VMP

Vision Management Platform

User Manual

Contents

1 Software Introduction

VMP, short for Vision Management Platform, is an application in the brand-new control system COEX series. Featuring innovative interaction design and plenty of practical functions, such as device management, input settings, screen configuration, display correction, color processing, screen settings, monitoring and maintenance, and preset management, it provides users with an efficient and easy operation and control experience.

✛ **Easy single-device and grouped-device controls**

Devices can be grouped and batch operated as you wish, greatly improving work efficiency.

✛ **Fast configuration of regular or irregular screens**

Cabinets can be quickly connected, flexibly arranged and aligned, considerably simplifying screen configuration.
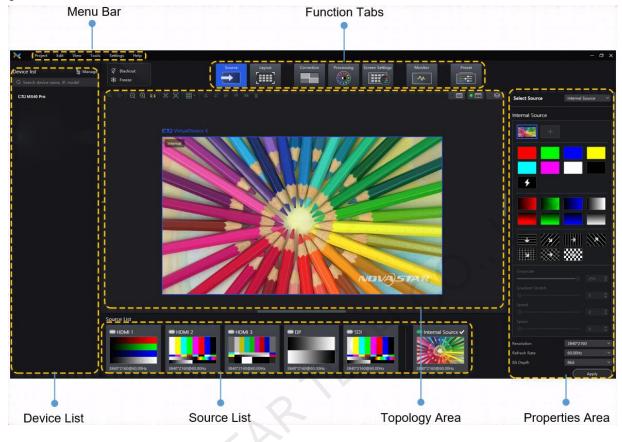
✛ **Distinct topology area and properties areas**

The screen topology is clear at a glance, the input source can be previewed in real time and various properties can be easily set.

2 UI Introduction

Figure 2-1 UI Introduction

> **Note**

All the figures in this document use operations in Windows10 as examples.

You can refer to section 7.3 Lock and Unlock Correction Page to lock the **Correction** page to avoid changing the display content due to misoperation.

3 Getting Started

3.1 Install VMP

3.1.1 Windows

Prerequisites

- The VMP software package is prepared.
- A computer meeting the following requirements is available.
  - OS: Windows 10 (64-bit) or later
  - CPU: i5 or later
  - RAM: 8 GB or greater

> **Note**
>
> The Windows systems based on ARM architecture are not supported.

Installation Method

Run the **Coex VMP Setup.exe** file and follow the setup wizard to complete the installation. If a firewall prompt appears, choose to allow the installation.

Installation Result

If the installation is successful, the VMP software shortcut appears on the desktop.

3.1.2 MacOS

Prerequisites

- The VMP software package is prepared.
- A computer meeting the following requirements is available.
  - OS: MacOS 10.15 or later
  - CPU: Intel i5 or Apple M1 or later
  - RAM: 8 GB or greater

> **Note**
>
> VMP for MacOS does not support calibration related functions. To use the LED Image Booster function, you are advised to use VMP for Windows.

Installation Method

Step 1   After the installation package is downloaded, click **Finder** on the desktop, enter the **Downloads** page, and double click the package to open VMP.dmg.

Step 2   In the displayed window, drag **VMP.app** to **Applications**.

Step 3   On the **Applications** page, right click **VMP.app** and choose **Open** > **Cancel**. Then, right click **VMP.app** again and choose **Open** > **Open**.

Figure 3-1 First-time right clicking **Open** and second-time right clicking **Open**

If you double click to run VMP, a prompt saying "VMP.app can't be opened because it is from an unidentified developer" will appear. At this time, click at the top-left, and choose **System Preferences** > **Security & Privacy** > **General**, and click **Open Anyway**.

Figure 3-2 Security & Privacy

Installation Result

If the installation is successful, the VMP software shortcut appears in Launchpad.
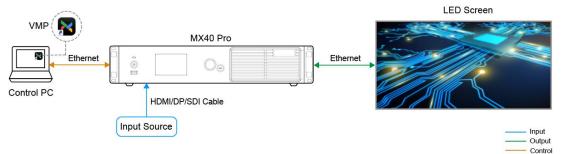
3.2 Connect Devices

3.2.1 Via Ethernet Cable

Connect the controller and the control PC directly via Ethernet cable and set a static IP address for the controller to let the controller and control PC be on the same network segment. The MX40 Pro LED display controller is used as an example in this section.

Step 1 Follow Figure 3-3 to complete the hardware connection.

Figure 3-3 Connecting devices via Ethernet cable

Step 2 Press the knob of the controller to enter the menu and choose **Communication Settings** > **Network Settings**.

Step 3 Set **Mode** to **Manual**.

Step 4 Set **IP Address**, **Subnet Mask** and **Default Gateway** and ensure the controller and control PC are on the same network segment.
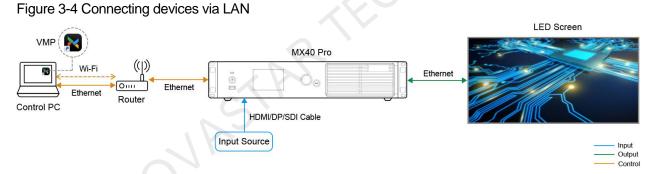
To reset the network settings to the default values, please select **Reset** and press the knob.

Step 5 After the settings, select **Apply** and press the knob.

3.2.2 Via LAN

Connect the controller and the control PC to the same LAN via a router and set the controller to automatically obtain an IP address. The MX40 Pro LED display controller is used as an example in this section.

Step 1 Follow Figure 3-4 to complete the hardware connection.

Figure 3-4 Connecting devices via LAN

Step 2 Press the knob of the controller to enter the menu and choose **Communication Settings** > **Network Settings**.

Step 3 Set **Mode** to **Auto**.

Step 4 Select **Apply** and press the knob.

3.3 Load Cabinet Configuration Files

Use VMP to load cabinet configuration files (.ncp/.rcfgx) to let cabinets display the image normally. Before you begin, please prepare the cabinet configuration files in advance.

Load .ncp Files

Step 1 Open VMP.

Step 2 From the menu bar, choose **Settings** > **Cabinet Library**.

Figure 3-5 Cabinet library

Step 3   Click **Import** at the top right and select the file to be imported.

Step 4   Close the dialog box and choose **Tools** > **Maintain** from the menu bar.

Step 5   Select the **Cabinet** tab.

Step 6   From device list on the left, select a controller to let the information about all the cabinets loaded by the controller be displayed.

Step 7   Select one or more cabinets, click **Update** and from the displayed page, select the file to be uploaded.

Figure 3-6 Update cabinet

Step 8   Click **OK**.
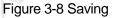
Load .rcfgx Files

Step 1   Open VMP.
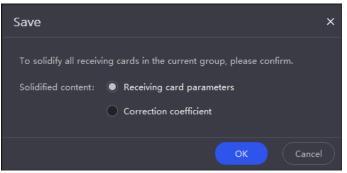
Step 2   From the menu bar, choose **Tools** > **Maintain**.

Step 3   Select the **Cabinet** tab.

Step 4   In the device list on the left, select the desired controller to show the information about all the cabinets loaded by the selected controller.

Figure 3-7 Cabinet maintenance

Step 5   Select one or multiple cabinets, click **Upload File** and from its drop-down options, select **Upload Config file**.

Step 6   Select a local file you want to upload and click **Open**.

Step 7   After the file is loaded, click **Save Rv-card config**.

Step 8   In the displayed dialog box, select **Receiving card parameters** and click **OK**. For CX series products, this operation is not required.

Figure 3-8 Saving

3.4 Set Input Source

Select a desired input source and set its resolution and frame rate. If the resolutions of the input source and screen are the same, the image can be displayed pixel to pixel. A lower frame rate may result in image flickering, while a higher frame rate helps stabilize the display image.

Step 1   Select **Source**.

Step 2   In the device list on the left, select the desired controller.

Step 3   Double-click a source thumbnail in the source list at the bottom of the page, or select an option from the drop-down list next to **Select Source** in the properties area on the right to select a source.

Step 4   Set **Resolution** and **Refresh Rate** and click **Apply**. For an internal source, you can also set the bit depth. For the SDI sources, please skip this step.
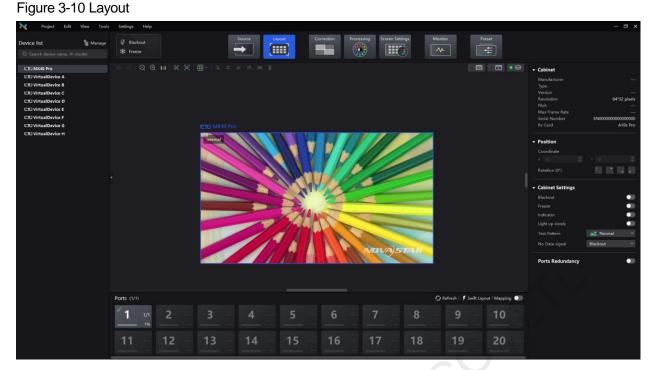
Figure 3-9 Setting input source

3.5 Configure Cabinet Topology

Configure the cabinet topological diagram to complete the logical connection of the cabinets.

Step 1   Select **Layout**.

Step 2   In the device list on the left, select the desired controller.

Figure 3-10 Layout

Step 3 From the menu bar, choose **View** > **Display**, select a view for the topology area, and select the content to be displayed.

You can also select a view by clicking one of the following icons at top right of the topology area. The selected view will have a green spot near it.

- : Display the cabinets only.

- : Display the preview image of the input source only.

- : Display the cabinets and preview image of the input source at the same time.

In addition, you can choose to show the cabinet topology, cabinet status, group names, source tags, and overlapping cabinets.

Step 4 In the bottom area of the page, select an Ethernet output port and click the canvas multiple times to add the corresponding number of cabinets.

The cabinets will be automatically connected when you are adding them, as shown in Figure 3-11. The Ethernet port's loading capacity information will be displayed, as shown in Figure 3-12. The properties area will display the cabinet information, as shown Figure 3-13.
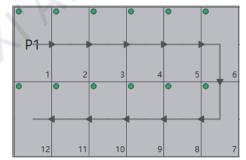
Figure 3-11 Cabinets connected automatically

Figure 3-12 Ethernet port capacity

- 12/16: Indicates that the controller's Ethernet port 1 drives a total of 16 cabinets and 12 cabinets have been connected in the topology diagram.

● 12%: Indicates these 12 cabinets have used 12% of the Ethernet port's capacity.

Figure 3-13 Cabinet information

Notes

If all the cabinets loaded by the Ethernet ports have the same size, you can use the swift layout function to quickly add and connect the cabinets for all the Ethernet ports. The operations are as follows:
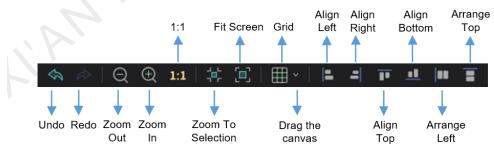
At the top right of the Ethernet port list, click [Swift Layout]. Then, drag the mouse on the canvas to add cabinets that match the actual requirements. In the properties area, select a layout and click **Done**.

Step 5 Select another Ethernet port and continue to add cabinets until all cabinets are connected.

Step 6 For cabinets that have the same size and consecutive serial numbers, if you want to change the cabinet connection topology, select the cabinets and then select a quick topology under **Quick topo** in the properties area, as shown in Figure 3-14. For other cabinets, skep this step.

Figure 3-14 Quick topology
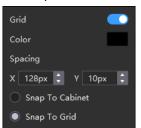
Step 7 Do any of the following to arrange and align the cabinets to let the cabinet positions meet the display requirements.

✛ **Use the function buttons**

－ 1:1: The canvas size equals to the input source resolution.

－ Zoom To Selection: The selected element is zoomed and displayed in the center of the canvas.

－ Fit Screen: The canvas size is automatically adjusted to fit the topology area size.

The drop-down menu of ⊞ is shown in the figure below. The menu can be used to set the canvas grid.
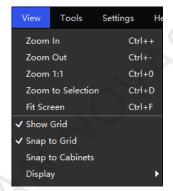
- Grid: When the switch is 🔵, a grid is displayed on the canvas. If you do not need to display the grid, click ⊞ to change it to ▨, or set the switch to ⚪.

- Color: Set the grid color.

- Spacing: Set the spacing of horizontal and vertical lines of the grid.

- Snap To Cabinet: When you move a cabinet close to another cabinet, the moved cabinet will be snapped to the edge of the other cabinet to avoid gaps.

- Snap To Grid: The cabinet will be snapped to the grid.

✥ **Use the function menus on the menu bar**

– **Edit** menu

– **View** menu

✥ **Use the right-click function menus**

– Right click the canvas

Zoom To Controller: The selected controller is zoomed and displayed in the middle of the topology area.

− Right click the cabinet

Select String	
Blackout	
Freeze	
Swap	
Group	Ctrl+G
Ungroup	Ctrl+Shift+G
Add To Group	▶
Lock	
UnLock	
Delete	Del

Select String: Select all the cabinets on the connection line of the current cabinet.

Switch: Switch the display areas of two cabinets.

Group: Group the selected cabinets. To set the group name and color, please select the group and set them in the properties area.

Ungroup: Ungroup the cabinets.

Add to Group: Add the selected cabinets to a group.

✛ **Set cabinet coordinates and rotation**

Select a cabinet and set its coordinates and rotation angle in the properties area. After the cabinet is rotated, the input source will be rotated by the set angle and displayed.

▼ Position			
Coordinate			
X 128		Y 128	
Rotation (0°)			

Step 8   After setting, right-click the controller in the device list and select **Save Rv-card config**. For CX series products, no saving operation is required.

Step 9   Click **Save** in the displayed dialog box.
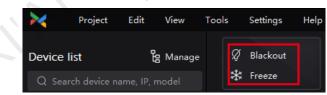
3.6 Control Display Status

Set the display loaded by the controller or cabinets to a black screen or frozen status.
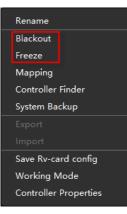
● Blackout: Make the output screen go black. The input source is played normally.

● Freeze: Make the output screen always display the current frame. The input source is played normally.

Set the Status of Display Loaded by the Controller

● At the top left of the page, click **Blackout** or **Freeze**.

⚡ Project	Edit	View	Tools	Settings	Help

Device list   🔲 Manage   ∅ Blackout
🔍 Search device name, IP, model   ❄ Freeze

● In the device list on the left, right-click the controller and select **Blackout** or **Freeze** from the pop-up menu.

Rename
Blackout
Freeze
Mapping
Controller Finder
System Backup
Export
Import
Save Rv-card config
Working Mode
Controller Properties

Set the Status of Display Loaded by Cabinets

Select **Layout** and do any of the following:

● Select one or more cabinets, and set the **Blackout** or **Freeze** switch to ◯ in the properties area.

▼ Cabinet Settings
Blackout   ●
Freeze   ●
Indicator   ●
Light up slowly   ●
Test Pattern   🖼 Normal   ∨
No Data signal   Blackout   ∨

● Right click a cabinet and select **Blackout** or **Freeze** from the pop-up menu.

Select String
Blackout
Freeze
Swap
Group   Ctrl+G
Ungroup   Ctrl+Shift+G
Add To Group   ▶
Lock
UnLock
Delete   Del

● Select **Monitor** and set the **Blackout** or **Freeze** switch to ◯ in the properties area.

4 Device Management

4.1 Export and Import Project Files

Export the project files (.nprj) of devices or device groups so that you can import the files to apply the configuration data to the same kind of devices, improving the configuration efficiency.
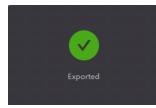
Export Project Files

Step 1　From the menu bar, choose **Project** > **Export** and select a device or device group.

You can also right click a device or device group in the device list and select **Export** from the pop-up menu.

Step 2　Select a local directory and click **Save**.

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

Figure 4-1 Successful export

Import Project Files

Step 1　From the menu bar, choose **Project** > **Import to** and select a device or device group.

You can also right click a device or device group in the device list and select **Import** from the pop-up menu.

Step 2　Select a local project file and click **Open**.

After successful device matching, a dialog box as shown in Figure 4-2 is displayed.

Figure 4-2 Matching devices

Step 3　Click **OK**.

Step 4　After successful import, click **OK** to close the prompt box.

Figure 4-3 Successful import

4.2 Manage Device Groups

Create a group and add devices to manage the grouped devices uniformly and perform some batch operations. When the property values of the devices in the group are different, the value will be displayed as **Mix**.

Step 1   In the device list area, click ⌷ Manage to enter the group management page.

Figure 4-4 Group management

Step 2   Click ⊞ to create a group, enter a group name and press **Enter** or click on the other position on the page.

To rename a group, right-click the group, select **Rename** from the pop-up menu and enter a new group name.

Step 3   Drag the target devices to the created group.

Devices of the same series can be added to the same group, for example, CX series products.

Step 4   After the settings, click ✓.

- To delete a device in a group, drag the device out of the group.
- To delete a group, right-click the group, select **Remove group** from the pop-up menu.

Note

You can set the **Mapping** switch to 🔵 to enable the mapping function.

4.3 Set Backup Device

Set a primary controller and backup controller so that the backup controller can take over the primary controller when it fails.

Step 1   From the menu bar, choose **Tools** > **System Backup** to open the **System Backup** dialog box.

You can also right click a device or device group in the device list and select **System backup** from the pop-up menu to open the **System Backup** dialog box.
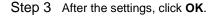
Figure 4-5 System backup

Step 2   Select a primary controller and a backup controller from the drop-down options respectively, and then click **Add**.

The backup list will display the added backup information. To delete the backup information, click 🗑.

Figure 4-6 Backup list
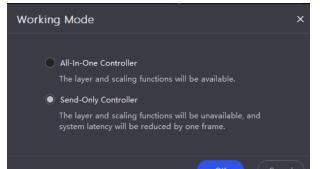
Step 3   After the settings, click **OK**.

4.4 Switch Working Mode

In the device list on the left, right click a device and select **Working Mode** from the displayed menu. On the displayed dialog box, select **All-In-One Controller** or **Send-Only Controller** and click **OK**.

Figure 4-7 Working mode

5 Input Source Configuration

This chapter describes input source configuration with one device selected.

5.1 Set External Sources

Select **Source** and double-click a source thumbnail in the source list at the bottom of the page, or select an option from the drop-down list next to **Select Source** in the properties area on the right to select a source. Then, perform the following operations based on your actual needs.

View Source Information

View the attribute values of the input source.

Figure 5-1 Source information

Set Resolution and Frame Rate

If the resolutions of the input source and screen are the same, the image can be displayed pixel to pixel. A lower frame rate may result in image flickering, while a higher frame rate helps stabilize the display image.

Select a value from the drop-down lists of **Resolution** and **Frame Rate** and click **Apply**.

Figure 5-2 EDID

Adjust the Color

Step 1 In the **InfoFrame Override** area, select a value from the drop-down lists of **Color Space/Sampling**, **Gamut** and **Quantization Range**.

The override parameter will be used in the calculation of color adjustment. Select **From Input** and the software will read the attribute value that comes with the input source.

Figure 5-3 InfoFrame Override

Step 2 In the **Color** area, drag the sliders to adjust the parameter values.

Figure 5-4 Color
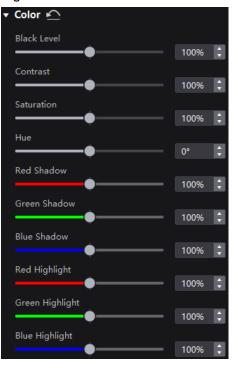
Table 5-1 Description of color adjustment parameters

Parameter	Description
Black Level	It is used to adjust the brightness of the dark areas of the image. The smaller the value, the darker the dark part of the screen.
Contrast	It is used to adjust the brightness of the highlight areas of the image. The greater the value, the brighter the highlight part of the screen. Contrast and black level together affect the overall contrast of the image.
Saturation	It is used to adjust the color purity of the image. The greater the value, the more vivid the color.
Hue	It is used to adjust the color effect of the displayed image color.
Red Shadow/Green Shadow/Blue Shadow	It is used to adjust the brightness of the dark areas of the image. The principle is the same as that of black level, but only the RGB components are adjusted.
Red Highlight/Green Highlight/Blue Highlight	It is used to adjust the brightness of the highlight areas of the image. The principle is the same as that of contrast, but only the RGB components are adjusted.

Set HDR Parameters

Select an HDR format from the drop-down list of **Format** and set related parameters. Select **Auto** and the software will read the attribute value that comes with the input source.

Figure 5-5 HDR

HDR parameters:

● PQ mode: The mapping method of video source brightness.

－ ST2084 (PQ): This mode 1:1 maps the brightness of the video source. The part that exceeds the maximum screen brightness will still be displayed as the maximum screen brightness.

    − ST2086 (Linear mapping): This mode linearly maps the brightness of the video source. It globally adjust the video source brightness according to the maximum screen brightness to ensure that the ratio of the brightness of the entire source content remains unchanged.

- MaxCLL: The override value of the maximum video source brightness. MaxCLL takes effect when **Override** is selected.

Note

Using the HDR function reduces the load capacity of the LED display controller by less than half if the controller works with the A10s Pro, CA50E, CA50C or XA50 receiving card. For details, see the COEX series LED display controller specifications documents.

5.2 Set Internal Sources

Select the internal source and set the related parameters for screen testing and troubleshooting.

Step 1　Select **Source**.

Step 2　Double-click the thumbnail of internal source in the source list at the bottom of the page, or select **Internal Source** from the drop-down list next to **Select Source** in the properties area on the right.

Step 3　Select an image.

- Imported images

  These images are imported via [+].
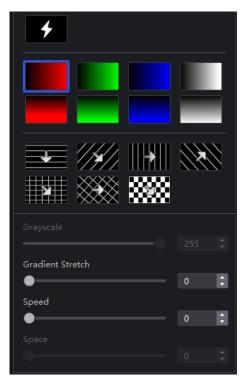
- Static images

  These images come with VMP, as shown in the figure below.

- Dynamic images

  These images come with VMP, as shown in the figure below.

Step 4 Set the resolution, frame rate and bit depth for the internal source.

Figure 5-6 Internal source parameters

Step 5 After the settings, click **Apply**.

5.3 Set Layers (All-In-One Controller Mode Only)

Add layers and set the layer properties. The maximum number of layers that can be added depends on the connected device.

Step 1 Select **Source**.

Figure 5-7 Input source

Step 2   In the properties area, set the canvas size.

Step 3   At the top right of the topology area, select [icon] so that only the input preview image is displayed and the cabinets are not displayed.

Step 4   Double click a source thumbnail at the bottom to add layers.

> ✛   **Switch source**
>
> > −   Select a layer and select another source in the properties area.
> >
> > −   Right click a layer, select **Source** from the displayed menu, and select another source.
>
> ✛   **Adjust layer size and position**
>
> > −   Select a layer and set the layer size and coordinates in the properties area. You can also bring the layer to front or send it to back, and lock the layer.
> >
> > −   Right click a layer and select **Bring to Front**, **Send to Back**, **Bring Forward** or **Send Backward** from the displayed menu.
> >
> > −   At the top right of a layer, click a function icon to set the layer.
> >
> > > [icon]: Lock the layer.
> > >
> > > [icon]: Unlock the layer.
> > >
> > > [icon]: The layer size is the same as the input source resolution.
> > >
> > > [icon]: The layer size changes automatically according to the canvas size.
> > >
> > > [icon]: Delete the layer.
>
> ✛   **Set borders**
>
> > Select a layer and enable or disable the layer borders function in the properties area. After enabling the function, you can set the border thickness and color.
>
> ✛   **Crop the input source**
>
> > Select a layer and enable or disable the crop function in the properties area. After enabling the function, you can set the crop size and position.

6 Screen Configuration

This chapter describes screen configuration with one device selected.

6.1 Configure Screen Topology

For details, see 3.5 Configure Cabinet Topology.

6.2 Set the Cabinet

Select **Layout**, select one or more cabinets and do any of the following operations in the properties area.

Figure 6-1 Test pattern

Control Display Status

Set the **Blackout** or **Freeze** switch to ⬤.

Enable Indicator

Set the **Indicator** switch to ⬤ to enable the running status indicator of the cabinet.

Enable the Light Up Slowly Function

Set the **Light up slowly** switch to ⬤ so that after the screen is powered on, the display brightness will slowly change from 0 to the target value.

Set Test Pattern

Select a test pattern from the drop-down list of **Test Pattern** to perform screen aging test and troubleshoot problems.

Set Preset Image

Select an option from the **No Data signal** drop-down list.
- Blackout: The output screen displays a black image.
- Last Frame: The output screen always displays the last frame.

6.3 Enable Ethernet Port Redundancy

Select **Layout** and set the **Ports Redundancy** switch to ⬤.

Figure 6-2 Ethernet port backup

7 Display Correction

This chapter describes display correction with one device selected.

7.1 Correct Seams

Adjust the seams between cabinets or modules to improve the visual experience.

Step 1 Select **Correction**.

Step 2 On the **Seams** tab page in the properties area, set the **Seam Correction** switch to

Step 3 Set the parameters in the **Display** area.

Figure 7-1 Display content (seams)

- Calibration: Set the **Calibration** switch to to make the screen apply the calibration effect made by the calibration platform.

- Brightness: Adjust the display brightness.

- Image: Set which image the screen displays. To display the image of current input source, click and hold it.

Step 4 Select a correction mode.

Figure 7-2 Selecting mode (seams)

- Cabinet Seams: Correct the seams of cabinets.

- LDM Seams: Correct the seams of modules.

Step 5 When correcting the module seams, if you need to overwrite the numbers of module columns and rows, set the **Cabinet Structure** switch to and set the numbers. Otherwise, skip this step.

Figure 7-3 Cabinet structure

Step 6 In the topology area, click or click and drag the mouse to select the seams to be corrected.

Step 7 Set the adjustment parameters.
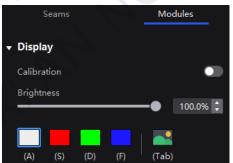
Figure 7-4 Set the parameters.

- Quick adjust: Has a large range of adjustment.
- Fine adjust: Has a small range of adjustment.
- Hide cursor on screen: When the switch is 🔵, use the keyboard shortcuts to adjust the seams and the cursor will not be displayed on the screen.

Step 8 Place the mouse on the scroll wheel icon and adjust the brightness by dragging the wheel icon up or down, scrolling the mouse wheel, or using the keyboard shortcuts **4**+↑/↓.

- Restore: Restore the configuration to the last saved.
- Reset: Reset the configuration to the status before adjustment.

Step 9 After the settings, click **Save**.

7.2 Correct Multi-Batch Cabinets/Modules

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

Step 1 Select **Correction**.

Step 2 Select the **Modules** tab in the properties area.

Step 3 Set the display content.

Figure 7-5 Display content (multiple-batch)

- Calibration: Set the **Calibration** switch to 🔵 to make the screen apply the calibration effect made by the calibration platform.
- Brightness: Adjust the display brightness.
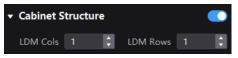- Image: Set which image the screen displays. To display the image of current input source, click 🖼 and hold it.

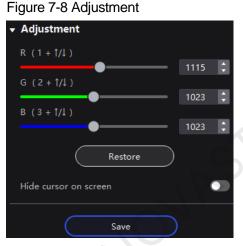Step 4 Select a correction mode.

Figure 7-6 Selecting mode

- Cabinet: Correct the multi-batch cabinets.
- LDM: Correct the multi-batch modules.

Step 5   When correcting the multi-batch modules, if you need to overwrite the numbers of module columns and rows, set the **Cabinet Structure** switch to ⬤ and set the numbers. Otherwise, skip this step.

Figure 7-7 Cabinet structure

Step 6   In the topology area, click or click and drag the mouse to select the cabinets or modules to be corrected.

Step 7   Drag the slider to adjust chroma.

Figure 7-8 Adjustment

- Restore: Restore the configuration to the last saved.
- Hide cursor on screen: When the switch is ⬤, use the keyboard shortcuts to adjust chroma and the cursor will not be displayed on the screen.

Step 8   After the settings, click **Save**.
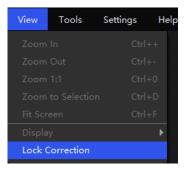
7.3 Lock and Unlock Correction Page

After the screen correction is finished, you can lock the **Correction** page by either of the following methods to avoid changing the display content due to misoperation.

- Right click the **Correction** icon and click **Lock Correction**. Clicking **Lock Correction** again unlocks the page.

- From the menu bar, choose **View** > **Lock Correction**. Clicking **Lock Correction** again unlocks the page.

Note

After the **Correction** page is locked and you have entered another page, if you want to go back to the **Correction** page, you must manually unlock the page first.

8 Color Processing

This chapter describes screen correction with one device selected.

8.1 Color Replacement

Replace a color with another color according to the settings.

> **Note**
>
> Replacement of highly saturated colors is recommended for better effect.

Step 1 Select **Processing**.

Step 2 Set the **Color Replacement** switch to ⬤.

Step 3 Set the colors before and after replacement.

- Method 1: Click the color area in [color area] to open the color palette and set a color.
- Method 2: Click the eyedropper in [color area] and select a color in the topology area.

Figure 8-1 Color Replacement

Step 4 Set **Hue Tolerance**, **Hue Softness**, **Shadow Strength** and **Skin tone Protect**.

- Hue Tolerance: Indicates the hue range of the color to be replaced. The larger the value, the larger the replacement area.
- Hue Softness: Indicates the hue softness of the transition area.
- Shadow Strength: Indicates the gradient parameter of the highlight or shadow area. The larger the value, the smoother the gradient.
- Skin tone Protect: Keeps the skin tone as original as possible.

8.2 14CH Color Correction

Select **Processing** and set the **14CH Color Correction** switch to ⬤. Click a value of a color to enable the editing status and change the value, [0.0], for example.
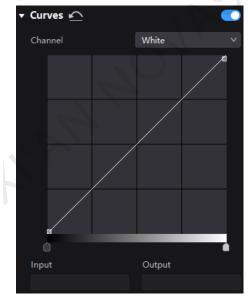
Figure 8-2 14CH Color Correction

8.3 Set Curves

Adjust the curves.

Step 1　Select **Processing**.

Step 2　Set the **Curves** switch to ⬤.

Figure 8-3 Curves

Step 3　Select the white, red, green or blue channel.

Step 4　Drag the slider under the curve diagram to set the curve adjustment range.

Step 5　Click on any position of the curve to add an adjustment point and drag the point to adjust the curve.

Input and **Output** indicate the absolute coordinates of the adjustment point in the curve diagram.

To delete the adjustment point, drag the point outside the curve diagram, or select the point and press **Delete**.

8.4 Enable 3D LUT

A set of mapping relationships are defined in the 3D LUT file (.cube) to adjust the colors of the video source. Before you begin, please prepare a 17×17×17 3D LUT .cube file in advance.
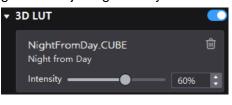
Step 1 Select **Processing**.

Step 2 Click anywhere in the **Load 3DLUT file** area, select a file and open it.

Figure 8-4 Loading 3D LUT file

Step 3 Set the **3D LUT** switch to ⬤ and drag the slider to adjust the level of applying the 3D LUT.

Figure 8-5 Adjusting intensity

To delete the file, click 🗑.

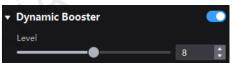## 8.5 Enable Dynamic Booster

📄**Note**

Only the A10s Pro, CA50E, CA50C and XA50 receiving cards support this function. Before operation, brightness correction by using the CA410-VP427, CA410-P427 or EYE2-400 color analyzer is recommended.

Dynamic Booster can significantly improve the display contrast and image details for better visual experience and effectively control and lower the display power consumption.

Select **Processing** and set the **Dynamic Booster** switch to ⬤ and drag the slider to adjust the level of applying the Dynamic Booster.

Figure 8-6 Dynamic Booster

9 Screen Settings

This chapter describes screen settings with one device selected.

9.1 Adjsut Image Quality

9.1.1 Adjsut Brightness

Select **Screen Settings**. On the **Image Quality** tab page, set the brightness, maximum brightness and gamma values, and enable or disable **Current Dimming** as needed.

- The maximum brightness takes effect when **Override** is selected.

- When **Current Dimming** is enabled, the screen brightness will be reduced, but it can improve the flicker issue in low brightness conditions.

Figure 9-1 Adjusting brightness

9.1.2 Set LED Image Booster

> **Note**
>
> 1. Only the A8s, A8s-N, A10s Pro, CA50E, CA50C and XA50 receiving cards support this function. Before operation, brightness correction by using the CA410-VP427, CA410-P427 or EYE2-400 color analyzer is recommended.
>
> 2. VMP for MacOS does not support calibration related functions. To use the LED Image Booster function, you are advised to use VMP for Windows.

Select **Screen Settings**. On the **Image Quality** tab page, select an output color gamut from the **Gamut** drop-down list, drag the slider to adjust color temperature, and enable or disable **Magic Gray** as needed.

The output gamut options include standard gamuts, custom gamut, the original screen gamut and the input gamut (**From input**). To change the custom gamut, click ![icon], select a gamut in the properties area on the color gamut diagram, and adjust the red, green, blue and white parameters based on the selected gamut.

Figure 9-2 LED Image Booster

9.1.3 Apply Calibration Effect

Note

Before you begin, please complete brightness and chroma calibration of the screen and upload the coefficients.

Select **Screen Settings**. On the **Image Quality** tab page, set the **Calibration** switch to ⬤ to make the screen apply the calibration effect made by the calibration platform.
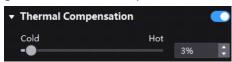
Figure 9-3 Calibration

9.1.4 Set Thermal Compensation

Note

Before you begin, please complete thermal calibration of the screen and upload the thermal coefficients.

Select **Screen Settings**. On the **Image Quality** tab page, set the **Thermal Compensation** switch to ⬤ and drag the slider to adjust the degree of applying the thermal coefficients.
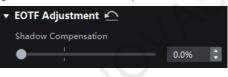
Figure 9-4 Thermal compensation

9.1.5 Adjust EOTF

Select **Screen Settings**. On the **Image Quality** tab page, drag the slider to adjust the shadow compensation value.

Figure 9-5 Shadow compensation

9.2 Set Output

9.2.1 Set Output Bit Depth

Select **Screen Settings** and then select the **Output** tab. Under **Video**, select an option from the drop-down list of **Bit Depth**. If **Auto** is selected, the output bit depth is the same as the input bit depth.
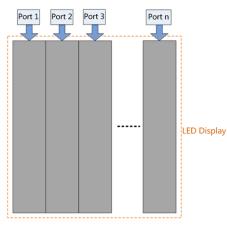
Figure 9-6 Output bit depth

9.2.2 Set Low Latency

To do screen configuration when low latency is enabled, ensure that the values of Y coordinates of all the cabinets loaded by each Ethernet port must be the same, as illustrated in the figure below.

Select **Screen Settings** and then select the **Output** tab. Under **Video**, do any of the following operations as needed.

Figure 9-7 Low latency

Enable Low Latency

Set the **Low Latency** switch to ⬤ to enable the low latency function.

Set Additional Frame Latency

When the controller works with high-latency devices, the latency needs to be increased. You can set the **Low Latency** switch to ⬤ and set a value for **Additional Frame Latency**.

9.2.3 Set Sync Parameters

Select **Screen Settings** and then select the **Output** tab. Under **Sync**, select a synchronization signal for the display frame rate and set the phase offset.

Figure 9-8 Sync

- Active Source: Sync with the frame rate of the active source.
- Genlock: Sync with the frame rate of the Genlock signal. When the shutter shit function of the controller is effective, please select this option. In addition, the controller and the camera need to use the same Genlock signal generator.
- Internal: Sync with the frame rate of the controller's internal clock.

9.2.4 Set Frame Multiplication

Frame multiplication can make the screen output multiple frames within the original one frame time and provide them to different cameras.

Select **Screen Settings** and then select the **Output** tab. Near **Frame Multiplication**, set its switch to ⬤ and set the number of frames and the display mode of each frame.

Figure 9-9 Frame multiplication

Take the above figure as an example. The parameters are described as follows:

- Frame Multiplication: After the current frame rate (59.94) is multiplied by 3, it is 179.82 Hz. Three frames are output in 1/59.94 second.

- Video: The first and second frames display the input source image. The first frame displays the image from the coordinates (0, 0) and the second frame displays the image from the coordinates (1920, 0).

- Color: The third frame displays a pure white image.

Note

When the LED display controller works with the A10s Pro, CA50E, CA50C or XA50 receiving card, the supported frames rate is up to 240 Hz. For other Armor series receiving cards, the supported frame rate is up to 120 Hz.

9.2.5 Set Shutter Fit

The display can fit the camera shutter to make the picture shooting have a better effect. This requires that the sync signal must be Genlock and the controller and camera need to use the same Genlock signal generator.

Select **Angle** or **Speed** and set the parameter value.

Select **Screen Settings** and then select the **Output** tab. Near **Shutter Fit**, set its switch to ⬤ and set the related parameters.

Figure 9-10 Shutter fit

9.2.6 Enable 3D Function

Select **Screen Settings** and then select the **Output** tab. Near **3D**, set its switch to ⬤ and set the related parameters.

Figure 9-11 3D

- Source Format: Set the format of the 3D video source. Set the format to **Side-by-Side**, **Top-and-Bottom** or **Frame Sequential** according to the format of the accessed video source.

- Right Eye Offset: Set the start position of the right eye image. When the video source format is side-by-side or top-and-bottom and the left and right eye images are provided, this parameter can be set.

- Eye Priority: Set which image is sent first, the right eye image or the left eye image. Wear the 3D glasses to watch the display. If the display is abnormal, set the parameter value to the other one. If the display is normal, the setting is done.

- 3rd Emitter: When a third-party 3D signal emitter is used, set the switch to .

- Emitter Delay: Set the delay time of sending the synchronization signal from the 3D signal emitter to the 3D glasses. This setting ensures that the switching between left and right eye images of the 3D glasses is in sync with the switching between the left and right eye images on the display. This parameter is applicable to both the NovaStar and third-party emitters.

Note

To use the 3D function, specified 3D glasses are needed. Please contact NovaStar technical support.

9.2.7 Check the Load

Select **Screen Settings** and then select the **Output** tab. Under **Port Load**, click next to the device information to check the usage of the controller's loading capacity.

Figure 9-12 Port load

10 Screen Monitoring

10.1 Check Device Status

Choose **Monitor** > **Status** and click the function icons on the left to check the related information.

Figure 10-1 Status

Note

When you select the first four of the following function icons:

- The topologies in different colors have different meanings. Please see the explanation at the bottom right.
- In the **Cabinet Settings** area, you can set the cabinet display image to blackout, freeze or a test pattern.

- : The overall status.

- : The receiving card temperature.

- : The cabinet voltage. In the properties area, you can check the detailed voltage value.

- : The total bit errors. In the properties area, you can check the detailed total errors, click to clear the errors and let errors accumulate from zero, and click to check the error information in a specified time range.

- : The controller. In the topology area and properties area, check the controller related information, as shown in Figure 10-2. If you set the Controller Finder switch to , you can enable the controller finder function.

Figure 10-2 Controller information

10.2 Check Monitoring Records

Choose **Monitor** > **Status** and at the bottom of the page, do the operation as needed.

Figure 10-3 Monitoring records

✤ **Search records**

Enter the key words in the search box.

✤ **Query records**

Click the time widget and set the start and end time. If you select **Now**, the monitoring records will be updated in real time.

✤ **Set how the records are displayed**

From the drop-down list, select **Tile**, **Order by controller**, **Order by type**. If the latter two are selected, the records can be expanded or collapsed.

✤ **Clear records**

Click **Delete** and click **OK**.

✤ **Export records**

Click **Export**, select a location and click **Save**.
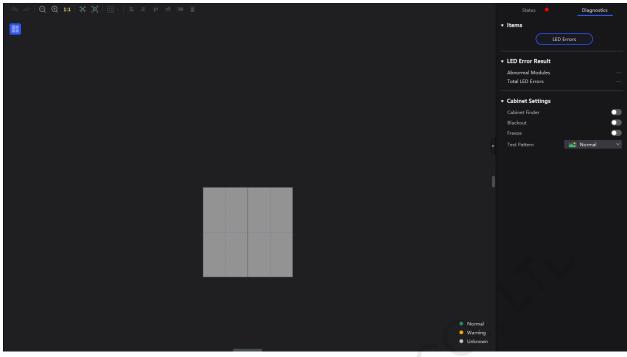
10.3 Run System Diagnostics

Choose **Monitor** > **Diagnostics** and click the **LED Errors** button to run system diagnostics.

LED errors include abnormal modules and total LED errors.

● If a cabinet is selected in the topology, LED error detection will be done on the selected cabinet.

● If no cabient is selected, LED error detection will be done on all the cabinets.
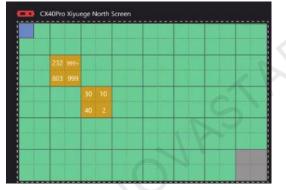
Figure 10-4 Diagnostics

After diagnostics, the abnormal modules will be highlighted in yellow in the topology and the number of LED errors will be shown, as illustrated in Figure 10-5.

Figure 10-5 Diagnostic result

You can click on the abnormal module in the topology and enable **Cabinet Finder** or **Module Finder** function in the **Cabinet Settings** area to quickly find the cabinet or module where the LED errors or abnormal LEDs are located.

Note

1. Prerequisites for LED error detection:

● The cabinet driver chip must be XM11202G.

● The receiving card firmware program must support LED error detection.

● The LED error function is enabled in the Cabinet Tool.

2. The Cabinet Finder and Module Finder functions can be used only when the CX80 Pro LED display controller is used and works with the CA50E, CA50C or XA50 receiving card.

11 Preset Management

11.1 Save Presets

After completing the display effect adjustment, you can save the data on the **Source**, **Layout**, **Processing** and **Screen Settings** pages as presets so that these data can be directly applied in the future. The preset of a specific device can only be applied by this device itself and the preset of a group can be applied by all the devices in the group.

Step 1   Choose **Preset**.

Step 2   On the preset management page, click [+] to enter the page shown in Figure 11-1.

To go back to the preset management page, click a blank area in the properties area.

Figure 11-1 Preset management

Step 3   Click a preset icon. In the properties area, set a name for the preset and select the data you need to save.

If the preset you selected is not a blank one, the original data will be overwritten.

Step 4   Click **Save**.

11.2 Apply Presets

Apply a saved preset to quickly complete settings of the parameters on the **Source**, **Layout**, **Processing** and **Screen Settings** pages. The preset of a specific device can only be applied by this device itself and the preset of a group can be applied by all the devices in the group.

Step 1   Choose **Preset**.

Step 2   On the preset management page, double click a preset and wait it to be loaded.

The preset that is being used has a [✓] at the top right.

Figure 11-2 Applying presets

11.3 Manage Presets

Select **Preset** and do the following operations as needed.

Modify a Preset

Select a preset. In the properties area, change the related information and click **Save**.

Delete a Preset

- Right click a preset and select **Delete** from the pop-up menu.
- On the preset management page, select a preset and click **Delete** in the properties area.

Clear Presets

Right click a preset and select **Delete All** from the pop-up menu.

11.4 Import and Export Presets

Select **Preset** and do the following operations as needed.

Import Presets

Click **Import**, select a preset file (.nprt) and click **Open**. In the displayed dialog box, select the device to which you want to import the file and click **Ok**.

Export Presets

Click **Export**, select a location, set a file name, and click **Save**.

12 Screen Maintenance

12.1 Maintain Controllers

From the menu bar, choose **Tools** > **Maintain** and do the following operations as needed.

Figure 12-1 Controller maintenance

Operations in Device List

In the device list, right click a controller. In the pop-up menu, select **Controller Properties** to open its dialog box.

Figure 12-2 Controller properties

✥ **Check the basic information**

Check the controller model, SN, firmware version, IP address, MAC address, etc.

✥ **Check the detailed information**

Click ▶ to expand the panel and check the detailed controller hardware and software information.

✥ **Change the time**

Click the time widget and change the time.

✚ **Change the time zone**

Select a time zone from the **Time zone** drop-down list.

✚ **Export logs**

Click **Export Log**, select a location, set the file name, and click **Save**.

After you right click a controller in the device list, you can also do the following operations.

✚ **Rename the controller**

In the pop-up menu, select **Rename** and rename the controller.

✚ **Enable Mapping**

In the pop-up menu, select **Mapping** and the Mapping function is enabled. It allows users to easily obtain the locations and connection topology of receiving cards.

Operations on Controller Maintenance Tab Page

In the device list on the left, select a controller or a group. On the **Controller** tab page, select the target controllers and then do the operations.

✚ **Find the controller**

This function marks the area loaded by the controller on the LED screen and the LCD screen of the controller becomes green, which helps you find the controller quickly.

Click **Controller Finder**.

✚ **Upgrade the firmware program**

Click **Upgrade**, select the firmware file (.img) and click **Open**.

During the upgrade process, the controller will automatically restart. In addition, please do not close VMP or switch to another controller until the upgrade is complete.

✚ **Restart the controller**

Click **Restart** and click **OK**.

✚ **Reset settings (operate with caution)**

Click **Reset** and click **OK**.

✚ **Upload the full screen coefficients**

Click **Upload full screen coefficient**, select the full screen calibration database file (.db) and click **Open**.

12.2 Maintain Cabinets

From the menu bar, choose **Tools** > **Maintain** and select the **Cabinet** tab. In the device list, select the target controllers and do the following operations on the cabinets as needed.

Figure 12-3 Cabinet maintenance

Select the target cabinets and then do the operations.

❖ **Check the cabinet information**

Check the cabinet status, manufacturer, model, firmware version, location etc.

❖ **Copy the firmware program and configuration file**

Click **Cabinet Painter** and select one or multiple cabinets so that other cabinets can have the same firmware program and configuration file as the current cabinet.

❖ **Update the cabinet**

Use the cabinet library file to update the cabinet firmware program and configuration file.

a. From the menu bar, choose **Settings** > **Cabinet Library**.

b. Click **Import**, select a cabinet library file (.ncp) and click **Open**.

To delete the imported data, select the data and click **Delete**.

c. On the **Cabinet** tab page, select one or multiple cabinets and click **Update**.

d. Select the target row of cabinet data and click **OK**.

❖ **Restart the cabinet**

Click **Restart** and click **OK**.

❖ **Upgrade the firmware program**

Click **Upload File**, select **Upgrade firmware** from the drop-down menu, select a firmware program package (.zip/rar) and click **Open**.

❖ **Upload the configuration file**

Click **Upload File**, select **Upgrade Config file** from the drop-down menu, select a configuration file (.rcfgx) and click **Open**.

After the file is uploaded, click **Save Rv-card config**. For CX series products, this operation is not required.

❖ **Upload the image quality file**

Click **Upload File**, select **Upload Image Quality File** from the drop-down menu, select an image quality file (.nrf/.vglcx) and click **Open**.

After the file is uploaded, click **Save Rv-card config**. For CX series products, this operation is not required.

❖ **Save or read back the module calibration coefficients**

Click **LDM coefficient**, select **Save to LDM** or **Read to Rv card** from the drop-down menu to save the module calibration coefficients from the receiving card to the module or read the coefficients from the module to the receiving card.

❖ **Upload or erase the cabinet calibration coefficients**

Click **Cabinet coefficient** and select **Upload** or **Erase** from the drop-down menu

❖ **Refresh information**

Click **Refresh**.

❖ **Upload the full screen coefficients**

Click **Upload full screen coefficient**, select the full screen calibration database file (.db) and click **Open**.
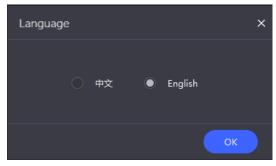
❖ **Find the cabinet**

Click **Cabinet Finder** in the **Action** column. This function helps you find the cabinet on the screen quickly.

13 Software Settings

13.1 Change the Display Language

From the menu bar, choose **Settings** > **Language**, select the target language and click **OK**.

Figure 13-1 Changing the display language

13.2 Check the User Manual

From the menu bar, choose **Help** > **User Manual** to open and check the VMP user manual.

13.3 View Software Information

From the menu bar, choose **Help** > **About** and view the software information.

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Official website
www.novastar.tech

Technical support
support@novastar.tech