PSCo RENTAL HANDOVER
ABSEN POLARIS

OVERVIEW

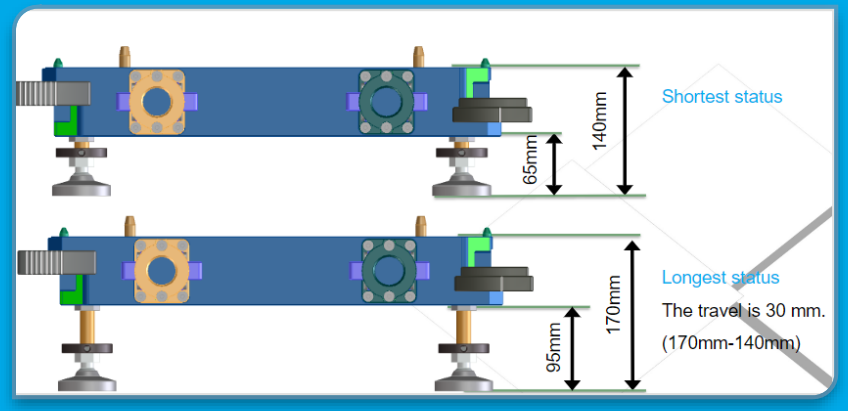
- Hardware
  - Hanging Beams
  - Ground Stack
  - Handling
  - LED Panel Components
  - Novastar Controller COEX Series Overview
  - Cabling Limitations
  - Typical LED Wall Build Procedure
- Software
  - How to connect controllers
  - Upload the configuration file
  - Set the controller mode
  - Screen configuration
  - Send the configuration file, ncp file and rcfgx file to panels
  - Enable layers and switch source
  - Image Quality Adjustment
  - Presets
  - Correction
  - Output Settings
  - Color Processing
  - Monitoring
  - Calibration Coefficient Management

Harware

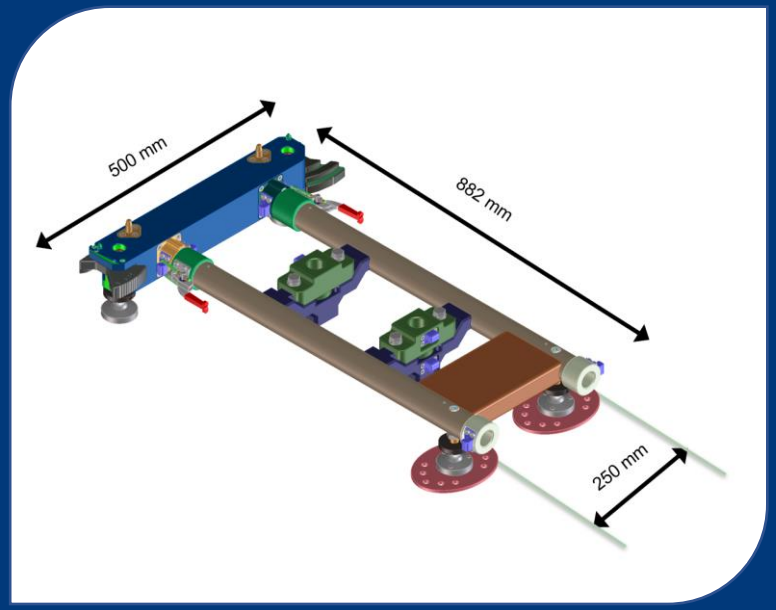
- ## Hanging Beam
  - One and two panel lengths and have one eyebolt per panel.
  - Curve connection blocks and can support curves at 2.5-degree increments from -7.5 convex to +10 degrees concave
  - Support up to 10 panels of PLXL and 20 panels of PL in height.
  - Integrated magnets help to hold LED panel until panel top locks/bolts are secured.

Ground Stack Components

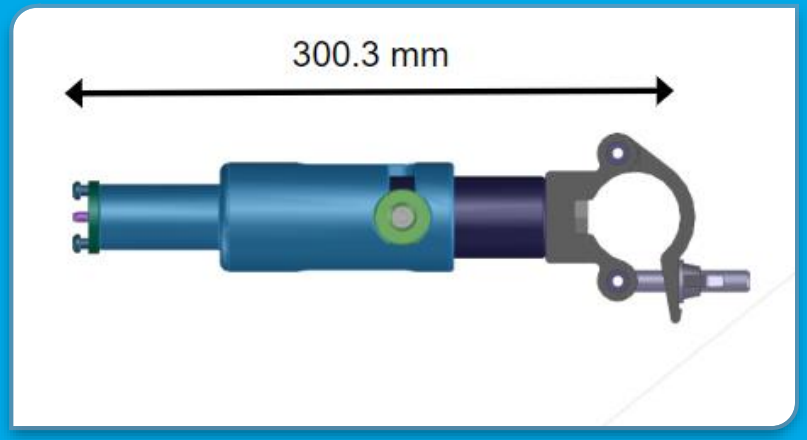
Ground Beams



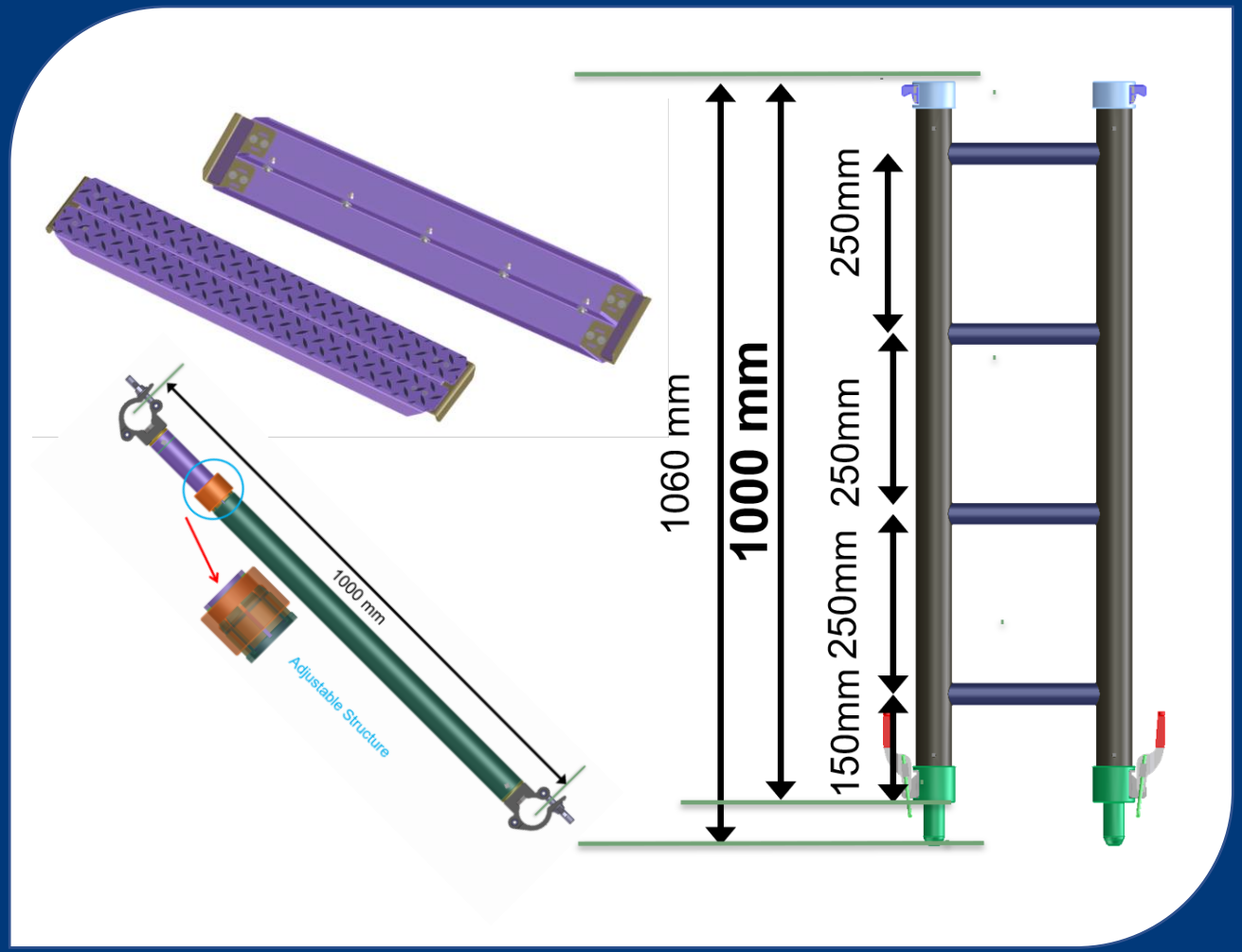
- Come in one and two panel lengths and have one outrigger connection per panel.
- Curve connection blocks and can support curves from -7.5 convex to +10 degrees concave.
- Support up to 5.5m of Polaris LED products.
- Each beam has two points of adjustment with approximately 30mm of travel for levelling adjustment and each foot has a ball-joint to compensate for sloped or uneven surfaces.
- 8mm Allen key required to adjust for levelling. There is also a handwheel which can be used once the LED panel has been mounted.



- **Outrigger**
- Minimum of one outrigger for every two panels in width is recommended on standard installations.
- Integrated counter ballast tray for stage weights/ballast.
- Two points of adjustment to level and each foot has a ball-joint to compensate for sloped surfaces. Rear feet also have fixing holes if needed.
- Additional outriggers can be joined to extend footprint.

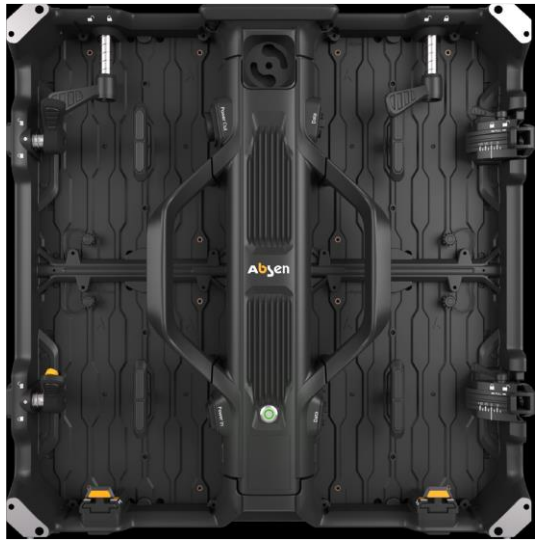


- **Fixing Arm (Panel Connector, Tile Clamp)**
- Fixing arms should be fitted to the LED panel first
- Rotate and extend the lever
- Rotate entire assembly until in contact with the ladder
- Clamp to ladder with the wing nut to secure.
- If adjustment is needed then wing nut should be released prior to rotation, then secured again once in final position.



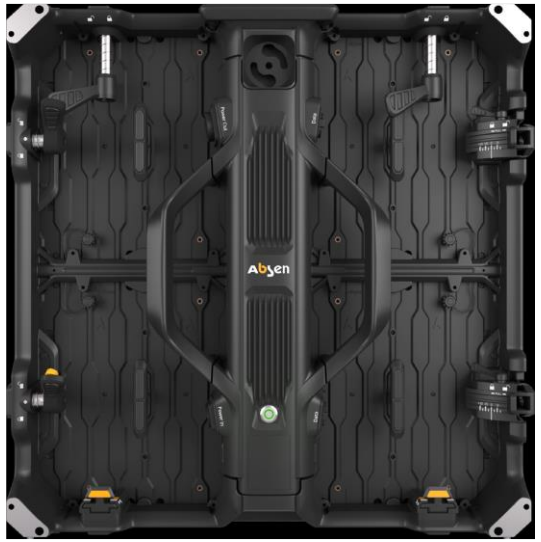
- Foot Stool
  - (Platform)
- Back Support
  - (Ladder)
- Horizontal Beam
  - Ladder Connector

Absen



Handling Panels

- LED panels should only be moved using the handles to minimise damage. These are: one top grab handle and two rear handles.
- Contact with the front LED face of the module should be kept to a minimum.
- Removing protective cover – best practice is to lay the LED panel on its back in order to remove the protective cover. Pinch top corners and carefully ease cover away from LED panel. Then slide cover down and away.



LED Panel Components

- **Catches and latches** - each LED panel has two side locks/bolts on one side and two curve connection blocks on the opposite side, which can support curves at 2.5-degree increments from -7.5 convex to +10 degrees concave. There are two top locks/bolts and two quick release catches at the bottom.
- **Quick swap power supply** - unlock and release the central section on the rear.
- **Receiving card** - 2x PH2 screws secure the RX card to the hub card
- **Hub card** - 10x PH2 screws secure the hub card to the chassis.
- Test button on the rear of unit to cycle through test patterns requires power only. Green status indicator LED
- 4x M8 threaded bolt holes, one in each corner of chassis for mounting.
- Rubber anti-light bleed strip prevents light bleed from behind the screen on concave builds.

- **Masks/Shaders**
- Masks help to 1) protect the LEDs 2) help to create higher contrast, increasing the black surface area 3) cover the PCB.
- Masks clip around each individual LED and may require a roller to secure them correctly.

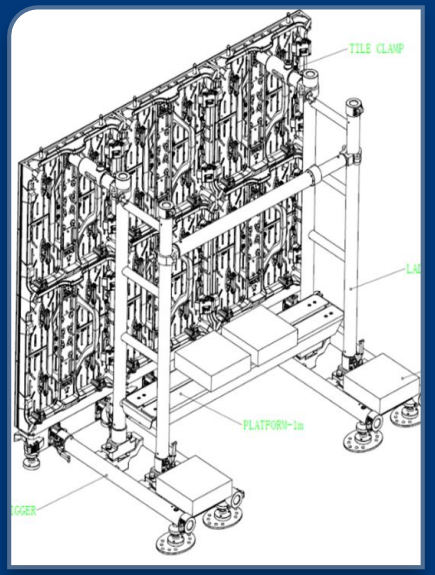
- **Module Swap**
- Each module is secured in position with one fixed captive thumbscrew and one thumbscrew on a safety wire.
- To remove the module, it should be pushed out from the rear applying even pressure to ensure the module comes out square to minimise damage.
- The safety wire can then be removed.
- These steps should be reversed to insert the replacement module.

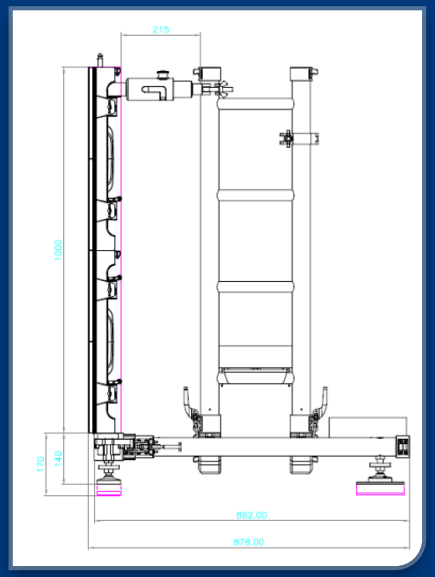
Absen PL Series

Stacking Installation guide

- **Typical LED Wall build procedure**
- Position ground beams (right to left) with outriggers. Best practice is to have an outrigger at each end position of the LED wall. This may mean two outriggers are side-by-side in the centre of the wall when there is an even number of columns.
- Level ground beam (left to right) using a spirit level
- Insert bottom row of back supports
- Level outriggers using spirit level
- Double check level of ground beam
- Apply first row of LED panels working from the centre out in each direction. Side locks above the centre of beams should be engaged but locks above joins in beams should be left open for fine adjustment.
- Fine adjustment of ground beams using pixels and masks for alignment, if needed.
- Engage all side locks on bottom row.
- Apply second row of LED panels working from the centre out in each direction engaging side locks and top locks from row below. Fixing arms should be installed at each back support position as panels are applied. Fixing arms should be levelled, as they are installed using the power supply to position the spirit level.

- Add counterweight.
- Continue applying LED panels in rows installing a fixing arm on every other row at each ladder position. When the LED wall consists of an odd number of rows, the top row of LED panels may be unsupported.
- Connect all power and primary data cables and check indicator lights on rear of LED panel to ensure all cables are working correctly.
- Novastar Controller. Using the jog wheel, factory reset. Select display control and cycle through red, green and blue test patterns at a low brightness marking any modules with pixel failures using masking tape. Swap out any modules with pixel failures.
- Connect laptop to Novastar LED controller using USB A-B cable(s) and or





Novastar COEX

NovaStar LED Controller - COEX Series

MX20

- **Novastar LED Controller**
- Novastar LED controllers have a maximum output capacity and are limited to both the input connections and output ports.

MX30

MX40 Pro

MX20

6 output ports

Loading capacity:

- Overall maximum capacity = **3,900,000** pixels
- Maximum capacity per port =
  - 659,722 pixels @ 8 Bit 60hz
  - 494,792 pixels @ 10Bit 60hz (A10s Pro)
  - 329,861 pixels @ 10Bit 60hz (others AXs)

Processing:

- Send-Only mode and All in One mode
  - *Send-Only Mode*: Pixel to pixel, one frame less than All-in-One mode
  - *All-in-One Mode*: Support 3 Layers scaling

MX30

10 output ports

Loading capacity:

- Overall maximum capacity = **6,500,000** pixels
- Maximum capacity per port =
  - 659,722 pixels @ 8 Bit 60hz
  - 494,792 pixels @ 10Bit 60hz (A10s Pro)
  - 329,861 pixels @ 10Bit 60hz (others AXs)

Processing:

- Send-Only mode and All in One mode
  - *Send-Only Mode*: Pixel to pixel, one frame less than All-in-One mode
  - *All-in-One Mode*: Support 3 Layers scaling

MX40

20 output ports

Loading capacity:

- Overall maximum capacity = **9,000,000** pixels
- Maximum capacity per port =
  - 659,722 pixels @ 8 Bit 60hz
  - 494,792 pixels @ 10Bit 60hz
  - 329,861 pixel @ 12Bit 60hz

Processing:

- Send-Only mode and All in One mode
  - *Send-Only Mode*: Pixel to pixel, one frame less than All-in-One mode
  - *All-in-One Mode*: Support 4 Layers scaling

Cabling limitations – PL2.5 Plus v2

- **Power**
- Each LED panel has a maximum power draw of 145watts at 100% brightness on full white, with 0.36mA of earth leakage. A maximum of 20 panels can be linked from one 16amp power supply with a 30mA RCD.
- **Data**
- Each LED panel is 200 pixels x 200 pixels (40,000 pixels), therefore a maximum of 16 panels (640,000 pixels) can be run from one port of a Novastar controller.

Cabling limitations – PL1.9 Plus v2

- **Power**
- Each LED panel has a maximum power draw of 175watts at 100% brightness on full white, with 0.54mA of earth leakage. A maximum of 16 panels can be linked from one 16amp power supply with a 30mA RCD.
- **Data**
- Each LED panel is 256 pixels x 256 pixels (65,536 pixels), therefore a maximum of 10 panels (640,000 pixels) can be run from one port of a Novastar controller.

Software

1. Connect Physical Devices

- Via Ethernet cable, connect the PC with devices directly by Ethernet cable.
- Via LAN, conenct the devices and PC into the same LAN via switch or router with DHCP or specific IP.

2. Connect with software

- The COEX VMP software has no login, all controllers will be detected and connected automatically if the IP address is correct.

Novastar LED Controller Software - Coex VMP

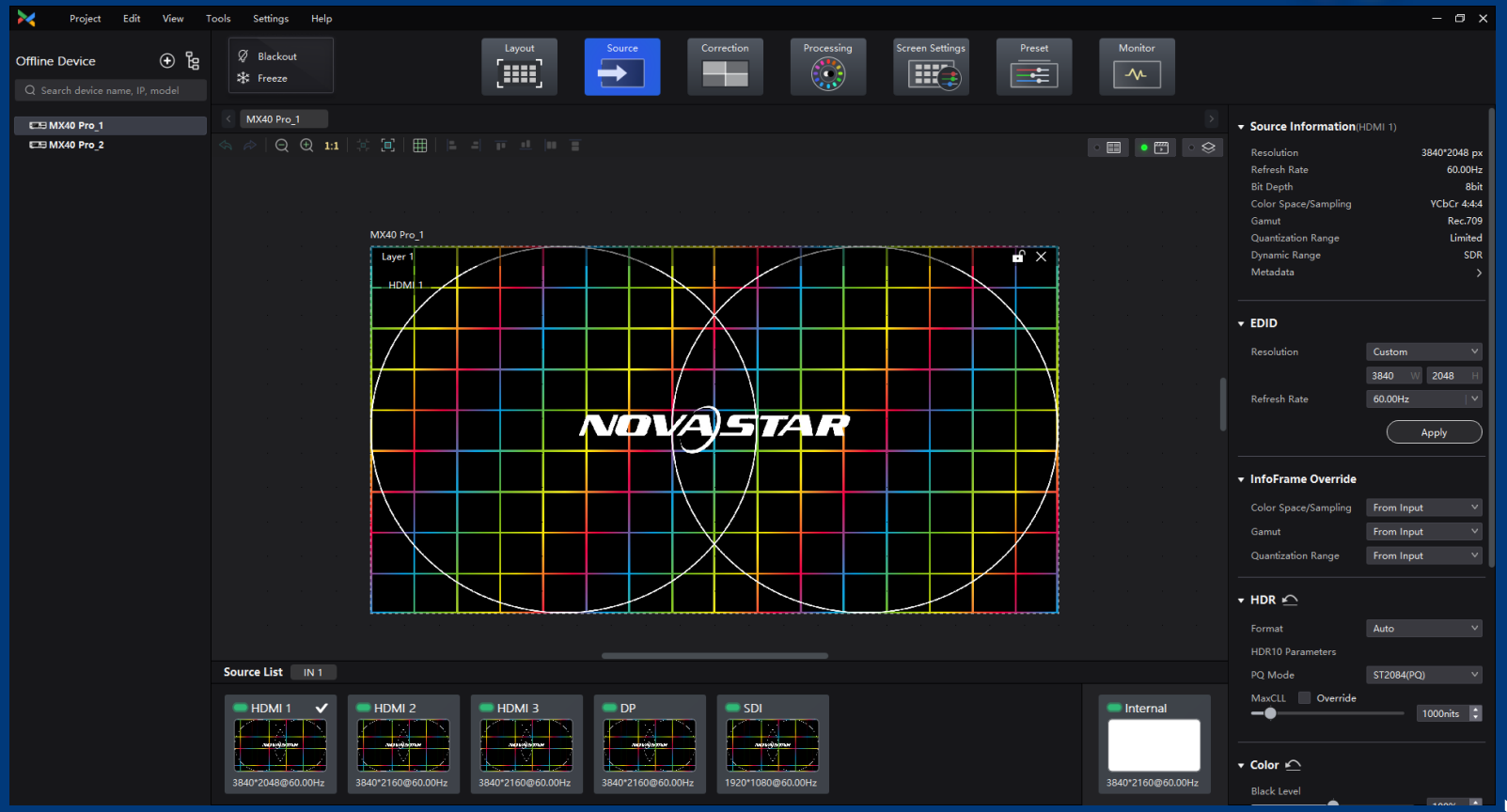
Operating Systems

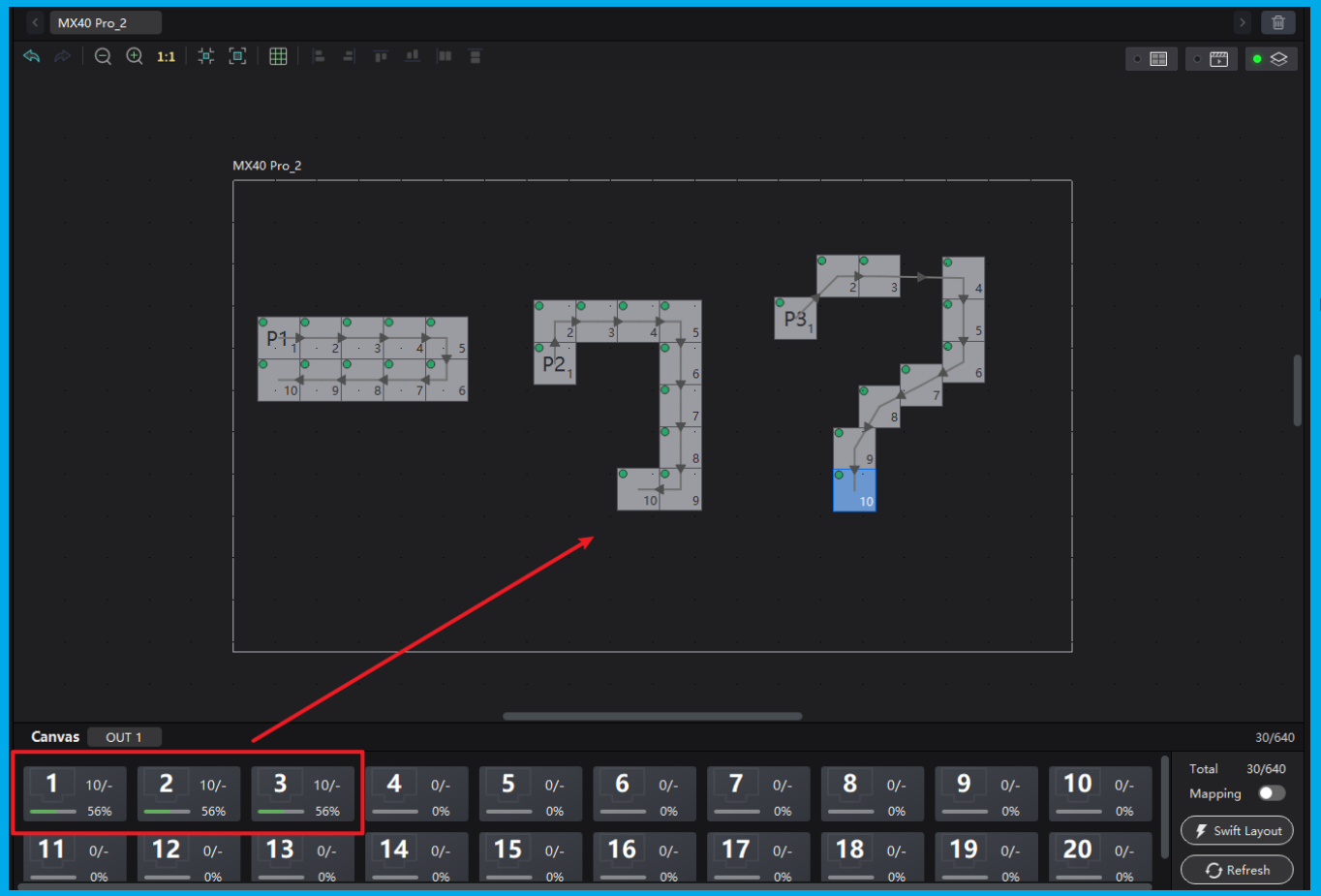
Windows Mac OS Linux

Connections

Or

Router
IP Switch

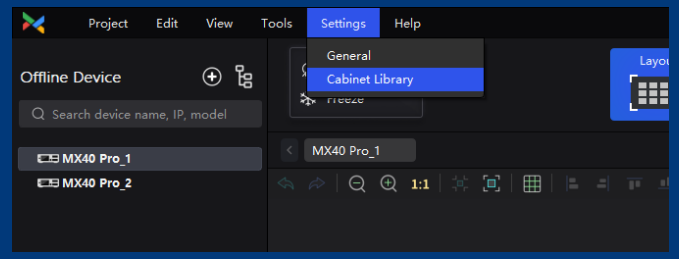


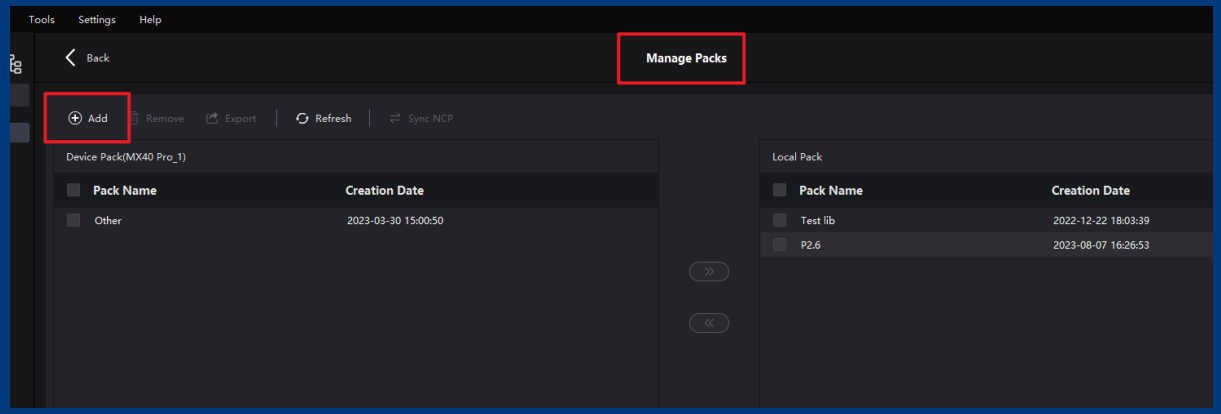


Controller Output Port Loading

- Each output port loading capacity is calculated by its total loading panels pixel, no rectangle area limits anymore. As long as it doesn't exceed the maximum pixels.

Ps:
Port 1 , 2 and 3 load same quantities of panels with same usage rate.



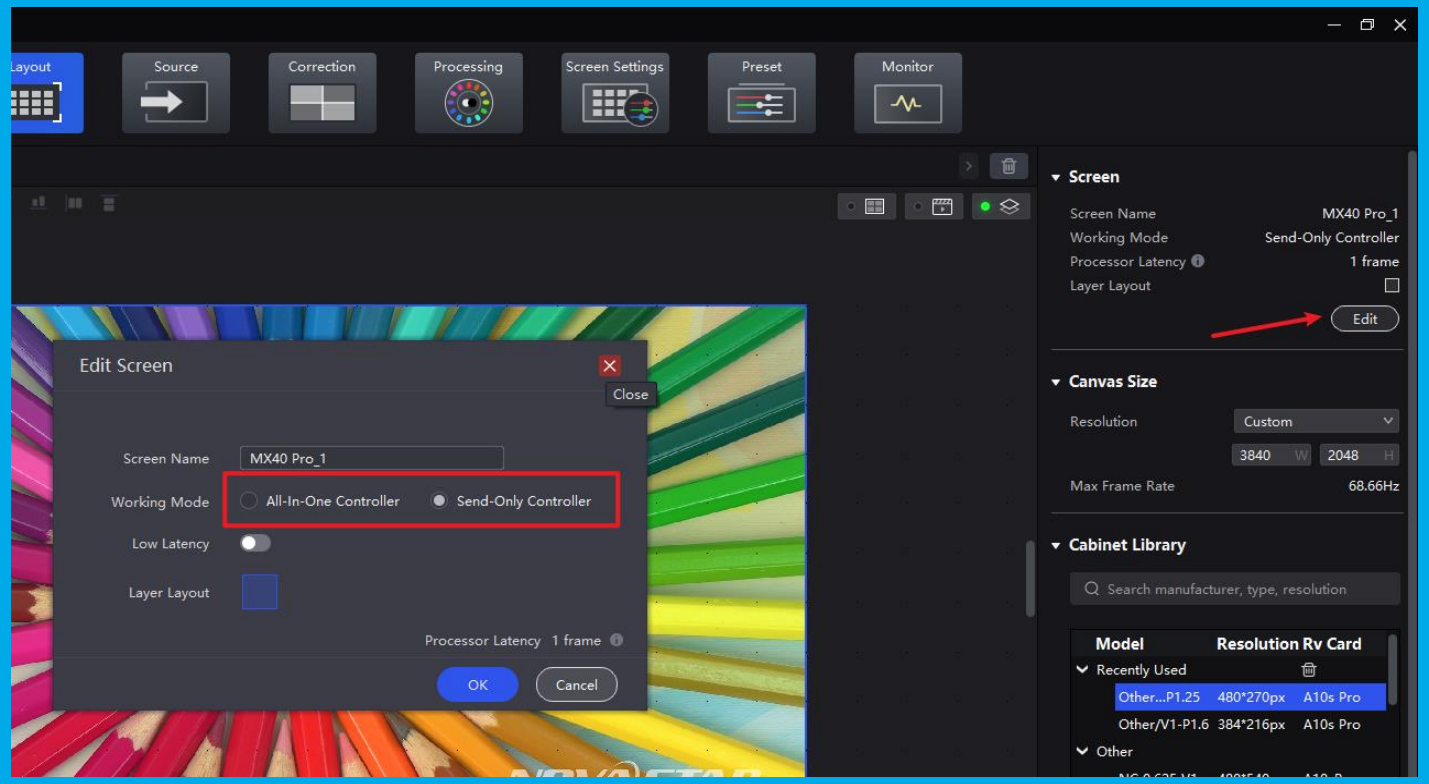


Upload the Configuration File

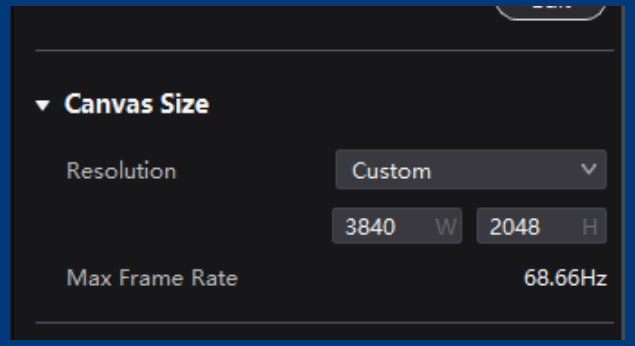
- Prepare the .ncp file in advance
- Go to Settings >>> Cabinet library >>> Manage Packs >>> Add >>> load the .ncp file
- Device Pack: save the ncp file into the controller
- Local Pack: save the ncp file to local PC, local VMP

What's .ncp file?

- .ncp file includes traditional config file, Receiving card firmware, Image booster file, Thermal compensation file, etc.

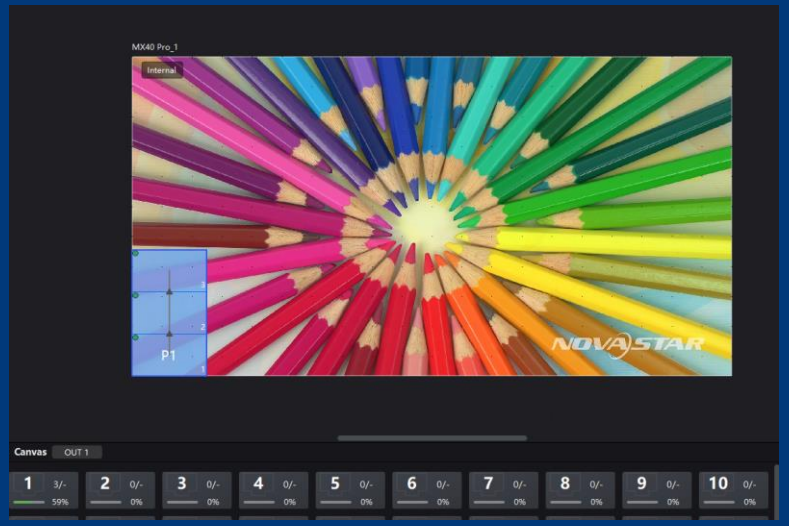


- # Set the Controller Mode
  - Go to Screen >>> Edit
  - Choose Send-Only Controller mode or All-in one Controller mode



Set Convas Size

Set it same with the screen resolution or keep default resolution.

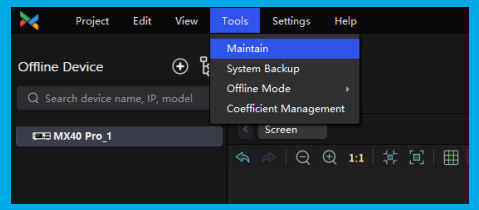


Screen Configuration

Select the Controller in the left side list
Select “Layout”, click the outputs in the below, and add them on the canvas until all panels are connected.
Each output will detect the total quantity of panels and calculate the usage rate.

Send the .ncp file to all panels

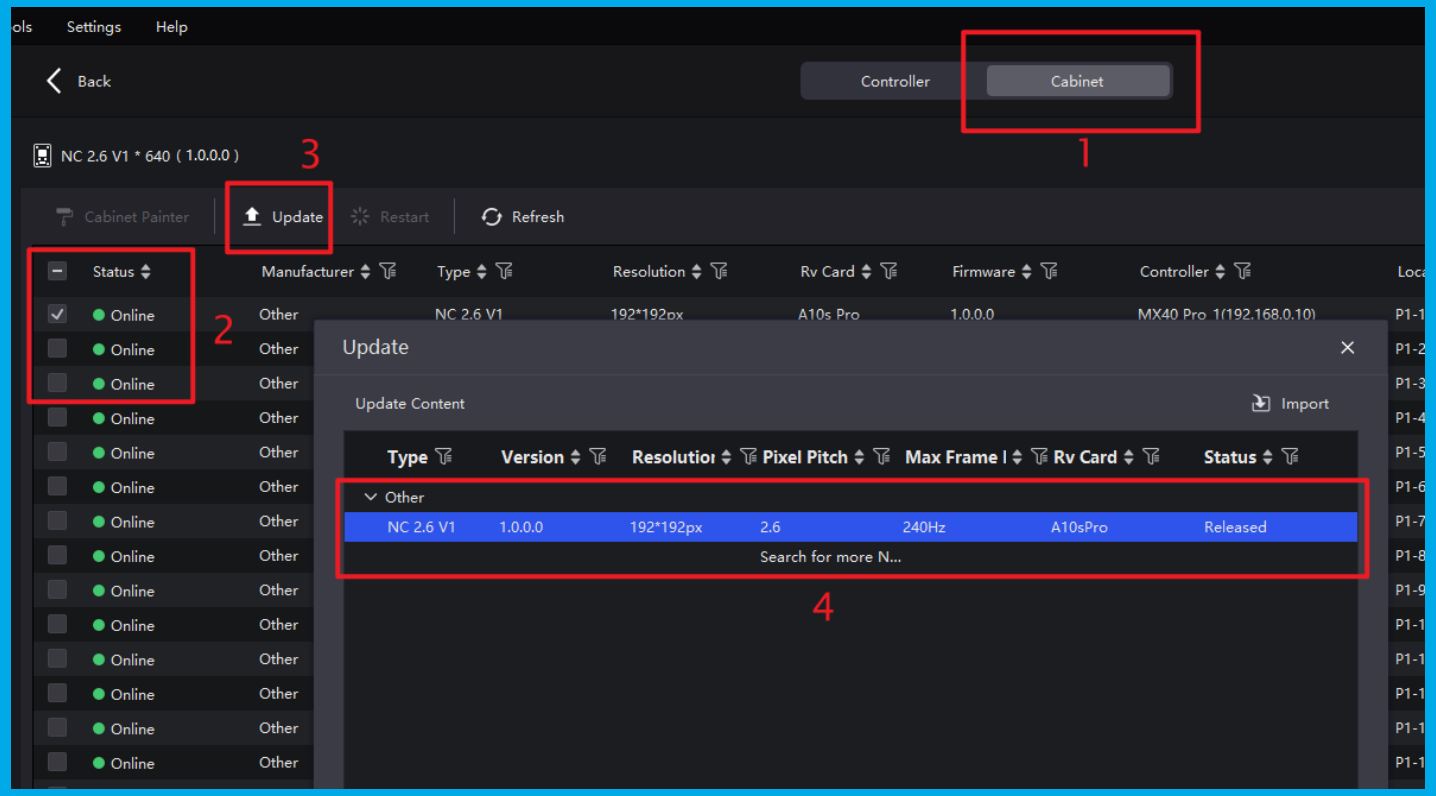
Tools-Maintain



Switch Cabinet Page

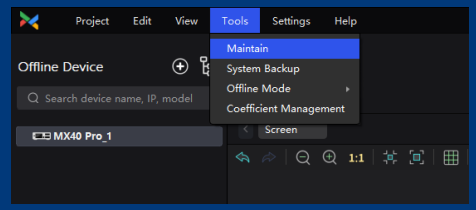
Choose the panels need to send .ncp file

Update >>> Choose the .ncp file in the library, click Update.

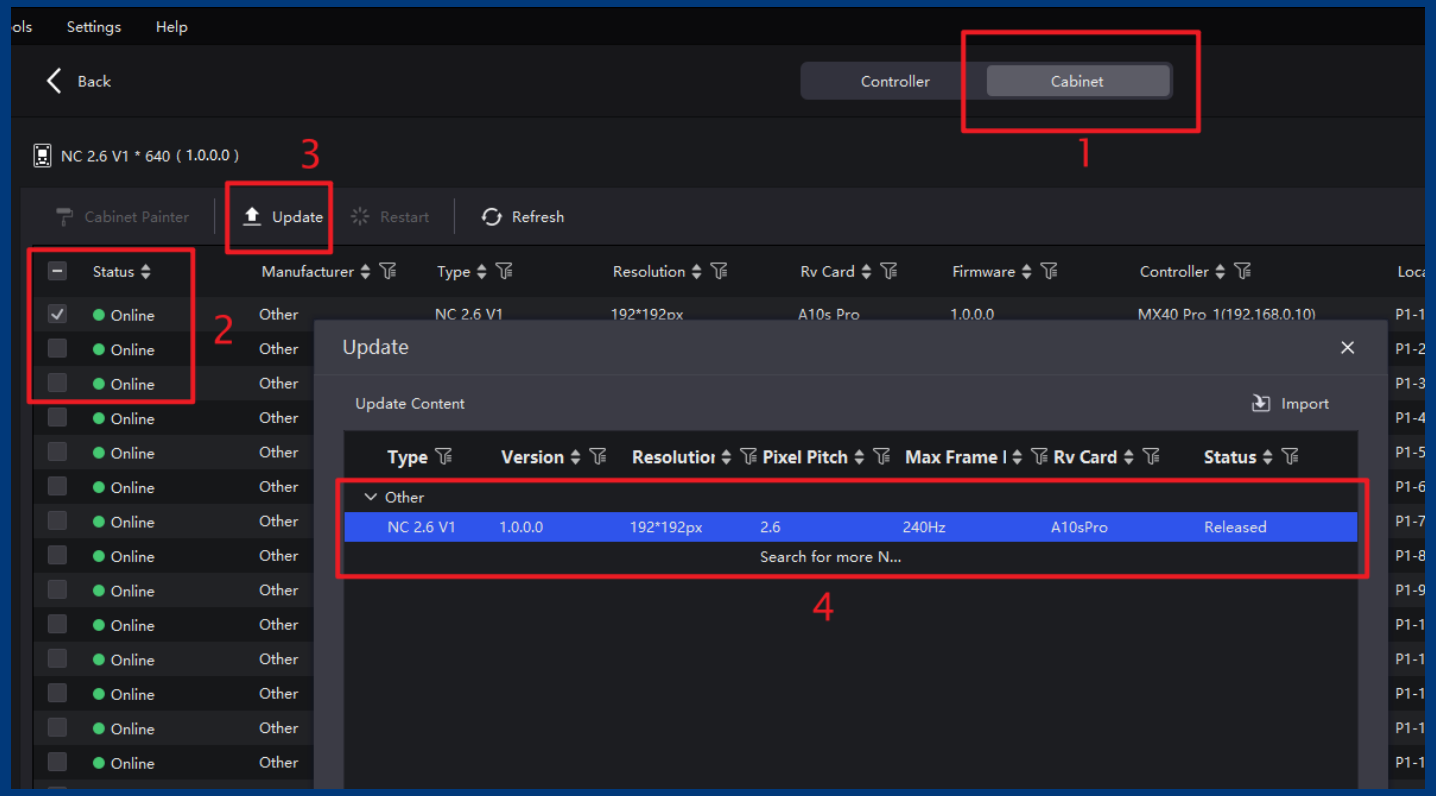


Send the rcfgx file to all panels (For other Axs card, A8s, A10s,etc.)

- Tools-Maintain



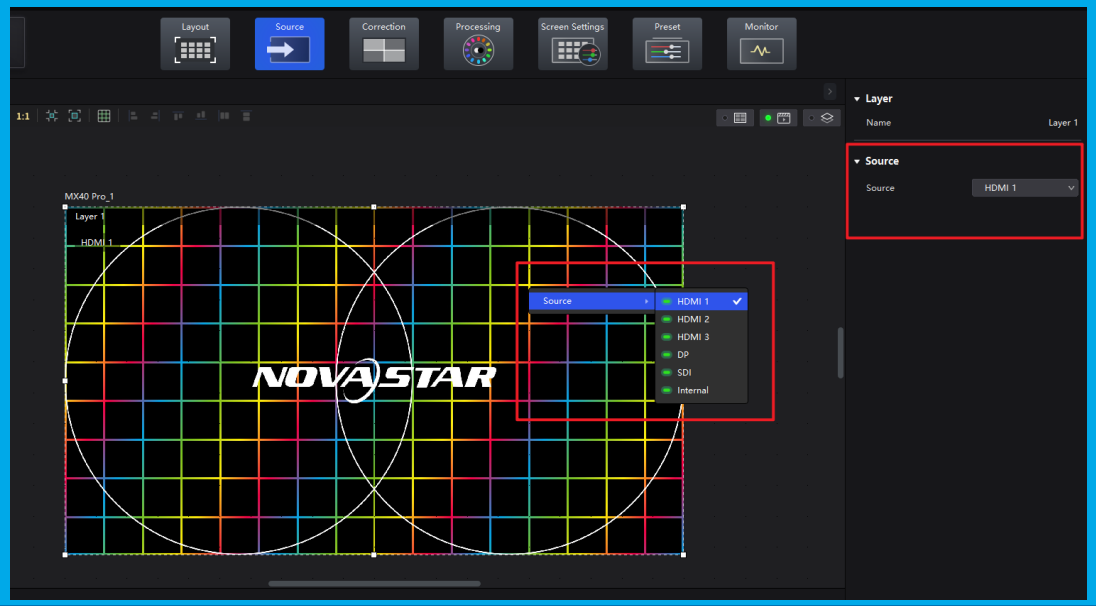
- Switch Cabinet Page
- Choose the panels
- Update >>> Choose the config file, load the .rcfgx file, click Update.



Enable Layers and Switch Source

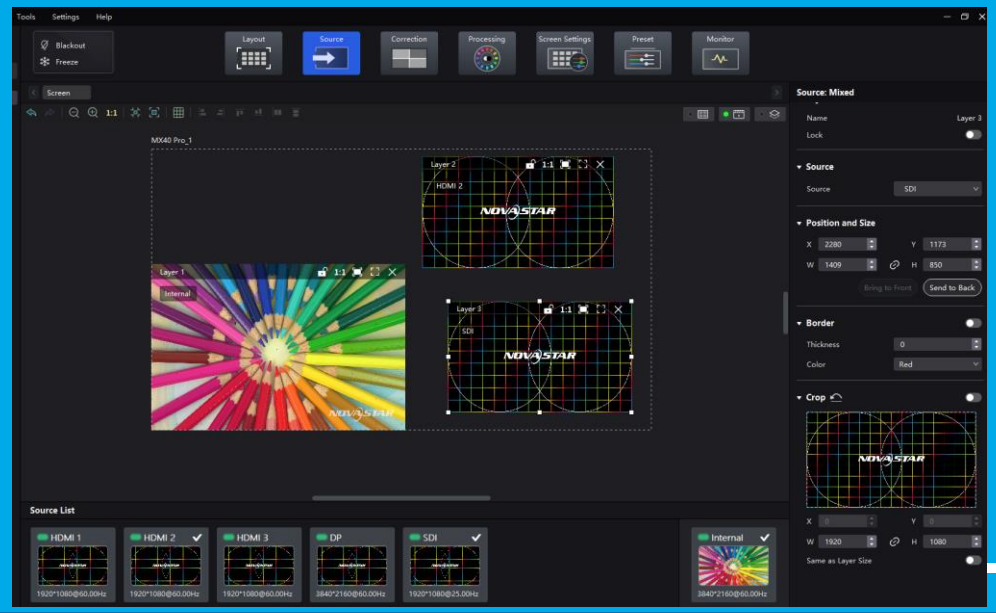
Send-Only Controller Mode

- Enable layer: Only support one layer and cannot be scaled, double click or drage the video source to the canvas.
- Switch source: Right-Click the layer to switch the video source or switch from the right side



All-in-One Controller Mode

- Enable layer: Double click or drage the video source to the canvas.
- Switch source: Right-Click the layer to switch the video source or switch from the right side



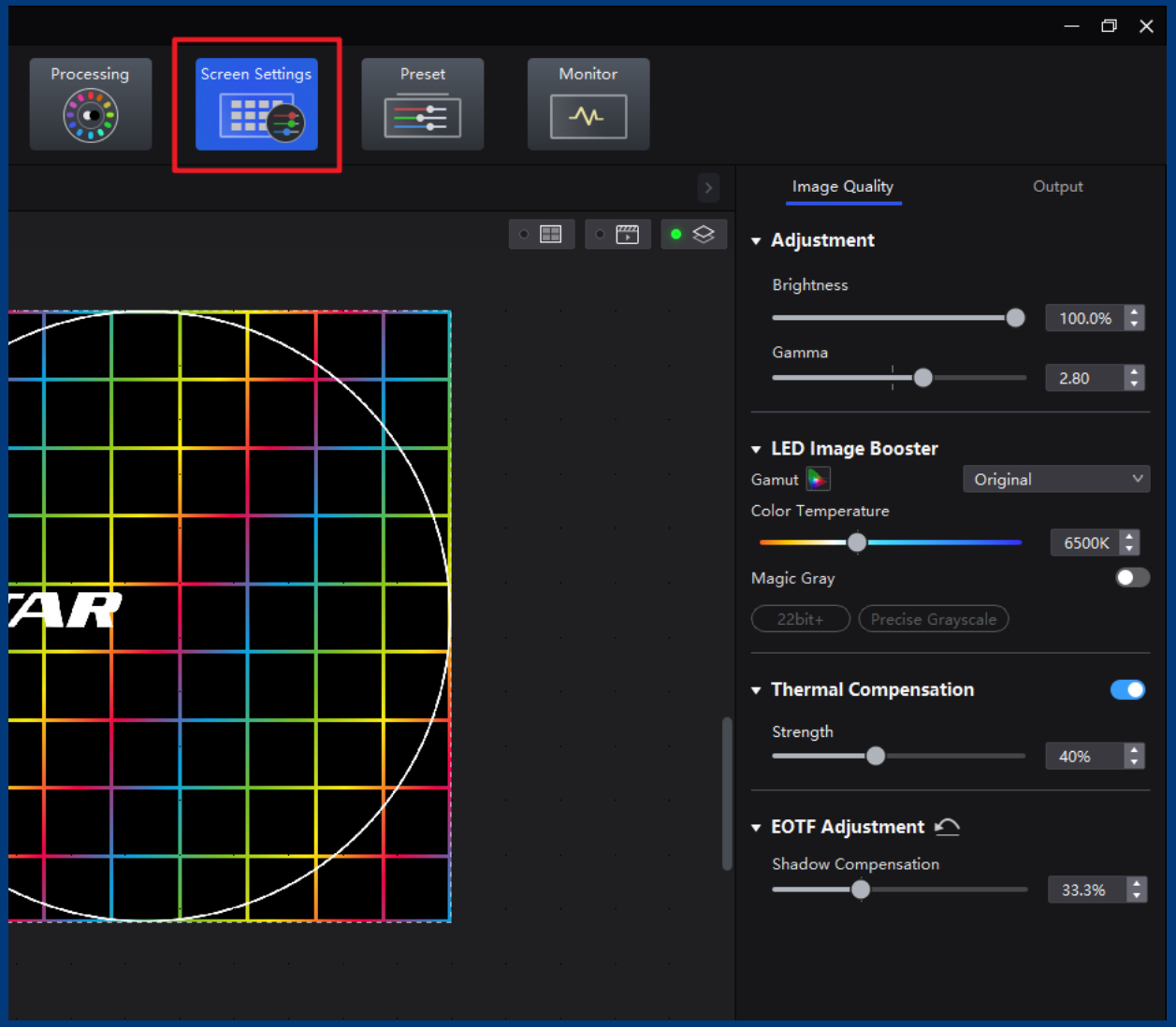
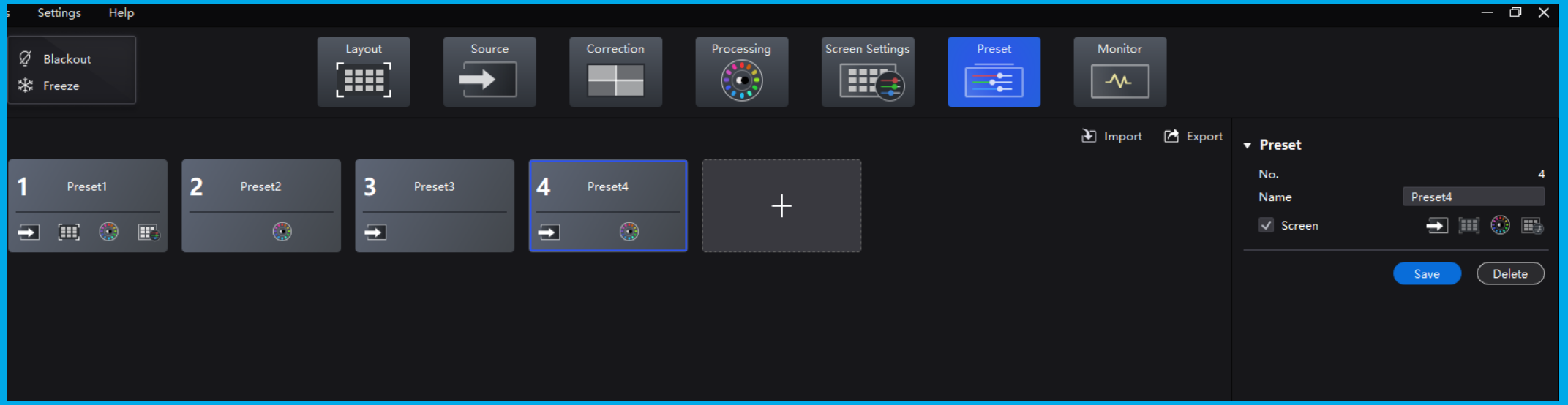


Image Quality Adjustment

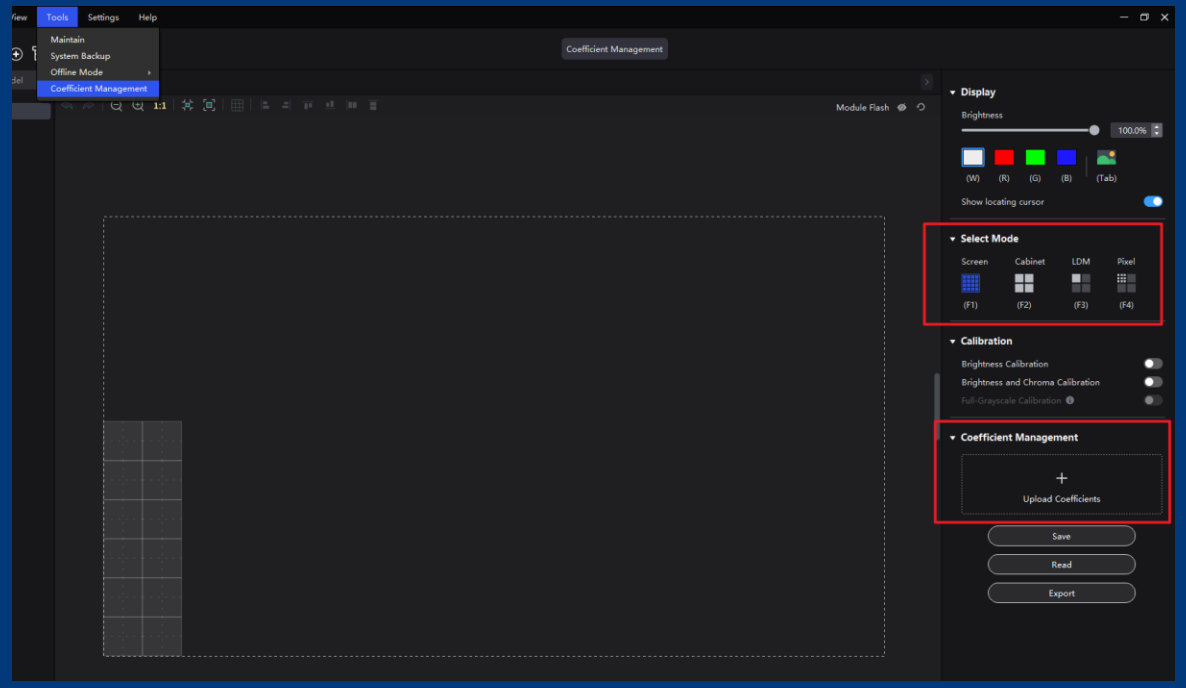
- Brightness and Gamma
- Image Booster-enable and change the color gamut, color temperature, magic gray.
- Thermal Compensation, enable and change the Strength

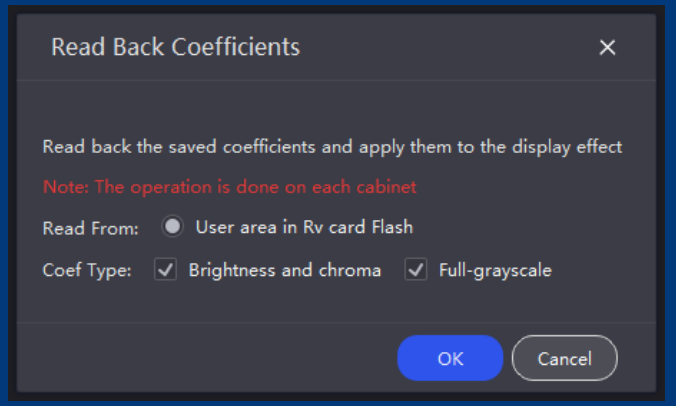
Presets

- Preset can save 4 parts, Source, Layout, Color Processing. Screen Settings.
- When save preset, it is possible to choose which part to save seperately.
- The preset can be edited after creating.

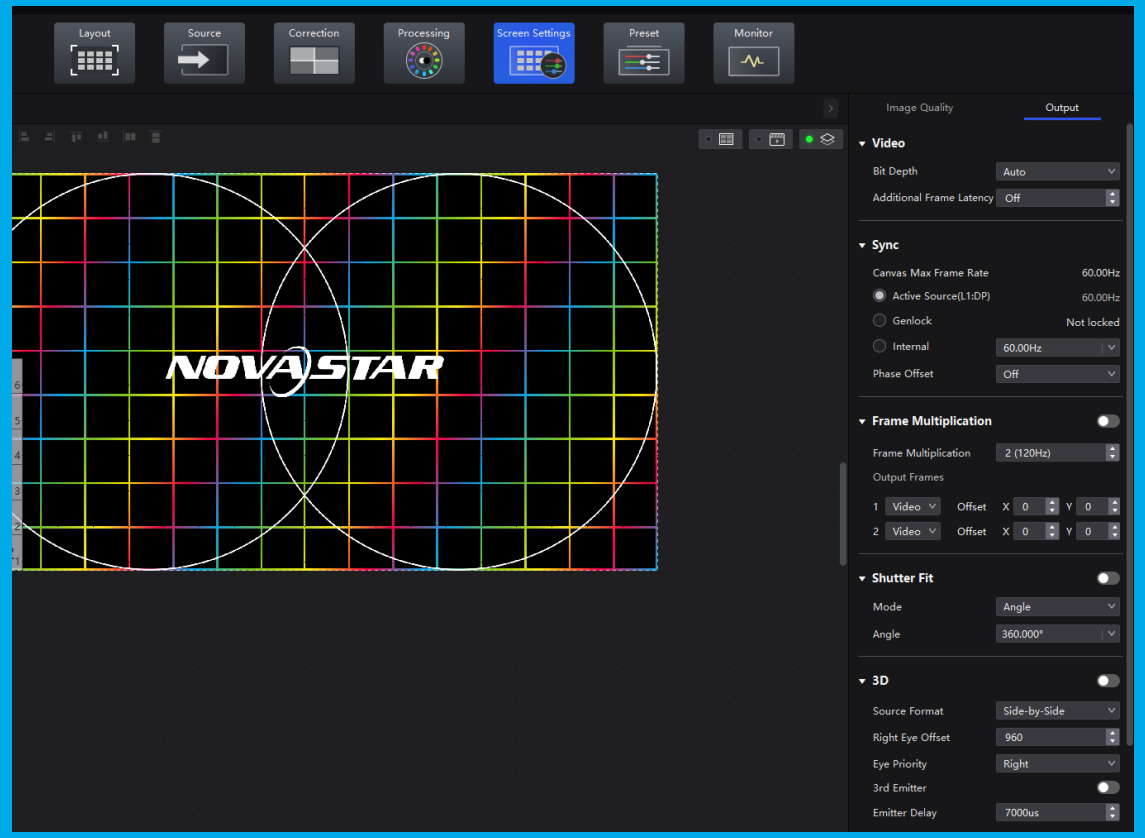


Calibration Coefficient Management (Module Flash)





- Tools >>> Coefficient Mangement
- Select whole screen, cabinet, module mode
- Read Coefficient Management
- Select Module Flash
- Save Coefficient Management



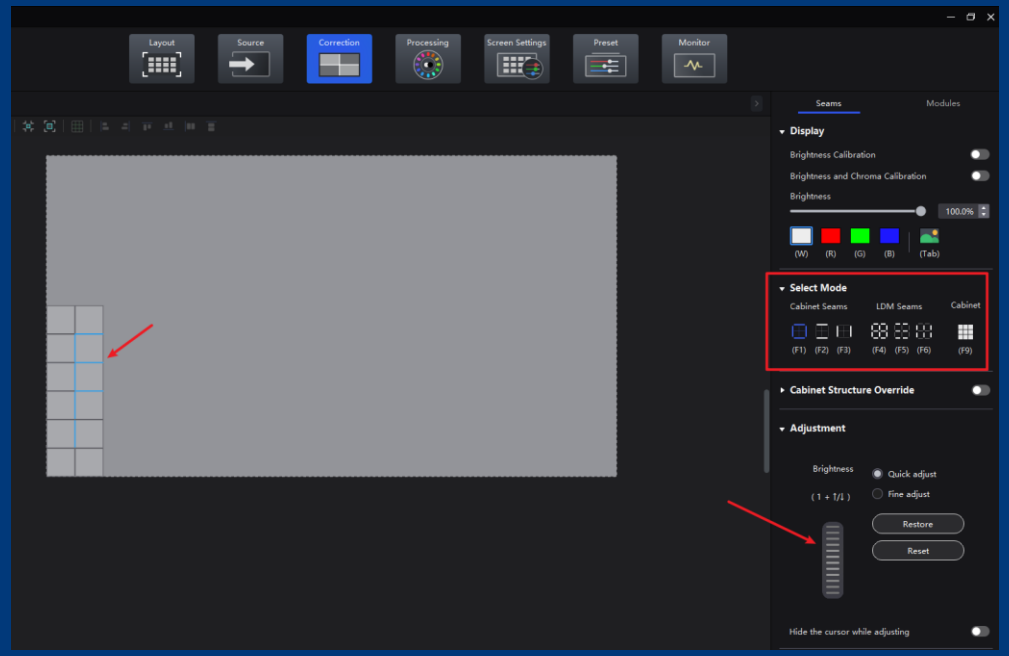
Output Settings

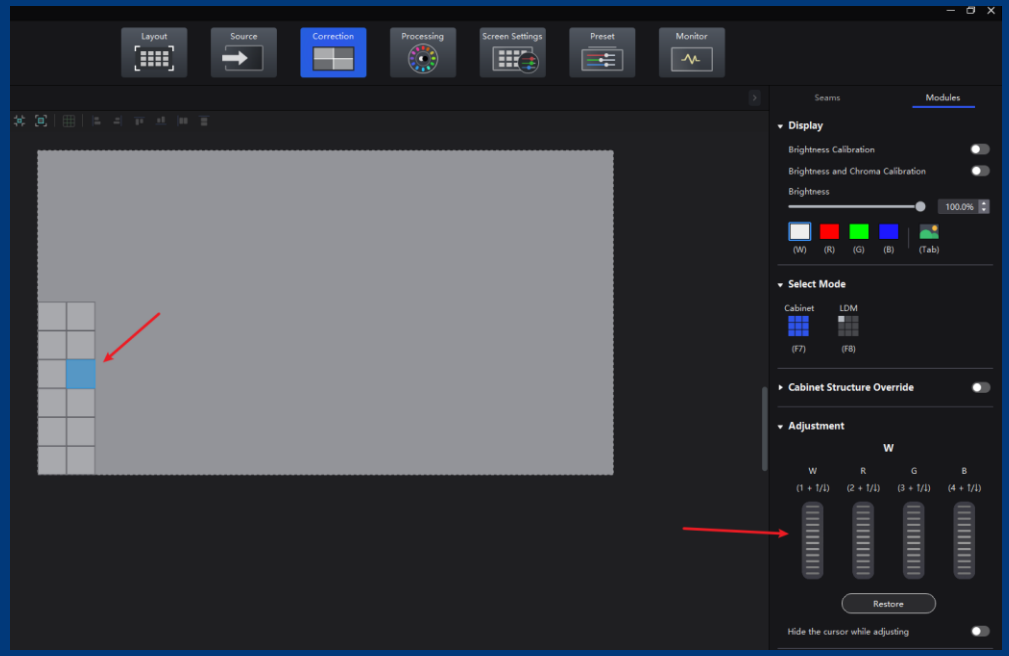
- **Output bit depth**: choose 8bit/10bit/12bit output
- **Add additional latency**: Supports 2 frames maximum
- **Sync**: Sync with video source or Genlock or internal source, and adjust the phase offset
  - **A8S Card – Sync output to correct NCP File Speed**
- **Frame multiplication**: Support multi-cameras to shoot or do output multiplication like 60Hz to 120Hz
- **Shutter fit**: Sync with camera by same angle or speed settings (Only A10s Pro supports)
- **3D**: Set the 3D in 3 formats, side by side, top and bottom, and frame sequential

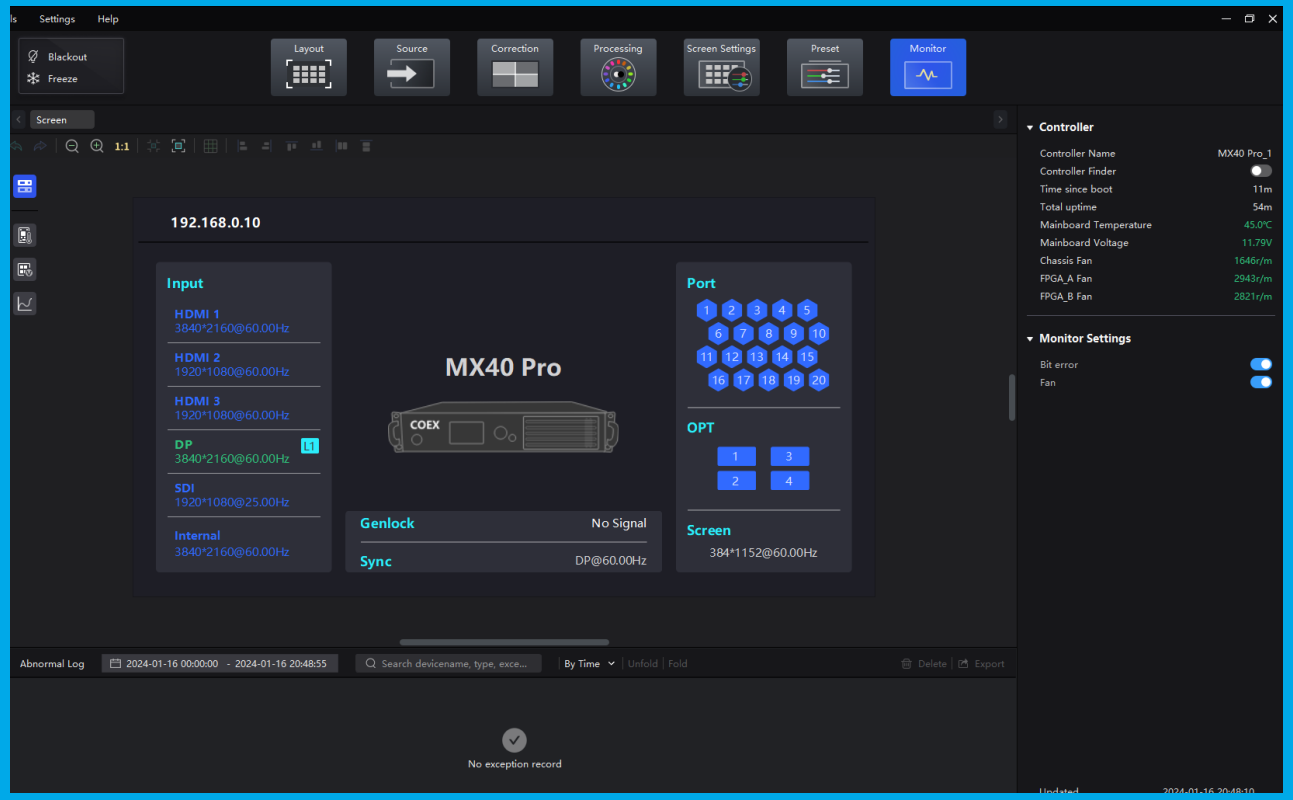
Correction

Seam Correction and Modules Correction

Adjust the bright/dark lines and adjust the different batch modules

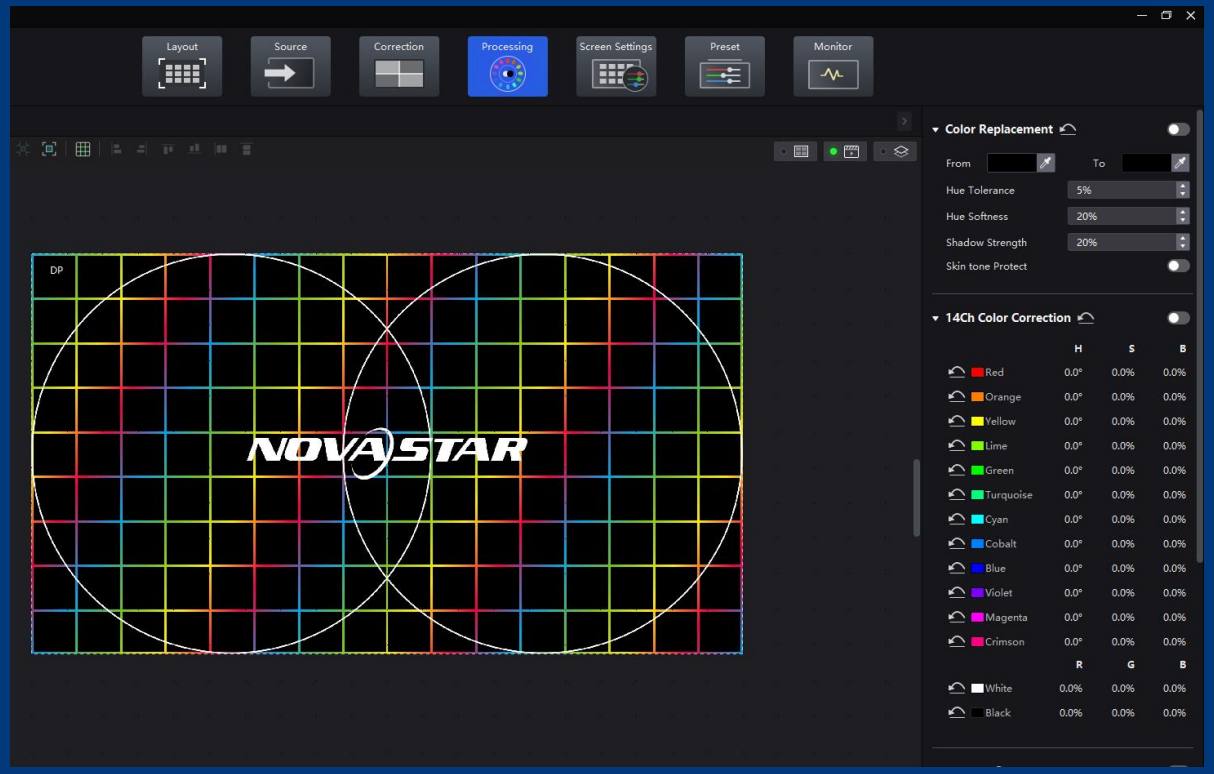






Monitoring

- Controller running status
- Receiving card status, temperature, voltage and bit error.
- Support Abnormal logs

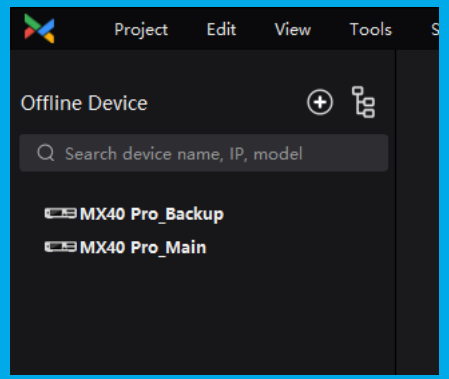


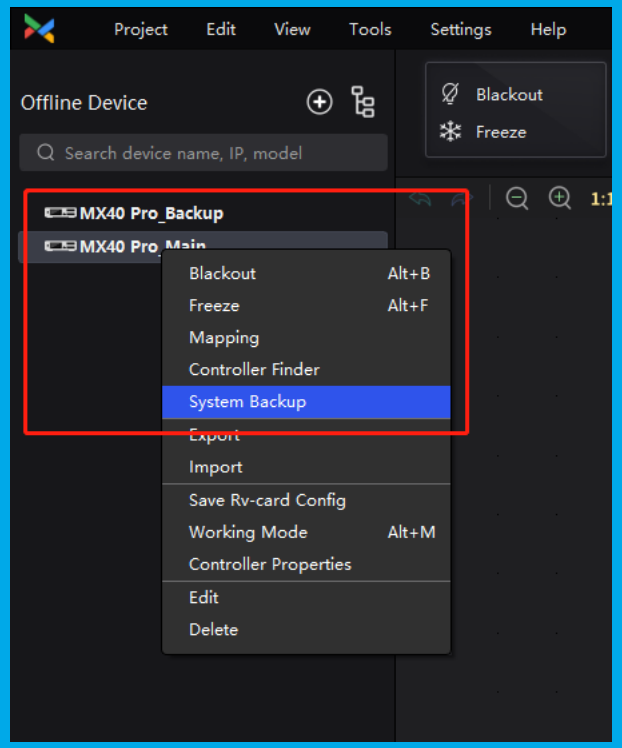
Color Processing

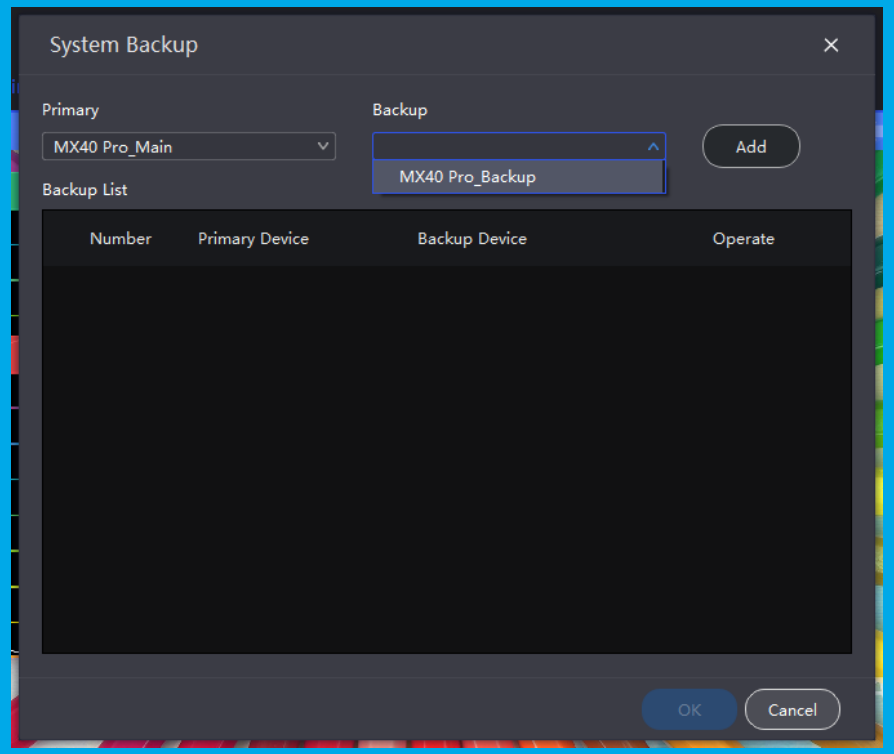
- **Color replacement:** replace a color into another
- **14CH Color Correction**
- **Color Curve**
- **3D Lut: Support 17x17x17 .cube file**
- **Dynamic Booster:** significantly improve the display contrast and image details for better visual experience and effectively control and lower the display power consumption (A10s Pro Supports)

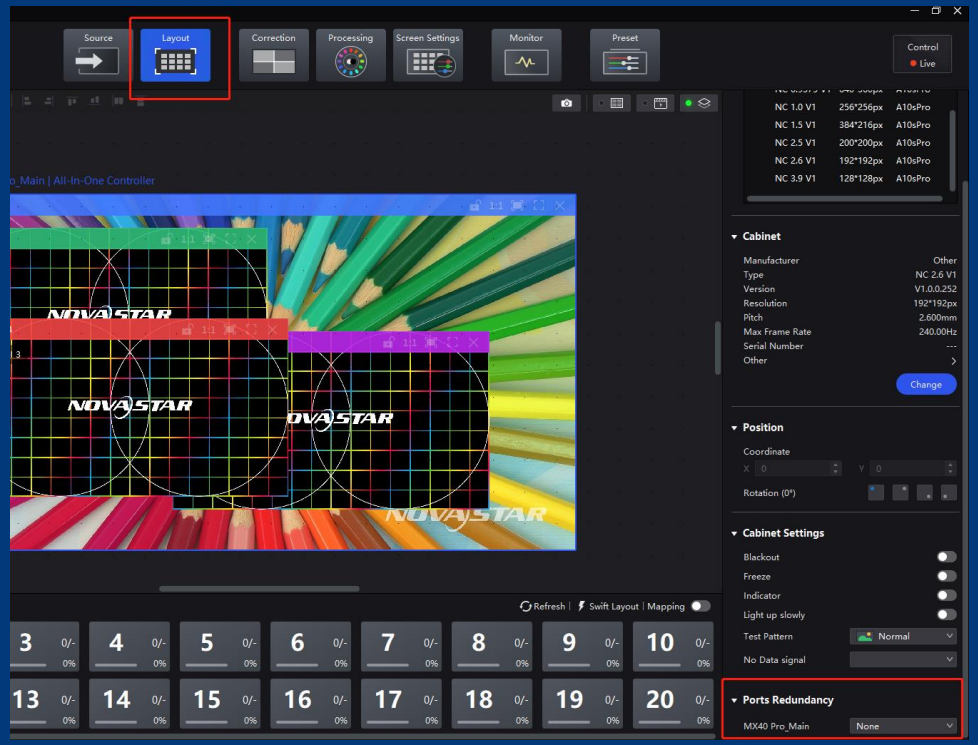
Redundancy (Processor)

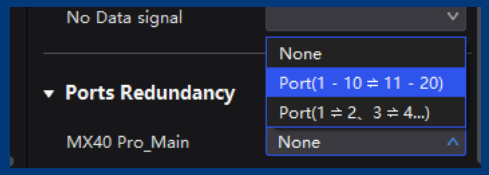
- Re-Name Processors to suit
- Right Click on Processor and select ‘System Backup’
- Select Main and Backup Processors and click ‘Add’

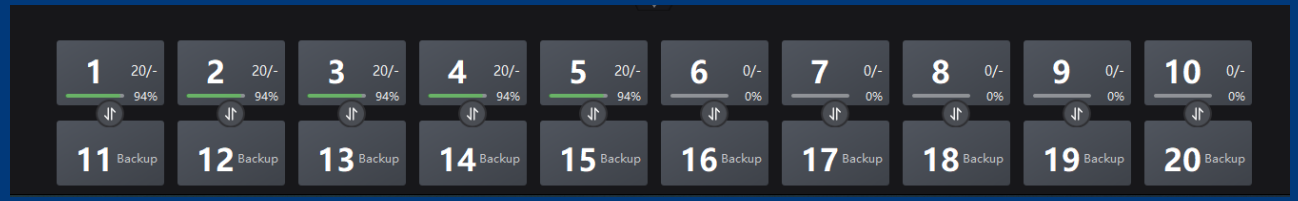












Redundancy (Cable)

- Select ‘Layout’ Tab
- Select Port Redundancy
- Select from Drop down list.
  - 1-10 = 11-20 is suggested