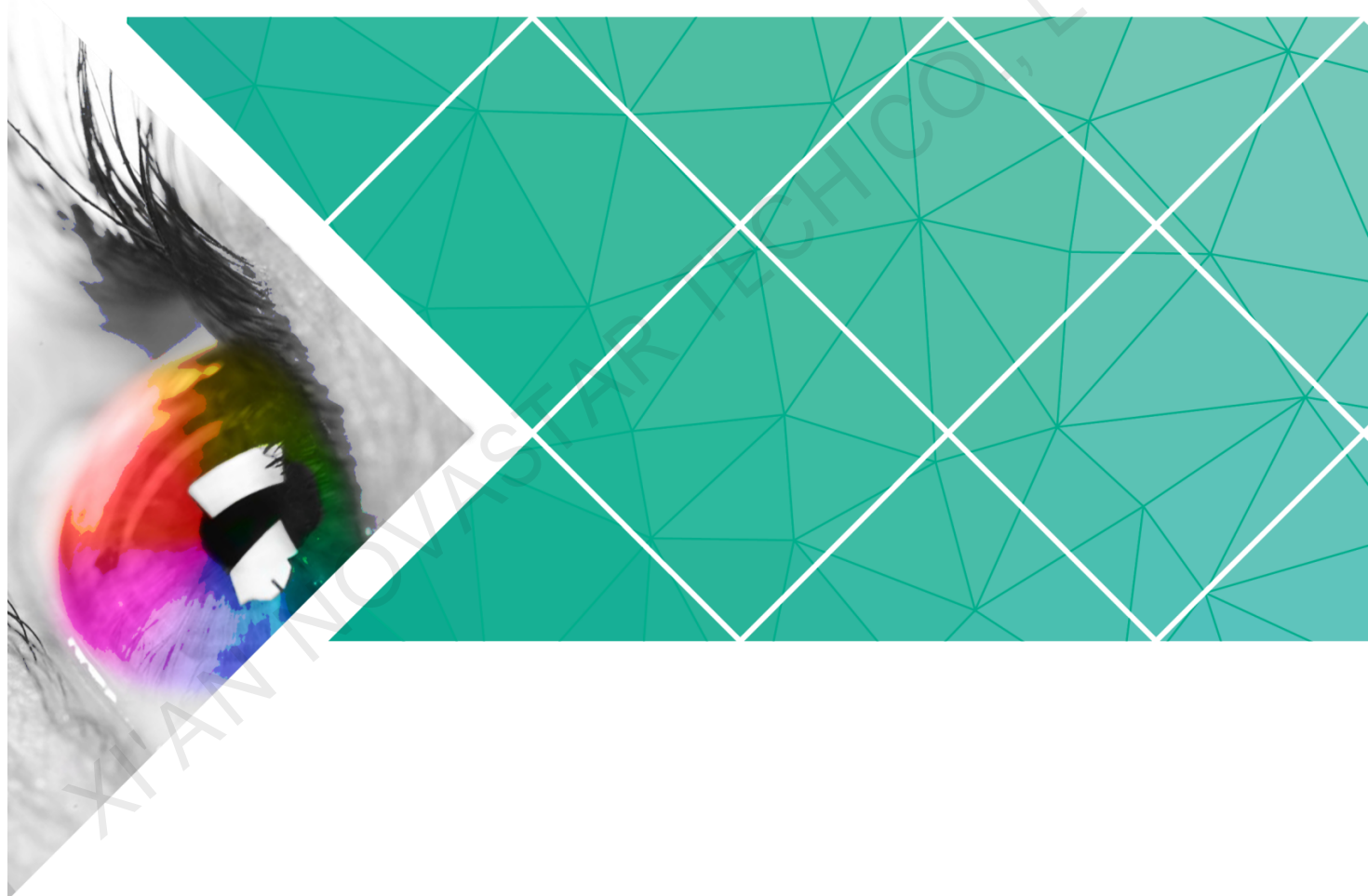# NovaLCT

LED Configuration Tool for Synchronous System

User Guide

Document Version: V5.2.2

Document Number: NS110100831

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1 System Overview

NovaLCT

NovaLCT is the screen configuration tool operating on Windows. Working with receiving cards, monitoring cards and multi-function cards in the applications of synchronous system, NovaLCT allows smart settings, brightness adjustment, power supply control, LED error detection, hardware monitoring for LED displays. Users can easily control the key information of their LED displays with a computer and make the display always perfect.

Synchronous system

NovaStar's asynchronous system employs advanced technologies and can be widely used in LED displays.

- High gray scale and high refresh rate: universal chip, with high grey scale, high refresh rate and high performance.

- Point-by-point chroma correction: correct color of every lamp, eliminate chroma difference among batches of LEDs.

- Comprehensive status monitoring: supervising work status, temperature, humidity, smog, supply voltage of switch, fan rotating speed and single lamp open and short circuit of every cabinet.

- Infinite area load: unique cascade and synchronization technology, and huge stable and reliable load without black out, jitter or stutter.

- Perfect anomalous type support: arbitrary cabling, arbitrary point extraction, arbitrary point insertion, anomalous plate, anomalous cabinet, anomalous screen and easy load.

- Low grey scale with richness and smoothness: first-class build-up of luminance, and grey scale of 16-bit, which makes the image of the screen fine and smooth;

- Green, energy saving, and environmental protection: low voltage, low power consumption, low radiation, and easily passing EMI/EMC.

- Overall chip supported: support TI, Toshiba, MBI, SITI, ENE, MY, Ri yue cheng, Microblock and other series of products, and supportTLC59282, TLC5929, TLC5944, DM13A, DM13H, P2510, SUM2016, SUM2017, MBI5020/5024/5034/5035/5042/5050/5152, SUM2032, MY9221/9262, RT5924, 16158, 5122, 5929, 5266, 5166and other IC.

- No sending card mode supported, being fit for small screen control.

The system is under two situations: with sending card or no sending card; when it has no sending card, the computer is directly connected with the receiving card through the Ethernet cable.

Figure 1-1 Diagram of system architecture
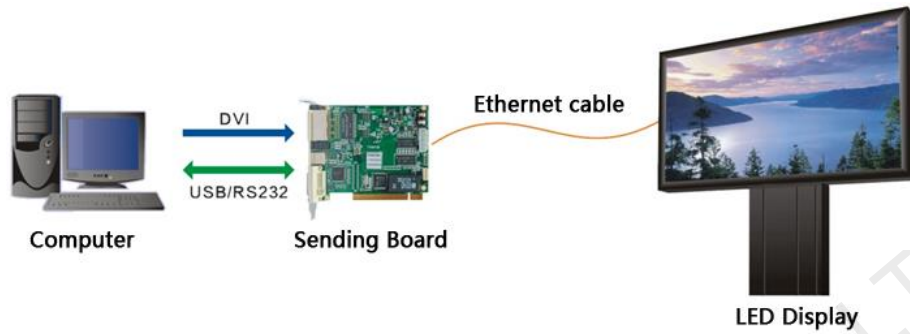
Figure 1-2 Diagram of system architecture with no Sending card
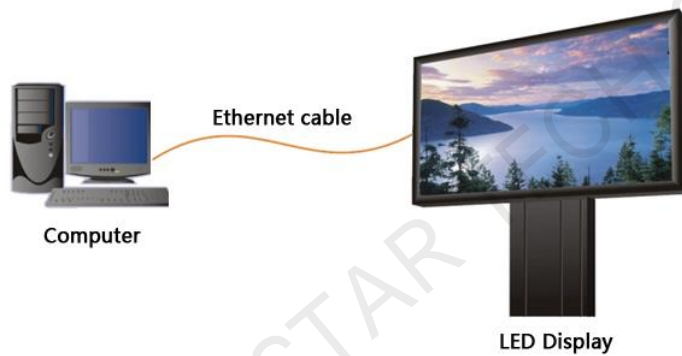
2 Software Installation

Preconditions

- Have prepared a PC with Windows system installed.
- Have obtained the installation package from NovaStar official website
  www.novastar.tech.
- Have disabled antivirus software.

Installation

Unzip the installation package and follow the installation wizard to complete the software installation. If the firewall prompt appears, please select to allow the installation.

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

3 **Language**

Change the user interface language.

Step 1   Open NovaLCT and click **Language** in the menu.

Step 2   Select the language you need from the drop-down list.

4 Login

4.1 Demonstration Login

NovaLCT allows users to log in, operate and learn about the functions in demonstration mode without connecting hardware devices.

Step 1 Open NovaLCT and choose **User** > **Demonstration Login**.

Step 2 Enter the login password and click **Login**.

The default password is "**admin**".

4.2 Advanced User Login

Asynchronous users must log in to NovaLCT as advanced users to configure screens as required.

Step 1 Open NovaLCT and choose **User** > **Advanced Synchronous System User Login**.

Step 2 Enter the password for logging in to the terminal, and click **Login**.

The default password is "**admin**". If the login is successful, the interface below will appear, as shown in Figure 4-1.

Figure 4-1 Successful login interface
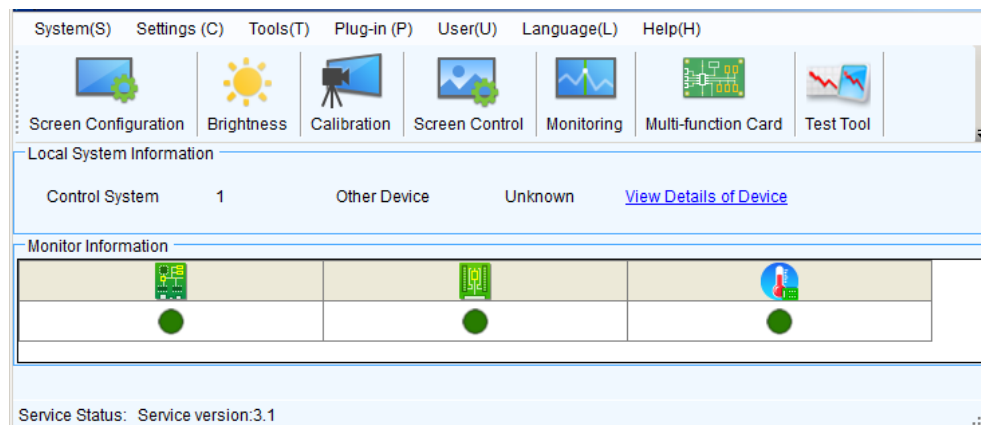
4.3 Changing Password

To enhance system security, users can regularly or irregularly change the advanced user login password.

Step 1   After advanced user login is successful, choose **User** > **Change Password** to enter the **Change Password** dialog box.

Step 2   Enter the original password, and enter the new password twice. Then click **OK**.

Figure 4-2 Changing password

5 Function Overview

Menu		Description
System	Reconnect	This is used to reconnecting the NovaLCT to the synchronous system.
Settings	Screen Configuration (Advanced user)	Shortcut button: Screen Configuration This is used for configuration of the LED screens.
	Brightness	Shortcut button: Brightness This is used for adjusting the LED display brightness. There are two ways for brightness adjustment, automatic brightness and manual brightness.
	Multi-function Card	Shortcut button: Multi-function Card This is used to open the page for Multi-function card configuration.
	Multiple-screen Management	This is used to open the page for combination display configuration. It makes the management of brightness control and monitoring of multiple LED displays easier when these LED displays are combined together.
	Hardware Information	This is used to check the information about the current LED display control system.
	Prestore Screen	Enter the restore screen, booting screen and no signal (including the disconnected network cable and no DVI signal) screen settings can be conducted.

Menu		Description
	Advanced Color Configuration (Advanced user)	• Factory setting (current gain, RGB brightness). • Configuration color space (original color space, target color space). • Color temperature table.
	Adjust Screen Effect (Advanced user)	Enable/Disable 18-bit mode and ClearView mode.
	Cloud Monitoring	Shortcut button: Cloud Monitoring Register the display screen to NovaiCare.
	Module Flash	View correction coefficients of the receiving card and module. Save correction coefficients in the receiving card and module. Test whether Flash is normal.
	Receiving Card Relay (Advanced user)	Set parameters for the receiving card relay. Reset the time of the receiving card.
	Configure Information Management	Import/Export all the configuration files.
	The Main Window Starting Position	Set the initial coordinates.
Tools	Calibration	Shortcut button: Calibration Calibrate the screen and manage the calibration coefficients.
	Screen Control	Shortcut button: Screen Control Perform the screen control functions which include "Black Out", "Freeze" and "Normal". Besides, self test options are also provided.
	Monitoring	Shortcut button: Monitoring Enter the monitoring page to view the monitoring results or set the monitoring parameters.

Menu		Description
	Led Error Detection	Enter "Led Error Detection" page to perform LED error detection after the screen has been properly configured.
	Multi-batch Adjustment	Adjust the brightness of the display according to the batches of cabinet.
	Controller Cabinet Configuration File Import	Add/Delete configuration files. Modify file name. Save the configuration file in hardware.
	Quickly Adjust Dark or Bright Lines	Adjust or restore dark or bright lines caused by cabinet splicing.
	Video Control	Input setting, output setting and stitching management of video processor.
	Module ID Setting (Advanced user)	Perform module ID configuration to make module management easier. Some modules do not support ID configuration, please contact NovaStar's technicians for details.
	More	Includes **Reset Run Time**, **Brighter Pixel Correction** and **Bite Error Detection**. • **Reset Run Time**: Reset the run time displayed on the LCD of each cabinet. • **Brighter Pixel Correction**: Solve the problem that the brightness of a calibrated screen is not uniform. • **Bite Error Detection**: Detect the data packet loss during communication between receiving cards.
Plugins	Test Tool	Shortcut button: Test Tool To open the page which all test tools (test content) for LED displays testing are in.
	Calculator	Click on this item will open the Microsoft Windows calculator.
	External Program	Click on this item will add an external program.
User	Advanced User Login	Log in the synchronous system with the password "admin".
	Enter Demonstration mode	Experience the related functions of the synchronous system. No hardware connection is required and the password is "admin".

Menu		Description
	Connect Asynchronous Terminal	Log in the multimedia player.
Language	-	Support multiple user interface languages.
Help	User Documents	View software-related user documents.
	Update log	View software update logs.
	About	View software version, company name and other information.

6 **System**

Reconnect the hardware device.

Step 1 Open NovaLCT and choose **System** > **Reconnect**.

Step 2 Reconnect the current hardware device and refresh the device information.

7 Settings

In the mode with no sending card, the control system software does not have the sending card operation page. All the parameter settings related to the sending card are omitted in this chapter. Other operations are the same as having sending card.

7.1 Screen Configuration

Step 1   Open NovaLCT and choose **Settings** > **Screen Configuration** in the menu, or click

Screen Configuration   on the homepage to open the **Screen Configuration** dialog.

Step 2   Select the current operation communication port.

Step 3   Select **Configure Screen** or **Load Configuration File**, and click **Next** to enter the **Screen Configuration** page.

- Configure Screen: Create configuration file.
- Load Configuration File: Load a configuration file you have saved.

7.1.1 Sending Card

7.1.1.1 Display Mode

If the resolution or refresh rate of the input DVI video is different from that saved in the sending card which the DVI video is input into, the related LED display may not be able to work normally. For example, the image shown could be zoomed in or out, overlapped, or flashing.

To avoid these problems, the resolutions and refreshed rates of the input DVI video and the sending card must be the same. Following are steps to adjust the sending card resolution and refresh rate for the case that it is inconvenient to change the DVI video resolution and refresh rate.

Step 1   Choose **Screen Configuration** > **Sending Card** and adjust the resolution of sending card in the marked areas in Figure 7-1.

Figure 7-1 Adjusting resolution and refresh rate of sending card
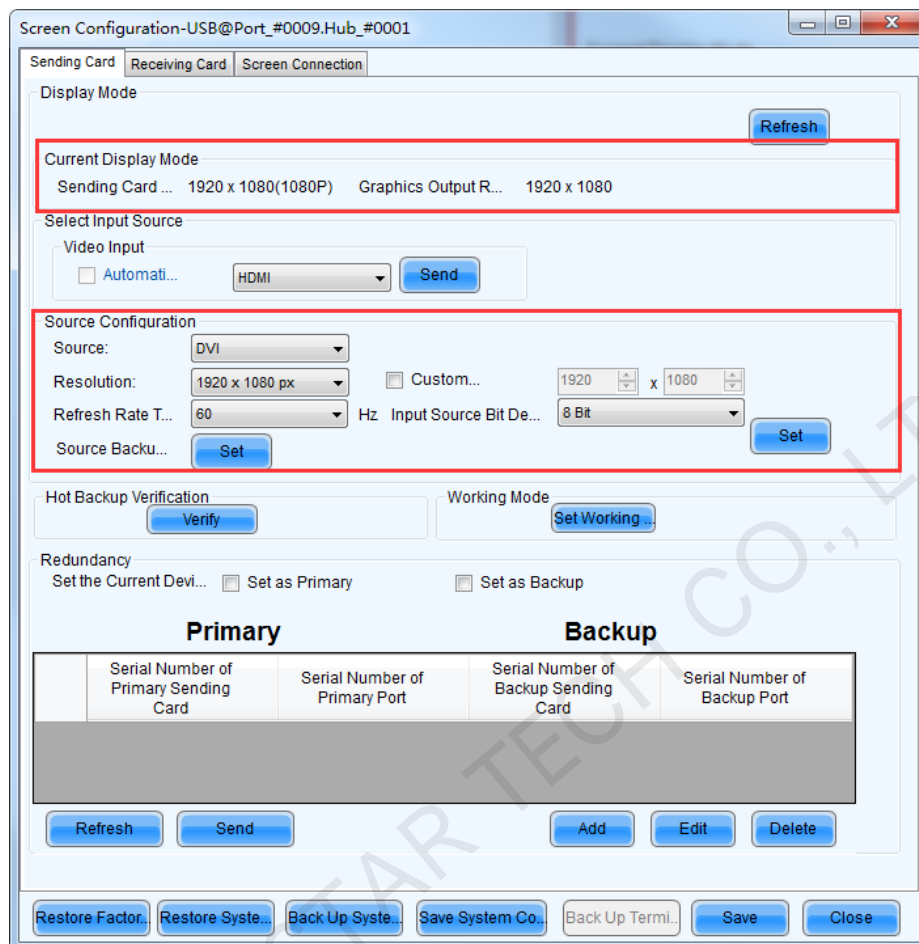
- Sending Card Resolution

  This is the image resolution saved in the sending card.

- Graphics Output Resolution

  This is the image resolution of the output DVI video of the computer graphic card.

- Refresh

  Click this button to update the sending card resolution and the Graphics output resolution.

- Resolution

  This is the resolution that is going to be set for the sending card. Select one from the drop-off list.

- Refresh Rate Times

  This is the refresh rate that is going to be set for the sending card. Select one from the drop-off list.

- Custom Resolution

  Check this option to customize the sending card resolution.

- Input Source Bit Depth

  Data bits of the input source.

Step 2　In the **Source Configuration** area, set resolution and refresh rate.

Step 3   Switch the graphic card mode from duplicate or extend to single display and then switch back. This operation is to avoid physical reconnecting DVI cable for the graphic card to update sending card info.

Step 4   If refresh rate is changed, parameters settings on the Receiving Card page must be resent. If it is not sent, the receiving card may self-adapt to the refresh rate; when the refresh rate is too high and exceeds the on-load range, the receiving card will not self-adapt to the refresh rate, then the new refresh rate must be sent to the receiving card.

Note:

● If the resolution of the final DVI video is different from that of the computer which is use to configure the Mars serial LED display control system, the sending card resolution must be set as that of the final DVI video when the configuration operation is finished.

● If the refresh rate of the final DVI video is different from that of the computer which is use to configure the Mars serial LED display control system, the sending card refresh rate must be set as that of the final DVI video when the configuration operation is finished. And don't forget to resend the parameters settings on the Receiving Card page.

7.1.1.2 Inputs Settings

The system is capable of setting input videos switching, also supports SDI, Dual_DVI and HDMI video interfaces. Such settings could be configured only when the accessed sending card supports the video and audio.

Figure 7-2 Input settings
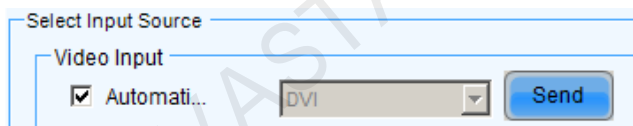
Select **Auto Select**, then the system will automatically select a video according to the accessed videos.

Click on **Sending**, then the system will send the configuration information to the sending card.

3D Function

Only the MCTRL4K and MCTRL1600 support 3D function.

Step 1   In the **3D Function** area, select **Enable** and then click **Settings**.

Step 2   Set the desired 3D parameters, or click **Load from File** to load an existing 3D configuration file.

Step 3   Click **Send** to send the parameters to hardware.

Figure 7-3 Configuring 3D parameters
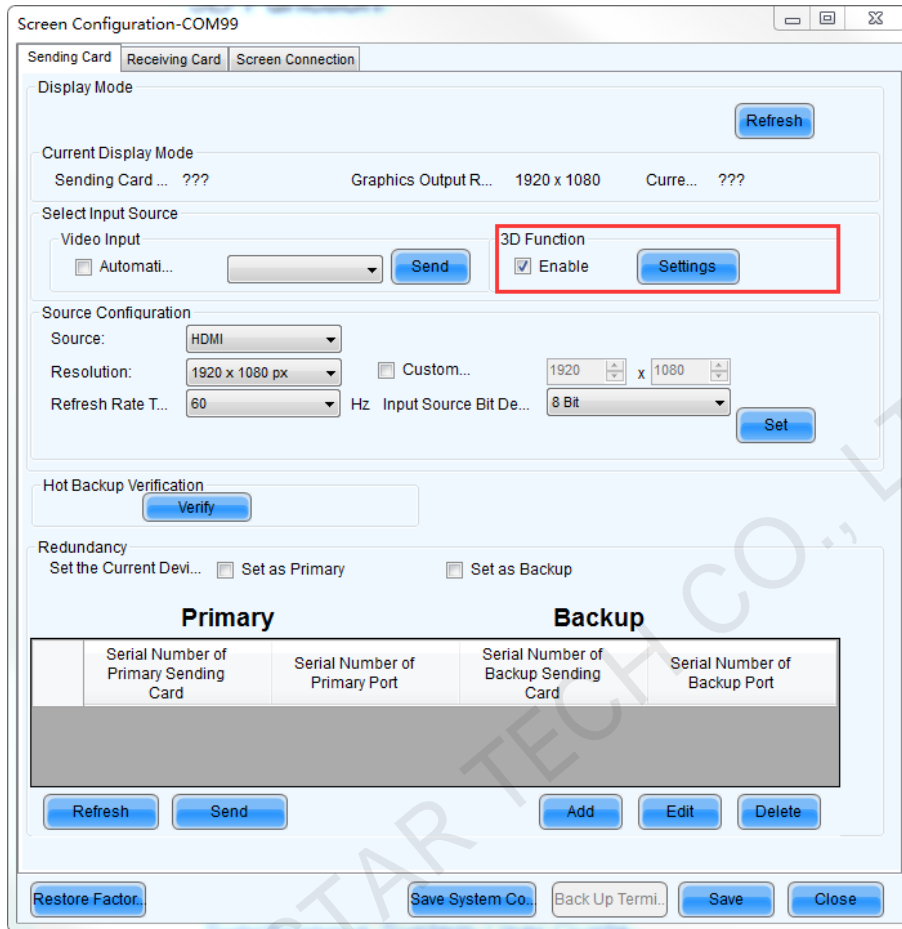
Figure 7-4 Setting 3D parameters

7.1.1.3 Source Settings

The system can configure the resolution, refresh rate and backup for the sending card accessed to Dual_DVI and HDMI connectors.

Figure 7-5 Source configuration
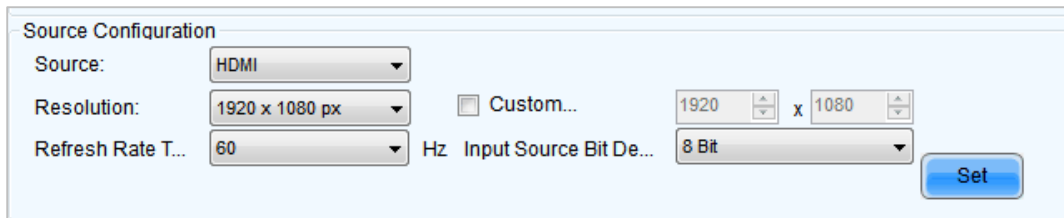
- **Source:** Select Dual_DVI or HDMI high-definition input.
- **Resolution**: Set the inputs resolution to a system-defined one or a customized one by entering the customized resolution in the pop-up check box after selecting **Customize a Resolution**.

- **Refresh rate**: Select the refresh rate of the inputs.
- **Source backup settings**: Click on **Settings** close to **Source Backup Settings** to respectively set backup connectors for SDI, Dual_DVI and HDMI. Only R5 is supported by now.

After setting the above options, click ![Set] to send the parameters to the hardware.

Note:

All-in-one devices do not support input settings. All the other sending cards support it.

7.1.1.4 Working Mode Settings

Note: Only the MCTRL660 PRO and MCTRL1600 support fiber conversion function.

Step 1 Choose **Screen Configuration** > **Sending Card**. In the **Working Mode** area, click **Set Working Mode**.

Step 2 On the **Set Working Mode** page, choose the sending card, working mode of device and working mode of optical port. When you select the working mode of sending card, you can set the working mode of optical port, including hot backup for optical port and optical port copying. When you select the fiber converter mode, setting the working mode of optical port is not allowed.

Step 3 Click **OK**.

7.1.1.5 Redundancy Settings

Set device redundancy and Ethernet port redundancy to ensure high reliability of the control system in applications like stage and conference center. Use the hot backup verification function to directly verify effectiveness of backup Ethernet ports without disconnecting and reconnecting Ethernet cables.

Applicable Products

- Redundancy: All sending cards
- Hot backup verification: MCTRL4K, MCTRL R5 and KT8 sending cards

Prerequisites

Redundancy related hardware connections have been done. The sending cards have been cascaded before you set redundancy of Ethernet ports between devices.

Operating Procedure

Step 1 Log into NovaLCT as an advanced synchronous system user.

Step 2 Click ![Screen Configuration] to open the **Screen Configuration** dialog box.

Step 3 Click the **Sending Card** tab.

Step 4 Perform the following operations as required.

● Configure device redundancy

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

● Configure Ethernet port redundancy

a. Click **Add** to open the **Redundancy Settings** dialog box, as shown in Figure 7-6.

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

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

You can also refresh, edit and delete the Ethernet port redundancy information.

c. After the configuration is done, click **Close**.

Figure 7-6 Redundancy settings
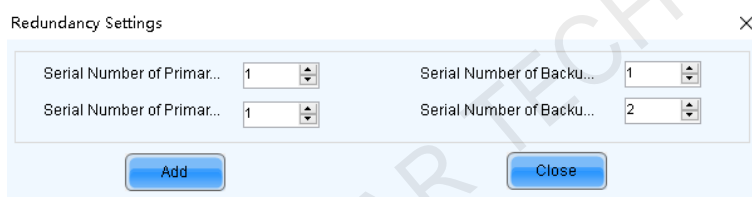
Step 5 (Optional) After Ethernet port redundancy is configured, perform the following operations to verify hot backup.

1. Click **Verify** to open the dialog box shown in Figure 7-7.

2. Select sending cards 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 **Disable Hot Backup Verification** and close the hot backup verification related dialog box.

Figure 7-7 Hot backup verification
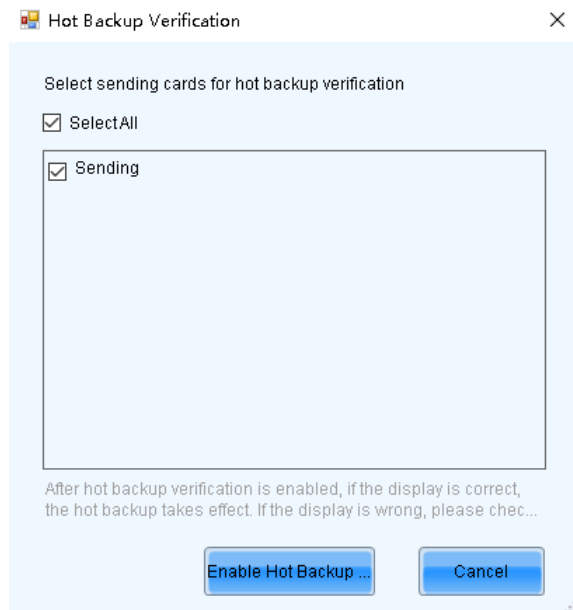
Step 6 Click **Send** to send the configuration information to the hardware, or click **Save** to save the information to the hardware.

Note:

- Only for the sending cards that are in the same cascade chain can master-slave hot backup relation be set.

- Ethernet ports of the same sending card can also be set as hot backup of each other.

- For redundancy between different sending cards, the sending card that is already set as backup cannot be set as primary.

- To set a backup device as a primary device, deselect **Set as Backup** and click **Send to HW** to modify the backup device information. Then select **Set as Primary** and click **Send**.

- The sending card that is used for LED display configuration cannot set as a slave device unless the LED display configuration information on it has been deleted.

7.1.2 Receiving Card

7.1.2.1 Smart Settings

Figure 7-8 Smart settings
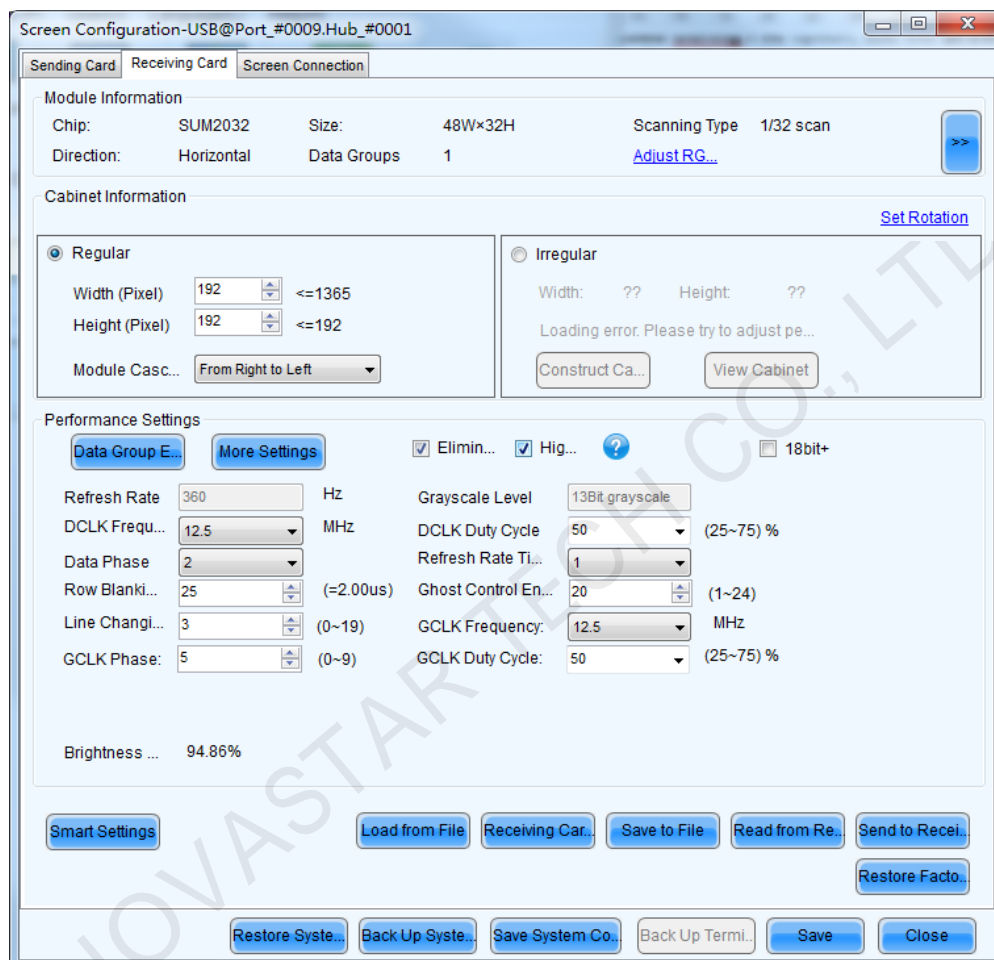
Note:

Make sure the resolutions of the sending card and the computer video card are the same, otherwise the LED display may not be able to work normally. Reset the video card resolution or change that of the sending card if their resolutions are not the same.

Step 1   Choose **Receiving Card** > **Smart Settings** to open the **Smart Settings Selection** dialog, as shown in Figure 7-9.

Figure 7-9 Smart Setting
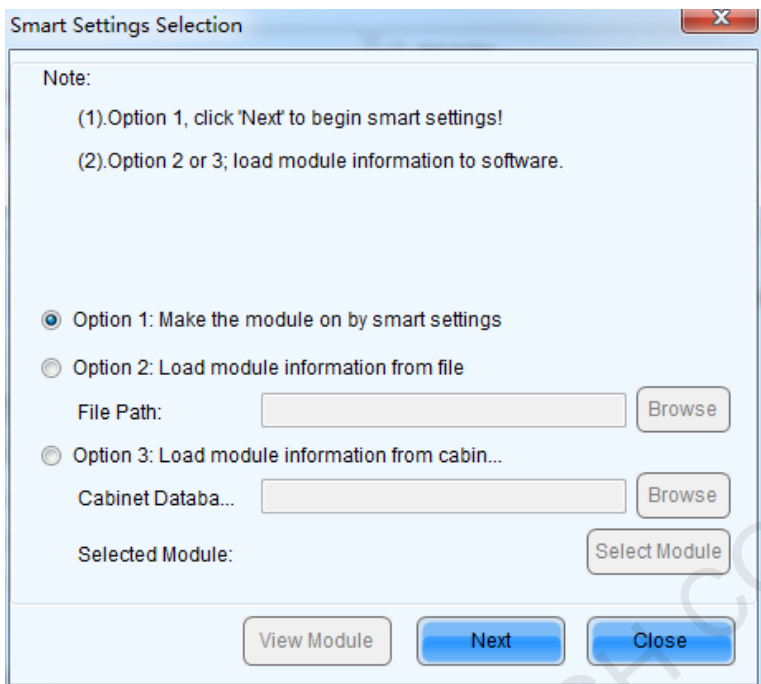
Step 2 Select **Option 1: Smart setting** and click **Next** to activate smart setting wizard. The **Smart Setting Step 1** window will appear, as shown in Figure 7-10. Set the corresponding parameters.

Figure 7-10 Smart Settings Guide 1

- Module Chip

Select the driver chip type from the list according to what is actually used for the cabinets.

- Data Type

  Select the data group type from the list.

- Module Type

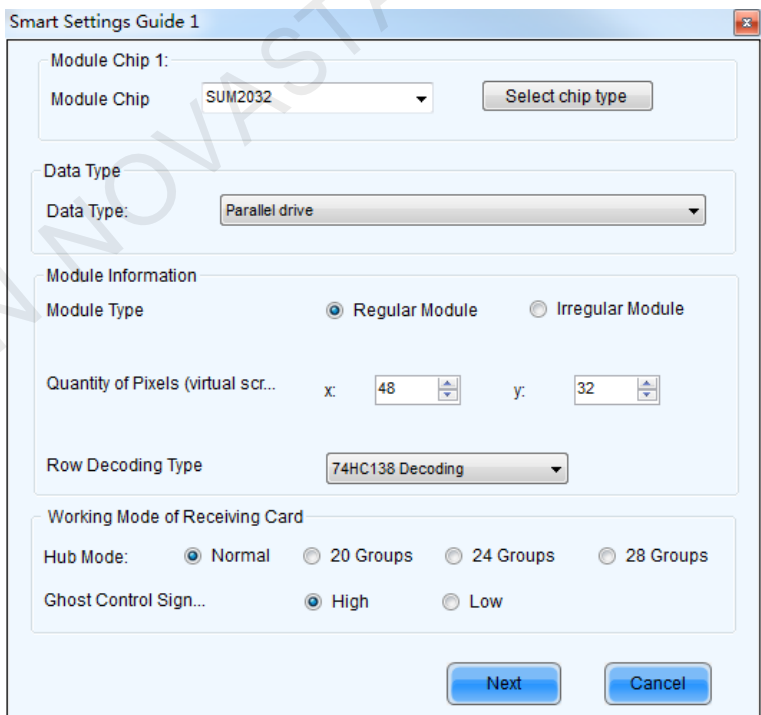 The option can be regular module or irregular module. If it is set to be irregular module, the counts of driver chips for one data set and one color should be given.

- Quantity of Driver Chip with One Data Group

  This parameter is shown only when **Irregular Module** is selected. Users can set this parameter according to the module schematic diagram.

- Quantity of Pixels

  This is the size of the real pixel array of a module.

- Row Decoding Type

  This list provides multiple options. You can choose one based on the module.

- HUB Mode

  Select the Hub working mode of the receiving card, which could be normal, 20 groups, 24 groups and 28 groups.

- Ghost Control Signal Polarity

  Set the ghost control signal as high active or low active.

Note:

- If the module array size is set as the default (1 column, 1 row), the modules in the first rows of the module arrays of all cabinets will be lightened (LED lights on).

- If the module array size is set as the real numbers, the last module of each first row of the module arrays of all cabinets will be lightened (LED lights on).

Step 3 Click **Next** to access **Smart Settings Guide 2** page, as shown in Figure 7-11.

Step 4 Select the display status of the current display module.

Figure 7-11 Smart Settings Guide 2
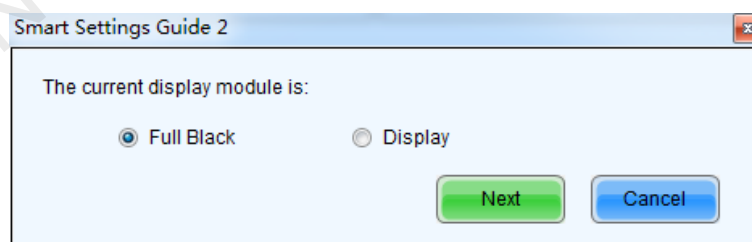
Note:

This step will be skipped if module polarity is known and set in Step 1.

Step 5 Click **Next** to access **Smart Settings Guide 3**, as shown in Figure 7-12.

Step 6 Select a switching status and the module colors in each status.

Figure 7-12 Smart Settings Guide 3
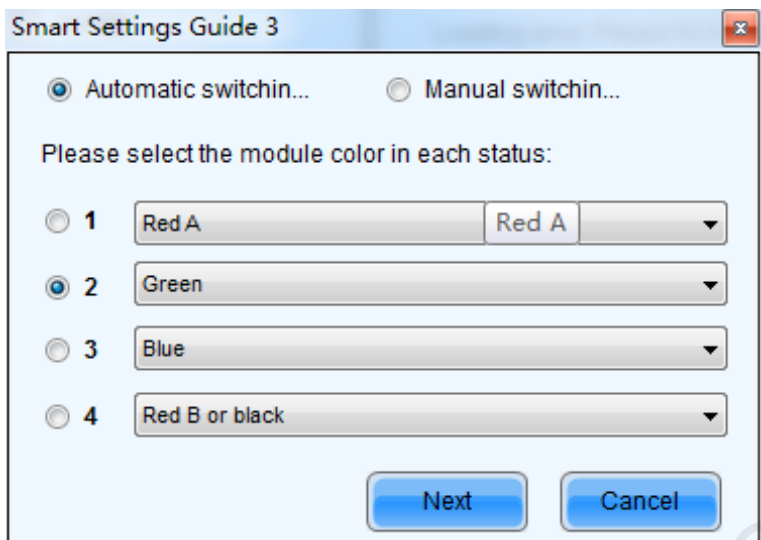
Step 7   Click **Next** to access **Smart Settings Guide 4**, as shown in Figure 7-13.

Figure 7-13 Smart Settings Guide 4
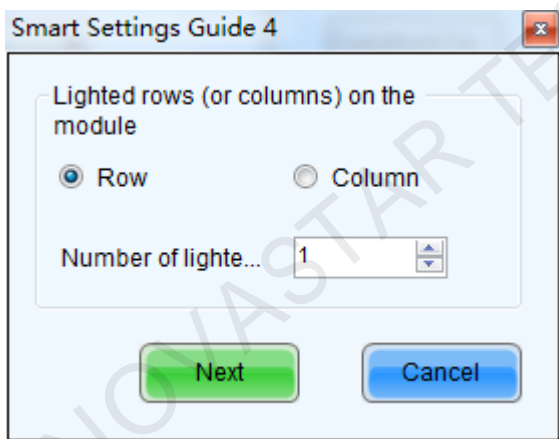
Step 8   Enter the number of lighted rows or columns on the module, and click **Next** to access **Smart Settings Guide 5**, as shown in Figure 7-14.

Note: Modules with more than 8 groups of data are not supported.

Figure 7-14 Smart Settings Guide 5

Step 9 Enter the number of lighted rows on the module, and click **Next** to access **Smart Settings Guide 9**, as shown in Figure 7-15.

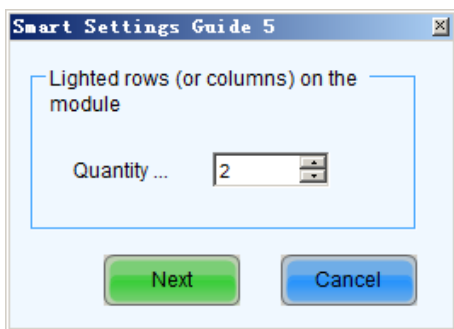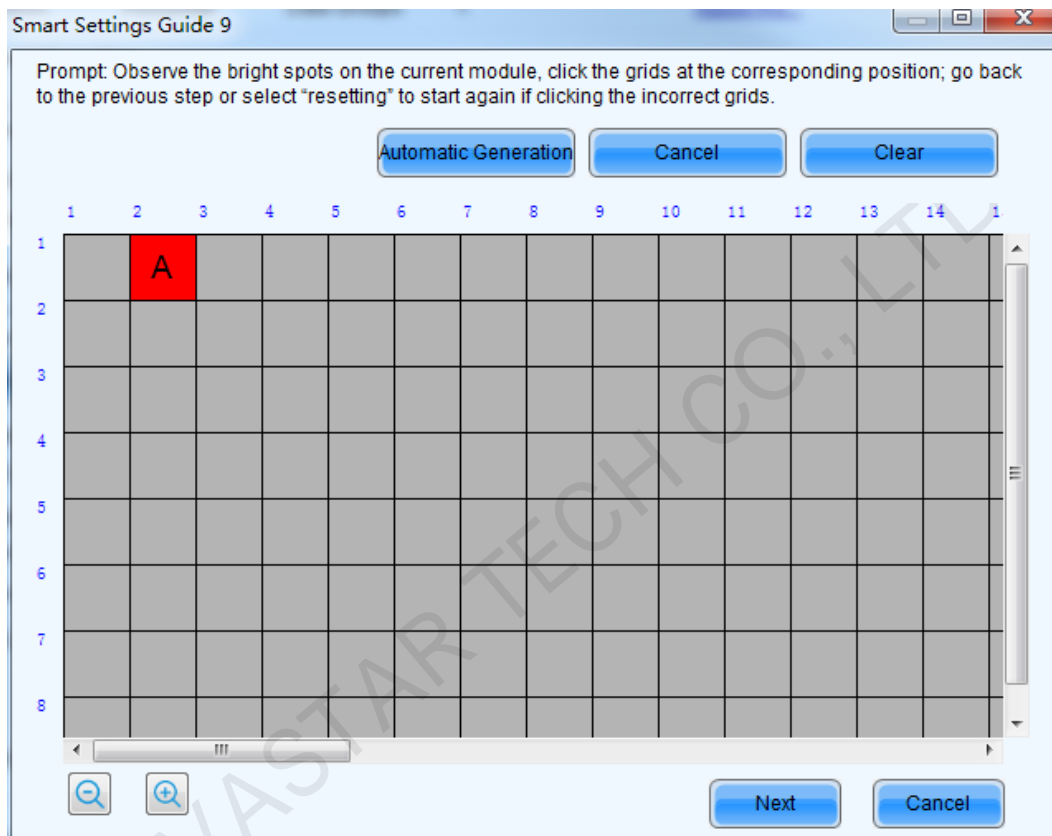Observe the lighted pixel on the module and click the corresponding pixel in software. Every time a pixel is clicked, the next pixel on the module will be lighted.

Figure 7-15 Smart Settings Guide 9

Note:

- Hold the left button of the mouse and drag, or use Tab and Enter to draw the routing line. Use **Automatic Generation** button to accomplish drawing routing lines of the same pattern.

- Click 🔍 or 🔍 to zoom out or in the module layout.

Step 10 A message indicating the finish will be shown when enough lights have been processed. Click **OK**.

Step 11 Click **Next** and a message pops up indicating the settings are completed, then click **OK**.

The **Save Module Information** dialog is shown in Figure 7-16. Saving the module settings to files will make it easier to perform module configuration for another LED displays constructed by modules which require the same settings as the one just set (Option 2 or Option 3 in Figure 7-9). Click **Finish** directly if you don't want to save the settings.

Figure 7-16 The Save Module Information dialog
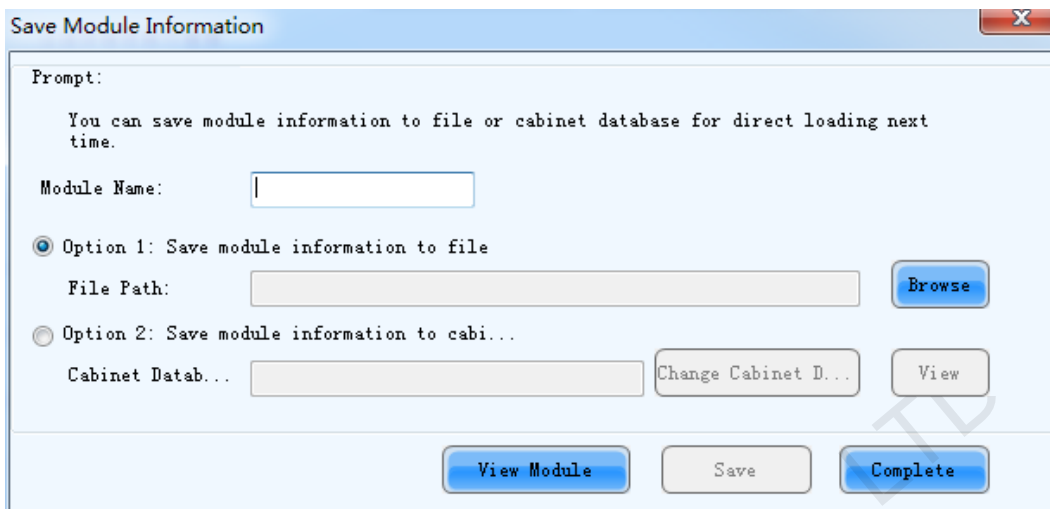
7.1.2.2 Set Cabinet Information

The size of cabinet loaded by the current receiving card and module cascading direction can be set in this area.

Choose **Screen Configuration** > **Receiving Card**. In the **Cabinet Information** area, configure the cabinet information, as shown in Figure 7-17.

Figure 7-17 Cabinet information settings

Note that the Regular panel is for regular cabinets parameters setting and the Irregular panel is for irregular cabinet parameters setting.

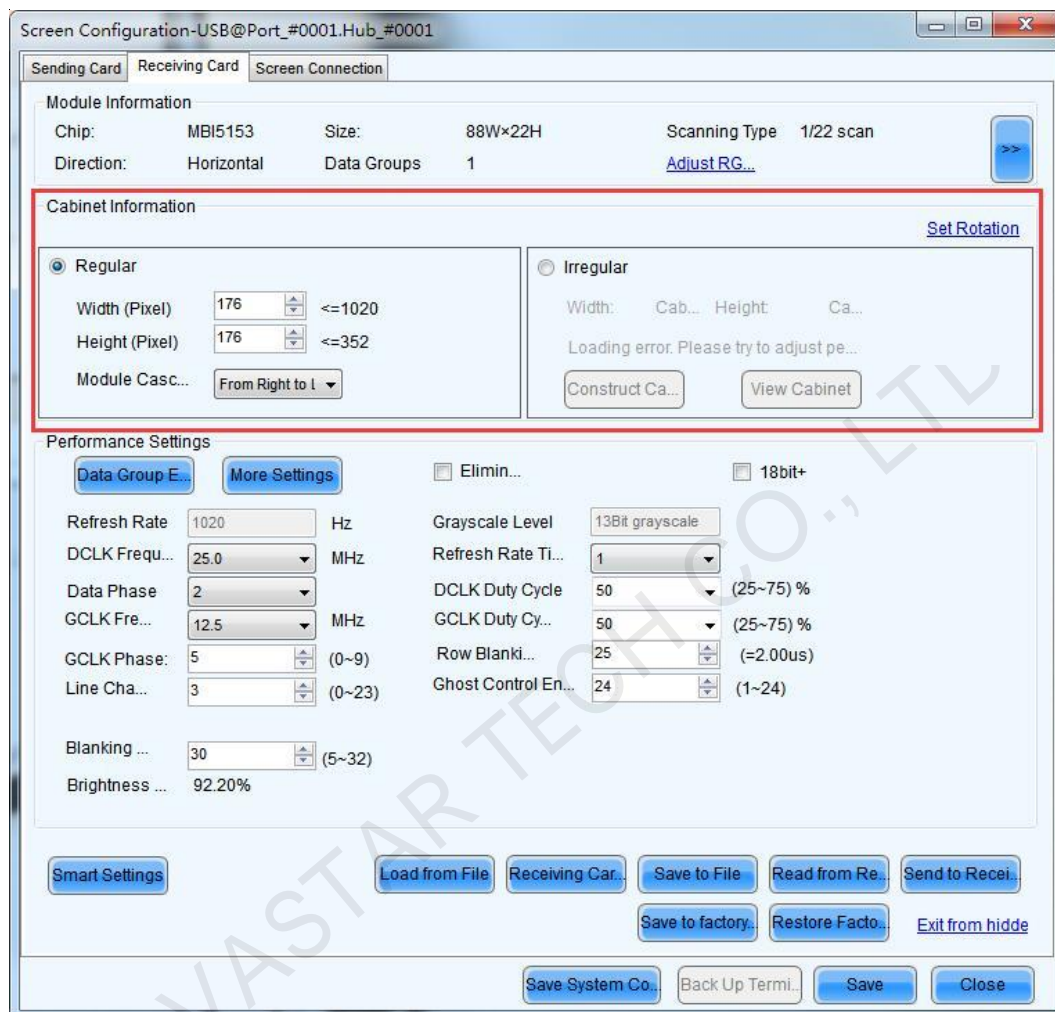- Cabinet rotation: Set image rotation angle to 0°, 90°, 180° or 270°.
- Width/Height: These items specify the width and height of the cabinet pixel array.

Maximum width varies with parameters of refresh rate, gray scale levels, and shift clock frequency. Normally, the higher the refresh rate is and the finer the gray scale levels are, the smaller the maximum width will be; while the higher the shift clock frequency is, the larger the maximum width can be. But as the shift clock frequency is limited by driver chips and module design, the maximum width is also limited.

The Maximum Height depends on the module design.

Note:
- If the module cascade direction is from left to right or from right to left, then as mentioned above, the Maximum Width depends on the parameters such as refresh rate, gray scale levels and shift clock frequency, and the Maximum Height depends on the module design.

● If the module cascade direction is from top to bottom or from bottom to top, then, factors affect the Maximum Width and Height are just switched. The Maximum Height depends on the parameters such as refresh rate, gray scale levels and shift clock frequency, and the Maximum Width depends on the module design.

7.1.2.3 Adjust the Performance Parameters

To achieve the best performance, performance parameters should be set properly.

On the **Screen Configuration** page, choose **Receiving Card** tab, as shown in Figure 7-18.

Figure 7-18 The Performance Setting panel
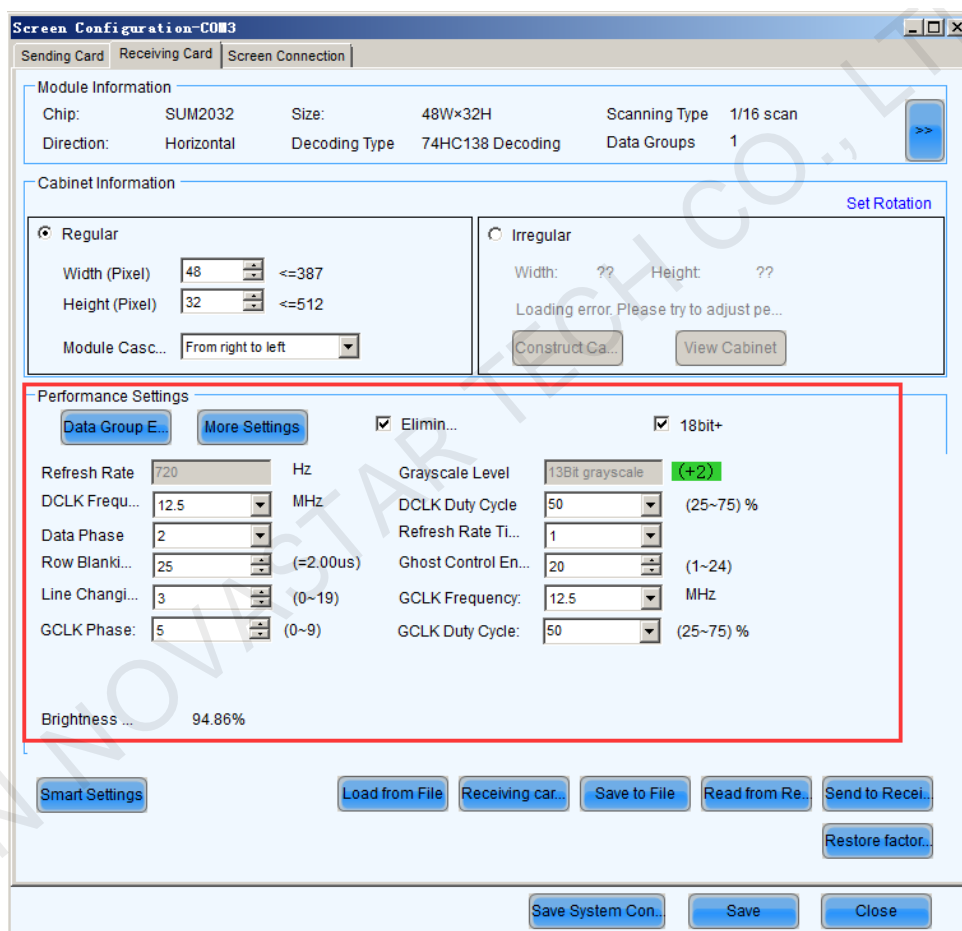
Eliminate Afterglow: Some of chips are supporting the functions of eliminating afterglow, and the software defaults to be ticked.

Data group exchange

Adjust the order of the data groups. Disable data group exchange when configuring irregular cabinets.

There are intuition and group data group exchange modes.

● As shown in Figure 7-19, in intuition mode, fill out on software based on the order displayed on the screen.

- As shown in Figure 7-20, in group mode, click proper positions in sequence according to block flashing orders on the screen. Simultaneously, corresponding series numbers are generating to display the area without flashing block, and click **No flashing area**.

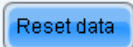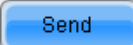- [Reset data] : Clear current data, and reset.

- [Send] : Send data to hardware.

- [Apply] : Save current data.
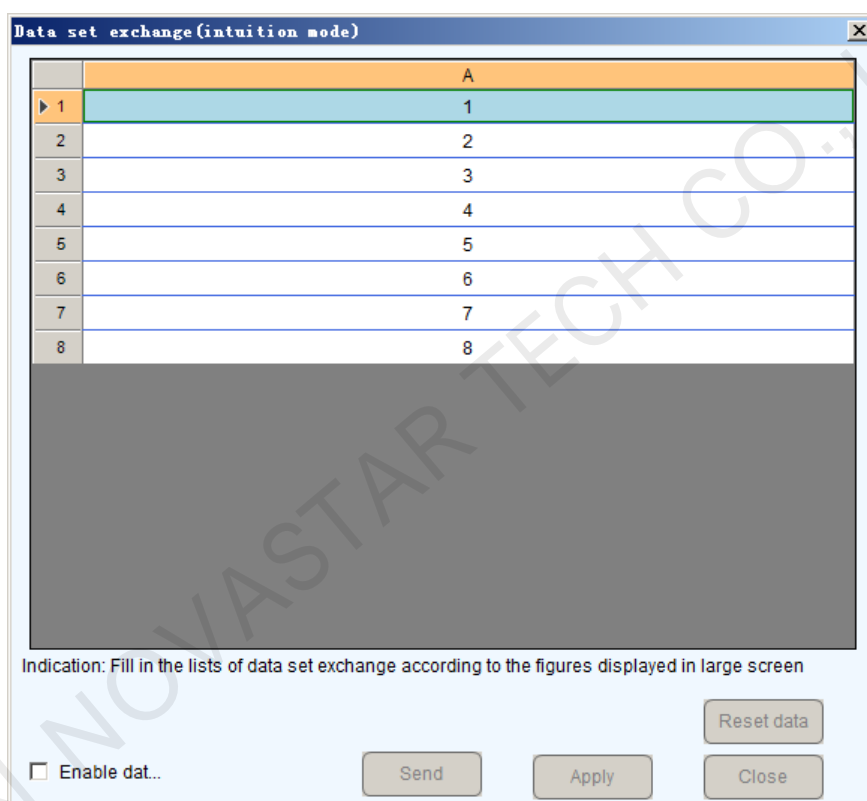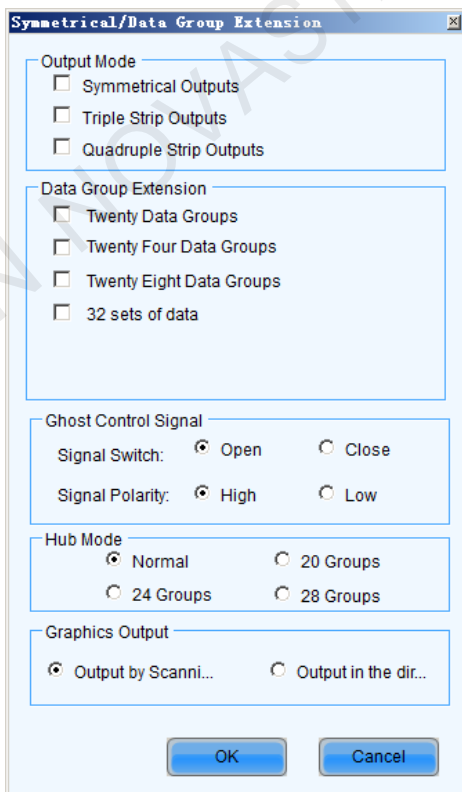
Figure 7-19 Intuition mode

Figure 7-20 Group mode

More settings

- Symmetrical/Data Group Extension

Figure 7-21 Symmetrical/Data Group Extension

−　Output Mode

　−　Symmetrical Output: If selected, the two 50-pin output ports of a receiving card will work for the left and the right half of the cabinet pixel array respectively.

　−　Three doors output: Being optional, and after being selected, the loaded box will be divided into three parts from left to right.

　−　Four doors output: Being optional, and after being selected, the loaded box will be divided into four parts from left to right.

−　Data Group Extension (Only one of the following options can be selected.)

　−　Twenty data group: If selected, the receiving card will provide 20 sets of output data for the cabinet.

　−　Twenty Four data group: If selected, the receiving card will provide 24 sets of output data for the cabinet.

　−　Twenty Eight data group: If selected, the receiving card will provide 28 sets of output data for the cabinet.

　−　32 sets of data: If selected, the receiving card will provide 32 sets of output data for the cabinet.

−　Ghost Control Signal

　−　Signal Switch: the **On** or **Off** could be selected.

　−　Signal Polarity: the polarity of the signal could be selected according to the design of the afterglow circuit.

−　Hub Mode

　Select the Hub mode of the receiving card, which could be divided into normal, 20 groups, 24 groups or 28 groups.

−　Graphics Output

　The output in the scanning direction or the output in the reverse direction could be selected.

● Monitoring Card Data Line Adjustment

If the monitoring corresponding signals are mismatched when the monitoring card HUB is connected to the receiving card, the corresponding signal of each monitoring data line can be adjusted manually.

● Additional Function

Eliminate the afterglow of the insolated points, and shut down the indicators of the receiving card, Shorten the synchronization time, Brightness slowly brighten, and EMC Function.

● Flash Arrangement

Figure 7-22 is the physical connection schematic diagram of Flash. According to that diagram, the sequence number of BUS is determinedly selector. Users shall consult HUB board designer for connection of the flash module to confirm the sequence number of BUS. One BUS can be cascaded with multiple modules. The MOM Topology can be set on the software according to the actual order of connection.

Figure 7-22 Physical connection schematic diagram of Flash
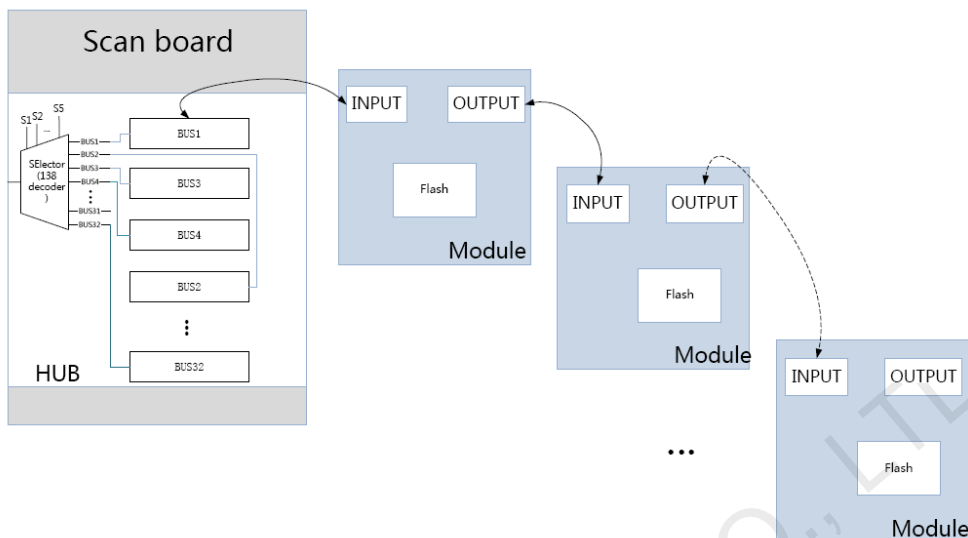
As shown in Figure 7-23, to set MOM Topology on the software, firstly set FLASH row and column numbers, and then click anywhere on the right side of the window, select the corresponding BUS, and based on the actual route, click the left button of the mouse or press the arrow key to set each piece of Flash information according to the order (control size and coordinates).

Select a BUS and set Flash control size, and then click "Apply to current BUS"; the size of Flash with BUS connection will be modified as the current value.

After Flash Control Size is set, click "Reset All", and then all Flash Control Sizes will be reset as the size set currently.

Figure 7-23 MOM Physical Setting
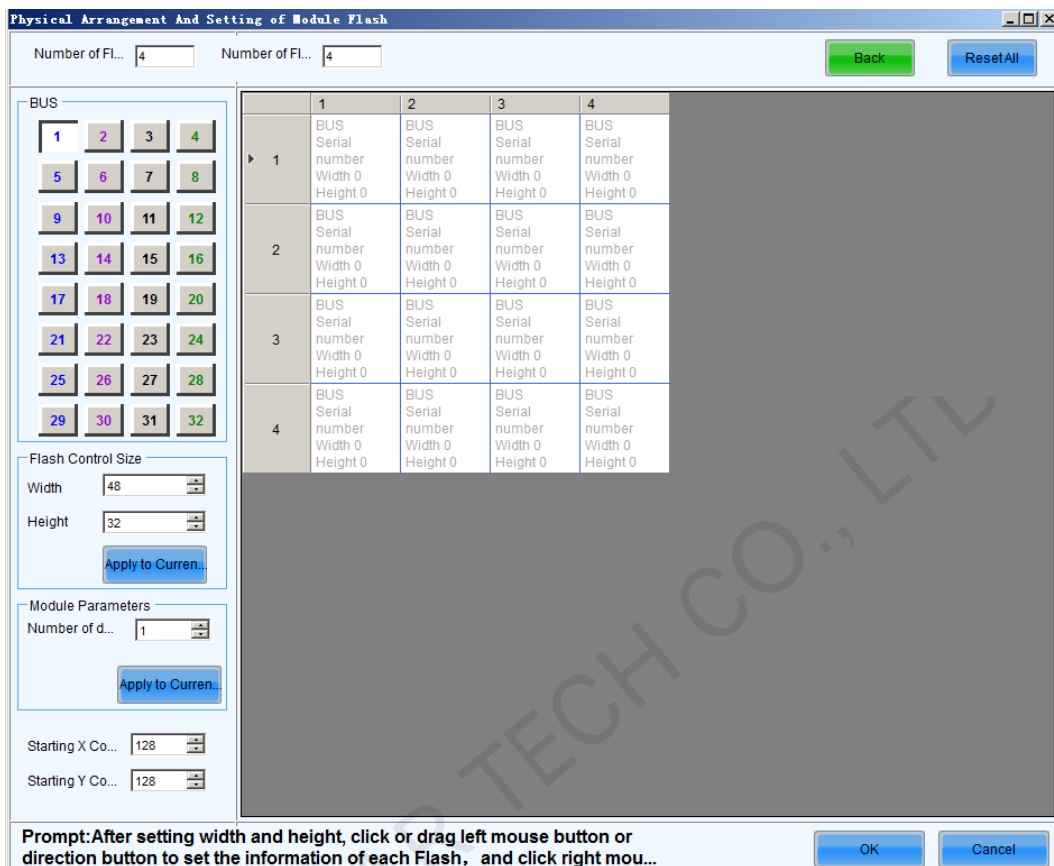
- Monitoring Card Data Set Exchange

  Monitoring card data set exchange function supports the exchange of serial 16-set data, serial 20-set data, and parallel 64-set data. In case of an incorrect HUB connection with data set exchange being set in **Data group exchange,** settings thereof must be served as reference to modify the corresponding information of the monitoring card data set.

  Set data type in **Smart Settings** or set data set expansion in **Symmetrical/Data Group Extension**. When it is set to parallel 16-set or 20-set data, the system will supply 16-set or 20-set data exchange for the monitoring card. When it is set to serial 24-set or 28-set data, the system will supply a 64-line monitoring card data set exchange configuration window.

  Select **Enable monitoring card data set exchange** to make it work after exchange data configuration.
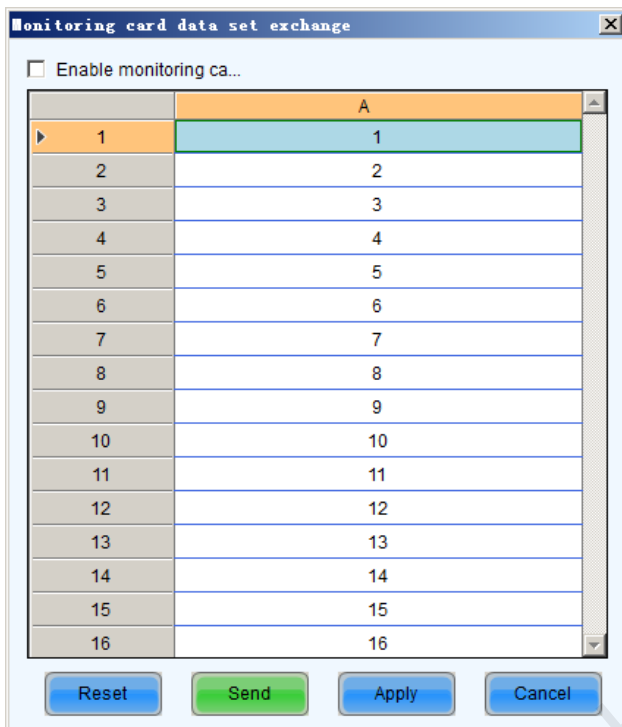
- Reset: Clear the configured monitoring card data set exchange information and set to the default configuration.

- Send: Send the configuration data to the hardware.

- Apply: The system will save the configured data.

- Cancel: Cancel the current configuration and exit the configuration interface of the monitoring card data set.

● Cabinet Information Settings

Set the basic cabinet information, such as weight, power, width, height, pixel width, pixel height and voltage.
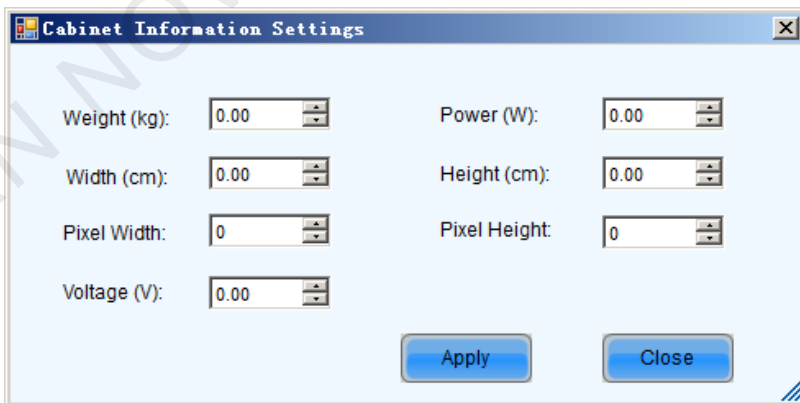
● Brightness Mode

Load brightness configuration files and send them to hardware.

Note: Only some module chips support brightness mode, including MBI5051B / MBI5151 / MBI5153 / MBI5155 / MBI5252 / MBI5253 / MBI5253B / MBI5353.

Step 1   On the homepage of NovaLCT, choose **Screen Configuration** > **Receiving Card**.

Step 2 Click **More Settings**. In the drop-down box, click **Brightness Mode**. The **Save Brightness Configuration** page appears.

Step 3 Click **Load Configuration File**. The **Brightness and Configuration File Mapping** dialog box appears. Click **Browse** and load brightness configuration file. Set the corresponding brightness and then click **Add**.

Step 4 Click **Send to HW** and then click **Close**.
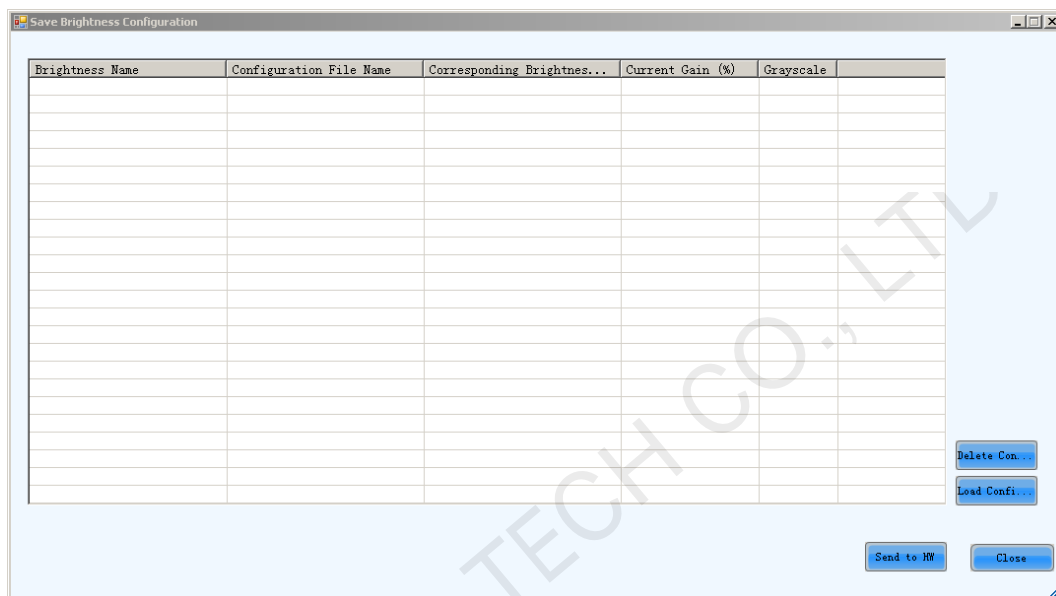
- MBI5153 Extended Attributes

  Adjust the Gamma values for RGB respectively. It includes advanced mode and common mode.

  Note: Different chips have different extended attributes.
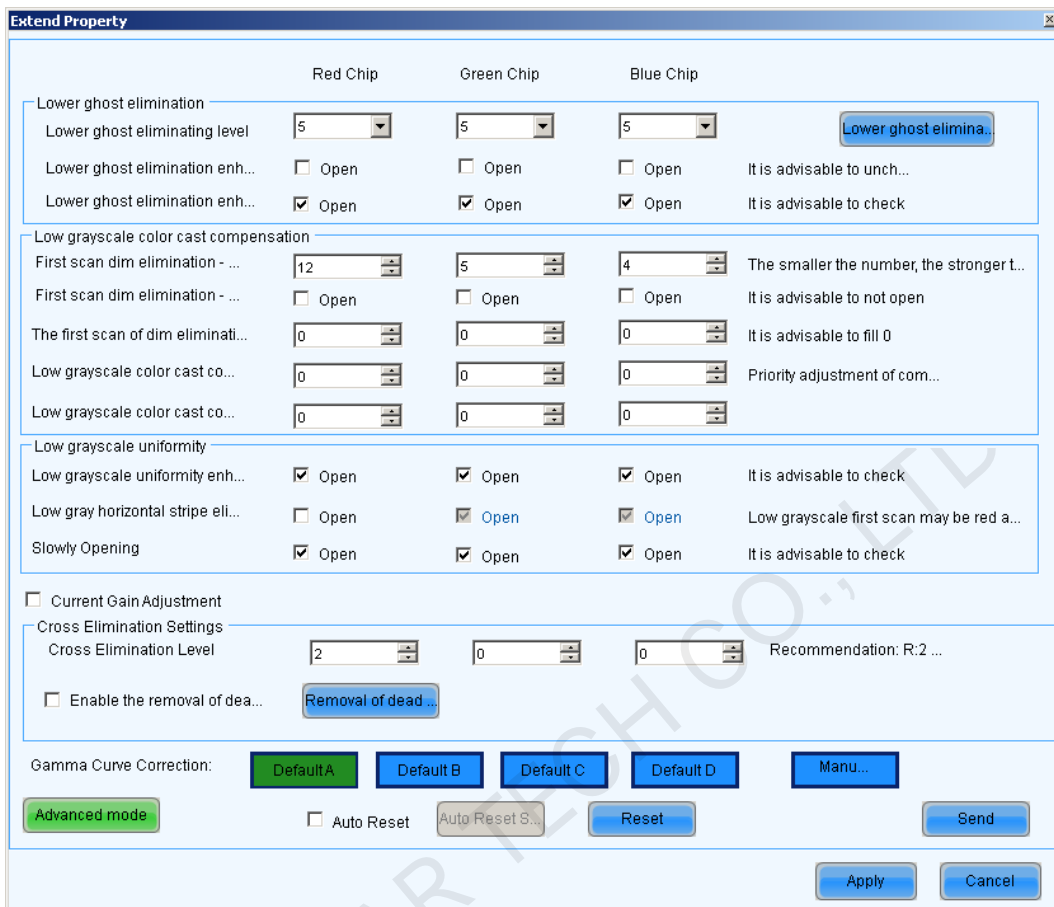
Step 1 On the homepage of NovaLCT, choose **Screen Configuration** > **Receiving Card**.

Step 2 Click **More Settings**. In the drop-down box, click **MBI5153 Extended Attributes**. The **Extend Property** page appears.

Step 3 Select **Advanced mode** or **Common mode**. Set parameters according to the instruction and then click **Send**.

Step 4 Click **Apply**.

Performance Parameter Adjustment Procedure

Step 1   Adjust the parameters in the Performance Setting panel (Figure 7-18) until the
Maximum Width and Height shown in the Cabinet Info panel (Figure 7-17) are larger
than the pixel array size of the cabinet. Then click the **Send to Receiving Card**
button.

Caution

If the message as follow appears after clicking the **Send to Receiving Card** button, it
means there are parameters not properly set in the Performance Setting panel or the
Cabinet Info panel. Those parameters will be in red. Reset those parameters and
click **Send to Receiving Card** button again.

Step 2   If all parameter settings are acceptable, the dialog as shown in Figure 7-24 will
appear.

Figure 7-24 The dialog for specifying receiving cards to send the parameter settings to
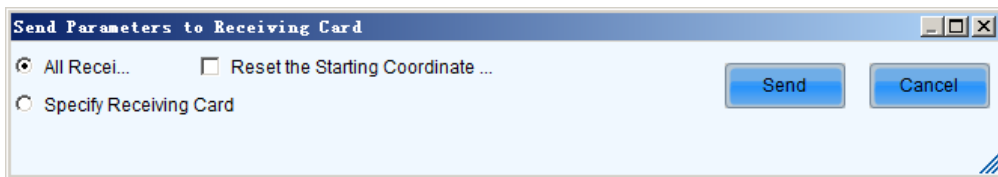

- All Receiving Card

  When this option is selected, parameter settings will be sent to all receiving cards that are connected to the current sending card.

- Reset the Starting Coordinate of Receiving Card

  This option is available when **All Receiving Card** is selected. When this option is checked, start positions of all relating receiving cards (receiving cards that are connected to the current sending card.) will be set as (0,0). Thus all relating receiving cards will show (on their pixel arrays) the upper left corner image.

- Specify Receiving Card

  Send the performance parameters by topological diagram or physical address to the specified receiving cards.

7.1.3 Screen Connection

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

Step 2   Click the drop-down box next **Quantity**, select a number of screens you want to add, and click **Configure** to add the screen, as shown in Figure 7-25.

Step 3   Select the screen type, including standard screen and complex screen.

Step 4   Configure the screen parameters, connect the cabinets manually, and click **Save**.

Figure 7-25 Screen connection
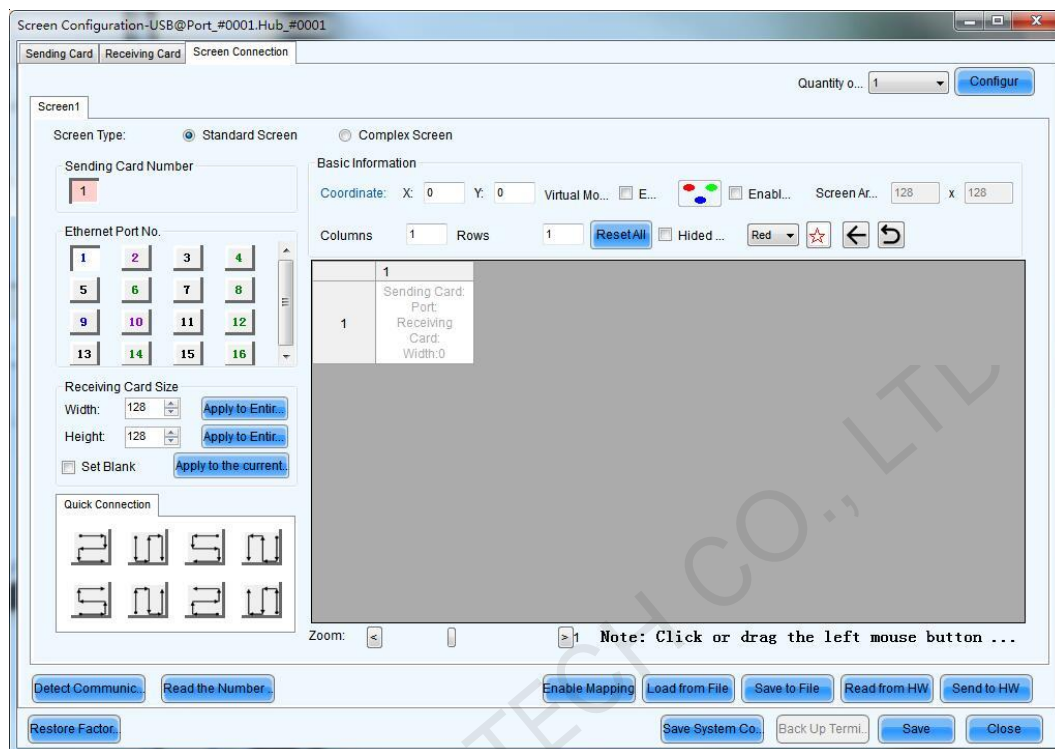
- Quantity

  This is the number of LED displays that are to be configured.

- Configure

  This button is used to add the screen tab.

- Read form HW

  This is used for the application to read the LED display information from the hardware.

- Detect Communication Status

  This is used to check whether the communication within the current LED display is good.

- Read the Number of Receiving Cards

  Get the number of receiving cards loaded by each of the Ethernet ports of the current sending card.

- Enable Mapping (only supported by some receiving cards of the Armor series)

  When this function is opened, current serial number of the cabinet and its Ethernet port No. will be shown on the cabinet.

- Load from File

  Load screen information files save on control computer.

- Save to File

  This is used to save screen information files as screen information file (*.scr).

- Send to HW

  This is used to send the LED display configuration settings to the connected sending card.

- Restore Factory Settings

  Reset current parameter configuration to factory settings.

- Restore System Configuration

  Reset current operating status of the system (or sending card, or receiving card) to the status in the backup file.

- Back Up System Configuration

  Back up current configuration parameters.

- Save System Configuration File

  Save system configuration parameters as a file.

- Save

  This is used to save the settings to a FLASH chip. The saved data won't be lost even the hardware is powered off.

  Screen types include standard screen and complex screen. Configurations for different types of screen will be given as follow.

7.1.3.1 Standard Screen Configuration

Set the cascade type of receiving cards manually, as shown in Figure 7-25.

- Coordinate

  This is the upper-left corner of a rectangular area of the computer display. The rectangle area of the computer display is called mapping area. Content inside the mapping area will be shown on the LED display. The default location is (0, 0), which is actually the upper-left corner of the computer display.

- Virtual Mode

  Specify the pixel mode of the LED display. The option could be real pixel or virtual 3 lights or virtual 4 lights.

  Check **Enable** to enable virtual mode, click [icon] to enter into the setting interface of the virtual mode. Select the layout type of the lights on the top right corner of the window, and drag the mouse on the left side of the window to change the arrangement of the lights.

  For example, if the **Rectangle** is selected, the changed positions are as follows.

Figure 7-26 Setting virtual mode
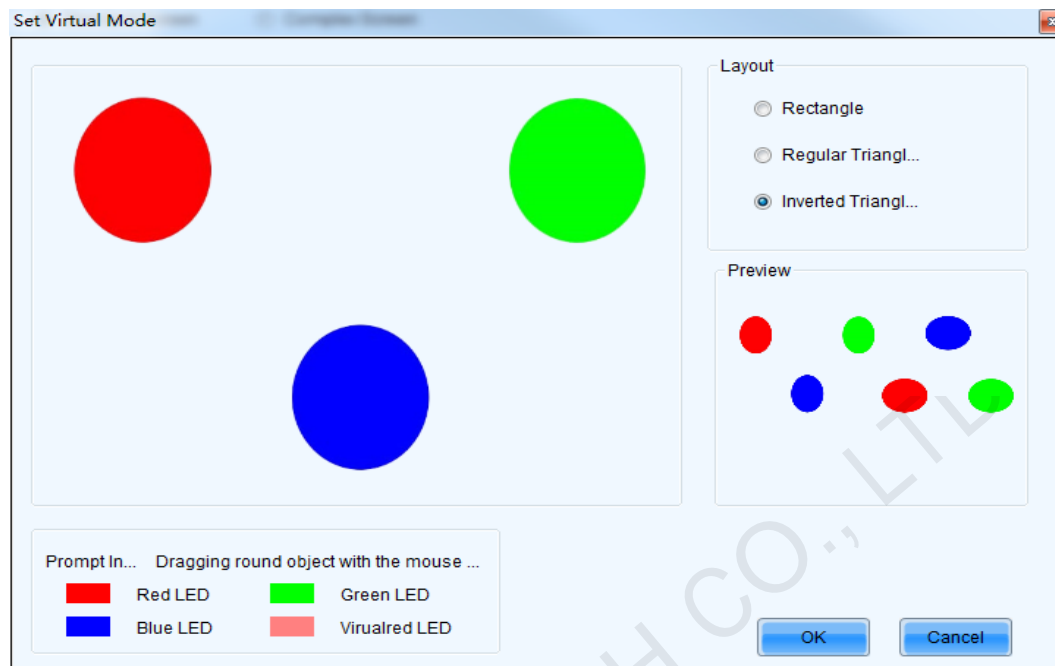
- Receiving Card Columns/Rows

  These are the numbers of columns and rows of the receiving card array of the LED display. A sketch map of the receiving card array will be shown in this page after these two parameters are set.

- Reset All

  This button is used to reset all cabinet settings and connection settings.

- Hidden Wiring

  After selecting this function, the receiving card's wiring in the following topology will be hidden.

-

  This is a mark for receiving card classification. Select one receiving card and click on the drop-down box to choose one color from red, green and blue, and then click on the given receiving card to add the mark.

- Sending Card Number

  This parameter is used to specify the current sending card (sending card). The sending card of the chosen index is will be set as the current sending card. And all relating settings are for this sending card.

- Output Port Number

  Select an Ethernet port of the sending card. Click **Read the Number of Receiving Cards** and hover over the port with your mouse. The number of receiving cards loaded by the port will be displayed.

- Back

  This button is used to clear all settings related to the last set sending card.

- Clear Current Output Port

  This button is used to clear all settings related to the current output port.

- Width/Height

These are the width and height of the pixel array of the current receiving card.

- Apply to the Entire Column

  Select a receiving card, and set the width the same as the loading width of the column the selected receiving card belonged to.

- Apply to the Entire Line

  Select a receiving card, and set the height the same as the loading height of the line the selected receiving card belonged to.

- Apply to the Current Port

  Click this button to set the pixel array sizes of all receiving cards connected to the current Ethernet port the same as that of the current receiving card.

- Set Blank

  During auto cabinet connection, the cabinets that are set blank are not connected. Select a target cabinet and select **Set Blank**. Click and drag the mouse to select multiple positions to set blank.

- Quick Connection

  Quickly set cabinet connection. In **Quick Connection**, select a connection type. Drag the mouse to select the receiving cards corresponding to the output port. The connection is done automatically.

- Auto Connection:

  Support quick cabinet connection by a single direction (supported only by MCTRL660 PRO).

Note:

- For different sending cards, the background colors of the grids are different.

- For different Ethernet ports, the font colors are different.

- The right button of the mouse can be used to clear the settings for the current sending card.

7.1.3.2 Complex Screen Configuration

Set the sending card, Ethernet port, start coordinates and pixels to be loaded of each of the corresponding receiving cards.

Figure 7-27 Complex screen configuration page
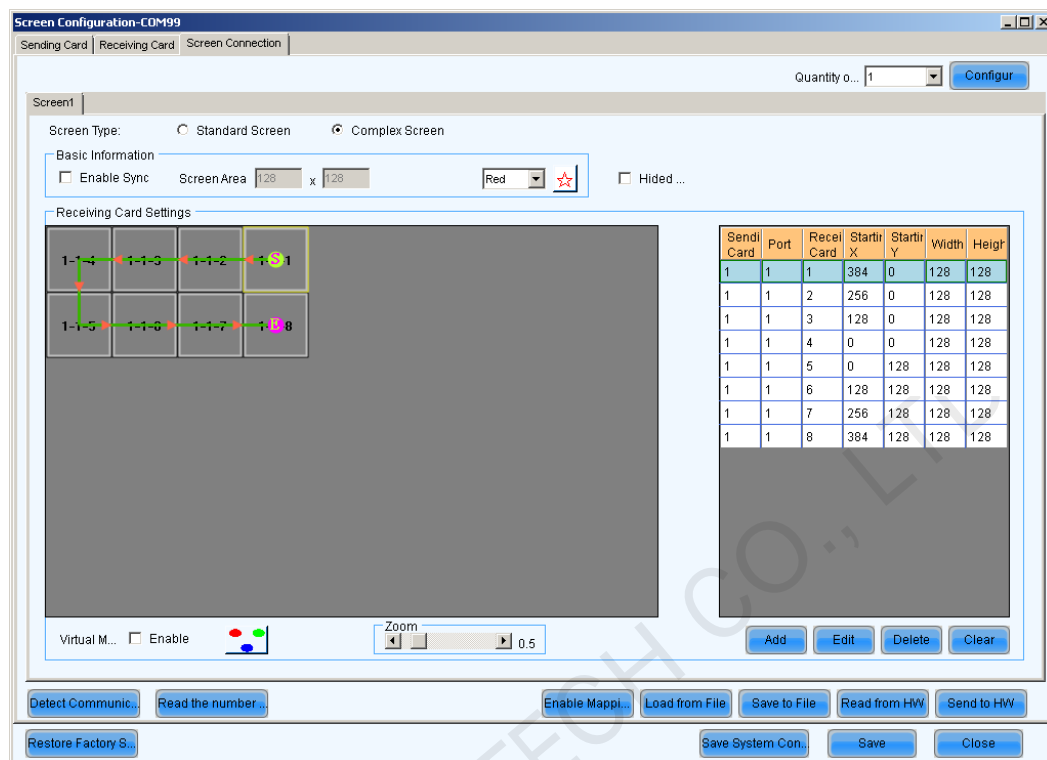
- Add

  Click **Add** to access the window for receiving cards information setting, such as index of its host sending card, Ethernet output ports, mapping areas, pixel array sizes and so on. The setting will be shown in the list.

- Edit

  To edit the information that has been set for receiving cards.

- Delete

  To delete the selected receiving card from the receiving cards list.

- Clear

  To delete all receiving cards from the list.

7.1.4 Save Settings to Flash

Once data is saved to hardware, the saved data won't be lost even the hardware is powered off. And it displays normally after reconnect the power.

- To save the settings to hardware, click the **Save** button at the lower right corner of the **Screen Configuration** window.

- On receiving card page, a [Save to factory..] button will appear by enter **admin** on the keyboard (It defaults to hide status to prevent random operation). Appropriate parameters can be saved to factory area before the cabinets leave factory. The parameters we usually adjust are of application area. If you are not satisfied with the parameters, click [Restore factor..] to restore the parameters of factory area to application area.

Note: So far, only some receiving cards of the Armor series support this function.

7.1.5 Save/Load Configuration Files

There are four types of configuration files at present, the module configuration file, the receiving card configuration file, the LED display configuration file and the system configuration file.
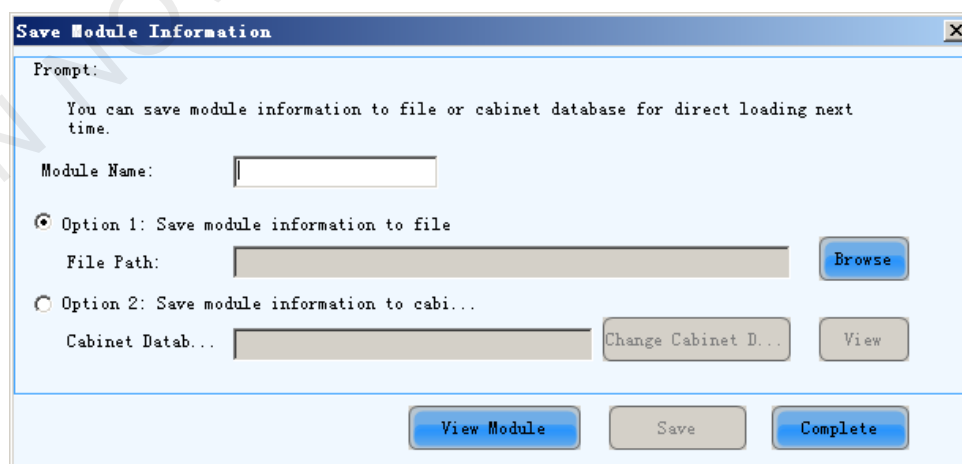
- Module Configuration File

    Saved in a module configuration file are the settings of modules. Module configuration files can be used for quick configuration of modules requiring the same kind of settings.

- Receiving card Configuration File

    Saved in a receiving card configuration file are the settings of receiving cards. Receiving card configuration files can be used for quick configuration of cabinets requiring the same kind of settings.

- LED Display Configuration File

    Saved in a LED display configuration file are the information of how receiving cards are put together to construct a LED display. The LED display configuration files can be used for quick construction of a LED display.

- System Configuration File

    Saved in a system configuration file are the settings of a LED display system. It can be used to quickly recover a LED display system from error, or to quickly start a LED display.

Save a module configuration file

There are two ways to save a module configuration file:

- The first is to save it at the last step of smart setting.

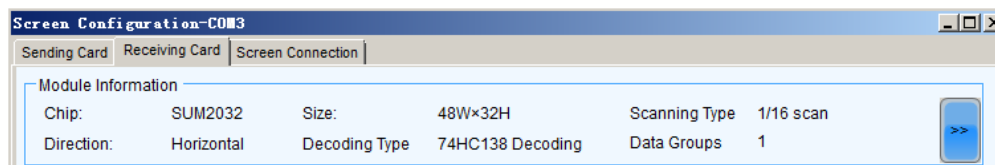Figure 7-28 The dialog for saving module setting to a module configuration file

- The other way is to click button in the **Module Information** panel of the **Receiving card** page.

Figure 7-29 The Module Info panel

Load a module configuration file

In smart setting step 3, select **Option 2: Load module from file** on the **Smart Setting** dialog and follow the instructions.

Save a receiving card configuration file

Click **Save to file** on the **Receiving card** page to save receiving card information as configuration file.

Load receiving card configuration files

To load a receiving card configuration file, click **Load from File** button to load receiving card information to the page.

Save screen configuration files

Click the **Save to File** button at the bottom of the page to save screen information to configuration file.

Load a LED display configuration file

To load a LED display configuration file, click the **Load from File** button at the bottom of the page to load screen information to the page.

Save system configuration files

To save settings to a system configuration file, click the **Save System Configuration File** button at the bottom of the **Screen Configuration** window and follow the instructions.

Load a system configuration file

Please refer to 7.1.6 Screen Configuration Using System Configuration Files for details.

## 7.1.6 Screen Configuration Using System Configuration Files

The advantage of using system configuration files to configure LED displays is that the configuration procedure is very simple and easy, and no manual configuration operation is required.

Step 1 Click Screen Configuration on the main interface to open the **Screen Configuration** window as shown in Figure 7-30.

Figure 7-30 The Screen Configuration window
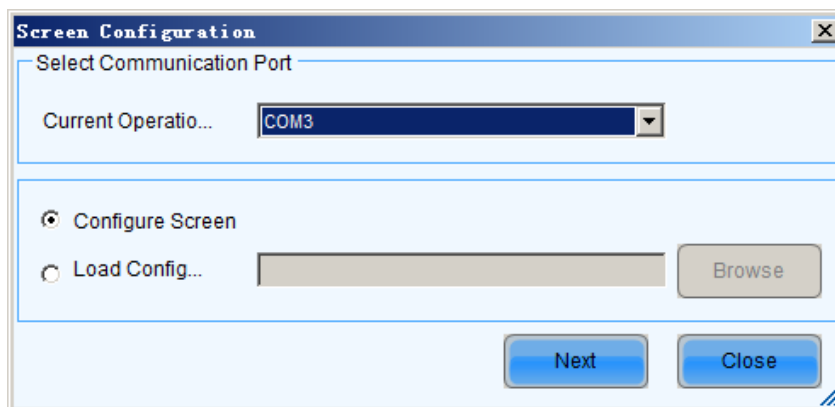
Step 2 Set the **Current Operation Communication Port**.

- If the control computer is connected to the synchronous system with one line, the communication port that the software defaults to is the current communication port.

- If the control computer is connected to multiple synchronous systems with different lines, please choose the corresponding communication port of the synchronous system to be configured.

Step 3 Select the **Load Config File** option, click **Browse**, select the save path of the current configuration file and click **Open**.

Step 4 Click **Next**. The selected configuration file will be automatically loaded to the LED display system. The LED display system will have been configured when the load operation is finished.

Note:

The loaded performance parameters from the configuration file can be adjusted if they are not suitable. Please refer to 7.1.2.3 Adjust the Performance Parameters for details about how to adjust the performance parameters.

7.2 Adjust Brightness

On the Home page of NovaLCT, click Brightness . The Brightness Adjustment page appears.

There are two methods to adjust the brightness: manual adjustment and automatic adjustment.

Note:

- During surveillance operation, the software adjusts the LED display brightness in accordance with user configuration.

- When surveillance is interrupted or serial control pot is disconnected, the hardware will automatically take over brightness adjustment.

- Display combinations do not support hardware adjustment

- The prerequisite of hardware adjustment is: the light sensor must be connected to the first sending card of LED display, or other devices connected to this card.

- All devices in one serial port have the same hardware adjustment mechanism, and the latest adjustment parameters prevail.

7.2.1 Manual Adjustment

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

Applicable Products

- Individual Gamma adjustment for RGB:

  - If the bit depth of input source for the sending card is 8bit, the receiving cards must support individual Gamma adjustment for RGB. Such receiving cards include A4, A4s, A5, A5s, A7, A7s, A8, A8s, A9s, A10s and A10s Plus.

  - If the bit depth of input source for the sending card is 10bit or 12bit, the sending cards must support individual Gamma adjustment for RGB. Such sending cards include MCTRL1600, MCTRL4K, MCTRL660 PRO, KT8, K16 and NovaPro UHD Jr.

- Other functions: All receiving cards and sending cards

Operating Procedure

Step 1   On the homepage, click Brightness.

Step 2   Choose **Manual Adjustment**.

Step 3   Drag the slider to adjust the brightness and choose **Grayscale** or **Contrast**.
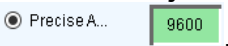
Step 4   Click to expand the advanced settings, and perform the following operations as required.

- Gamma adjustment

  Drag the slider to adjust the Gamma value.

- Color temperature adjustment

  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 Precise A... 9600 .

- Color space adjustment

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

  - After you log into NovaLCT as an advanced synchronous system user, you can configure the custom Gamma, custom color temperature and custom

color space. For detailed operations, see the **Related Operations** section below.

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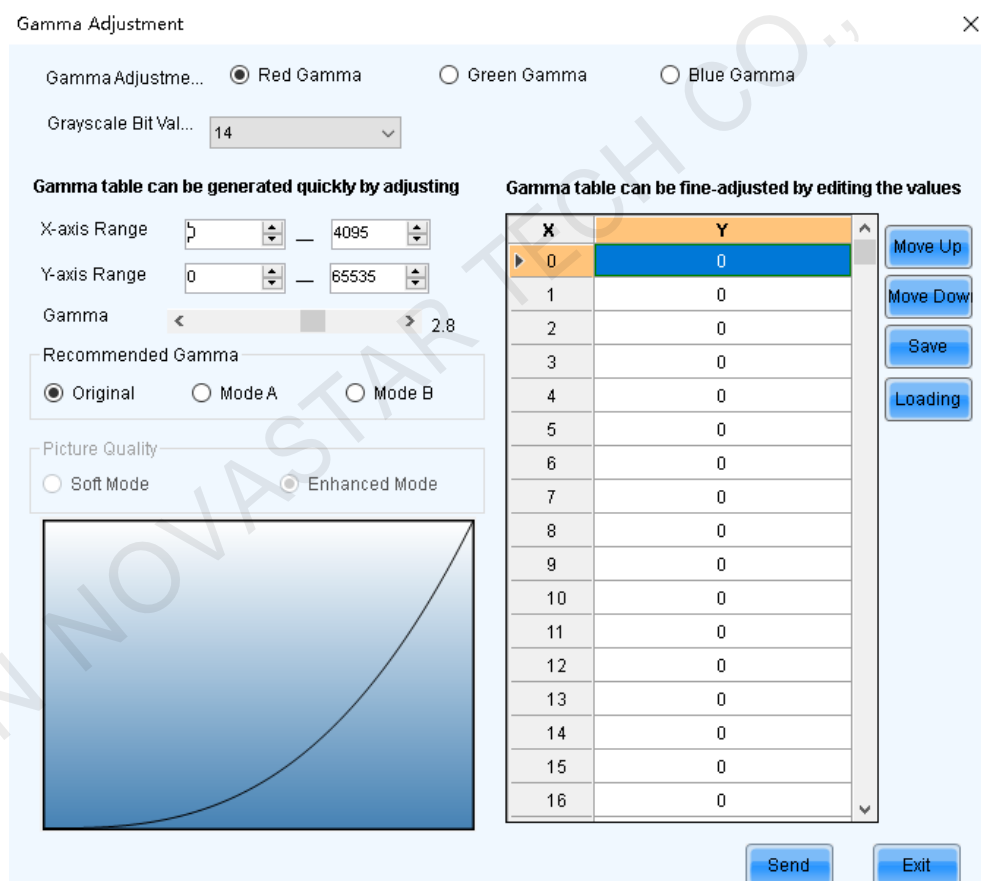
Related Operations

The following advanced functions can be performed by advanced synchronous system user.

Advanced function 1: Custom Gamma

Choose **Custom Gamma Adjustment** and click **Configuration** to open the dialog box shown in Figure 7-31.

Figure 7-31 Custom Gamma adjustment

If the controller supports individual Gamma adjustment for RGB, the **Gamma Adjustment** parameter is displayed. You can choose to adjust the Gamma curve for red, green and blue individually.

You do not need to set the following parameters manually.

- Grayscale Bit Value: Use the default value.
- X-axis Range: It indicates the range of X-axis for Gamma curve. The X-axis ranges for 8-bit, 10-bit and 12-bit input sources are 0–255, 0–1023 and 0–4095 respectively.

- Y-axis Range: It indicates the range of Y-axis for Gamma curve. The range is always 0–65535.

Methods to configure Gamma curve:

- Load a Gamma configuration file

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

- Adjust the Gamma curve manually

  Drag the slider to adjust the Gamma curve.

- Adjust the Gamma table manually

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

You can also set the following parameters if necessay.

- Recommended Gamma: The original mode is contrast preferred and Mode A is grayscale preferred. Mode B falls between those two modes.

- Picture Quality: When the Gamma curve is in Mode A or B, the picture quality can be set to soft mode or enhanced mode.

After the configuration is done, click **Send** to send the configuration information to the hardware. If necessary, click **Save** to save the Gamma information as a configuration file.

Advanced function 2: Custom color temperature

Choose **Precise Adjustment**, click ⊞ to open the dialog box shown in Figure 7-32 and configure custom color temperature in the dialog box.

Figure 7-32 Precise color temperature adjustment
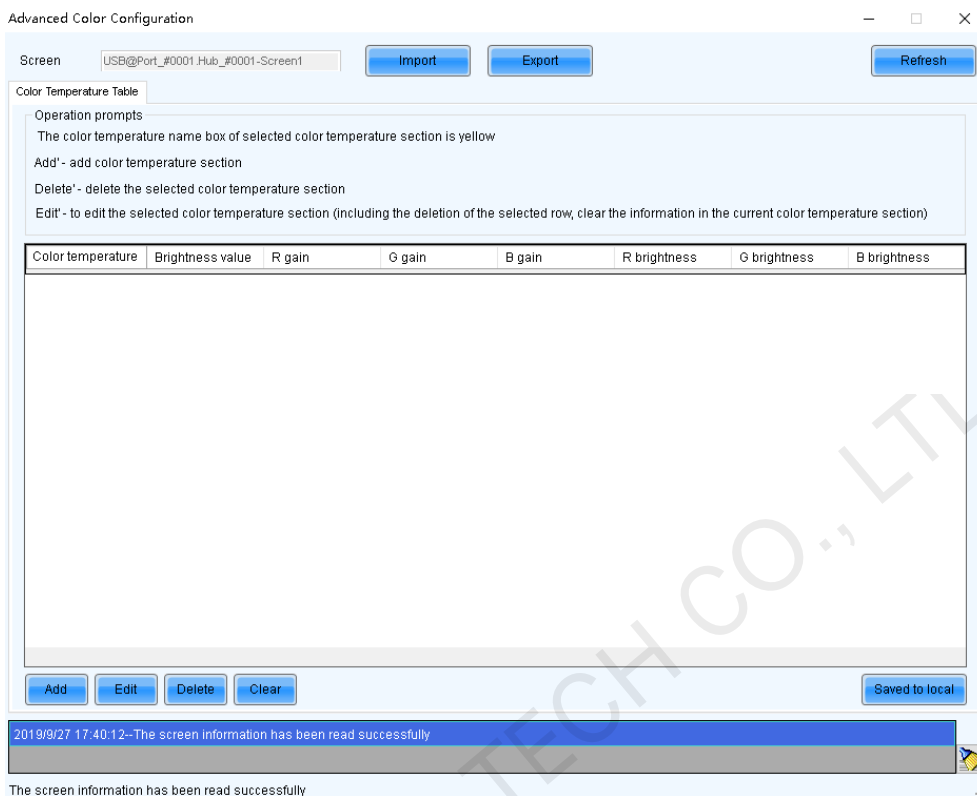
Clicking **Refresh** can read back the color temperature information from the hardware. Clicking [image] can clear the prompts during readback of screen information.

Methods to configure color temperature:

- Import a color temperature configuration file

  Click **Import** to import a color temperature configuration file.

- Add color temperature information manually

  Click **Add** to open the dialog box shown in Figure 7-33. Click **Add Brightness** to open the dialog box shown in Figure 7-34 and add color temperature information for the specified brightness value in the dialog box. **Current Gain** is a color temperature parameter of module, and **Brightness Component** is a color temperature parameter of receiving card. 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.

Figure 7-33 Adding color temperature information
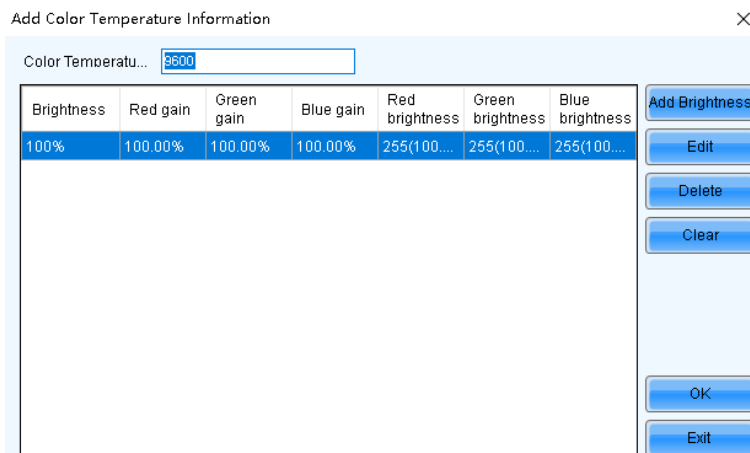
Figure 7-34 Adding brightness information
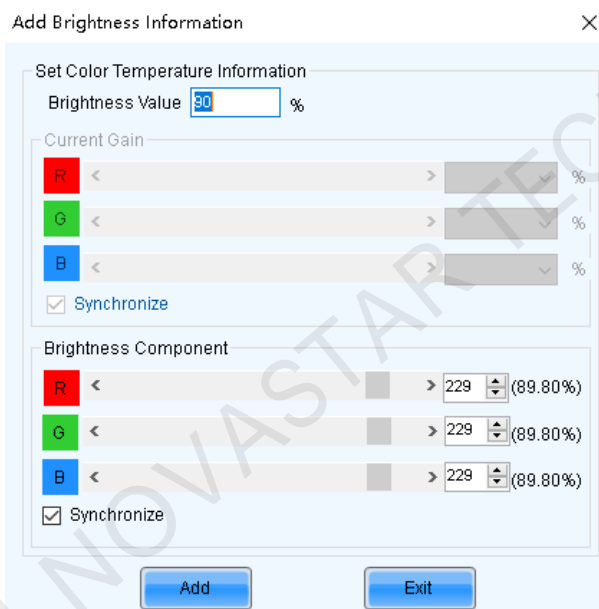
After the configuration is done, click **Save to local** to save the custom color temperature. A corresponding button will be displayed next to **Precise Adjustment**. If necessary, click **Export** to save the current color temperature information as a configuration file.

Advanced function 3: Custom color space

Click [+] to open the dialog box shown in Figure 7-35.

Figure 7-35 Precise color space adjustment
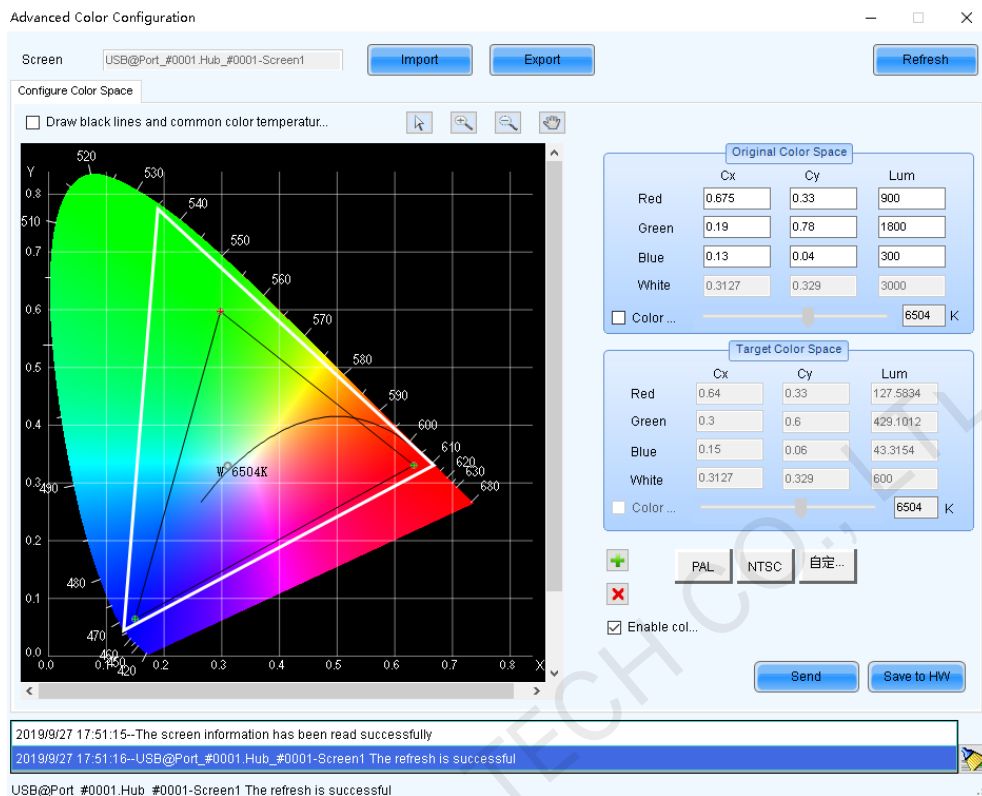
The white triangle represents the original color space. The target color space is configured based on the original color space. You are advised to use a colorimeter to measure the original color space of the screen and then enter the measured values in the original color space table.

Clicking **Refresh** can read back the color space information from the hardware.

Clicking ![icon] can clear the operation result prompts.

Methods to configure target color space:

- Select a standard color space

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

- Select a custom color space

  If there is a custom color space button, click to use it. If not, click **Import** to import a custom color space file, or click ![icon] to create a custom color space and then click to use it.

  The custom color space can be exported as a configuration file. It can also be deleted by clicking ![icon].

- 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.

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, or click **Save to HW** to save the information to the hardware.
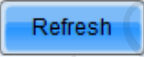
7.2.2 Automatic Adjustment

The goal of automatic adjustment is to achieve automatic adjustment based on time. You can follow the wizard to set the parameters. There are two methods of adjustment, **Advanced Adjustment** and **Adjust by Light Sensor**.

Step 1 Choose **Automatically Adjustment** and click **Wizard Settings**.

Step 2 Choose **Advanced Adjustment** or **Adjust by Light Sensor**. Then, click **Next**.

Step 3 Adjust the parameters on the displayed page. Then, click **Finish**.

Step 4 Click **Save**.

On the **Brightness Adjustment** page, click [Refresh] and you can see current brightness.
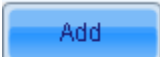
Step 5 (Optional) Click **Export Log** to export the brightness adjustment log.

7.2.2.1 Advanced Adjustment

You can configure multiple time points, each point can be configured with specified brightness or environment brightness.

- **Specified brightness:** The brightness of LED display from certain time on designated by the user, the brightness is fixed.

- **Environment brightness:** The brightness of environment from certain time on designated by the user, the software will automatically adjust the LED display brightness in accordance with the parameters set by the users as well as environment brightness information collected by light sensors so that the LED display can exhibit proper brightness under different environment brightness.

Add specified brightness

Step 1 Click [Add], Set the start time, type of adjustment and designated brightness.

Step 2 Click [More Settings], Choose whether to adjust color temperature, if it's needed to adjust color temperature, you can choose color temperature segment in the drop down list (color temperature table must be configured in advance, please see description of color temperature table in 7.7 Advanced Color Configuration), check **Adjust Gamma**, drag scroll bar to adjust Gamma value.

Step 3 After parameter configuration is done, click [OK], to add another designated brightness.
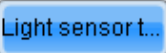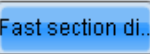
Add environment brightness

Step 1 Click ![Add], to set start time and type of adjustment.

Step 2 Click More Settings, choose whether to adjust color temperature, if it is needed to adjust color temperature, you can choose color temperature segment in the drop down list (color temperature table must be configured in advance, please see description of color temperature table in 7.7 Advanced Color Configuration), check **adjust Gamma**, drag scroll bar to adjust Gamma value.

Configure light sensors

Environment brightness is detected by light sensors, a system must be equipped with light sensors, and you must configure the light sensor before adding environment brightness.

- **Light sensor t...** : Detect light sensors connected to sending cards and function card, the light sensors that connected to function card must be set as the external device.

- **Refresh** : Refresh current light sensor connection conditions to avoid new connection or disconnecting the light sensor during operation.

- **When light sensor fails, adjust the brightness to:** Enabled after being checked. If not enabled, when light sensor fails, the brightness will remain at the latest updated brightness value.

- **Fast section di...**: Divide the portion between the maximum environment brightness and minimum environment brightness into designated equal parts, the portion between the maximum and minimum LED display brightness is also divided into similar equal parts. The software will adjust the LED display brightness to corresponding section in accordance with the section of current environment brightness.

Note:

NovaLCT first generates the environment brightness value from measurement results of all available light sensors according to the calculating type. And then NovaLCT uses the generated environment brightness to adjust the LED display brightness according to the parameter settings, such as brightness thresholds, segment numbers.

- **Night Mode**

  Night mode is to control screen brightness at night. The night mode is required to be enabled to avoid abnormal screen brightness caused by light sensor that disturbed by external light or by abnormal collection environment brightness data.

  In night mode, the system will adjust the screen brightness to the maximum brightness value in night mode while the screen brightness which is adjusted based on the environment data collected through the light sensor is greater than the set maximum brightness value in night mode.

  1. Select the check box in front of **Opening** to start the night mode.

2.   Click to add setting items of the night mode including **Start time**, **End time** and **Brightness maximum**.

   −   Start time: Set the start time for the night mode.

   −   End time: Set the end time for the night mode.

   −   Brightness maximum: Set the maximum brightness value in night mode.

Note:

● Maximum of 4 periods could be set for the night mode, and there cannot be any overlap between every two periods.

● When the night mode is enabled, at least one period must be set.

● When the start time and end time are set to the same time value, night mode is default as the only serving mode all the time.

● The system does not support hardware-based adjustment.

● A selected record could be modified by clicking the icon.

3.   Click **OK** to complete the night mode setting.

4.   Click **Finish** to complete the light sensor setting.
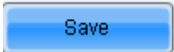
7.2.2.2 Adjust by Light Sensor

One time point will be generated by NovaLCT automatically, and it will be configured with environment brightness by default.

Step 1   Click Wizard Settings , check **Adjust by Light Sensor**, then click Next .

Step 2   If you have not finished configuration of light sensor, it is need to configure the light sensor then, the detailed operation, please refer to the step 3) in 7.2.2.1 Advanced Adjustment.

Step 3   Add specified brightness, ambient brightness as required, or edit or delete the added settings.

Step 4   All operations are finished, click Save .

7.2.2.3 Auto Brightness Time Interval

The following steps are to set the time interval for auto brightness.

Step 1   Click right button on the circled panel icon, as shown in Figure 7-36.

Figure 7-36 Brightness software icon

Step 2   Select **Brightness Advanced Settings** to open the advanced settings window.

Step 3   Set the values for **Detect Period** and **Read times of light sensors**. **Detect Period** is the time period the light sensors measure the environment brightness. **Read times of light sensors** is the times that NovaLCT reads the measurement results of the

light sensors. Thus the auto brightness time interval is the production of Detect Period and Read times of light sensors.

For example, if light sensors measure the environment brightness every 10 second (this is the Detect Period.) and NovaLCT reads the measurement results of the light sensors for 5 times (this is the Read times of light sensor.) before adjusting the LED display brightness, the auto brightness time interval will be 50 seconds.

Note:

The default values for Detect Period and Read times of light sensors are 60 seconds and 5 times respectively. Thus the auto brightness time interval is 300 seconds or 5 minutes by default.

7.3 Multi-function Card Management

Management operations of the multi-function card, including multi-function card configuration (such as adding, deleting, renaming), power management, monitoring data, peripheral device settings and program loading, will be given in this section.

Shown in Figure 7-37 is the **Multi-function Card Management** page.

Figure 7-37 The Multi-function Card Management page
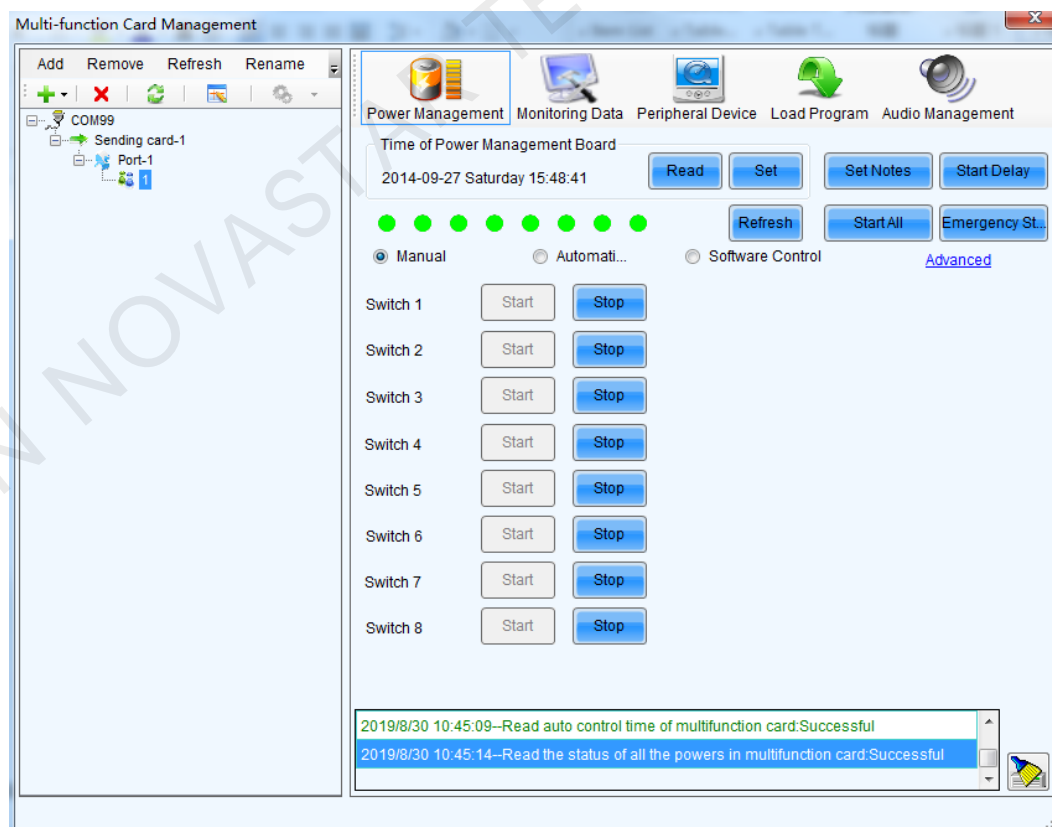
7.3.1 Multi-function Card Configuration

Use the menu or tool bar in the panel on the left of the Multi-function Card Management page to configure the multi-function card.

- Add
  - **Serial Port Connection**: add a multi-function card which is connected to a serial port of the computer.
  - **Ethernet Port Connection**: add a multi-function card which is connected to an Ethernet port of the sending card.
- Remove

  This is to remove the selected node. The selected node could be a multi-function card, Ethernet port, sending card or a serial port.

- Rename

  This is to rename the selected multi-function card.

- Operate serial port

  The corresponding menu item and tool bar button are only available when the following requirements are satisfied: The selected node is a serial port; the device connected to the serial port does not match the device type of the serial port or the serial port is disconnected.

  - **Modify Serial Port**: set the selected serial port as one that no multi-function card has been configured for it.
  - **Replace Serial Port**: when the multi-function card of the selected node is connected to a serial port other than that of the selected node, click this button to replace the selected node serial port with the one that is connected with the multi-function card.

Note:

After the multi-function card configuration is done, all the multi-function cards will perform time synchronization automatically at 0 o'clock every day.

7.3.2 Power Management

Click the **Power Management** button on the **Multi-function Card Management** page to open the page for power management. The Power Management page is shown in Figure 7-38.

Figure 7-38 The page for power management
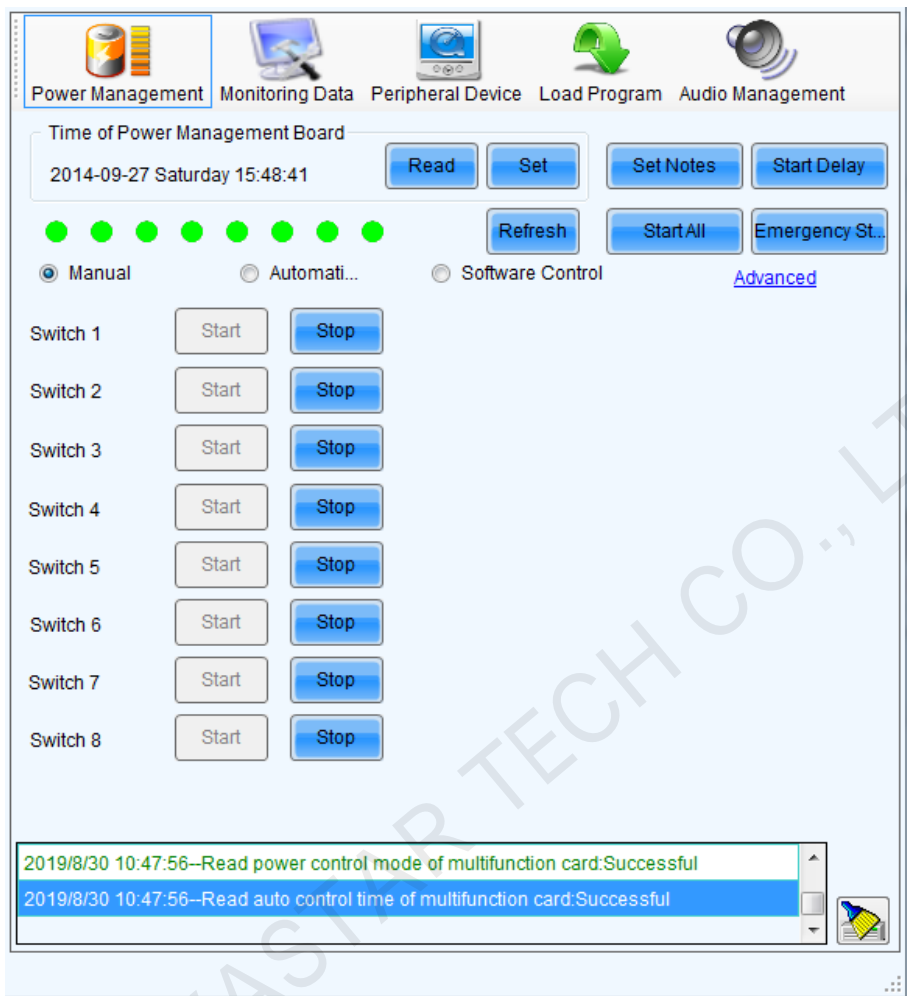
- Read

  Read the time from the multi-function card and show in this panel.

- Set

  Set the multi-function card time as that of the computer.

- Set Notes

  Set note for each of the power supply of the current multi-function card.

- Start Delay

  Set the delay time for starting power. If the delay time is successfully set, the stating of each of the power supply control by the multi-function card will be delay for the delay time. For example, if the delay time is set as 2 seconds, then each power supply will delay 2 seconds when starts.

- Refresh

  This button is to refresh the power management information, including the power control mode (manual, auto or software control), the power supply status (start or stop), the multi-function card time and the delay time.

- Start All

  This button is to start all power supplies controlled by the multi-function card.

- Emergency Stop

Click this button to stop all power supplied controlled by the multi-function card. For power supplies under auto control, their schedules will be disabled when the emergency stop operation is executed. The schedules won't be enabled until **Start All** button is clicked.

- Manual

  This is to set the power control into manual control mode. Use the Start button or the Stop button to start or stop the corresponding power.

- Automatic Control

  This is to set the power control into auto control mode. The hardware system will start or stop the power supplies according to the schedule automatically. The schedule can be set and send to the hardware through NovaLCT.

- Software Control

  In this mode, NovaLCT controls the power supplies according to the schedule set for the power supplies.

7.3.2.1 Manual Power Control

Select the Manual option to set the power supply control mode in to manual mode. And the power supplies of the multi-function card can be controlled through the corresponding Start button or Stop button.

7.3.2.2 Automatic Power Control

If the power control mode is set to auto mode, please set the automatic control time according to actual needs and then click **Send**.

	Note:
	• In Auto mode, the schedule will be disabled if the **Emergency Stop** button is clicked. The schedule won't be enabled until the **Start All** button is clicked.
	• The time standard for automatic power control is the multi-function card time. Check the multi-function card time before setting the schedule for auto power control. To check the multi-function card time, click **Read** button in the **Multi-Function Card Time** panel. To set the multi-function card time, click **Set** button and the multi-function card time will be set the same as that of the computer.

7.3.2.3 Software Power Control

The page for software power control is as shown in Figure 7-39.

Figure 7-39 The page for software power control
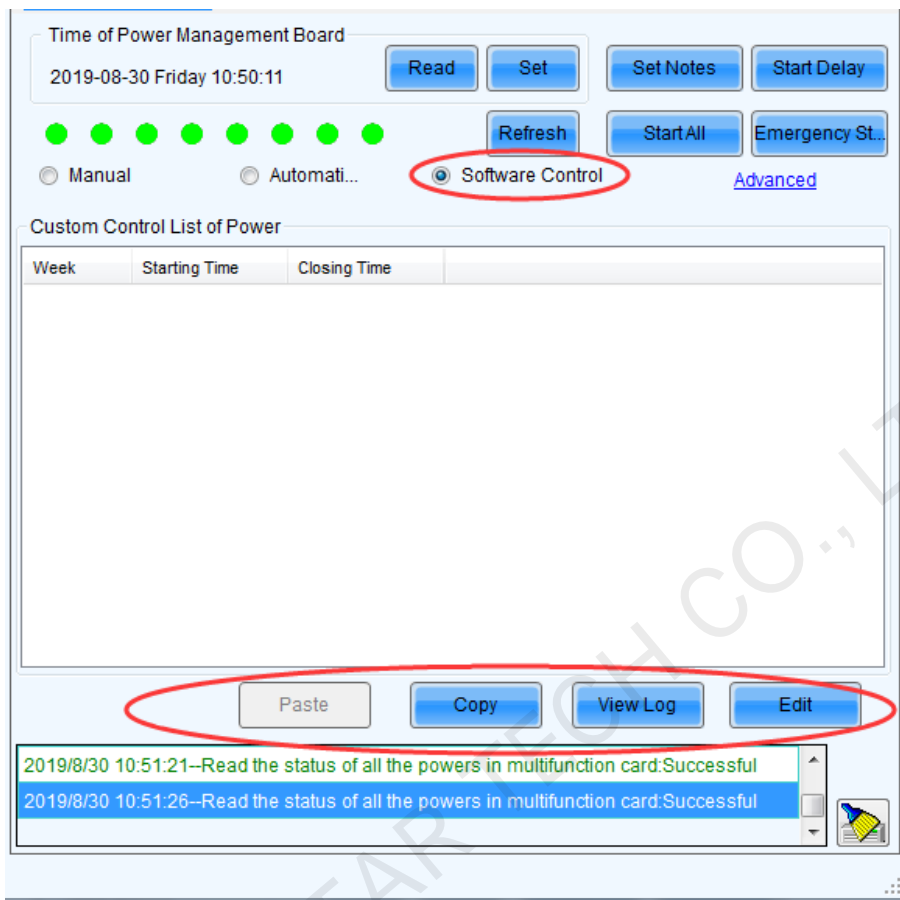
- Copy

    To copy the power control schedule of the current multi-function card so it can be applied to other multi-function cards by pasting.

- Paste

    To paste the copied power control schedule to the current multi-function card.

- View Log

    View the custom power supply control log of the multi-function card.

    To check the power control log, select the date of the log to be checked in the box labeled **Select the Log File** and select the multi-function card to be checked form the multi-function card list (the **Address** list) at the left of the page. The detail of power supply control will be shown in the panel at the right of the page.

- Edit

    Click this button to open the page for editing the power supply control schedule.

- Delete

    Click this button to delete the selected items in the Custom Edit Area.

- Clear

    Click this button to clear all existing settings.

- Power Switch

    Listed in the panel are the power supplies controlled by the multi-function card.

- Date

Select the days for power control in this panel.

- Time

  Set the time for start and stop the power in this panel.

- Add

  Click this button to add the settings in the Custom Edit Area to the Custom Control List of Power.

Note:

The time standard for the software control mode is the time of the computer on which NovaLCT is running.

7.3.3 Monitoring Data

Click **Monitoring Data** button on the **Multi-function Card Management** page to open the page for system monitoring. Show in Figure 7-40 is the page for system monitoring.

Figure 7-40 The page for system monitoring
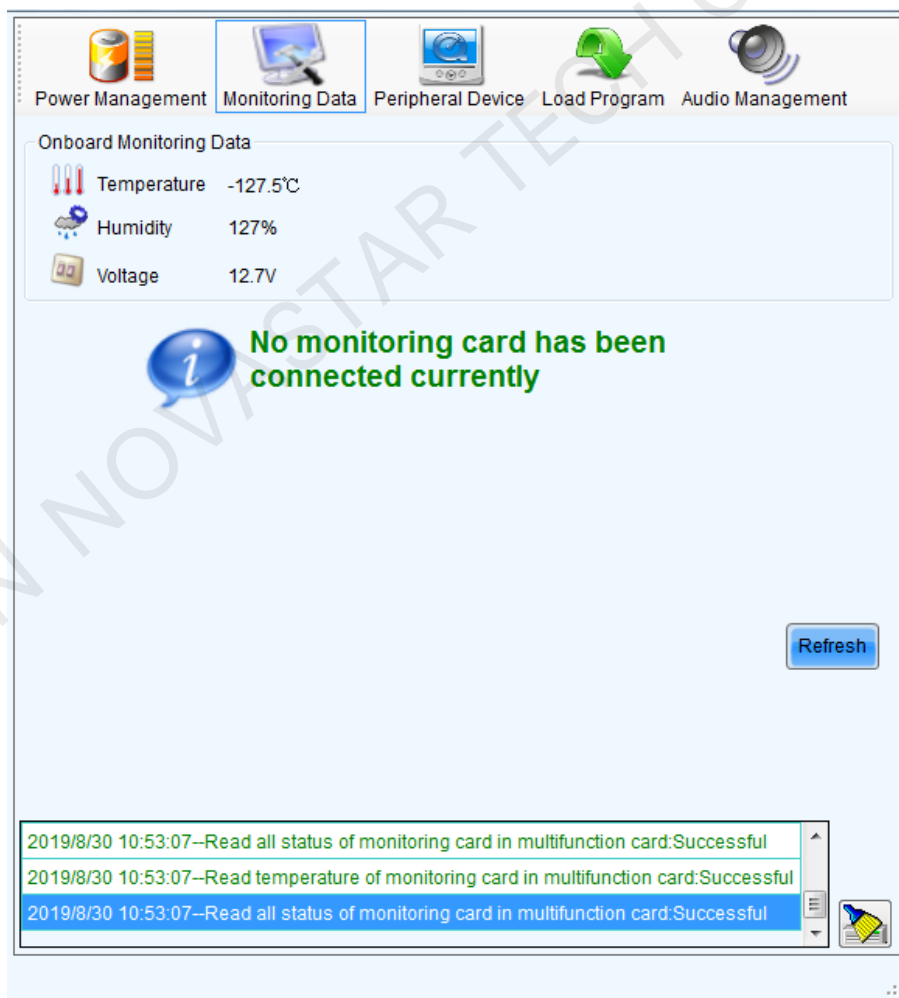
Refresh: Click this button to acquire the monitored data from the current multi-function card and the monitor board that connected to the current multi-function card.

7.3.4 Peripheral Device

Click the **Peripheral Device** button on the **Multi-function Card Management** page to open the page for external devices management. Shown in Figure 7-41 is the page of External Device.

Figure 7-41 The page for pheripheral devices management
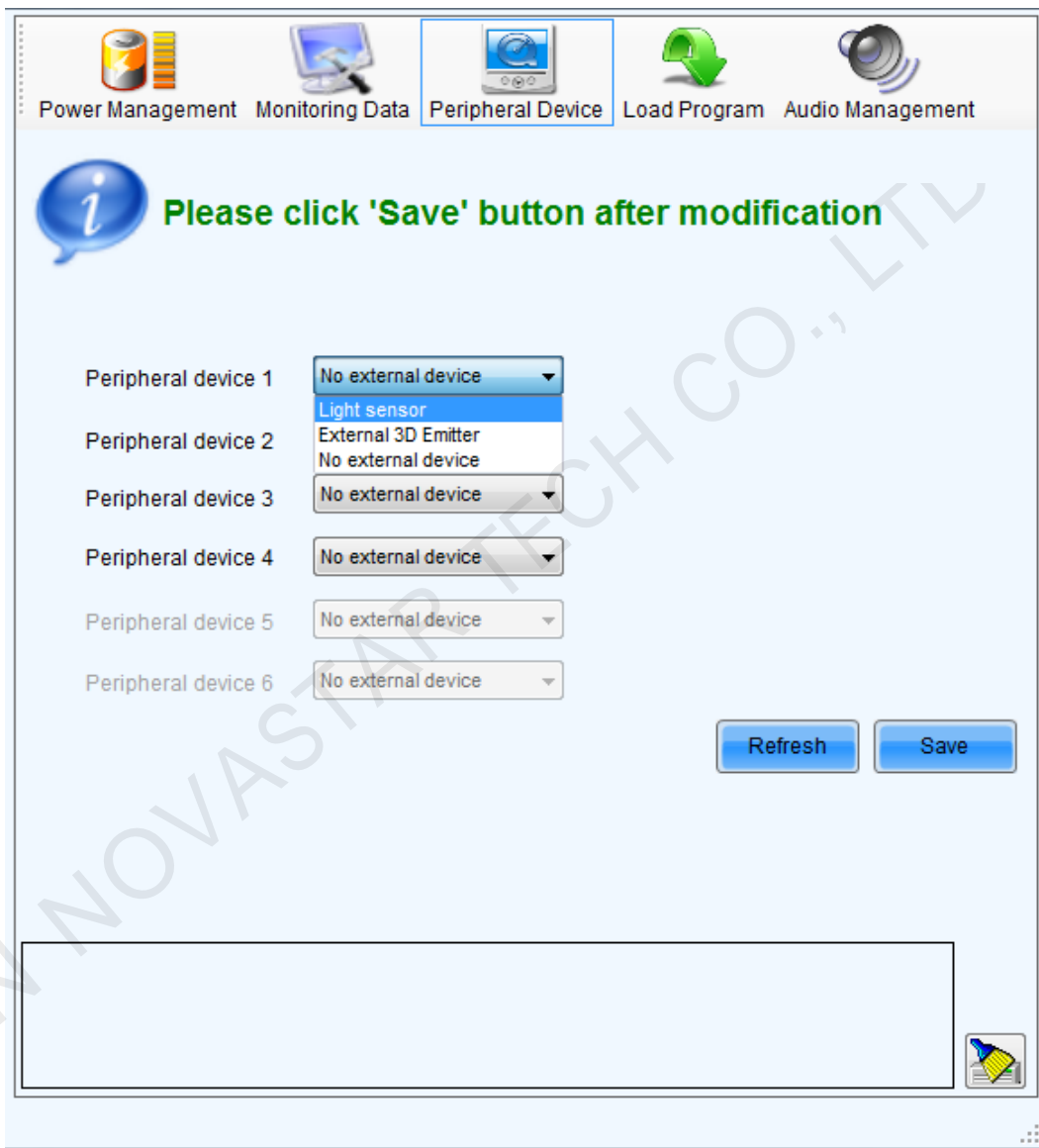
- Refresh

  This is to refresh the information of the external devices.

- Save

  Click this button to save the external device type settings to a file. The **Save** button must be clicked after any modifying of the external device type settings.

7.3.5 Load Program

Click the **Load Program** button on the **Multi-function Card Management** page to open the page for loading program to the hardware.

Refresh: Click this button to acquire the version information of the current multi-function card.

Type "admin" directly to access the options for program loading. Shown in Figure 7-42 is the page with the program loading options.

Figure 7-42 The page with program loading options
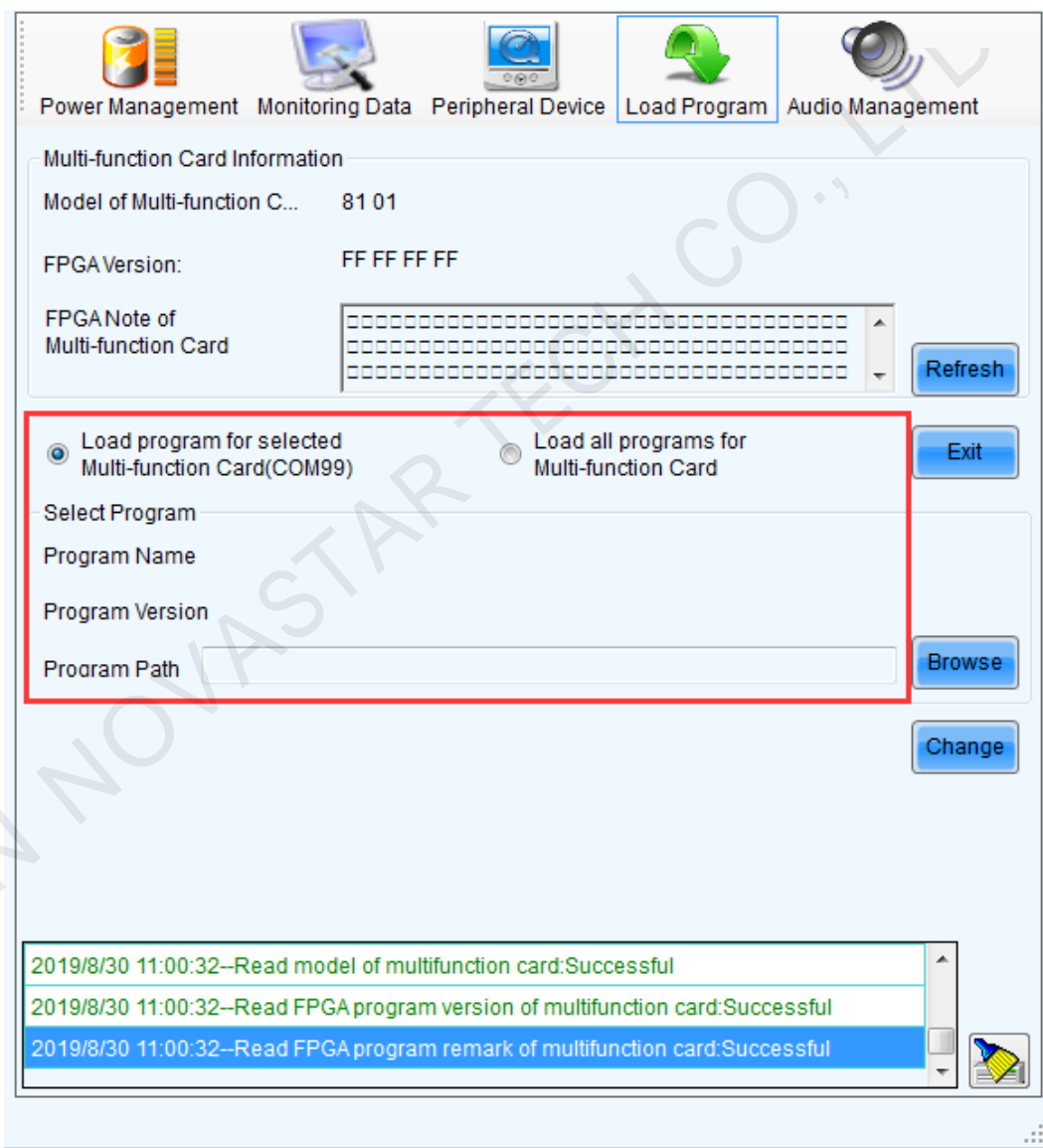
- Exit

  Click this button to go back to the page shown in Figure 7-42.

- Load program for selected multi-function card

  Select this option to load program to the current multi-function card.

- Load program for all multi-function card

Select this option to load program to all multi-function cards.

- Program Path

  Select the program to be loaded here.

- Change

  Click this button to load the selected program to the current multi-function card or all multi-function cards.

Note:

- There isn't any place to view the typing when typing the pass code. Just type in the pass code directly and the page will be shown.

- Just type in the pass code again if the one input before is wrong.

- It not recommended changing the program unless there are problems with the multi-function cards.

7.3.6 Audio Management

Click **Audio Management** to set the audio channel connected to the multi-function card.

If an independent audio channel is connected, select **Independent Channel** and click **Set**. If an HDMI audio channel is connected, select **HDMI Channel** and click **Set**.

After the hardware device is replaced, click **Refresh** to read the audio channel connected to the current multi-function card.

7.4 Multi-screen Management

To make brightness control and monitoring easier, multiple LED screens can be combined together. The combined is called a combined screen.

Number of Combined Screen: This is the number of combination screens to be configured.

Operation procedure

Step 1   Select **Settings** > **Multiple-screen Management** to open the **Configuration of Combined Screen** window. Enter the number of combined screens and click **Configuration** to add combined screen tabs.

Step 2   Set the name of current combined screen. Set the **Number of Screen** and click **Configuration** on the right to show the screens in canvas.

Step 3   Right click on a screen to enter the **Currently operating screen information** page. Select the communication port and the associated screen.

- Communication port

  This is the communication port that the target LED display is connected to the computer.

- Screen list of designated

  This is the index of the target LED screens in the screen list under the communication port designated by the user.

Step 4 Do the same for the other screens of the combined screen.

The layout of the screens in the combined screen can also be arranged. Use the mouse to drag the screens.

7.5 Hardware Information

Select **Settings** > **Hardware Information** to enter the **Hardware Information** page.

Figure 7-43 The Hardware Information page
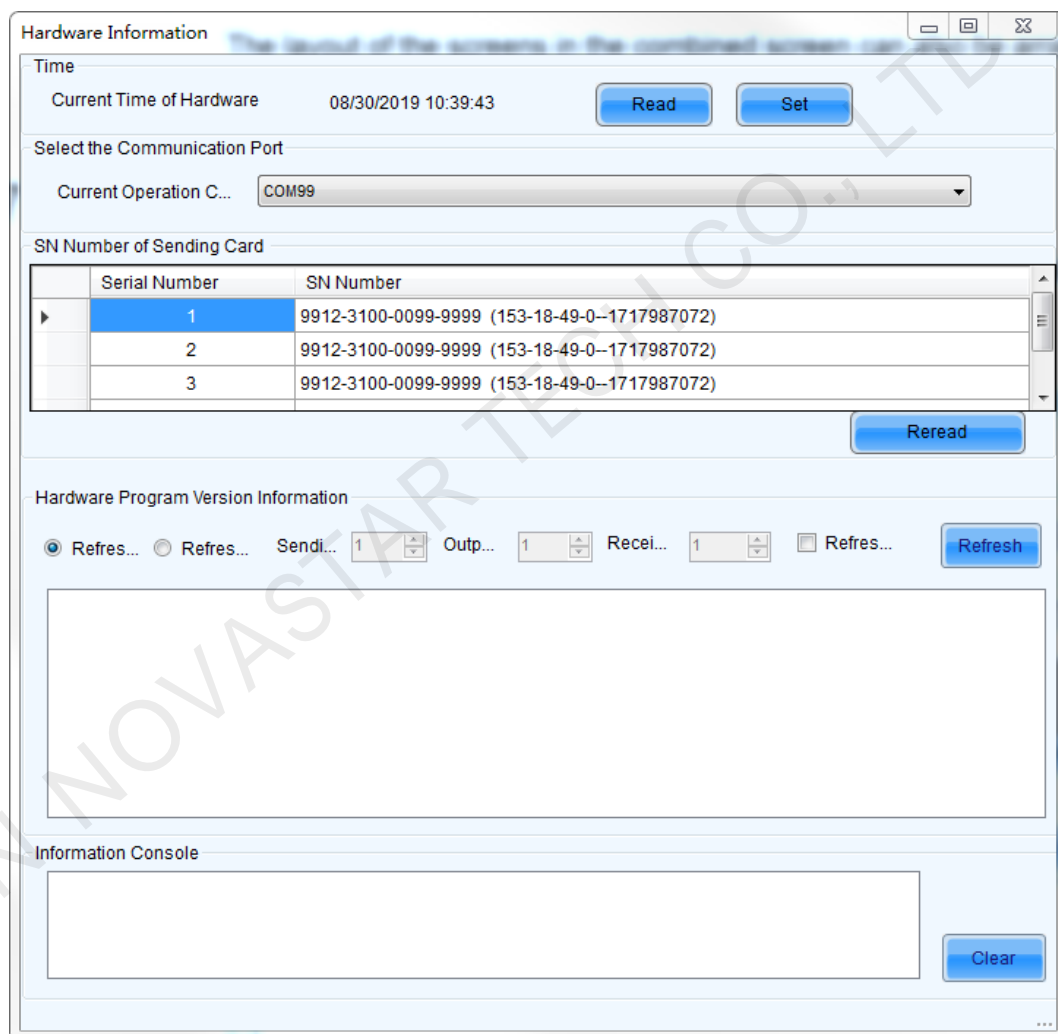
- Current Time of Hardware

  This is the date and time of the current synchronous system. Click **Read** button to update the hardware time shown in the **Time** panel. Click **Set** button to set the time of the current synchronous system as that of the computer.

Note:

The date information has been set for the synchronous system when produced. Only time (hour, minute and second) is set here for the synchronous system.

- Current Operation Communication Port

If more than one synchronous system is connected to the computer, set the communication port through which the synchronous system to be configured.

- SN Number of Sending Card

  Listed are the SNs of all sending cards of the current communication port. To update the listed SNs, click **Reread**.

- Hardware Program Version Information

  Displays the program version information of the sending card MCU, sending card FPGA, and receiving card FPGA.

7.6 Prestore Screen

User can store a picture as the screen's prestore screen in the **Prestore Picture Settings** window, and then use as boot logo, cable disconnected logo, and no DVI signal logo.

Select **Settings** > **Prestore Screen**, as shown in Figure 7-44.

Figure 7-44 **Prestore Picture Settings** window
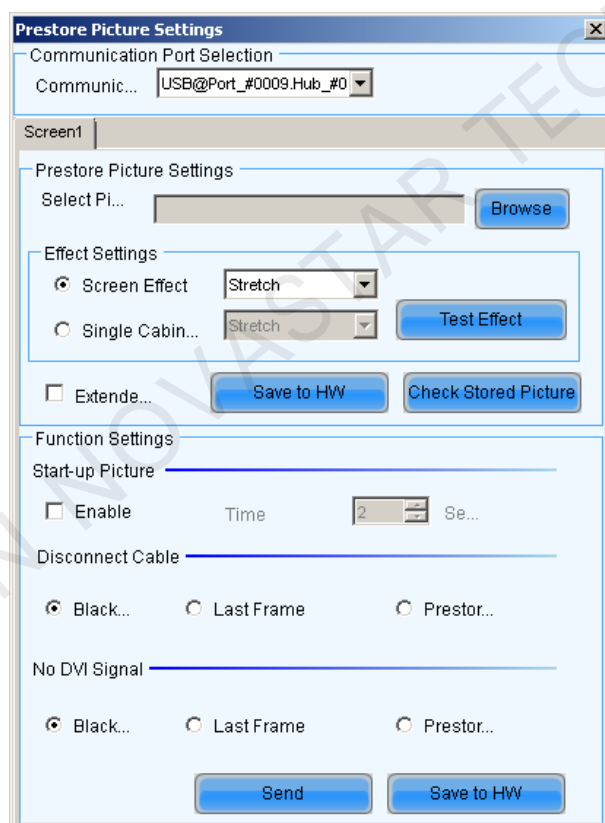
Prestore Picture Setting

- Select Picture: Select the picture's path of Prestore Screen.
- Screen Effect: The selected picture will be stretched, tiled or centered to the screen. (Each cabinet will show part of this picture, and they matching to be the whole picture)

- Single Cabinet Effect: The selected picture will be stretched, tiled or centered to each cabinet of the screen. (Each cabinet will show this picture in its own region).
- Test Effect: Show the selected picture on the screen. (This operation will not save the picture to the hardware.)
- Save to HW: User can click this button to save the picture as Prestore Screen to the hardware if he is satisfied with the test effect.
- Check Stored Picture: In order to check the stored effect, click this button to show the Prestore Screen which was stored in the hardware on the screen.
- Extended Screen: Select **Extended Screen** to display the picture that the user selected on the extended screen. (This operation will not save the picture to hardware.)

Function Settings

- Start-up Picture: User can set whether enable boot screen or not and the boot screen time when power on. The Prestore Screen is used as the boot screen.
- Disconnect Cable: User can select the display frame when cable disconnect.
- No DVI Signal: User can select the display frame when there is no DVI signal.
- Send: Send the settings to the hardware. (If Save to Hardware is not clicked, the settings will lost after power off.)
- Save to HW: Save current settings to hardware, then the settings will not lost after power off.

7.7 Advanced Color Configuration

Advanced color configuration includes factory setting, configure color space, color temperature table and color adjustment. The target color space plan and color temperature table configured here can be called directed when adjusting brightness.

Choose **Settings** > **Advanced Color Configuration**, as shown in Figure 7-45.

Figure 7-45 Advanced color configuration
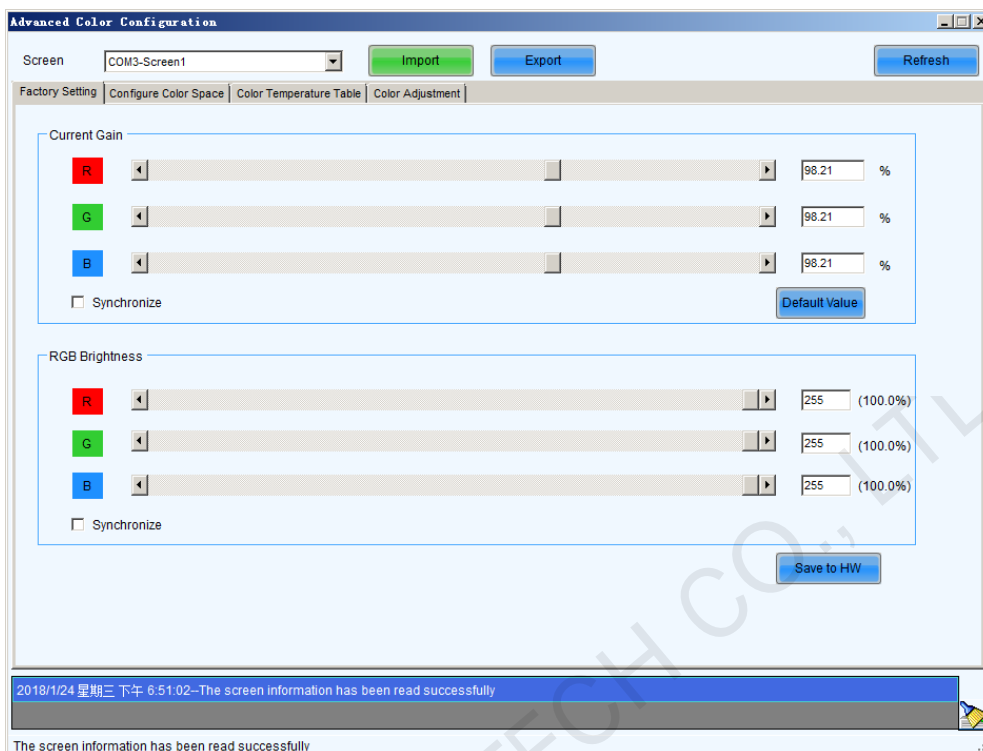
Factory Setting
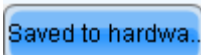
- **Current Gain**: Some chips support current gain control.

- ![Default Value]: Default Value: click to restore the default values.

- RGB Brightness: adjusts brightness of R/G/B colors respectively, or check **synchronization** to adjust the three colors synchronously.

- ![Send to HW]: Save the current gain and brightness to hardware.

- ![Import]: Import local color configuration file.

- ![Export]: Export current color configuration and save on local disk.

Color space configuration
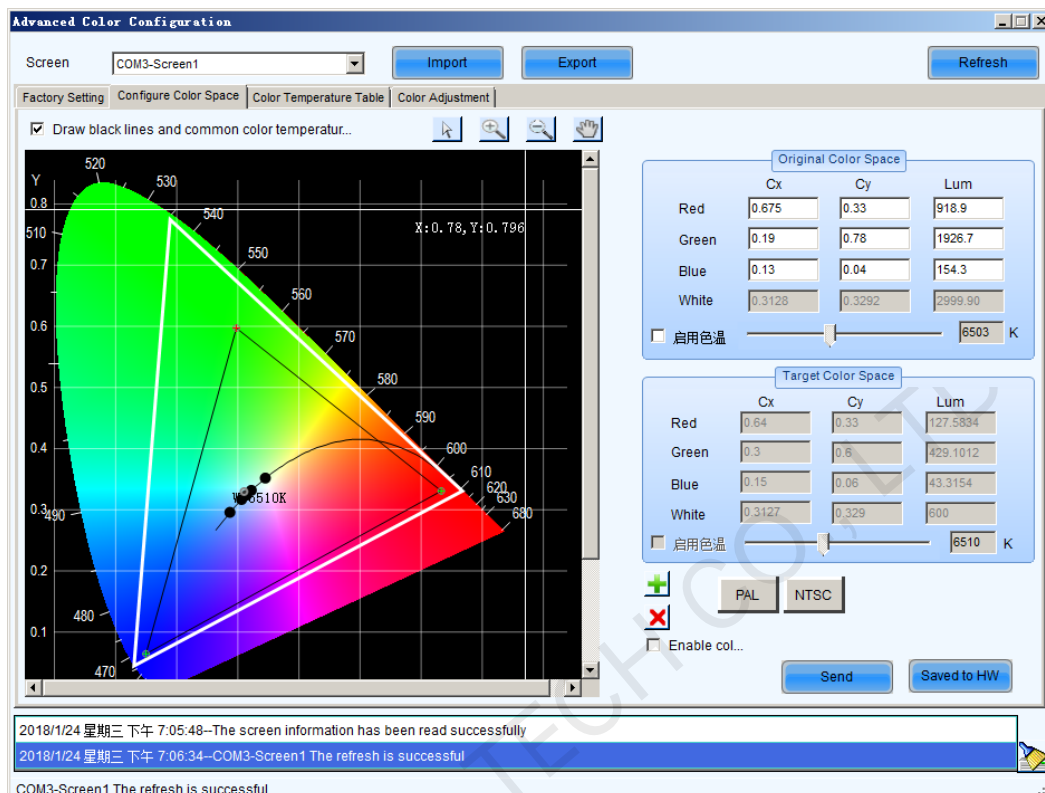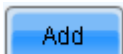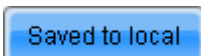
- Draw black lines and common color temperature points: When this option is selected, a black line (color temperature curve) and common color temperature points (solid dots) are shown.

- Original color space: It is suggested to use a light gun to measure current CIE coordinates and brightness and fill out properly, use original color space as basis for adjusting color temperature.

- Target color space: The black triangle in the color space on left side of the interface is target color space, drag your mouse to change four-color target pixel.

  It is also allowed to directly change all coefficients of the target color space, when adjusting the target color space, preview the adjustment results on the LED screen until satisfaction.

- PAL/NTSC: Standard system, click the button with your mouse, the target space will be set to either PAL or NTSC system.

- Enable color space adjustment: After being checked, the target color space values can be applied to the entire LED display.

- ![+]: Add color space information, save current color space as a customized color space information to be called at any time in the future.

- ![x]: Delete selected customized color space information. Select customized color space information to be deleted, click this button, the color space information will be deleted.

- ![Send]: Send current calibrated color space and target space to LED display.

- **Saved to hardwa.** : Save current calibrated color space and target space to hardware.

Color temperature table

- **Add** : Add color temperature segments.

- **Edit** : Compile selected color temperature segment.

- **Delete** : Delete selected color temperature segment.

- **Delete** : Clear all color temperature segment.

- **Saved to local** : Save the color temperature table to local space.

Color Adjustment

Adjust hue, contrast and saturation of the LED display.

This function is only supported NovaStar Pro HD for the moment.

7.8 Adjust Screen Effect

Enable 18-bit mode, ClearView and HDR to control the display effect, creating finer images. Enable the low latency function to reduce the image latency from video input on the sending card to output on the receiving card

Applicable Products

18Bit+: A8, A8s, A10s, A10s Plus receiving cards

ClearView: A8, A8s, A10s, A10s Plus receiving cards

Low lantency: all receiving cards, the MCTRL4K, MCTRL1600 and MCTRL660 PRO sending cards

HDR: the sending cards that supports 10-bit or 12-bit input sources

Screen Effect Adjustment

Step 1 Choose **Settings** > **Adjust screen effect** to enter the **Adjust screen effect** page, as shown in Figure 7-46.

Figure 7-46 Screen effect adjustment
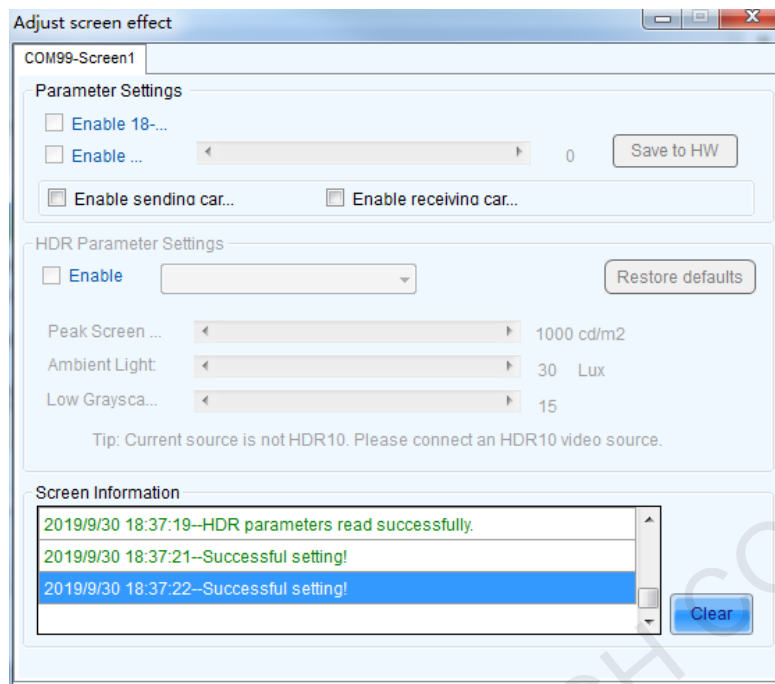
Step 2 Enable 18-bit mode, ClearView or HDR and set the corresponding parameters.

- **Enable 18-bit mode**: This avoids gray loss problem and improves LED display gray scale by 4 times, bringing better and finer display effects.

- **Enable ClearView**: Automatically adjust the texture, dimensions and contrast of images in various areas, improving image display details.

- **HDR**: Improve the quality of the image on the screen, making the image color more real and vivid and presenting clearer details. HDR standards support HDR10 and HLG.

  – When the input source is HDR10, you can drag the sliders to adjust the peak screen brightness, ambient light and low grayscale mode in real time.

  – When the input source is HLG, you can click to select one HLG mode from the 7 modes, namely HLG1 (300 nits) to HLG7 (1700 nits).

Figure 7-47 Screen effect adjustment-HLG
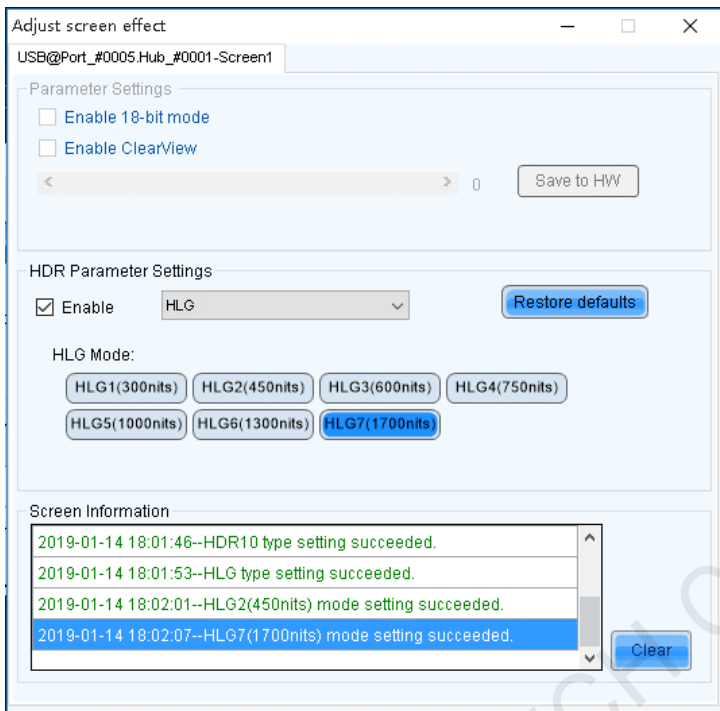
Low Latency

Step 1 Choose **Settings** > **Adjust screen effect** to enter the **Adjust screen effect** page, as shown in Figure 7-48.

Step 2 Under **Parameter Settings**, select **Enable sending card low latency** or **Enable receiving card low latency**. Selecting one of them can reduce a latency of one frame. Selecting the both can reduce a latency of two frames.

Figure 7-48 Low latency settings
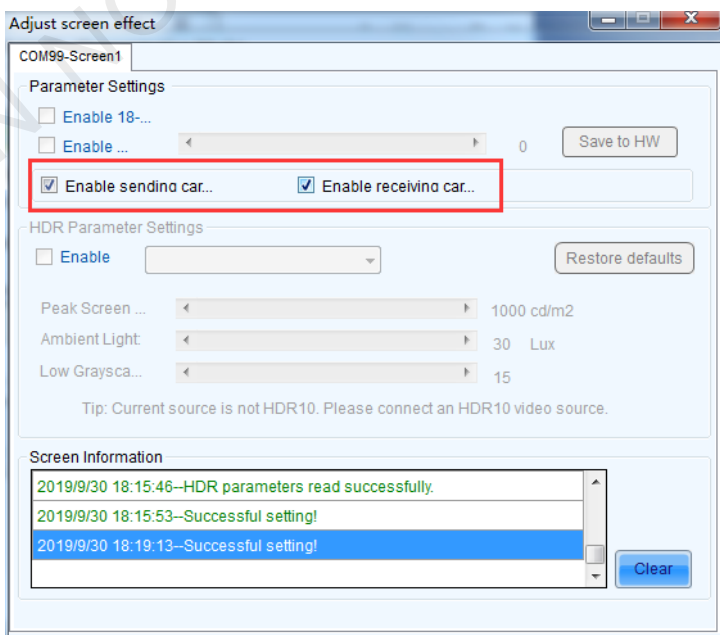
Note:
- Enabling HDR requires a video source of HDMI2.0 10-bit.
- HDR and ClearView cannot be enabled at the same time.

7.9 Cloud Monitoring
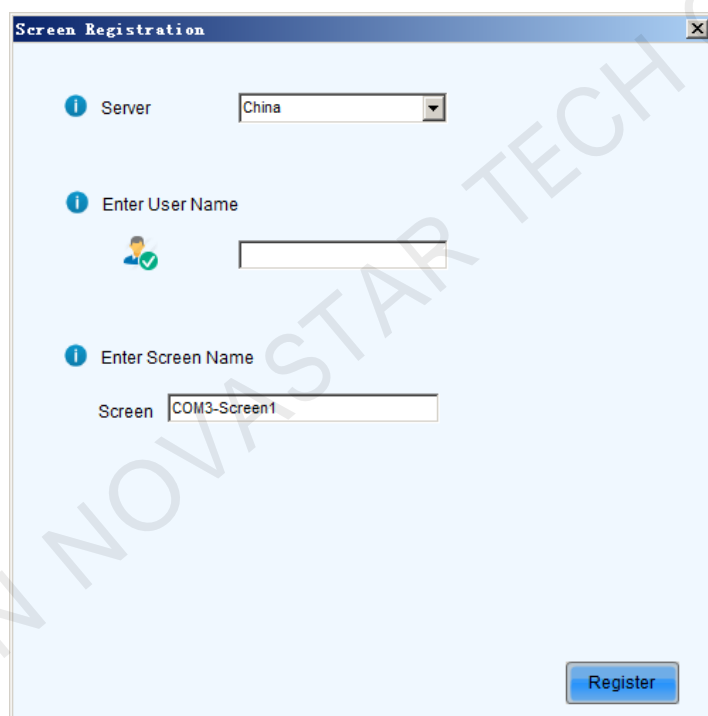
Click on [Cloud Monitoring], register the display screen to the user, may be one or more will

control the display screen connected with the computer, click on [Modify Regi...], fill in

the name of the display screen, registered account name, click on [Register], the
default will register all display screen to the user will all display.

Figure 7-49 Screen Register

- Enter Screen Name: Give a distinguishable name for the screen.
- Enter User Name: Account name registered on the server, under which the
  screen will be registered.

7.10 Receiving Card Relay

For the receiving card supporting the relay module, the parameters of relay can be
set here.

The relay can be set to be disconnected, closed or automatic. When the relay is set to be automatic, the temperature of closing and the temperature of disconnecting shall be designated.

Timing of receiving card is the accumulated using time of the receiving card; when **Timing Resetting**, the time will be recorded from 0.

After finishing the setting, click **Send** to send the parameters to the receiving card.

Figure 7-50 Setting of receiving card relay
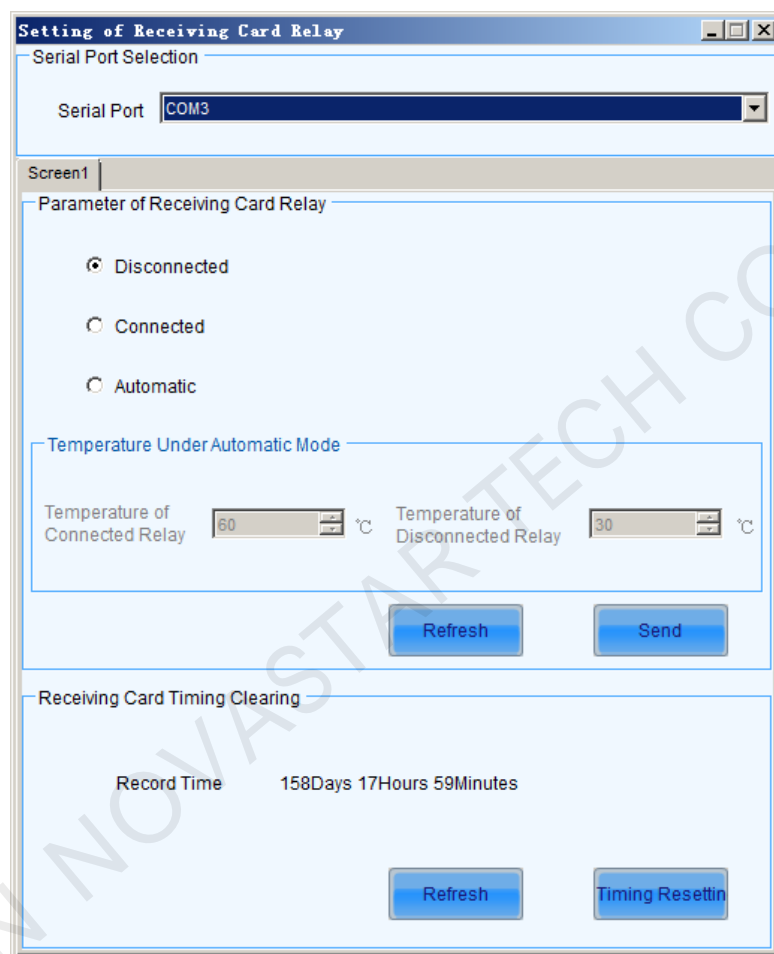
7.11 Configuration Information Management

Step 1 Open NovaLCT and choose **Settings** > **Configure Information Management** to enter its window.

Step 2 Click **Import Configuration**, **Export Configuration** or **Cancel** to manage the configuration file.

Figure 7-51 Configuration file management
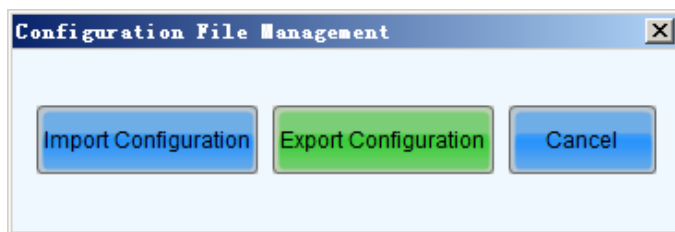
- Import Configuration: Import previously saved configuration files.
- Export Configuration: Export all the configuration files in the configuration process, and save in the computer in .zip format.
- Cancel: Exit the configuration file management.

7.12 The Main Window Starting Position

Set the coordinates of the top-left corner of the window image.

Step 1 Open NovaLCT and choose Settings > The Main Window Starting Position to open the **Starting Position Setting** window.

Step 2 Enter values of **X Coordinates** and **Y Coordinates**, and click **OK**.

8 **Tools**

8.1 Calibration

Step 1 Open NovaLCT. Choose **Tools** > **Calibration**, or Click Calibration to enter the
Screen Calibration page.

Step 2 Select the screen type. The options include Single-Screen Mode and Combined-
Screen Mode.

- Single-Screen Mode: Select the current communication port and screen.
- Combined-Screen Mode: after the configuration is done, the software will be
adaptive to the configuration.

Step 3 Perform the setting of displaying image. Set the position to display image, device
response time and whether to use input source for display.

Step 4 Set the calibration switch, including **Disable Calibration**, **Brightness Calibration**
and **Chroma Calibration**.

Step 5 Click **Save**.

8.1.1 Online Calibration

Online calibration is that NovaCLB (calibration software) connect NovaLCT through
network for calibration of LED displays.

It supports single-screen mode and combined-screen mode.

Figure 8-1 is the page for online calibration.

Figure 8-1 The page for online calibration
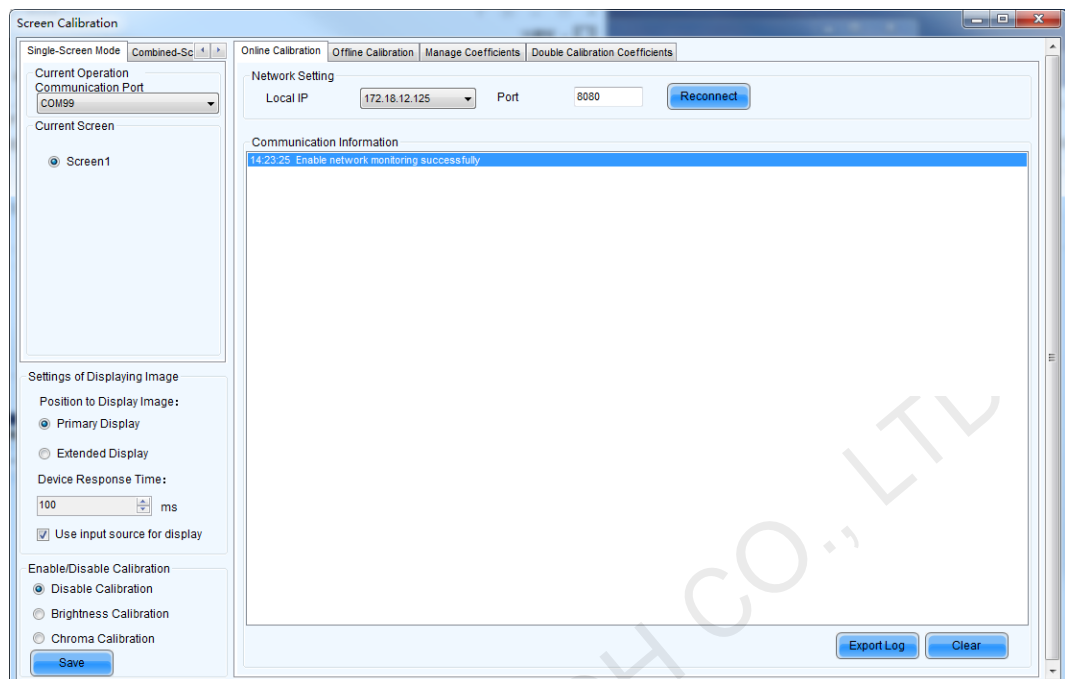
- **Local IP**

  This is the IP address that NovaLCT listens to. It is actually an IP of the computer on which NovaLCT is running.

- **Port**

  This is the port that NovaLCT listens to.

- **Reconnect**

  Click this button to terminate the current listening process and start a new listen process using the settings of Local IP and Port.

- **Communication Information**

  Records of the communication between NovaCLB and NovaLCT are listed is this panel.

- **Enable/Disable Calibration**

  Choose whether to enable the calibration coefficients of screen.

- **Save**

  Save the calibration switch status to the hardware.

- **Export Log**

  Click this button to save the communication information to a text file.

8.1.2 Offline Calibration

This function is used when no screen is connected to NovaLCT. You can calibrate the pixel on the displayed image on the control computer to generate calibration coefficients and save them. Only single-screen mode is supported.

Figure 8-2 Offline calibration
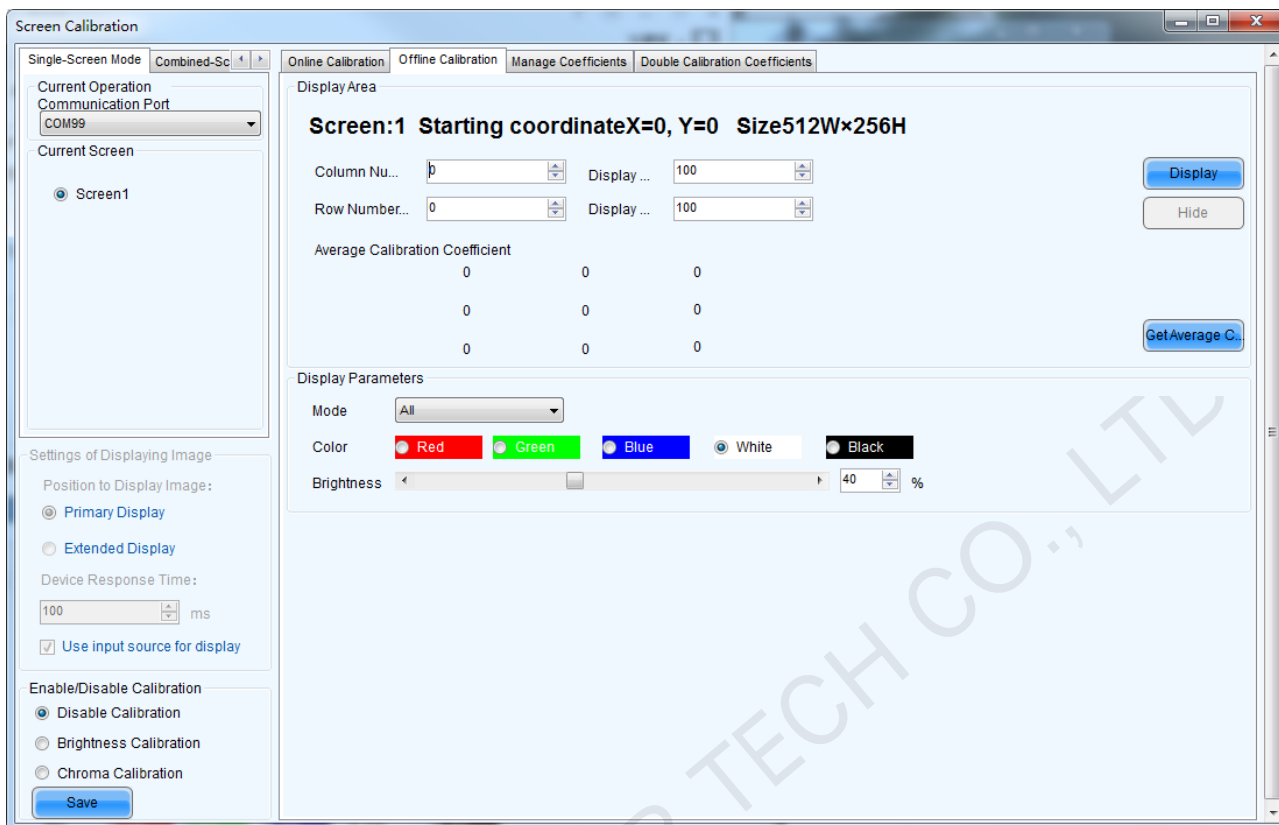
Step 1   In the **Display Area** area, set the start coordinates and size of the screen.

Step 2   (Optional) Click **Display** or **Hide** to display or hide the display image on computer.

Step 3   Click Get Average Coefficients to open the figure shown in Figure 8-3. Click OK.

Figure 8-3 Getting average calibration coefficients successfully
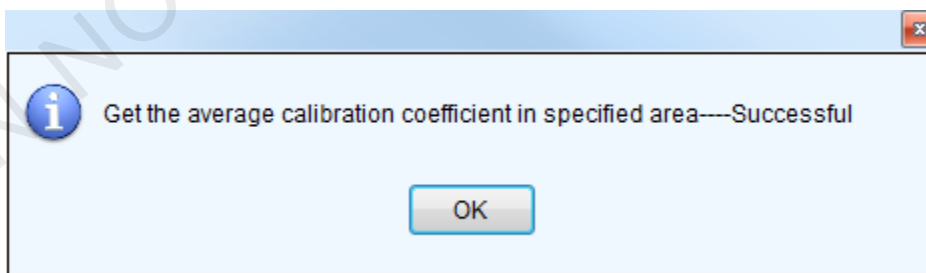
Step 4   In the **Display Parameters** area, set the display mode, color and brightness.

8.1.3 Coefficients Management

This page is to adjust the calibration coefficients for better calibration performance. The **Manage Coefficients** page is shown in Figure 8-4.

Figure 8-4 The Manage Coefficients page
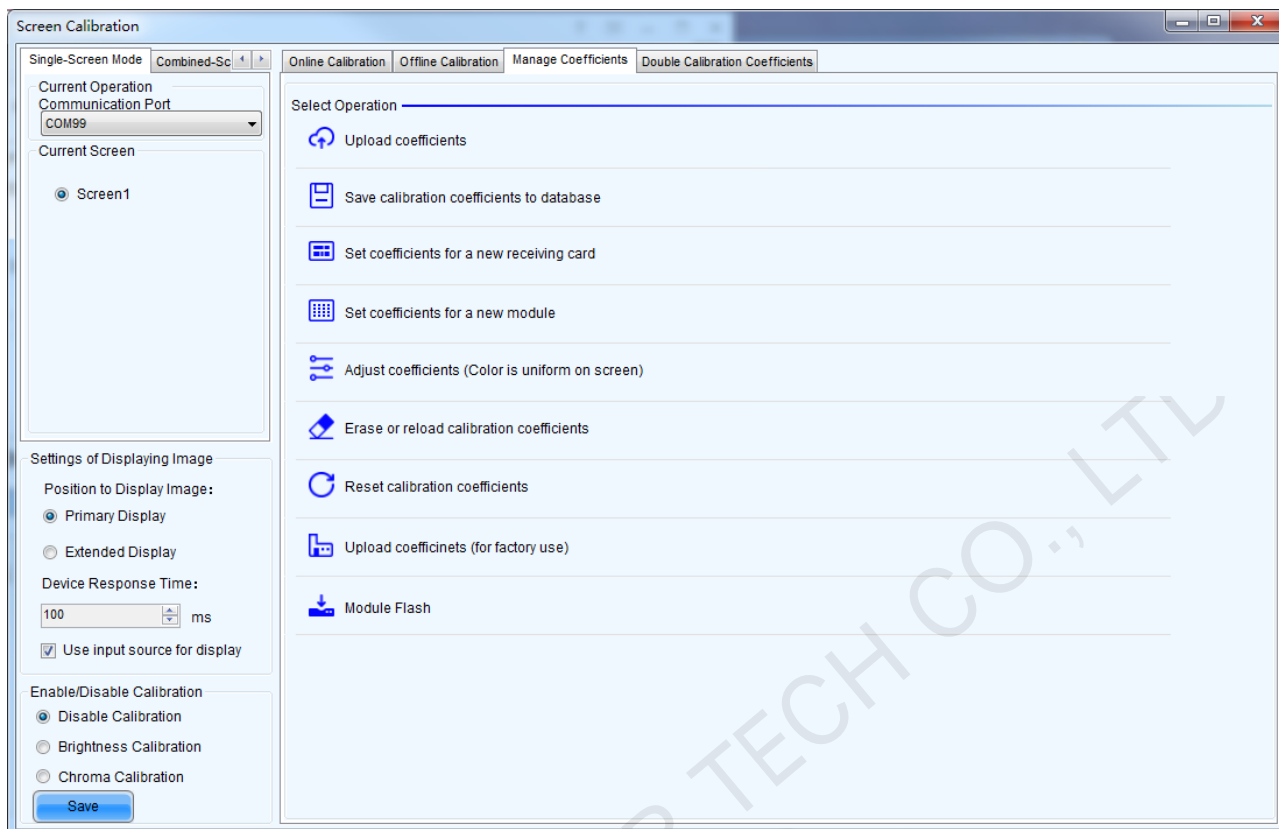
8.1.3.1 Upload Coefficients

This is to upload the calibration coefficients and Adjust lines coefficients to the LED display thus the LED display control system can use the coefficients to improve the image quality of the display.

Step 1 Browse the directory and choose the files of calibration database and dark or bright lines.

- **Browse**

  Click this button to select the calibration coefficients database file to be uploaded.

- **Type**

  The type of the selected calibration coefficients database is shown here. There are two database types, screen database and cabinet database. A screen database contains calibration coefficients for a whole display while a cabinet database contains calibration coefficients for one or multiple cabinets.

- **Cabinet ID**

  The cabinet ID(s) will be shown here if the selected is a cabinet calibration coefficient database

- **Columns**

  This is the column number of the calibration coefficient array of the selected database.

- **Rows**

This is the row number of the calibration coefficient array of the selected database.

Figure 8-5 The page for upload coefficients step 1

Step 2   Click **Next** button to open the page for Step 2 after all settings.

This step is to specify the LED display area for which the calibration coefficients are to be uploaded. There are three options, Screen, Pixel, Topology or List.

- Screen

Figure 8-6 The page for uploading calibration coefficients in Screen way
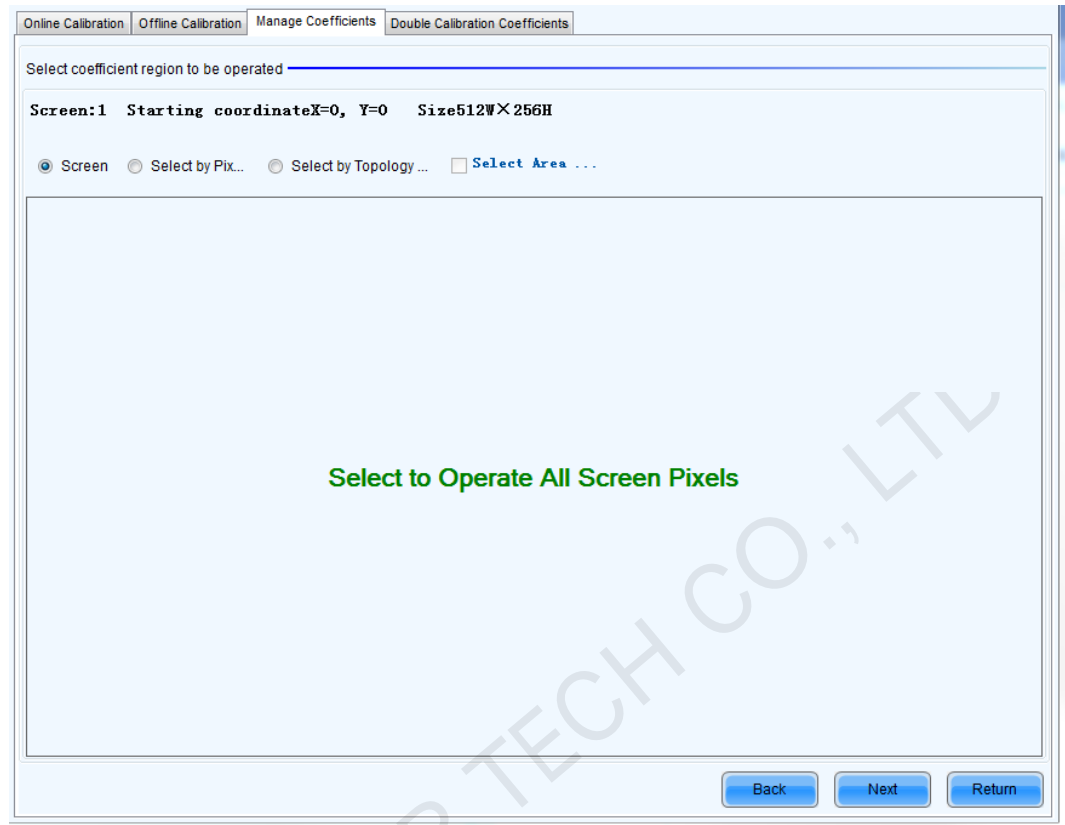
● Select by Pixel Area

Figure 8-7 The page for uploading calibration coefficients in Pixel way
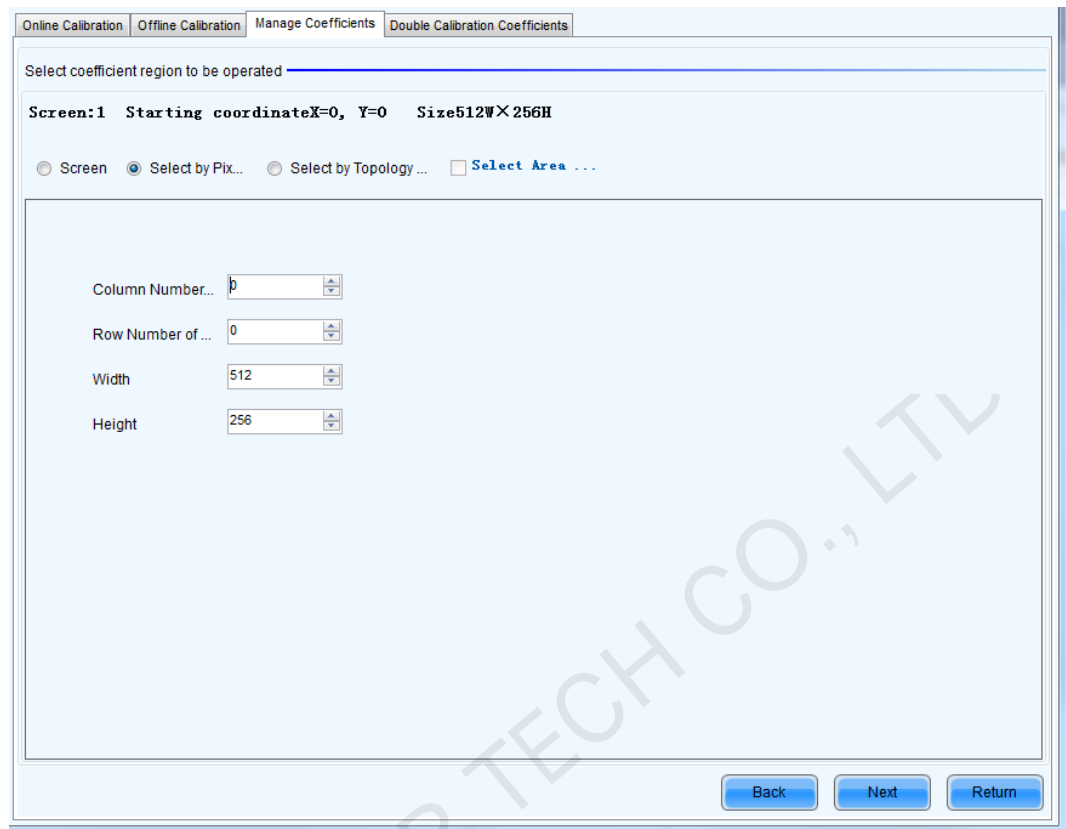
- Select by Topology or List

Figure 8-8 The page for uploading calibration coefficients in Topology or List way

- Screen

  If this option is selected, calibration coefficients for the whole display will be uploaded.

- Select by Pixel

  Select this option to upload calibration coefficients to the specified pixel area.

- Select by Topology or List

  Selected this option to upload calibration coefficients to the cabinets selected in the cabinet array sketch map or the cabinet list. (If the current LED display is a standard display, the sketch map of the cabinet array will be shown after this option is selected. Otherwise, if the current is a complex display, the show is the cabinet list.)

Step 3 Select **Fast Upload** or **Stable Upload**, and click **Upload**.

Figure 8-9 The upload calibration coefficients Step 3 page
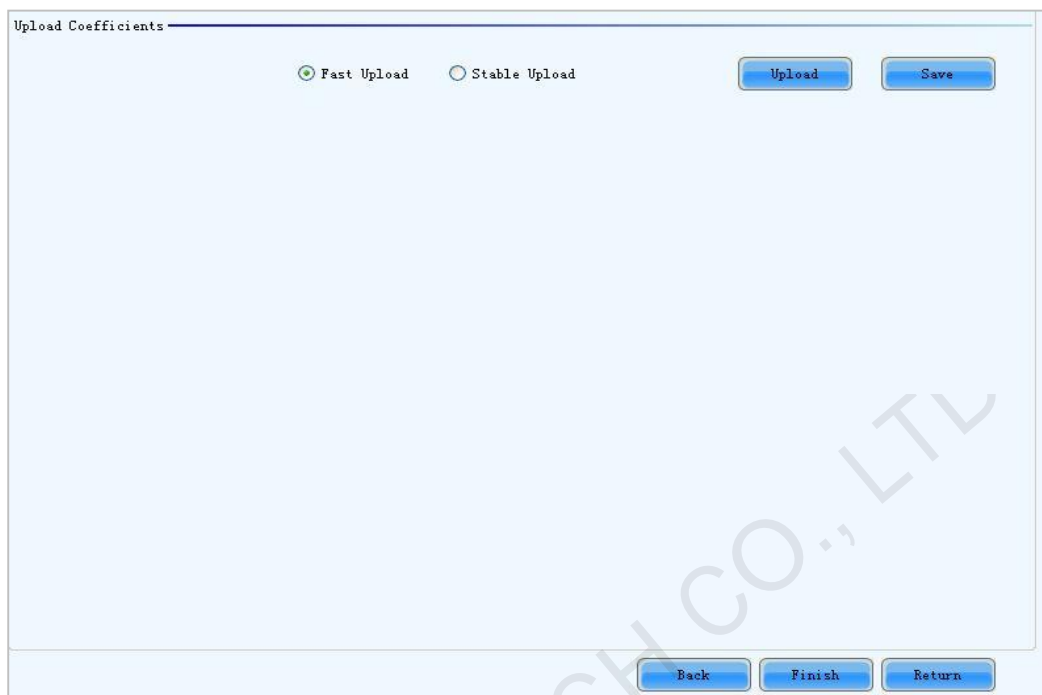
- Fast Upload

  The uploading speed will be set as maximum thus the time required for uploading is minimized if this option is selected.

- Stable Upload

  The uploading process is more stable and reliable for this option. But the time required is longer than the Fast Upload option.

- Upload

  Click this button to upload the selected calibration coefficients to the hardware.

- Save

  Save the selected calibration coefficients to hardware (FLASH). The saved data won't be lost even the system is powered off.

8.1.3.2 Save Coefficients to Database

This operation is to read back the calibration coefficients form the current LED display and save them to a database file.

Step 1 The calibration coefficients read back can be saved to an existing database or a new database. Shown in Figure 8-10 and Figure 8-11 are the pages for saving coefficients to an existing database and a new database respectively.

Figure 8-10 The page for saving calibration coefficients to an existing database
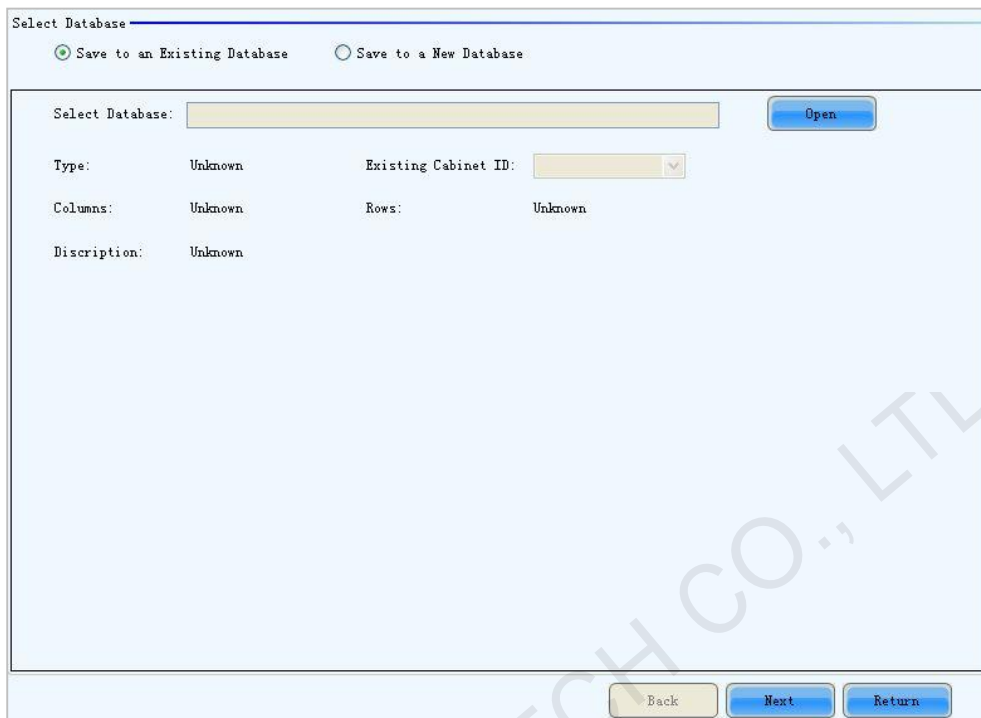
Open

Click this button to open an existing database to save the read back calibration coefficients. The new saved coefficients will replace the old ones according to the position. If the coefficients array size of the opened database is smaller than that of the current display, the save operation will be failed. If the opened is a cabinet database, the ID list of the existing cabinets of the database will be shown.

Figure 8-11 The page for saving calibration coefficients to a new database

- Screen-Database

    Select this option if it is to save the calibration coefficients to a new screen database.

- Cabinet-Database

    Select this option if it is to save the calibration coefficients to a new cabinet database.

- Create

    Click this button to create a new screen database or a cabinet database according to the settings.

Note:

- Screen database: In a screen database, the saved are the calibration coefficients and the positions of they are to be uploaded to in the LED lights array of the whole display. In the uploading procedure, the coefficients are uploaded according to the positions set for them. Thus if the position of a cabinet is changed, the coefficients for this cabinet will not be correctly uploaded.

- Cabinet database: In a cabinet database, the calibration coefficients are arranged in the form of cabinets. The coefficients for the same cabinets are grouped together and labeled with the cabinet ID. Thus even the place of a cabinet has been changed, the corresponding coefficients can also be correctly uploaded to the cabinet.

Step 2 Select the display area for which the calibration coefficients are to be saved to a database.

Figure 8-12 The page for specifying the display area for coefficients saving

- Screen

  Check this option if the calibration coefficients for the whole display are to be saved. If the database for saving the coefficients is a cabinet database, this option will be unavailable.

- Pixel

  Check this option to select the pixel area for which the calibration are to be saved. If the database for saving the coefficients is a cabinet database, this option will be unavailable.

- Topology or List

  Check this option to select the cabinets for which the calibration coefficients are to be saved. Note that if the database for saving the coefficients is a cabinet database, one cabinet should be selected at one time for coefficients saving.

- Save

  Click this button to save the calibration coefficients of the selected display area to the specified database. If the database for saving the coefficients is a cabinet database, a dialog will appear for users to input the cabinet ID.

- Maintain (Only full-screen support):

  The software saves by cabinet, supports maintaining, namely when network or other problems occur and cause saving suspended, select maintain to continue saving from the cabinet having error.

8.1.3.3 Set Coefficients for a New Receiving Card

Step 1　Specify the LED display area that the new receiving card works for. Shown in Figure 8-13 is the page for specifying the area.

Figure 8-13 The page for specifying the working area of the new receiving card

Step 2   Select the calibration coefficient source. The coefficients could be from a database
(the **Database** option) or generated according to those of the surrounding receiving
cards (the **Refer to Surrounding Scan Board** option).

Figure 8-14 The page for getting calibration coefficients from a database
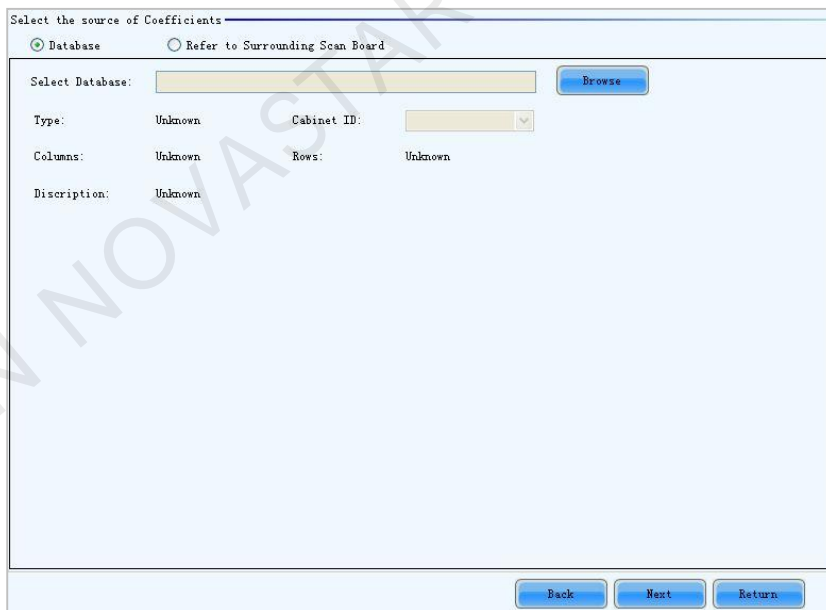
● Browse

Click this button to select the database that the calibration coefficients for the
new receiving card are from. If the selected is a cabinet database, the cabinet ID
should also be specified from the Cabinet ID drop list.

● Cabinet ID

If the selected database is a cabinet database, the IDs of the cabinets of which the calibration coefficients are contained in the database will be list in the drop list. If the selected database is a screen database, the list will be unavailable.

Figure 8-15 The page for generating coefficients for the new receiving card according to those of its surrounding receiving cards

Note:

- One or more surrounding cabinets can be selected for generating the calibration coefficients for the new receiving card.

- The calibration coefficients are generated according to those of the selected surrounding cabinets and make the cabinet driven by the new receiving card similar to its surrounding cabinets in brightness, hue and saturation. The generated calibration coefficients are just substitution of those from NovaCLB and are not as good as those from NovaCLB in performance.

Step 3 If the calibration coefficients from Step 2 are not satisfying, they can be adjusted. There are two type of adjustment, Simple and Advanced.

Figure 8-16 The Simple adjustment page
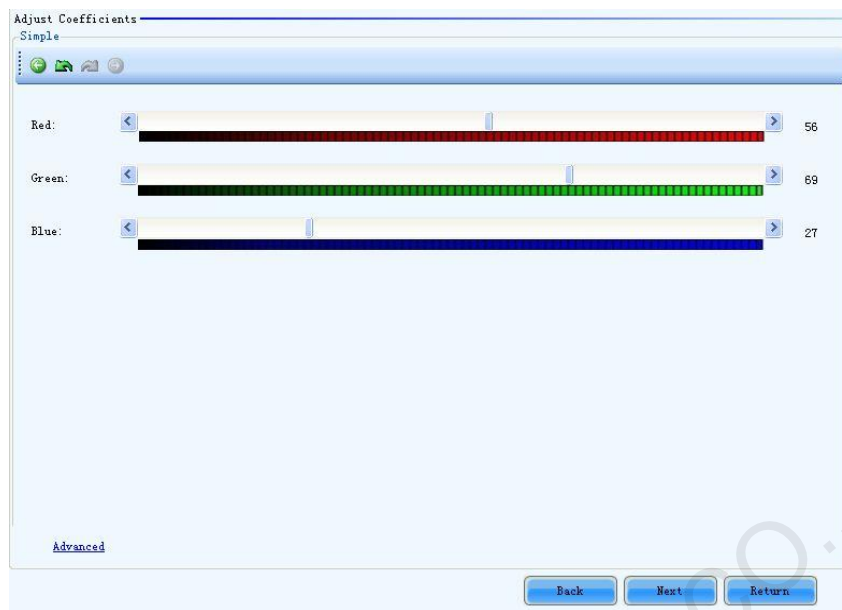
- Red

  Use the slide bar to adjust the red brightness of the calibration coefficients.

- Green

  Use the slide bar to adjust the green brightness of the calibration coefficients.

- Blue

  Use the slide bar to adjust the blue brightness of the calibration coefficients.

- Advanced

  Click this item to switch to the advanced adjustment page.

Figure 8-17 The Advanced adjustment page
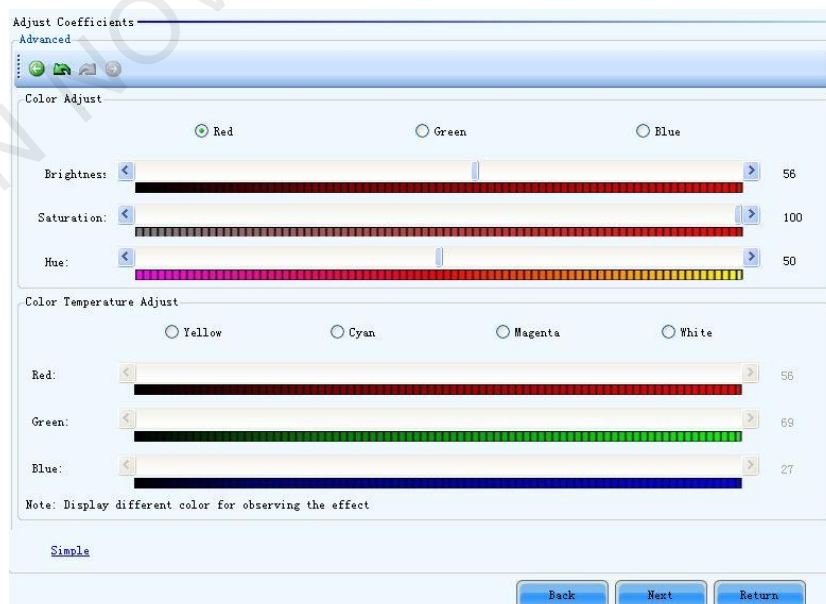
- Color Adjustment

The brightness, hue and saturation of red, green and blue can be adjusted in the **Color Adjust** panel.

● Color Temperature Adjustment

Use the slide bars to adjust the red, green and blue components for yellow, cyan, magenta and white in the Color Temperature Adjust panel.

● Simple

The color bar under each side bar indicates the color to be shown when adjusting.

Note:

● If the cabinet driven by the new receiving card is only different from the surrounding cabinets in brightness, simple adjustment is sufficient.

● If the cabinet driven by the new receiving card is different from the surrounding cabinets in color, adjust the brightness, saturation and hue through the advanced adjustment page for better image quality.

● Use the test tools in Plug In Tool >Test Tool to require the LED display to show the color that is being adjusted.

Step 4 Save the calibration coefficients to the hardware (FLASH) so they won't be lost when the LED display is powered off.

Figure 8-18 The page for saving calibration coefficients to the hardware

Save

Save the coefficients to the hardware.

8.1.3.4 Set coefficients for a New Module

Step 1 Specify the cabinet which the new module is in.

Figure 8-19 The page for specifying the cabinet which the new module is in

Step 2   Double click the selected cabinet, and select the new module.

Figure 8-20 The page for specifying the new module
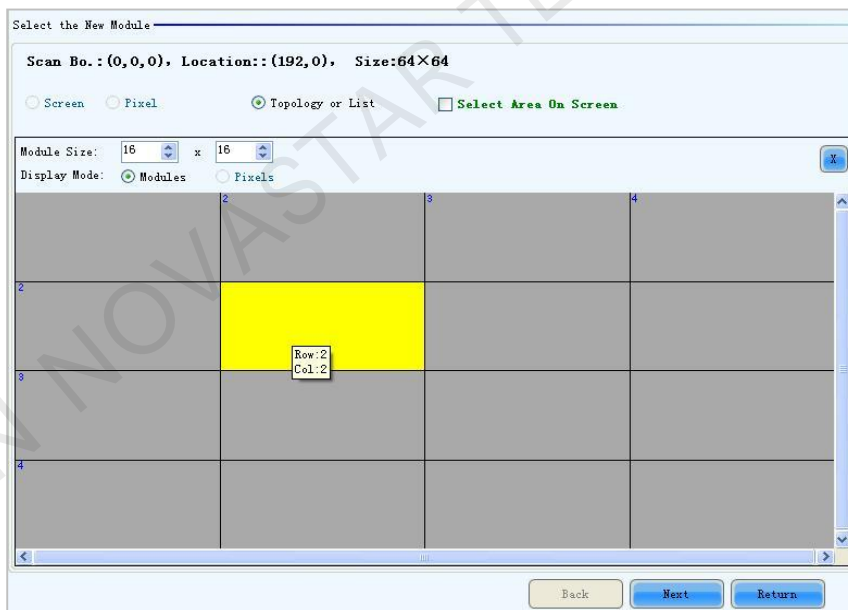
Module Size

Set the pixel array size of a module here. NovaLCT divides a cabinet into modules according to the module pixel array size and the cabinet pixel array size.

Step 3   Select the calibration coefficients source. Calibration coefficients generated according to those of the surrounding modules are used for the new module because the coefficients saved in the receiving card or the database are not suitable for the new module.

Figure 8-21 The page for selecting the calibration coefficients source
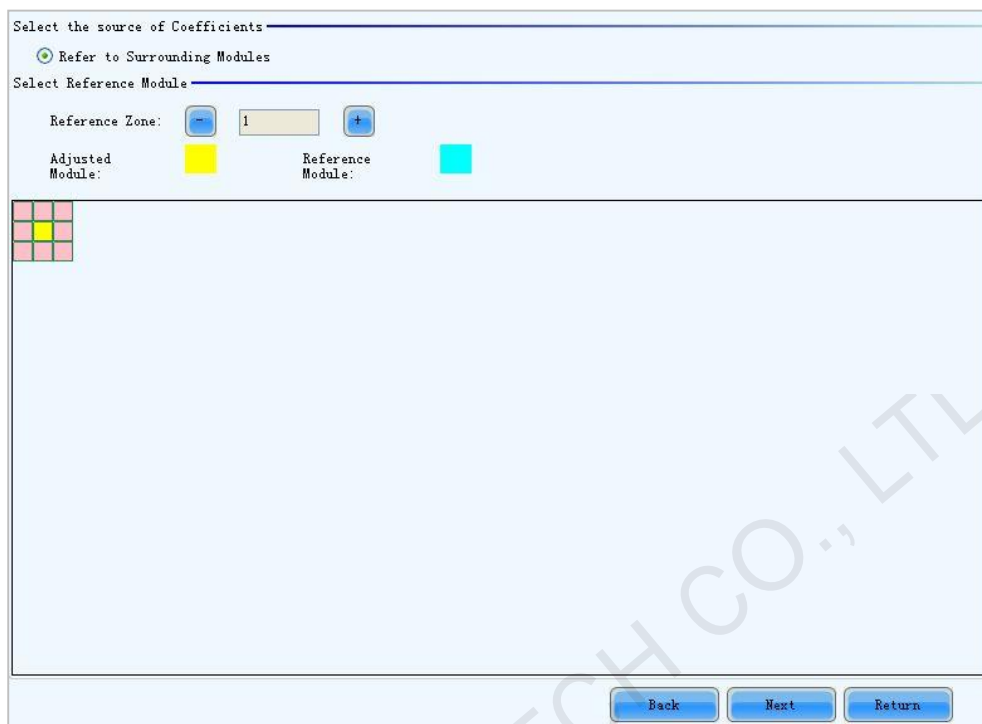
Note:

● One or more surrounding modules can be selected for generating the calibration coefficients for the new module.

● The calibration coefficients are generated according to those of the selected surrounding modules and make the pixel array driven by the new module card similar to its surrounding in brightness, hue and saturation. The generated calibration coefficients are just substitution of those from NovaCLB and are not as good as those from NovaCLB in performance.

8.1.3.5 Adjust Coefficients (Color is not uniform on screen)

If some parts of the LED display are different from the rest in color, the color of these areas can be adjusted by modifying the corresponding calibration coefficients.

Step 1 Select the areas to be adjusted.

Figure 8-22 The page for selecting the area to be adjusted

Step 2 Select the adjustment type. If Adjust Own Effect option is selected, the color adjustment of selected area is independent to the other areas of the LED display. If **Effect As Other Selected Area** option is selected, the color of the selected area will be adjusted according to the reference area color. The selected area color will look similar to the reference area color after the adjustment operation.

Figure 8-23 The page for Adjust Own Effect option
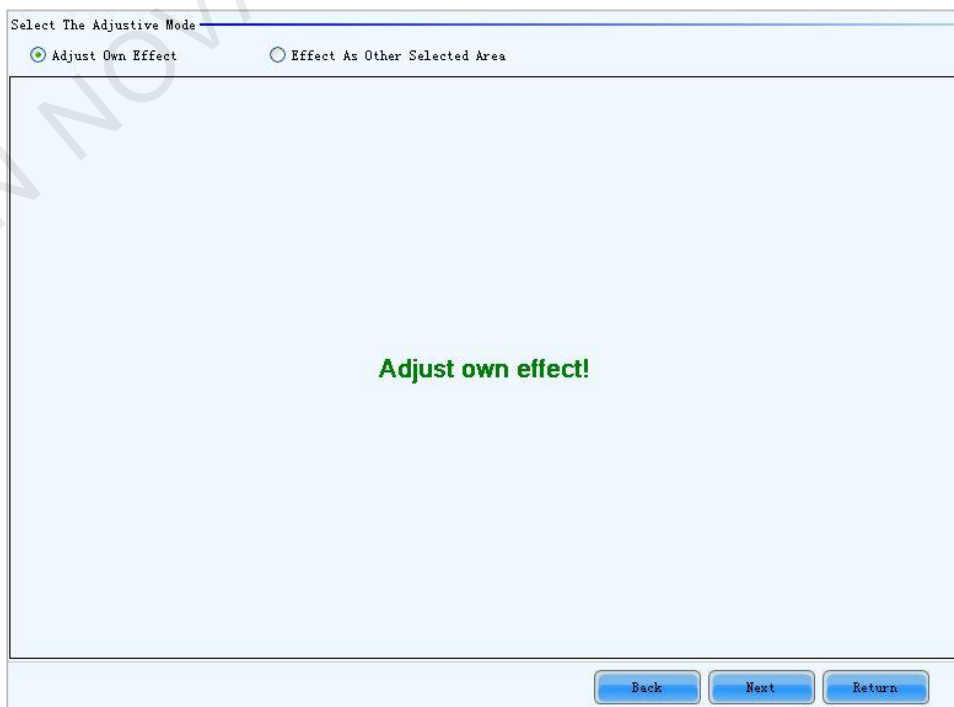
Figure 8-24 The page for Effect As Other Selected Area

Note:

- If Adjust Own Effect option is selected, NovaLCT will acquire the calibration coefficients of the selected area for the hardware. Adjustment on these coefficients is independent to the other area of the LED display.

- If Effect As Other Selected Area is selected, NovaLCT will adjust the calibration coefficients of the selected area according to those of the reference areas and make the selected area looks similar to the reference areas in color. The nearer the reference areas are to the area being adjusted, the better the adjustment result will be.

Step 3 Click the **Save** button to save the adjusted calibration coefficients to the hardware. The save coefficients won't be lost even the system is powered off.

Figure 8-25 The page to save the calibration coefficients
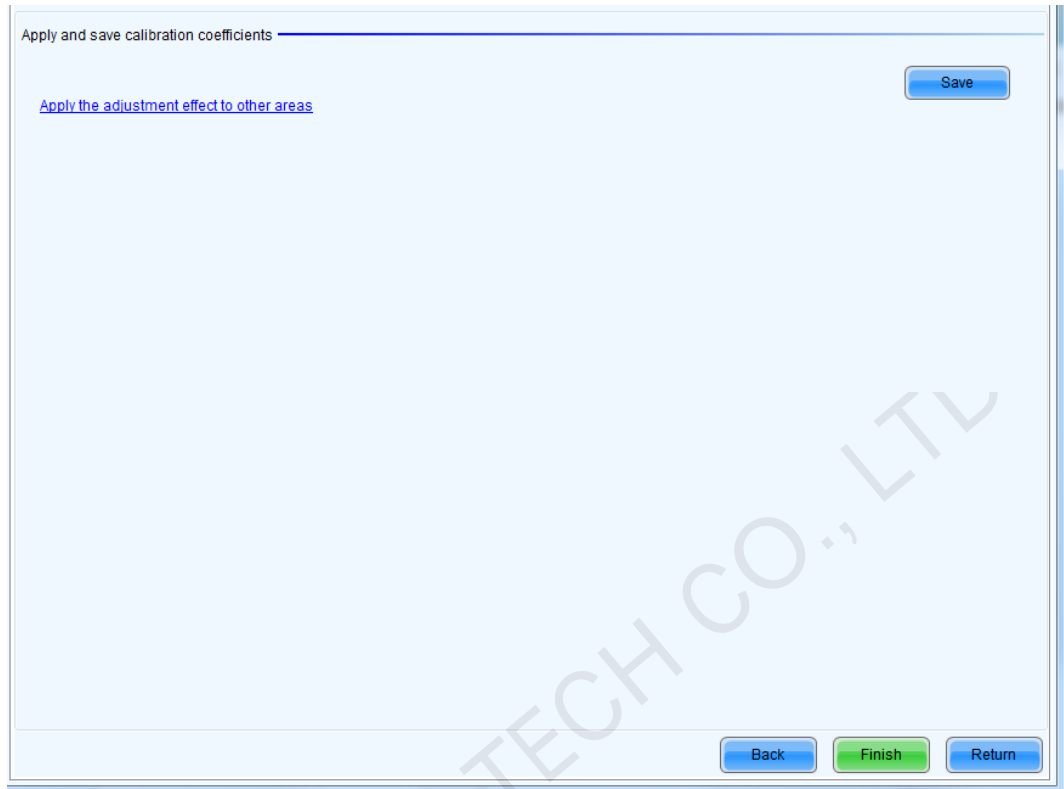
Apply the adjustment effect to other areas

The adjustment operations in Step 2 and Step 3 can also be applied to other areas that need the same adjustment.

Figure 8-26 The page for Apply The Effect To Other area
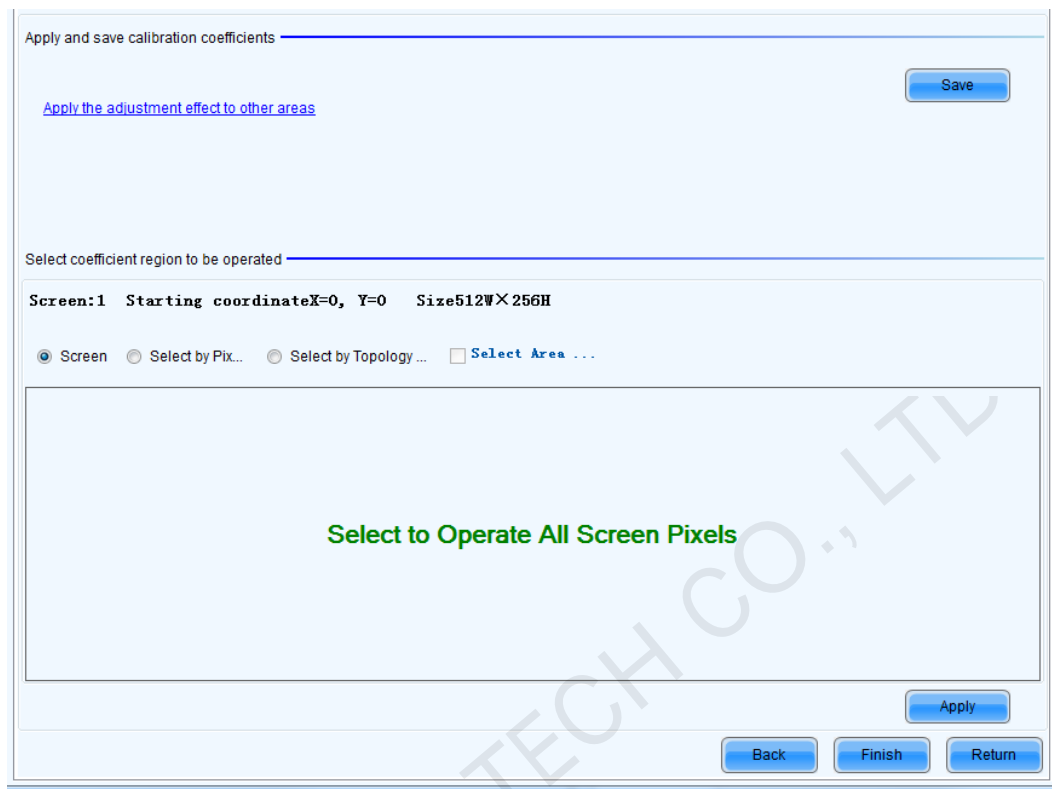
Apply

Apply adjustment operations to the selected area.

Note:

● If the adjustment operations are to be applied to another area, the problem of this area should be similar to the area selected in Step 1. Otherwise, don't apply the operations to this area.

● If the adjustment result of the new area is satisfying after applying the operations, click Save button again to save the adjusted calibration coefficients to the hardware.

8.1.3.6 Erase or Reload Calibration Coefficients

● Erase coefficients: erasing calibration coefficients of the whole display or any cabinets.

● Reload coefficients: reload the calibration coefficients lastly saved in hardware.

Figure 8-27 The page for erasing calibration coefficients
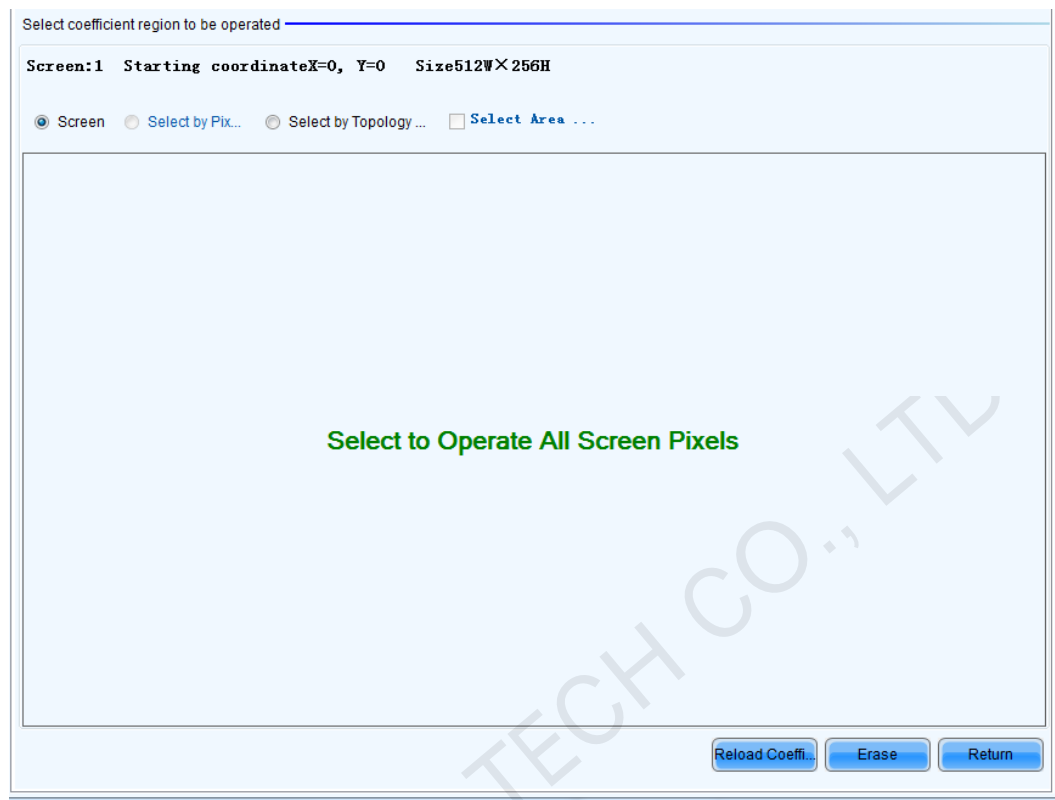
- Screen

    Select this option to erase all calibration coefficients for the whole display.

- Topology or List

    Select this option to select the cabinets from the cabinet array sketch or the cabinet list of which the calibration coefficients are to be erased.

Note:

The calibration coefficients will be their default values after the erase operation. Make a copy of the calibration coefficients (save to a database file) for safety.

8.1.3.7 Reset Calibration Coefficients

Set the calibration coefficients again for the screen or a specified area according to the module size or pixels.

After all the coefficients are reset, click **Save to HW** so that the coefficients can take effect.

Figure 8-28 Resetting calibration coefficients
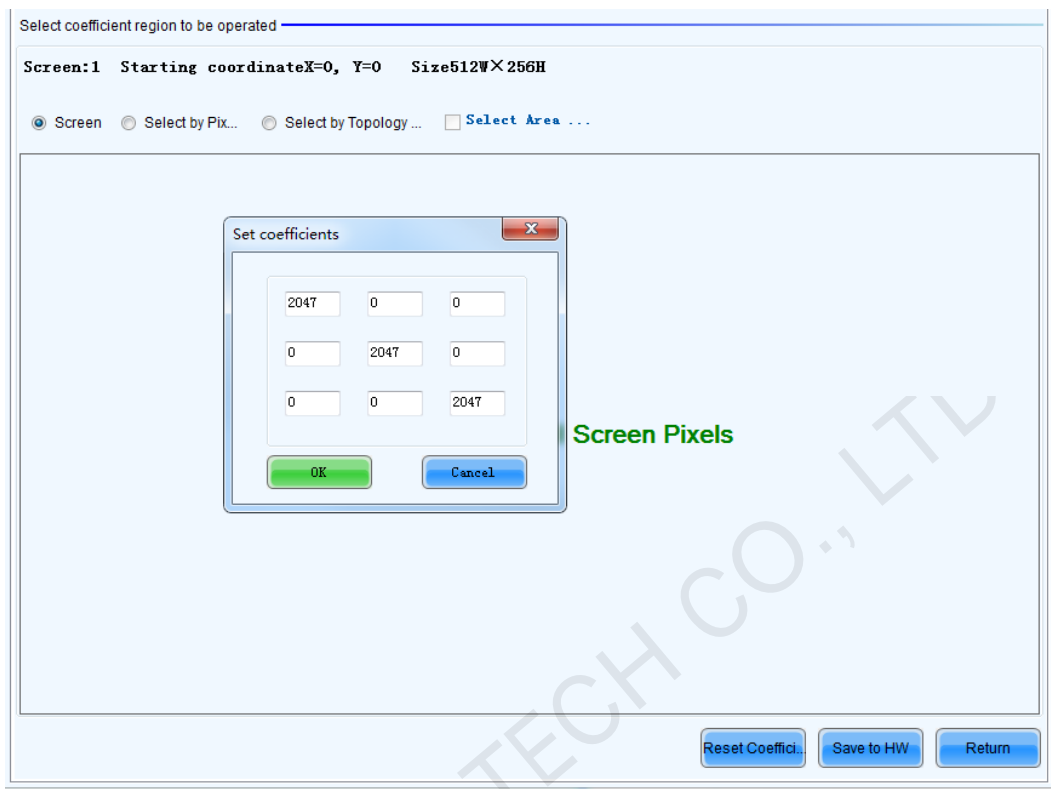
8.1.3.8 Upload Coefficients (for factory use)

- Read Back ID: Read back IDs of all the cabinets of the screen.
- Export Full Screen Cabinet ID File: Save the IDs of all the cabinets of the current screen as a file in computer.
- Cabinet ID: Read back or import ID of the select cabinet.
- Upload Calibration Coefficients: Include fast uploading and stable uploading.
- Export Full Screen Database File: Save the screen database file to computer.

Figure 8-29 Uploading coefficients (for factory use)
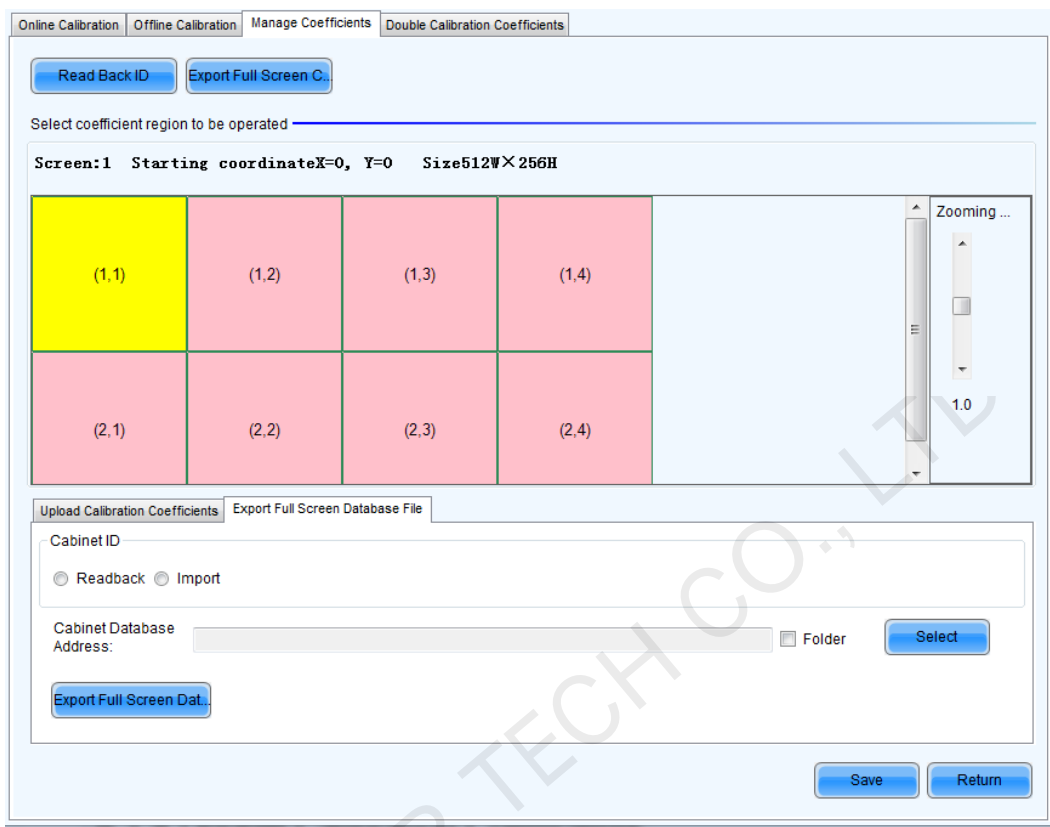
8.1.3.9 Module Flash

Step 1 Choose **Tools** > **Calibration**, or Click Calibration to enter the **Screen Calibration** page.

Step 2 Click the **Manage Coefficients** tab and click **Module Flash** to enter its window.

- Current Operating Serial port: Serial port of currently connected sending equipment.

- Send by Address: Double-click the corresponding table, and set the physical address; the description is shown as follows.

Sending#	Port	Scan board	Means
1	*	*	Means all the Scan boards of the first sending card.
1	1	*	Means all the scan boards of the first port in the first sending card.
1	1	1	Means the first scan board of the first port in the first sending card.

Figure 8-30 Send by address
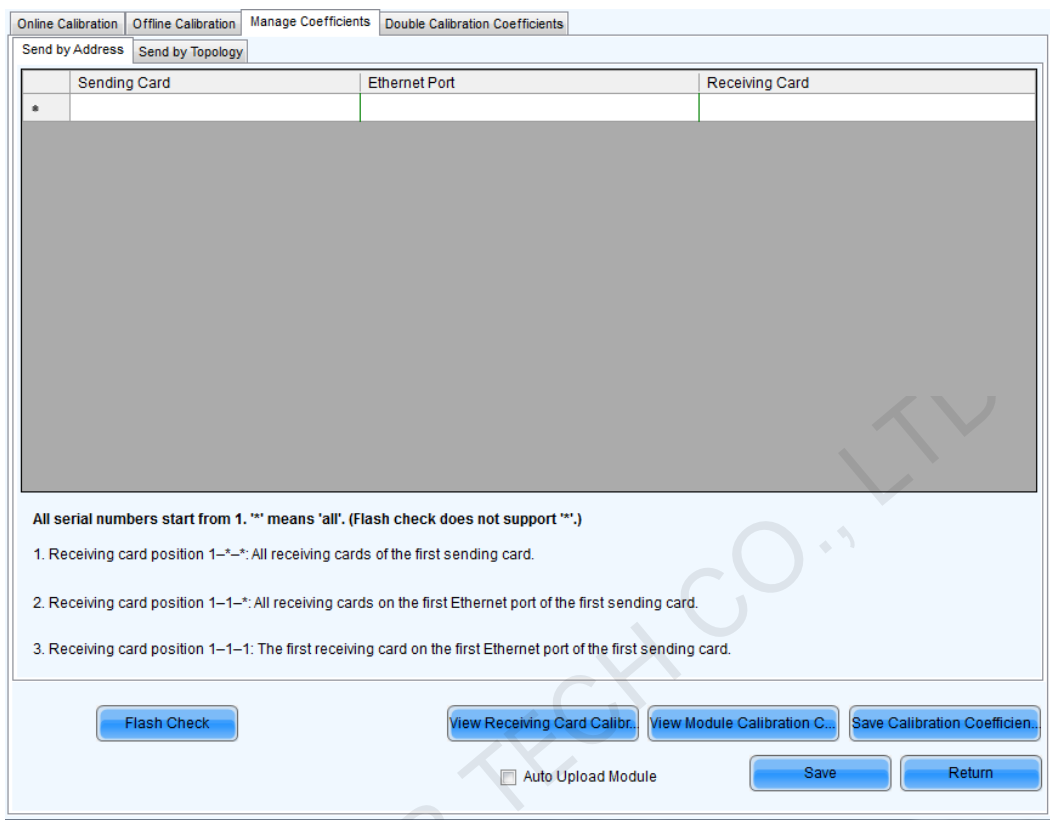
Send by topology: Select the receiving card in accordance with the topology; select the full screen (i.e., all connected receiving card), or select one or more receiving cards in accordance with the arrangement diagram.

Figure 8-31 Send by Topology
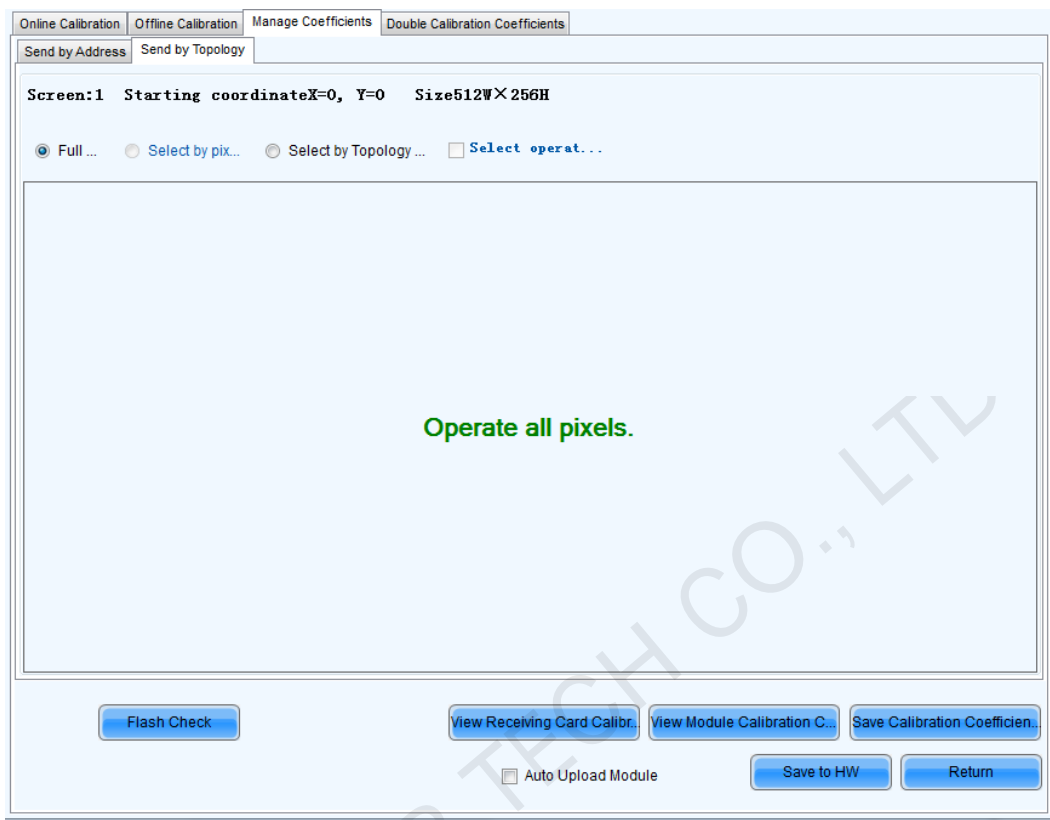
- Check coefficients in Scan Board: Check the effect of calibration coefficient saved in receiving card at LED screen.

- Check coefficients in Modules: Check the effect of calibration coefficient saved in module Flash at LED screen.

- Save coefficients on Scan Board: Save the calibration coefficient currently being checked to receiving card.

- Save coefficients to Modules: Save the calibration coefficient currently being checked to module Flash.

- Flash test: test whether Flash is normal.

Types of error in Flash test and its reasons

- Hardware failure

  - It may be caused by the screen inconsistent with the actual situation.

  - It may be caused by the configuration of arrangement diagram inconsistent with the actual situation.

- Communication error: it may be caused by a hardware connection error.

- Abnormal Flash arrangement: no configuration of Flash arrangement, or no hardware.

  Flash arrangement embodies physical connections of all Flashes, and it needs to be configured in the "Display Configuration". Please see the specific operation.

Figure 8-32 Flash check
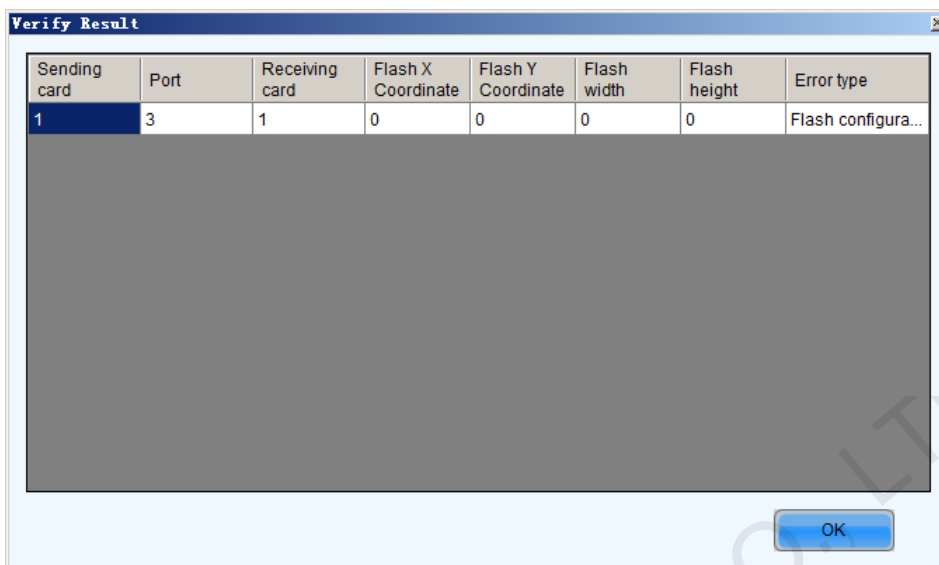
8.1.4 Double Calibration Coefficients

Calibration coefficients can be stored to factory area. Normal calibration data are stored in application area. If you are not satisfied with the calibration coefficients of application area, the data of factory area can be restored to application area.

Save coefficients to fa... button, which is usually in hide status to prevent random operations, cannot be displayed until entering "**admin**" on the keyboard.

Figure 8-33 Double calibration coefficients
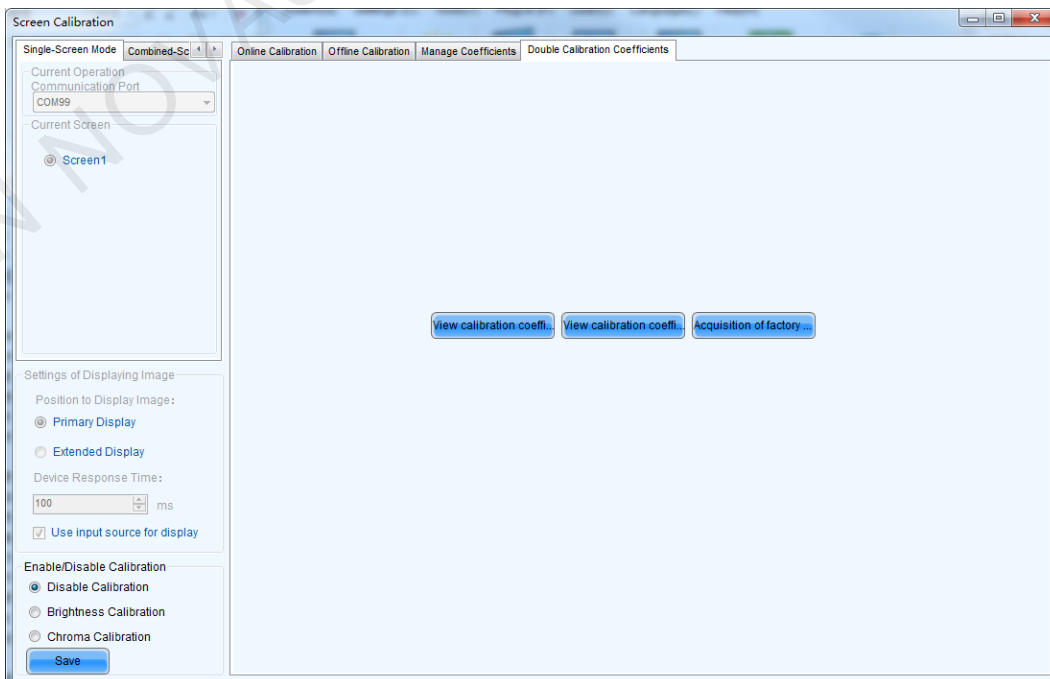
8.2 Screen Control

Start NovaLCT and click ![Screen Control] to enter the **Screen Control** window.

Figure 8-34 The Screen Control window
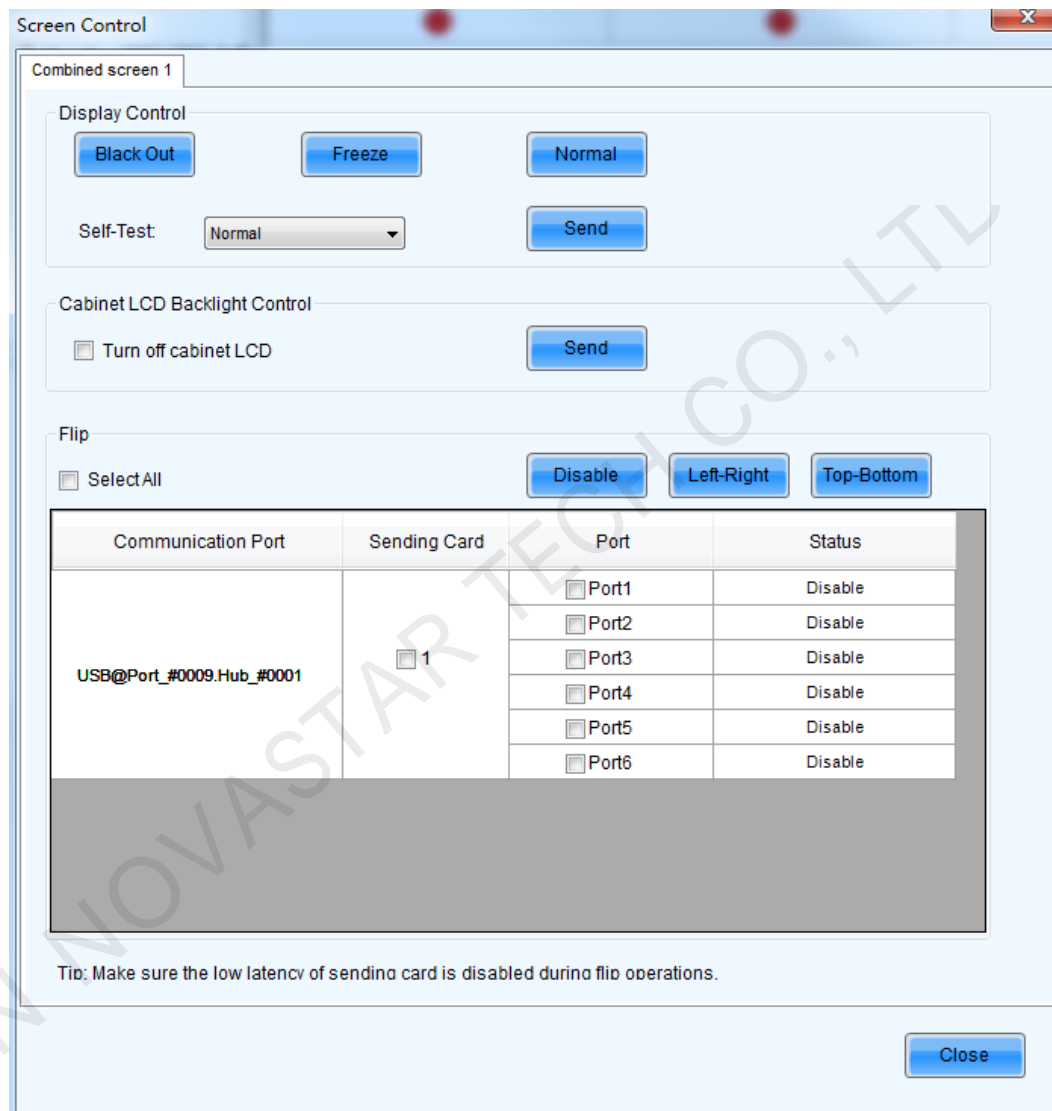
- Black Out

  Show nothing on the LED display.
- Freeze

  Always show the current image frame of the LED display.
- Normal

  Switch the LED display back to normal from Black Out or Freeze.
- Self Test

  Show the test images generated by the receiving card for LED displays aging test or error detecting.

When the MCTRL660 PRO device is connected, the Flip function is available. You can select a flipping option for the image of the Ethernet port connected to the corresponding sending card. The option can be **Disable**, **Left-Right**, or **Top-Bottom**.

8.3 Monitoring

NovaLCT supports monitoring status of sending cards, receiving cards and monitoring cards, as well as temperature, humidity, smoke, fan, power supply, ribbon cable, cabinet door and smart module. NovaLCT is applicable to both ordinary screen and combined screen.

Click Monitor to enter the monitoring interface, as shown in Figure 8-35.

Figure 8-35 The Monitor page
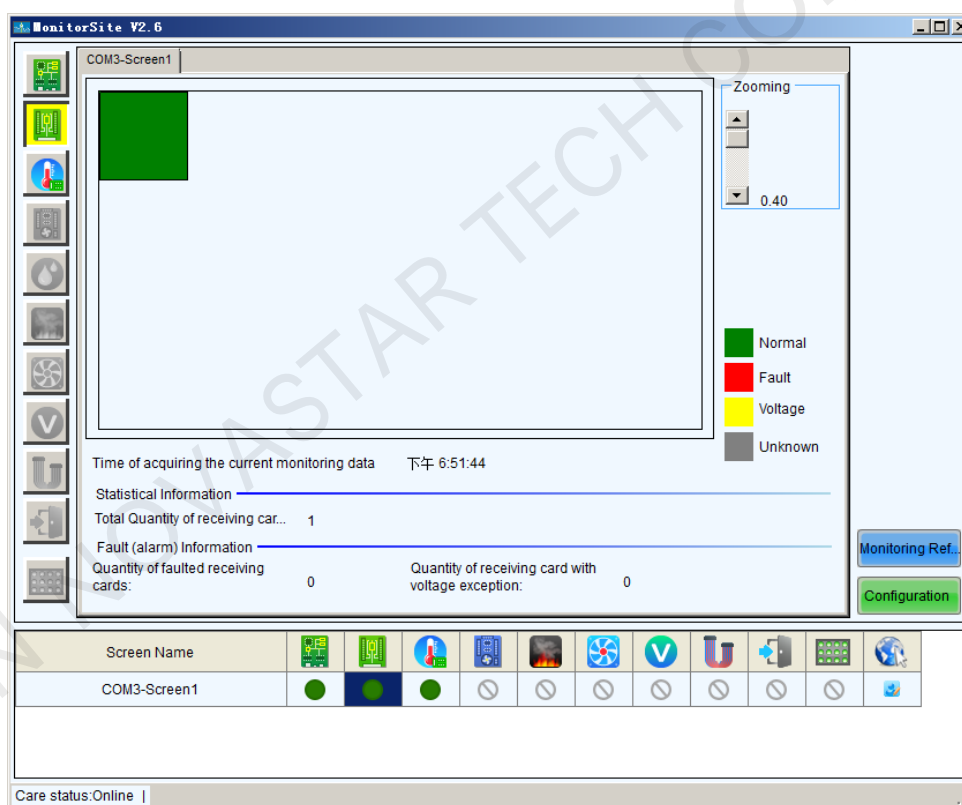
- Monitoring Refresh

  This button is used to update the monitored data.

- Configuration

  This button is used to edit the contents to be monitored and set rules for alarm, including **Refresh Period**, **Hardware Settings**, **Alarm**, **Monitoring Control**, **Email** and **Email Log**.

8.3.1 Refresh Period

Modify refresh period and reread times when reading the status failed at the refresh period interface, wherein the period is the period of refreshing the monitoring data.

If all screens are registered to the NovaCare server, check "Automatic Refresh" to perform remote monitoring.

Figure 8-36 Refresh period
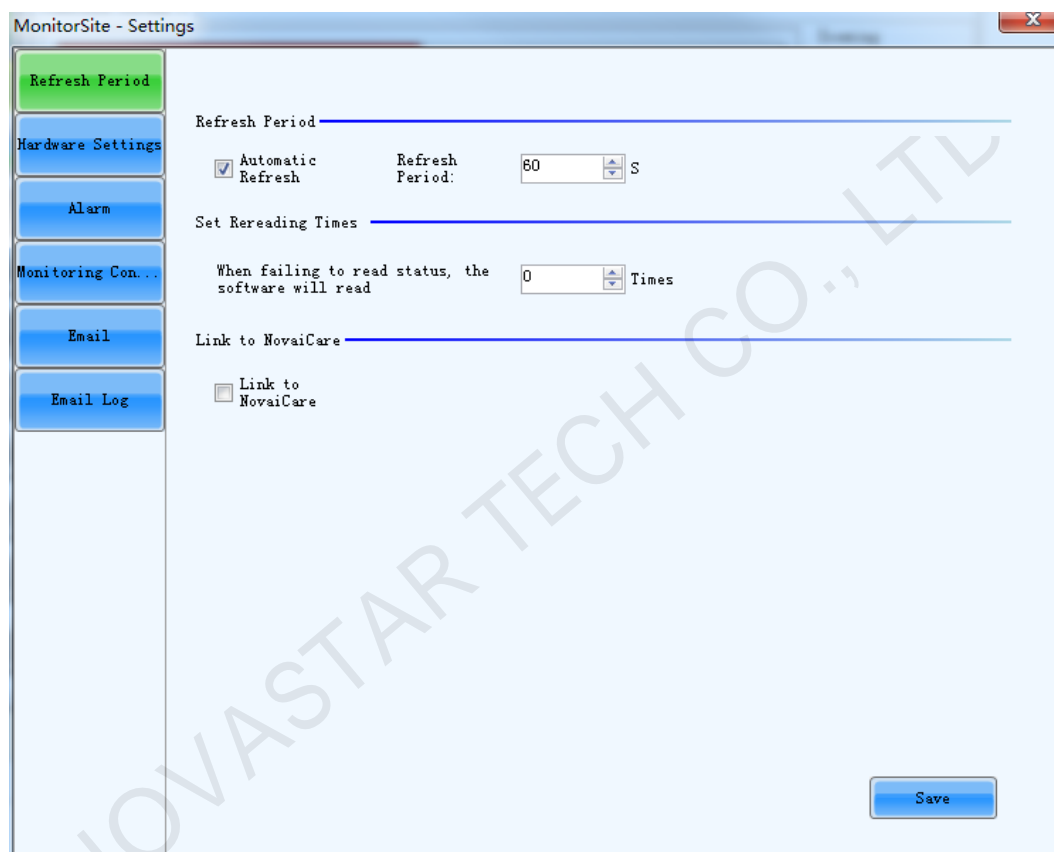
- Auto Refresh

  If this option is check, NovaLCT will automatically check the status and parameters being monitored and update the monitored data periodically according to the period setting.

- Retry times after read status failed

  This parameter determines how many times NovaLCT will retry to check the status and parameters being monitored when it fails in doing so.

- Link to NovaiCare

  Selecting this option can link NovaLCT to NovaiCare cloud-based monitoring software.

8.3.2 Hardware Settings

The hardware configuration interface provides all hardware monitoring related setting options. The monitoring functions can only be realized by using the monitoring card, so **Connect to Monitoring Card** option should be selected before the refresh-related options are set.

Figure 8-37 Hardware configuration
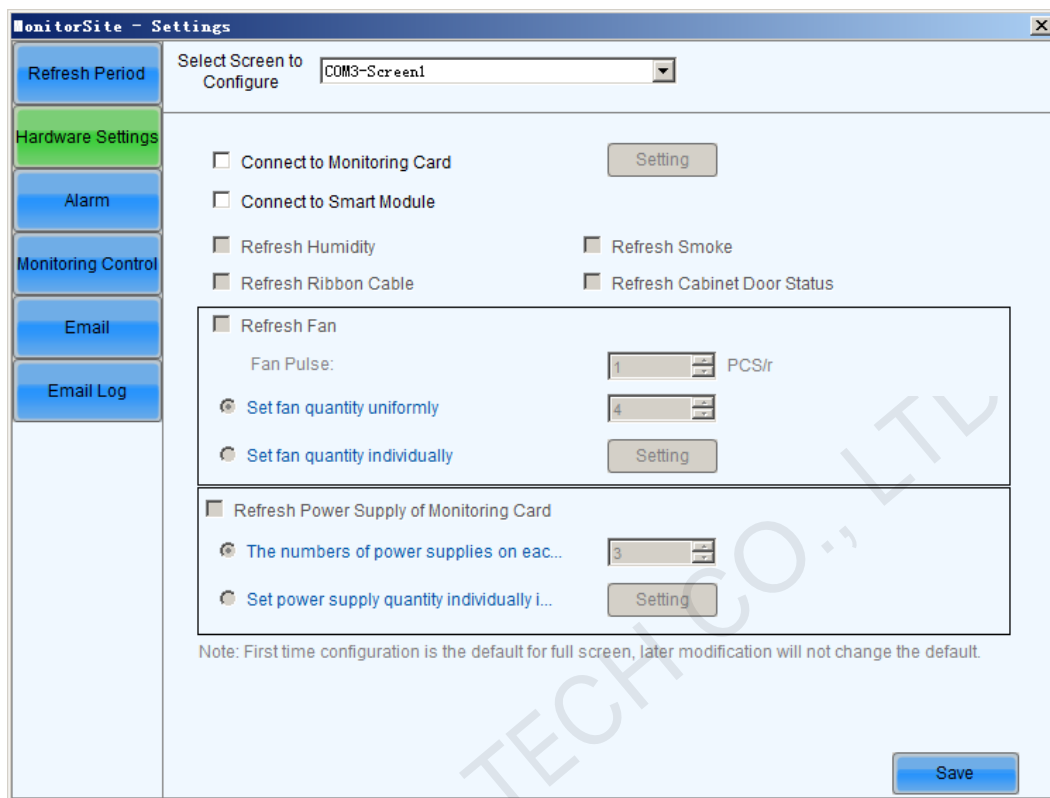
Setting : Click to enter the advanced setting of monitor, as shown in Figure 8-38.

Figure 8-38 Advanced settings of monitoring
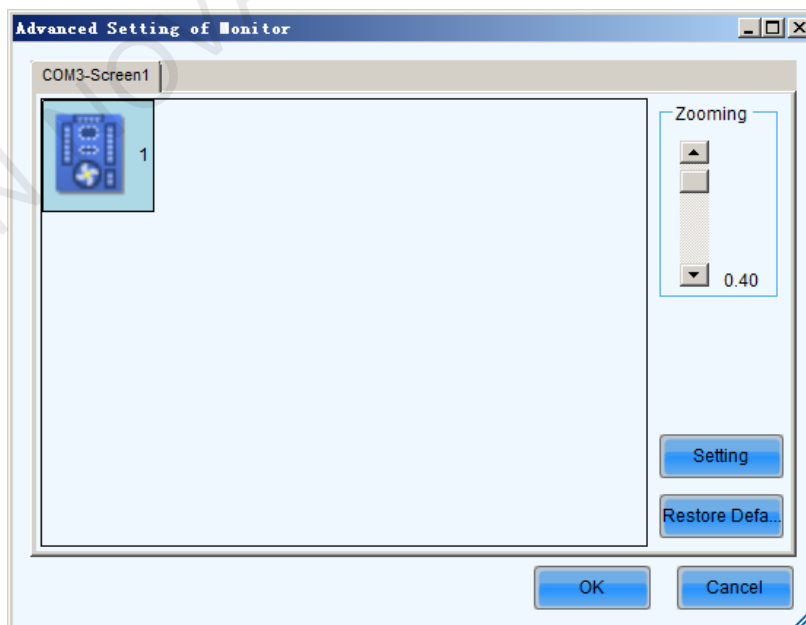
Each receiving card is connected with one monitoring card by default. Click

Setting to pop up with the interface below. Please set the number of receiving cards (0 or 1) according to the actual situation.

Click Restore Defa... to restore the default values immediately.

- Connect to Monitoring Card

  If this option is selected, the monitoring data of the monitoring card will be displayed. The **Connect to Monitoring Card** and **Connect to Smart Module** options cannot be selected at the same time.

- Connect to Smart Module

  If this option is selected, the monitoring data of the smart module will be displayed. The **Connect to Monitoring Card** and **Connect to Smart Module** options cannot be selected at the same time.

- Refresh Humidity

  If this option is selected, the humidity within the cabinets will be under monitoring.

- Refresh Smoke

  If this option is selected, the smoke within the cabinets will be under monitoring.

- Refresh Ribbon Cable

  If this option is selected, the status of the ribbon cable will be under monitoring.

- Refresh status of Cabinet-Door

  If this option is selected, the open/close status of the cabinet doors will be under monitoring.

- Refresh Fan

  If this option is selected, the fans status will be under monitoring.

  – Set fan quantity uniformly: If for every cabinet, the number of fans to be monitored is the same, select this option and set the fan number in the box to the right of this option.

  – Set fan quantity individually: If the numbers of fans to be monitored are different from one cabinet to another, select this option and click the **Setting** button to set the fan numbers for each cabinet.

- The numbers of power supplies on each monitoring card are equal to each other

  If this option is selected, the power supplies on the monitor board will be under monitoring.

  – Every monitoring card has the same number of power supply: If for every monitor board, the number of power supplies to be monitored is the same, select this option and set the power supplies number in the box to the right of this option.

  – Set power supply quantity individually is separately set on every monitoring card: If the numbers of power supplies to be monitored are different from one monitor board to another, select this option and click the **Setting** button to set the power supplies numbers for each cabinet.

8.3.3 Alarm

Display alarm or fault information when setting the temperature, humidity, fan speed and voltage critical value.

Figure 8-39 Data alarm configuration
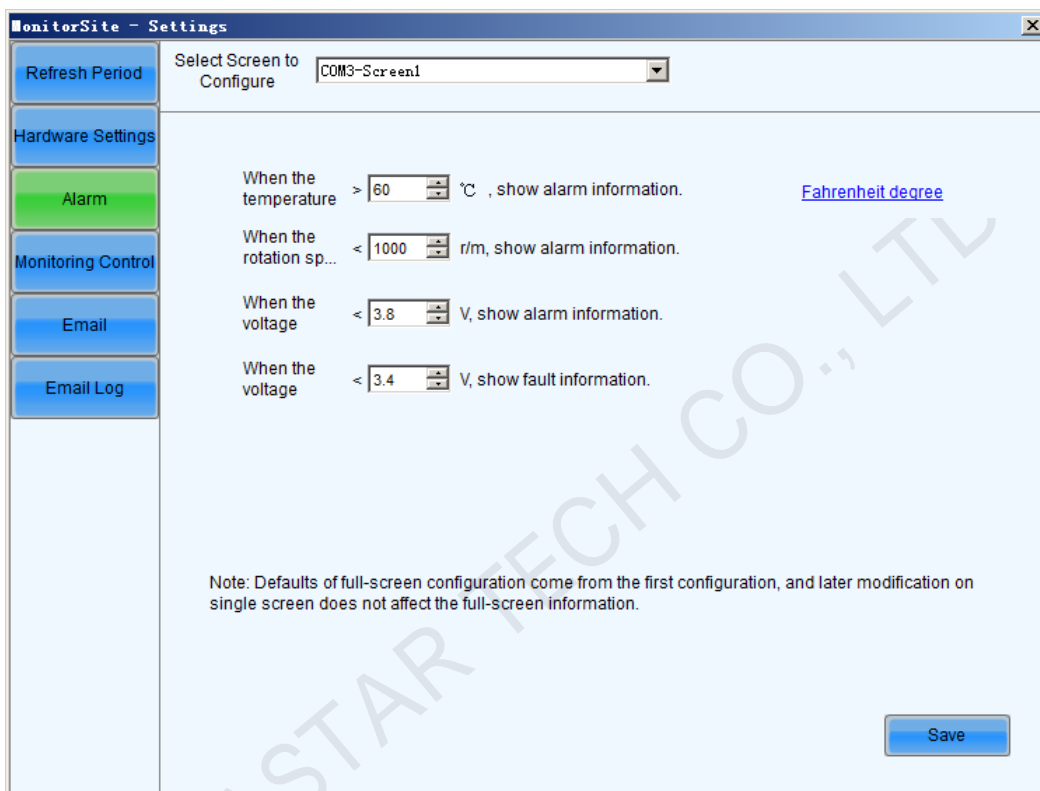
8.3.4 Monitoring Control

Set the rules for auto temperature and smog control.

Figure 8-40 Control configuration
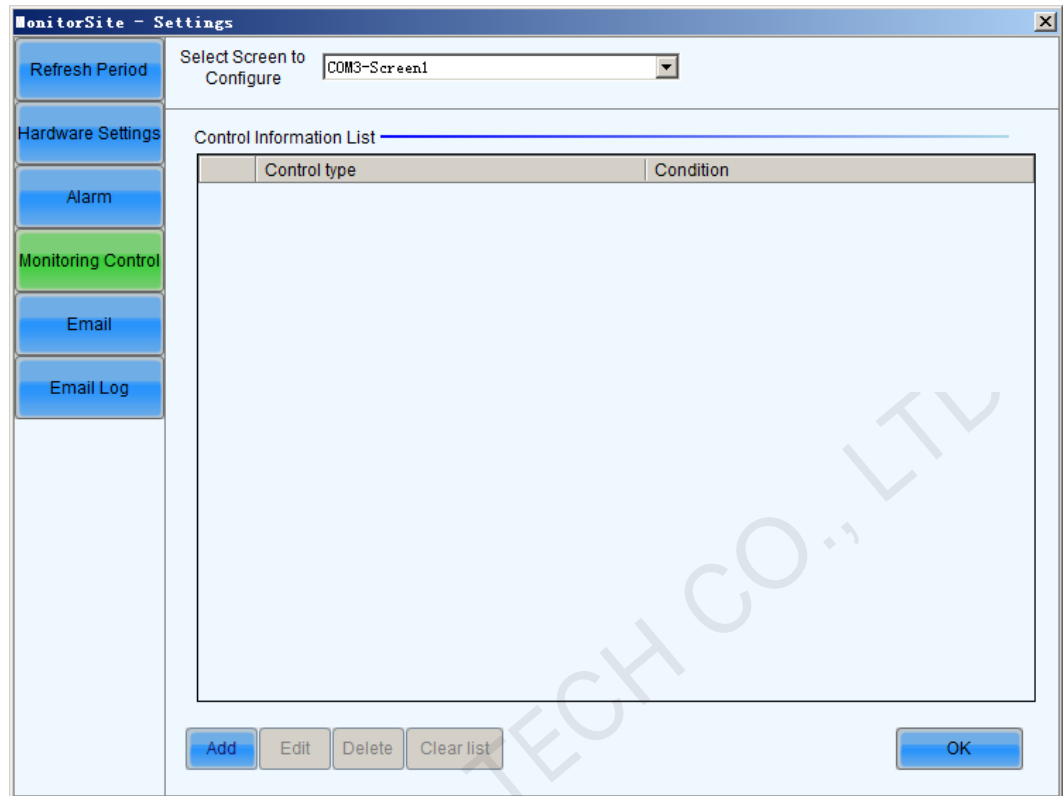
Click ![Add] to add control information.

8.3.5 Email

Select the **Enable Email Notification** option to show the related configuration items as shown in .

Figure 8-41 Email setting
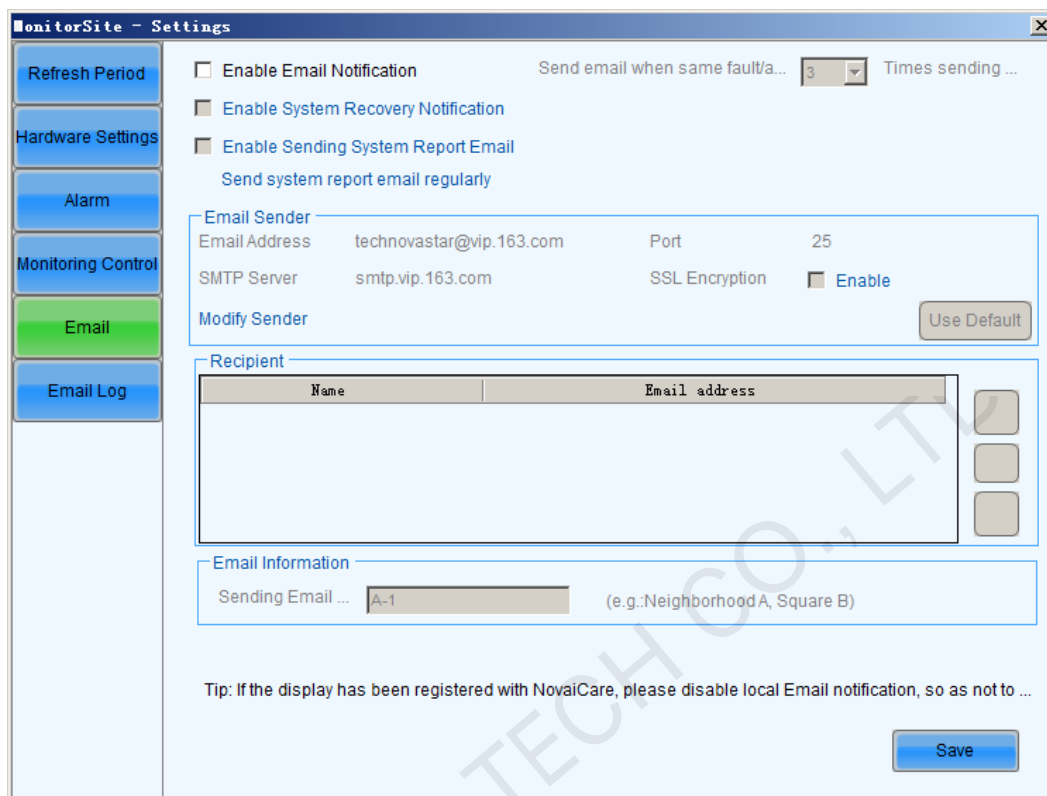
- : Add the receiver.

- : Edit the receiver.

- : Delete the receiver.

If email notification is desired, information related to the email sender, receiver and email is required to be set. If **Enable Sending System Report Email** is selected, click **Send system report email regularly** to set a sending date.

8.3.6 Email Log

If the **Enable Email Notification** option is selected, you can click **Email Log** to view the email notification log history as shown in Figure 8-42.

You can search the logs by time and delete the undesired ones.

Figure 8-42 The History window for notification emails checking
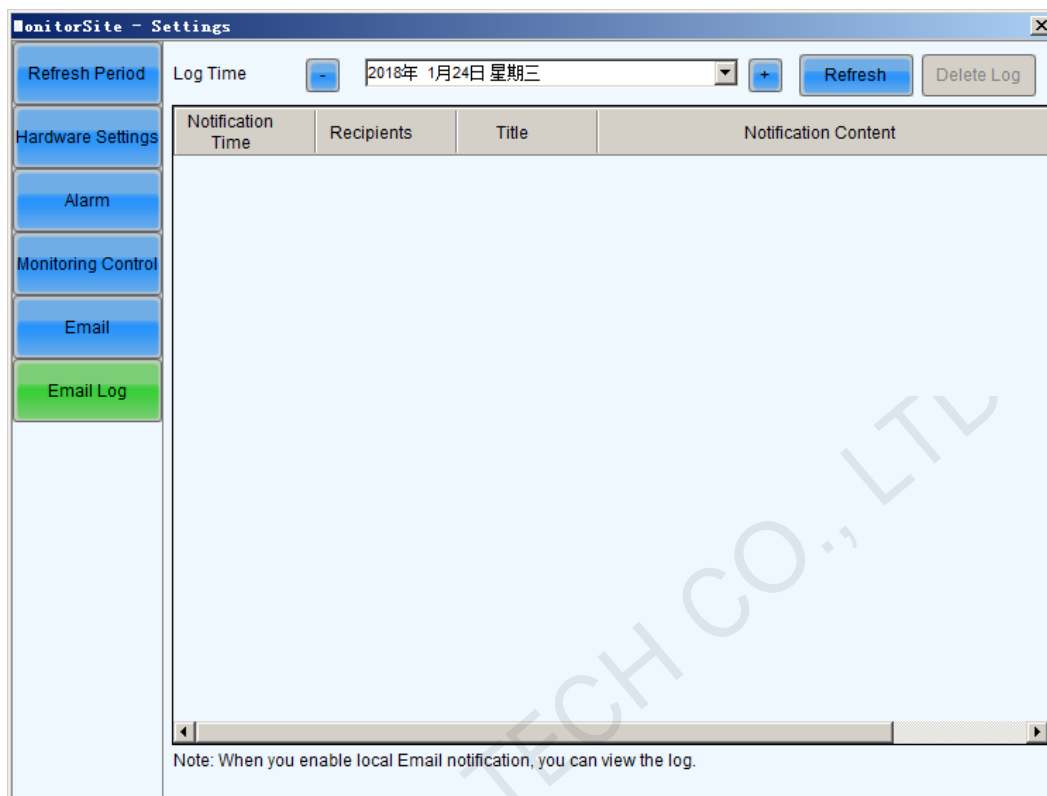
8.4 Led Error Detection

The LED lights status checking function, also known as Led Error Detection, is to check the working status of each LED light on a LED display. NovaLCT can detect and locate LED lights that are in open circuit or short circuit status.

Note:
- Led Error Detection is only available for LED displays of which the LED lights driver chips support LED lights open/short circuit status checking. So far, Led Error Detection function is available on multiple driver chips, such as MBI5036, MBI5034, MBI5040, DM13H and MBI5030.
- Monitor boards are required for Led Error Detection.

Step 1 Choose **Tools** > **Led Error Detection**. If the driver chip does not support Led Error Detection function, the interface is shown in Figure 8-43.

Figure 8-43 The Led Error Detection window
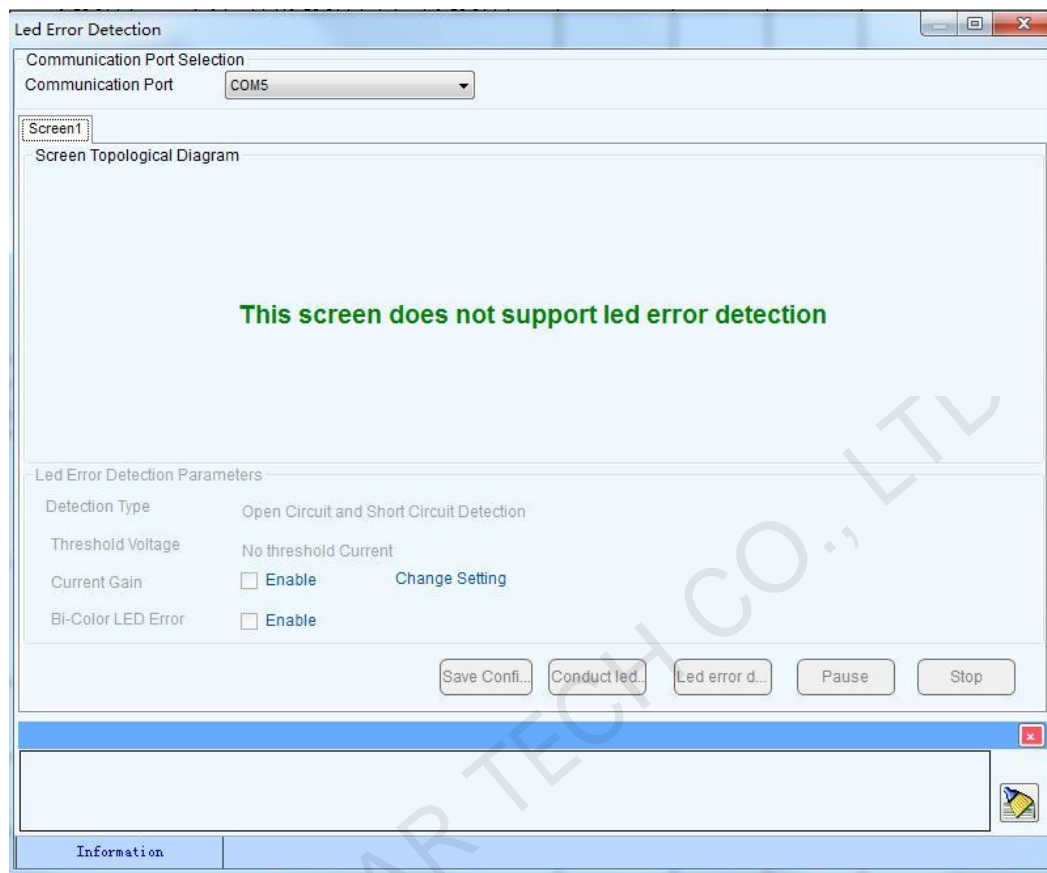
- Communication Port

  Select the communication port connected to the screen that requires LED error detection.

- Led Error Detection Parameters

  - **Detection Type**: This is the LED lights status type can be checked.

  - **Threshold Current**: Set the current threshold for Led Error Detection here by selecting an index.

  - **Current Gain**: Current gain can be enabled/disabled here. To modify the current gain settings, click the **Change Setting** item.

  - **Dual-Color LED Error Detection**: After this option is selected, faulted blue LEDs will not be detected.

- Detect Screen

  Click this button to perform Led Error Detection on the whole display.

- Detect Selected

  Click this button to perform Led Error Detection on (the pixel array of) the selected receiving cards.

- Pause

  Click this button to pause the ongoing Led Error Detection operation.

- Stop

  Click this button to stop the ongoing Led Error Detection operation.

- Zoom

Drag the slide bar to zoom in or out of the LED display sketch map.

- Notification panel

  The information of the ongoing Led Error Detection operation will be shown in this panel.

- Colors of the LED display sketch map

  - **Gray**: The Led Error Detection operation result is unknown. It may be due to hardware communication failure or receiving card setting error.

  - **Red**: Error LED lights detected. The number shown is the number of the error LED lights.

  - **Green**: No error LED lights detected.

  - **Yellow**: The receiving card (cabinet) does not connected with a monitor card.

Note:

Put the curse on the sketch map of a cabinet to show its information.

Module specifications have effect on the Led Error Detection result. Please set the Led Error Detection parameters according to the module type.

Step 2 Double-click on the red cabinet to pop up the interface of Led error detection result of modules to show the module and pixel topological diagrams of this cabinet.

Figure 8-44 The Led Error Detection Result of Modules
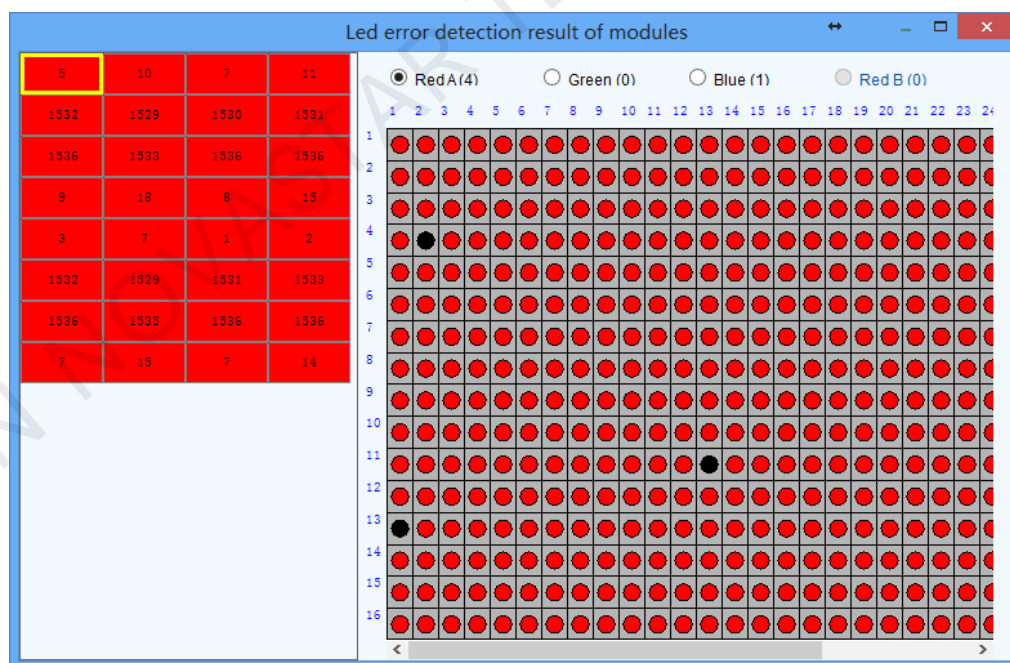
Shown on the left of Figure 8-44 is the module array of the cabinet and on the right the pixel array of the selected module in the module array.

- Red A

  This is the number of the error red LED lights of the selected module. Select this item to view the locations of the error lights in the pixel array sketch. The black points in the array are the error lights.

- Green

This is the number of the error green LED lights of the selected module. Select this item to view the locations of the error lights in the pixel array sketch.

- Blue

  This is the number of the error blue LED lights of the selected module. Select this item to view the locations of the error lights in the pixel array sketch.

- Red B

  This is the number of the error virtual red LED lights of the selected module. Select this item to view the locations of the error lights in the pixel array sketch.

8.5 Multi-Batch Adjustment

Quickly adjust the chromaticity of each batch of cabinet to achieve the effect of reference model.

After adjusting well, save the adjustment parameter into a file; next time, load the file to finish adjustment quickly without manual adjustment.

In the main interface, click **Tools** > **Multi-batch Adjustment**, start multi-batch adjustment. The operation steps are as follows:

8.5.1 Manual Adjustment

Check **Manual Adjustment**, as shown in Figure 8-45. Select a colorimeter connected to the system. If there is not colorimeter, tick **No colorimeter** and then click **Next**.

Figure 8-45 Select colorimeter information
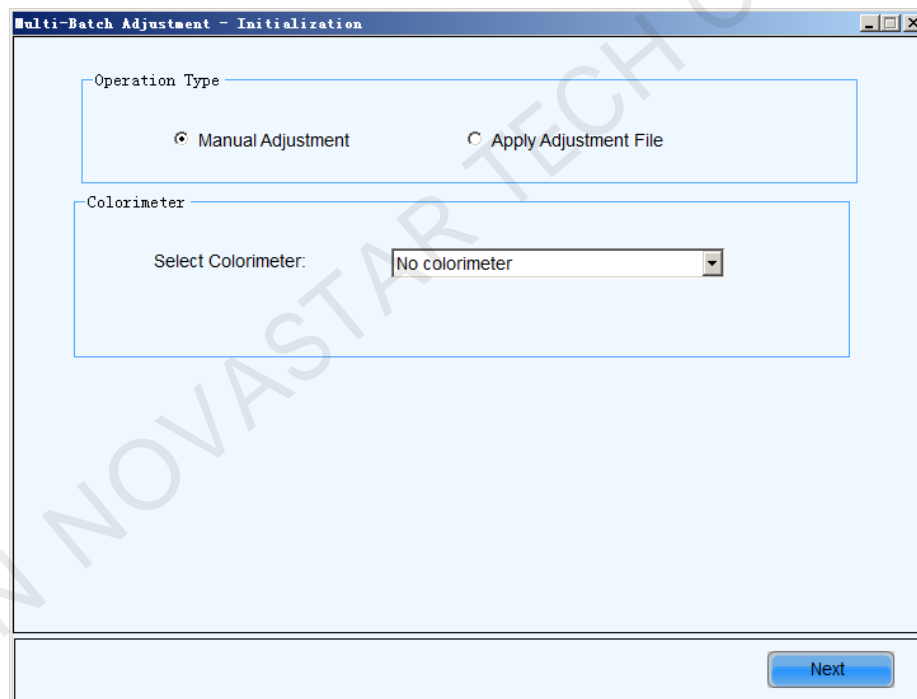
Set sample batches

Step 1 Select screen, click [Add] to add a batch, right click the batch to rename it. And then click [+] to add the sample area (when selecting in accordance with pixels area, if there is a red box, it shows that it is out of range).

Step 2 If one selects a batch and tick **Fixed Batches** > **Adjust Other Batches to The Bath**, then this batch will be used as a reference batch, which could not be modified further. If do not tick, it can be modified in the next step.

Step 3   Click **Next** once setting is completed.

Figure 8-46 Add Sample Batch
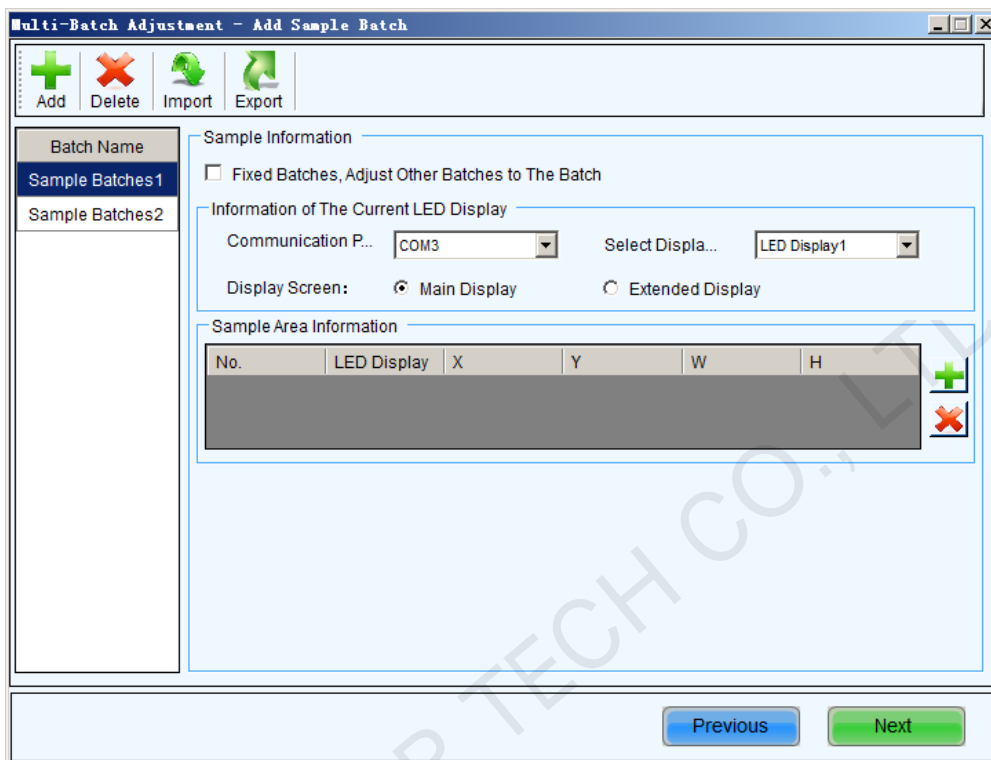
Rename: right click on the name of the batch and then click **Rename** to modify the batch name in the pop-up interface.

Measurement Value of Colorimeter: Display only there is colorimeter, it is needed to fill in the measurement value of the colorimeter.

Step 4   When there is a colorimeter and the effect of initial adjustment is perfect, there is no need to make fine adjustment. Operation will directly into Step 5 (adjustment) if no colorimeter.

Figure 8-47 View the effect of initial adjustment
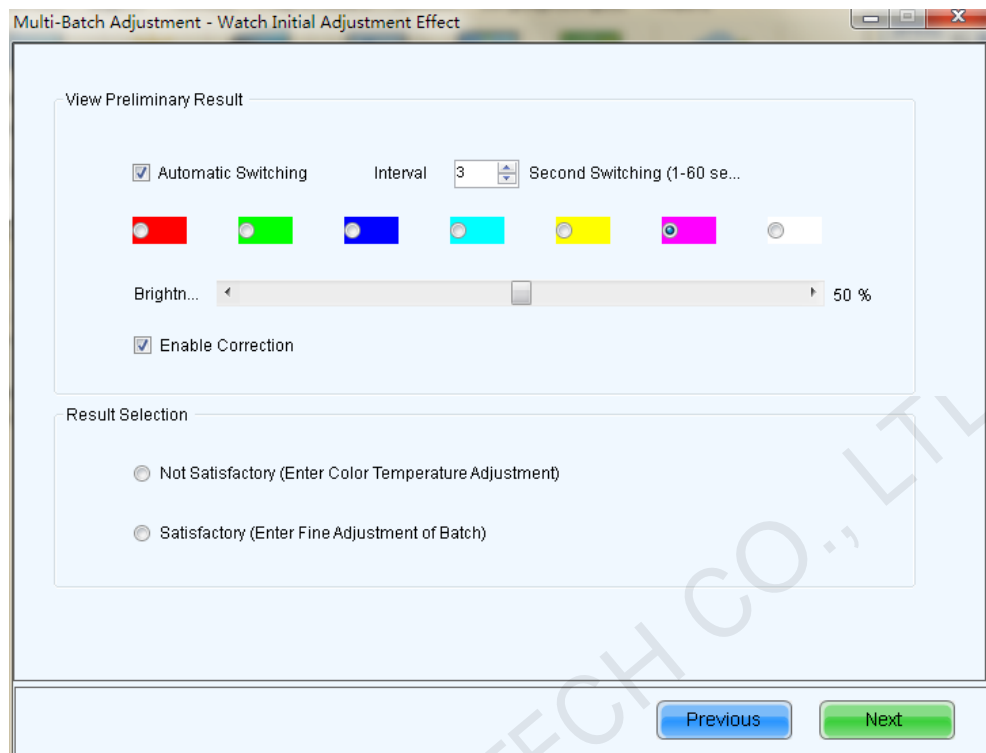
Step 5　Adjustment.

View the effect of initial adjustment; it can automatically switch each color, or be manually switched; at the same time, the brightness can be set manually.

If you are not satisfied with the effect, the coefficient can be adjusted, there are two ways for adjustment, and they are RGB and HSI.

Figure 8-48 Coefficient Adjustment
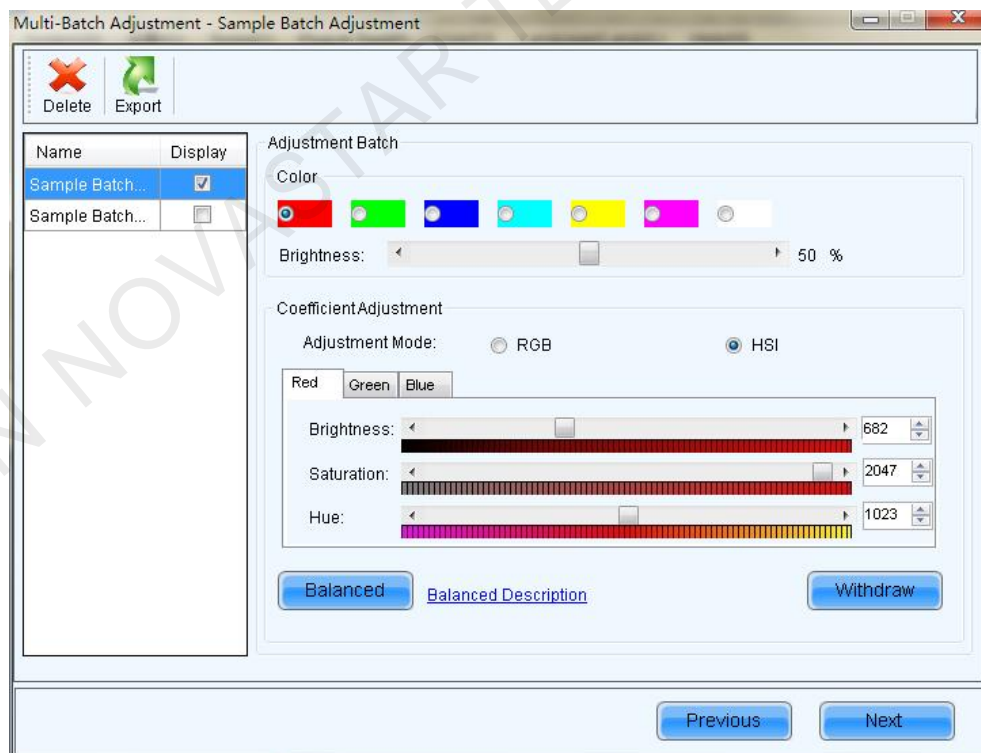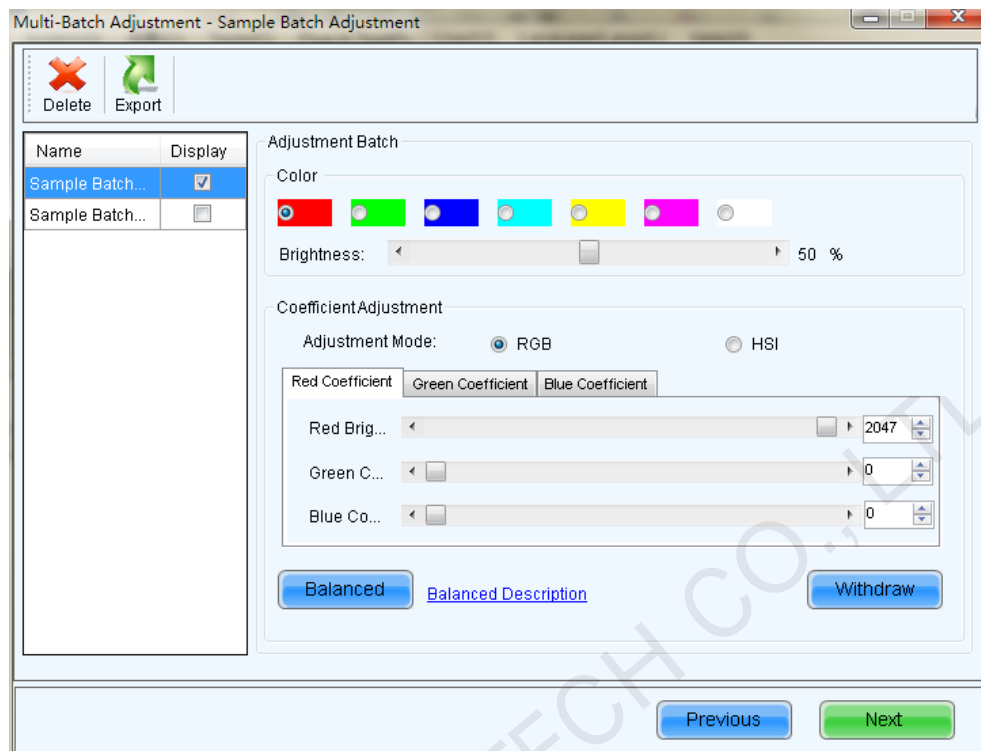
Balanced: Please click Balanced Description to view the details.

Operation steps are as follows:

1.   Regulate the optimum results of red, green and blue.

Figure 8-49 Balanced Adjustment (Red, Green, Blue)
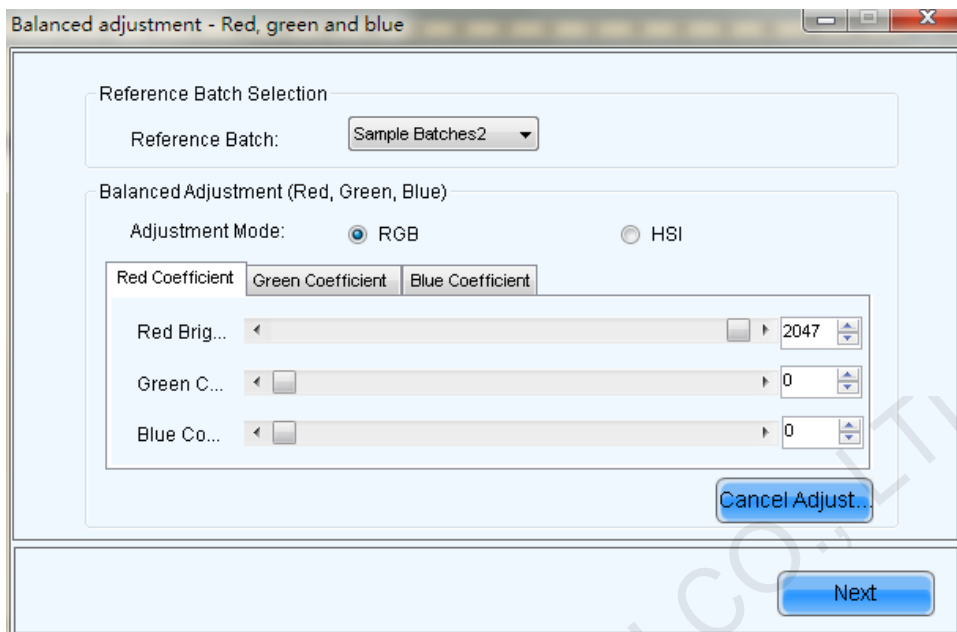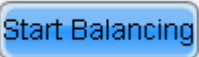
2. Regulate the optimum results of white.

Figure 8-50 Balanced Adjustment (White)
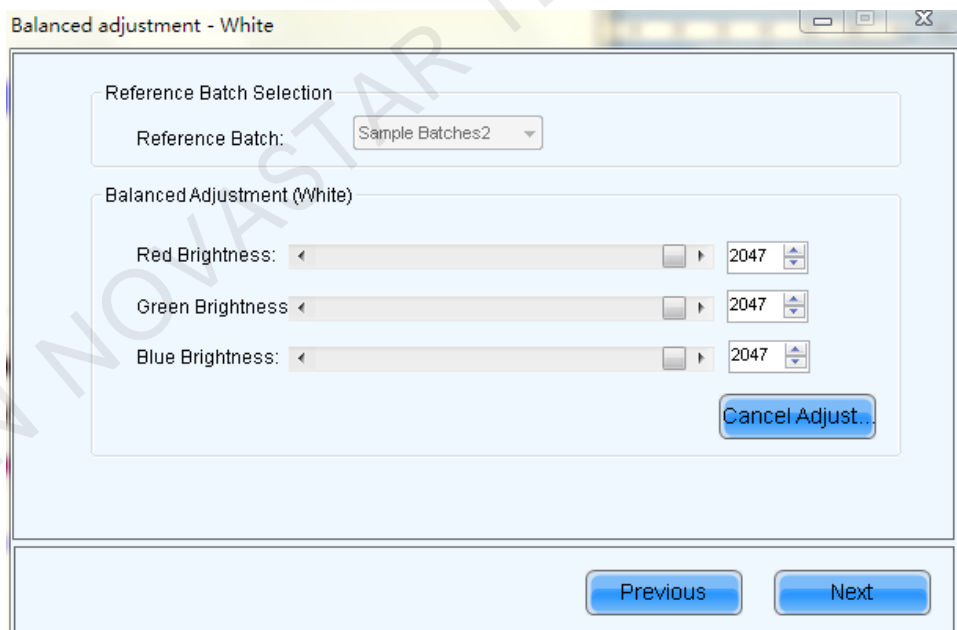
3. Judge the test results with human eye assistance.

Tick "Auto Balancing", Click [Start Balancing] to start the automatic balance adjustment.

After once balance is finished, the software will indicate whether or not satisfied,

if you are satisfied, you can click [Yes] to continue the next balanced

matching, not satisfied, click [No] to end balancing match.

Tips: If no value change lever when adjusting white balance can't be started.

Do not tick "Auto Balancing", you can manually adjust the coefficient of red, green and blue.

Figure 8-51 Auto Balancing
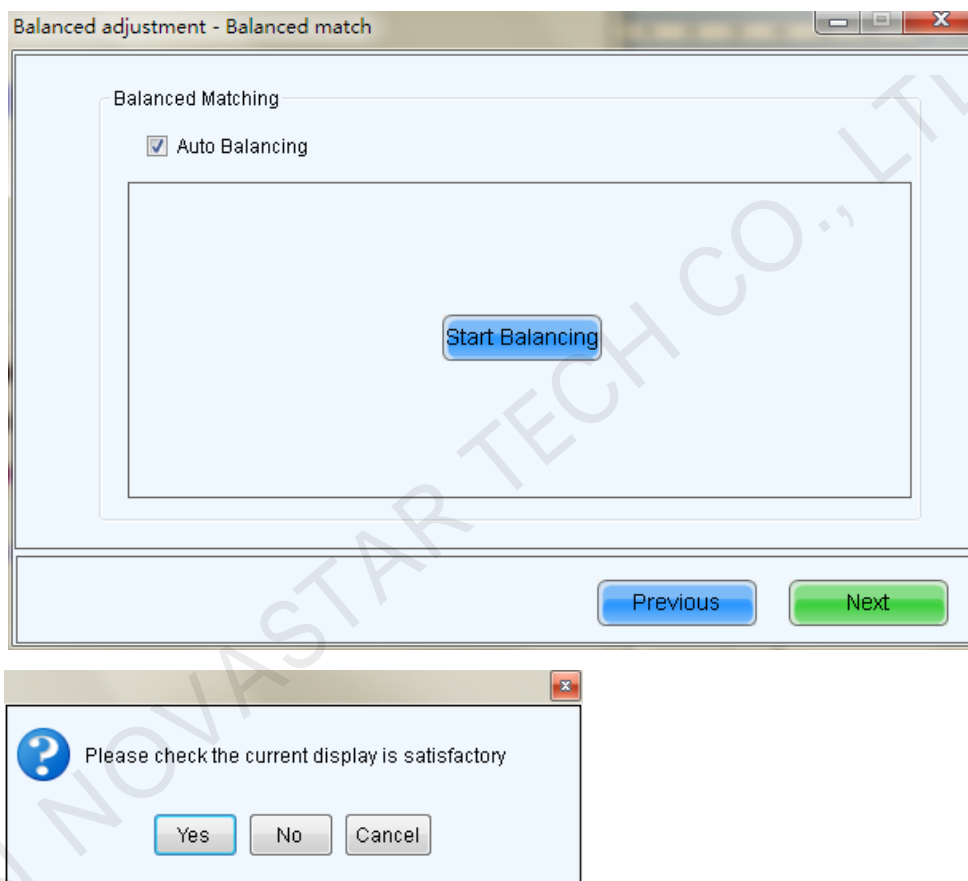
Figure 8-52 Manual Balancing

4. View the equilibrium results.

Figure 8-53 View the equilibrium results
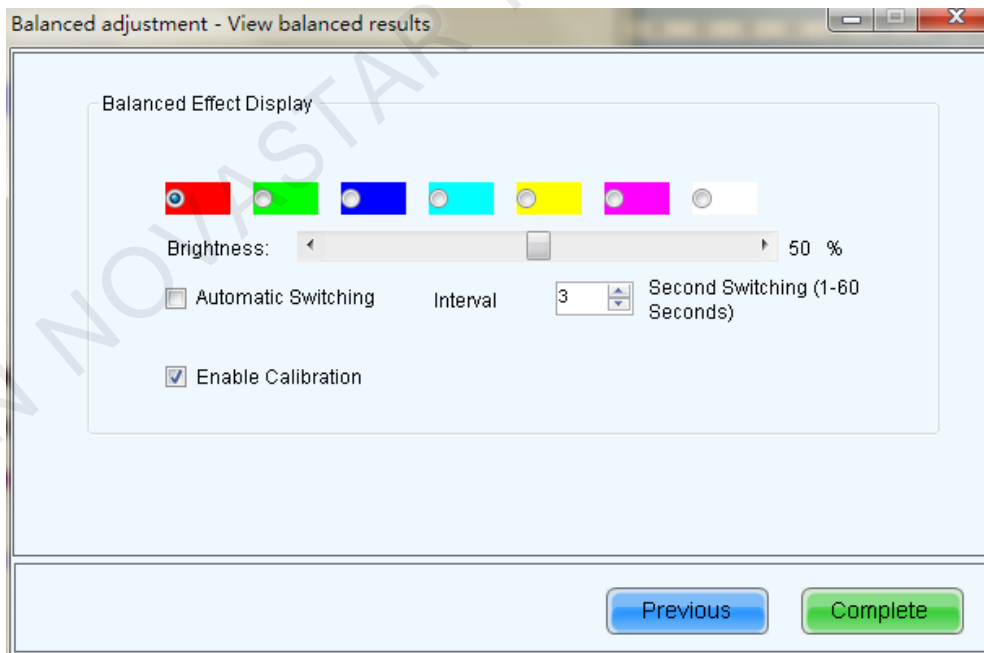
: Withdraw all adjustments.

Step 6   Adjust the Color temperature of all Batch.

Figure 8-54 Color Temperature Adjustment
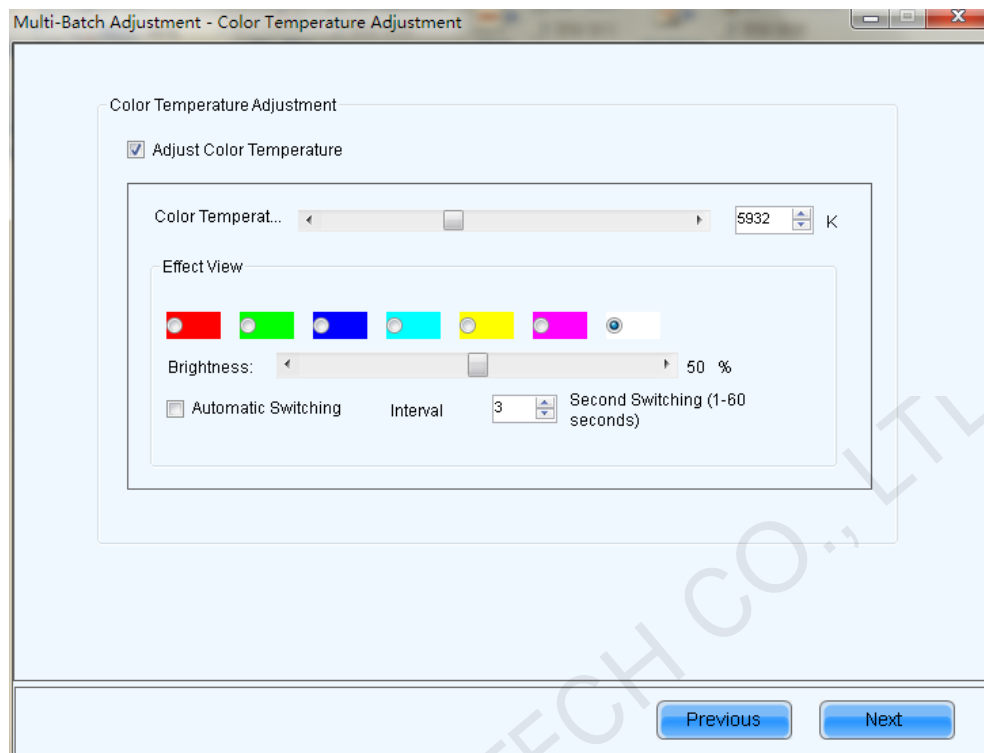
Step 7 Select the batch, and then add one or more unadjusted areas with the same batch on the screen; click on the [reen on LF] (Display screen on LED display) to see the effect on the screen, and click [Apply] to apply the adjustment effect to this area.

Figure 8-55 Adjust application of effect
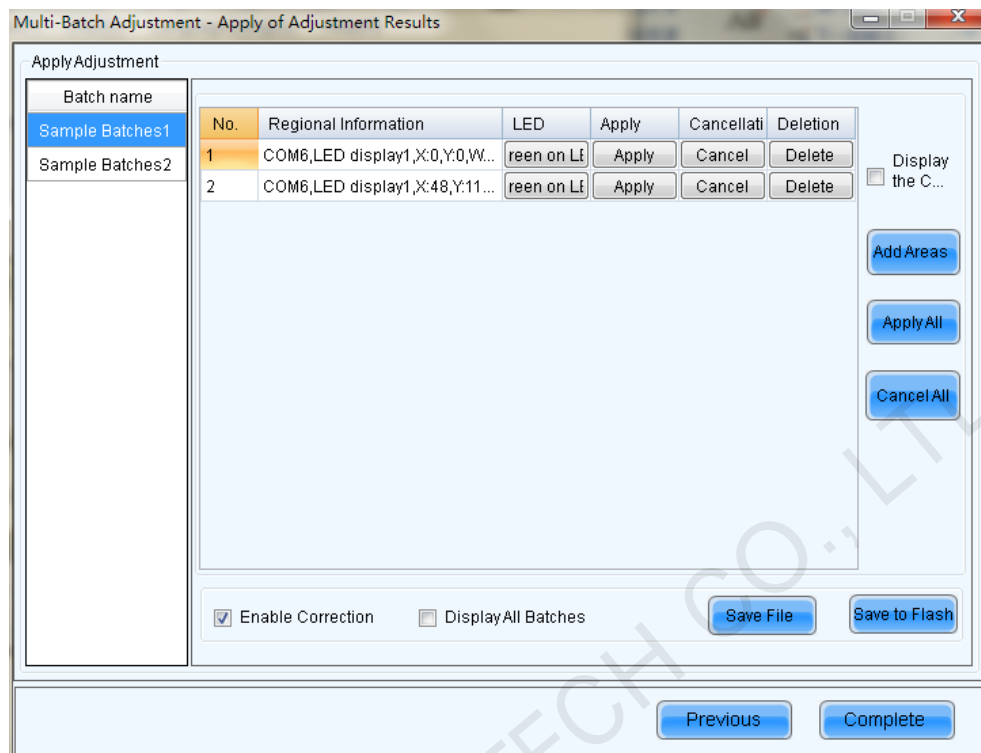
Step 8 Save the file.

Click , and save the adjustment parameter into .lxy file; next time, directly import the file for adjusting the cabinet of the same batch, and it can also be imported for cabinet correction.

8.5.2 Apply Adjustment File

Directly load the adjustment file previously saved, as shown in Figure 8-56.

Figure 8-56 Apply Adjustment File
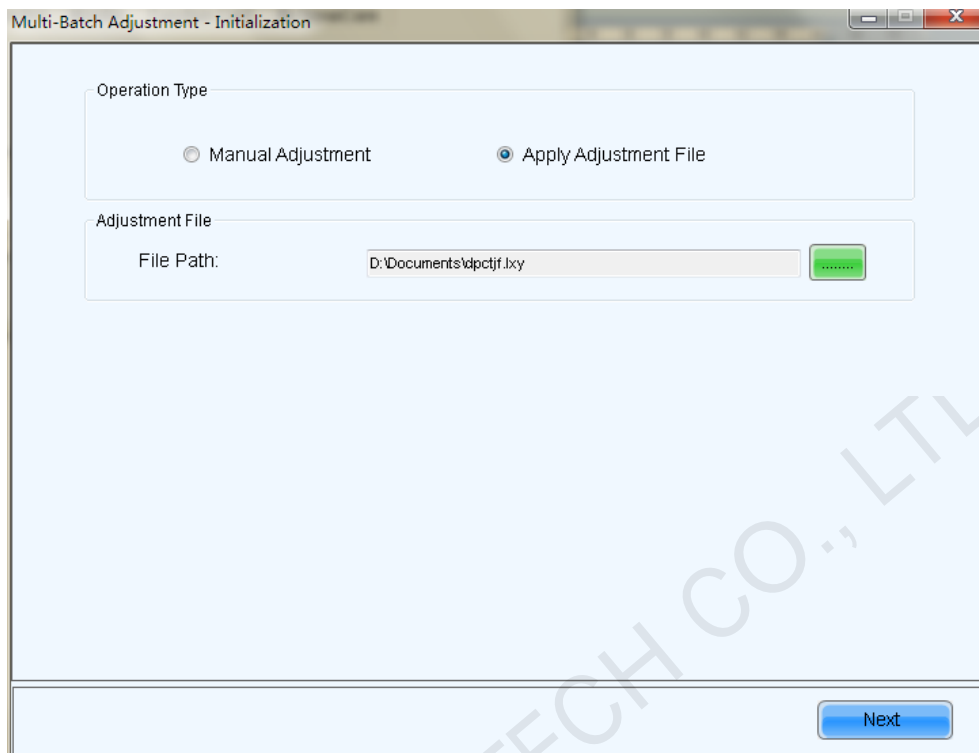
8.6 Controller Cabinet Configuration File Import

Users can quickly configure a screen by importing cabinet configuration files.

To configure multiple cabinets with same specification, screen configuration can be done on site if there are no cabinet configuration files. Then click **Save to File** as shown in Figure 8-57.

Figure 8-57 Save configuration file
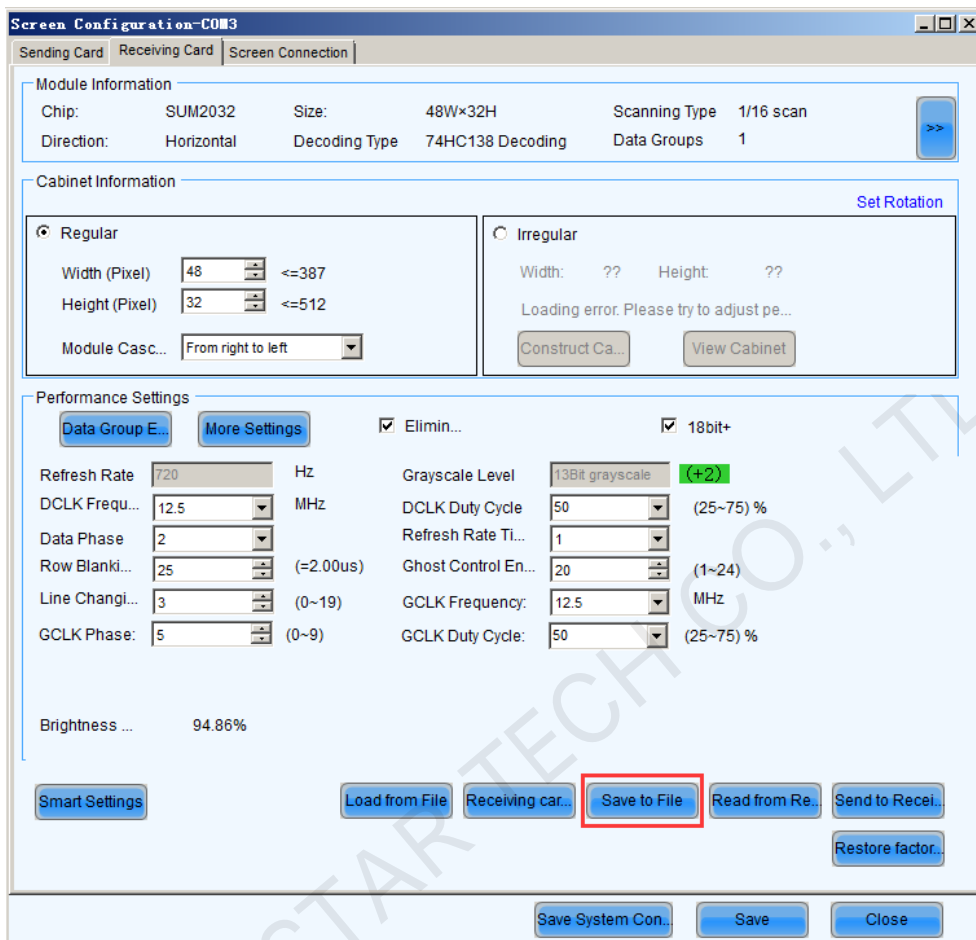
The steps for loading configuration file are shown as below:

Step 1   Click the **Tools** > **Controller Cabinet Configuration File Import** on the main interface.

Step 2   The following figures i.e. Figure 8-58 and Figure 8-59 show the common controller and the configuration file loading interface of Pro. The **Rename** function has been added for Pro.

Figure 8-58 Send Board load Configuration File
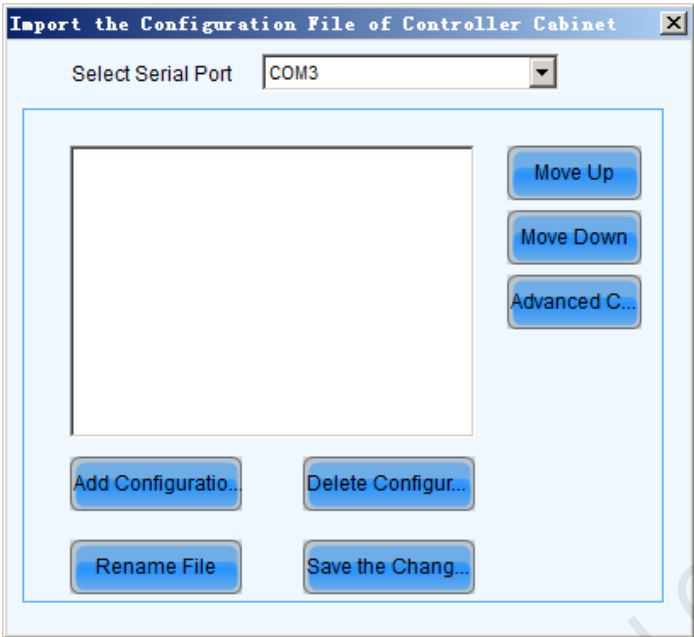
Figure 8-59 NovaPro load Configuration File
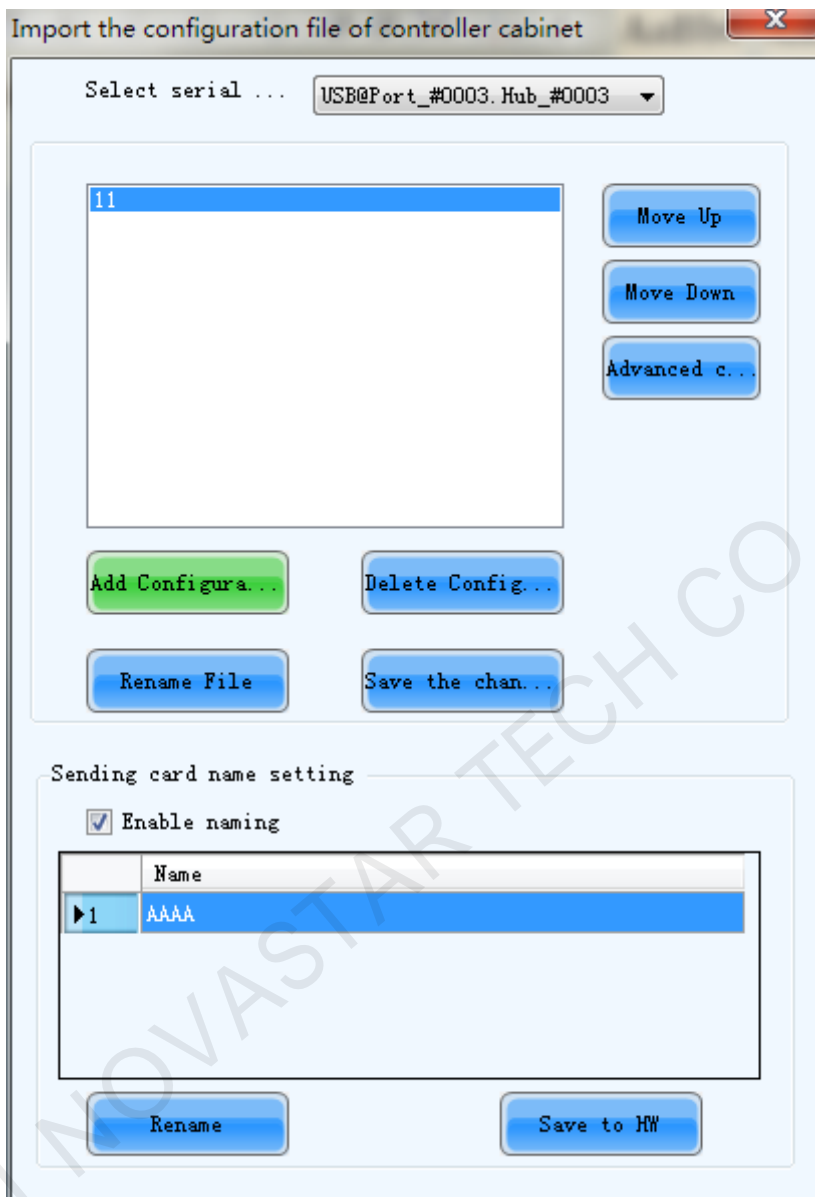
Name setting of Sending card:
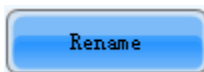
Select Pro, and then click [Rename] , change the name of the sending card in the popped up renaming window. Click **OK** after the name is changed.

Note: The new name is only available after the **Enable naming** is ticked.

Figure 8-60 Naming setting of sending card
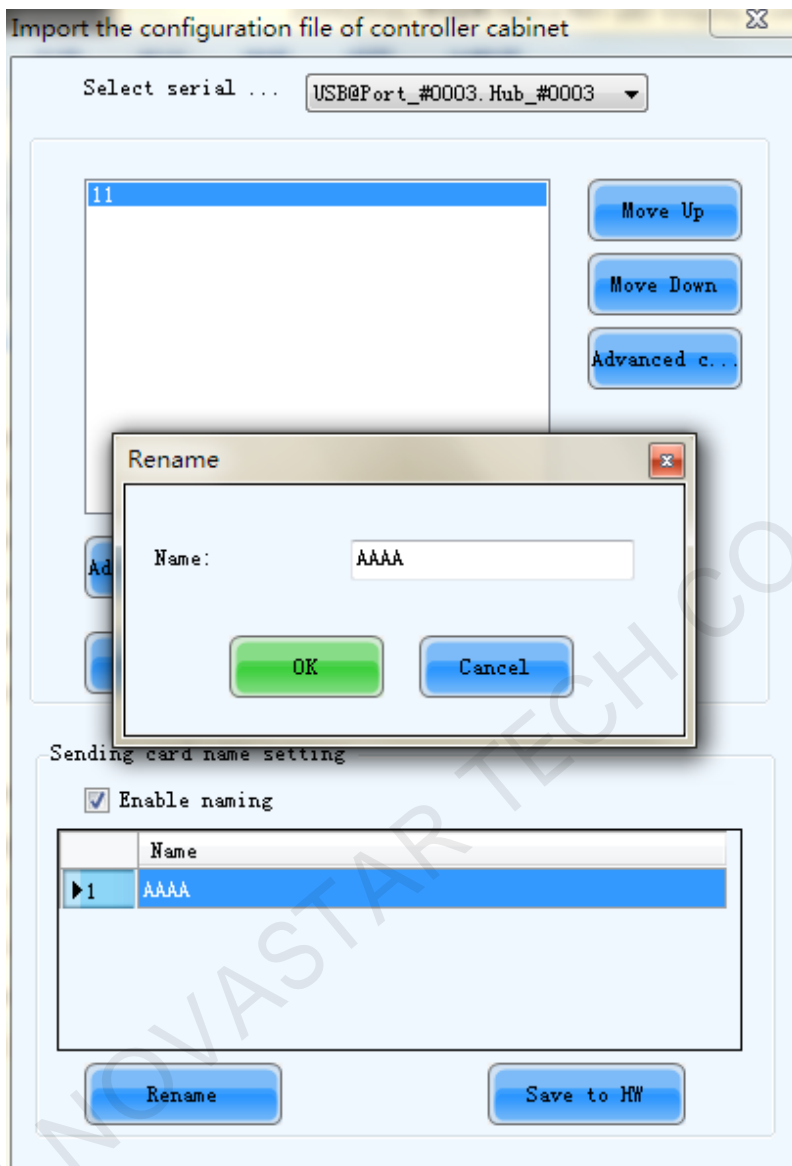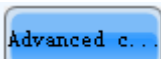
Step 3　Click ![Advanced c...] to select a controller for loading configuration files. If no any controller is selected, the configuration files, by default, will be loaded to all controllers connected to the system.

Figure 8-61 Selecting a controller for configuration file loading
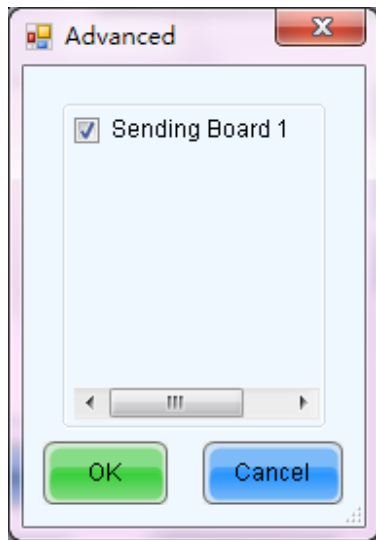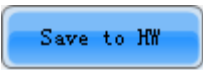
Step 4   Click ![Save to HW], all added configuration files will be saved to the selected controller (s).

Figure 8-62 Selecting a sending card for configuration file loading
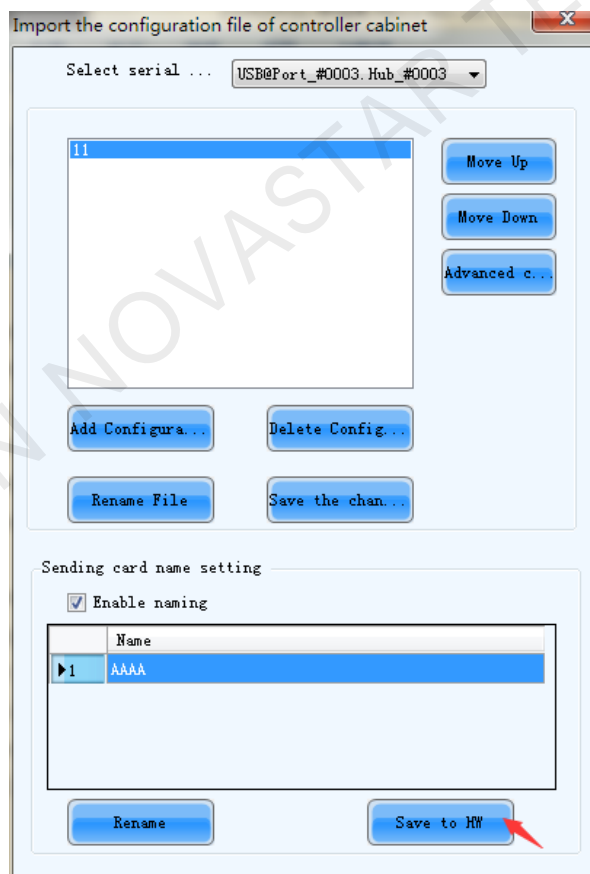
8.7 Quickly Adjust Dark or Bright Lines

When the user couples with the screen, after cabinets and cabinets, or modules and modules are pieced together, if dark or bright lines are detected at the joints , it can be adjusted by using this function, which will adjust the four sides of the module and module and bright dark degree of four points in order to improve visual abruption caused by the bright dark lines caused by visual abrupt.

All parameters will be recorded in the dark / bright-line configuration files once the dark or bright lines are adjusted. The previous dark or bright lines can be reduced by the function of **Dark or Bright Lines Recovery for Cabinet** if necessary.

8.7.1 Adjust Dark or Bright Lines

Select **Tools** > **Quickly Adjust Dark or Bright Lines** > **Adjust Dark or Bright Lines**, enter the adjusting page.

Figure 8-63 Function version selection
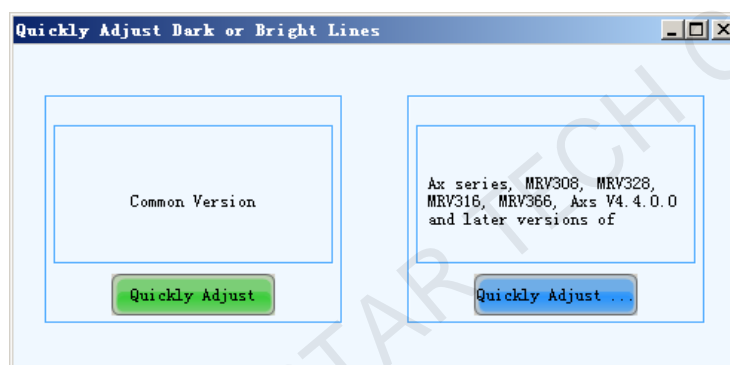
Common Version

Step 1   Click **Quickly Adjust** in the common version area.

Figure 8-64 The **Quickly Adjust Dark or Bright Lines** page.
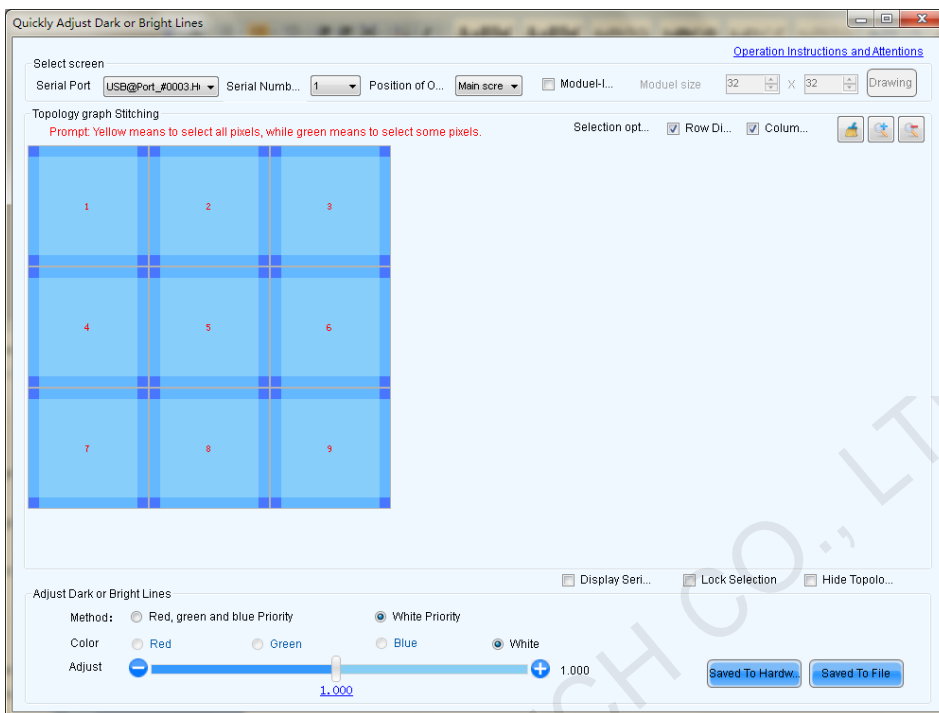
Figure 8-65 Module adjustment
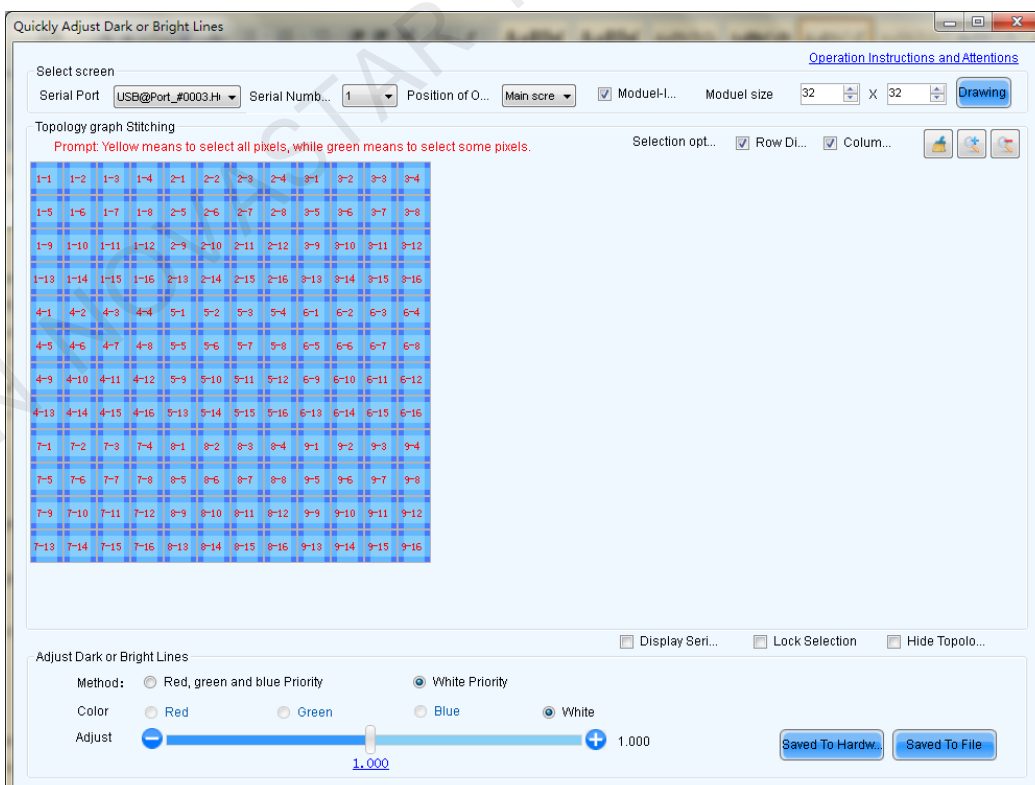
Step 2   Select the screen that will be adjusted currently, and select the location that will play the screen, which setting must be set the same as the computer display.

Step 3   After selecting screen, it will display splicing topology corresponding immediately;
check "Module-level adjustment" to show topological graph of module splice, the user
can quickly see the specific location that bright dark line shines upon the topological
graph on the screen. And then select to adjust.

It will introduce the method that select and cancel the edge or vertex as follows: take
cabinet topological graph as an example, the operation of topological graph of
module is the same as topological graph of the cabinet.

1.   Using the mouse to directly click the four edges or vertices of the box body
selected, click firstly to select, click secondly to cancel.

Figure 8-66 Click on the edge or vertex of the box body selected
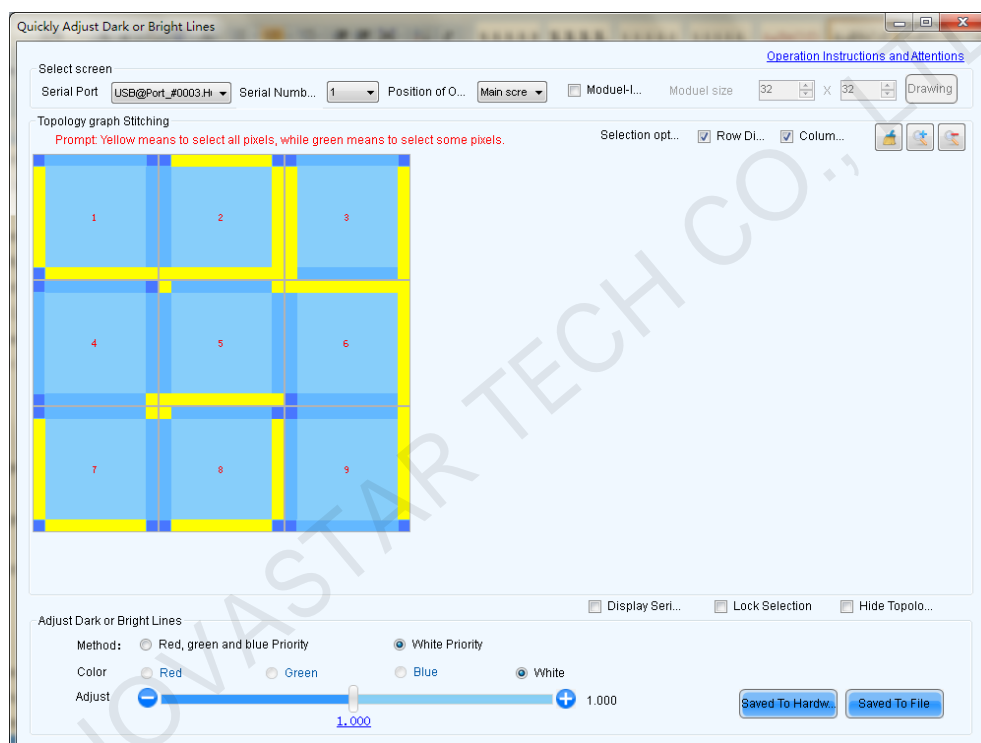
- : Click to cancel all the part selected.

- : Enlarged topological graph.

- : Reduce the topology map.

- Display Serial number: If checked, the number is displayed on the screen that is
convenient for the user to find the bright dark lines.

Figure 8-67 Number On Display

- Lock selection: if selected bright dark side, check it that will be locked to avoid accidentally cancel or multiple select.

- Hide topological: check it to hide the topological graph.

2. It can also select multiple edges or multiple vertices by using the mouse. If the user also checks "row direction" and "column" direction, select the vertices and the edges in the two directions of row and column in the box selection, after it is completed, and then click somewhere selected will cancel the selection.

3. Double click edges that can select part of the points on the edge.

Figure 8-68 Select part of the points on the edge
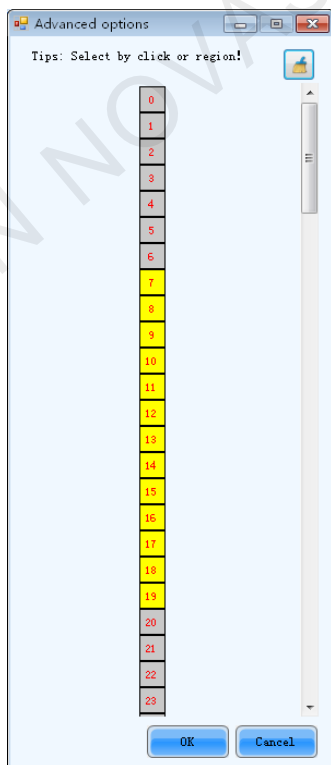
Step 4 Select the part that will be adjusted, began to adjust bright and dark degree, drag link adjustment by using the mouse. There are two types of adjustment, one is priority mode for red, green and blue that can respectively adjust bright and dark of red, green and blue; the other is a priority mode for white, adjust red, green and blue synchronously.

Step 5 Adjust to the best result.

- Click **Save to Vendor Area** to save current adjustment result to the vendor data storage area of the receiving card.

- Click **Save to User Area** to save current adjustment result to the user data storage area of the receiving card.

- Click **Save to File** to save the adjustment data to file. The data of one LED screen is saved as one file. The file can be uploaded when you upload calibration database in the future.

- Click **Restore to Vendor Area**. The system will use the bright and dark line data saved in vendor data area.

- Click **Restore to User Area**. The system will use the bright and dark line data saved in user data area.

Non-Common Version

Click **Quickly Adjust (New)** in the non-common version area to enter the function page, as shown in Figure 8-69.

Figure 8-69 Non-Common version
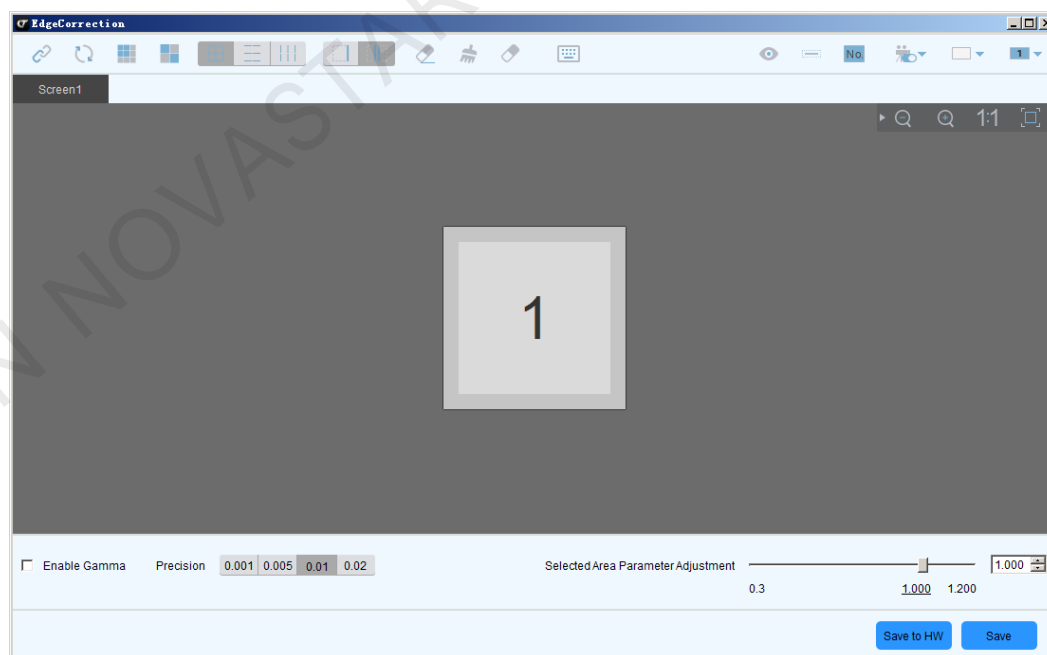
- : Reconnect device.

- : Refresh dada.

- : Set the number of module rows and columns to be displayed.

- ▦ : Show cabinets.

- ▦ ≡ ‖‖ : Show all/horizontal/vertical borders of the modules.

- ▯ ‖ : Select one border or two adjacent borders at a time.

- ⌫ : Deselect the selected borders.

- ⚏ : Clear the effects of all the borders.

- ⌫ : Clear the effects of selected borders.

- ⌨ : Set keyboard shortcuts.

- ⊙ : Show/Hide the display window.

- ▭ : The selected modules or cabinets are displayed with a dash box on the display window.

- No. : Show module ID.

- 📹▾ : Disable seam calibration, enable chroma calibration or brightness calibration.

- ▭ ▾ : Set the color of the display window.

- 1 ▾ : Set the position of the display window.

- Main display: Show the window on the main display.

- Extended display: Show the window on the extended display.

- Enable Gamma: Enable Gamma adjustment.

- Precision: Set the precision for adjusting parameters.

- Selected Area Parameter Adjustment: Set the parameters of the selected area for dark or bright line adjustment.

8.7.2 Recover Dark or Bright Lines

All parameters will be recorded in the dark / bright-line configuration files once the dark or bright lines are adjusted. The method for recovering dark or bright lines is to load the ark / bright-line configuration file to recover the display to the last dark or bright lines. If this file is used for several times, adjusted parameters of those previous recovering dark or bright lines will be recovered accordingly.

Method for recovering dark or bright lines

Step 1 Click **Tools** > **Dark or Bright Lines Adjustment for Cabinet** > **Dark or Bright lines Recover for Cabinet** on the main interface of NovaLCT.

Step 2 Select the display for dark / bright line reducing, click **Browse** to load the dark / bright line file in relation to the display and then click **Reduce** to reduce them to the last ones.

Figure 8-70 Dark or bright lines recovery for cabinet
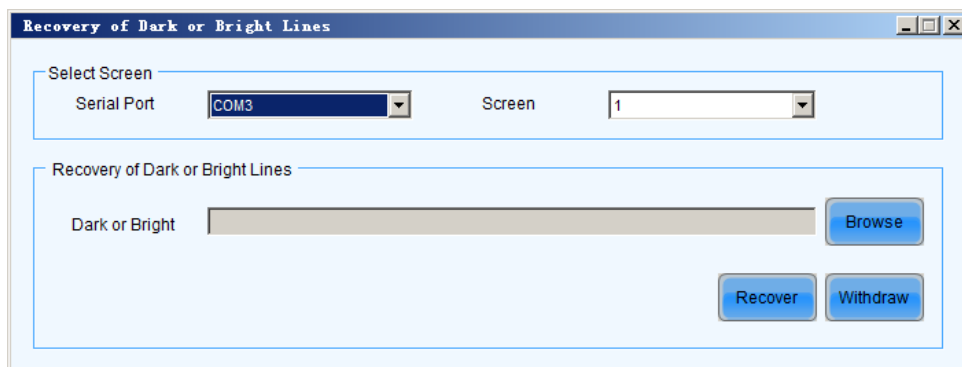

8.8 Video Control

Video control only supports single controller that drives a single LED display or multiple controller assembly that drive a single big screen.

To satisfy all kinds of display effects, set the input, output and splice parameters of the LED display.

First choose LED display and input source of the LED display.

Read from hardware: save all video control parameters before reading from hardware.
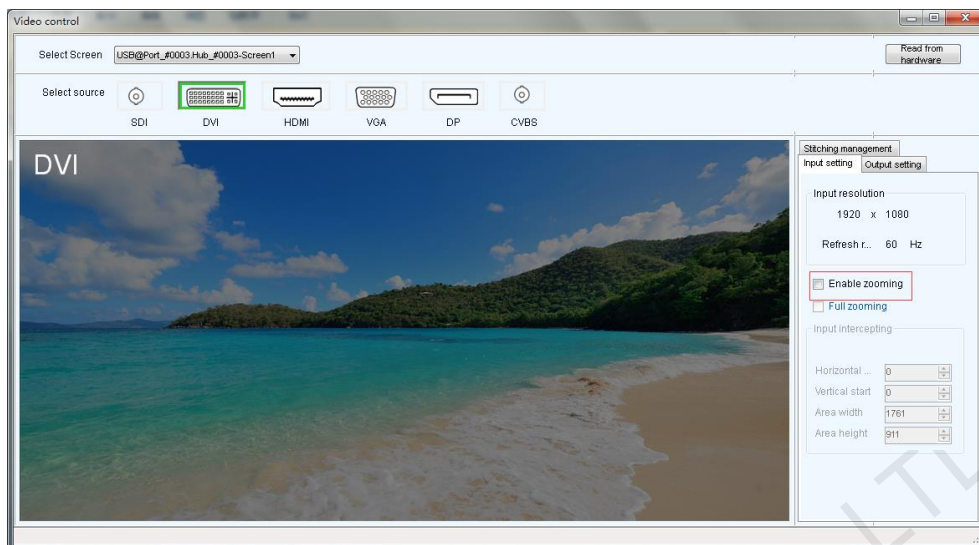
Figure 8-71 Video control
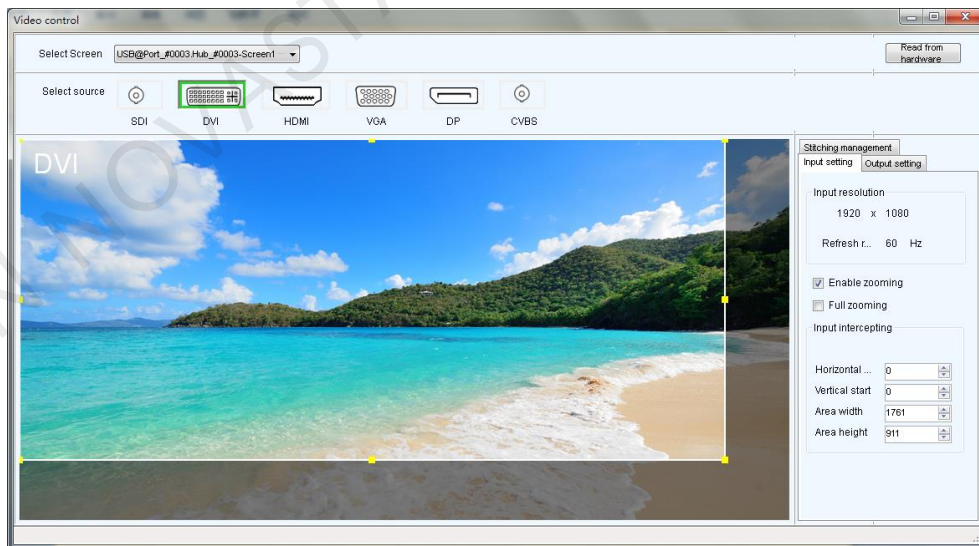
Input setting

There are three types of input setting

- First: Pixel to pixel display, namely do not use zoom, the output image is identical to the input image, and output is in original proportion.

   Operation: Do not check "Enable zooming"

- Second: the output image is adjusted to the size of LED display, namely automatically adjusted to the size of LED display.

  Operation: Enable zooming, and enable automatic entire screen zoom.


- There: customized zooming effect.

  Operation: enable zoom, but do not enable automatic entire screen zoom.

  Operational steps of customized zooming:

  Set input interception, i.e. only intercept part of the input image after certain starting point and show on the LED display. Drag the interception window directly with your mouse to decide the location and size of intercepted image, or set the area width (smaller or equal to the width of input source), area height (smaller or equal to the height of input source), horizontal start and vertical start on the right hand side interface.
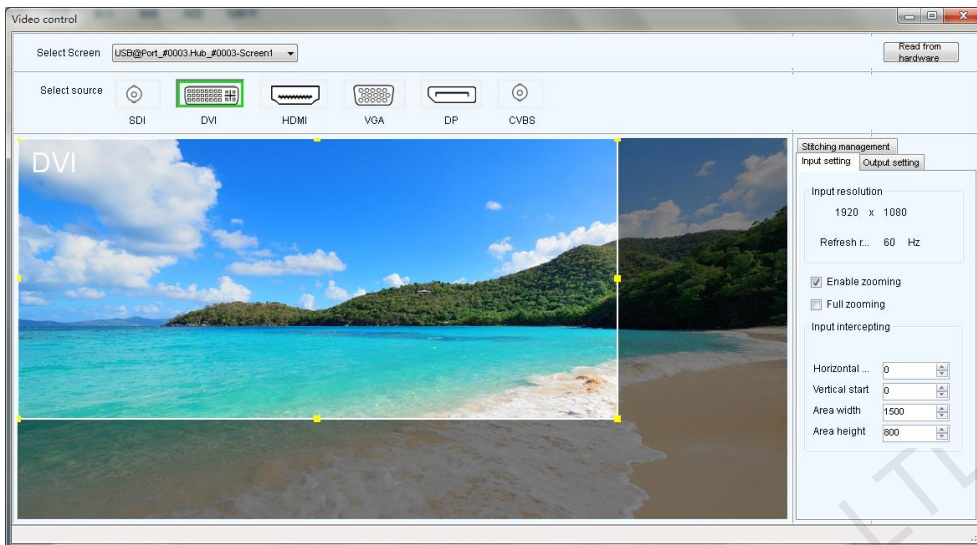
Output setting

Click **Output setting** to configure the output window, if there is only one single device, then the area size is smaller or equals to the size of LED display; if there are multiple devices, it is needed to configure the starting points and area size of each device, the sum of all areas is smaller or equals to the size of LED display; after the window is configured, images can only be displayed inside the window.

Figure 8-72 Output configuration
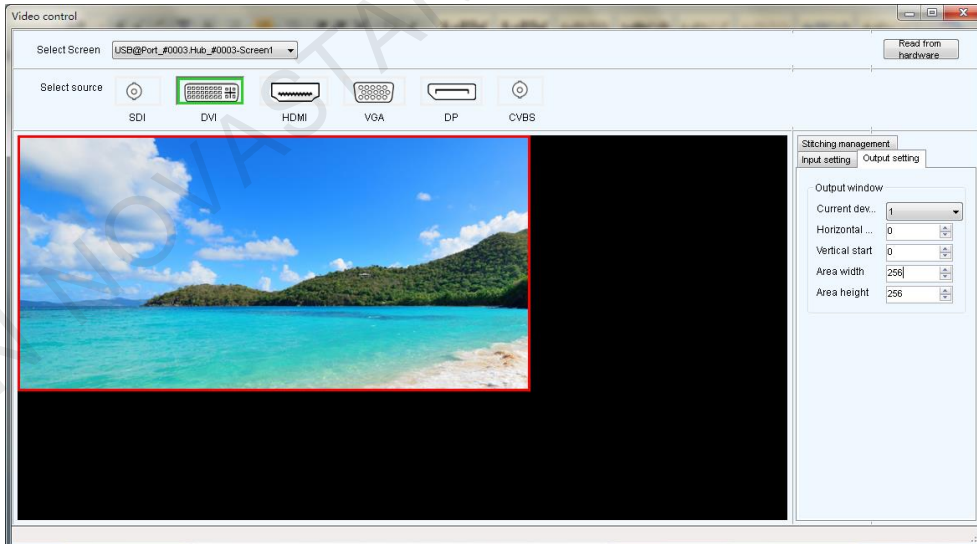
Stitching management

First enable the stitching function, then set the total number of pixels in the big screen, then configure the area driven by each device, as well as the starting location of each loaded area. The sum of loaded area of all video controllers is the number of total pixels on the big screen.

Pixel-to-pixel Auto Set : Press this button, the selected device will output a pixel-to-pixel image.

Figure 8-73 Stitching management
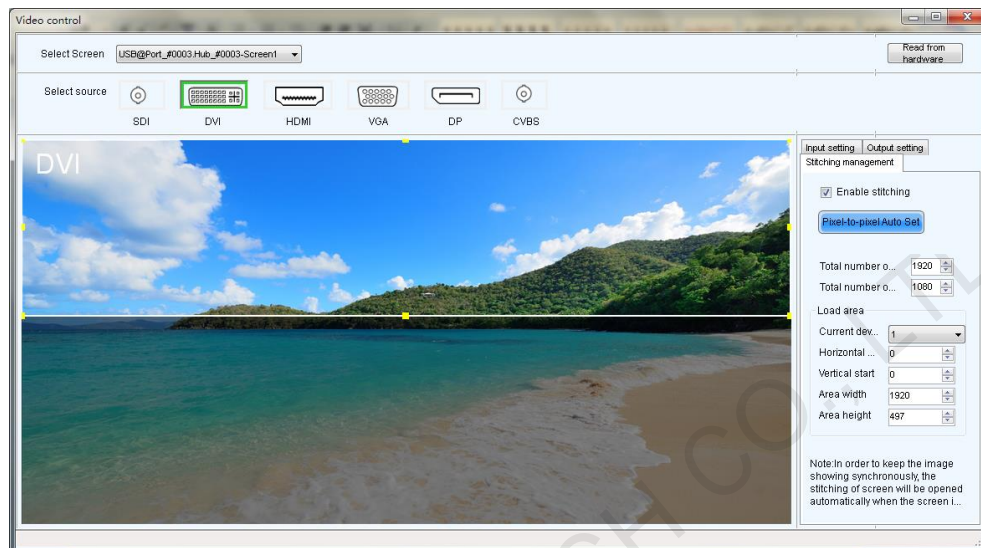
8.9 Module ID Settings

In order to make the large screen easier to manage, the system features a function to configure ID for each module.

Check the module ID and module status

Step 1   Select **Tools** > **Module ID Setting** to enter the module ID setting page.

Step 2   Click on **Refresh** and the system will read the real-time module ID and module status which will be shown in a topology.
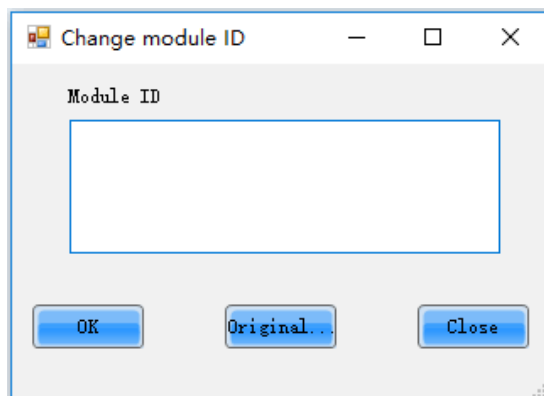
Module ID Settings

Step 1   Enter **admin** in the module setting page to activate the module ID generating rule and saving function, as shown in the following figure.

● Scaling rate: Drag the slider to zoom in and out the topology of the left-side module.

● ID: Show the currently selected module ID.

● Set ID: Set IDs for the whole module.

  – Prefix: Set prefix for the serial number of each module.

  – Ordering: The regulated order for generating serial numbers in the process of generating module IDs in batches.

    – Z type: Generate module IDs from upper left to upper right horizontally of the first row.

    – N type: Generate module IDs from upper left to lower left vertically of the first column.

−   Serial number: Number all the cabinets from left to right, beginning with 0 for modules of each cabinets.

−   Generate a serial number for each module based on cabinets and number all cabinets from left to right.

−   Click **Generate** to make the system automatically set an ID for each module according to the prefix and ordering method.

−   Click on **Save** to make the system send the module ID to the hardware for saving.

Step 2   Double-click a module to modify its ID.

Step 3   Enter the module ID.

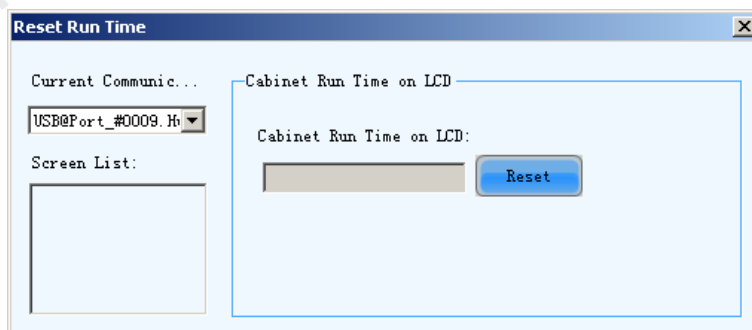Click **OK** to modify the selected module ID.

8.10 More Functions

8.10.1 Resetting Run Time

This function is used to reset the run time displayed on the LCD of each cabinet.

Step 1   On the home page of NovaLCT, choose **Tools** > **More** > **Reset Run Time**. The **Reset Run Time** page appears.

Step 2   Select the target communication port and click **Reset**.

8.10.2 Brighter Pixel Correction

This function is used to solve the problem that the brightness of the calibrated screen is not uniform.

Step 1 On the home page of NovaLCT, choose **Tools** > **More** > **Brighter Pixel Correction**. The **Brighter Pixel Correction** page appears.

Step 2 In the **Select Display** area, select the target display and set the position and brightness of the display.

Step 3 In the **Import Database** area, click **Browse** to load cabinet database files or screen database files.

Step 4 In the editing area on the left, move on to the **Simulation Diagram** tab. Click or select the target pixels for coefficient adjustment.

Step 5 Click **Save Database**, and then click **Upload** and **Save to HW**.
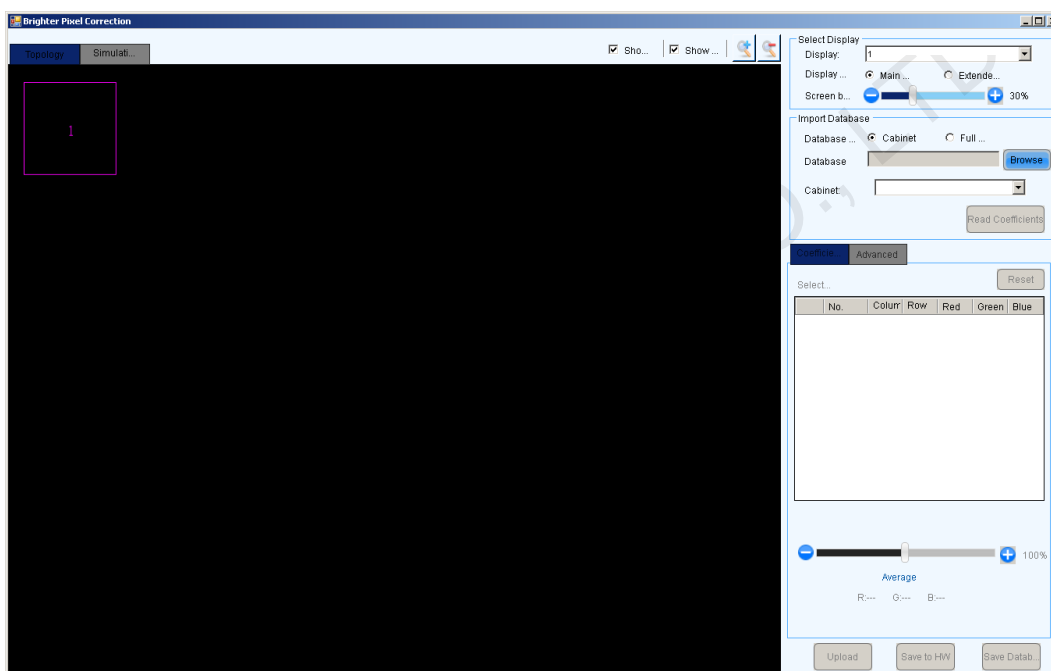
8.10.3 Bit Error Detection

This is used to detect data packet loss during communication between receiving cards.

Step 1 On the homepage of NovaLCT, choose **Tools** > **More** > **Bit Error Detection**. The **Bit Error Detection** page appears and the bit error information of the current communication port is refreshed automatically.

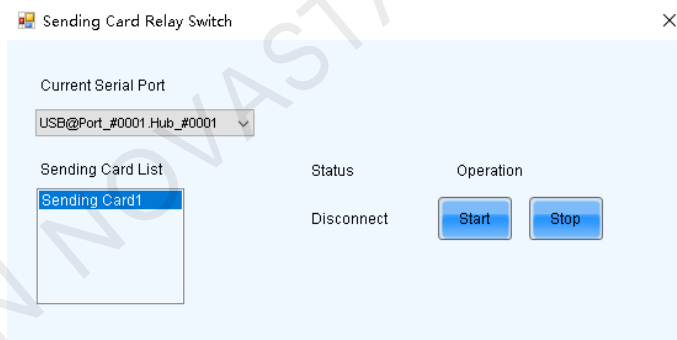Step 2 (Optional) Select **Auto Refresh** and set refresh cycle or click **Manually**.
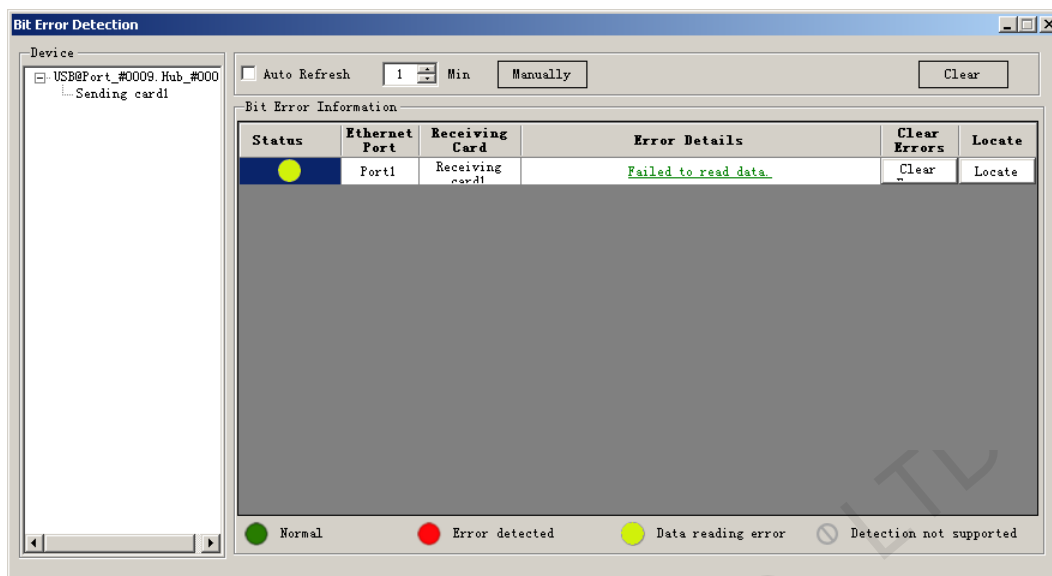
8.10.4 Sending Card Relay Settings

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

Operating Procedure

Step 1 Log into NovaLCT as an advanced synchronous system user.

Step 2 Choose **Tools** > **More** > **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.

Note:

Only the KT8 supports status setting of the sending card relay.
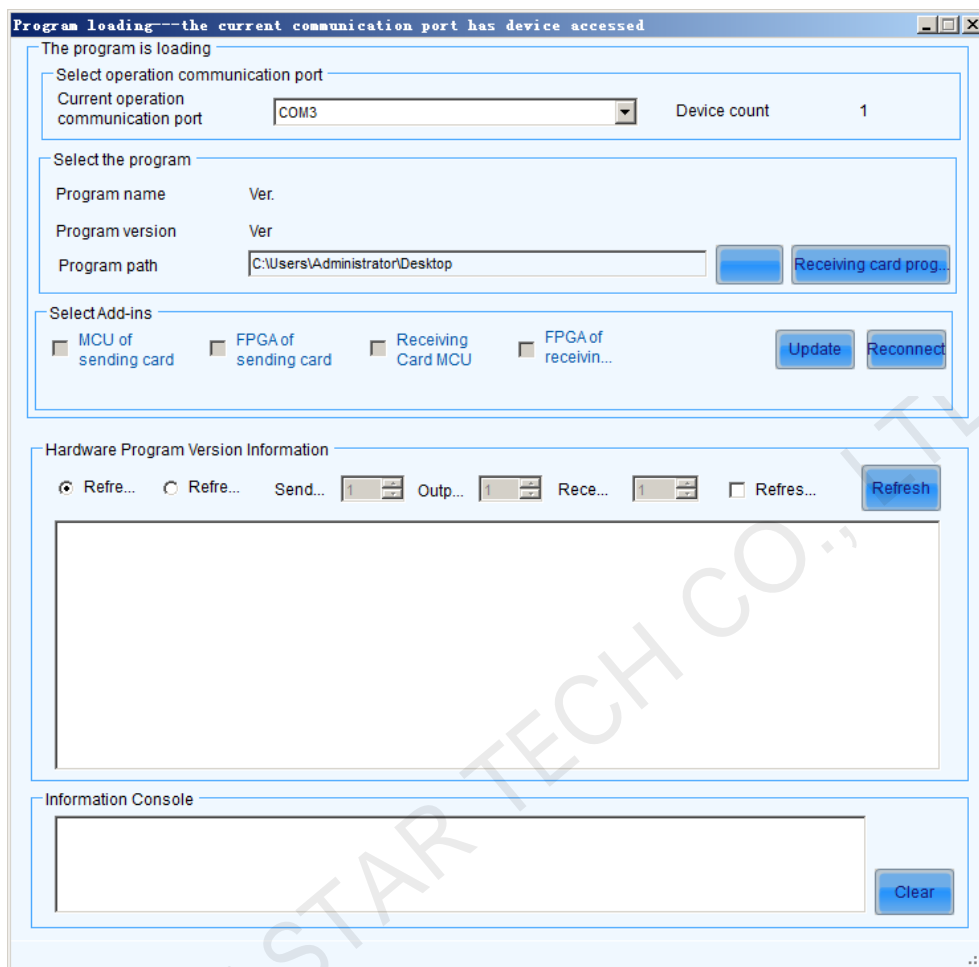
9 **Hardware Program Update**

Login as an advanced user and type in **admin** on the NovaLCT main interface to open the page for updating the hardware program.

Note:

- There is not any place to view the typing when typing the passcode. Just type in the passcode directly.

- Just type in the passcode again if the one input before is wrong.

- It not recommended changing the program unless there are problems with the hardware.

Figure 9-1 The Load Program page

- **Current Operation Communication Port**

  Select the serial port or Network port through which the hardware to be updated is connected to the computer.

- **Program Path**

  Select the program to be loaded to the hardware here.

- **Receiving card program readback**

  Read back the hardware programs in receiving card and save them to Data package (only supported by A4/A5 series receiving cards currently).

- **Sending card MCU**

  Select this option if the MCU program of a sending card is to be updated.

- **Sending card FPGA**

  Select this option if the FPGA program of a sending card is to be updated.

- **Receiving card FPGA**

  Select this option if the FPGA program of a receiving card is to be updated.

- **Update**

  Update hardware program to all the receiving cards or specified receiving cards.

- **Change**

  Click this button to load the selected program to the selected hardware.

- Refresh All

  If this option is selected, the version information of all sending cards and receiving cards connected to the current serial port will be refreshed when click the **Refresh** button.

- Refresh One

  If this option is selected, only the version information of the selected receiving card will be refreshed when click the **Refresh** button.

- Refresh

  Click this button to show the current version information of the hardware. This can be used to check whether the hardware program has been updated.

10 Plug-in

10.1 Test Tool

Open the test tool independently developed by NovaStar.

Step 1 Open NovaLCT and choose **Plug-in** > **Test Tool**

Step 2 On the displayed Test Tool of LED Screen-NovaStar page, perform the settings.

Item	Description
Window	Set the initial position, width and height of the window, and show or hide the window.
Pure Color / Gradual Change / Grid	• Set the color displayed on the screen. • Set the corresponding parameters. Preview the display via the display on the control computer.
Orientation	Locate the screen module and set the corresponding parameters.
Help	Check the shortcut keys of the test tool operations.

Figure 10-1 Test tool
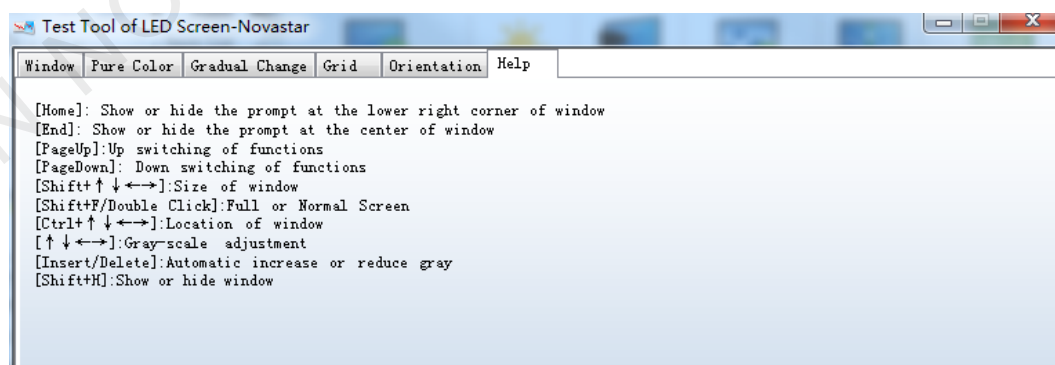
10.2 Calculator

Open the calculator of the computer.

Open NovaLCT and choose **Plug-in** > **Calculator** to open the **Calculator** window.

Figure 10-2 Calculator

10.3 External Program

Export the external program.

Step 1　Open NovaLCT and choose **Plug-in** > **External Program** to enters its window.

Step 2　Click 　　　to open the **Add External Program** window. Type the command line parameter and click **OK**.
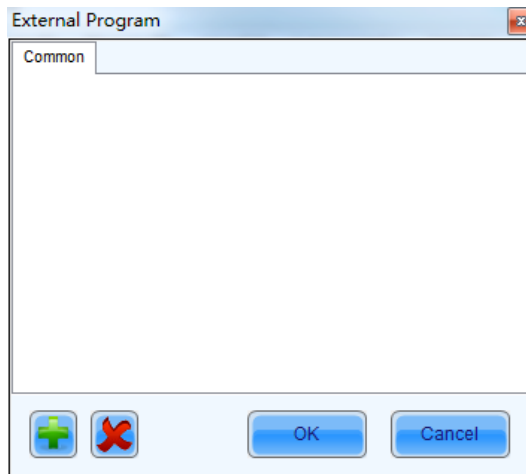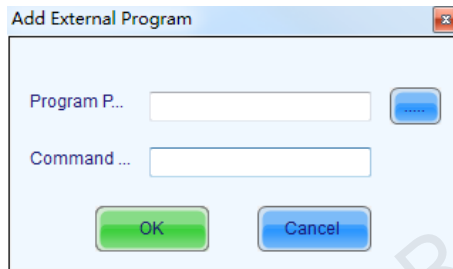
Figure 10-3 External program

Figure 10-4 Adding external program

11 Help

11.1 User Documents

Open the software user guide.

Step 1 Open NovaLCT and choose **Help** > **User Documents**.

Step 2 In the drop-down box on the right, choose the desired user guide and click it.

11.2 Update Log

Open the software update log

Step 1 Open NovaLCT and choose **Help** > **Update Log**.

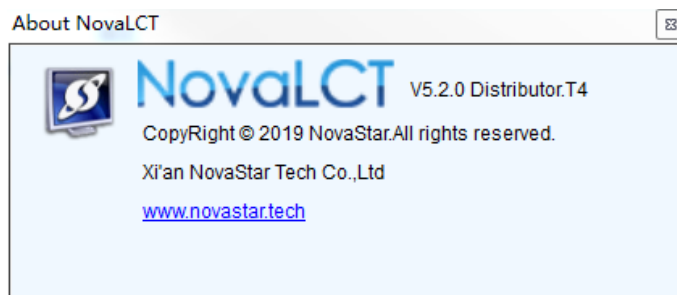Step 2 In the displayed window, view the software update description of the current version.

11.3 About

Check the software version, copyright information and the company website.

Step 1 Open NovaLCT and choose **Help** > **About**.

Step 2 In the displayed **About NovaLCT** window, view the software related information.

Figure 11-1 About

12 Troubleshooting

12.1 NovaLCT shows "No Hardware" on corresponding pages

Check whether the hardware system is powered on.

Check whether the cable connection is good.

12.2 NovaLCT shows "No Screen" on corresponding pages

If the LED display has been configured already, then try reading the configurations from the display by click the **Read from HW** button on the **Screen Connection** page. If the display has not been configured yet, configure it.

12.3 The LED display does not show the image correctly during the Smart Setting procedure

Check whether the sending card resolution and the graphic card output video resolution on the Sending card page are the same. Set them to be the same if they are not.

Check whether the settings in the Smart Setting procedure are correct.

12.4 Only a part of the modules of each cabinet work normally in Smart Setting

Check whether the row and column numbers set in Figure 12-1 are consistent with the actual row and column numbers of the cabinet.

Figure 12-1 The page of Smart Setting Step 1
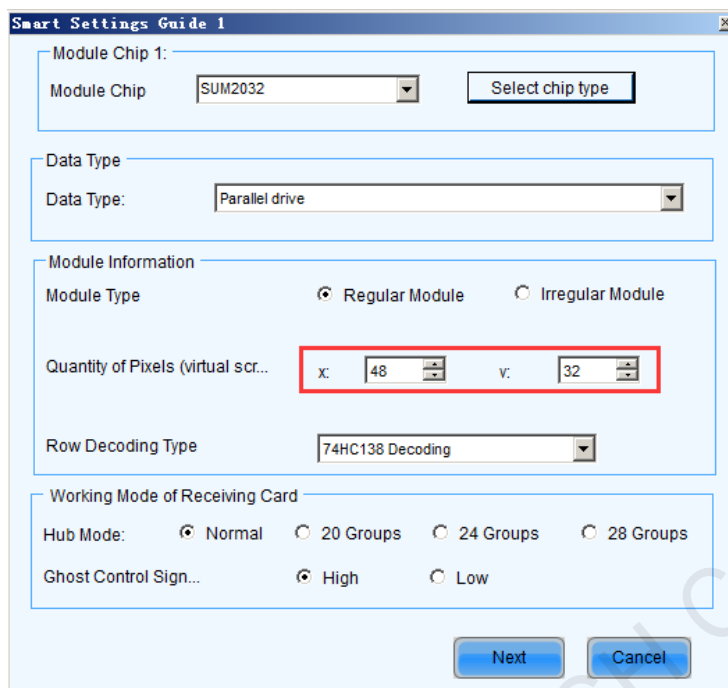
12.5 Permission Error

If the operating system is Windows 8 or above, the user is suggested to install
NovaLCT in other drives than the system disk; if user insists on installing the software
in the system disk, Permissions shall be given manually to the software, otherwise
part of the function of the software requiring permission will not work normally.

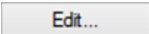Operating procedures to give permissions to the software are as follows:

Step 1 After installing NovaLCT, find **NovaLCT** on the desktop, right click attribute to find the
path of the document.

Step 2 Return to the previous level from the opened file directory, i.e. the directory of \Nova
Star\NovaLCT.

Step 3 Right-click on **Bin** folder to pop up **Bin Properties** window and select **Security** tab.
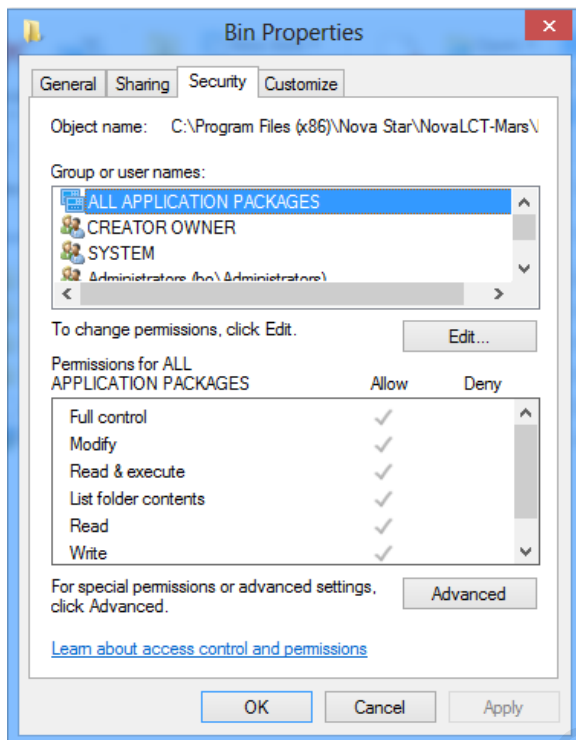
Step 4   In the group or username, check whether there is current user or Everyone. If not, skip to step 5. If there is, click to check whether the "allow" corresponding Permissions below has been checked; if not, check it, and then click "OK" to finish Permissions setting.

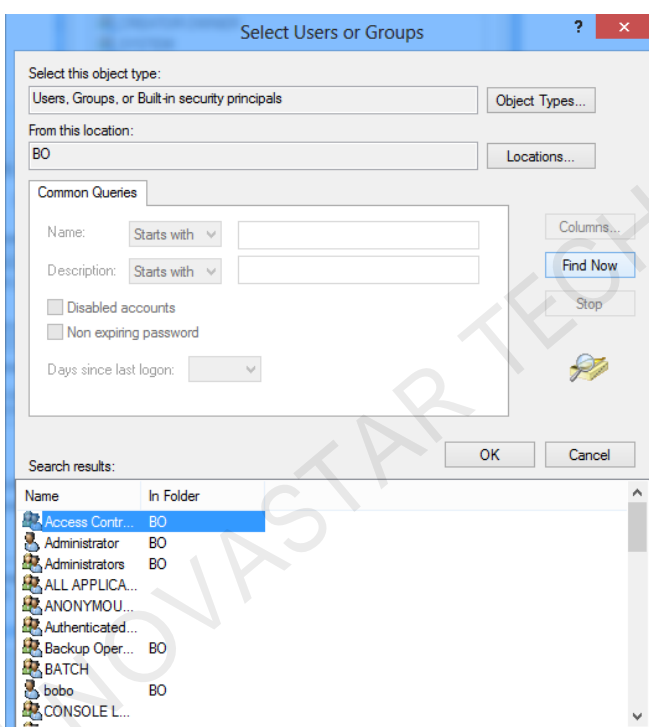Step 5   Add Everyone user for the directory.

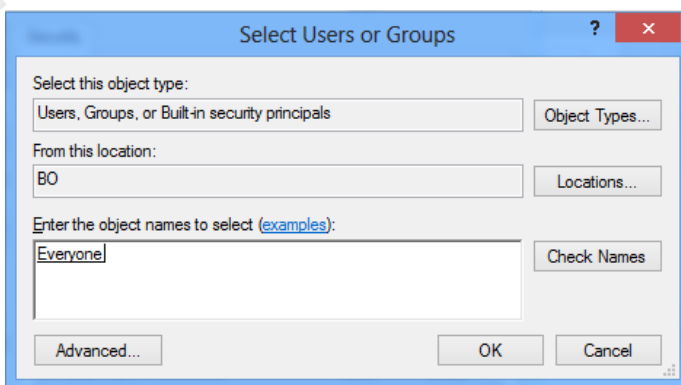Step 6   Click [Edit...] to enter the following interface.
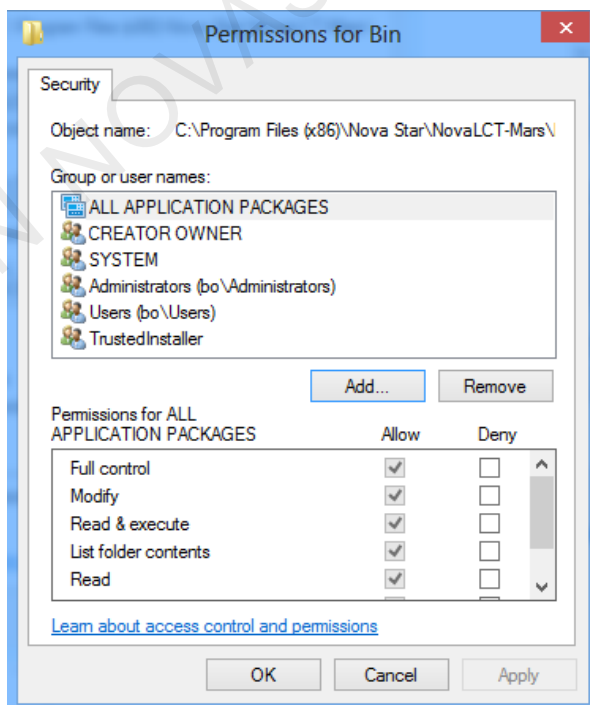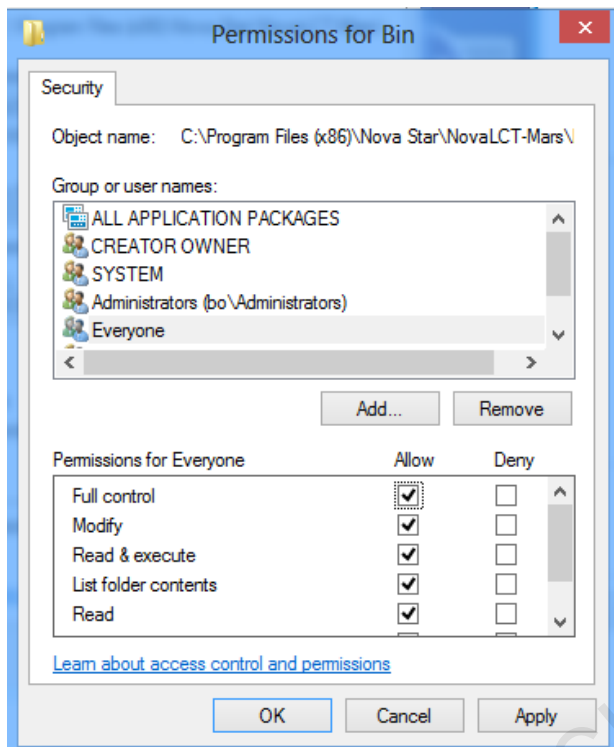

Step 7   Click **Add**.
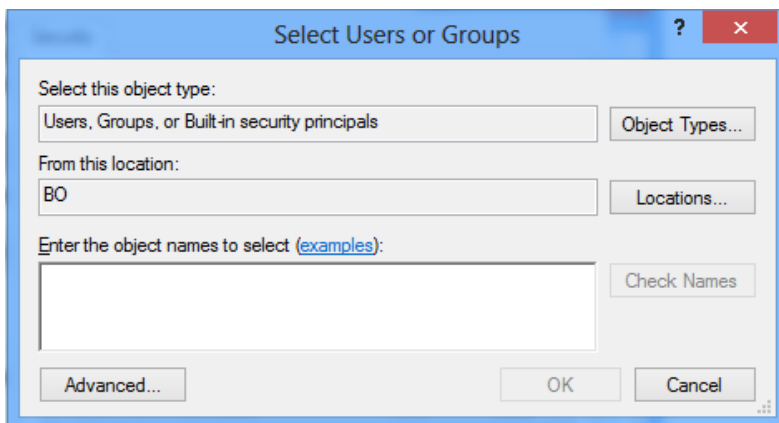
Step 8 Click **Advanced**, find Everyone in the search result. Select it and click **OK**.

Step 9 Click **OK**.

Step 10 Enter into the following interface; select all of the **Allows** and click **OK**.

Step 11   Finish Permissions setting and begin to enjoy the convenience brought by NovaLCT.

12.6 Failed to install previous versions

After the up-to-date version of NovaLCT has been installed on the computer, the installation of previous versions may fail. If it fails, please uninstall the up-to-date one and then install the previous ones.