2 Adjust Brightness Automatically

Applications

Set rules for automatic brightness adjustment, allowing NovaLCT or sending cards to automatically adjust screen brightness.

Applicable Products

All sending cards

Prerequisites

When screen brightness is adjusted based on ambient brightness, a light sensor must be connected to the sending card or multi-function card.

If the light sensor is connected to the multi-function card, peripheral configuration needs to be completed on multi-function card management page.

Related Information

After you configure the automatic brightness adjustment, two adjustment modes are provided.

- **Software adjustment mode**

NovaLCT automatically adjusts screen brightness. This mode takes effect when the control PC is connected to the sending card and monitoring is running. Combined-screen brightness, color temperature and Gamma must be adjusted and night mode must be enabled with the software.

The adjustment process will be recorded as a log which can be exported and viewed in iCare of VNNOX cloud platform.

- **Hardware adjustment mode**

  The sending card automatically adjusts screen brightness. This mode takes effect when the control PC and sending card are disconnected or monitoring stops running.

  Combined screens do not support this mode.

  The adjustment process will not be recorded as a log.

Operating Procedure

Step 1 On the main window, click Brightness, or choose Settings > Brightness from the menu bar.

Step 2 Select **Auto Adjustment**.

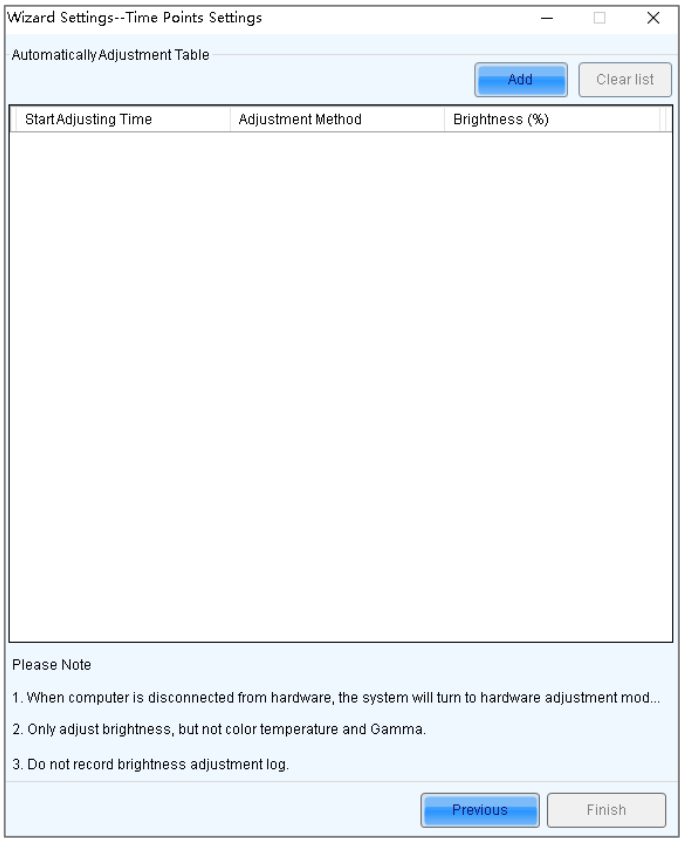
Step 3 Click **Wizard Settings**.

If the auto adjustment table is configured, you can add, delete and modify items in the table, or click **Light Sensor Configuration** to set light sensor information.

Step 4 Select an adjustment mode as required and click **Next**.

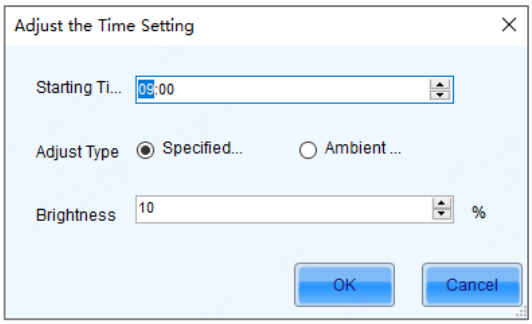
- **Advanced adjustment**

  Screen brightness is adjusted by time periods. You can choose to adjust screen brightness according to specified brightness or ambient brightness.



a. Click **Add**.

b. Set the start time and adjustment method and then click **OK**.



c. After the settings are done, click **Cancel** to close the dialog box.

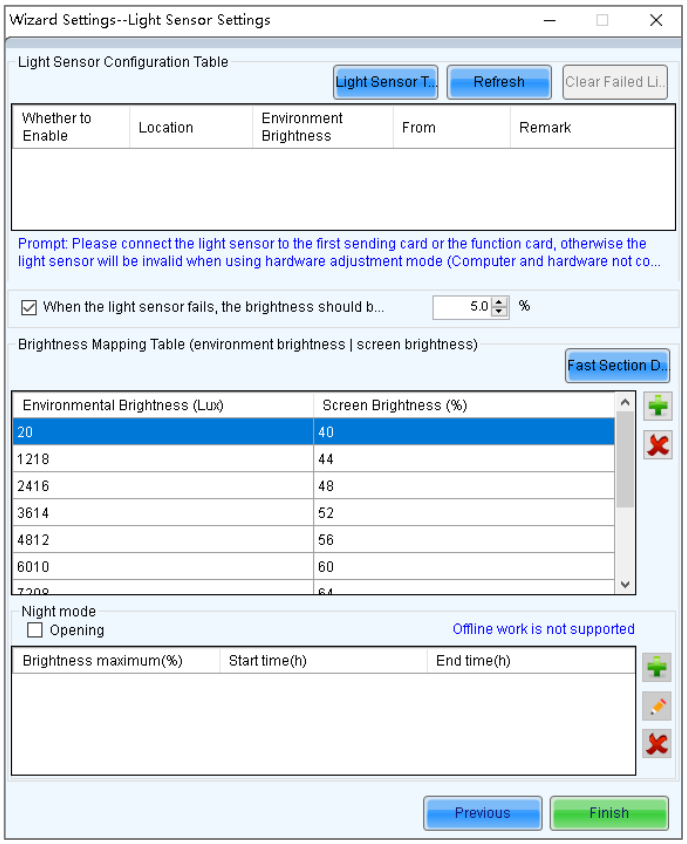
As shown in the figure below, the two configuration items denote that screen brightness will be adjusted to 80% from 8:00 to 18:00 and adjusted to the corresponding values in the brightness mapping table according to ambient brightness from 18:00 to 8:00 of the next day.



d. If there is no **Environment Brightness** under **Adjustment Method**, click **Finish**. If there is **Environment Brightness** under **Adjustment Method**, click **Next** and complete light sensor settings according to the description in Light Sensor Adjustment below.

Light sensor adjustment

Screen brightness is adjusted according to ambient brightness. Set the corresponding relations between ambient brightness and screen brightness in the ambient brightness mapping table.



a. Click **Light Sensor Test** to test the light sensors connected to the control system, including the light sensors connected to all sending cards and multi-function cards.

   If you want to clear the ineffective light sensor information, click **Clear Failed Light Sensor Information**.

b. (Optional) Select When the light sensor fails, the brightness should be adjusted to and set a brightness value.

   If this option is not selected, the screen brightness will keep the last updated brightness value when the light sensor fails.

c. Click  or , or click **Fast Section Division** to set the brightness mapping table.

   Fast section division can equally divide the ambient brightness range and screen brightness range into the specified number of segments.

d. (Optional) Select **Opening** to enable night mode and set the maximum brightness of the specified time period.

When surrounding lights interfere with the light sensor or an exception occurs when the light sensor is collecting ambient brightness data, screen brightness may be too high. This can be avoided in night mode. If the start time and end time are the same, night mode takes effect all the time.

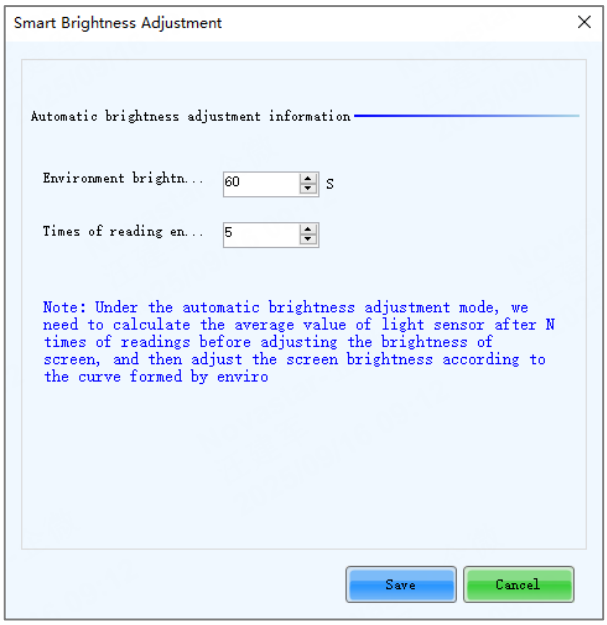
e. Click **Finish**.

Step 5 After the settings are done, click **Save**.

Step 6 (Optional) Click **Export Log** to export the brightness adjustment log in software adjustment mode.

Step 7 (Optional) Set the advanced parameters of auto brightness adjustment.

1. On the taskbar, click  and choose **Brightness Advanced Settings**.



2. Set the cycle and number of times for the light sensor to measure ambient brightness.

   For example, if the cycle is 60 seconds and number of times is 5, the light sensor will measure ambient brightness every 60 seconds. After 5 times of measurement, NovaLCT will calculate the average of the measured values without the maximum and minimum ones. This average value is ambient brightness. If multiple light sensors are connected, NovaLCT will calculate the average of all the ambient brightness values.

3. Click **Save**.

6.3 Adjust Multi-batch Cabinets/Modules

Applications

Adjust the chroma of cabinets or modules from multiple batches to make the overall screen chroma more uniform.

Applicable Products

Different receiving card models and versions support different adjustment ranges.

- Four-color Multi-batch Adjustment: The A8s Pro (V1.4.0.0 or later) and Z1S (V1.4.0.0 or later) receiving cards
- Three-color Multi-batch Adjustment: All receiving cards

Note

If the screens of three-color and four-color multi-batch adjustment are both present on site, select the corresponding adjustment mode according to the interface prompts.

Prerequisites

None

Related Information

None

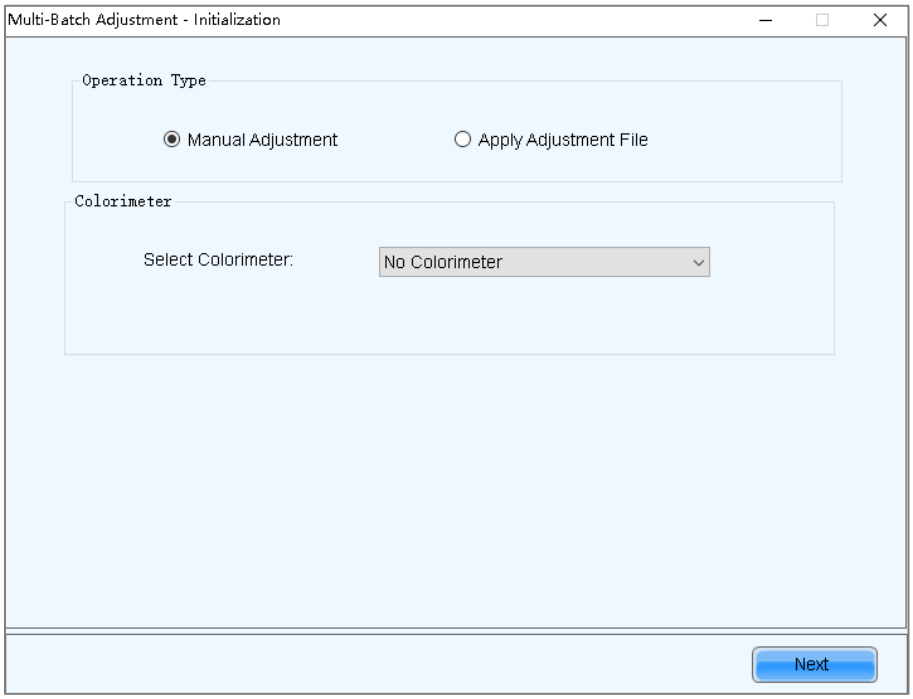
Operating Procedure (Three-color Multi-batch Adjustment)

Step 1 On the menu bar, choose **Tools** > **Multi-batch Adjustment**.

Step 2 Select **Manual Adjustment**.

If you have a configuration file, select **Apply Adjustment File** to quickly complete chroma adjustment for cabinets from multiple batches.

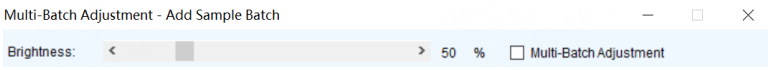
Figure 6-15 Multi-batch adjustment



Step 3 If no colorimeter is connected, select **No Colorimeter**. If a colorimeter is connected, select the colorimeter type and set its measurement accuracy.

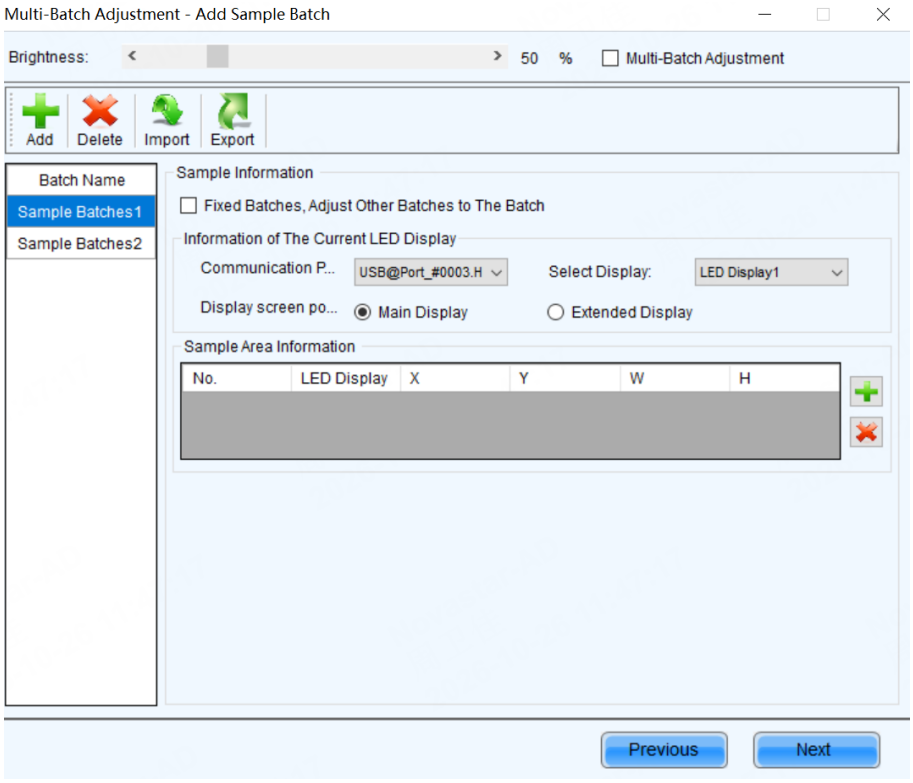
Step 4 Click **Next**.

Step 5 (Optional) Adjust the brightness as needed by selecting or clearing Multi-Batch Adjustment.



Step 6 Set the parameters of a sample batch.

Figure 6-16 Setting sample batch



1. (Optional) Select Fixed Batches, Adjust Other Batches to The Batch.

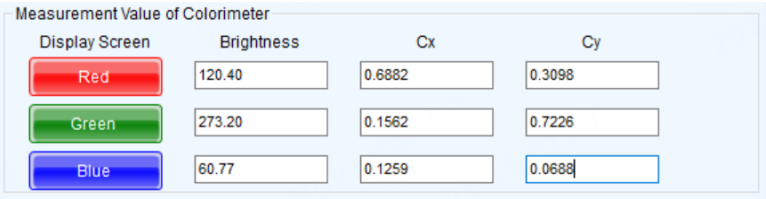
   Fixed sample batch is for reference and cannot be adjusted. All the sample batches can be adjusted without a fixed batch.

2. Select a communication port and screen.
3. Select a position to display image.
4. Click  to the right of Sample Area Information to specify an operating area for the fixed sample batch.



- Pixel: Perform operations in a specified area.
- Topology or List: Perform operations on a specified module or pixels. If it is not convenient to specify an area with the software, you can select **Select Area on Screen** to specify an area on the display window.

5. Click Red, Green and Blue in order to measure **Brightness**, **Cx** and **Cy** by using a colorimeter and enter the measured values. If no colorimeter is connected, skip this step.



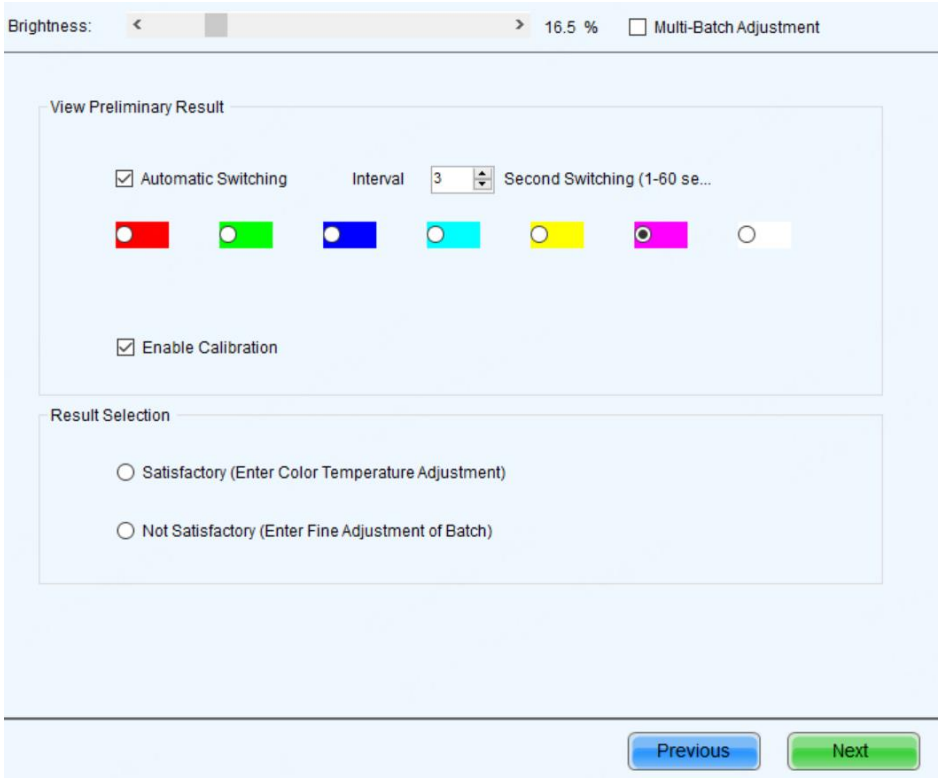
Step 7 Set other sample batches.

1. Import, add or delete other sample batches as required.
2. Select a sample batch and specify an operating area by following 4 in Step 6.
3. Enter the values measured by the colorimeter by following 5 in Step 6. If no colorimeter is connected, skip this step.

Step 8 Click **Next**.

Step 9 View the preliminary adjustment result, select a result option and click **Next**. If no colorimeter is connected, skip this step.

Figure 6-17 View the preliminary adjustment result

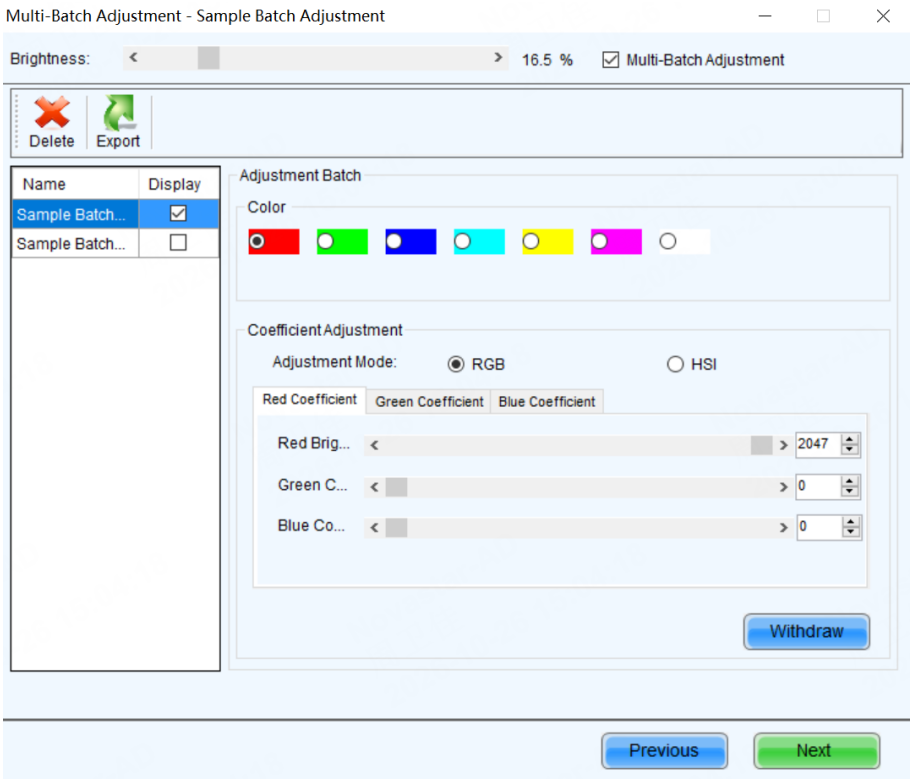


Selecting **Automatic Switching** automatically switches the display color. Selecting **Enable Correction** allows you to view the calibration result.

- If the calibration result is satisfactory, go to Step 11.
- If the calibration result is not satisfactory, go to Step 10.

Step 10 Fine tune the sample batch.

Figure 6-18 Fine tuning a sample batch



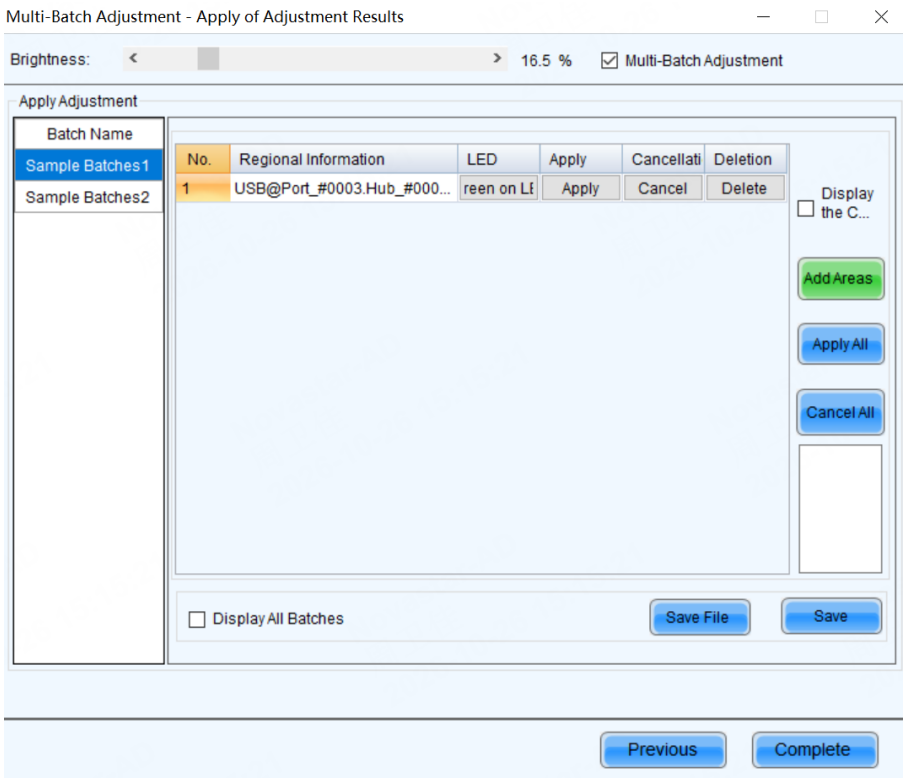
1. Select the sample batch to be displayed.
2. Select a display color.
3. Drag the slider to adjust brightness.
4. Select **RGB** or **HSI** and adjust the coefficients of red, green and blue.

   You can click **Withdraw** to restore the coefficients.

Step 11 After the adjustment is done, click **Next**.

Step 12 Click **Add Areas** to select the areas where the adjustment effect will be applied.

Figure 6-19 Applying adjustment effect



Step 13 Click **Display screen on LED display** to view the adjustment effect.

Display All Batches: After this option is selected, all sample batches are displayed.

Step 14 Click **Apply** or **Apply All**.

Step 15 Click **Save to Flash** to save the configuration to the hardware.

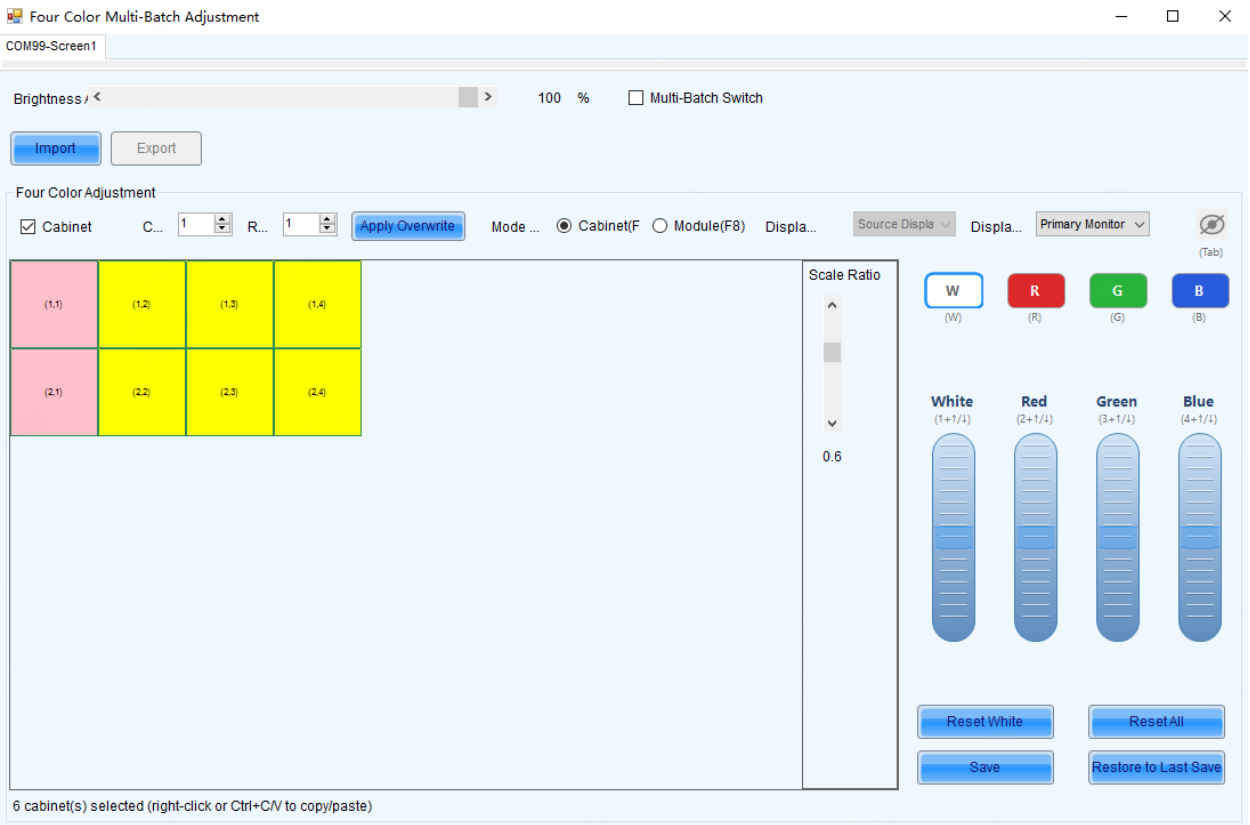
Step 16 (Optional) Click **Save File** to save the configuration as a file (.lxy).

Step 17 Click **Complete** and **OK**.

Operating Procedure (Four-color Multi-batch Adjustment)

Step 1 On the menu bar, choose **Tools** > **Multi-batch Adjustment**.

Figure 6-20 Four-color Multi-batch Adjustment



Step 2 (Optional) Adjust the brightness as needed by selecting or clearing **Multi-Batch Adjustment**.

Step 3 (Optional) To overwrite the cabinet specifications, set the column and row quantity and then click **Apply Overwrite**.

Step 4 Select the adjustment mode and display method.

Step 5 (Optional) If a coefficient file already exists, select one or multiple topologies and then click **Import** to import the exported coefficient file to the target screen.

Step 6 In the topology area, click or frame-select the cabinets or modules to be adjusted. If the configuration file already contains the flash topology, the topology is displayed by default.

Step 7 Set the adjustment parameters. When different colors are selected, different parameters can be adjusted. Place the mouse pointer over the wheel pattern and drag it up or down, scroll the mouse, or press the keyboard shortcut 1+↑/↓ to adjust.

- Reset White: Reset the single-color coefficients to the default values (the coefficients of the selected color).
- Reset All: Reset all color coefficients to the default values.
- Save: Save the current coefficients to the receiving card flash.
- Restore to Last Save: Restore the coefficients to the state before the last save.

After setting the parameters of a cabinet, right-click to copy the parameters and paste them to other cabinets, or use Ctrl+C/Ctrl+V to copy and paste.

Step 8 After the adjustment is done, click **Save** to save the current configuration to the receiving card.

Step 9 (Optional) Select a single topology and click **Export** to save the coefficients to a file.

6.4 Adjust Dark or Bright Lines

Applications

Adjust dark or bright lines between cabinets or modules to improve visual experience.

Applicable Products

All receiving cards

Prerequisites

None

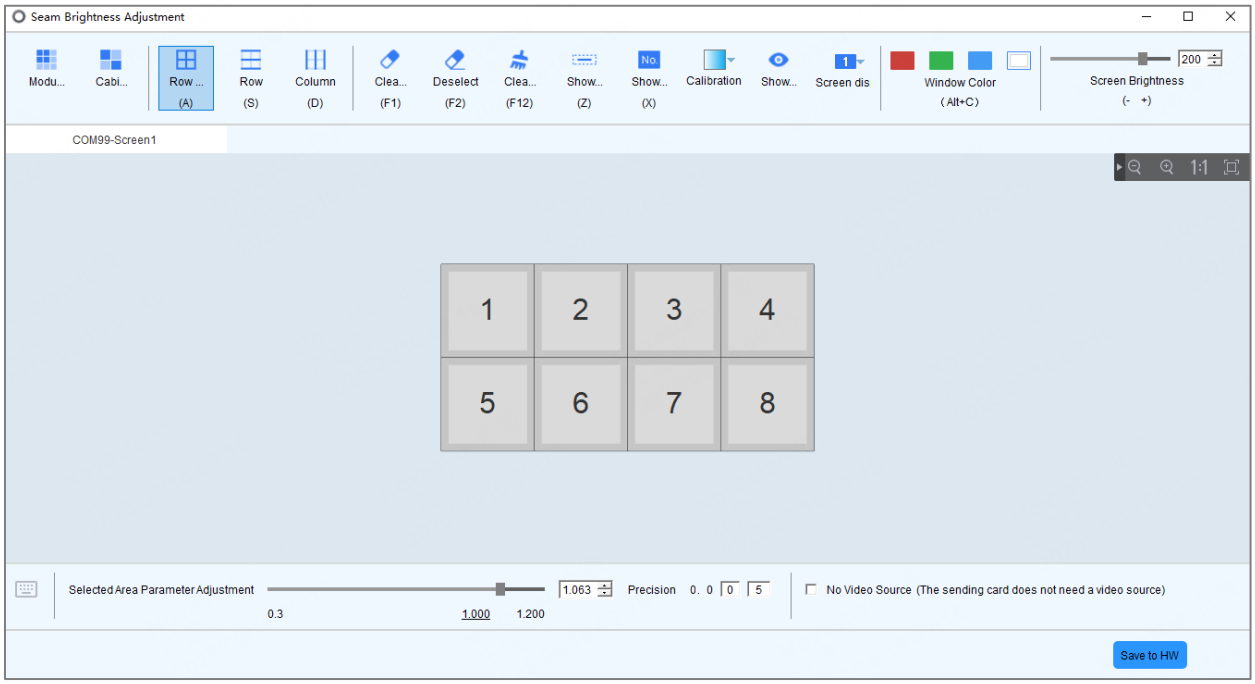
Related Information

None

Operating Procedure

Step 1 On the menu bar, choose **Tools** > **Quickly Adjust Dark or Bright Lines**.

Figure 6-21 Adjusting dark or bright lines



Step 2 By default, the software uses **No Video Source** and the hardware's test pattern. You can uncheck **No Video Source** if needed.

Step 3 Click and then fill in the module width and height on the pop-up window to switch to module mode. You can also click to switch to cabinet mode.

Step 4 For the calibration drop-down list ( ), make your choice between **Off**, **Chroma Calibration**, **Brightness Calibration**, or **Full-grayscale Calibration**.

Step 5 Choose a test pattern color.

- : Show or hide the test pattern. When **No Video Source** is selected, this icon will be grayed out and non-operational.
- : Show the test pattern on the main display or extended display. When **No Video Source** is selected, this icon will be grayed out and non-operational.

Step 6 Drag the slider to adjust the screen brightness. When **No Video Source** is selected, this function will be grayed out and non-operational.

Step 7 Click or drag to select the edges you want to adjust. Set the adjustment precision and move the slider to adjust the values. If you need to adjust by pixels, double-click the edge you want to modify, set the pixel range in the pop-up window, adjust the precision, and move the slider to change the values.

- : Select the horizontal and vertical edges.
- : Only select the horizontal edges.

- : Only select the vertical edges.
- : Clear the effect of the selected edges.
- : Deselect.
- : Clear the effect of all edges.
- : Show or hide the flashing dashed lines on the screen. When **No Video Source** is selected, this icon will be grayed out and non-operational.
- : Show or hide module/cabinet numbers. When **No Video Source** is selected, this icon will be grayed out and non-operational.
- : Zoom out the topology.
- : Zoom in the topology.
- : Display the topology at a 1:1 ratio with the screen.
- : Auto fit the topology.

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

6.5 Correct Brighter Pixels

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

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

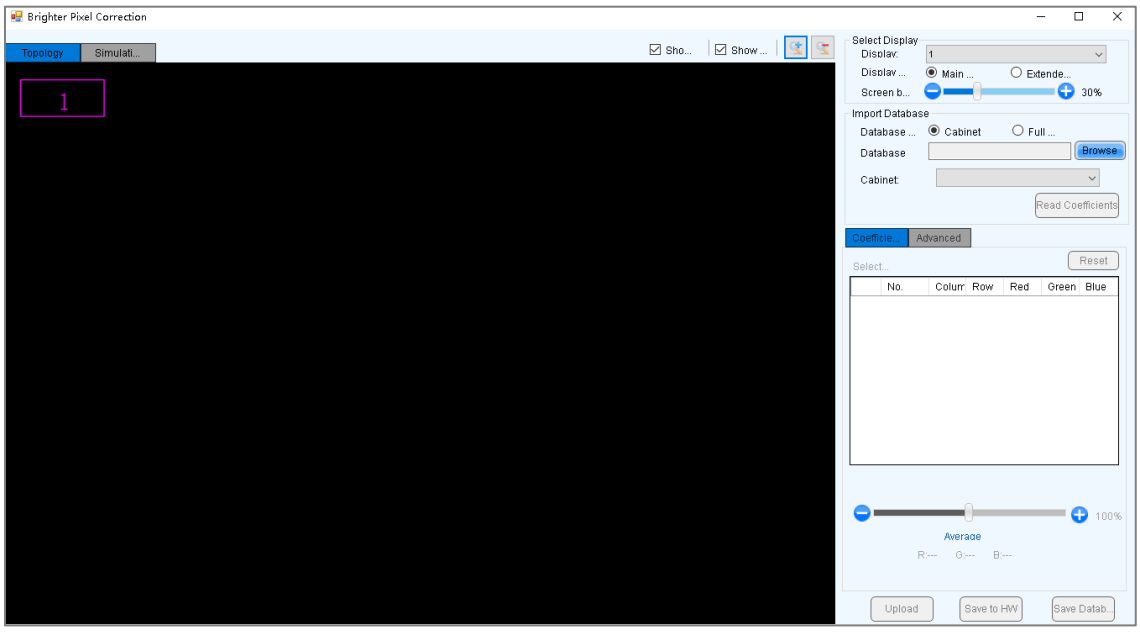
Related Information

None

Operating Procedure

Step 1 On the menu bar, choose **Tools** > **More** > **Brighter Pixel Correction**.

Figure 6-22 Brighter pixel correction



Step 2 Select a screen.

Step 3 Select a position to display image.

Step 4 Set the brightness of the display window.

Step 5 Select a database type, for example, **Cabinet**.

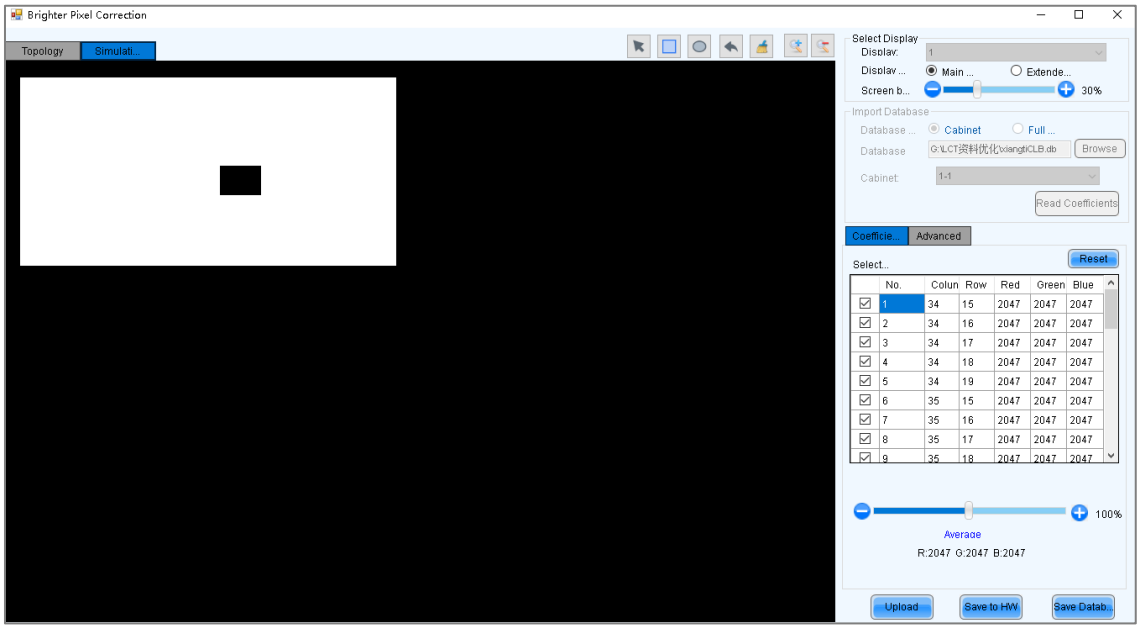
Step 6 Click **Browse** and select a database file. For example, select a cabinet calibration database file and click **Open**.

Step 7 On the **Topology** page, select an area and then select the **Simulation Diagram** tab.

Step 8 Click brighter pixels or select the area where there are brighter pixels and click .

- : 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 6-23 Selecting brighter pixels



Step 9 Select **Coefficient Adjustment** or **Advanced** to adjust coefficients.

Step 10 After the settings are done, click **Upload** to save the configuration to the hardware.

Step 11 Click **Save to HW** to save the configuration to the hardware.

Step 12 (Optional) Click **Save Database** to save the configuration to the current database file.

6.6 Set Advanced Color

Applications

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

Applicable Products

- Color adjustment: Applicable to the NovaPro HD
- Other functions: Applicable to all sending cards

Prerequisites

None

Related Information

None

Operating Procedure

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

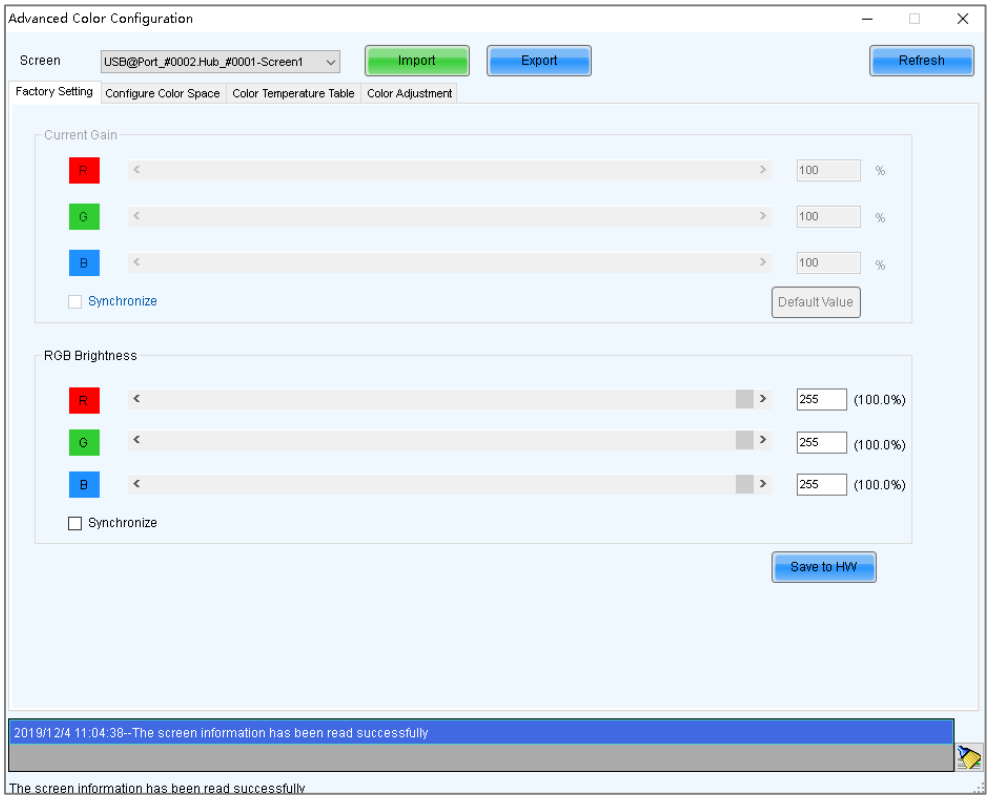
The default password is “admin”.

Step 2 Choose **Settings** > **Advanced Color Configuration**.

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

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

Figure 6-24 Factory settings

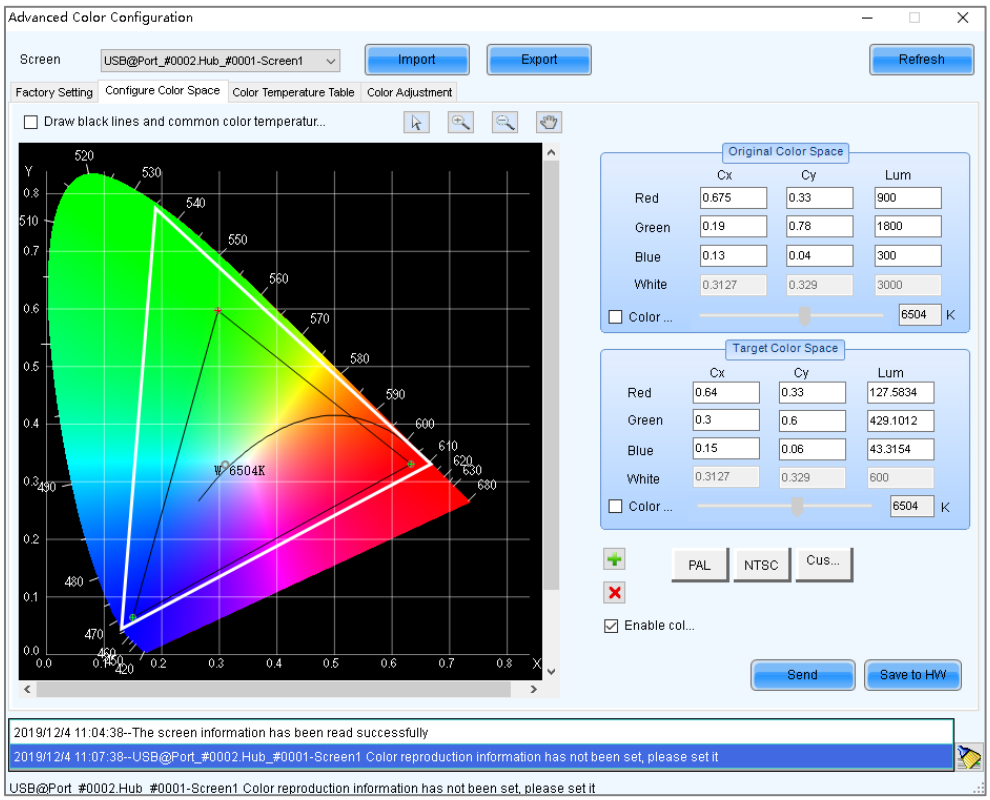


- Current Gain: This is a module parameter and can be set when supported by module chips. Clicking **Default Value** can reset the value.
- RGB Brightness: This is a receiving card parameter.

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 6-25 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 point** is selected, a black curve (color

temperature curve) and some common color temperature points (solid round spots) will be displayed in the diagram.

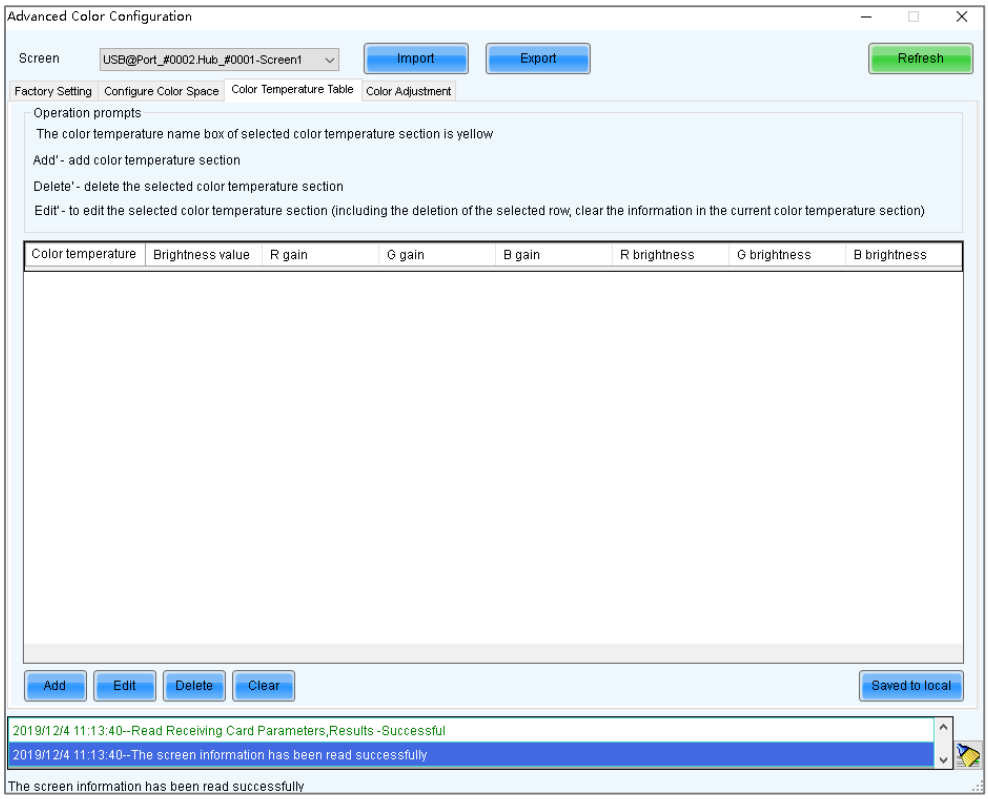
- Adjust the color space values manually

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

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

Step 6 Select **Color Temperature Table** to set color temperature.

Figure 6-26 Color temperature table



1. Click **Add** to open the dialog box shown in Figure 6-27 .
2. Click **Add Brightness** to open the dialog box shown in Figure 6-28 .
3. Add color temperature information corresponding to specified brightness values.

   Current Gain is a color temperature parameter of modules. The parameter can be set when module chips support current gain. **Brightness Component** is a color temperature parameter of receiving 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 6-27 Adding color temperature information

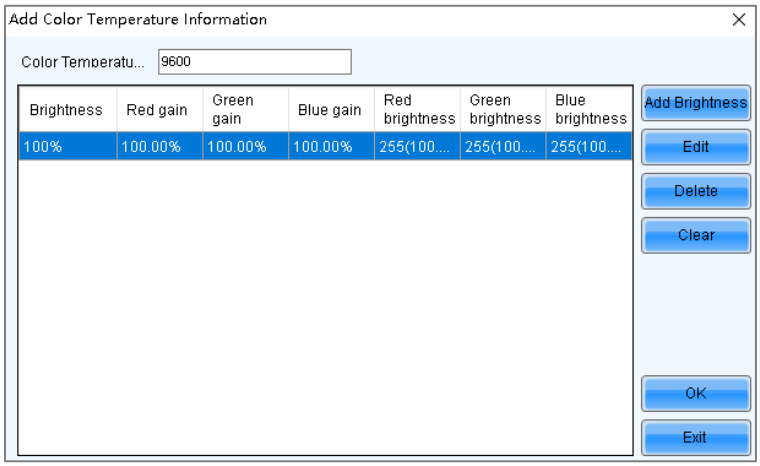
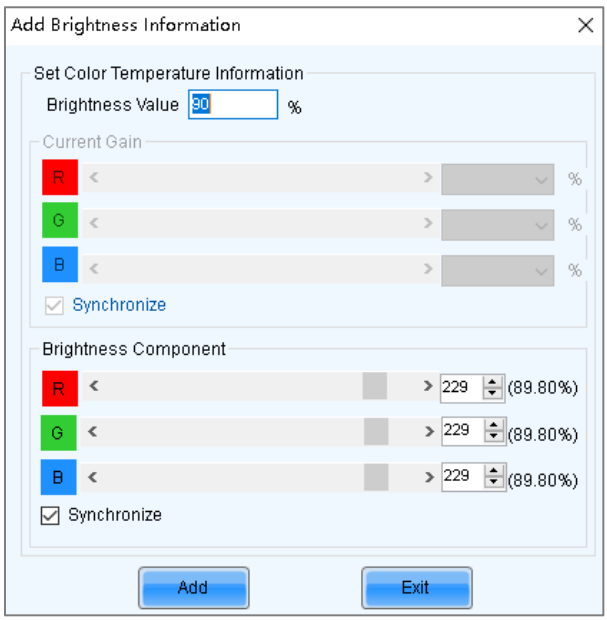
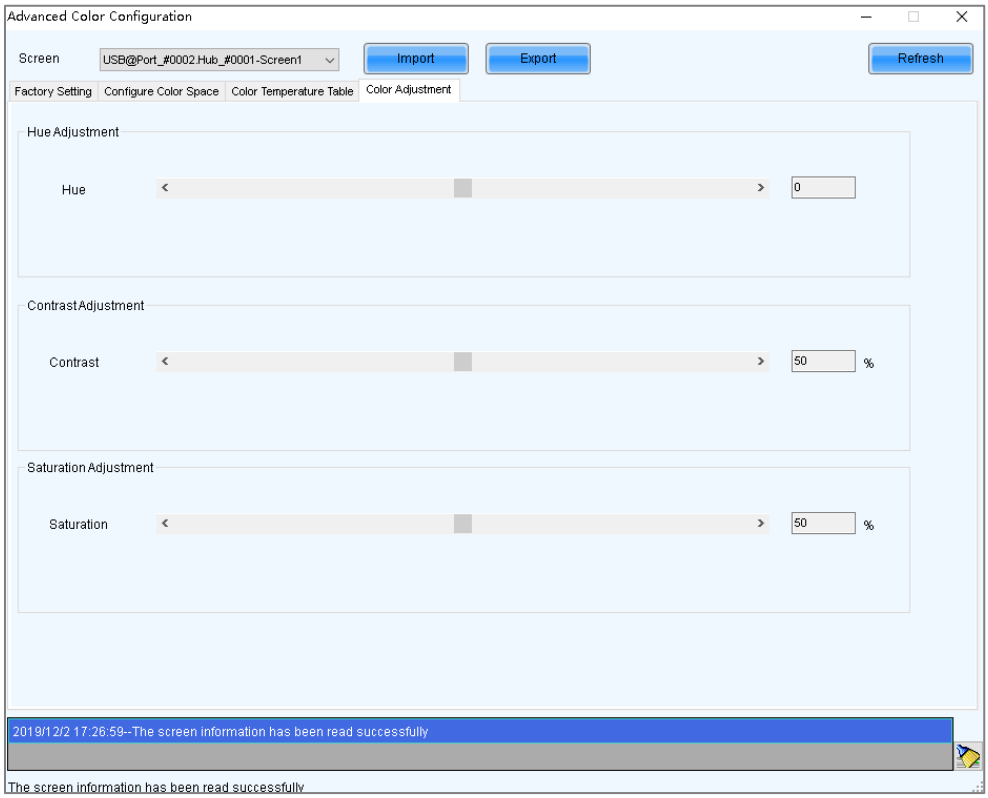


Figure 6-28 Adding brightness information



Step 7 For the NovaPro HD, select **Color Adjustment** to set the hue, contrast and saturation of the screen. This function is not available for other products.

Figure 6-29 Adjusting color



Step 8 (Optional) Click **Export** to save the configuration as a file.

6.7 Adjust Screen Effect

Applications

Enable 18bit+, ClearView and low latency, and set HDR parameters to improve display effect.

Applicable Products

- 18bit+: Applicable to the A5s Plus, A7s Plus, A8, A8s, A10s Plus and DH7512 receiving cards, among others
- ClearView: Applicable to the A8, A8s and A10s Plus receiving cards, among others
- Low latency: Applicable to the A5s Plus, A6s, A8s, A10s Plus and AT60 receiving cards, among others
- HDR: Applicable to the sending cards that support 10-bit or 12-bit input sources

Prerequisites

- During HDR settings, the hardware must support HDR and an HDR10 or HLG input source is also required.
- HDR and ClearView cannot be enabled simultaneously.
- Low latency and 3D function cannot be enabled simultaneously.

Related Information

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

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

Enabling either sending card low latency or receiving card low latency can reduce the delay by one frame. Enabling both can reduce the delay by two frames.

Operating Procedure

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

The default password is “admin”.

Step 2 Choose **Settings** > **Adjust screen effect**.

Figure 6-30 Screen effect adjustment (new)

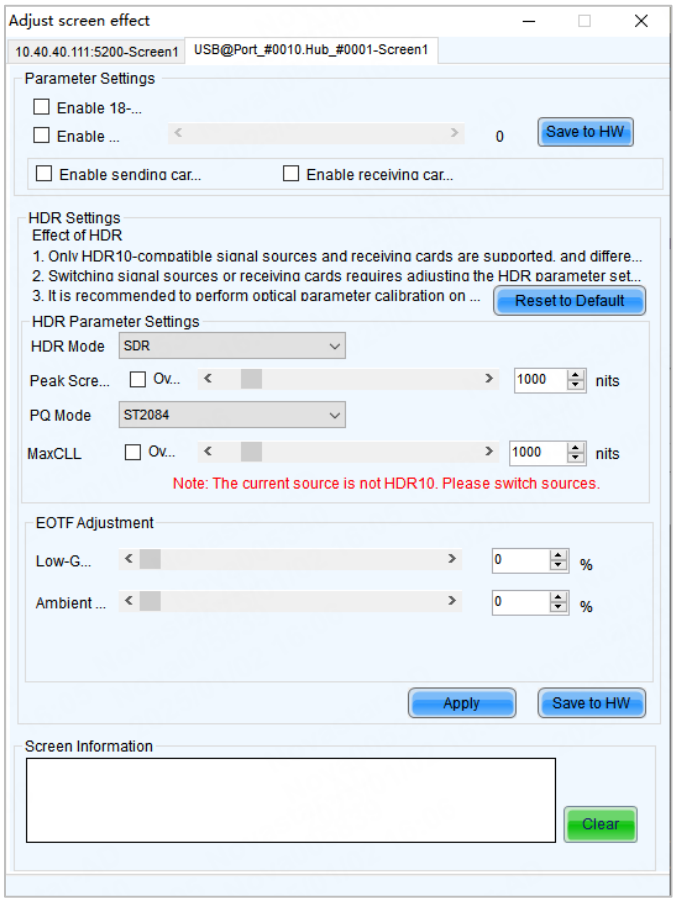
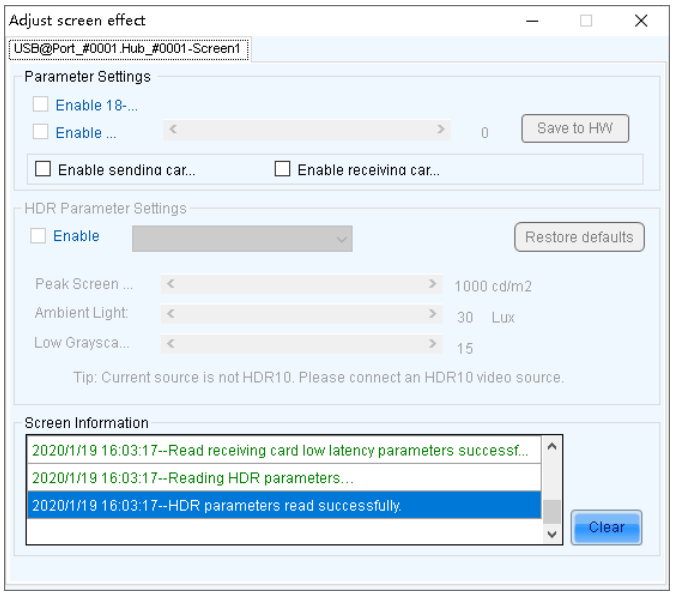


Figure 6-31 Screen effect adjustment (old)



Step 3 In the pop-up window, perform any of the following operations as required.

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

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

- **Enable ClearView**

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

- **Enable low latency**

  Select **Enable sending card low latency** and **Enable receiving card low latency** or either of them, and click **Save to HW**. Enabling either of them can reduce the delay by one frame. Enabling both can reduce the latency by two frames.

- **Set HDR Parameters (When sending and receiving cards support newer HDR versions)**

  Choose an HDR mode and configure the associated parameters.

  - Screen Peak Brightness: This is the override value for the screen peak brightness. Ensure Override is checked for it to take effect.
  - PQ Mode: If ST2084 is selected, it indicates a 1:1 mapping of the video source's brightness, adjusting the video's brightness that exceeds the screen's maximum to fit. If ST2086 is chosen, it indicates a linear mapping, adjusting the video source brightness overall while maintaining the content's brightness ratio.
  - MaxCLL: This is the override value for the video source's maximum brightness. Make sure to check Override for it to be effective.

- **Set HDR parameters (When sending and receiving cards support older HDR versions)**

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

6.8 Set Image Booster Engine

Applications

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

Applicable Products

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

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

Prerequisites

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

Notice

Adjusting the receiving card parameters affects the display effect.

Related Information

The effect parameters to adjust include the color management, precise grayscale, and 22bit+ functions of the image booster:

- **Color Management**

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

- **Precise Grayscale**

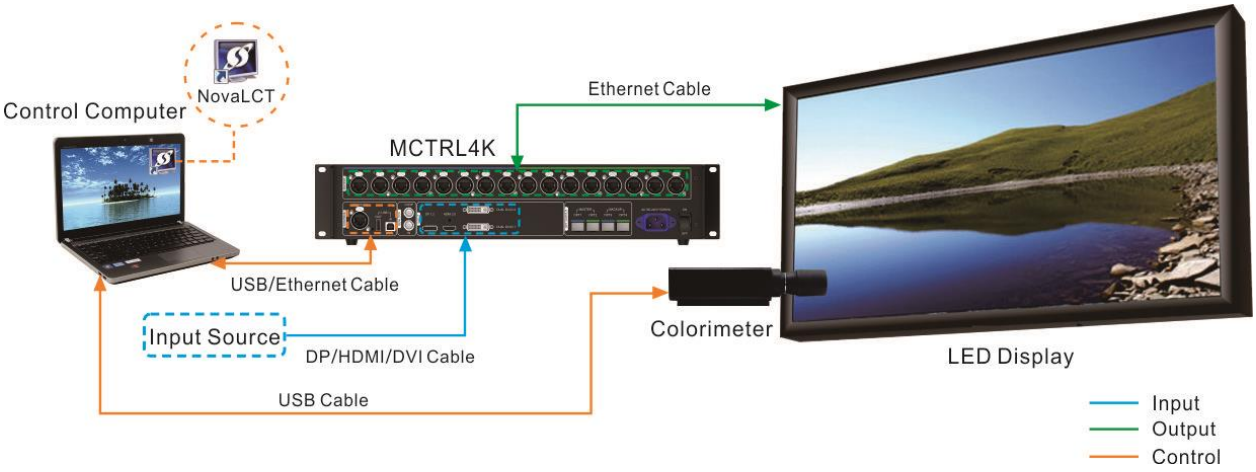
  With the help of professional optical instruments, individually correct the 65,536 levels of grayscale of the driver IC to fix the display problems at low grayscale conditions, such as brightness spikes, brightness dips, color cast and mottling and achieve pinpoint accuracy in grayscale control, allowing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

- **22bit+**

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

When you collect the screen data, ensure the colorimeter touches the screen closely. The hardware connection is illustrated in Figure 6-32 .

Figure 6-32 Colorimeter connection



Operating Procedure

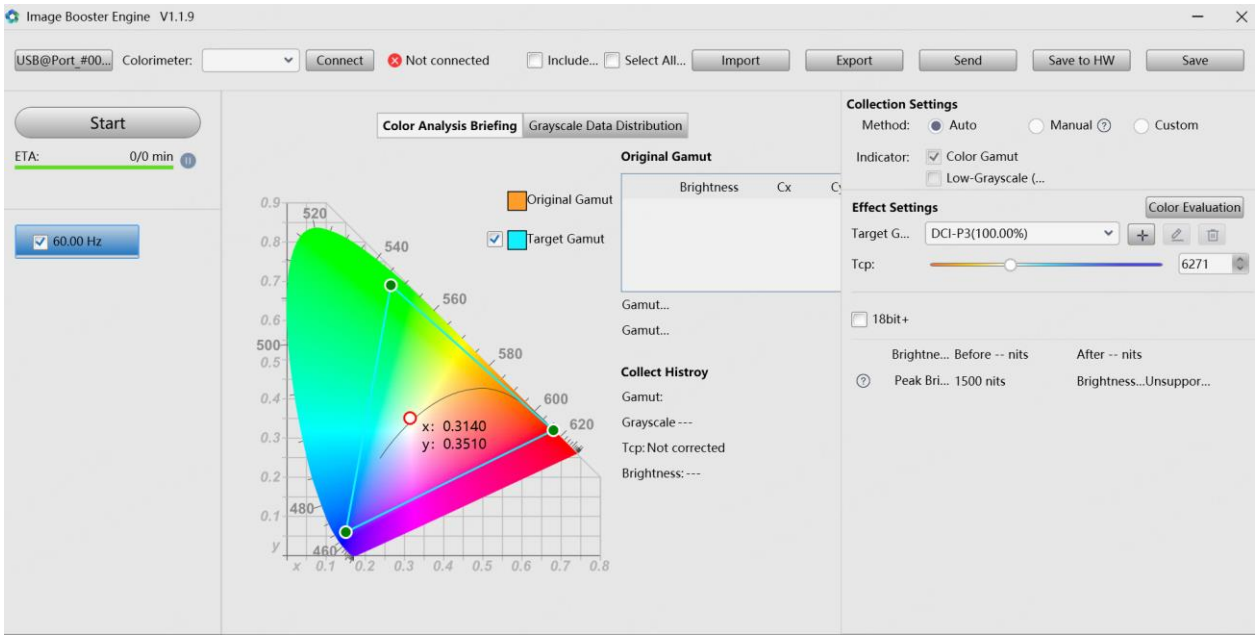
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is “admin”.

Step 2 On the main window, click Image Booster.

Step 3 On the **Image Booster** screen, click **Please refresh and select device** located at the top left corner.

Figure 6-33 Image booster

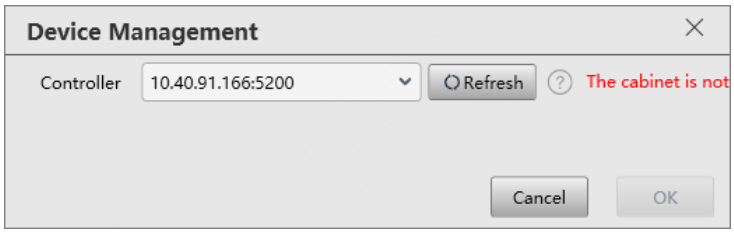


Note

- Function Description
  - Save: Save the current Image Booster effect configuration as a local file.
  - Save to HW: Save the current Image Booster effect configuration to the receiving card.
- Interface Information Description
  - First-time Use: When the software runs for the first time after installation, the Image Booster screen has no color gamut information or related setting information, which means it does not support automatically reading back the current Image Booster information, and can only read back the Image Booster on/off status.
  - Subsequent Opening: When the Image Booster screen is opened subsequently, the software displays the last saved Image Booster information. If you need to display the current Image Booster information, you need to import an image quality file.

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

Figure 6-34 Device management



Step 5 On the left of the screen, select a frame rate.

Step 6 Set **Collection Settings** on the right side of the interface and do the following according to the screen data collection method.

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

     When the hardware connection is normal, the software will automatically establish communication with the colorimeter after selecting a model.
  c. Click **Start** to automatically collect the screen data through the colorimeter.
- Manual
  a. Set the collection method to **Manual**.
  b. Select **Color Gamut**, manually collect the screen data, and then double-click the color gamut value in the table and modify it.
  c. Select **Brightness** and then set the brightness before and after calibration.

d. Click **Start** to make the color gamut and brightness data take effect.

- Custom

a. Set the collection method to **Custom**.

b. Set the collection indicators.

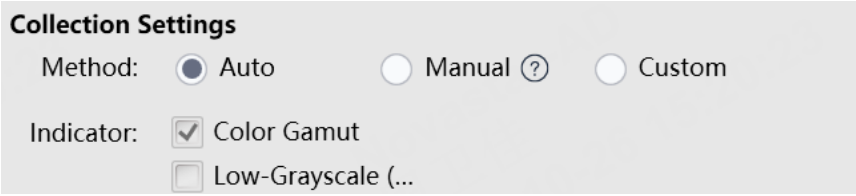
c. Click **Start** to automatically collect the screen data through the colorimeter.

Note

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

Step 7 According to the requirement, select the collection indicators.

Figure 6-35 Collection Settings



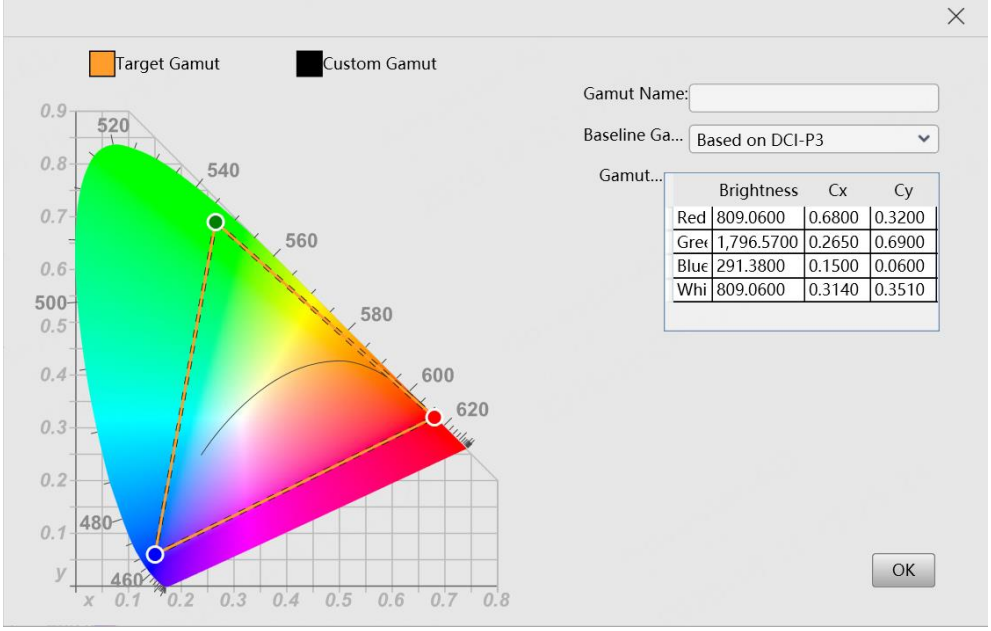
Step 8 Under the **Effect Settings**, set the following parameters and view the effect on the screen.

- Target gamut

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

Do the following to add custom gamut.

a. Click  on the right of the drop-down list to add a custom gamut.



b. Enter a custom gamut name.

c. Select a baseline gamut from the drop-down list.

d. Double-click the cells in the table to change the gamut values or drag the vertex of the black triangle in the color gamut diagram to modify it.

e. Click **OK** once you are done.

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

- Color Temperature

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

- Magic Gray

  Turn on/off the toggle switch to enable/disable this function. When this is enabled, 22bit+ and Precise Grayscale can be selected.

- Low-Grayscale Dithering Mode

  Select RGB independent dithering or RGB combined dithering as required.

- Dynamic Booster

  When the receiving card supports the Dynamic Booster, turn on/off the toggle switch to enable/disable this function. When this is enabled, drag the slider to adjust the intensity of the Dynamic Booster, and set the max brightness.

- Brightness

  Verify the pre-calibration brightness, post-calibration brightness, and peak brightness, and also check if brightness overdrive is supported.

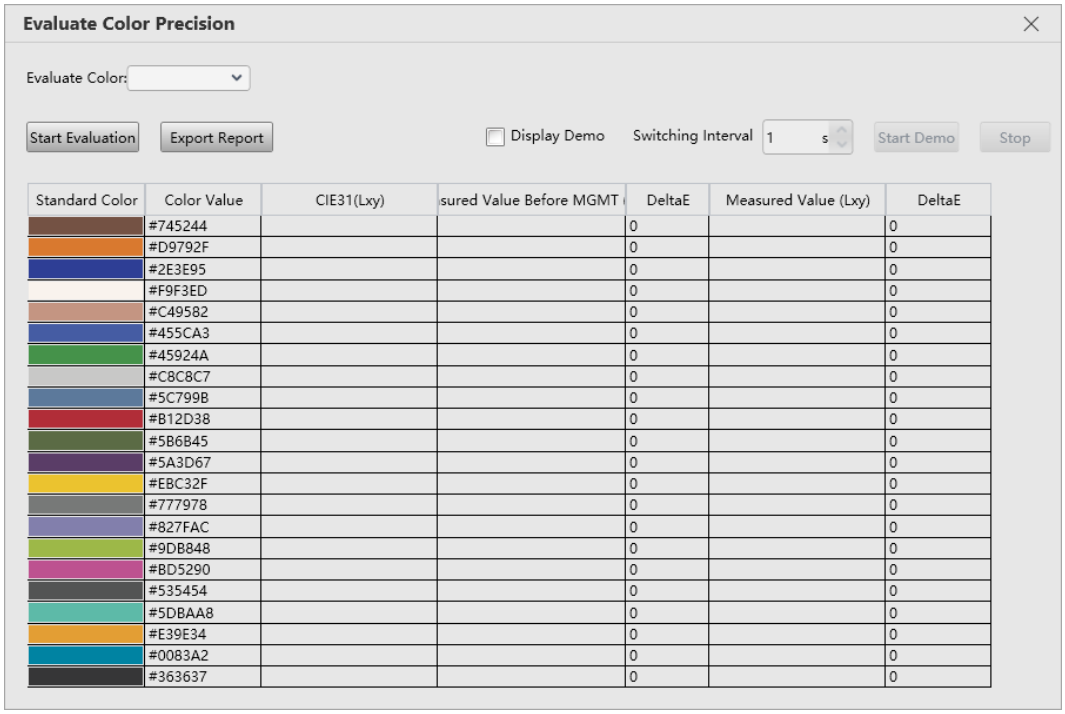
Peak Brightness is the max brightness measured by the colorimeter.

Step 9 Click **Export** to save the configuration into a file.

Step 10 Click **Send** to send the configuration to the hardware, or click **Save to HW** to save the configuration to the hardware.

Step 11 If you want to evaluate the color precision, do the following.

1. Click Color Evaluation.



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

6.9 Batch Check Calibration Effects

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

None

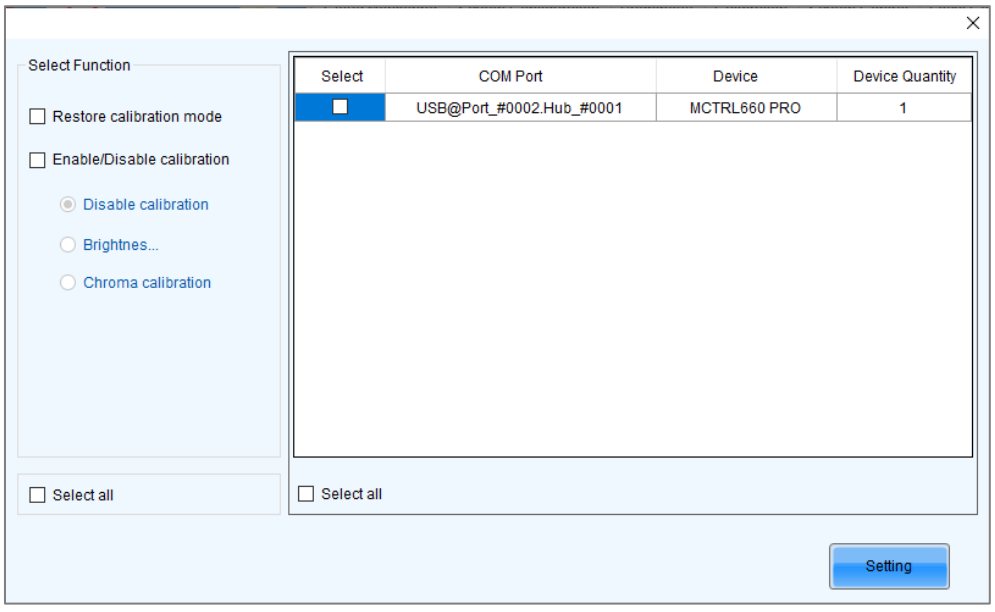
Related Information

None

Operating Procedure

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

Figure 6-36 Batch checking calibration effects



Step 2 In the device list, select the device of which you want to check the calibration effects.

Step 3 Select **Enable/Disable calibration** and click **Setting**.

Step 4 Click **OK** to close the prompt box.

Step 5 Select **Disable calibration**, **Brightness calibration** or **Chroma calibration** and check the corresponding display effects on the LED screen.

7 Screen Monitoring

7.1 Register Screens with VNNOX Care

7.1.1 Register Online Screens

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

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

Related Information

None

Operating Procedure

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

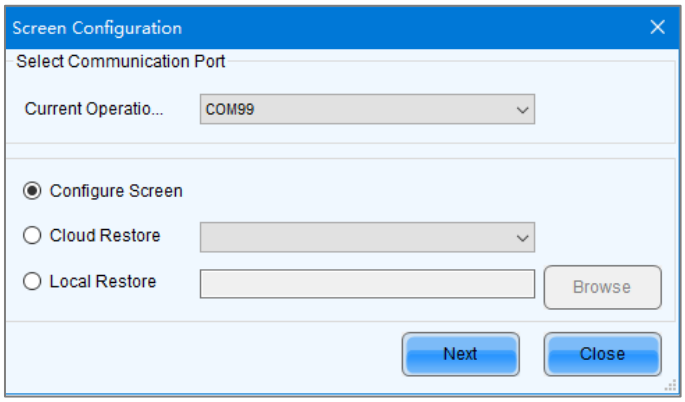
The default password is “admin”.

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar.

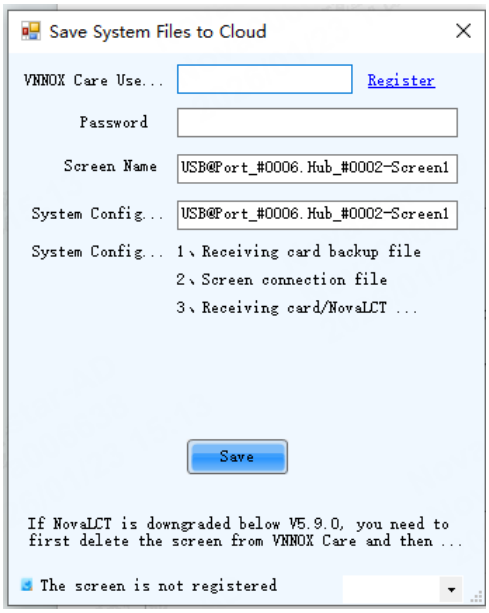
Step 3 On the pop-up dialog box, select a communication port and choose **Configure Screen**. Then, click **Next**.

Figure 7-1 Screen configuration method



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 a screen name and system configuration file name, and select a server node at the bottom right.

If you do not have a VNNOX Care account, click **Register** in the upper right corner of the dialog box to navigate to VNNOX Care's official website for registration. For detailed instructions, please refer to VNNOX Care user manual.

Step 6 After the settings, click **Save**.

Step 7 After successful saving, close the prompt box.

Note

During registration, NovaLCT will automatically enable **Automatic Refresh** and **Link to NovaiCare** in the monitoring configuration. If you want to set the refresh period, please see 7.2 View and Configure Monitoring.

7.1.2 Register Offline Screens

7.1.2.1 Register by Using Local Backup Files (Recommended)

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

You have a valid VNNOX Care account.

Related Information

None

Operating Procedure

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

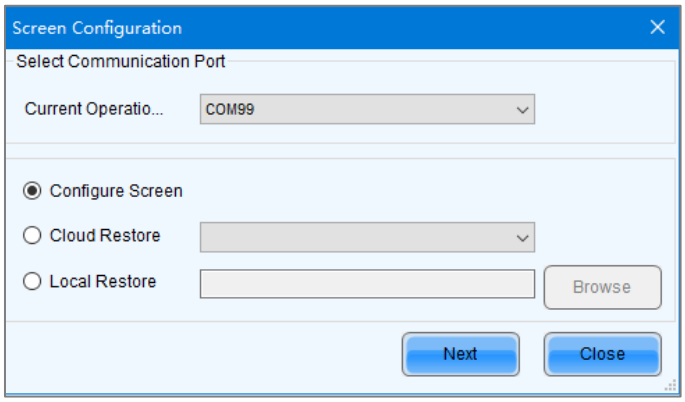
The default password is “admin”.

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar.

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

Figure 7-3 Screen configuration method



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

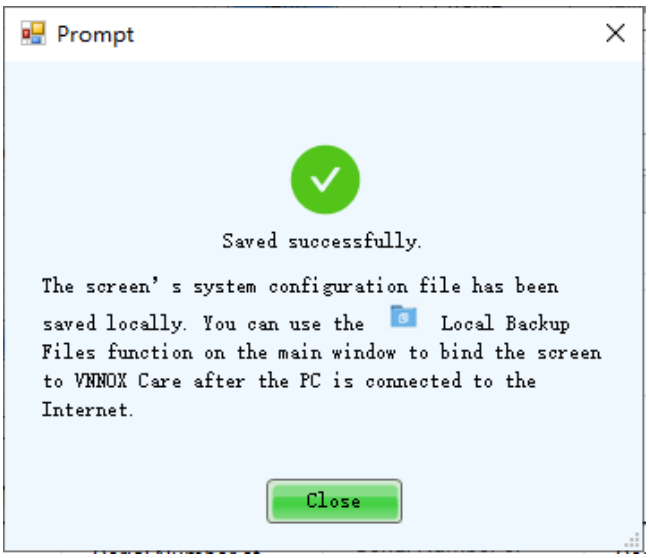
Step 5 After successful saving, click **OK** to save the backup file to the local computer.

This step is related to the configuration of the save function. See 11.3 Configure the Save Function.

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

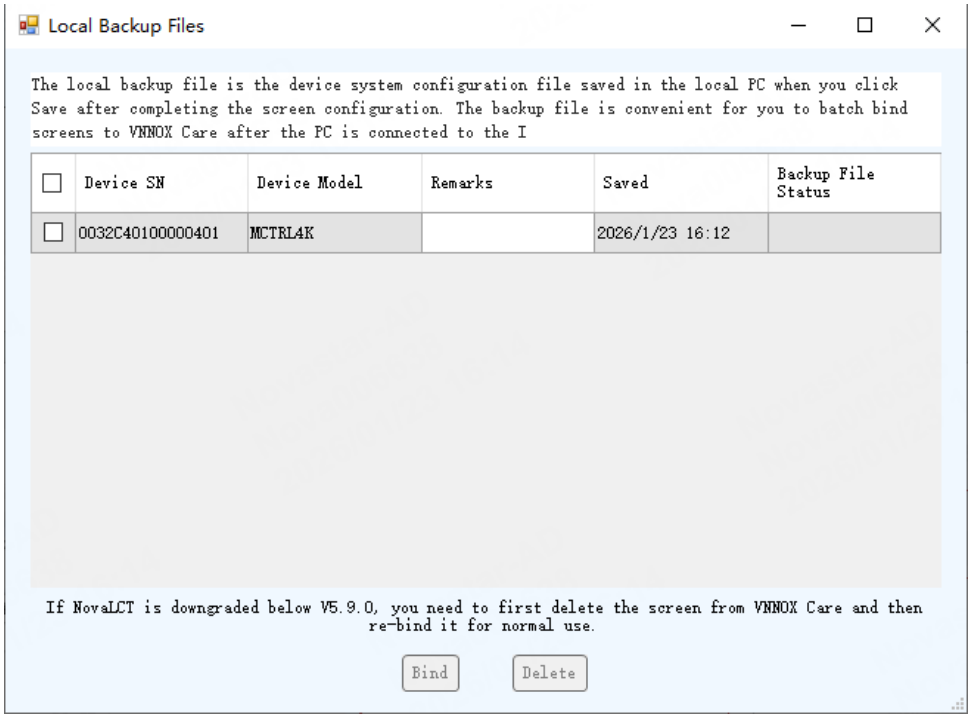
For devices with the same SN, NovaLCT uses the new file to overwrite the old file.

Figure 7-4 Saved successfully



Step 7 When the control PC can access the Internet normally, click VNNOX Care on the main window and then click **Local Backup Files** to open the dialog box shown in Figure 7-5 .

Figure 7-5 Local backup files



Step 8 Enter a remark.

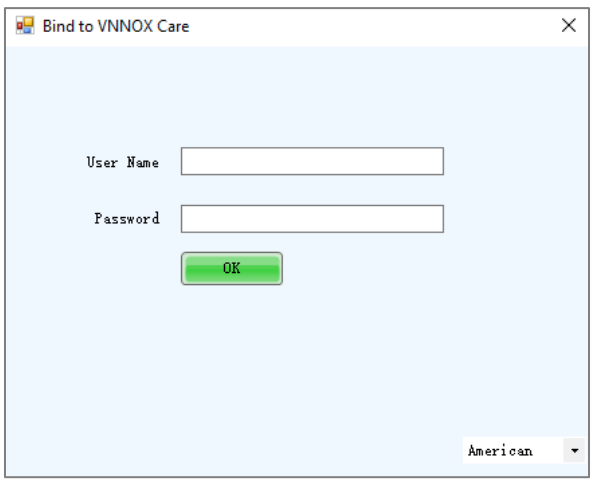
The remark will be the name of the successfully bound screen. If the remark is empty, the device SN will be the screen name.

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 7-6 Binding to VNNOX Care



Related Operations

Both in the logged in and not logged in statuses, you can click VNNOX Care on the main window and then **Local Backup Files** to open its dialog box and check the device binding status and delete configuration files.

7.1.2.2 Register by Using Screen Monitoring Data

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

You have a valid VNNOX Care account.

Related Information

None

Operating Procedure

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

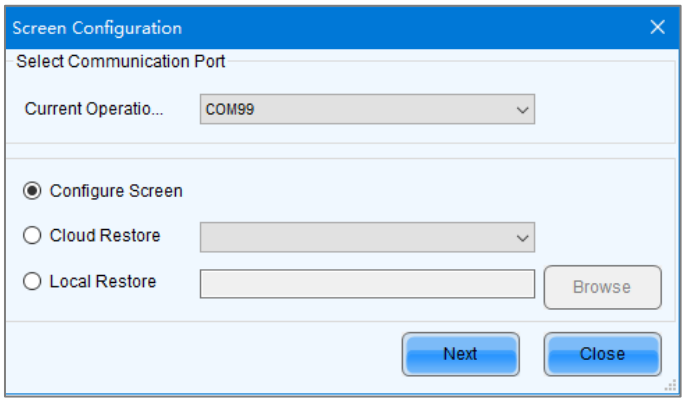
The default password is “admin”.

Step 2 Click 

or choose **Settings** > **Screen Configuration** from the menu bar.

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

Figure 7-7 Screen configuration method

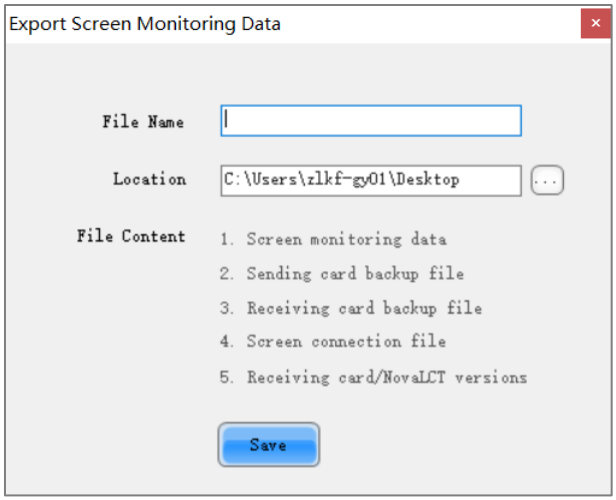


Step 4 Choose a communication port.

Step 5 Select **Configure Screen** and click **Next**.

Step 6 On the **Screen Configuration** page, click **Export Screen Monitoring Data** to open the dialog box shown in Figure 7-8 .

Figure 7-8 Exporting screen monitoring data



Step 7 Set a file name, click ... to select a location and click **Save**.

Step 8 After successful saving, click **OK** to close the prompt box.

Step 9 When the control PC can access the Internet normally, log in to VNNOX Care.

Step 10 Go to **My Services** > **Screen Management** to enter the screen management page.

Step 11 Click **Add Screen**, select the exported screen monitoring data file and click **Upload**.

7.2 View and Configure Monitoring

Applications

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

Applicable Products

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

Prerequisites

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

Related Information

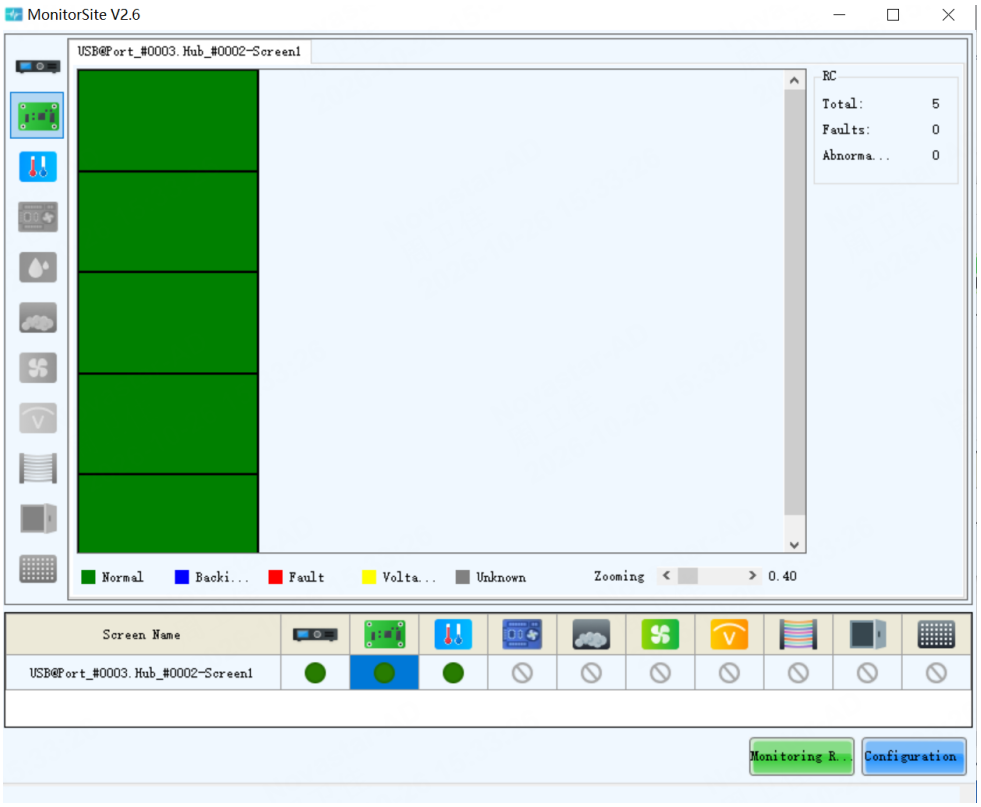
When the monitoring card is used, hub monitoring and smart module cannot be used. Hub monitoring and smart module can be used simultaneously.

Operating Procedure

Step 1 On the main window, click Monitoring, or choose Tools > Monitoring from the menu bar to open the monitoring page.

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

Figure 7-9 Monitoring



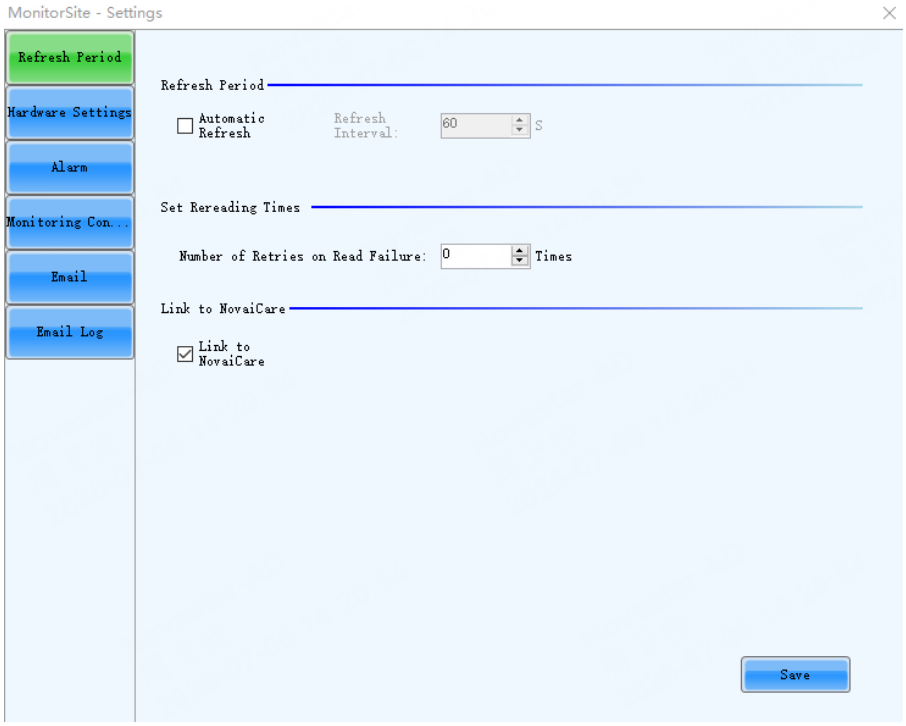
Note

- 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 2 Click the monitoring item on the left or at the bottom of the page to view the detailed monitoring information.

Step 3 Click **Configuration** to set the monitoring parameters.

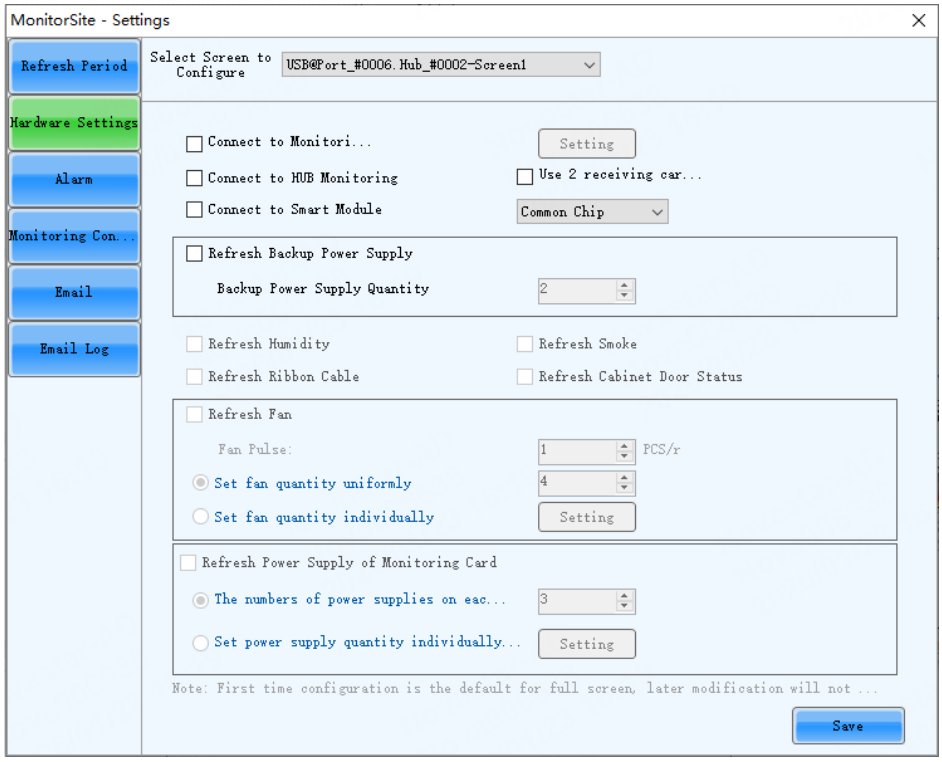
Refresh Period



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

- Select **Automatic Refresh** to set the **Refresh Interval**. The monitoring information will be refreshed based on the set interval.
- Set the reread times when the reading of the monitoring information from the receiving card fails.

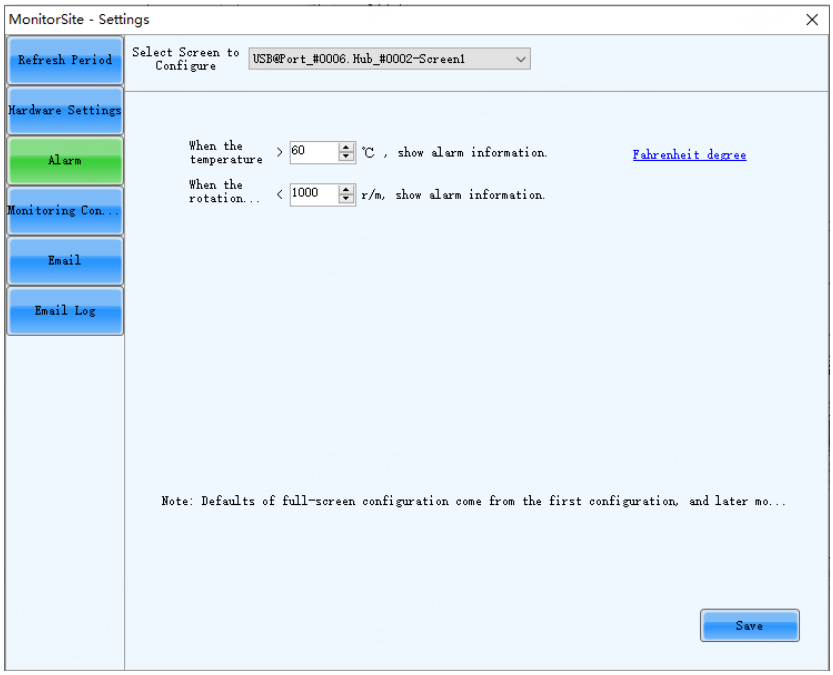
Hardware Settings



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

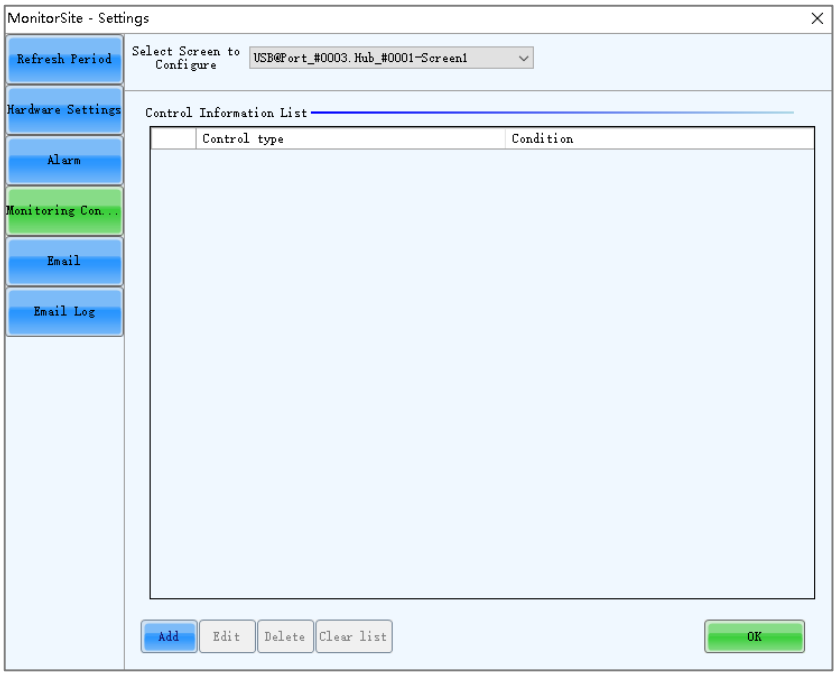
- Select **Connect to Monitoring Card** and set the monitoring items. Click **Setting** to set the number of monitoring cards connected to each cabinet. The number is 0 or 1.
- Select **Connect to HUB Monitoring** and set the monitoring items.
- Select **Connect to Smart Module** and set the monitoring items. If the **TBS 614 Chip** is selected, you can click **Module Monitoring** in the monitoring interface to view and configure the information related to the module monitoring.
- Select **Connect to HUB Monitoring** and **Connect to Smart Module**, and then set the monitoring items.

Alarm



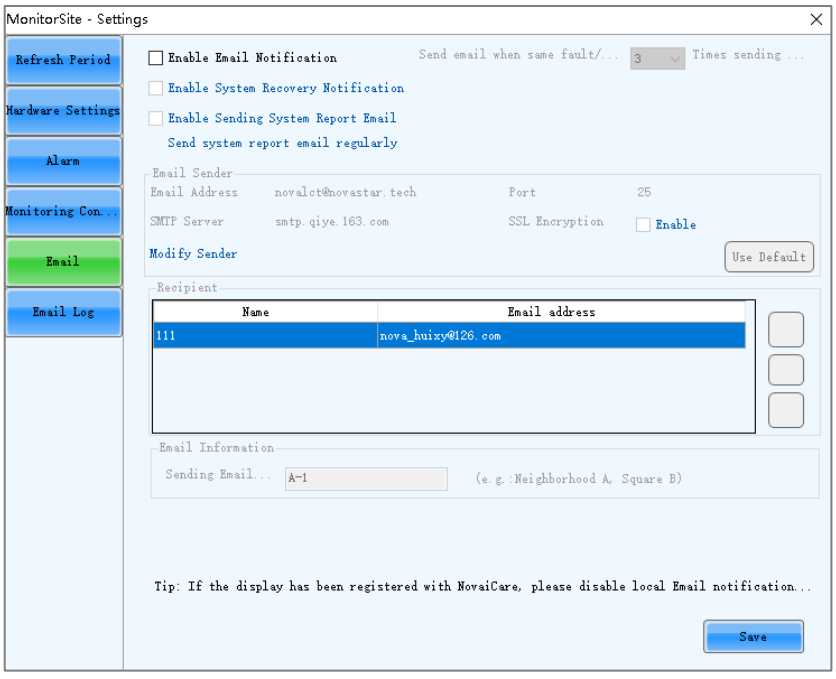
Set the alarm thresholds for temperature, fan rotating speed and voltage. When the threshold value is exceeded, faults or alarms will be displayed. After the configuration is done, click **Save** to save the settings.

Monitoring Control



Set the rules for automatic control of smoke, temperature and dual backup power supply. If the control type is set to smoke, a multi-function card must be configured in advance. After the settings are done, click **OK**.

Email

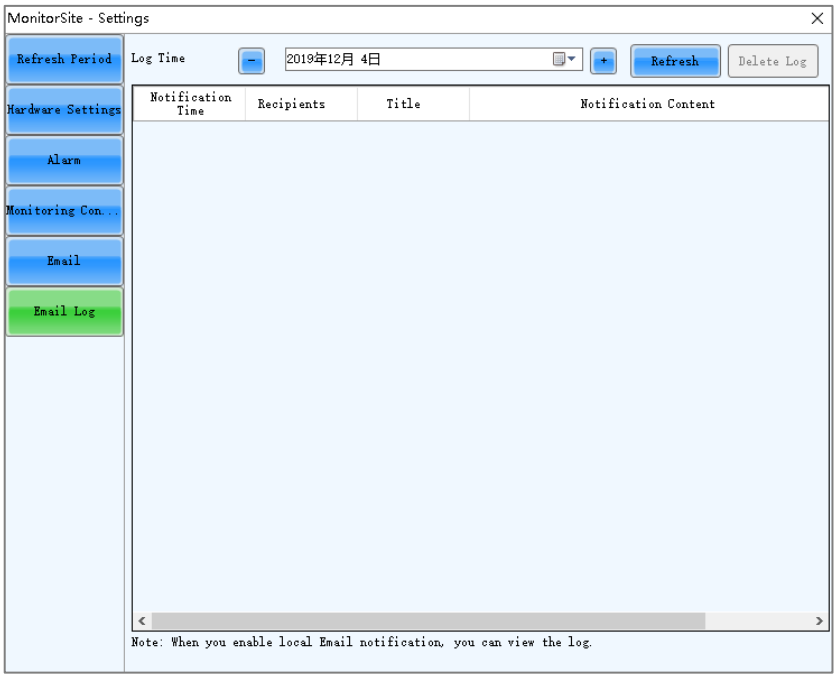


Select **Enable Email Notification**. Set the necessary items as follows and click **Save** to save the settings.

- Set the condition for sending an email notification, namely how many times the same fault or alarm occurs consecutively.

- Select **Enable System Recovery Notification** to send email notification when the fault or alarm recovers.
- Select Enable Sending System Report Email and click Send system report email regularly to set the email sending period and time.
- Click **Modify Sender** to change the email service related settings.
- Add, edit or delete the recipients.
- Set where the email is sent.

Email Log



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

7.3 Configure Module Monitoring

Applications

Configure the module monitoring parameters to monitor the module's temperature, voltage, and bit error.

Applicable Products

All receiving cards.

Prerequisites

- The module is equipped with a TBS 614 chip.
- You have selected **Connect to Smart Module** in the monitoring configuration, and along with the **TBS 614 Chip**.
- You have completed the **Flash Arrangement**. For more details, please refer to 5.8 Set Performance Parameters

Related Information

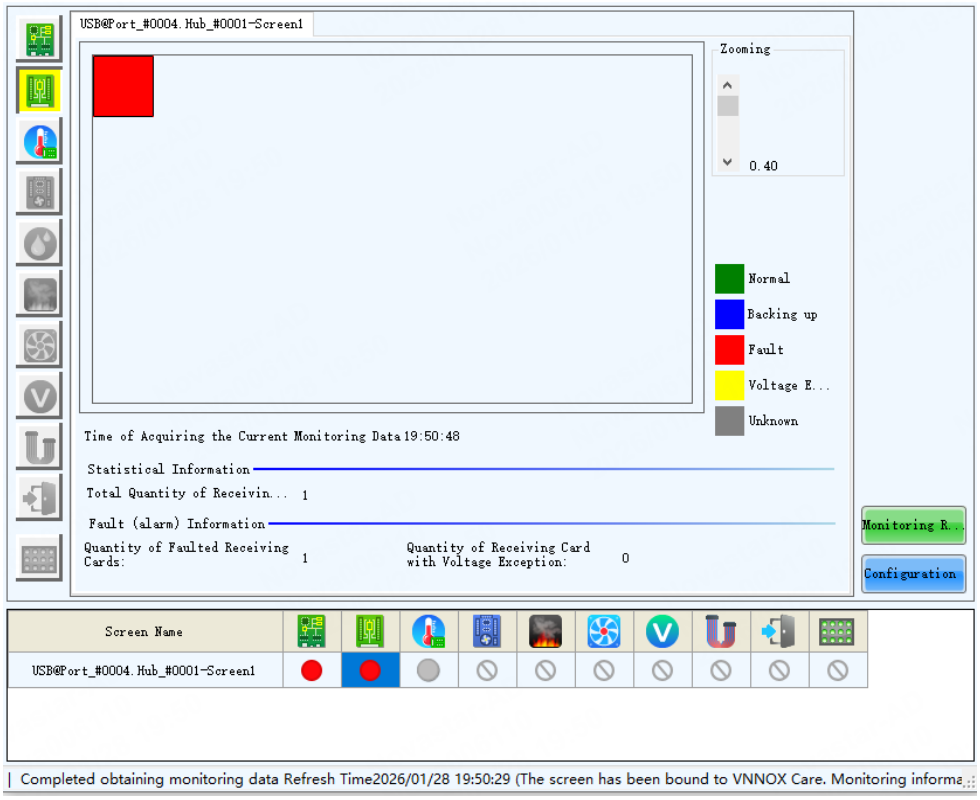
None

Operating Procedure

Step 1 On the main window, click Monitoring, or choose Tools > Monitoring from the menu bar to open the monitoring page.

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

Figure 7-10 Monitoring



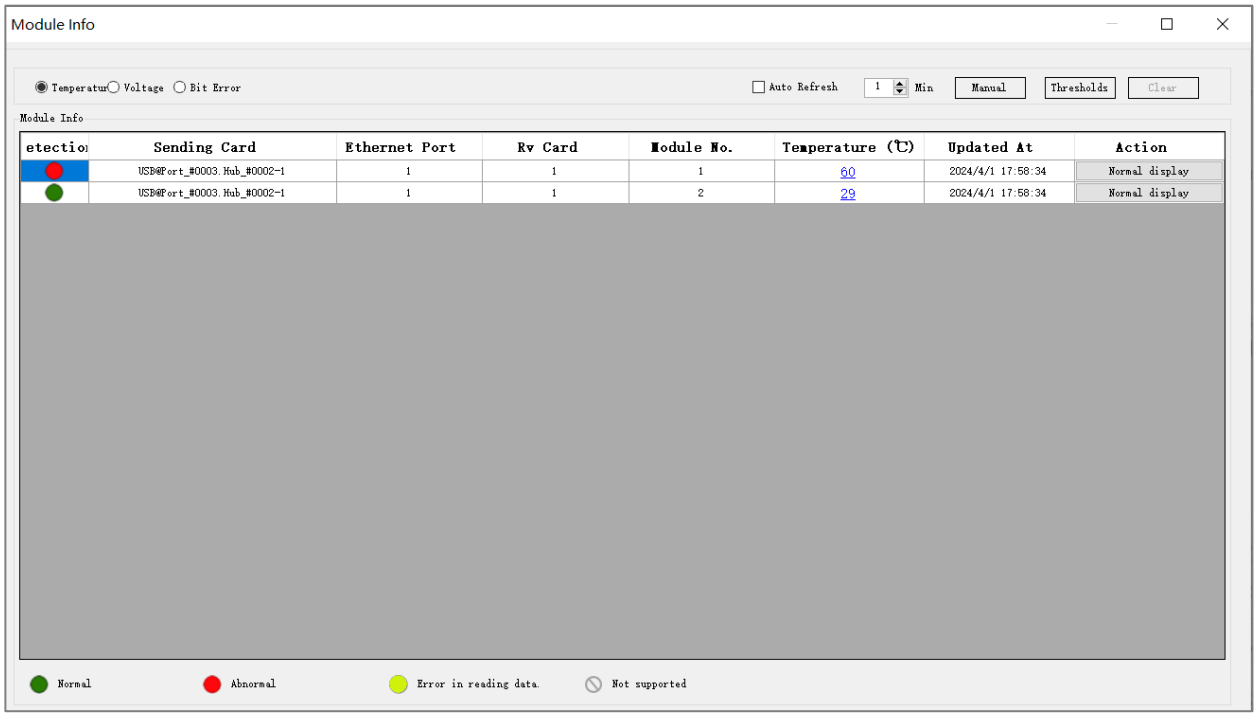
Step 2 Click **Module Monitoring**.

Step 3 On the **Module Info** dialog box, select **Temperature**, **Voltage** or **Bit Error** to view the corresponding monitoring information. Click on the text link of the monitor result to view the details.

Related Operations:

- The monitoring information will be refreshed once when you select the items to be monitored. To refresh again, click **Manual**.
- Screen Display: Click **Normal display** in the **Action** column to switch to **Screen display**, which will show the test pattern in the load area of the corresponding receiving card.
- Clear Errors: Click **Clear Errors** in the respective column to reset the errors of the corresponding receiving card. To reset the errors of all receiving cards in the list, click **Clear** in the top right corner of the interface.

Figure 7-11 Module information

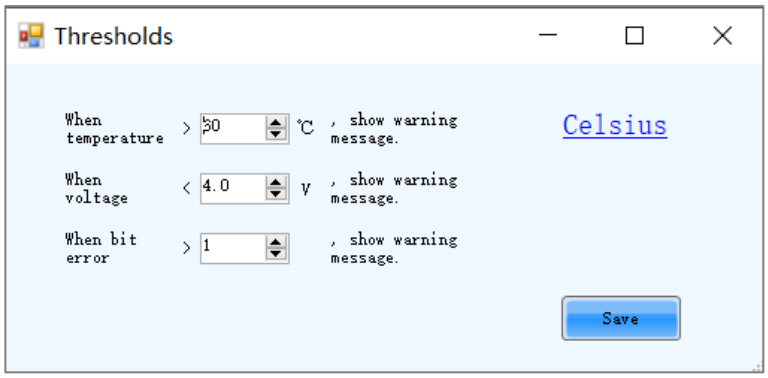


Step 4 (Optional) Select **Automatic Refresh** to set the **Refresh Interval**.

Step 5 Click **Thresholds**.

Step 6 On the pop-up dialog box, set the alarm thresholds for temperature, voltage, and bit error. Clicking on **Celsius** or **Fahrenheit** allows you to switch temperature units.

Figure 7-12 Thresholds



Step 7 Click **Save** once you are done.

8 Screen Management

8.1 Multi-function Card Management

Applications

Configure the multi-function card, and perform power management, monitoring data viewing, peripheral settings, program loading and audio management.

Applicable Products

The MFN300 multi-function card

Prerequisites

Hardware connections for the multi-function card are done.

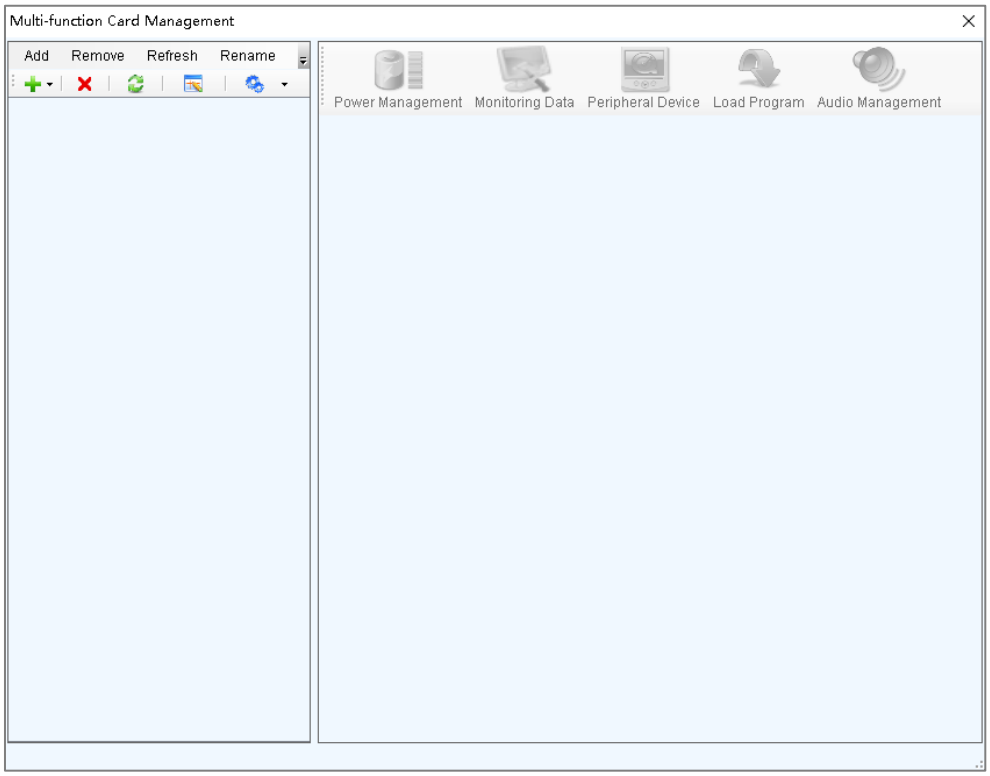
Related Information

None

Operating Procedure

Step 1 On the main window, click **MFN Card**, or choose **Settings** > **Multi-function Card** from the menu bar.

Figure 8-1 Multifunction card management



Step 2 Click **Add** and select the connection type for the multi-function card.

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

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

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

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

Step 3 For serial port connection, choose a communication port and click **OK**.

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

Figure 8-2 Adding multi-function cards

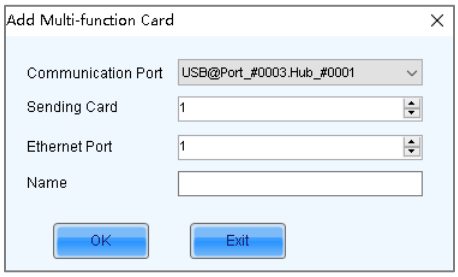
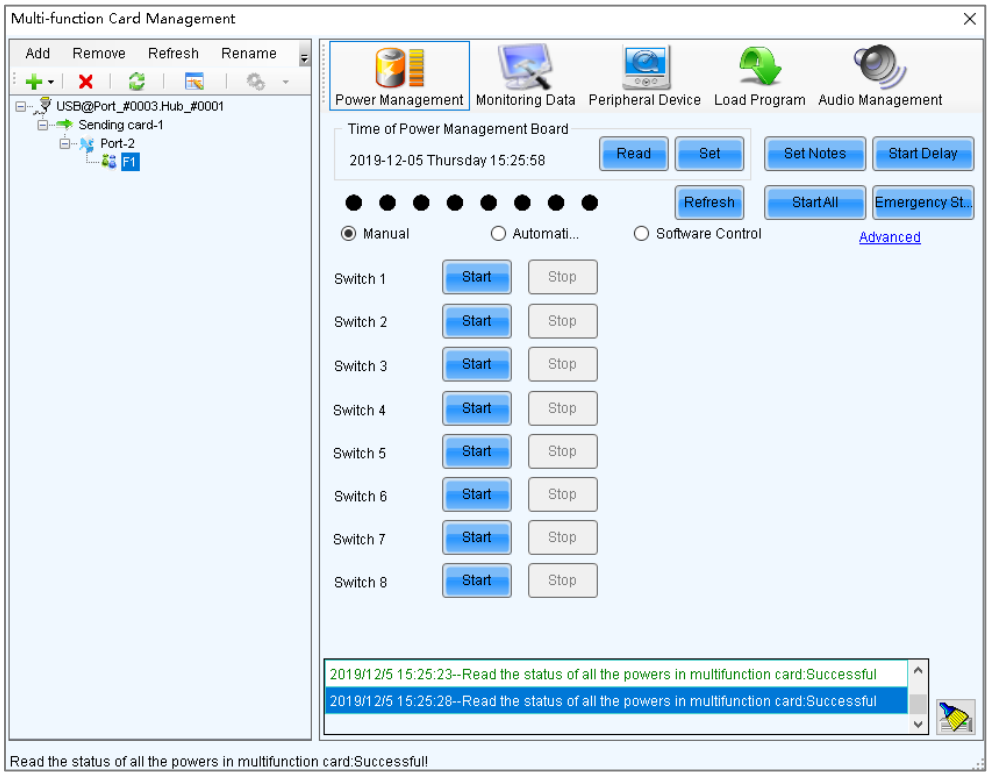


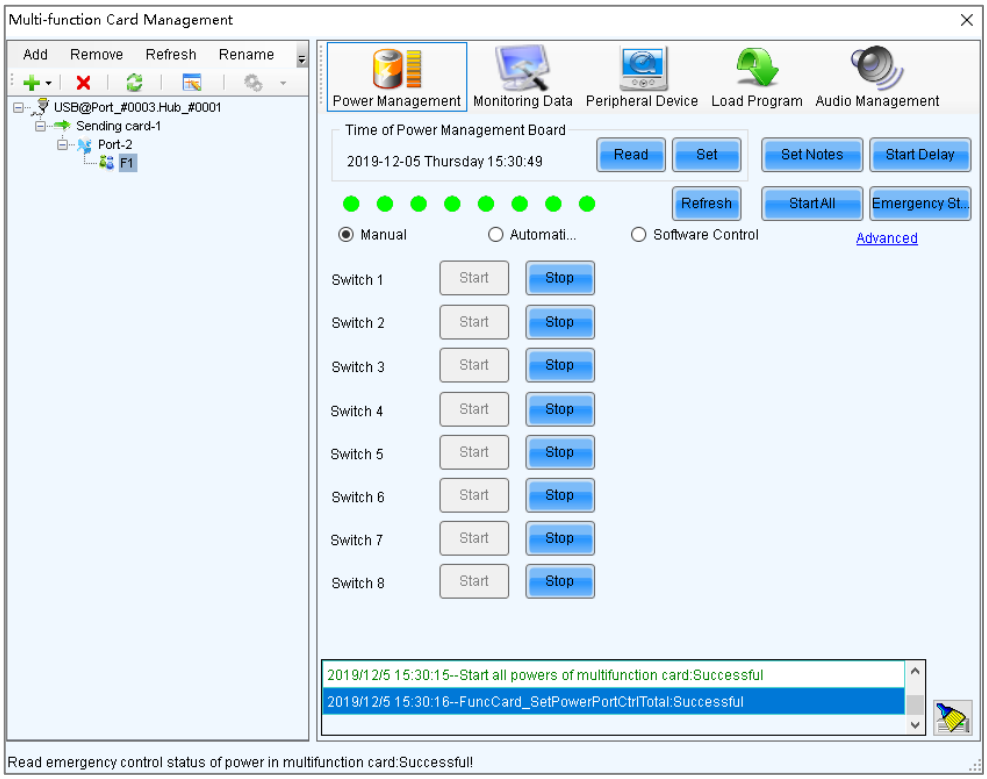
Figure 8-3 shows the user interface of an Ethernet port connection is added successfully. The following procedure takes Ethernet port connection as an example to illustrate the function.

Figure 8-3 Ethernet port connection



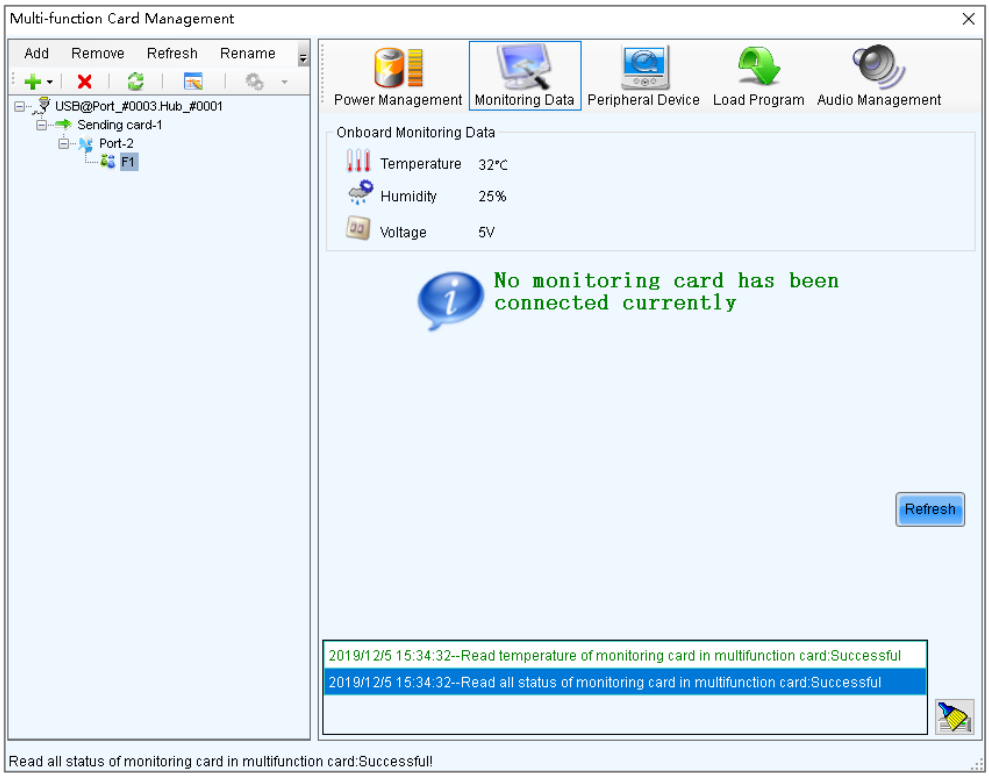
Step 4 Use any of the following functions as needed.

- **Power Management**



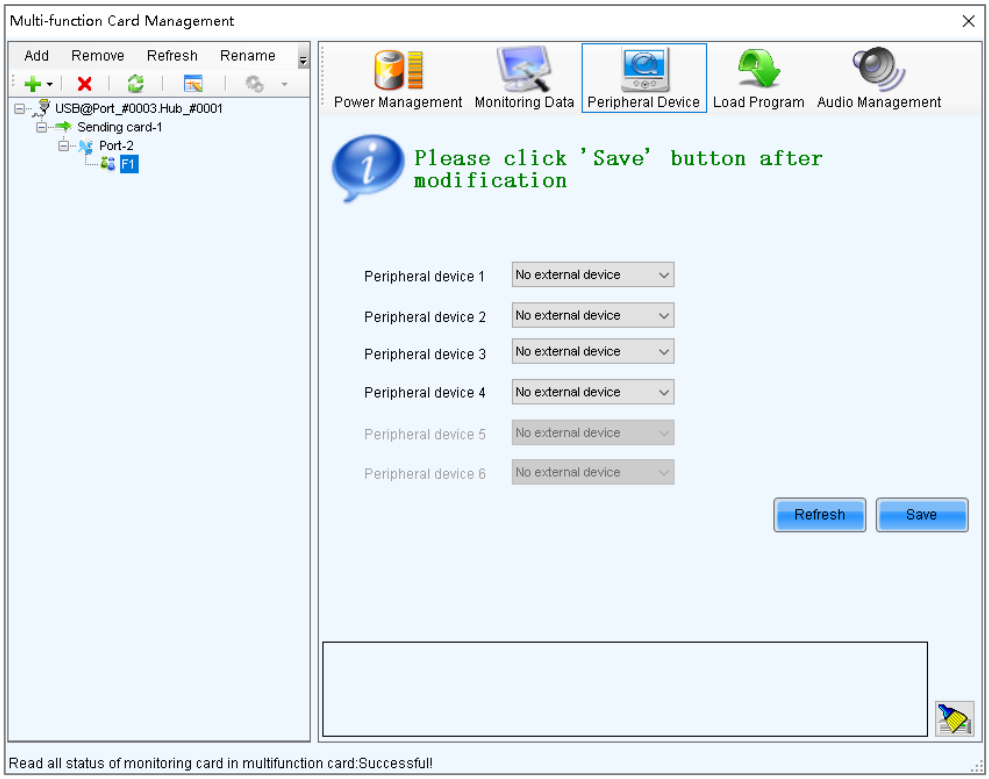
- Read: Read the time from the multi-function card.
- Set: Set the multi-function card time to the PC time.
- Set Notes: Write notes for the power supplies.
- Start Delay: Set the delay time for powering on the multi-function card.
- Refresh: Read back the multi-function card information.
- Start All: Start all power supplies.
- Emergency Stop: Stop all power supplies. When the emergency stop operation is executed, automatic control is invalid.
- Manual: Start or stop the power supplies manually.
- Automatic Control: Set the auto start and stop time for the power supplies.
- Software Control: Set the power control schedule. Click **Edit** to customize the power control list. Click **View Log** to view the power control log.
- Advanced: Set the time for the automatic time synchronization between the multi-function card and PC.

Monitoring Data



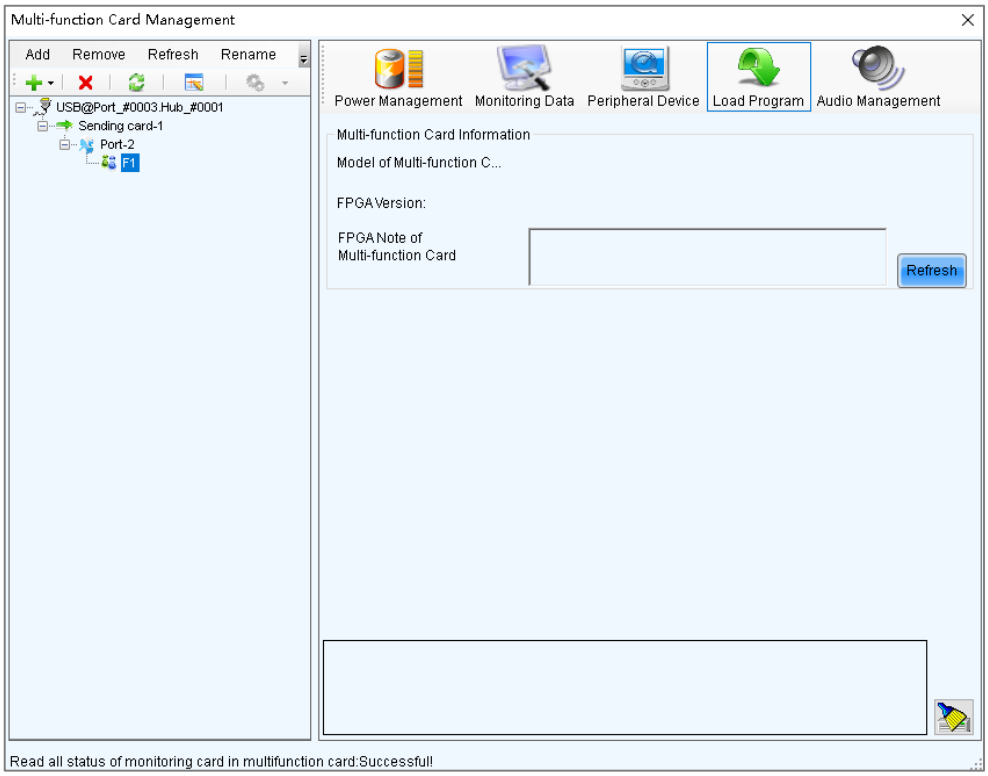
View the monitoring data of both multi-function card itself and its connected monitoring card.

Peripheral Device



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

Load Program



Click **Refresh** to view the multi-function card model, FPGA version and FPGA note.

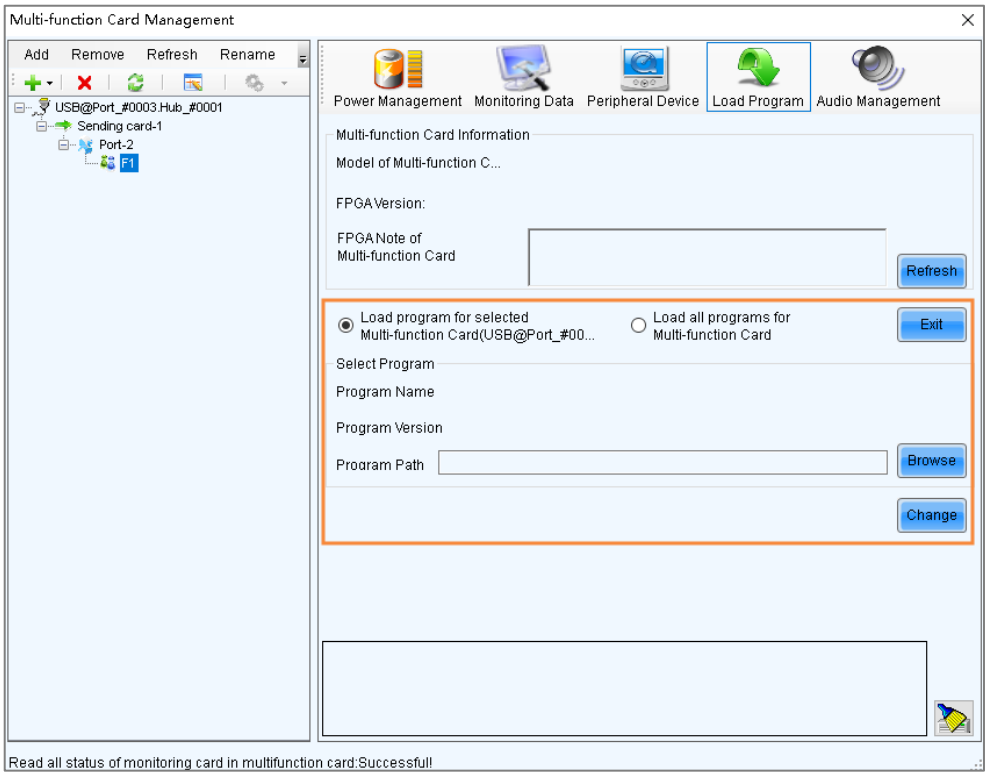
Type “admin” to access the options for program loading.

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

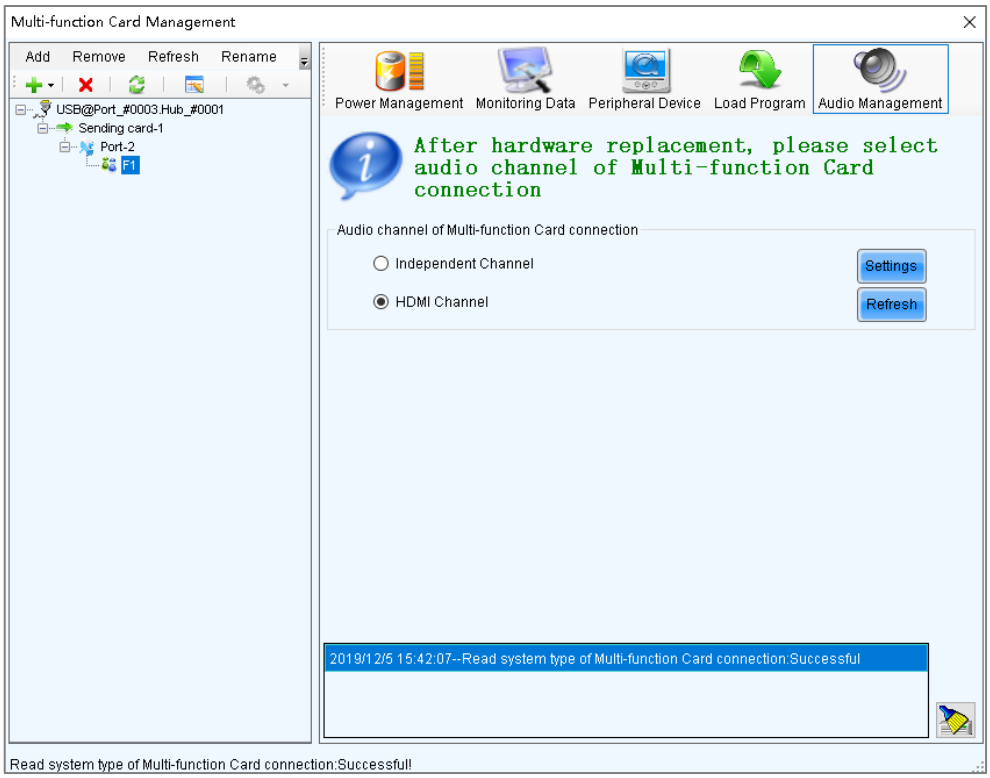
b. Click **Browse** to select the program package.

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

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



Audio Management



Set the audio channel connected to the multi-function card, including the independent channel and HDMI channel.

8.2 Multiple-screen Management

Note

The settings for multiple-screen management are only effective on your computer's NovaLCT. To apply them on other computers, you will need to adjust the corresponding settings accordingly.

Applications

Combine multiple screens into a combined screen, allowing for easier brightness adjustment, screen calibration and monitoring configuration, and higher working efficiency.

Applicable Products

All receiving cards and sending cards

Prerequisites

None

Related Information

The combined screen supports both auto and manual brightness adjustment.

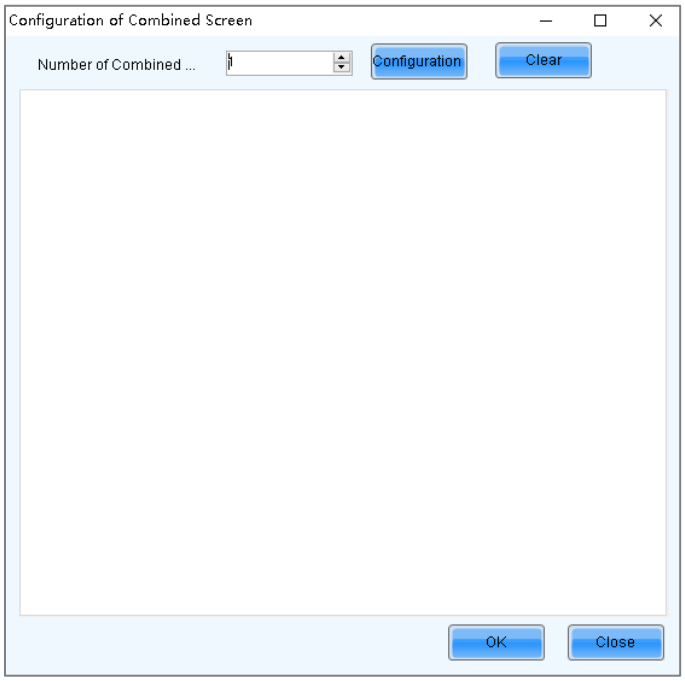
Operating Procedure

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

The default password is “admin”.

Step 2 Choose **Settings** > **Multiple-screen Management**.

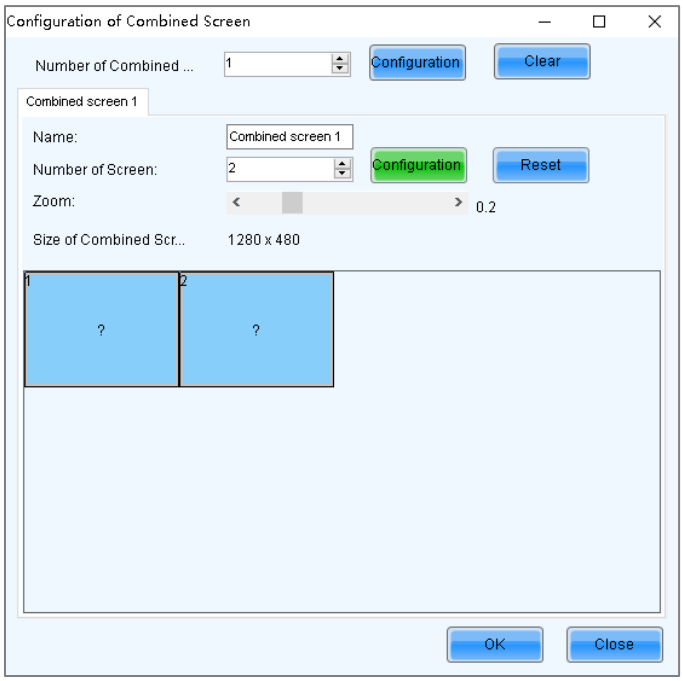
Figure 8-4 Multi-screen management



Step 3 Set the number of combined screens and click **Configuration**.

Step 4 Set the combined screen name and number of screens in the combined screen, and then click **Configuration**.

Figure 8-5 Configuration of combined screen



Step 5 Right-click the first screen to pop up the window as shown in Figure 8-6 . Choose a communication port and its associated screen.

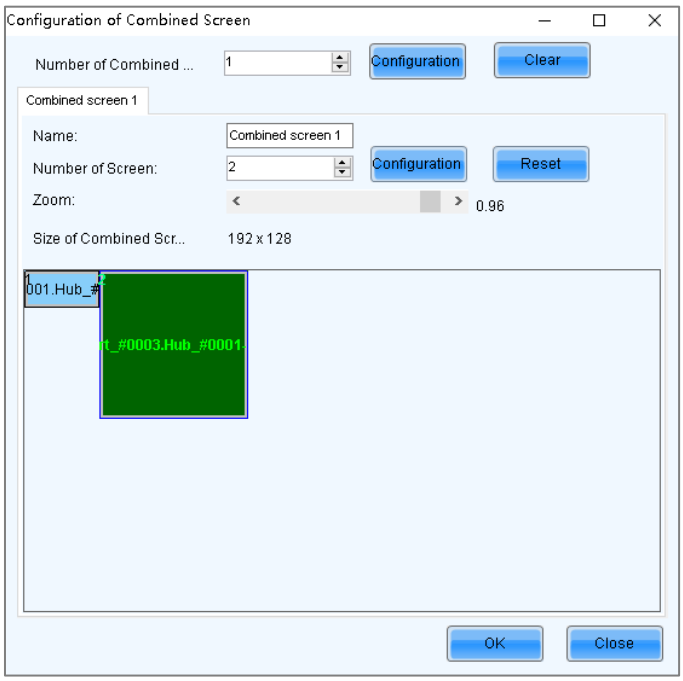
Figure 8-6 Associated screen



Step 6 Do the same for other screens of the combined screen.

Step 7 Drag the screen to snap it to other screens.

Figure 8-7 Adjusting screen position



Step 8 After the settings are done, click **OK**.

8.3 Prestore Screen

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

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

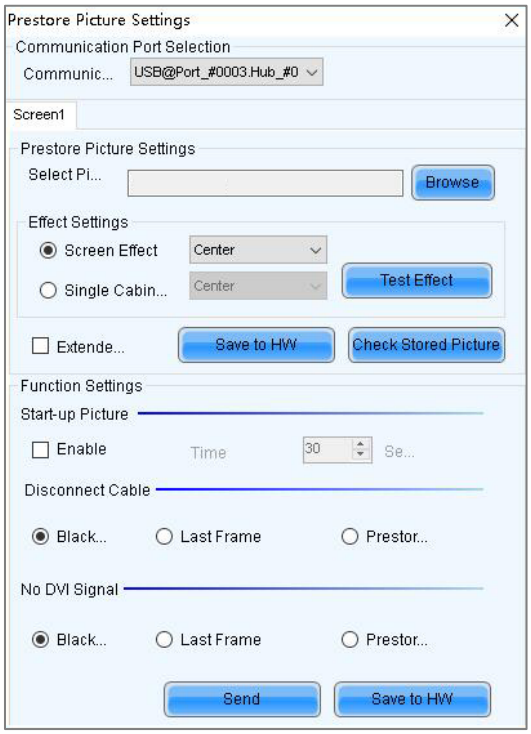
Related Information

None

Operating Procedure

Step 1 On the menu bar, choose **Settings** > **Prestore Screen**.

Figure 8-8 Prestore picture settings



Step 2 Choose a communication port.

Step 3 Set a prestore picture.

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

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

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

1. Select **Enable** in the **Start-up Picture** area and set how long the prestore picture is displayed for during the startup process.
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.

8.4 Receiving Card Relay

Applications

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

Applicable Products

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

Prerequisites

None

Related Information

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

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

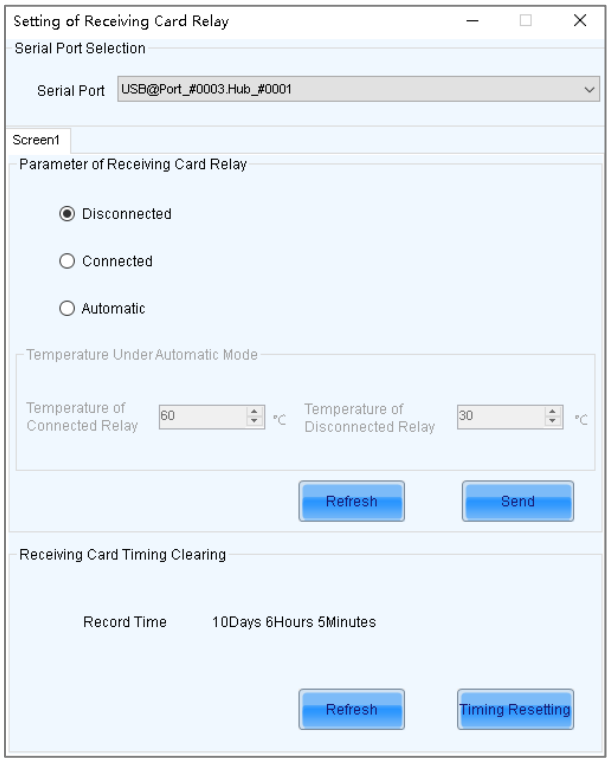
Operating Procedure

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

The default password is “admin”.

Step 2 Choose **Settings** > **Receiving Card Relay**.

Figure 8-9 Setting receiving card relay



Step 3 Choose a communication port and perform the following operations as required.

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

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

8.5 Screen Control

Applications

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

Applicable Products

- Flipping: Applicable to the MCTRL660 PRO sending card
- Other functions: Applicable to all receiving cards and sending cards

Prerequisites

None

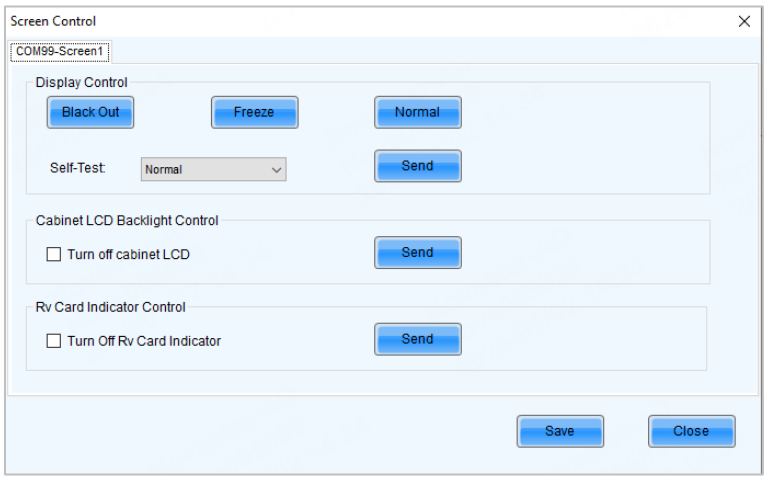
Related Information

None

Operating Procedure

Step 1 On the main window, click **Screen Control**, or choose **Tools** > **Screen Control** from the menu bar.

Figure 8-10 Screen control



Step 2 Perform any of the following operations as required.

- **Set screen display**

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

- **Select test pattern**

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

- **Set LCD backlight status**

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

- **Set receiving card indicator**

  Select or deselect Turn off Rv Card Indicator and click Send.

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

Step 4 Click **Save** once you are done.

8.6 Controller Cabinet Configuration File Import

Applications

Save the receiving card configuration files to the sending card, so as to send the configuration files to the receiving card on site by using the configuration file import function of the sending card.

Applicable Products

- Importing cabinet configuration files: Applicable to the device-level sending cards
- Renaming device: Applicable to the NovaPro HD, VX2, VX4, VX4S, VX5s, VX6s, K4, K4S, K6s, VD43, VX2U, VX4U, K4U, K2U, VX2S, CVT4K-S, MCTRL4K, K16, H9, V1260, NovaPro UHD Jr, MCTRL1600, MCTRL R5, MCTRL660 PRO and E8000, among others

Prerequisites

The receiving card configuration files in .rcfgx or .rcfg format are ready. The cabinet must be a regular cabinet, and cannot be in triple or quadruple strip output mode.

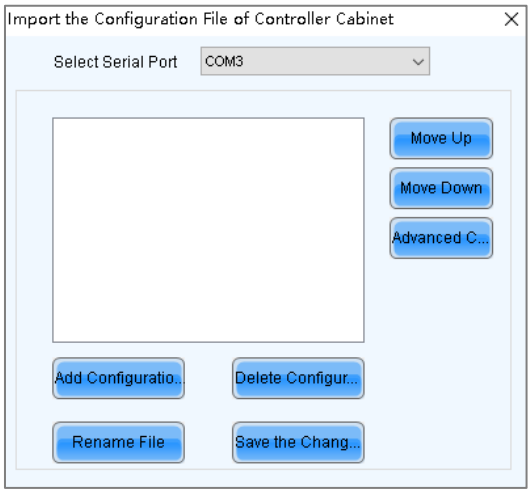
Related Information

None

Operating Procedure

Step 1 On the menu bar, choose **Tools** > **Controller Cabinet Configuration File Import**.

Figure 8-11 Importing cabinet configuration files



Step 2 Choose a communication port.

Step 3 Click **Add Configuration File**, select a configuration file, and click **Open**.

You can add configuration files for multiple receiving cards as needed. You can also delete and rename the configuration file.

Step 4 If you need to specify one or multiple sending cards, click **Advanced Configuration**. Select the desired sending cards in the displayed dialog box, and click **OK**. If you want to save the configuration files to all the connected sending cards, skip this step.

Figure 8-12 Advanced configuration

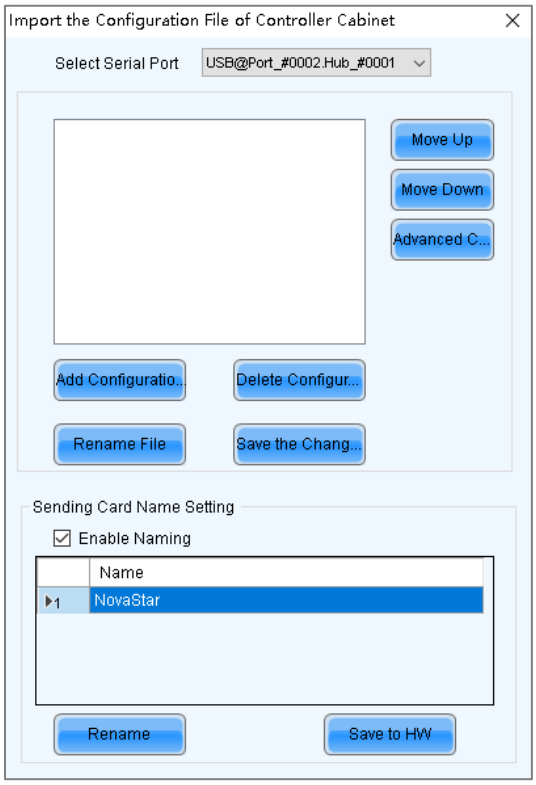


Step 5 After the settings are done, click **Save the Change to HW** to save the configuration files to the sending cards.

Step 6 After the files are saved successfully, click **OK**.

Step 7 If the renaming function is supported by device, you can rename the sending card as shown in Figure 8-13 . If not supported, skip this step.

Figure 8-13 Renaming sending cards



1. Select Enable Naming.
2. Choose a sending card and click **Rename**.
3. Enter the new name that contains only letters, and click **OK**.
4. Click Save to HW.

8.7 Module ID Settings

Applications

Set ID for the module containing a flash memory.

Applicable Products

The receiving cards that support module Flash or smart module

Prerequisites

The Flash arrangement is completed as described in 5.8 Set Performance Parameters.

Related Information

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

Operating Procedure

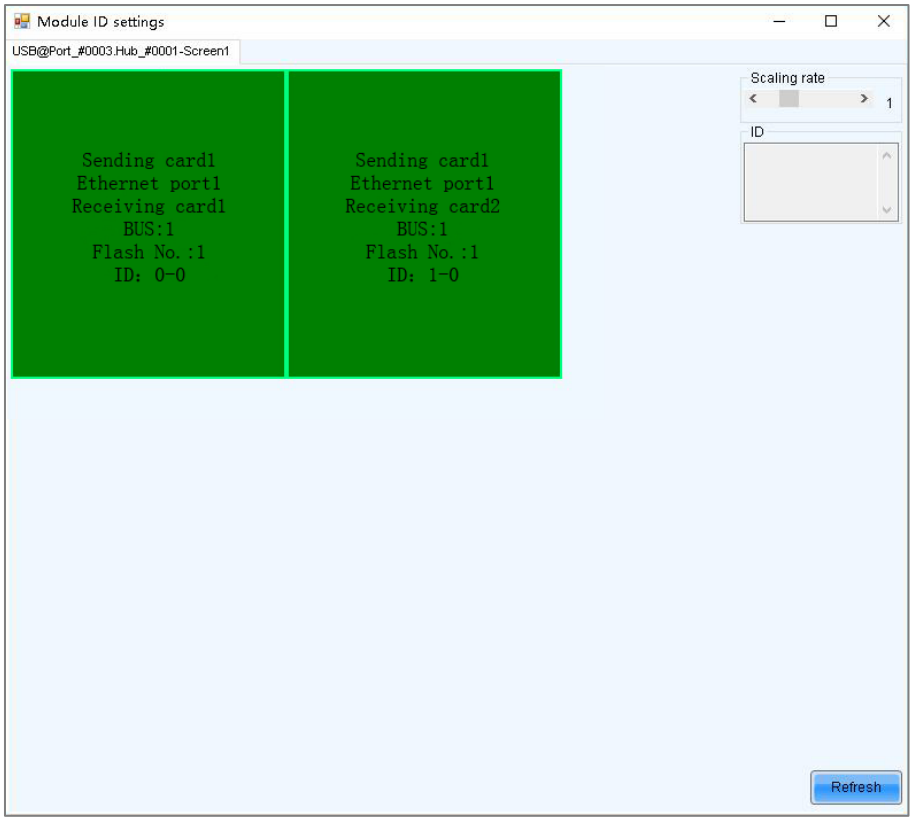
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is “admin”.

Step 2 Choose **Tools** > **Module ID setting**.

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

Figure 8-14 Viewing module IDs

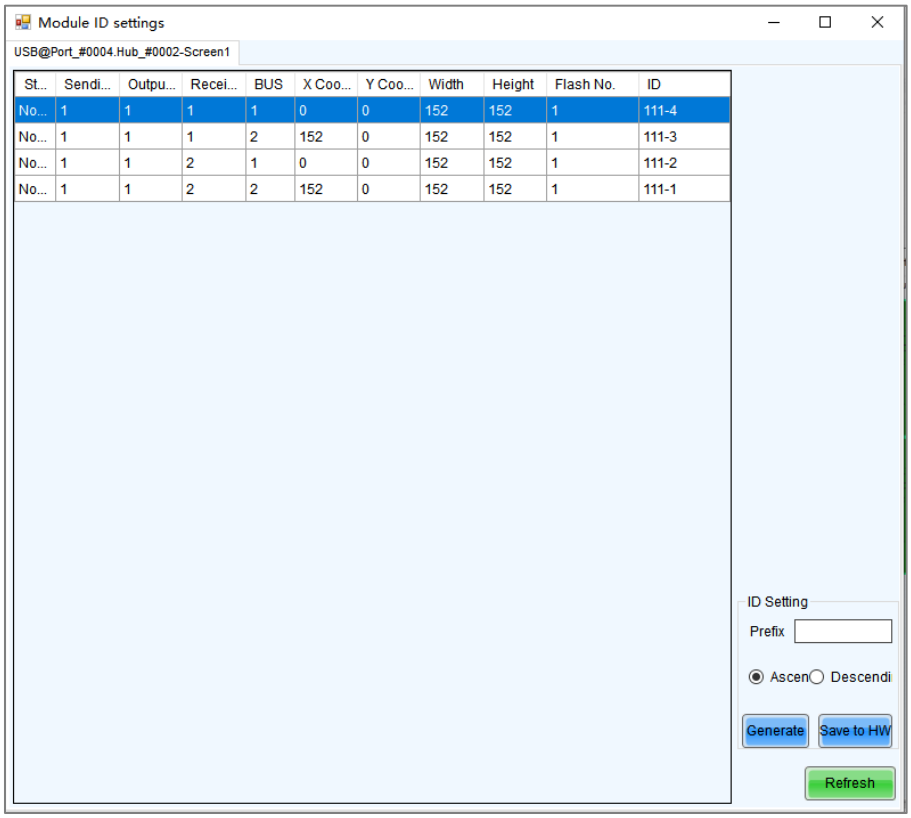


Step 4 Type “admin” to access the ID setting pane.

Figure 8-15 Setting module ID (regular screen)



Figure 8-16 Setting module ID (complex screen)



Step 5 Select the ID generation method and then click **Generate** to set IDs for all the modules. When manually setting the ID, for regular screens, double-click a single module and set its ID in the

displayed dialog box, and then click **OK**; for complex screens, double-click the cell of ID column, set the ID and click any other place of the interface.

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

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

8.8 Set Device Communication Parameters

Applications

Configure the device's IP address and identify the device.

Applicable Products

The MCTRL700 Pro sending card

Prerequisites

None

Related Information

None.

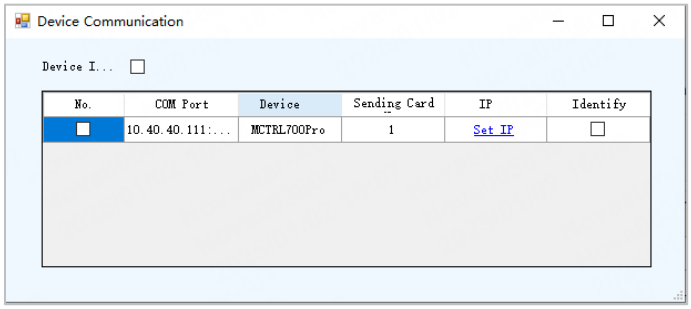
Operating Procedure

Step 7 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is “admin”.

Step 8 Choose **Tools** > **Device Communication**

Figure 8-17 Device communication



Step 9 Do the following as required.

- **Set device IP**

  Click **Set IP** and configure the device's IP address.

- **Identify device**

  After using the locate feature, the red light on the target device will flash, helping you easily spot it.

  - To identify multiple devices: Select **Identify Device** and then choose the numbers of the devices you want to find.
  - To identify a single device: Select **Identify** for the specific device you want to find.

8.9 Sending Card Relay Settings

Applications

Set the status of the sending card relay to turn on or off the power of the receiving card.

Applicable Products

The KT8 sending card

Prerequisites

None

Related Information

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

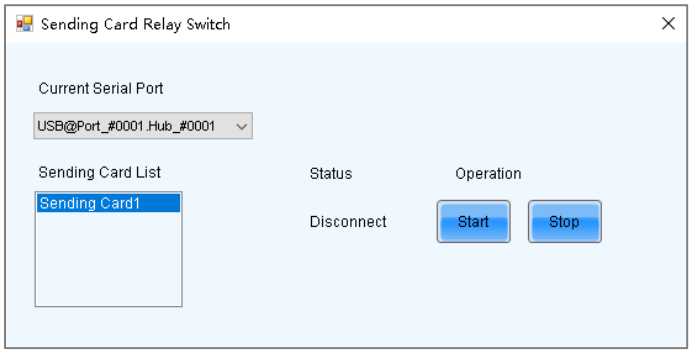
Operating Procedure

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

The default password is “admin”.

Step 2 Choose **Tools** > **More** > **Sending Card Relay**.

Figure 8-18 Sending card relay



Step 3 Choose a communication port and a sending card.

Note: When the sending cards are cascaded, multiple sending cards are displayed in the list.

Step 4 Check the relay status and perform the following operations as required.

- Click **Start** to connect the circuit.
- Click **Stop** to disconnect the circuit.

8.10 Optical Port Settings

Applications

When automatic pairing between two CVT10 devices fails, set the optical ports of those devices respectively to make pairing succeed.

Applicable Products

The CVT10 fiber converter

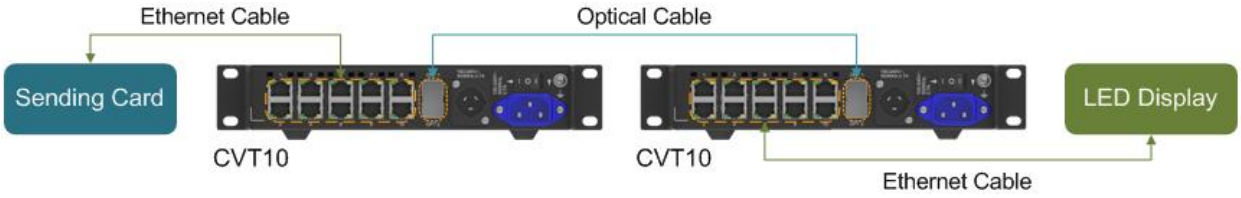
Prerequisites

None

Related Information

When the sending card has no optical ports, two CVT10 devices must be used for photoelectric conversion. The two CVT10 devices can pair automatically. After successful pairing, they can transmit data normally.

Figure 8-19 Photoelectric conversion between two CVT10 devices



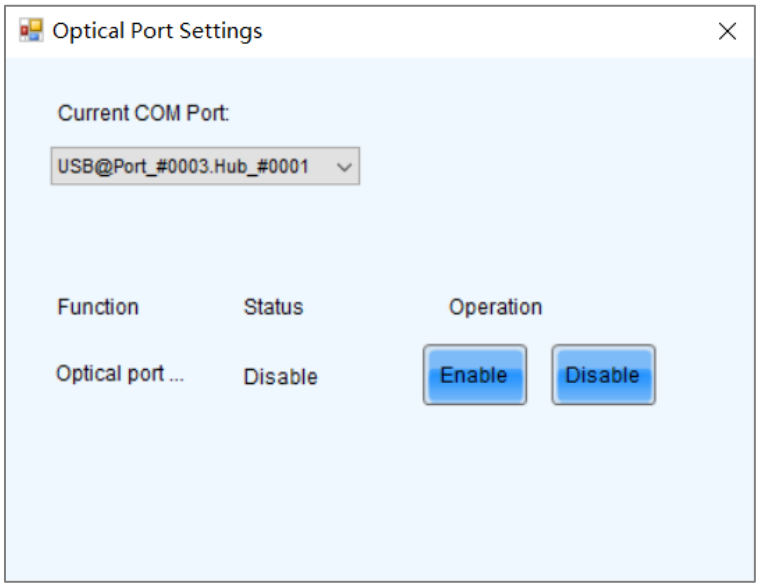
Operating Procedure

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

The default password is “admin”.

Step 2 Choose **Tools** > **More** > **Optical Port Settings**.

Figure 8-20 Optical port settings



Step 3 Choose a communication port.

Step 4 Click **Enable**.

9 Screen Maintenance

9.1 Firmware Program Update

Applications

Check the device firmware program version, and update the program.

Applicable Products

- Receiving card cloud update: Applicable to all receiving cards
- Local update: Applicable to all receiving cards and sending cards

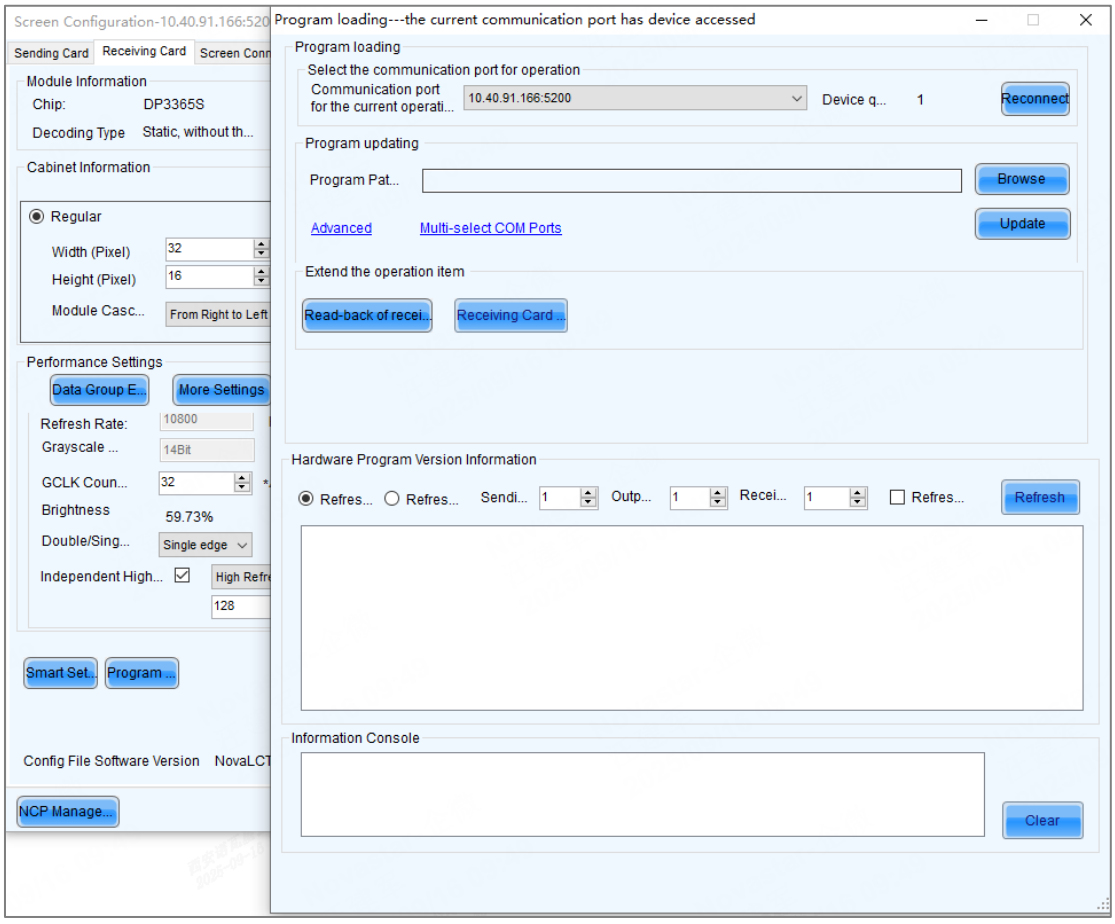
Prerequisites

- For cloud-based updates of the receiving card, the control computer must be connected to the Internet.
- To load firmware packages locally, the program update package must be prepared.

Related Information

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

Figure 9-1 Program update



Operating Procedure

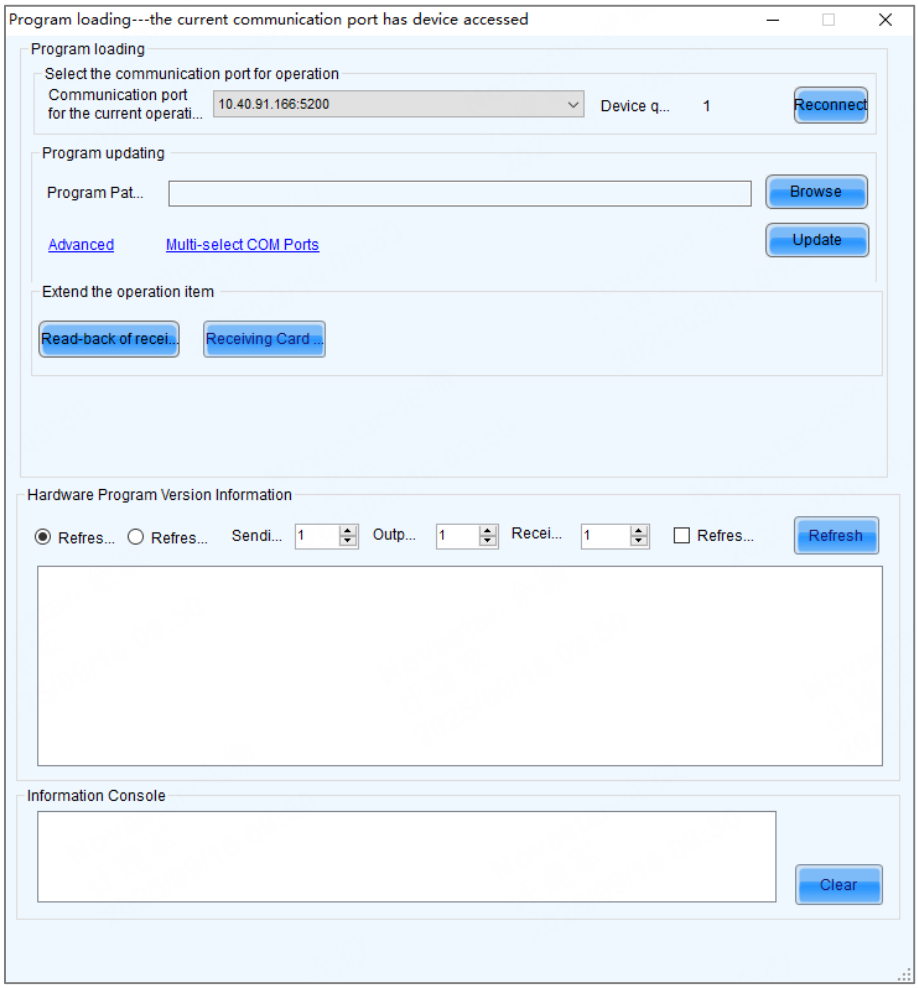
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is "admin".

Step 2 Click 

, or type "admin" or "123456" to open the program loading window as shown in Figure 9-2 .

Figure 9-2 Program loading



Step 3 Choose a communication port.

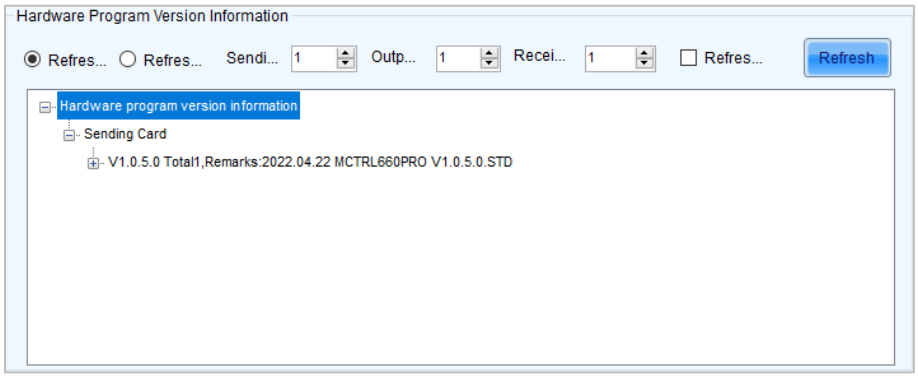
If you need to reconnect the sending card, click **Reconnect**.

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

- Refresh All: View the program versions of all the sending cards and receiving cards.
- Refresh Specified: View the program versions of the specified sending cards and receiving cards.

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

Figure 9-3 Viewing program version



Step 5 Perform the following operations as needed.

- **Receiving card cloud update**

  a. Click Receiving Card Cloud Update in the Extend the operation item area.

  b. Select a server.

  c. Choose the driver IC, decoding method and driver version. The system will automatically match and display the package file. If the receiving card supports V1.0.0 driver program, click **Select** next to **Select Driver Version** and select **1.0.0**. If the receiving card supports V2.0.0 driver program, click **Select** next to **Select Driver Version** and select **2.0.0**.

     When the receiving card is connected, **Auto Match** is checked by default. After selecting the driver chip and decoding method, the system will automatically match and display the package file from the cloud.

  d. Check the corresponding cloud package file.

  e. Click **Update**.

  f. (Optional) Click **Save As** to save the package file locally.

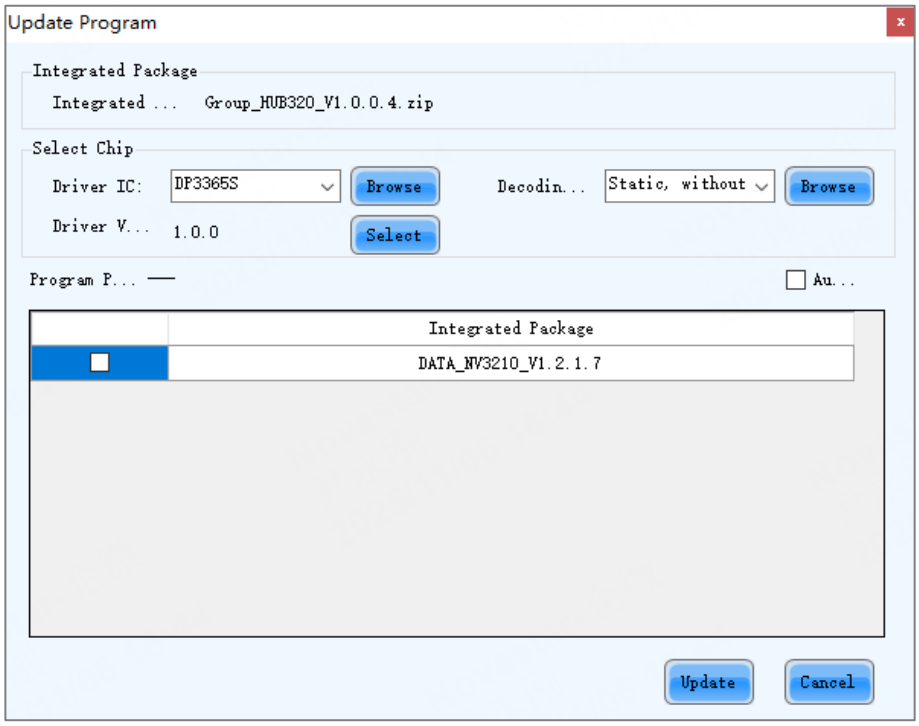


Local update

Click **Browse**, select a program package (.img/.zip/.nuzip/.rar/.7z), and click **OK**. If you select an integrated firmware package for the receiving card (which includes firmware for multiple receiving cards), follow these steps:

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

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

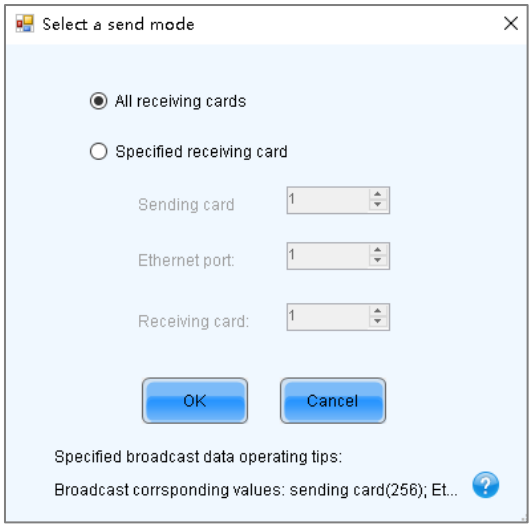


Step 6 Click **Advanced**, select the items to be updated, and click **OK**.

Step 7 Click **Update**.

Step 8 Set to update the programs of all receiving cards or the specified receiving card, and then click **OK**.

Figure 9-4 Selecting send mode



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

Note

If the receiving card supports program readback, click **Read-back of receiving card program** to

save the receiving card program to a specified location.

9.2 LED Error Detection

Applications

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

Applicable Products

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

Prerequisites

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

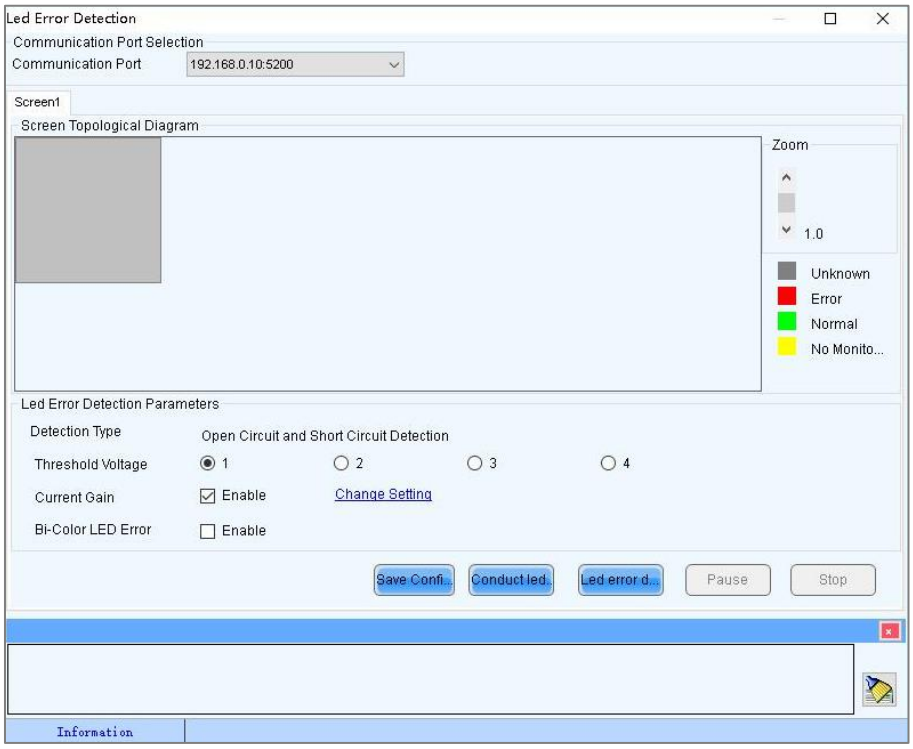
Related Information

None

Operating Procedure

Step 1 On the menu bar, choose **Tools** > **LED Error Detection**.

Figure 9-5 LED error detection



Step 2 Choose a communication port.

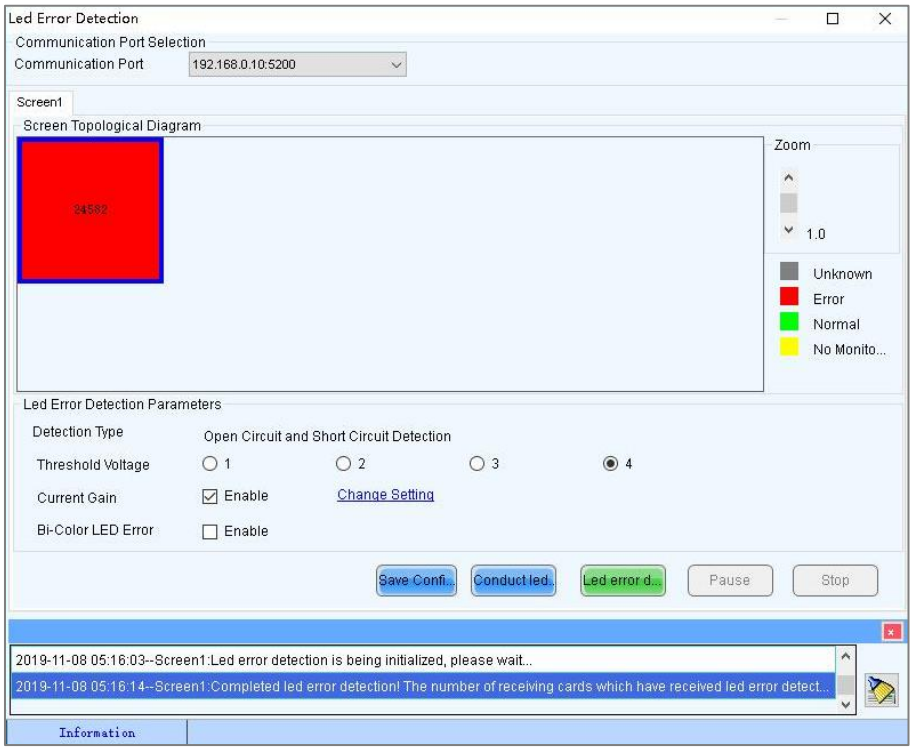
Step 3 Set LED error detection parameters.

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

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

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

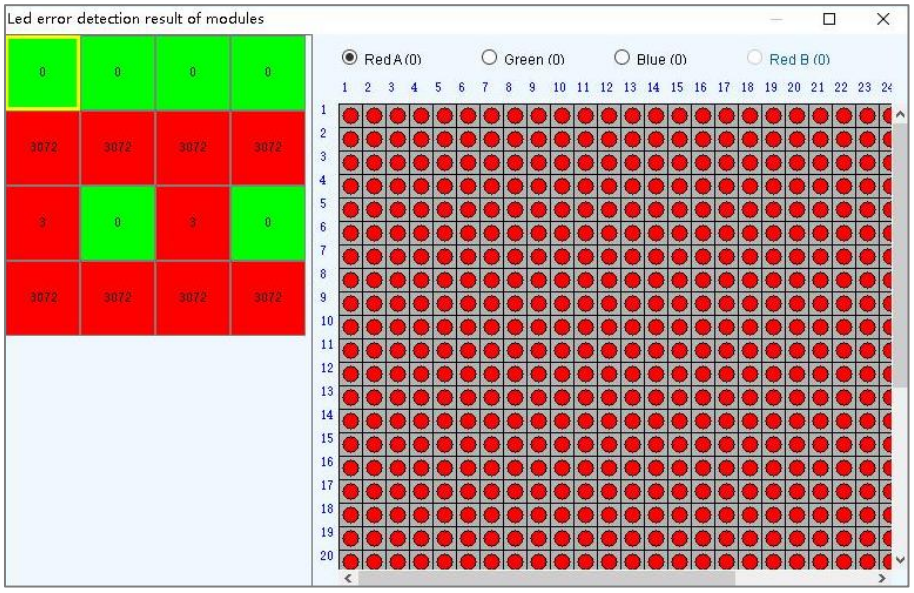
Figure 9-6 Result of the LED error detection for the whole screen



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

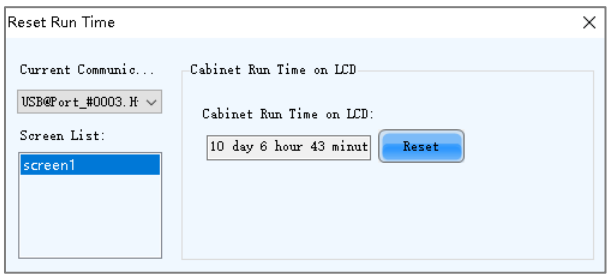
Related Information

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

Operating Procedure

Step 1 On the menu bar, choose **Tools** > **More** > **Reset Run Time.**

Figure 9-8 Resetting run time



Step 2 Choose a communication port and a screen.

Step 3 Click **Reset**.

9.4 Bit Error Detection

Applications

Check the bit error rate information and signal-to-noise ratio of the receiving card's Ethernet port communication.

Applicable Products

- Error rate detection: Applicable to all receiving cards.
- Ethernet disconnection count: Applicable to A10s Pro.
- Signal-to-noise ratio detection: Applicable to A10s Pro.

Prerequisites

None

Related Information

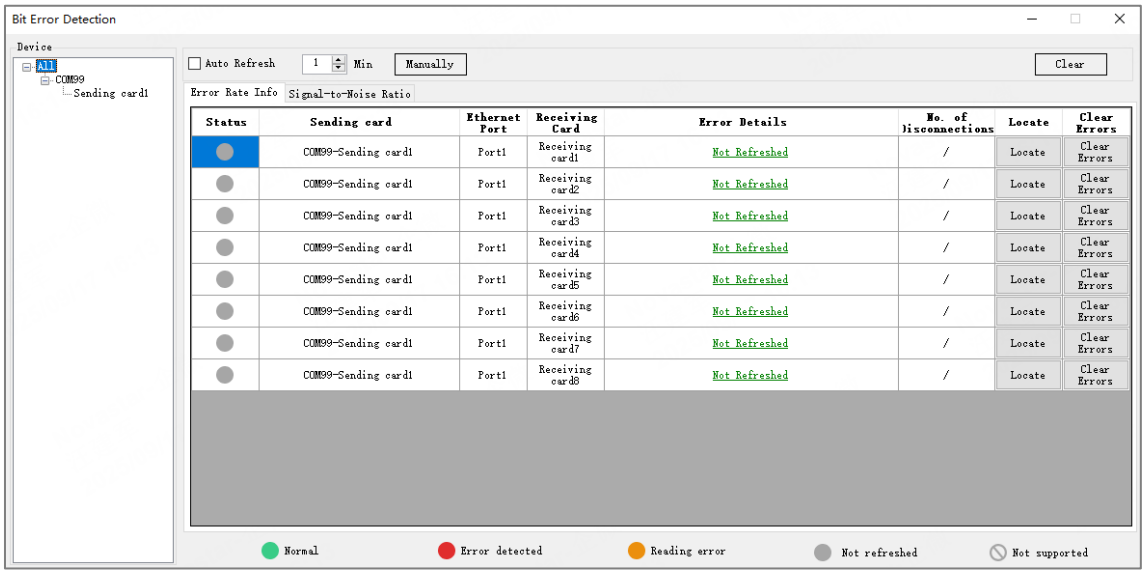
None

Operating Procedure

Step 1 On the menu bar, choose **Tools** > **More** > **Bit Error Detection.**

Step 2 Navigate to the **Error Rate Info** tab and then click **Manually** as shown in Figure 9-9 .

Figure 9-9 Bit error detection



Step 3 If the communication is abnormal, perform any of the following operations as required. If the communication is normal, skip this step.

- **View error details**

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

- **Locate display area**

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

- **Clear errors**

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

Step 4 If the receiving card model is A10s Pro, navigate to the **Signal-to-Noise Ratio** tab, click **Manually**, and then check the detection results. If you are using a different receiving card model, you can skip this step.

Step 5 (Optional) Select **Automatic Refresh** to set the **Refresh Interval**.

9.5 View Hardware Information

Applications

Set the current time of the hardware, and view the sending card SNs and hardware program version information.

Applicable Products

All receiving cards and sending cards

Prerequisites

None

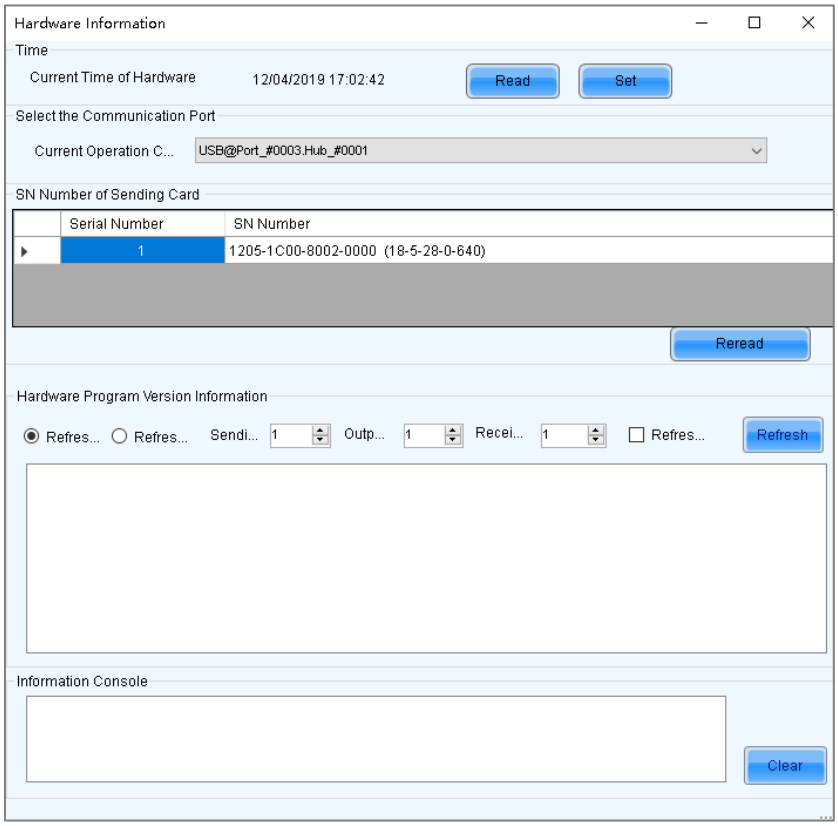
Related Information

Currently only hour, minute and second can be set, but the date cannot be set.

Operating Procedure

Step 1 On the menu bar, choose **Settings** > **Hardware Information**.

Figure 9-10 Hardware information



Step 2 Choose a communication port.

After a communication port is selected, the current hardware time will be refreshed automatically. You can also click **Read** to manually update the hardware time.

Step 3 If you want to set the current time of the sending card to that of the computer, click **Set**; otherwise, skip this step.

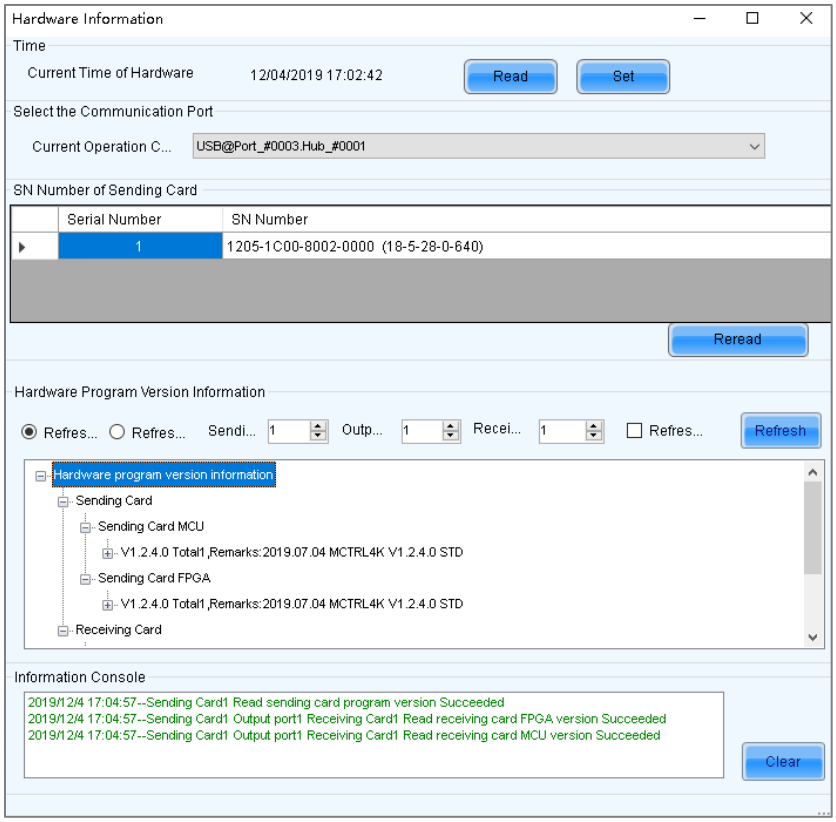
Step 4 Click **Reread** to view the sending card SNs.

Step 5 Specify the refreshing range, and click **Refresh** to view the current program version of the hardware.

- Refresh All: View the program versions of all sending cards and receiving cards.
- Refresh Specified: View the program versions of the specified sending cards and receiving cards.

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

Figure 9-11 Viewing program version



9.6 Set Cabinet Dehumidification

Applications

Dehumidify the cabinet that has been stored for a prolonged period or left unpowered for an extended duration.

Applicable Products

All receiving cards and the sending card MCTRL4K

Prerequisites

None

Related Information

None

Operating Procedure

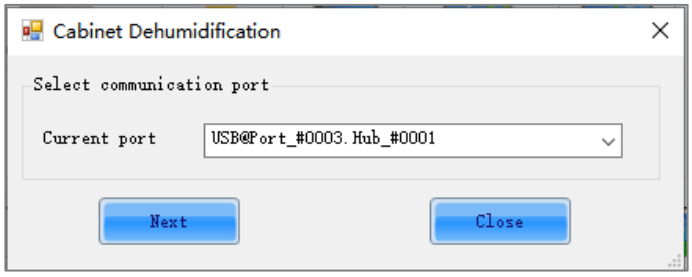
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is “admin”.

Step 2 Select **Settings** > **Cabinet Dehumidification**.

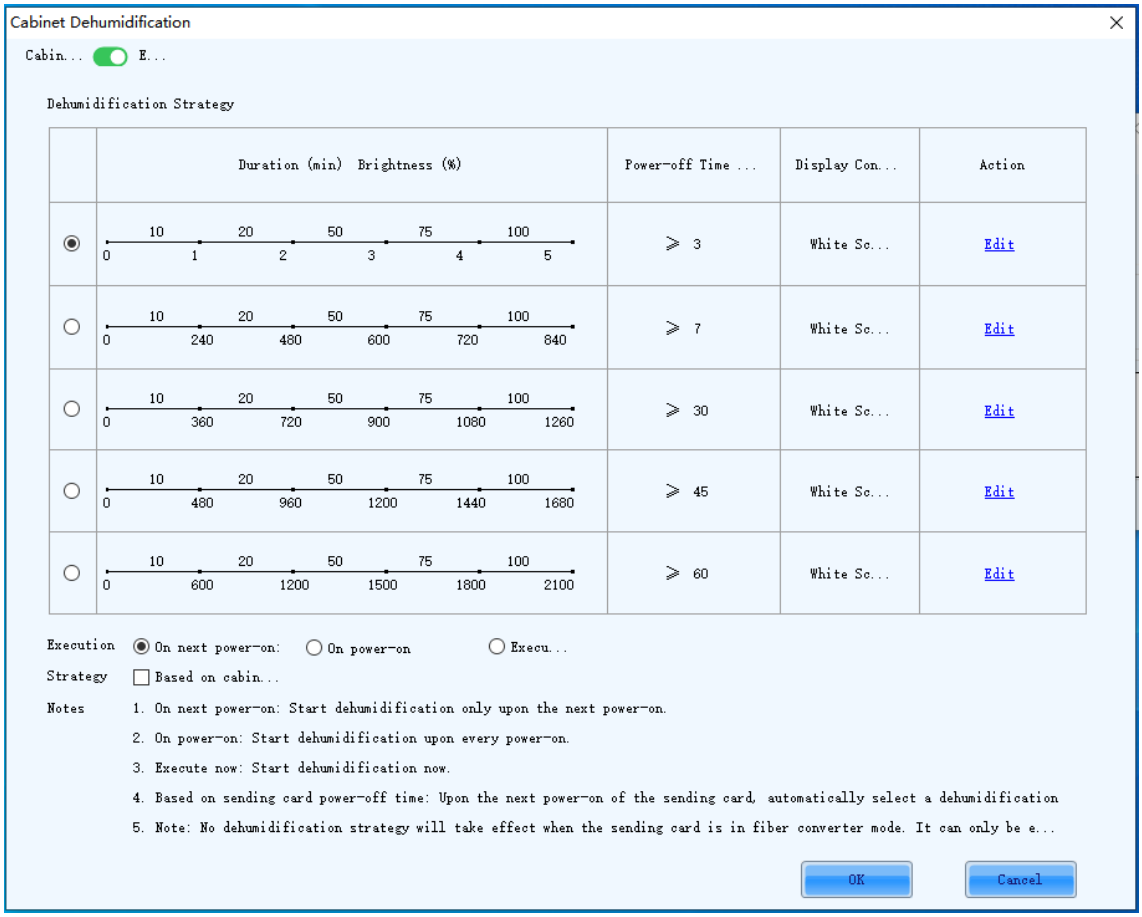
Step 3 Select a communication port and click **Next**.

Figure 9-12 Select the communication port



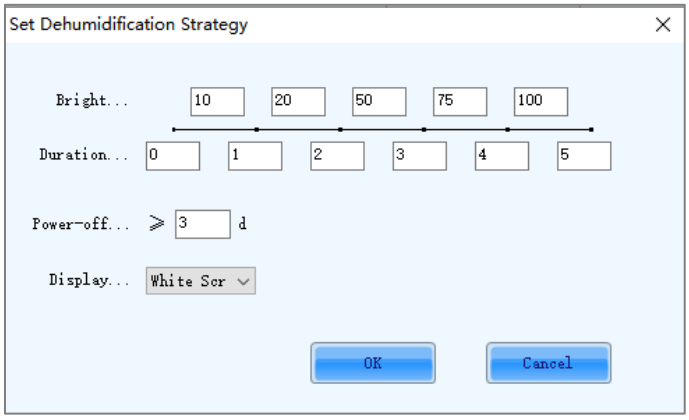
Step 4 Toggle on the Cabinet Dehumidification switch ( )

Figure 9-13 Cabinet dehumidification



Step 5 Click **Edit**. In the pop-up dialog box, set the dehumidification strategy and click **OK**.

Figure 9-14 Set dehumidification strategy



- Brightness: The corresponding screen brightness when the dehumidification duration reaches a certain range.
- Duration: Duration for dehumidification.
- Power-off Time: The duration of the sending card power-off time.

- Display Content: The displayed content on the screen during the dehumidification.
  - White Screen: Display a white screen.
  - From Input: Display the current video source.

Step 6 Select a dehumidification strategy and then select an execution mode.

- On next power-on: If **Based on sending card power-off time** is not selected, the screen will enter the dehumidification mode upon the next power-on, based on the user-selected strategy. If **Based on sending card power-off time** is selected, the screen will automatically match the dehumidification strategy based on the duration of the sending card power-off time, and enter the dehumidification mode upon the next power-on.
- On power-on: If **Based on sending card power-off time** is not selected, the screen will enter the dehumidification mode upon each power-on, based on the user-selected strategy. If **Based on sending card power-off time** is selected, the screen will automatically match the dehumidification strategy based on the duration of the sending card power-off time, and enter the dehumidification mode upon each power-on.
- Execute now: Start dehumidification now.

Step 7 Click **OK** once you are done.

10 Plug-in

10.1 Test Tool

Applications

Show test patterns on the screen to assess the screen's functionality and pinpoint any potential issues.

Applicable Products

All receiving cards and sending cards

Prerequisites

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

Related Information

None

Operating Procedure

Note

You can choose to use either the old or new version of Test Tool via **Settings** > **Test Tool Settings** in the menu bar.

On the main window, click Test Tool, or choose Plug-in > Test Tool from the menu bar to open Test Tool.

- For more detailed instructions on the new version of Test Tool, please refer to *Test Tool User Manual*.
- For the old version of Test Tool, you could adjust the test pattern size based on the screen size, as well as modify the test pattern position, and show/hide the test pattern in the **Window** tab.

Additionally, you could customize the test pattern further in the **Pure Color**, **Gradual Change**, **Grid**, and **Orientation** tabs.

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.

11 Software Settings

11.1 Configuration Information Management

Applications

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

Applicable Products

N/A

Prerequisites

None

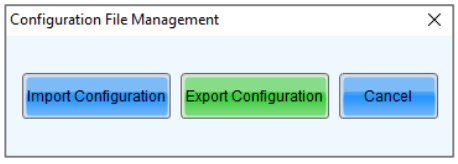
Related Information

None

Operating Procedure

Step 1 On the menu bar, choose **Settings** > **Configure Information Management**.

Figure 11-1 Configuration file management



Step 2 Do the following as required.

- **Import Configuration File**

  Click **Import Configuration**, browse for the configuration file (.zip), and click **Open**.

- **Export Configuration File**

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

11.2 Set Main Window Starting Position

Applications

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

Applicable Products

N/A

Prerequisites

None

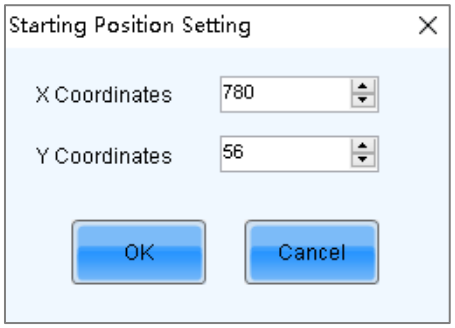
Related Information

None

Operating Procedure

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

Figure 11-2 Setting starting position coordinates



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

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

11.3 Configure the Save Function

Applications

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

Applicable Products

All receiving cards and sending cards

Prerequisites

None

Related Information

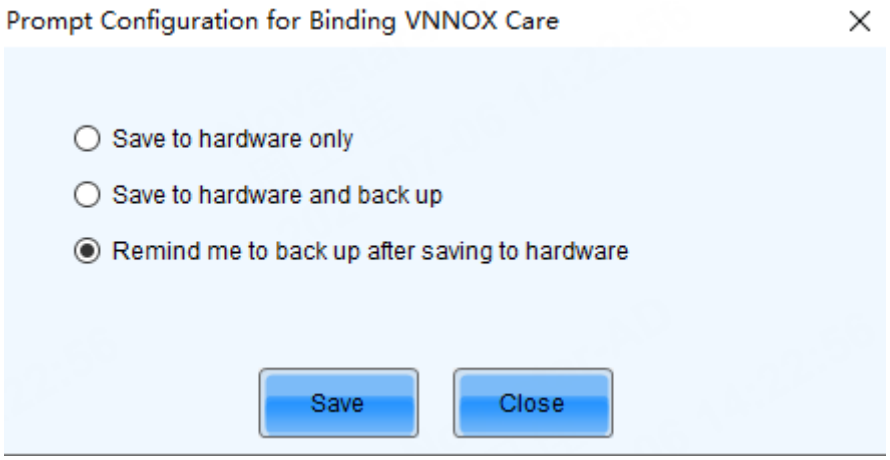
None

Operating Procedure

Step 1 On the menu bar, choose **Settings** > **Screen Configuration Backup Settings**.

Step 2 Select an option and click **Save**.

Figure 11-3 Save to HW configuration



11.4 Test Tool Settings

Applications

You can choose to use either the old or new version of Test Tool.

Applicable Products

All receiving cards and sending cards.

Prerequisites

None

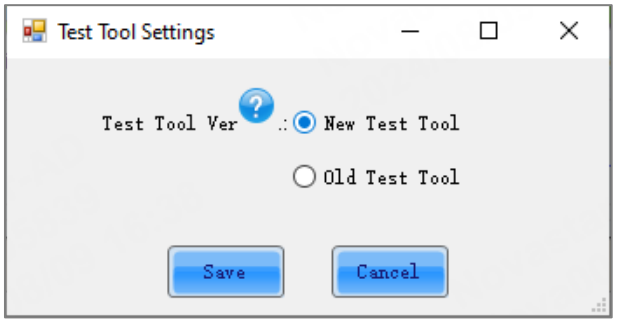
Related Information

The Test Tool is for displaying test patterns on the screen.

Operating Procedure

Step 1 On the menu bar, choose **Settings** > **Test Tool Settings**.

Figure 11-4 Test Tool settings



Step 3 Select a version for the Test Tool and click **Save**.

11.5 Change UI Language

Applications

Change the UI language for NovaLCT.

Applicable Products

N/A

Prerequisites

None

Related Information

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

Operating Procedure

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

11.6 Obtain Help Information

Applications

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

Applicable Products

N/A

Prerequisites

None

Related Information

None

Operating Procedure

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

- **Check User Manuals**

  Choose **User Documents**, scan the QR code or click the link to view the 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 **Visit Official Website** to visit the official website of NovaStar and click **Third Party License** to view the related third party license.

- **Contact online customer service**

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

11.7 Update Software

Applications

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

Applicable Products

N/A

Prerequisites

The control computer is connected to the Internet.

Related Information

None

Operating Procedure

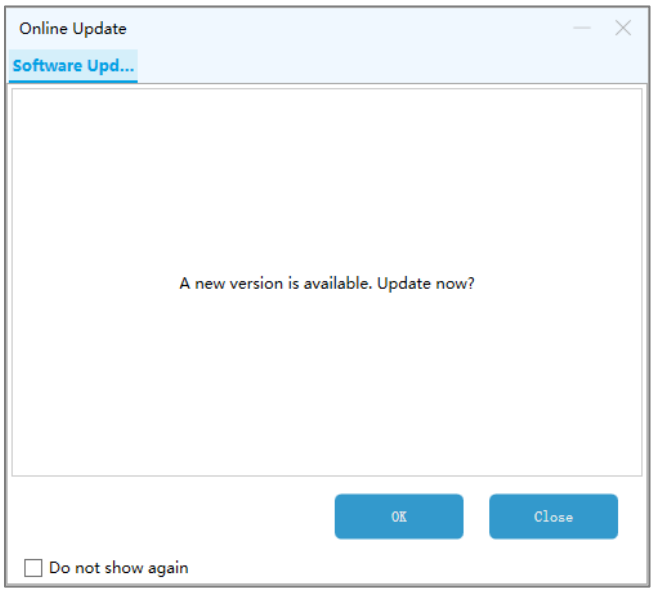
Step 1 From the menu bar, choose **Help** > **Online Update**.

Note

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

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

Figure 11-5 Online update

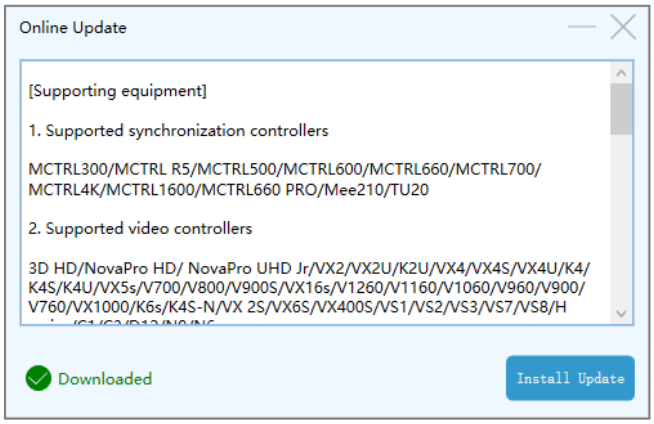


Step 2 Click **OK**.

Step 3 Click **Get Update**.

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

Figure 11-6 Installing update



11.8 Export Log

Applications

Export the logs of NovaLCT.

Applicable Products

N/A

Prerequisites

None

Related Information

None

Operating Procedure

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

12 Troubleshooting

12.1 Installation Problems

12.1.1 Failed to install NovaLCT of earlier versions

Problem

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

Possible Causes

None.

Solution

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

12.1.2 .NET Framework is missing

Problem

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

Possible Causes

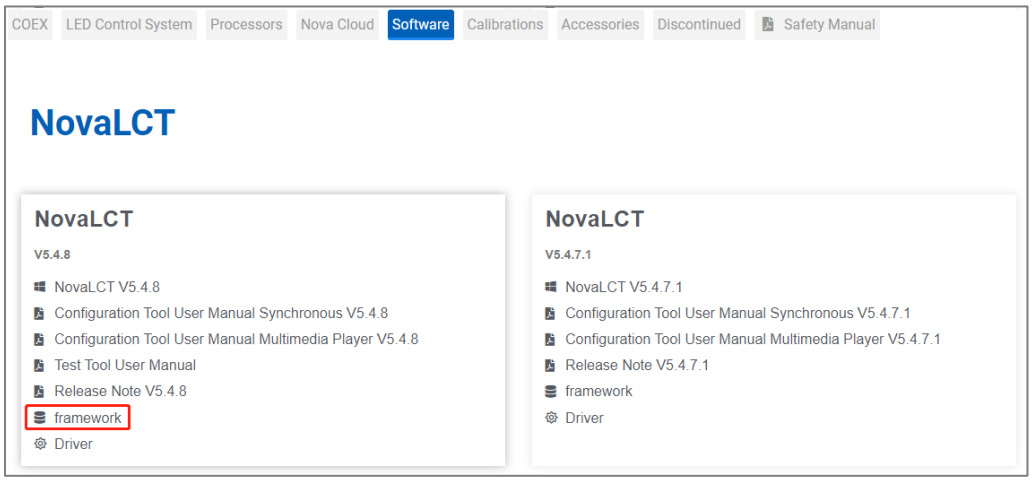
The required .NET Framework version is missing on the computer where NovaLCT is installed.

Solution

Visit NovaStar's official website (www.novastar.tech) and download the required .NET Framework.

Download path: Downloads > Software > Framework

Figure 12-1 Download .NET Framework



12.1.3 "DeleteFile failed" error

Problem

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

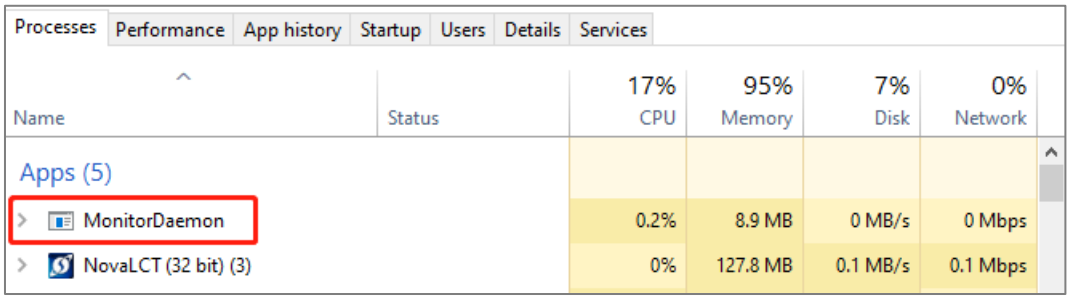
Possible Causes

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

Solution

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

Figure 12-2 Task manager



12.1.4 Prompts to run DPinst.exe

Problem

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

Possible Causes

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

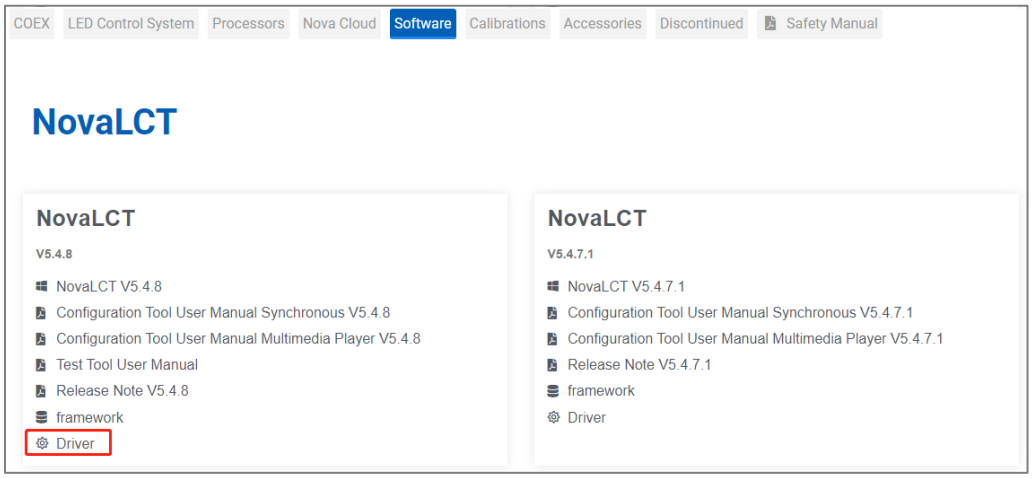
Solution

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

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

  Download path: Downloads > Software > Driver

Figure 12-3 Download driver



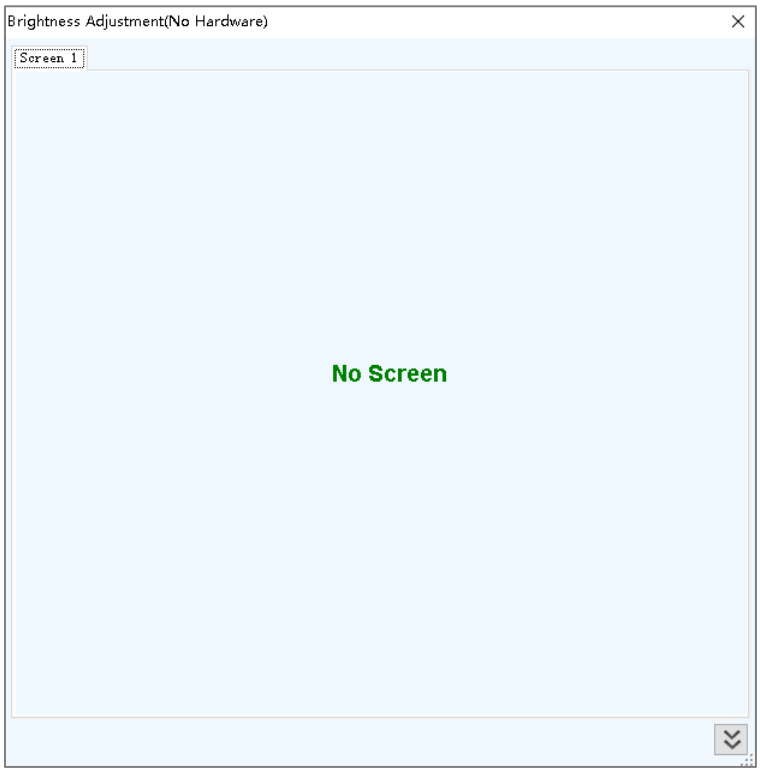
12.2 Other Problems

12.2.1 "No Screen" displayed in NovaLCT

Problem

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

Figure 12-4 No screen



Possible Causes

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

Solution

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

12.2.2 Permission error

Problem

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

Possible Causes

File permission denied.

Solution

The following procedure uses Windows 10 as an example to illustrate how to solve this problem.

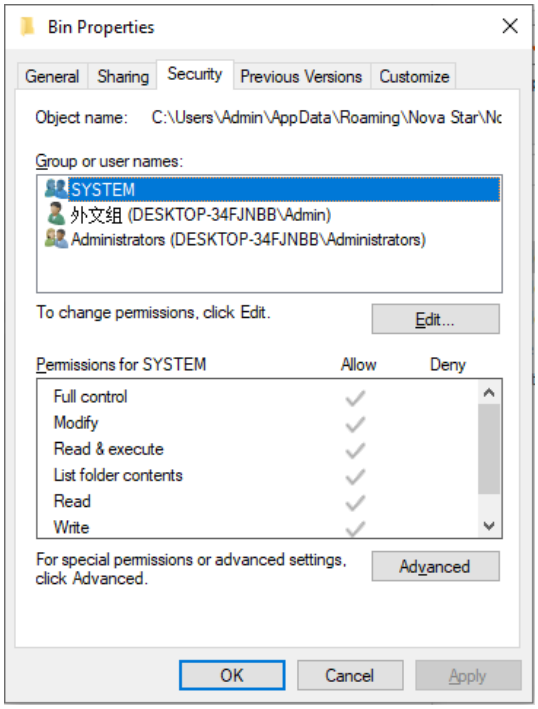
Step 1 Right-click the desktop shortcut of NovaLCT and select **Open file location**.

Step 2 Go back to the upper level of current file directory, that is, “\NovaStar\NovaLCT”.

Step 3 Right-click the **Bin** folder and select **Properties**.

Step 4 Select the **Security** tab.

Figure 12-5 Security

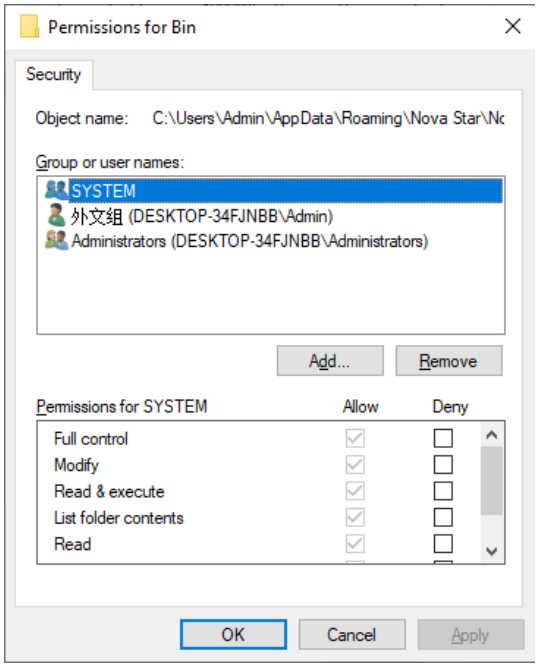


Step 5 Check whether there is current user or **Everyone** in the **Group or user names** area.

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

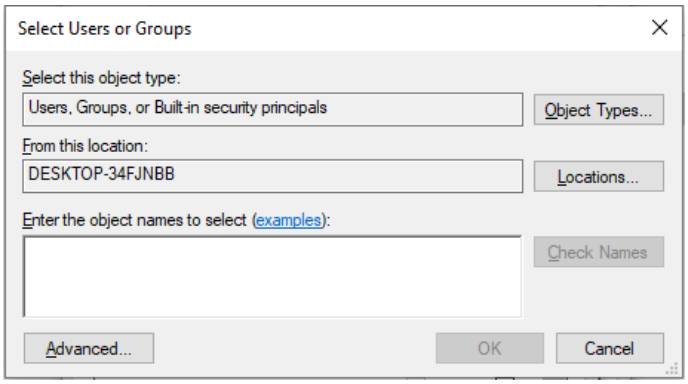
Step 6 Click **Edit** to open the dialog box shown in Figure 12-6 .

Figure 12-6 Changing permissions



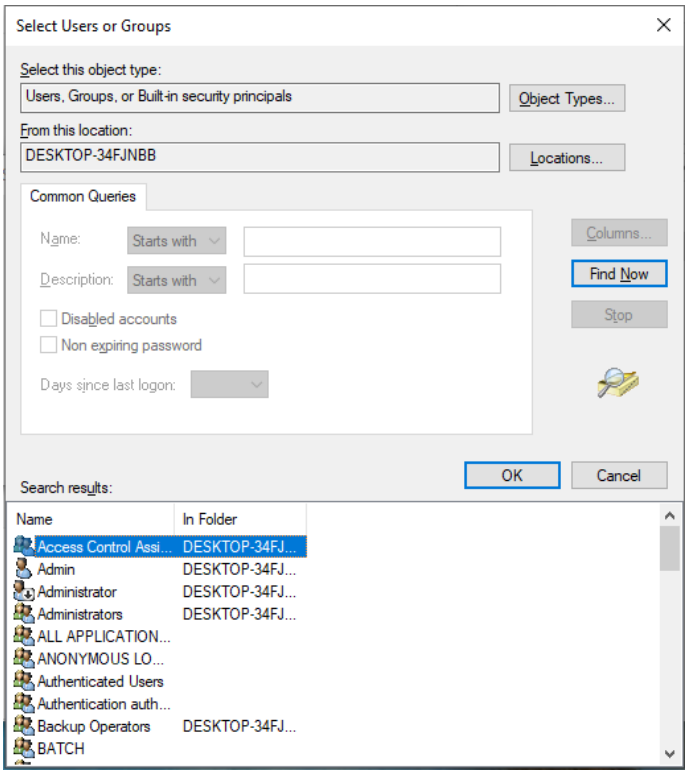
Step 7 Click **Add** to open the dialog box shown in Figure 12-7 .

Figure 12-7 Selecting users or groups



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

Figure 12-8 Advanced settings

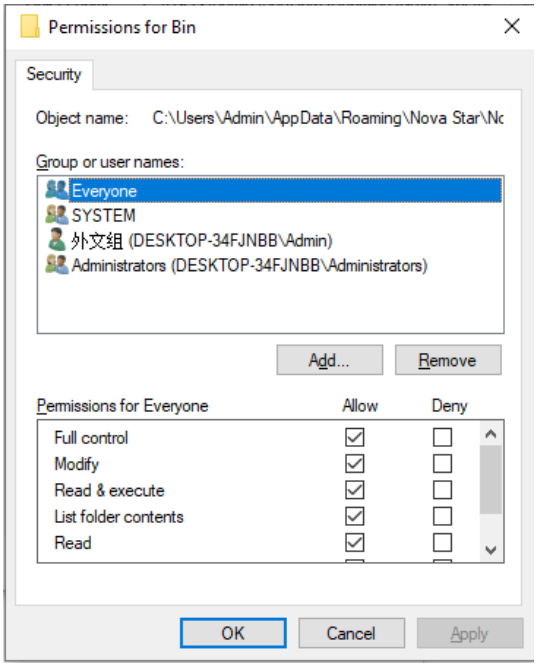


Step 9 Select current user or **Everyone** in the search result, and click **OK**.

Step 10 Click **OK**.

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

Figure 12-9 Setting permissions



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

12.2.3 Failed to connect colorimeter

Problem

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

Possible Causes

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

Solution

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

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

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

Figure 12-10 Setting CS-100A colorimeter



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

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

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

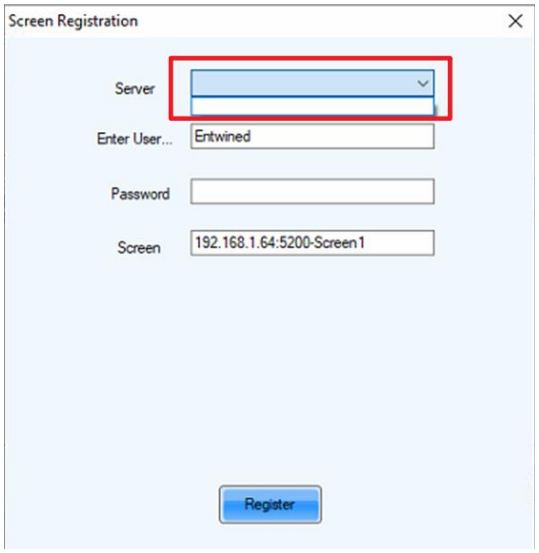
Step 3 In NovaLCT, click **Connect** to reconnect the colorimeter.

12.2.4 No available server for VNNOX Care

Problem

No available server from the drop-down list for VNNOX Care services.

Figure 12-11 VNNOX Care services



Possible Causes

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

Solution

You can try the following methods to resolve this issue:

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

13 FAQs

13.1 How do I set the proxy when NovaLCT needs to access WAN?

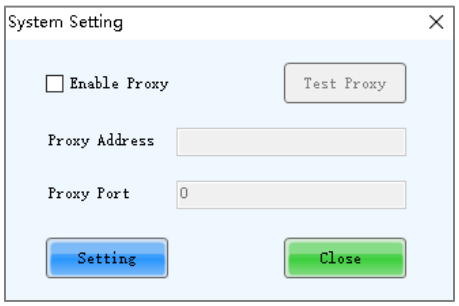
Question

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

Answer

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

Figure 13-1 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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