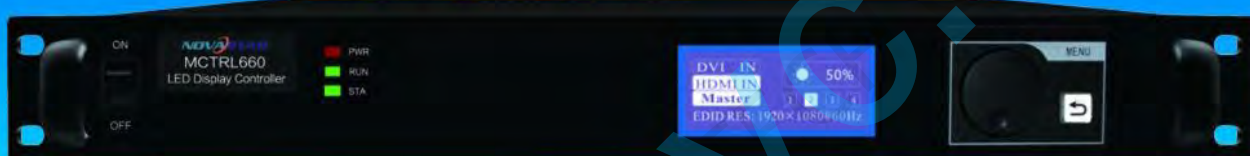


## M3 Controller MCTRL660 User Manual



Screen connection configurable without PC.

Screen brightness adjustable directly with knob.

12bit / 10 bit HDMI input, DVI input.

Resolution supported: 2048×1152, 1920×1200, 2560×960, 1440×900.

18bit gray scale processing and presentation.

Video format: RGB,YCrCb4:2:2,YCrCb4:4:4.

HDMI/ external audio input.

Cascading supported.

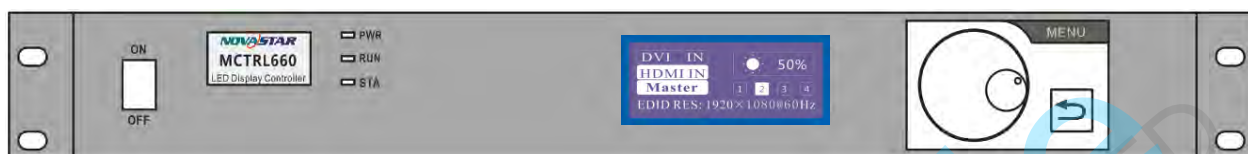
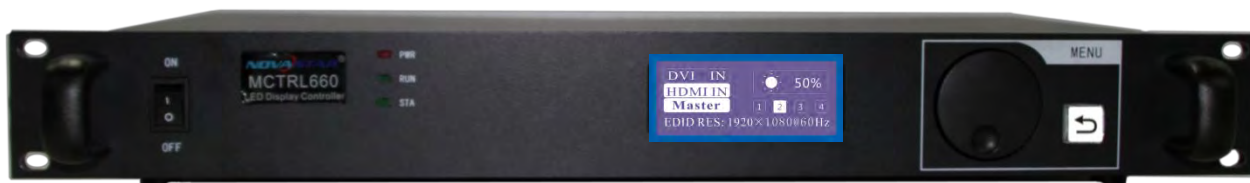
## For Rental Market

**Xi' an NovaStar Tech Co., LTD**

# 1 Overview

MCTRL660, NovaStar's latest independent master control, is mainly applied to screen leasing. It adopts an innovative architecture to implement smart configuration; the screen debugging can be completed within 30 seconds. It adopts the Nova G4 engine; the screen is stable and flicker free without scanning lines; the images are exquisite and have a good sense of depth. It supports Nova's new-generation point-by-point correction technology; the correction is fast and efficient. It can implement white balance calibration and color gamut mapping based on different features of LEDs used by screens to ensure reproduction of true colors. It is the only control system supporting the input of 12-bit high-definition multimedia interface (HDMI) and high-bandwidth digital content protection (HDCP) in China. It supports screen configuration at any time without a computer. It supports manual adjustment of the screen brightness, which is convenient and efficient. These features satisfy the special needs of screen leasing to the maximum extent.

## 2 Product Appearance and Interfaces



**PWR:** Indicate the power indicator.

**RUN:** Indicate equipment running indicator

1. It blinks quickly when no video source is available and blinks normally when a video source is available. when the redundancy works, the indicator fades gradually.

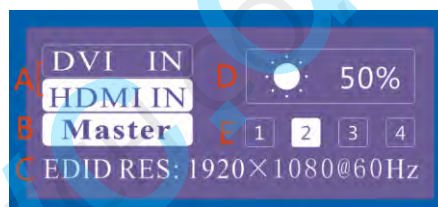
**STA:** Indicate equipment running indicator 2.

It is steady on when the equipment runs normally and blinks during authorization.

**Button:** Press the button to enter the option and rotate the button to conduct selection or adjustment.

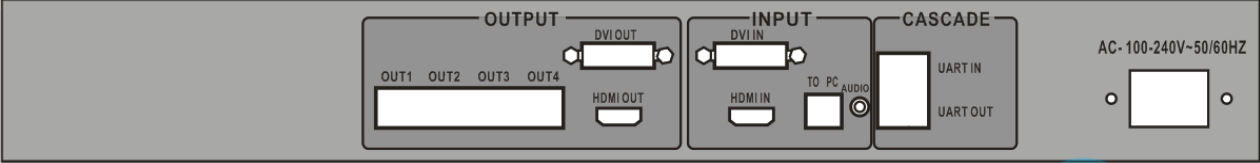
↶: exit from the current operation or option.

**Operation screen:**



- A. Indicate access of a video source on the HDMI. It blinks in the case of no video source input.
- B. Indicate that the machine is in the master mode.
- C. Indicate that the resolution is 1920 pixels x 1080 pixels and that the frame frequency is 60 Hz.
- D. Indicate that the current brightness of the screen is 50%.
- E. Indicate that network interface 2 has loads.



	
<p><b>DVI OUT</b> : Indicate the digital visual interface (DVI) output interface.</p> <p><b>DVI IN</b> : Indicate the DVI input interface.</p> <p><b>OUT1-OUT2</b> : Indicates output by four network interfaces.</p> <p><b>HDMI OUT</b>: Indicate the HDMI output interface.</p> <p><b>HDMI IN</b> : Indicate the HDMI input interface.</p>	<p><b>TO PC</b> : Indicate the interface for connecting the computer.</p> <p><b>AUDIO</b> : Indicate the audio input interface.</p> <p><b>UART IN</b> : Indicate the cascading input interface of serial ports.</p> <p><b>UART OUT</b>: Indicate the cascading output interface of serial ports.</p> <p><b>AC-100-240V-50/60HZ</b>: Indicate the AC power interface.</p>

### 3 Operation Instructions

All operations on the MCTRL660 are implemented through the button and return key.

**Button:** Press the button to enter a menu. After entry into a menu, rotate the button to adjust the value or select a submenu.

**Return key:** Press the return key to exit from the current menu or operation.

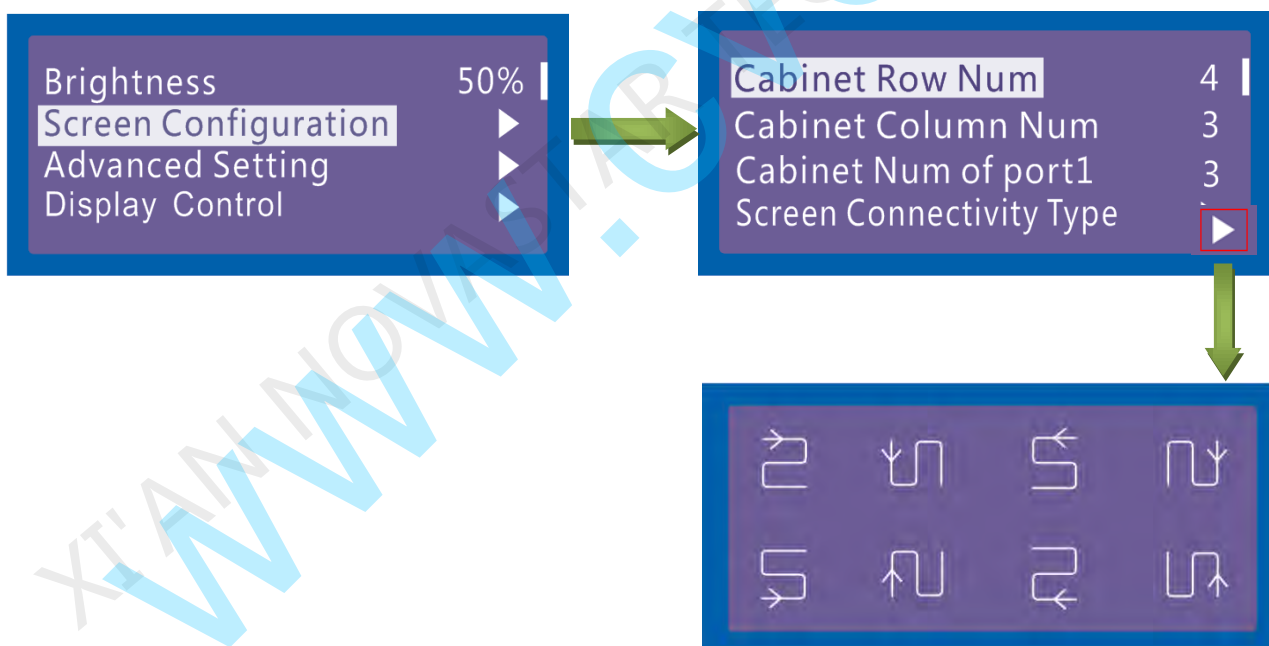
## 4 Procedure

### 4.1 Step 1: Connecting the Hardware

Connect the hardware by referring to the interface description in Chapter 2.

### 4.2 Step 2: Screen Configuration

- 1) The screen being power-on, if the cabinet is in normal display, enter into step 2); if the cabinet is in abnormal display, first load the cabinet file, and fix it to the receiving card; see detailed operation in [4.5 Advanced Setting](#) .
- 2) Return to the **"Screen Configuration"** submenu. Rotate the button to switch to submenus of other options respectively to perform configurations, as shown in the following figures:



- a) Set **Cabinet Row Num** and **Cabinet Col Num** according to the actual situation of the screen.
- b) Set **Cabinet Out1 Num**. The device has some limitations on the cabinet quantity of

network interfaces. For details, see precautions for screen setting i).

- c) Set the alignment of the screen. Pay attention to precautions for screen setting iii), iv) and v) below.
- d) Set the resolution of the video source.

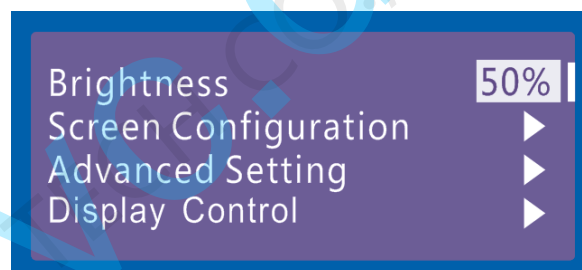
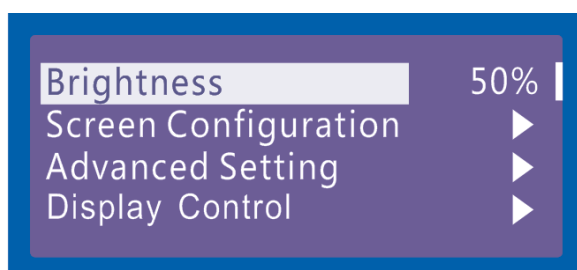
Precautions for screen setting:	
<p>i. If the number of network interfaces with loads is <math>n</math> (<math>n \leq 4</math>), the first <math>n-1</math> network interfaces must have the same number of cabinets, which must also be an integral multiple of the number of cabinet rows or columns and be greater than or equal to the number of cabinets for the <math>n</math>th network interface.</p>	<p>Example:</p> <p>For example, if network interface 1, network interface 2, network interface 3 have loads, network interface 1 and network interface 2 must have the same number of cabinets, which must also be an integral multiple of the number of cabinet rows or columns. Therefore, you need only to set <b>cabinet out1 num</b> according to the actual situation when setting the screen. The number of receiving cards for network interface 3 must be smaller than or equal to <b>cabinet out1 num</b></p>
<p>ii. In the case of special-shaped cabinets, different cabinet sizes and special-shaped screen, the NovaLCT-Mars software is required to be connected to configure the screen.</p>	
<p>iii. During connection setting, you can rotate the button to see the effects of different connections on the screen in real time. If you are satisfied with the connection, you must press the button to save the setting. You can press the return key to exit from the current operation.</p>	



- iv. During connection setting, you must ensure that the connection of each network interface is downward in the same direction.
- v. During connection setting, you must ensure that network interface 1 is the start position of the whole connection.

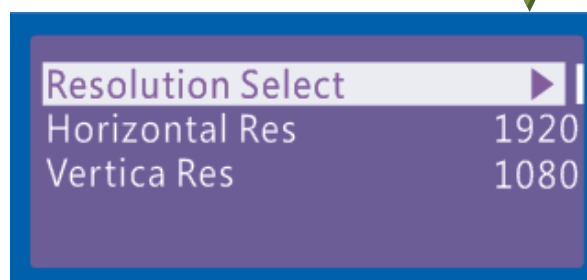
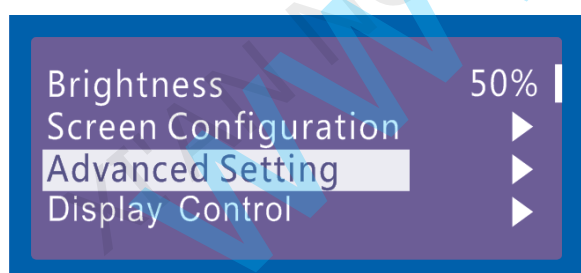
### 4.3 Step 3: Adjusting the Brightness of the Screen

Return to the main menu interface. Press the button to select the corresponding value. You can rotate the button to adjust the brightness at this time.



### 4.4 Setp4 Input Resolution

Namely the resolution of home page display of interface, which must be in coincidence with output resolution of video source.



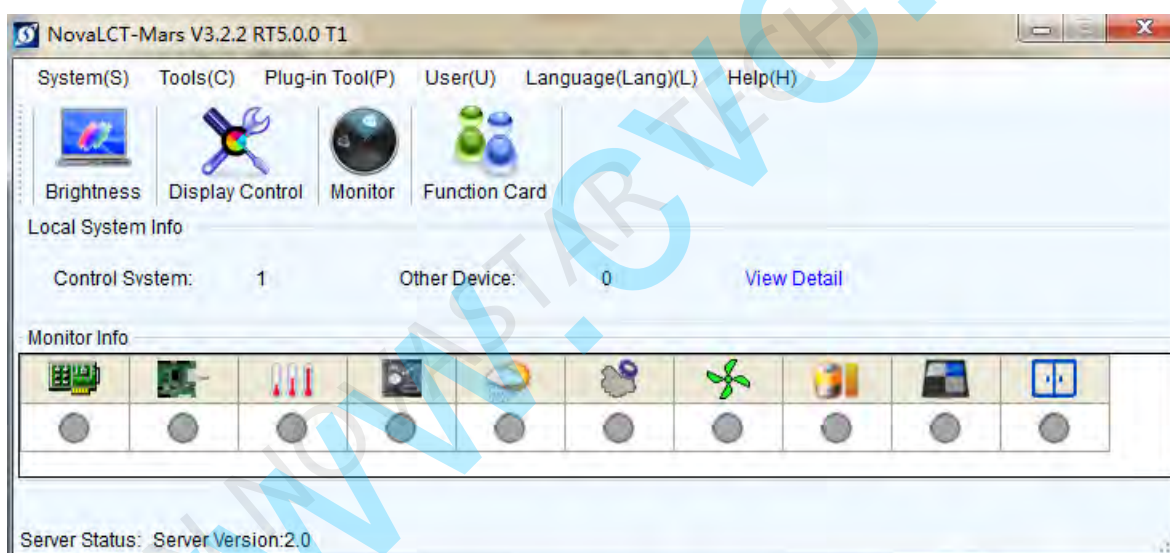
After step 4 is completed, you can turn on the screen and normally use the screen. To achieve better display effects, you can continue to set other parameters.

You can set other parameters by referring to [Section 4.5 "Advanced Setting."](#)

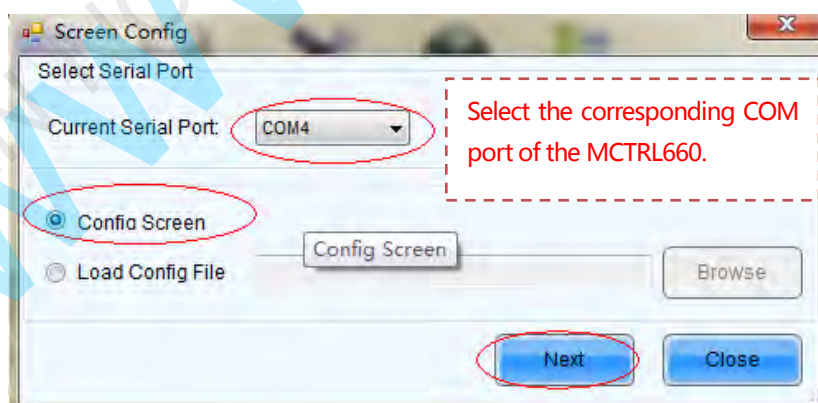
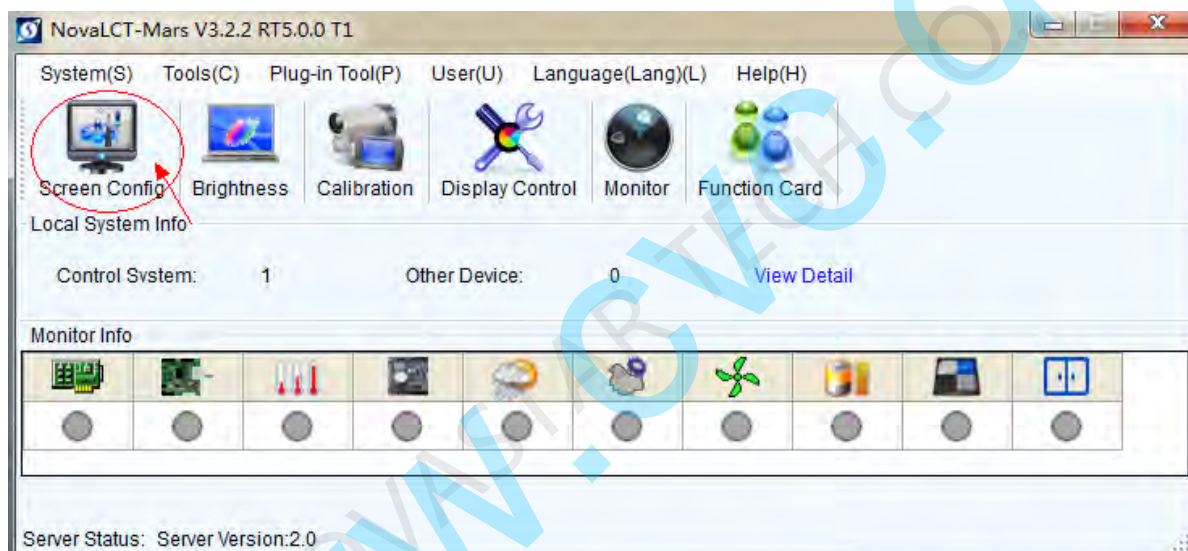
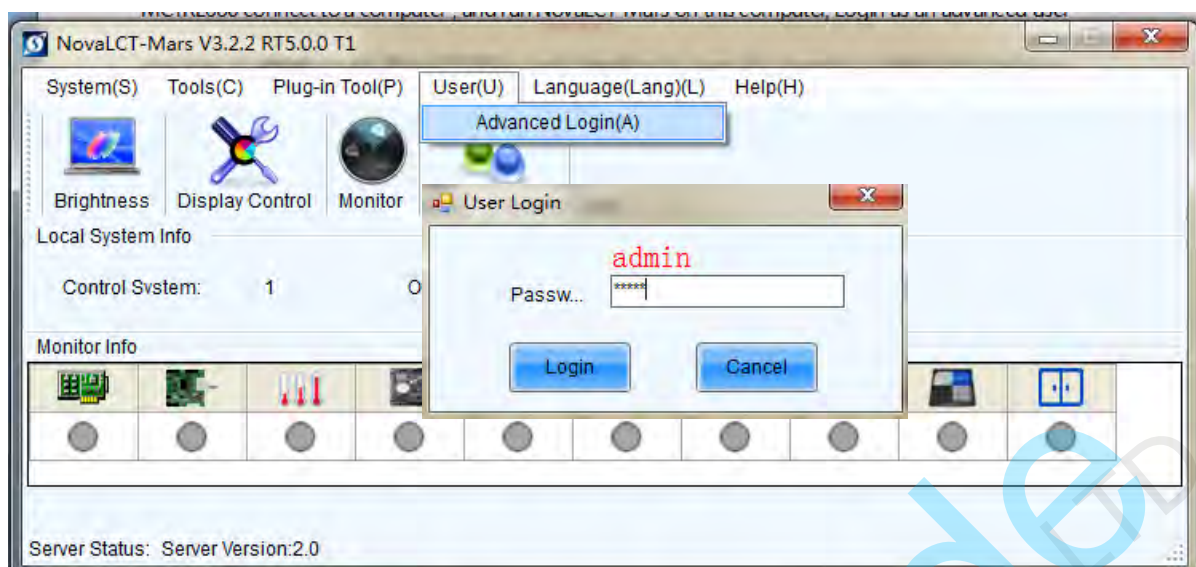
## 4.5 Advanced Setting

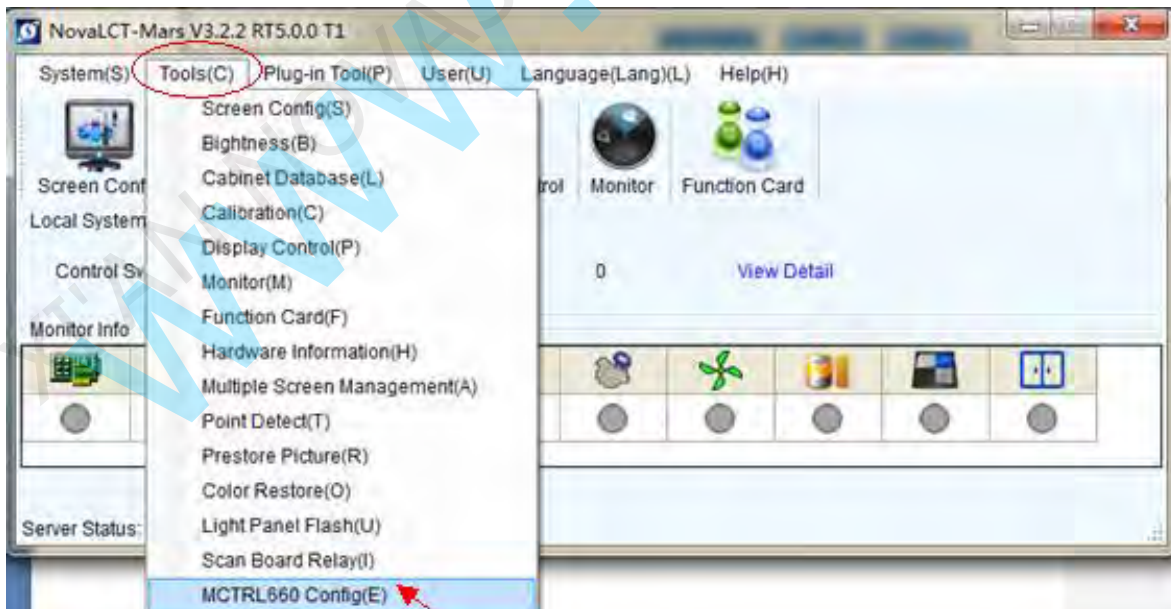
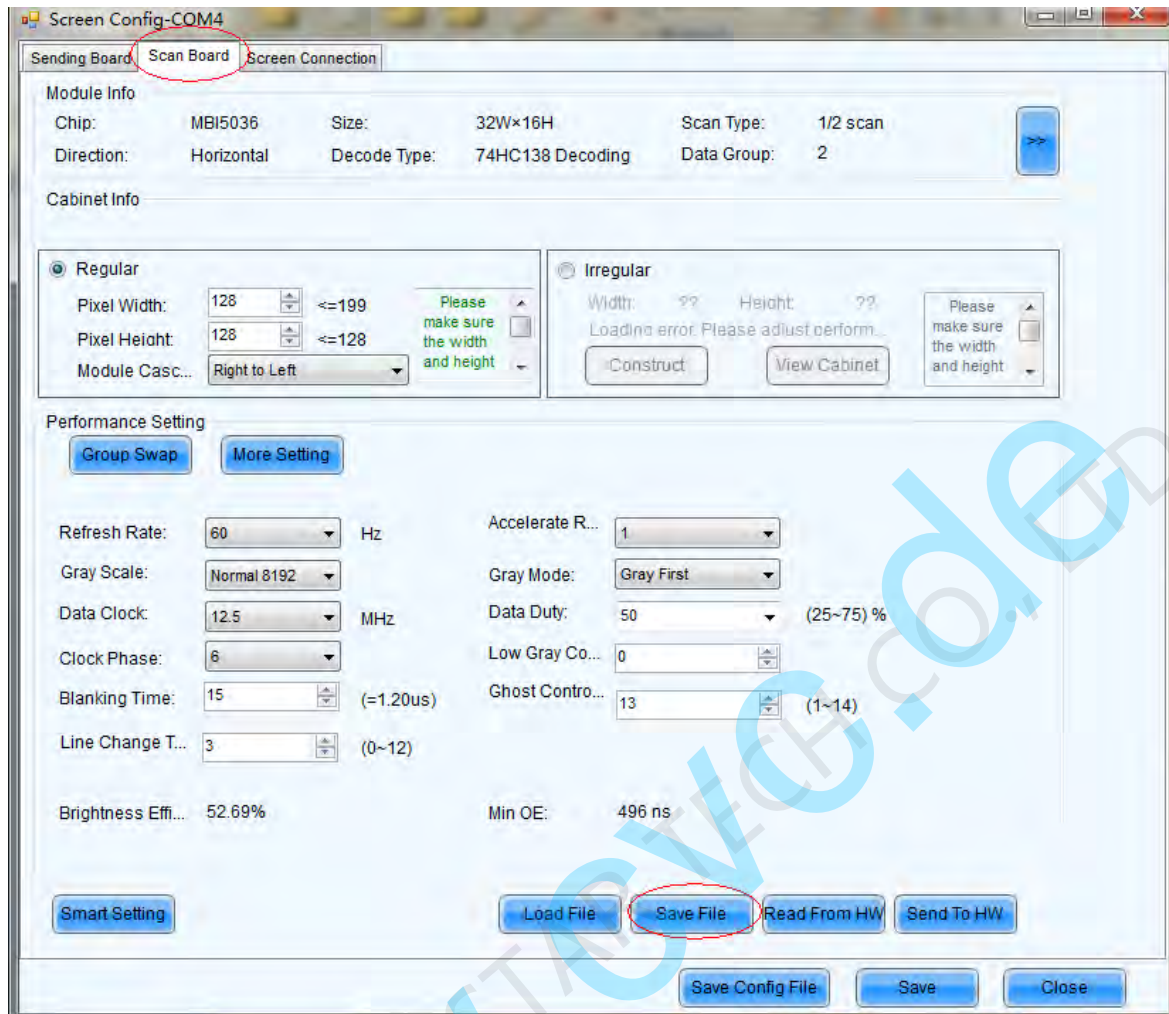
### 4.5.1 load Cabinet Files

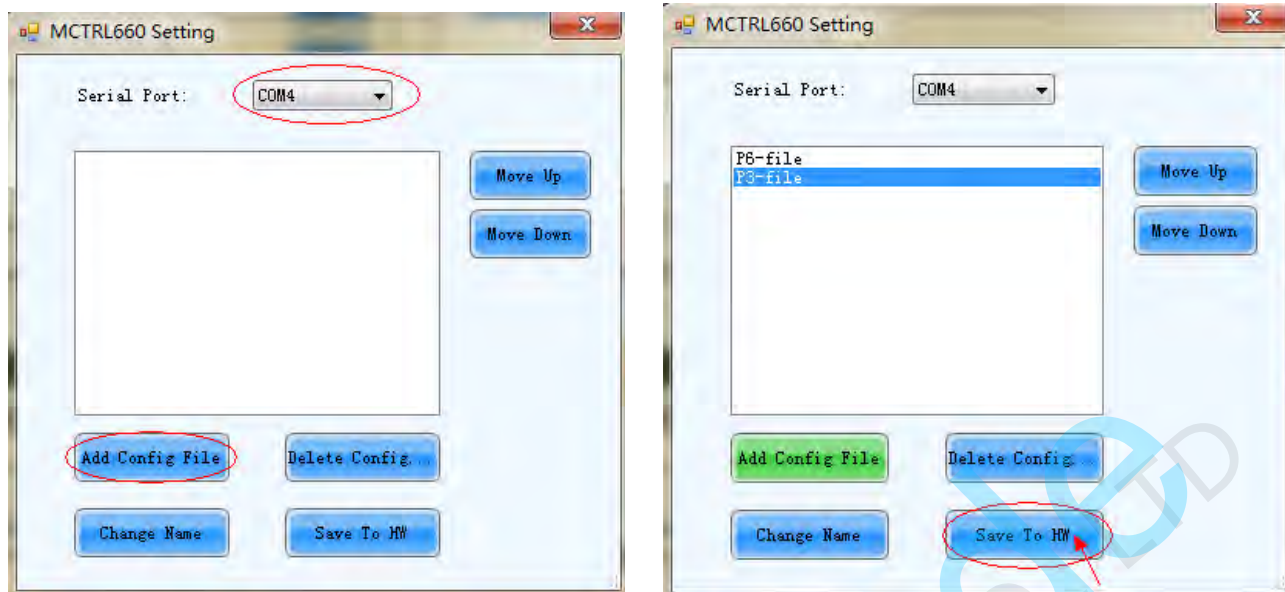
After the screen is powered on, if the cabinet fails to display normally, you must load cabinet files first. The cabinet files must be sent to the MCTRL660 through the NovaLCT-Mars beforehand. The following figures show the procedure:





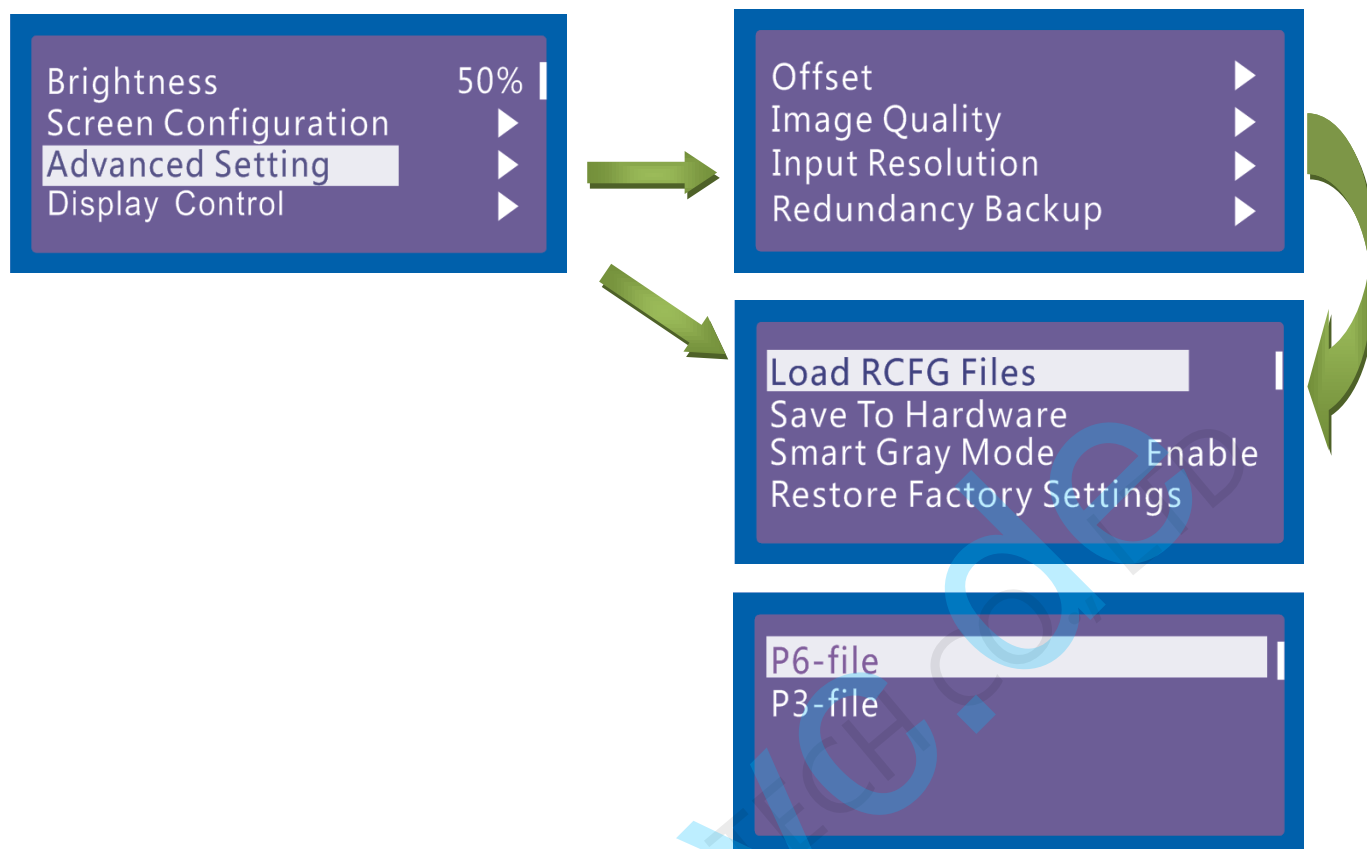






**Tip:** After the **MCTRL660 Setting** interface is displayed, the NovaLCT-Mars automatically reads the existing configuration files in the MCTRL660. The NovaLCT-Mars can perform operations such as modification of file name, adjustment of file order and deletion to these files.

Perform operations on the MCTRL660. Rotate the button to select **“Advanced Setting”** and then press the button. The **“Advanced Setting”** submenu is displayed. Rotate the button to select **“Load RCFG Files”** and the Press the button again. as shown in the following figures. The cabinet files imported by the NovaLCT-Mars already exist in the MCTRL660. Select the cabinet file of the corresponding specifications and then press the button to send the file to all the cabinets of the MCTRL660.

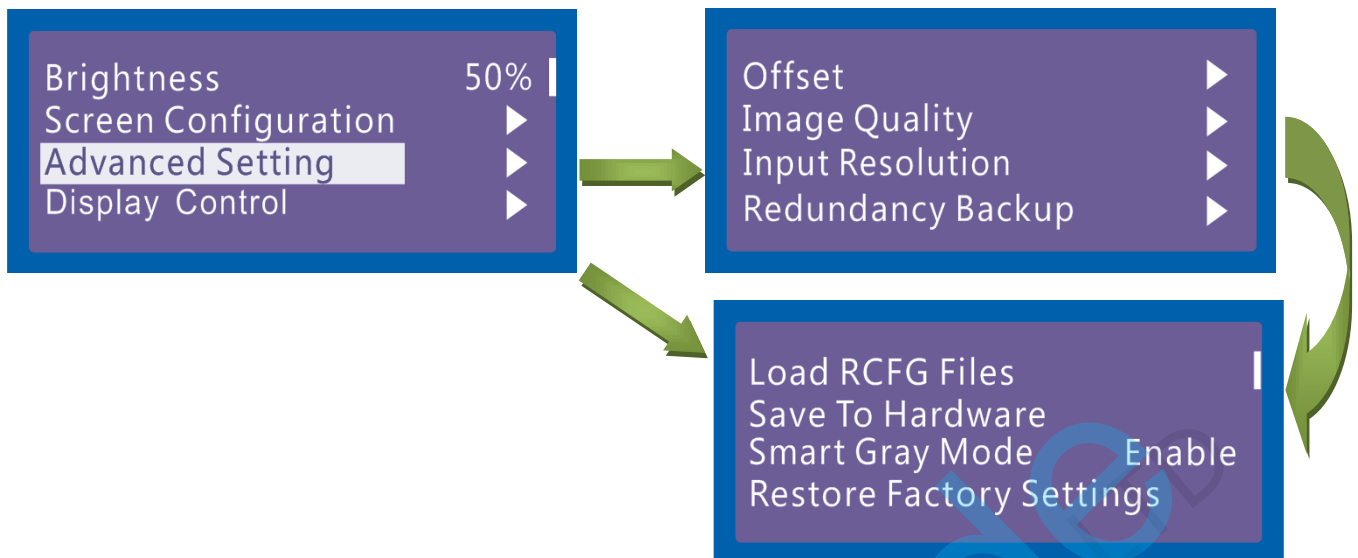


Press the return key to return to the **"Advanced Setting"** submenu. Rotate the button to select **"Save To Hardware"** and then press the button to fix the cabinet file to the receiving card.

#### 4.5.2 Other parameters

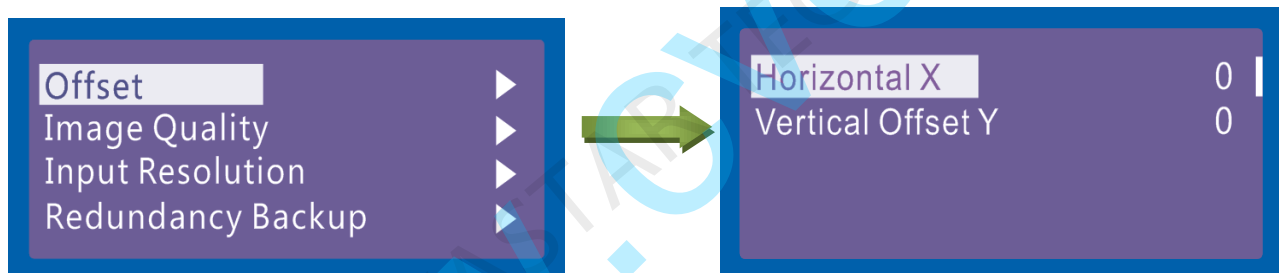
Press the return key to return to the main menu. Rotate the button to select **Advanced Setting** and then press the button. The **Advanced Setting** submenu is displayed. Rotate the button again. The eight setting options under the **Advanced Setting** submenu are displayed. You need only to set the following parameters: **Offset**, **Image Quality**, **Redundancy Backup**, and **Smart Gray Mode**.





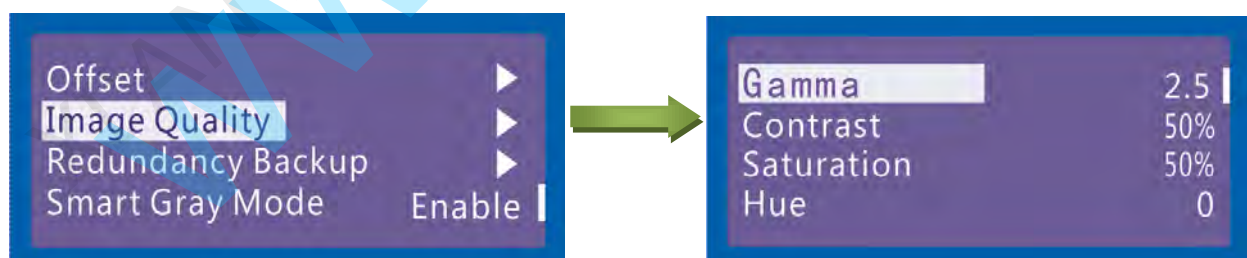
### 1) Offset

Adjust the initial coordinate of pictures on the screen.



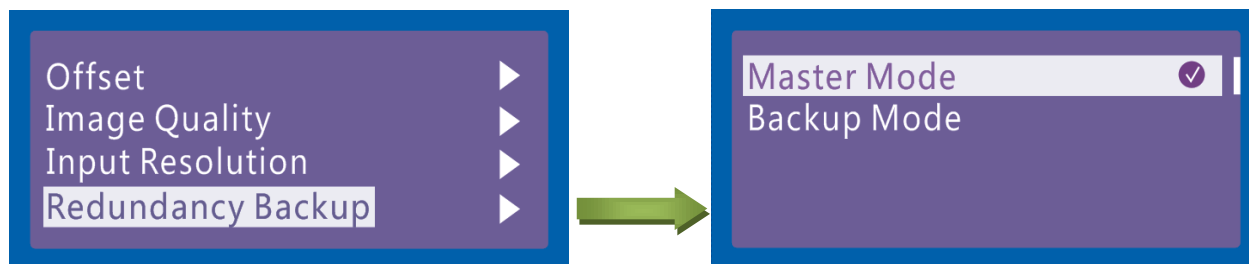
### 2) Image Quality

Adjust **Gamma**, **Contrast**, **Saturation** and **Hue** of the screen.



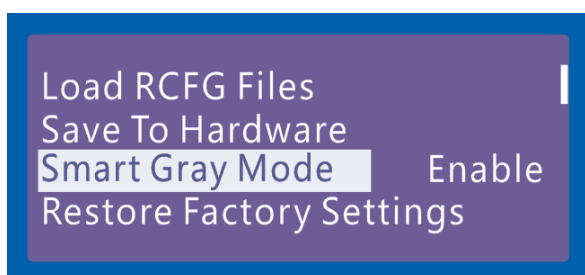
### 3) Redundancy Backup

Set this controller to the master mode or backup mode when the system has multiple controllers.



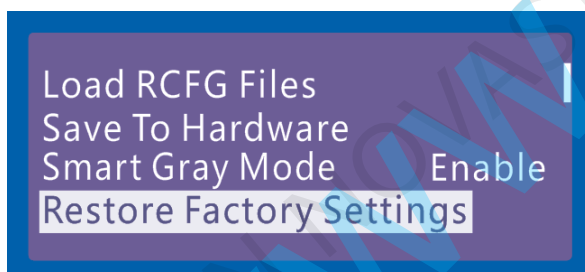
#### 4) Smart Gray Mode

This parameter is set to be off by default. To successfully enable this function, you must load the configuration files first. Currently, only non-pulse-width modulation (PWM) chips are supported.

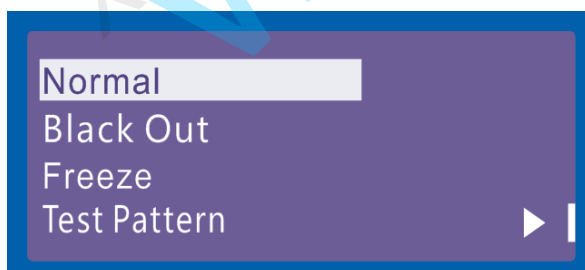


#### 5) Restoring Factory Settings

Restore to the factory Settings for the MCTRL660.



### 4.6 Display control



#### 1) Normal

The screen is restored to normal display.



## 2) Black Out

The screen is black out, then the home page display of MCTRL660 operation screen is as follows:



## 3) Freeze

Screen freezes, then the home page display of MCTRL660 operation screen is as follows:



## 4) Test Mode

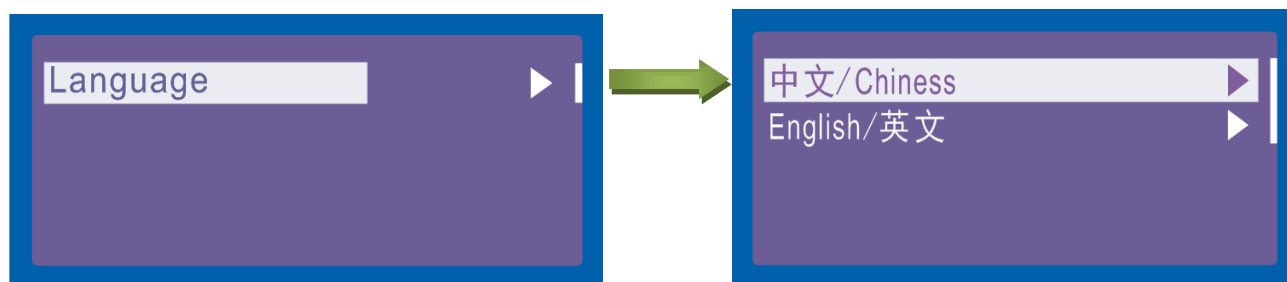
The screen shall be tested through four colors (red, green, blue and white) and four shapes.



Then the home page display of MCTRL660 operation screen is as follows:

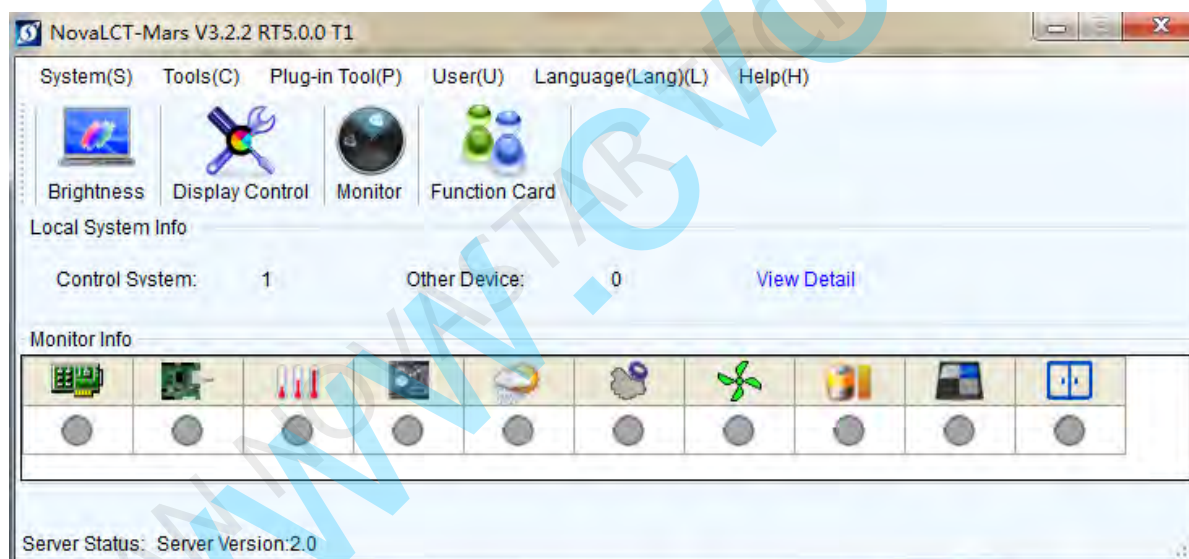


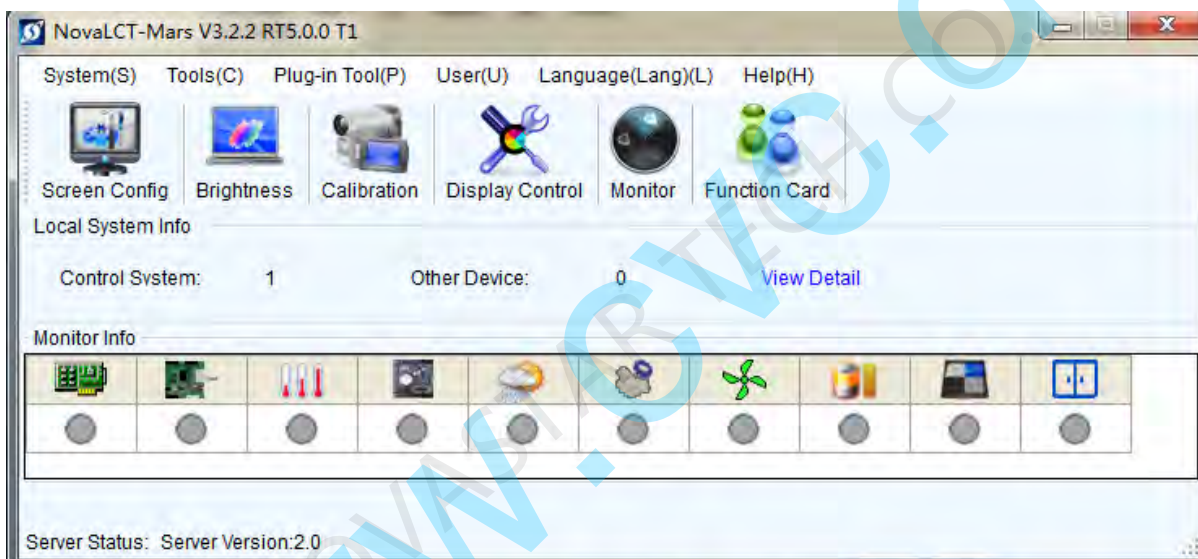
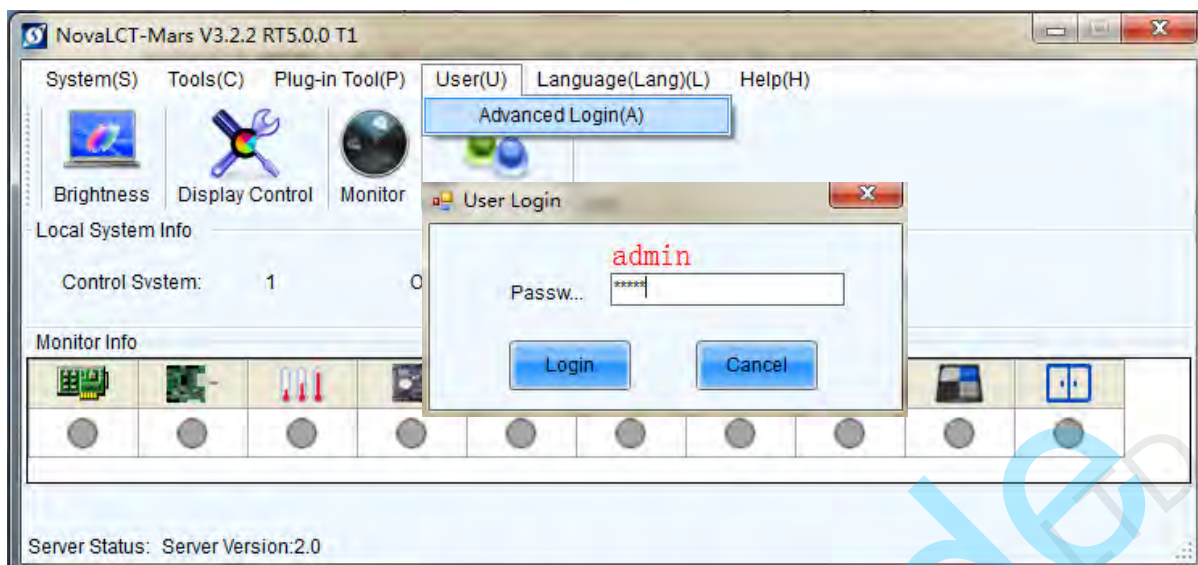
## 4.7 Language Setting

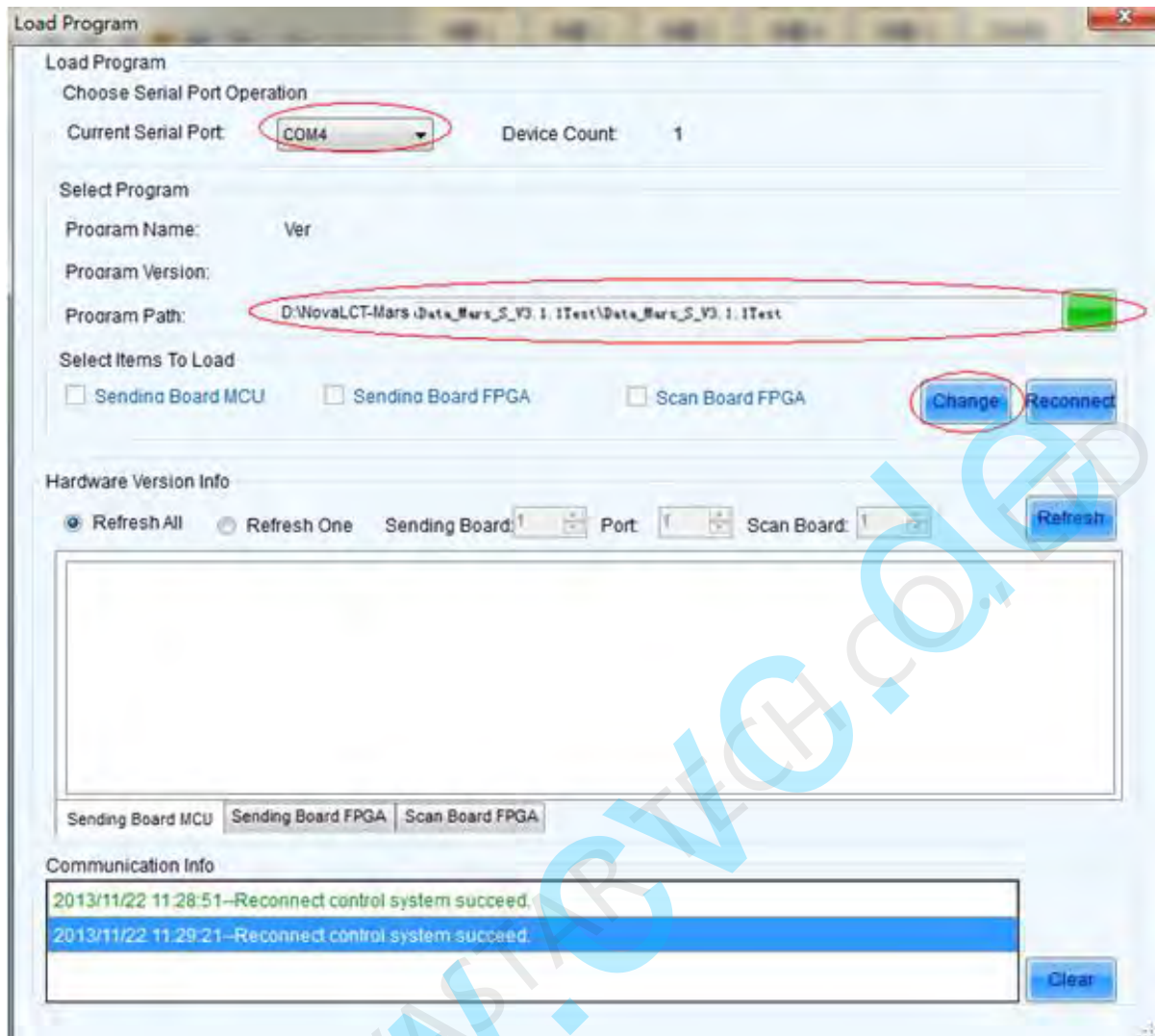


## 5 Hardware Program updating

MCTRL660 connect to a computer , and run NovaLCT-Mars on this computer, Login as an advanced user and type in **admin** on the NovaLCT-Mars main interface to open the page for updating the hardware program.







### Current Serial Port

Select the serial 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.

### Sending Board MCU

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

### Sending Board FPGA

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

### Scan Board FPGA

Select this option if the FPGA program of a scan board is to be updated.

### 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 boards and scan boards 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 scan board 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.

## 6 FAQ and Precautions

- 1) Currently, this product only supports no-computer configuration for the rectangular screen composed of the cabinets of the same size and the same specification. The special-shaped cabinets and screens require online configuration.
- 2) You are recommended not to concurrently perform the no-computer operation and online operation for a screen.