

FDMC series HD multi-screen video wall controller

Operating manual

Revised edition 1.1

Catalog

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1. Summary

The main function of the multi screen processor is to divide a complete image signal into a N block and distribute it to N video display units (such as splicing unit) to form a large screen dynamic image display screen. Multi screen processors can support simultaneous access of various video devices, such as HDMI, DVI, VGA, NET, CVSB and so on. Multi screen

processors can combine multiple physical outputs into a superposition of super-high resolution display output, making the screen wall a logical display with ultra high resolution, ultra high brightness, super large display size, and multiple signal sources (network signals, RGB). Signal and video signal display function in various ways, such as windowing, moving and zooming on screen wall.

2. Processor front and rear panel diagram



Processor front panel



Processor rear panel



2.1. Function descriptions

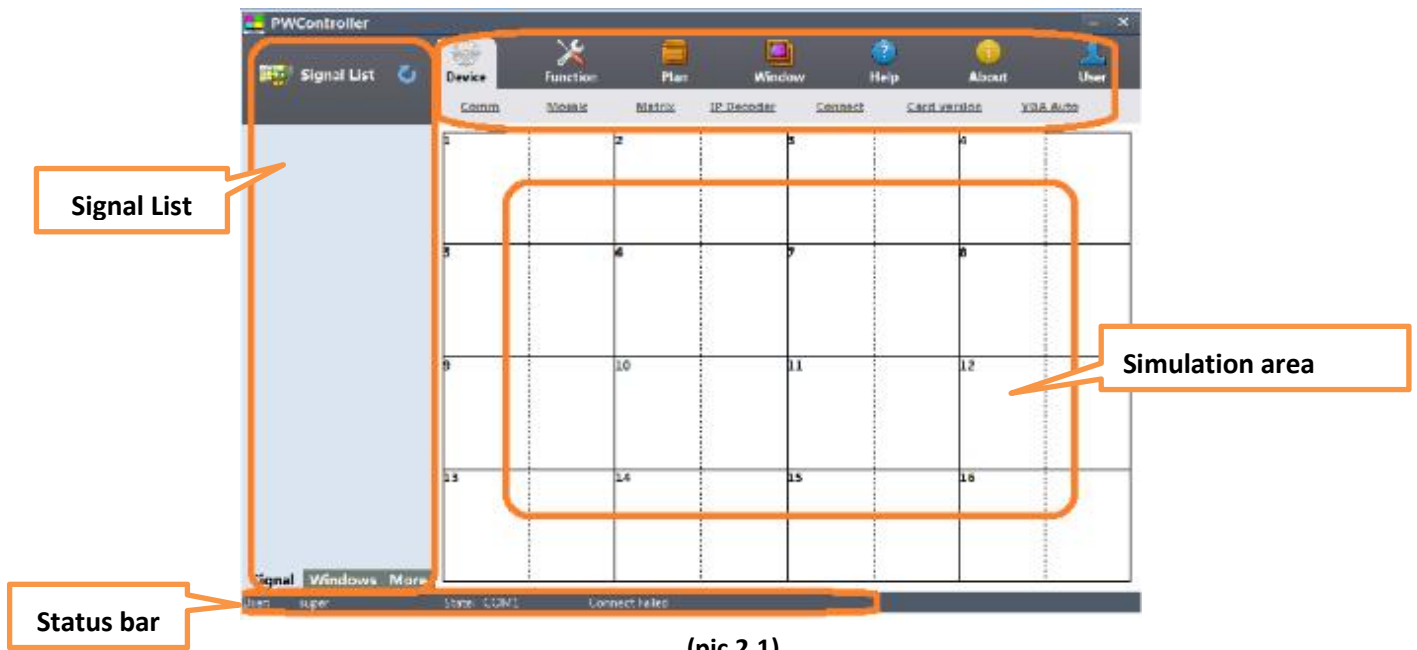
- ✧ 1、2 shown as DVI input board card
- ✧ 3、4 shown as network input board card
- ✧ 5、7 shown as HDMI input board card
- ✧ 6 shown as VGA input board card
- ✧ 8 shown as CVBS input board card
- ✧ 9 shown as neutral film
- ✧ 10 shown as filter net fan
- ✧ 11 shown as DVI output board card
- ✧ 12 shown as processor access to earth, ground wire fixed screw
- ✧ 13 shown as processor 220V AC interface and power switch
- ✧ 14 shown as processor pluggable power supply
- ✧ 15、16 shown as processor RS232 Serial port input&output interface
- ✧ 17 shown as processor network input interface

3. Main interface

The multi screen splicing control software is a set of integrated control software for large screen mosaic based on embedded processor. It runs in the Windows9x/NT/2000/XP/Win7 environment; it can implement the functions of splicing setting, window management, plan management etc, and can integrate matrix control. And all operations are completed on the software control interface.

Main interface of large screen control software is as below:

Menu bar



(pic 2.1)

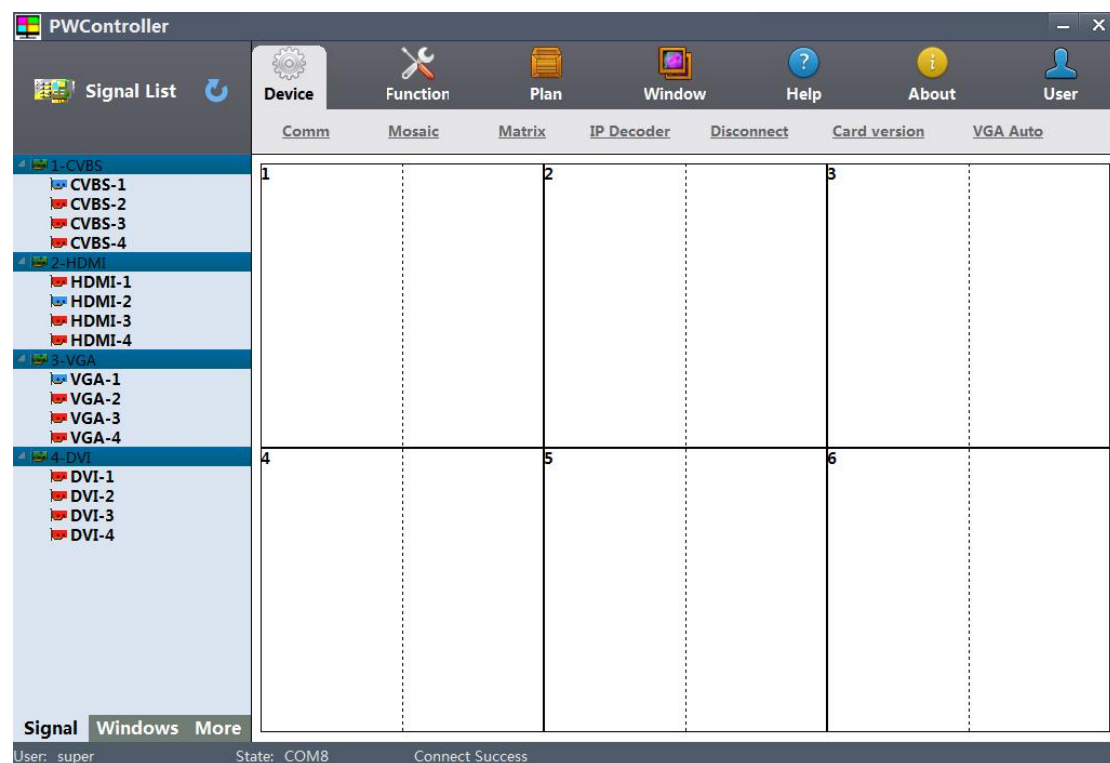
The main interface can be divided into: menu bar, simulation area, signal list , and status bar.

4. Device management

The first item of the main interface menu bar is the device management, clicking on the pop-up menu [communication settings] [matrix settings] [IP decoder] content. As shown in Figure 2.1.

4.1.1 Signal source management

If the connection is successful, the software will automatically process input card information and display it in the list of signal sources in the function operation area, as shown below.

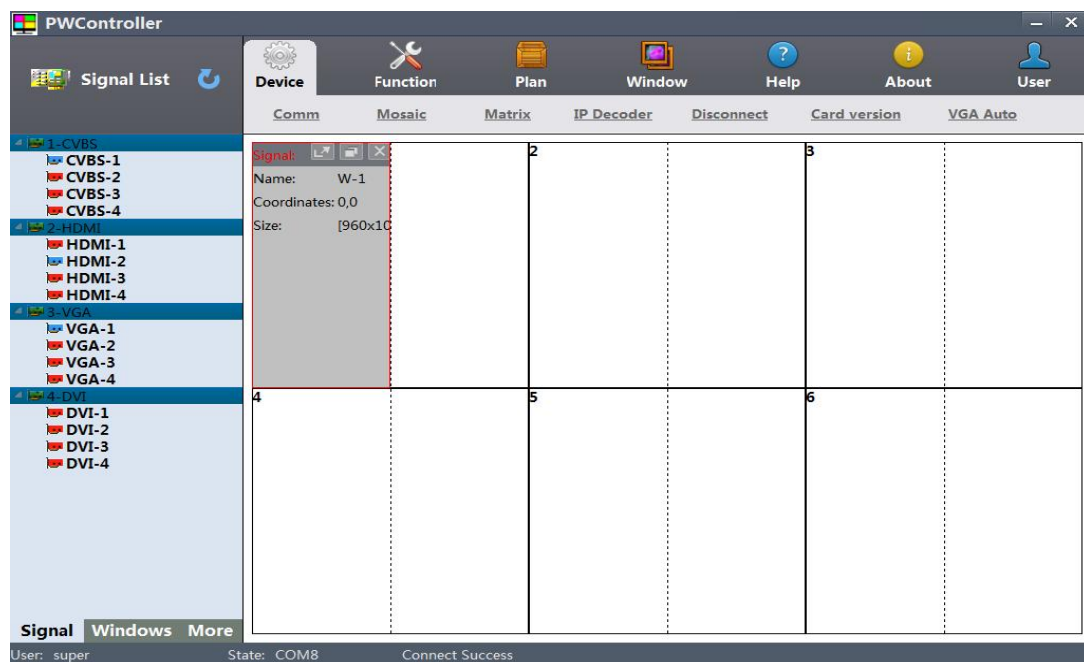


The red icon represents no external signal on the channel, and the blue represents an external signal on the channel. If the input card or the external signal is changed, you can click the refresh signal source icon to read the input card information from the processor again.

4.1.2 Window operation

(1) Open window

Select a signal source in the signal source column of the function operation area, drag the signal source to the splicing simulation area, and the signal source will be applied to generate a simulation window with a default size as a set of splicing specifications. In this window, it will display information about the source, name, coordinate and window size of the window. As shown below:



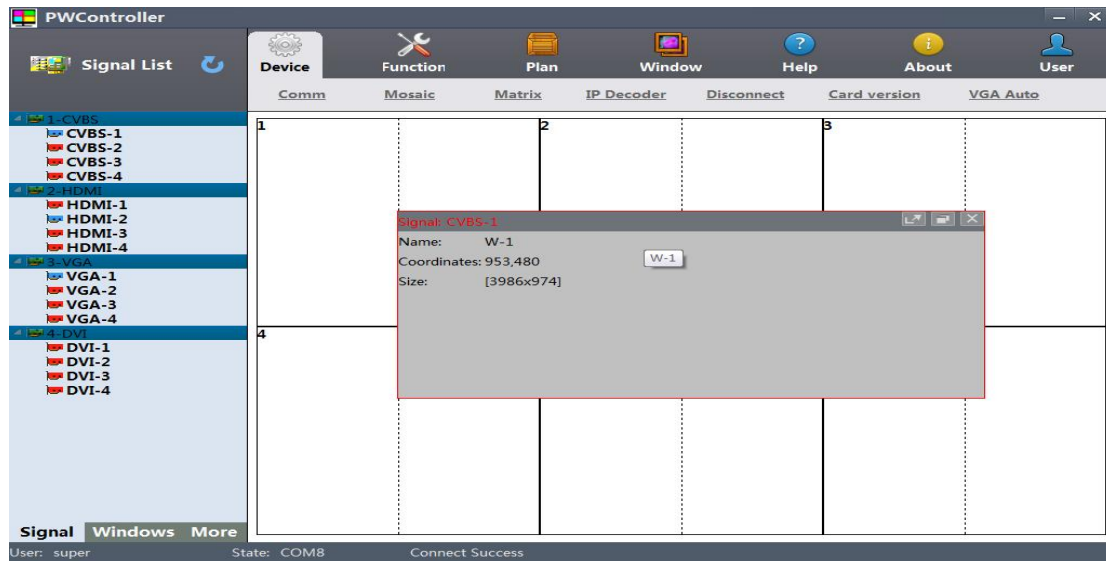
There will be windows that play the source of these information generated on the big screen at the same time.

(2) Move

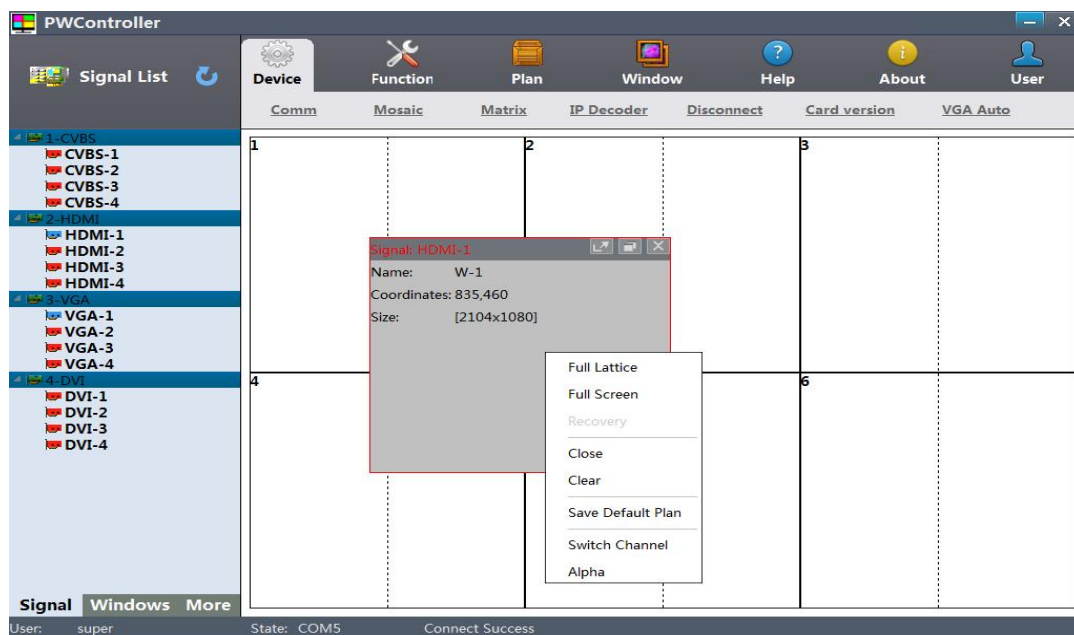
If you click on the window with the left mouse button, you can move the window to any position in the splicing simulation area. After loosening the mouse, the window will be fixed in this position, and the window will display the new coordinate information. At the same time, the window on the big screen will move to the new location.

(3) Zoom

Move the mouse to the edge of the window, then the cursor will become the bidirectional arrow of $\leftarrow \rightarrow$, and now you press the left mouse button, you can adjust the size of the window. Loosening the left mouse button will finish the scaling operation of the window size, and update the size information of the window at the same time.



The window is placed in full lattice or full screen display, and the right mouse button pop-up window is shown as follows: clicking [full lattice display] or full [screen display].



Select the upper right corner of the window  key, it will display the size and location

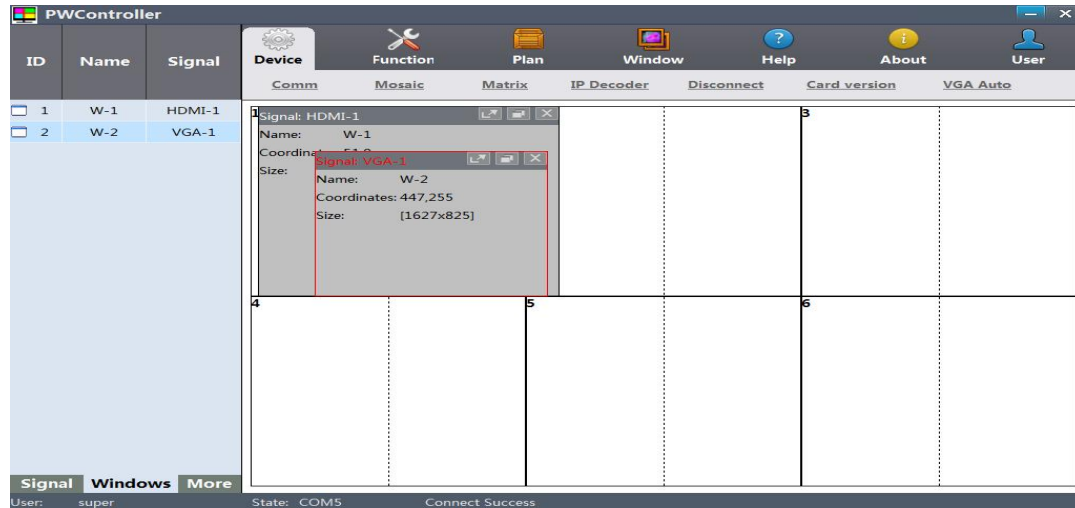
according to the window, and display it in the upper right corner  key and full display.

(4) Layer

On one splicing screen, 2 windows are opened at the most at the same time, and it will pop up the information [full layer] when it is out of the software.

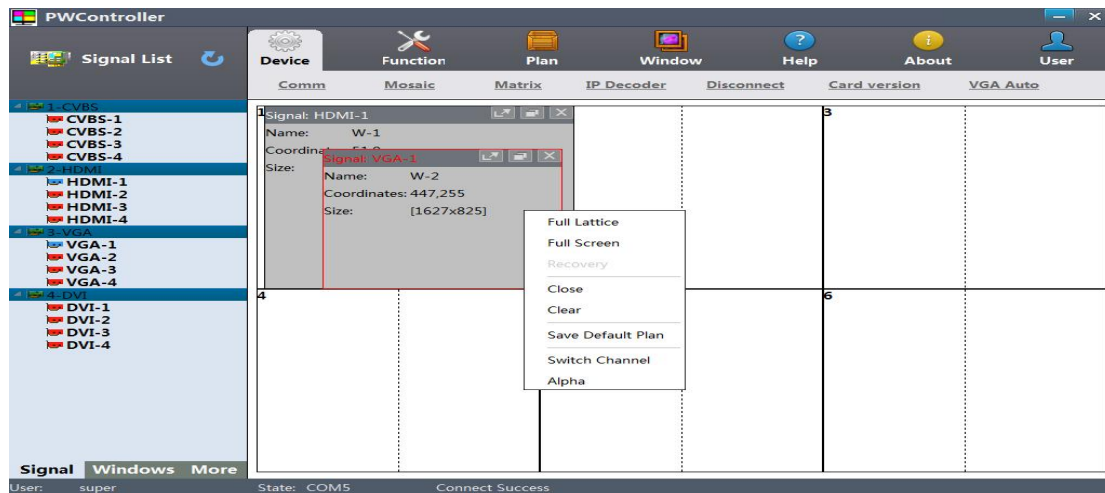
1) If the window overlaps, and we want to transfer the specified window to the top level, click the window with the mouse, and the top-level activity window is red.

2) If a window is covered by another window, if you want to turn it out, you can click the window selection in the function operation area. At this time, pop-up window list forms will be popped up. In this window, all the current windows are listed according to windows names. If you click on windows, the window will be automatically top placed. As shown below:



(5) Close window

Click the right mouse button on the window, will pop up the menu, as shown below.

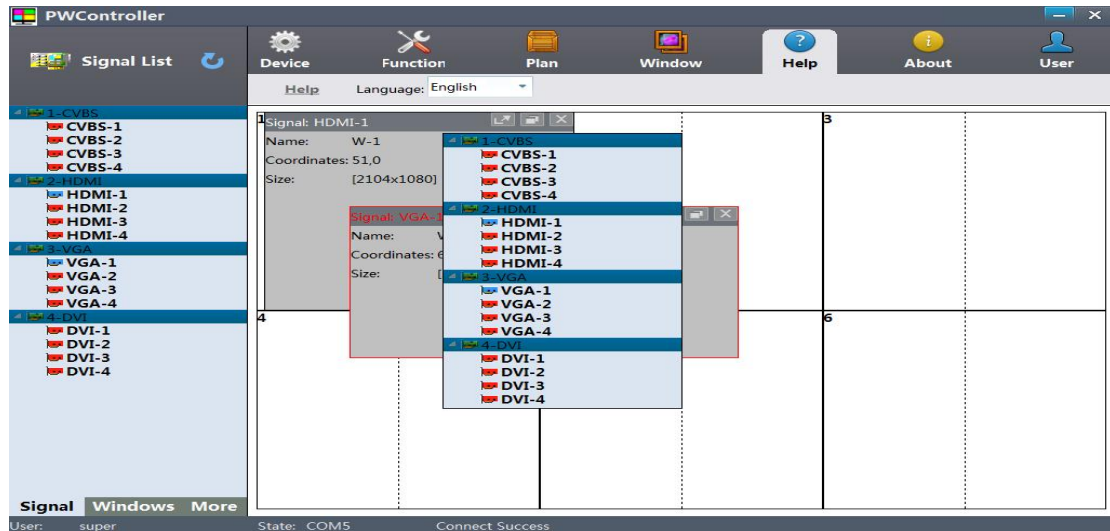


1) Select [Close] will close the current window, select [clear windows] will close all windows.

2) Select clicking[clear windows] in [function operation]will also close all windows.

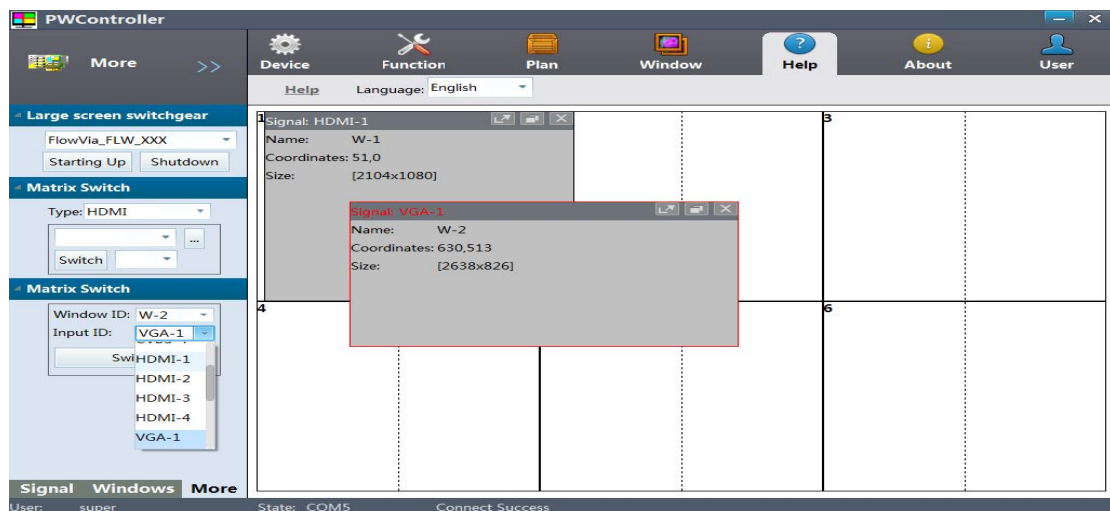
(6) Window signal switching

1) If you want to switch a window directly to another signal, you can select the window in the menu that is popped right by the window and click [switch channel], will pop up below picture:



Select the signal source channel to switch, and click the left mouse button to double click to switch the channel successfully.

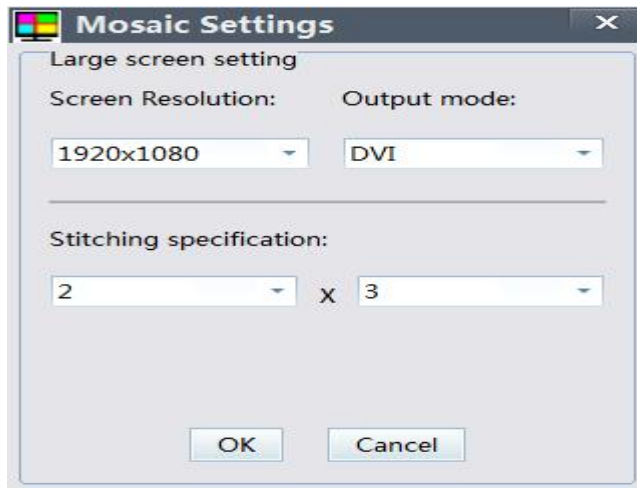
2) You can also click [more] in the function operation area, choose the window you want to select in the handover matrix switch, and switch the window to another source. As shown below:



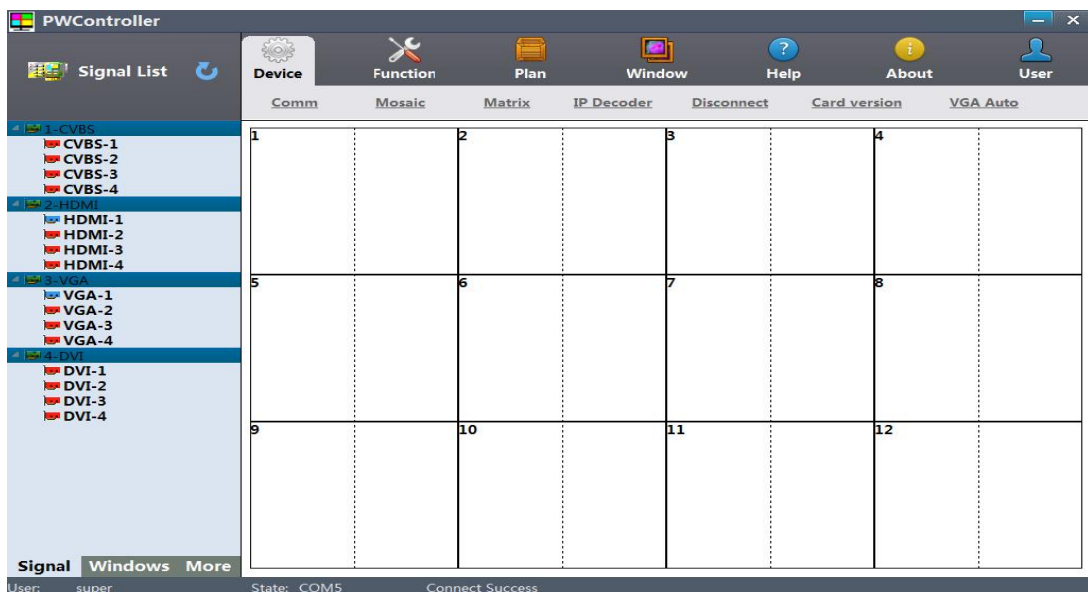
The function of large screen switcher in [more] is used for switch LCD panel. [matrix switch]; in the corresponding matrix type, you can select input and output to switch, then click [switch to output] to achieve matrix switching.

4.1. Splicing settings

Click [device management] under [splice settings], will pop up [splice setting] windows as shown below:

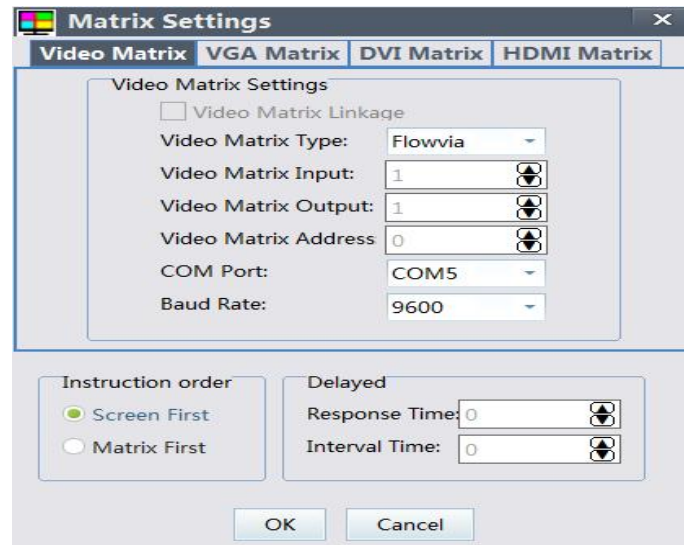


In the [splicing setting] window, it is possible to set up [the screen resolution] [splicing Specification] [splice spacing] in accordance with the actual needs. The splicing simulation area will simulate the splicing screen according to the set of splicing specifications (the maximum is 16 x 16), and the splicing simulation of 3 x 4 is shown below.



4.2. Matrix settings

Click [matrix settings] under [device management] will play the matrix settings window as shown below



In this window, video matrix, VGA matrix, DVI matrix and HDMI matrix can be set separately. Selecting corresponding matrix linkage can enable corresponding matrix functions; Next, we can choose the type of video matrix, set the number of ID and input and output of the matrix, and the baud rate of serial communication.

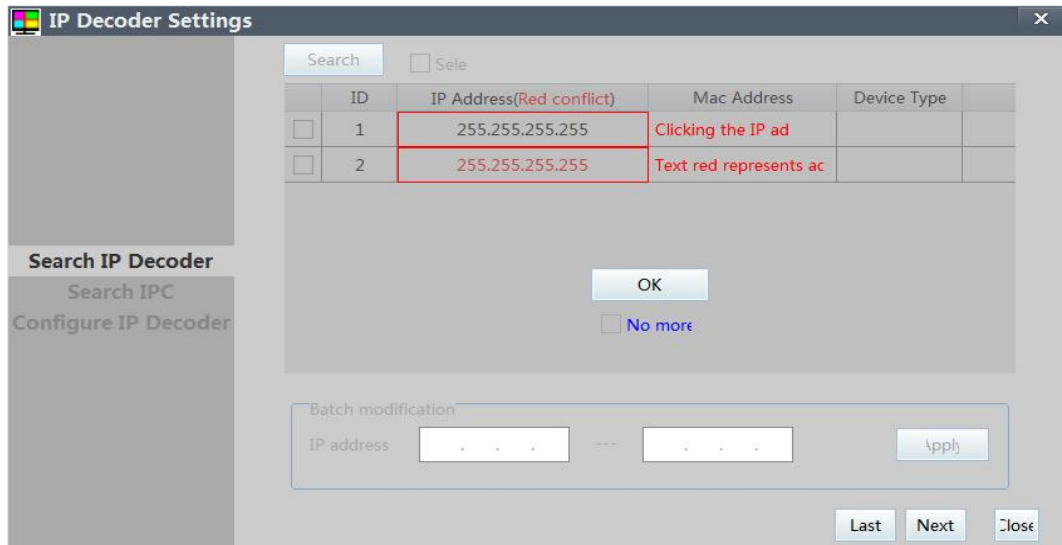
4.3.

4.4. IP decoder

The IP decoding interface is used to select the source of network input card (usually webcam). Before using the IP decoder, ensure that:

- 1、 The computer has been connected to the network
- 2、 The network card has been inserted into the input card slot of the processor correctly
- 3、 The network interface of the network card has been inserted into the network cable
- 4、 The computer and network board card are in the same network (the same network segment).

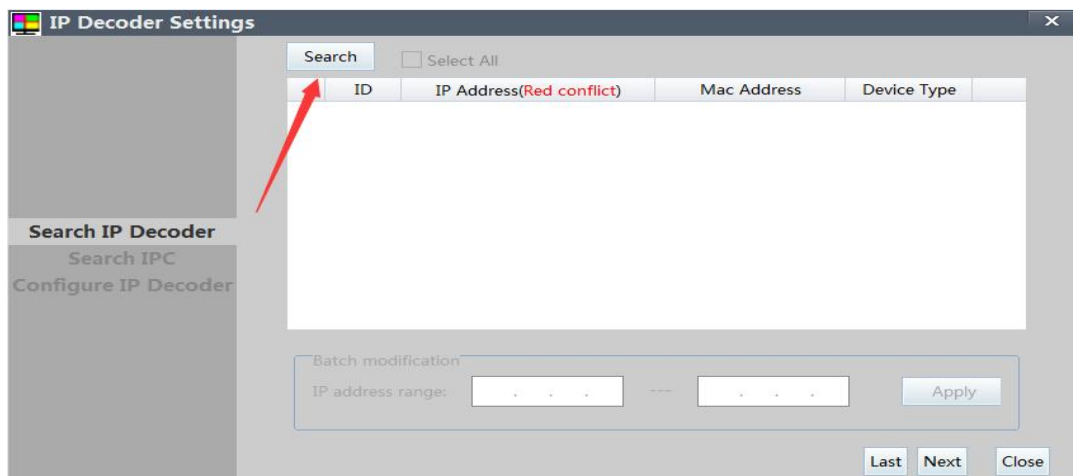
Next, click on the [IP decoder] under [device management] to pop up [IP decoding settings] window. The first time we open this window, will appear the following prompts: Users can choose [no more reminder] and click OK to exit the reminder mode.



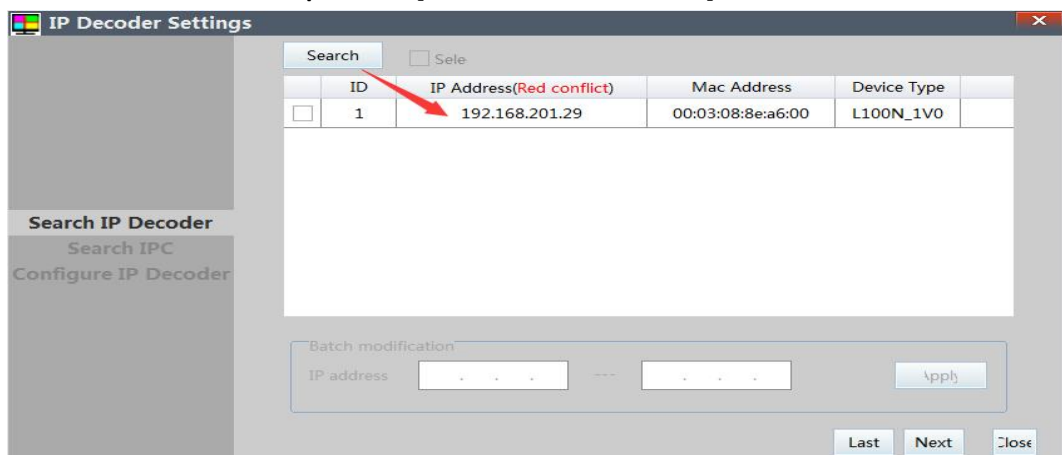
The IP decoding setup consists of three steps: [search IP decoder], [search network camera], and [configure IP decoder].

1、 Search IP decoder

Click on search device to search for the IP decoder device in the same network.

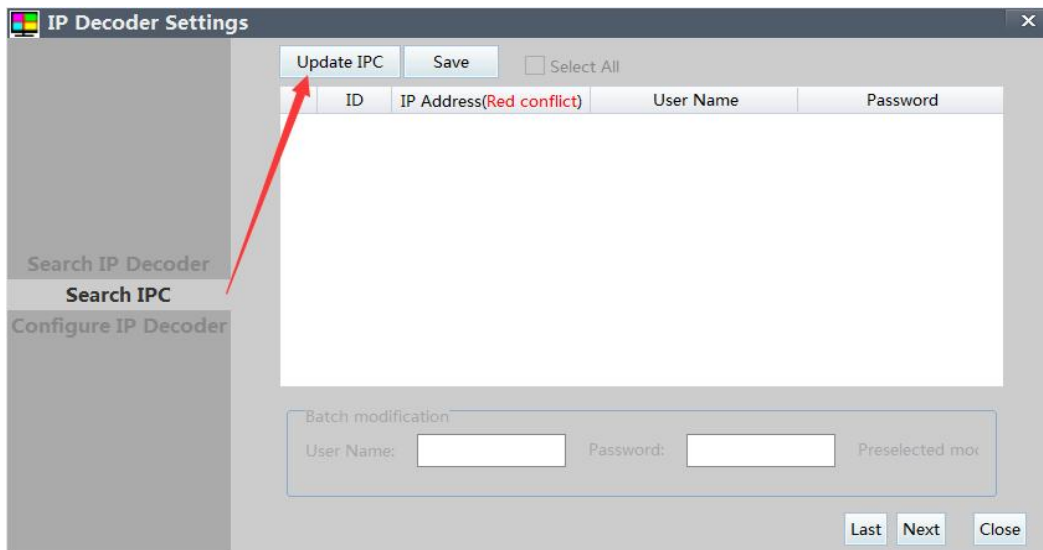


If there is a IP decoder in the network, the IP decoder address will be listed. You can modify the IP decoder address or batch modification according to the needs, and enter the next operation [search network camera];

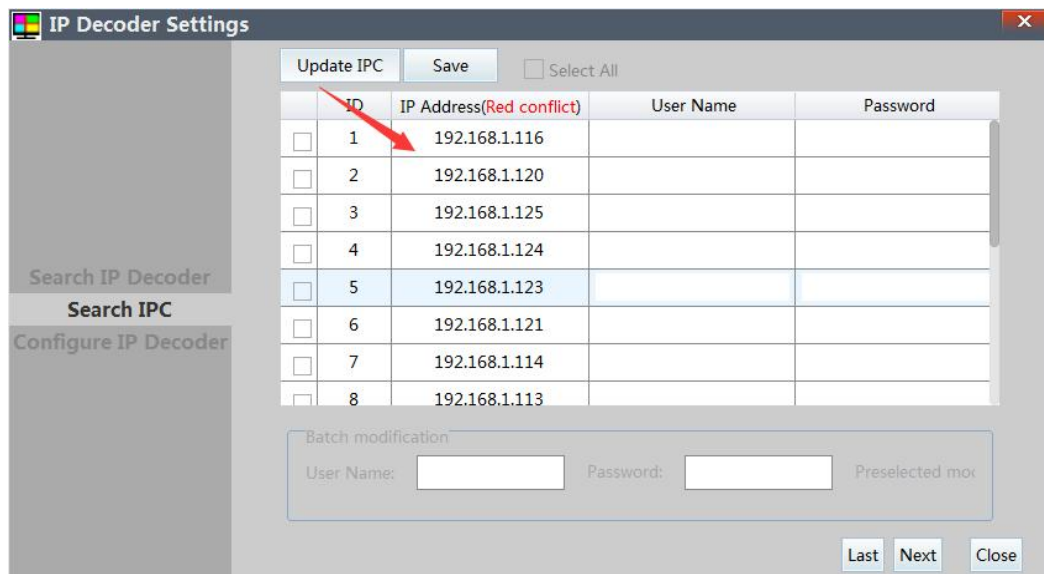


2、 Search network camera

Click on **【update IPC】** , search for network cameras in the same network

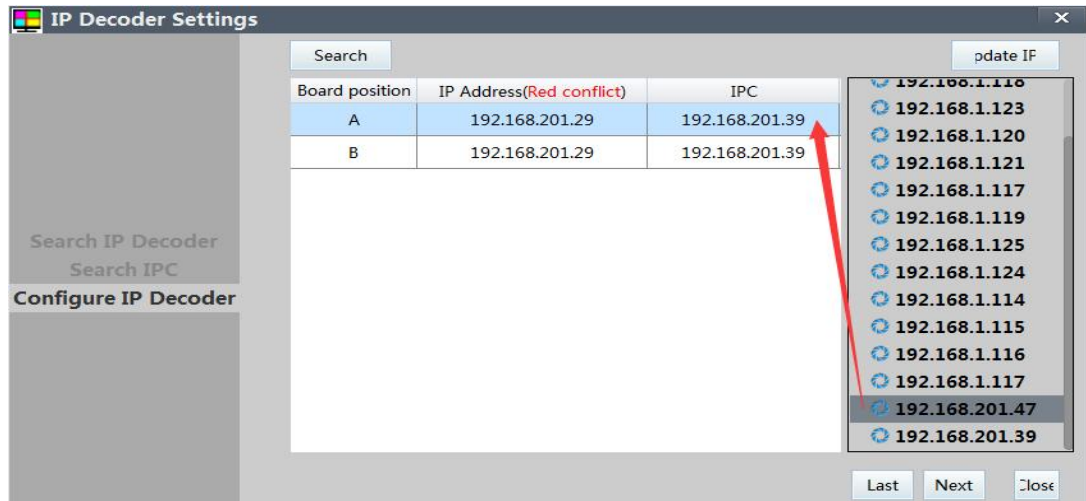


The network cameras searched will be listed; if there are logged in users and passwords in the network camera. You can enter the corresponding user password at the user name [user password] and click saving. At this point, you can enter the next operation [configuring the IP decoder].

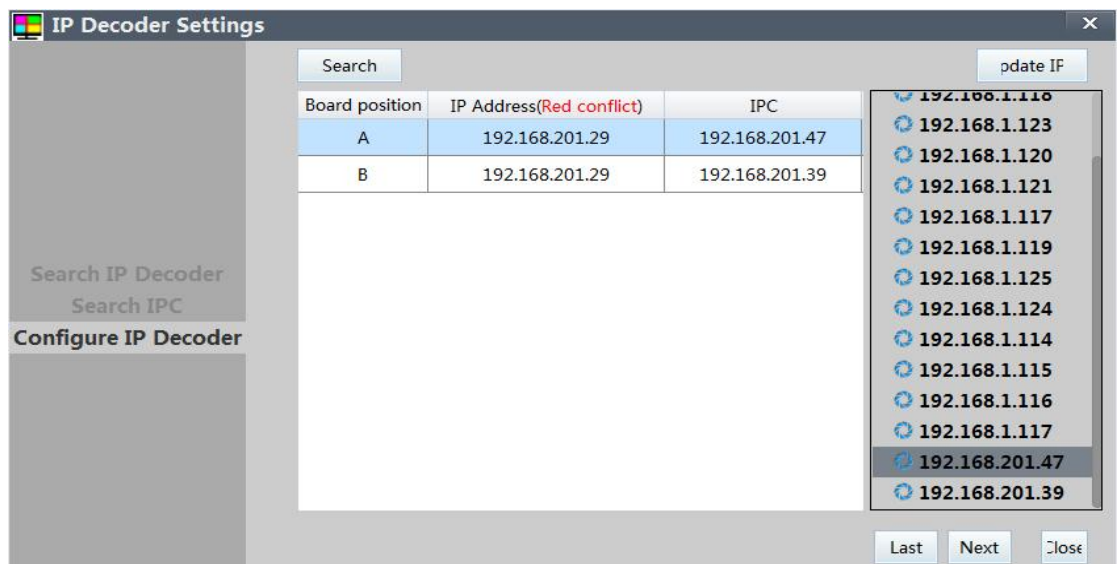


3、 Configuring the IP decoder

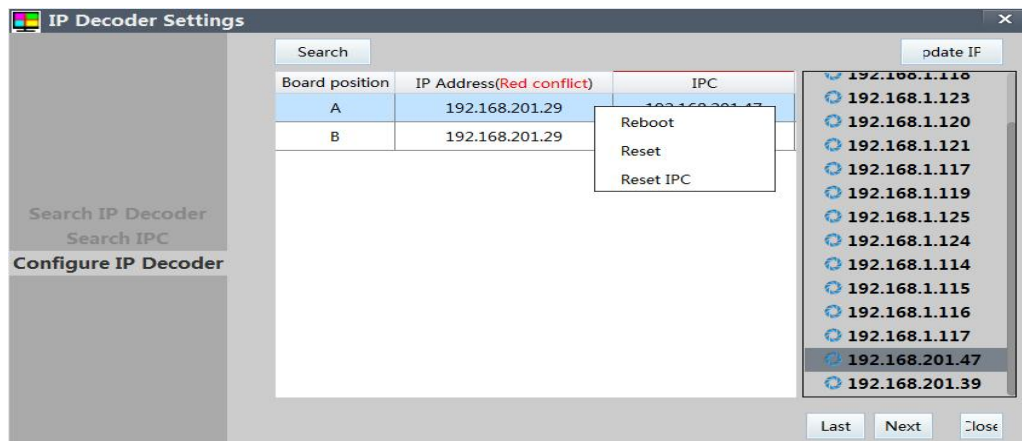
Select the address to be operated (selected as blue) in the IP decoder (network board) list . On the right of IPC list, find the address of the webcam to be displayed, and press the mouse to drag it to the IPC column of the corresponding board.



After the operation is completed, web camera's address required is displayed in the blue box IPC column, indicating that the IP decoder configuration has been completed;



Right-clicking each item in the network card list can perform three operations: "restart device", "reset device" and "reset IPC"

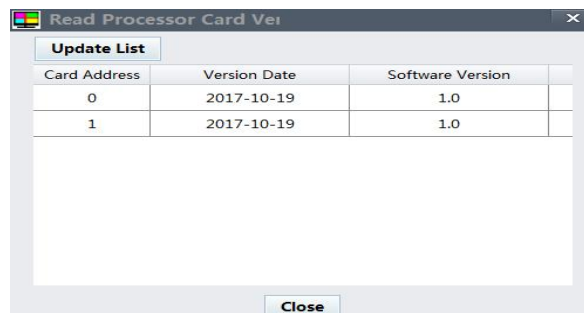


4.5. Disconnection

After clicking [disconnected], the serial port is disconnected with the processor, showing [open connection] and no longer controlling the processor; the reconnection is successful again.

4.5. Processor board card version

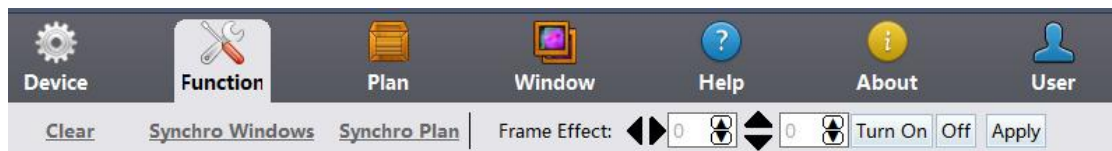
Click on [processor management version] under [device management], pop up [processor version version] window, as shown below.



The version information appears directly after clicking the version of the processor version or appears after updating the list.

5. Function operating

The second item of the main interface menu bar is the function operation, and then pop-up menu [empty window] [sync window] [frame effect] . As shown in the following figure:



5.1. Empty window

When the connection is successful, after the signal source is pulled out from the source list to the stitching simulation area, click on [empty window], the signal source image of the

stitching simulation area is emptied and the images on the large screen are emptied at the same time.

5.2. Sync window

When the connection is successful, reopen the processor or close the upper computer, click on [sync window], the effect of the upper computer and the effect displayed by the processor can be displayed the same on the big screen.

5.3. Preplan synchronization

Under the successful connection state, click on the [Preplan synchronization], we can read the preplan stored by the processor on the upper computer.

5.4. Frame effect

By adjusting the [frame effect], we can make the picture more symmetrical. [frame effect] can be adjusted to upper-lower sides and left - right sides and can adjust the number value by upper-lower keys and the left and right keys (the default is 0, the upper limit is 255), and it can also be manually entered. After you confirm the data, you can adjust the framework by clicking [application]. If has been adjusted last time , click [open] automatically adjust the frame according to the last adjusted value. Click [shut down] and turn off the frame adjusted effect.

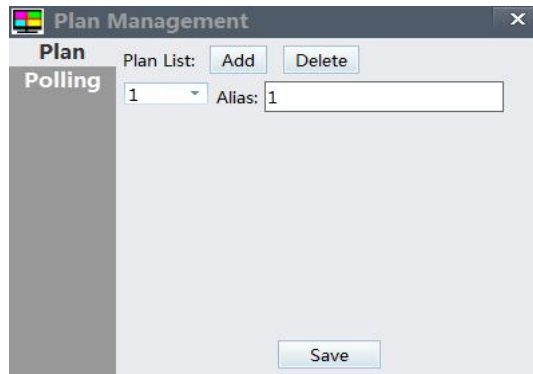
6. Preplan settings

The third item of the main interface menu bar is the pre case setting, and the pop-up menu [save the plan] [reserve plan] [preplan wheel patrol] is the content of [preplan management]. Show as below



6.1. Preplan management

In order to save information such as window placement conveniently, software provides [preplan management] function. Click on [preplan management], pop-up window as shown below.

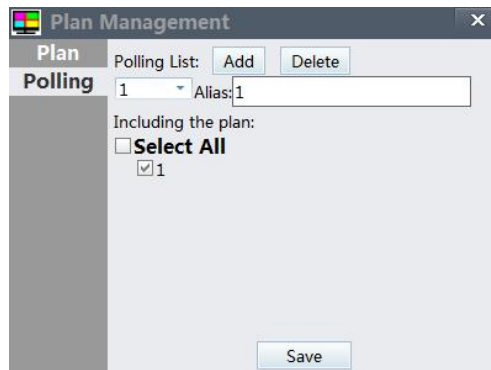


(1) Preplan settings

In the preplan management window, click the [preplan settings] (the default list is 1, at most 15). Click [increase] will increase the number of lists in turn, click [delete] will delete the selected preplan number. The default name of the preplan is the preplan serial number, where we can modify the name of the preplan, then click [save].

(2) Preplan cycling

Click on [preplan cycling] in preplan management window, and pop up [preplan cycling] as below:



Click [increase], the list of preplans will be increased in turn (the default list is 1). Click [delete], then delete the list of selected preplans; the number of preplans included is synchronized to the number of lists in the preplan settings, check the number of plans for any want wheel patrol, and click [save].

6.2. Saving preplan

When the windows location, size and input signal source are all adjusted, if you want to save them, select the preplan number through the drop-down box, click the "saving preplan" and complete the preplan saving.

6.3. Call preplan

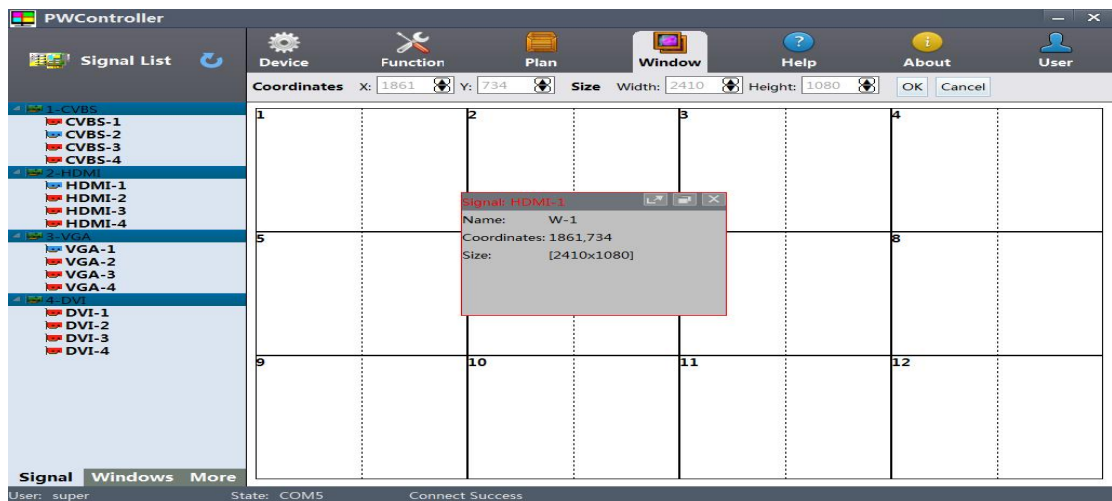
If you need to call the saved preplan, select the preplan number through drop-down box, click [call preplan], then get the saved plan, and the big screen will display preplan information.

6.4. Preplan cycling

To save the setting content in the plan management, select the wheel patrol list number through the pull down box, fill in the cycling interval time, click [preplan cycling], the upper computer and the big screen will cycle the preplan according to the set information; click [stop cycling] to stop it.

7. Window attribute

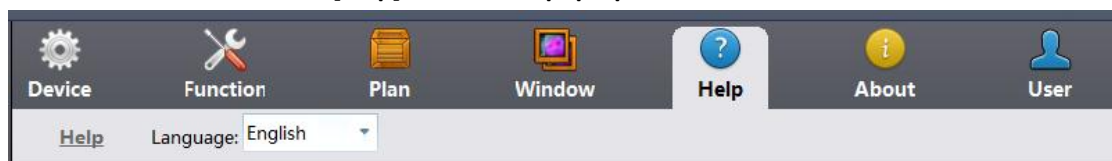
The fourth main menu bar is [window attribute]. After activating the window on the left mouse button, click the [window attribute], pop-up window to display the information content of the window coordinates and the window size. Shown as below:



These information can be modified, just click [OK]. Using these attributes, you can specify the coordinates of the window exactly, and specify the size of any window.

8. Help

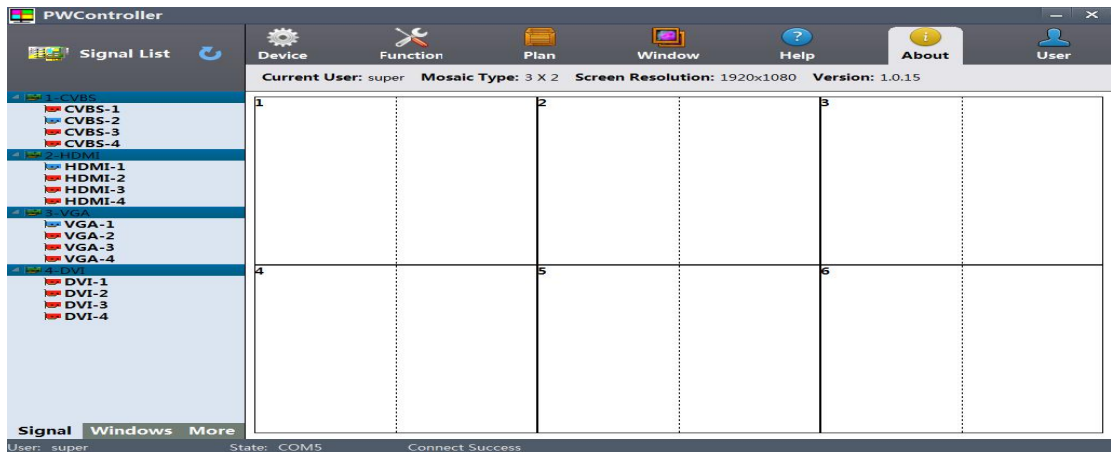
The fifth main menu bar is [help], click it and pop-up the window as shown below.



Select Chinese or English display in the drop-down box of language choice.

9. About

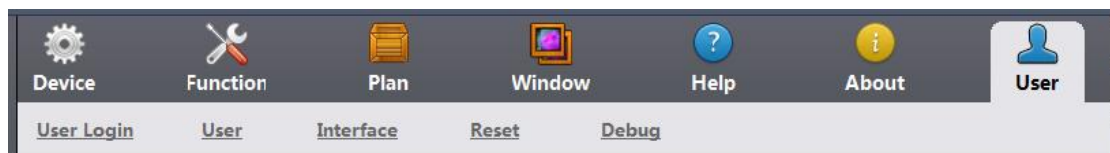
The sixth main menu bar is [about], click it and pop-up the window as shown below.



Click on [about] to display current user and upper computer information.

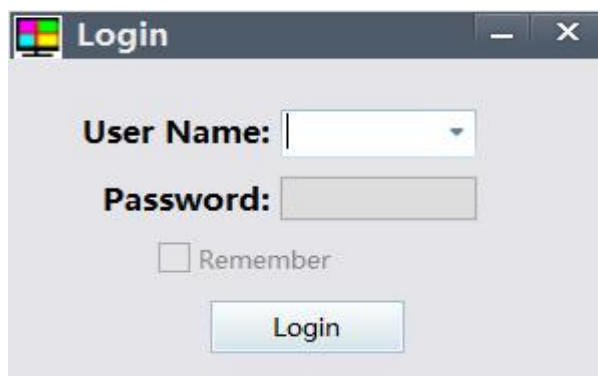
10. User centre

The seventh main menu bar is [user centre], click it and pop-up contents: [user login] [user management] [interface settings] [reset] [debugging], as shown below.



10.1. User login

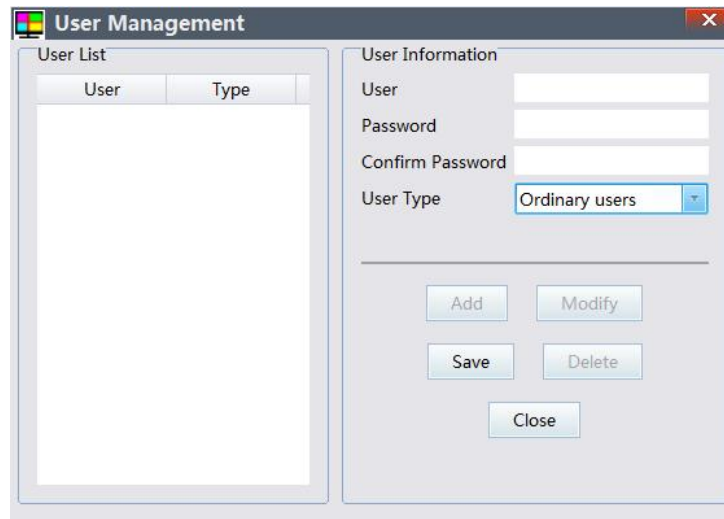
Click on [user login] under [user center], pop-up [user login] window, as shown below.



Fill in the correct data or select the user through the drop-down box, then click on login.

10.2. User management

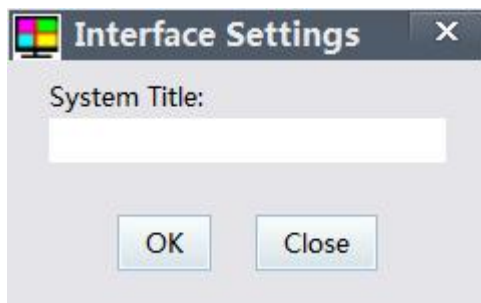
Click on [user center] under [user management], pop-up [user management] window, as shown below



Click on [increase], fill in the correct data content, select the user type through the drop-down box, click [save], then create user information in the user list. To modify user information, select user in user list, click [Modify], and save it after modification. If you want to delete a user, select the user in the user list and click [delete].

10.3. Interface setting

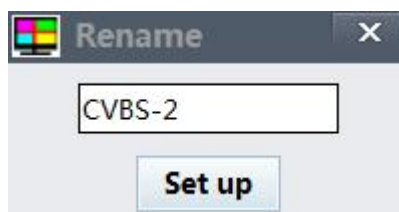
Click on [interface setting] under [user centre], pop-up [interface setting] window, shown as below.



To change the title of the system, fill in and click [OK].

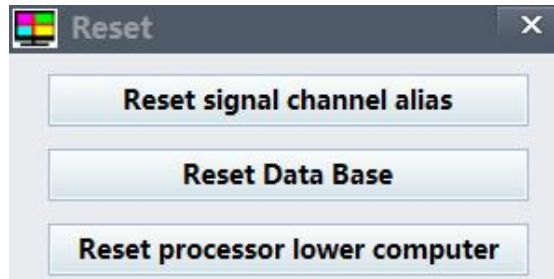
10.4. Reset

In the functional operation area, double-click the left mouse button of signal source, then the pop-up window can rename the signal channel. The window is shown below.



Click on [setting] after renaming, and make it successfully.

After changing the name of the signal channel, click [reset] under [user center], pop-up [reset] window, as shown below.



After clicking [reset the signal channel alias], refresh the list of source signals, you can restore the original channel name.

After clicking [reset database], the original state can be restored.

After clicking[reset the processor lower machine], the processor restores factory settings.

10.5. Debugging

Click on [debugging] under [user center] , pop-up [debugging] window, as shown below.



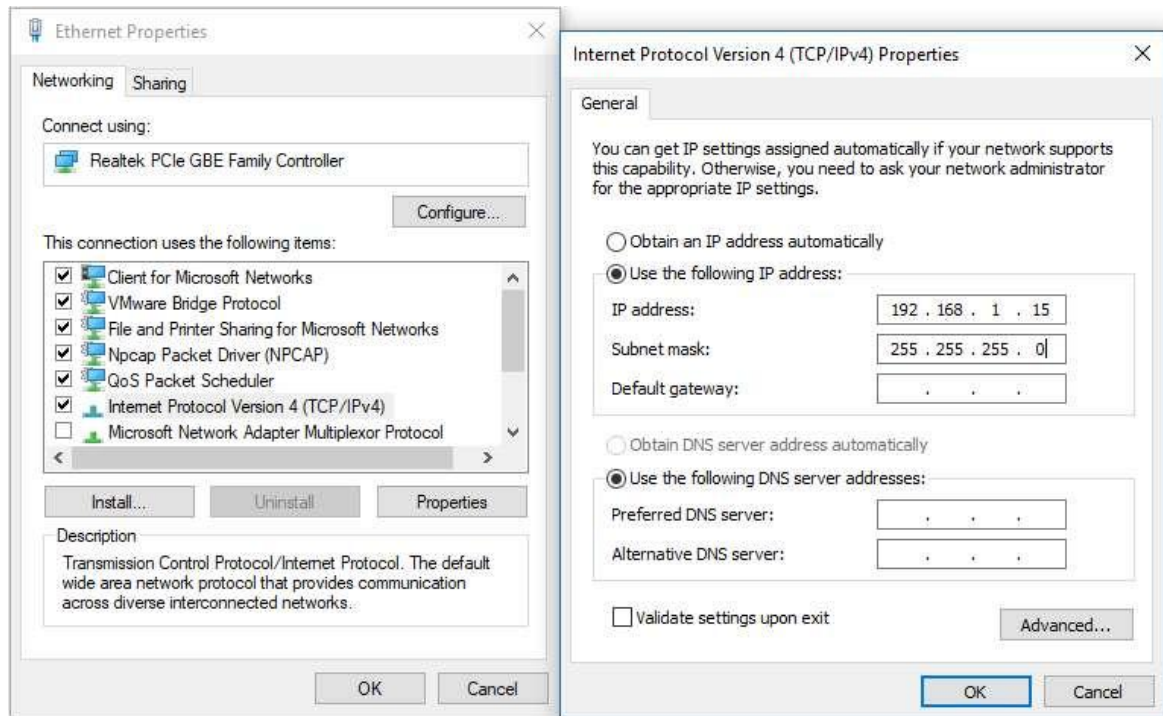
The command is sent by the upper computer operation, or is written and sent in the debugging window, and the reply message is viewed in the receiving content to verify whether the command is set successful.

11. Ethernet adapter configuration instructions

The default static IP address of the machine is 192.168.1.192. The landing port is: 23.

Communication should first make computers and devices under the same network segment.

Show as below:



In practice, if you need to change the IP address, firstly connect the processor with the 232 serial cable. After the connection is successful, fill in the required IP address and gateway in the configuration of the lower computer. Port 23 is unchanged and click OK. Then reopen the communication settings, select the NET connection in the control area of processor, fill in the IP just modified, and click OK;

Communications Settings

Processor Control

☐ NET Connection
IP Address: 192.168.1.192 2
☒ COM Connection
COM Port: COM5
Baud Rate: 9600

Large Screen Settings

☐ Screen Single Connection
Address: 0
COM Port:
Baud Rate: 9600

Lower computer config

Baud Rate: 9600
IP Address: . . .
Gateway: . . .
Port: 23

Device Search

12. Product parameter

Type		Description
Function	Type of transmission signal	HDMI/DVI signal
	Transmission cable	HDMI/DVI , AWG26 HDMI1.4 Cable standard
Power supply	Power supply mode	Pluggable, AC165~265V, 300W
	Power consumption	<60W, Depending on the number of cards used
HDMI/DVI performance and interface	Support HDMI version	HDMI1.3 1.4
	Support HDCP version	HDCP1.4
	HDMI resolution	1080p/1080i/720p/576p/576i/480p/480i, 3D
	Support video color format	24 bits/30 bits/36 bits/48 bits
	Support audio format	DTS-HD/Dolby-trueHD/LPCM7.1/DTS/Dolby-AC3/DSD

	Maximum transmission rate	6.75Gbps
	Input-output TMDS signal	0.5~1.5Vp-p (TMDS)
	Input cable length	≤10m (AWG26 HDMI1.3 Cable standard)
	Output cable length	≤10m (AWG26 HDMI1.3 Cable standard)
Remote control	RS232, TCP/IP	9600 Baud, 8 bits, 1 bit stop bits, invalid checking bits; LAN
Protection level	Electrostatic protection	1a Contact discharge level 3 , 1b air discharge level 3
Operating environment	Working temperature	0℃~60℃ no condensation
	Storage temperature	-20℃~75℃
	Humidity (no condensation)	20%~70%RH
Operating response	Channel switching speed	<100ns
Operating software	PC control software	PW Controller apply to Windows XP/Vista/WIN7
Host property	Material / color	Electrolytic plate, black
	Selected component	2U/3/5U/9U Chassis, for 19 inch cabinet
Reliability	Average fault interval time	>40000 hours

13. Common fault & maintenance

1. When the computer can't communicate with the matrix, it may be that the serial parameter is not set up correctly. We should confirm if the serial number and other

parameters are correct.

2. When the output video signal is flickering sometimes, it may be that the wire is not fully connected with the matrix, so it should be reconnected.
3. When connect the peripheral display device with double shadows or disturbing points on the image, it is generally not a host problem. It may be that the wire quality is not up to standard, and the wire should be replaced.
4. When there is color loss or no video signal output, it may be that the DVI signal is not connected to the DVI1.0 standard differential line.
5. If the output image is disturbed, it may be that the input and output devices is not well grounded.
6. When you plug in the video interface, if there is an obvious static electricity, it is possible that the equipment is not well grounded. Please connect the ground according to the correct method. Otherwise, it is easy to damage the host and shorten the life of the host.