iWall 409R Gen2

HDMI 4K60Hz 4x9 Video Wall Controller

User Manual V2.0

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1. Overview

- The iWall 409R Gen2 is a new generation HDMI 4K60Hz video wall controller designed by INFOBIT AV. Supports 4x HDMI inputs, 2x DP inputs (simultaneous as HDMI IN1 and IN2), 9x HDMI outputs and 1x HDMI loop out.

- A single device, 4 inputs (2x mirrored DP) and 9 outputs (compatible with 1 in 9 out), can be combined in any number of video wall layout modes of landscape or portrait installation, and large-scale video wall can be connected by cascading more 409R.

- It supports maximum input 3840x2160@60Hz and backwards compatible and maximum output 1920x1080@60Hz.

2. Features

- Using high-end programmable FPGA chip, pure hardware, real-time processing architecture without delay and with anti-static design. Without Window blue screen, virus risks, OS vulnerability, and breakdown risk. Lower requirements of IT technology background, save your training cost.

- It supports 4 source windows on the whole wall in multiple displaying modes: single image, PIP (Picture in Picture), POP (Picture on Picture), PYP (Picture by Picture) or Quad-view. All video windows support free zooming, cross-screen roaming, re-sizing with arbitrary layers overlay.

- Support signal cropping, which can remove black edges and crop the focused content to emphasize any details. It can perfectly solve the black edge problem caused by the input source, for example for live-stream, digital signage advertisement, sports bar, TV show or control room applications.

- Supports 16x videowall displaying modes such as horizontal screen 1x1 to 1x9; vertical screen 9x1 to 1x1; or mosaic type: 2x2, 2x3, 3x3, 2x4, 4x2... etc.

- Supports 4 channels of 4K*2K@60 input, each input port burns different resolutions, and supports EDID management, reading, modification and customization of EDID

(Extended Display Identification Data), which improves the compatibility of the display device enables the device output signal to adapt to various applications.

- Support inputs and outputs rotation: any input can be rotated in 90°, 180° or 270°, and the first row of output can be rotated in 180°. It is ideal solution for both landscape and portrait installation of videowall or up-down projector display.
- Supports 4x9 matrix mode.
- Inputs can be PC, media player, blue ray, game console and other devices.
- Support seamless real-time switching, without black screen intervals or lag during the signal switching.
- Supports image effect color, saturation and other parameter adjustment functions to solve the problem of signal color restoration, with screen freezing and screen mirroring function, gamma/ panel gamma modes.
- Supports IR remote control, RS232, TCP/IP control methods, with keyboard shortcuts for easy configuration and quick operation.
- Optional audio de-embedded, audio output can follow the HDMI OUT 1 or all output ports. Also can disable audio of all ports.
- Supports functions such as hot swapping, power-off memory, host computer read-back.
- Low power consumption and environmentally friendly design
- Supports full-channel 24bit, RGB 8:8:8 high color sampling depth, high-quality video image output.
- Support up to 10x presets saving and recall.

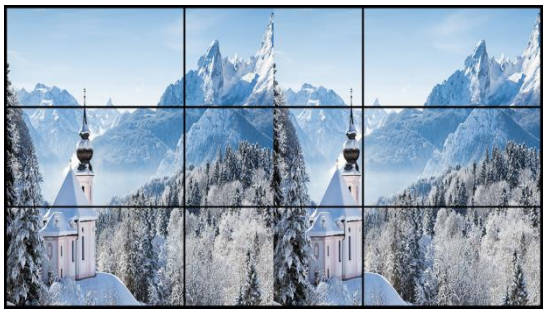
3. Applications

It is mainly used in industrial applications such as ultra-high-definition video surveillance, large-scale video walls, advertising, exhibitions, conference, and digital signage.

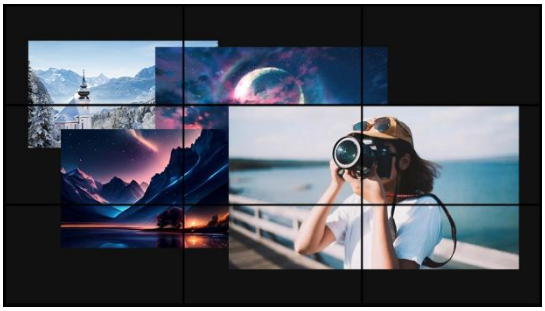
Single videowall mode

Flexible Videowall+ matrix mode

Flexible layers roaming mode



Side-by-side copy mode



Flexible layers overlay mode

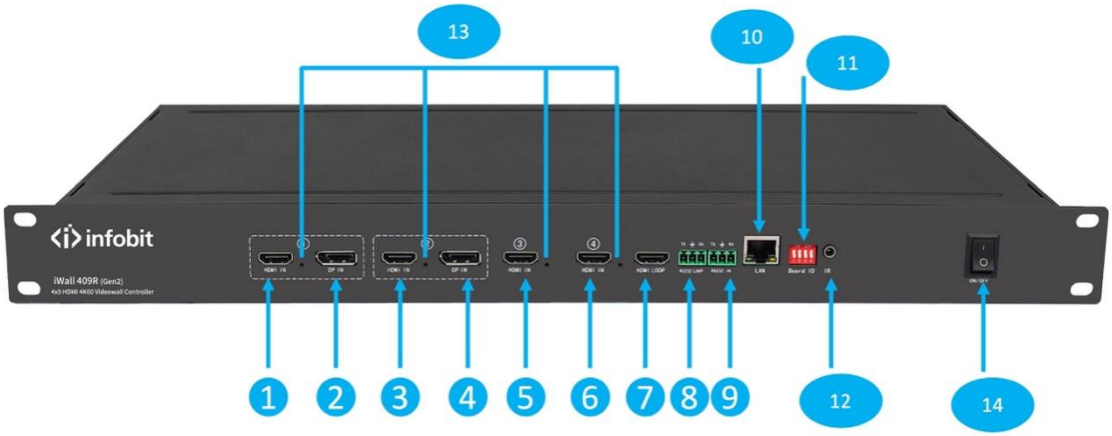
Rotation 180°

Rotation 270°

Rotation 90°

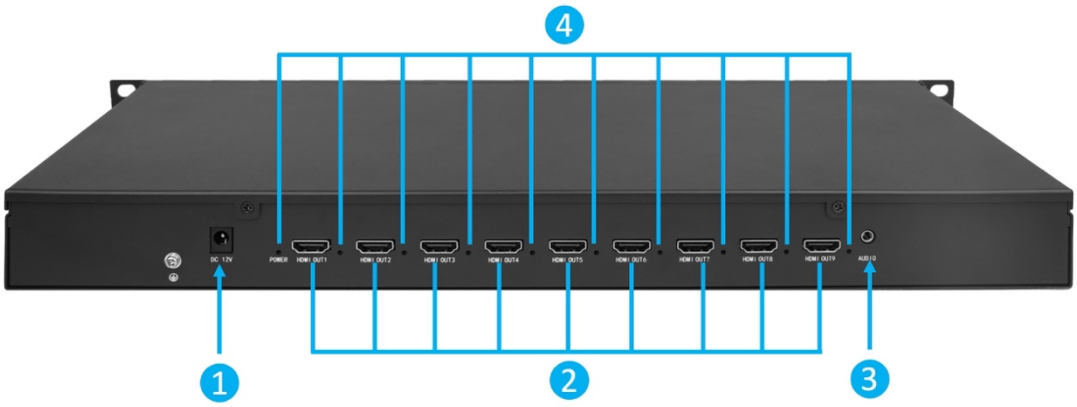
Portrait display wall mode

4. Front Panel



1	HDMI input, max. 4K60Hz	Mirrored Input #1, not in used simultaneously
2	DP input, max. 4K60Hz	
3	HDMI input, max. 4K60Hz	Mirrored Input #2, not in used simultaneously
4	DP input, max. 4K60Hz	
5	HDMI input, max. 4K60Hz	Input #3
6	HDMI input, max. 4K60Hz	Input #4
7	HDMI loopout, max. 4K60Hz	
8	RS232 Loop	
9	RS232 In	For Serial control
10	Network	For PC software control
11	DIP switch	
12	IR extender	For IR remote control
13	Status indicators	Input signal detection
14	Power ON/OFF	

5. Rear Panel



1	Power Supply, 12V 5A AC-DC
2	HDMI output #1-9, max. 1080P60Hz
3	Audio out, 3.5mm
4	Status indicators

6. Spec

Model	iWall 409R Gen2
Inputs	HDMI 2.0 x4; DP 1.2 x2; HDCP 2.2
Input max. video frequency	600MHz
Max. input resolution	4096x2160@60Hz
Input color depth	30bit, RGB444, YUV444
Outputs	HDMI 1.3 x9 (≤15m) HDMI 2.0 x1 (Loopout)
Output max. video frequency	165MHz

Max. output resolution	1920x1080@60Hz, 1920x1200@60Hz
Output color depth	24bit, RGB444
Control	IR, RS232, PC software
Power	DC 12V/5A
Consumption	36W
Storage/operation temp.	-10～50ºC/ 0～80ºC
Chassis	Metal
Dimension	437x182x44mm
G.W/ N.W	3.7KG/ 3.1KG
Package list	12V/5A Power adaptor x1 IR Receiver x1 IR remote x1 RJ45 cable x1
Warranty	3 years

7. Inputs & outputs connection

INPUTS: connect video resources to the input ports, max. 4 inputs. The HDMI #1 and DP #1 are input 1, can not be used simultaneously. The HDMI #2 and DP #2 are input 2, can not be used simultaneously.

OUTPUTS: Connect HDMI out 1 to 9 to displays. Display orders are shown as below:

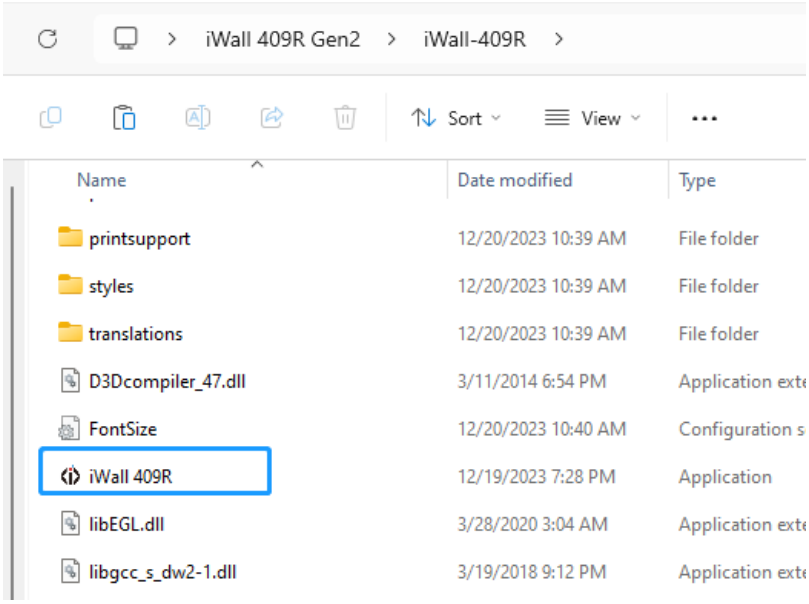
1	2	3
4	5	6
7	8	9

8. Network Connection

- Connect the iWall 409R Gen2 to your computer through RJ45 network cable;
- Set the IP address of the controller to 192.168.1.xx (the default IP address of the iWall 409R Gen2 is **192.168.1.192**), to make sure your PC is under the same IP address segment as the iWall 409R Gen 2. User can change the IP address of the iWall 409R Gen2 later in the software.
- Open the *iWall 409R Gen2 control software*, click the refresh button, and select the right network card to connect the device.
- Click the *Find Device* button, the connected devices will appear in the table, and select the device you want to connect.
- Click the *Connect Device* button, and the host computer will automatically start synchronizing the data.

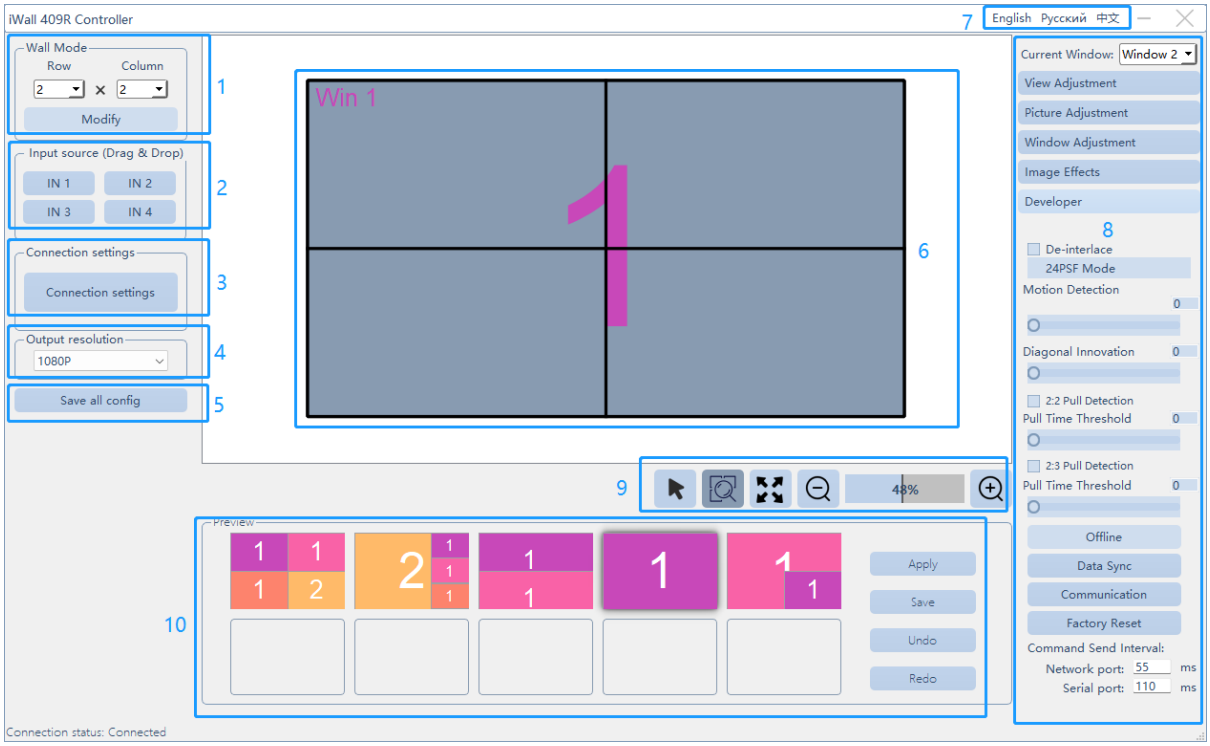
9. PC Software Control

9.1 Download and run the iWall 409R Gen2 software



Visit the website www.infobitav.com/iwall409r-gen2 to download the Windows-based software “iWall 409R Gen2 Controller software.rar” and zip to folder, then double-click the icon “iWall 409R.exe” to run the software.

9.2 Interface introduction



1- Wall Mode
To setup the videowall displays layouts, the product of the Row*Col can not be beyond 9. After changing the videowall layouts, please reboot the iWall 409R Gen2 manually.

2- Input sources
Support drag-and-drop operation to select and switch any input to the right videowall canvas area.

3- Connection Settings
Before controlling the iWall 409R Gen2, user must setup connection firstly by click the “Connection Settings” button.

4- Output resolutions
Select 1080p (1920x1080) or 1200p (1920x1200) from the drop-down list.

5- Save all config
To save all configuration data to the iWall 409R Gen2 hardware. The PC software will auto read the configuration saved last time when the software is connected to the hardware.

6- Videowall Canvas
Showing the virtual videowall layouts video windows and displaying the input number (1, 2, 3 and 4) as colored numbers.

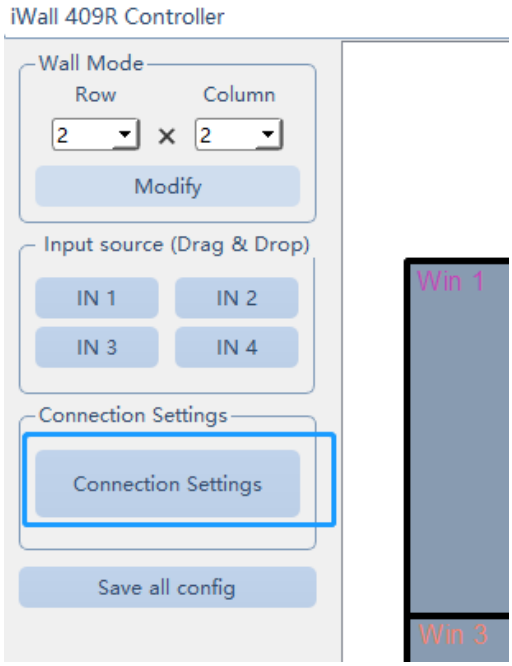
7- Language Switch
Support English, Russia and Chinese Simplify languages.

8- Functions Area
Including “View Adjustment”, “Picture Adjustment”, “Window Adjustment”, “Image Effects”, “Developer”, “Offline”, “Data Sync”, “Communication” and “Factory Reset” settings.

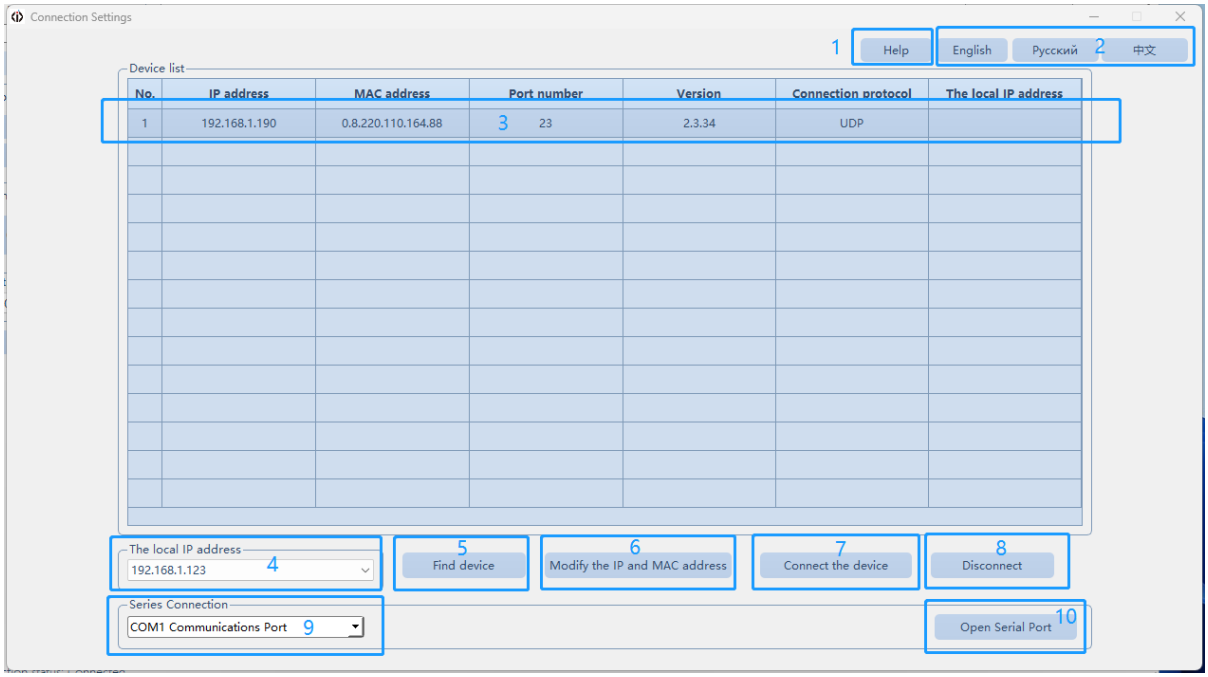
9- Canvas control
Including video windows select, canvas moving, canvas fit and zoom.

10- Preset control
Up to 10x layout presets.

9.2 Connection Settings



“Connection Settings”
Before controlling the iWall 409R Gen2, user must setup connection firstly by click the “Connection Settings” button.



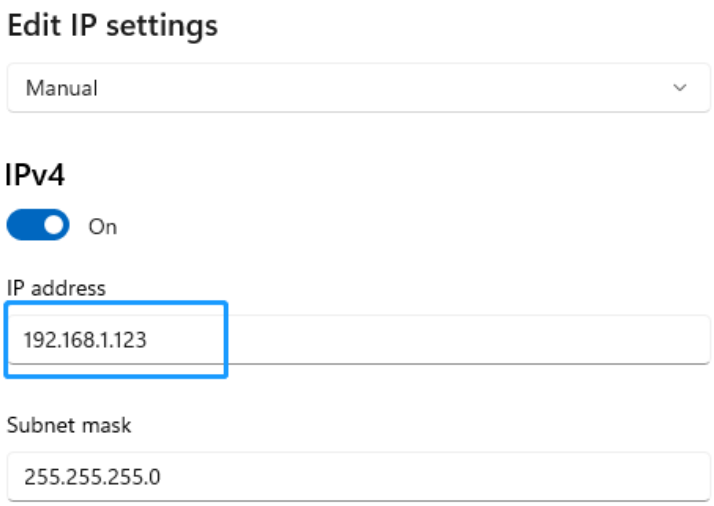
1- Help
Check help hint by click this button.

2- Language
Support English, Russia and Chinese Simplify languages.

3- Device list
Showing all detected iWall 409R Gen2 list after clicking the button “Find device”.

4- Select the PC IP
The default IP address of the iWall 409R Gen2 is 192.168.1.192, user shall change the IP address of the control PC to be 192.168.1.xx to make sure the PC and iWall 409R Gen2 are under the same network segment before connecting the hardware. Follow below pictures to change your PC IP address:

Click Edit to change IP under the “Ethernet” menu.

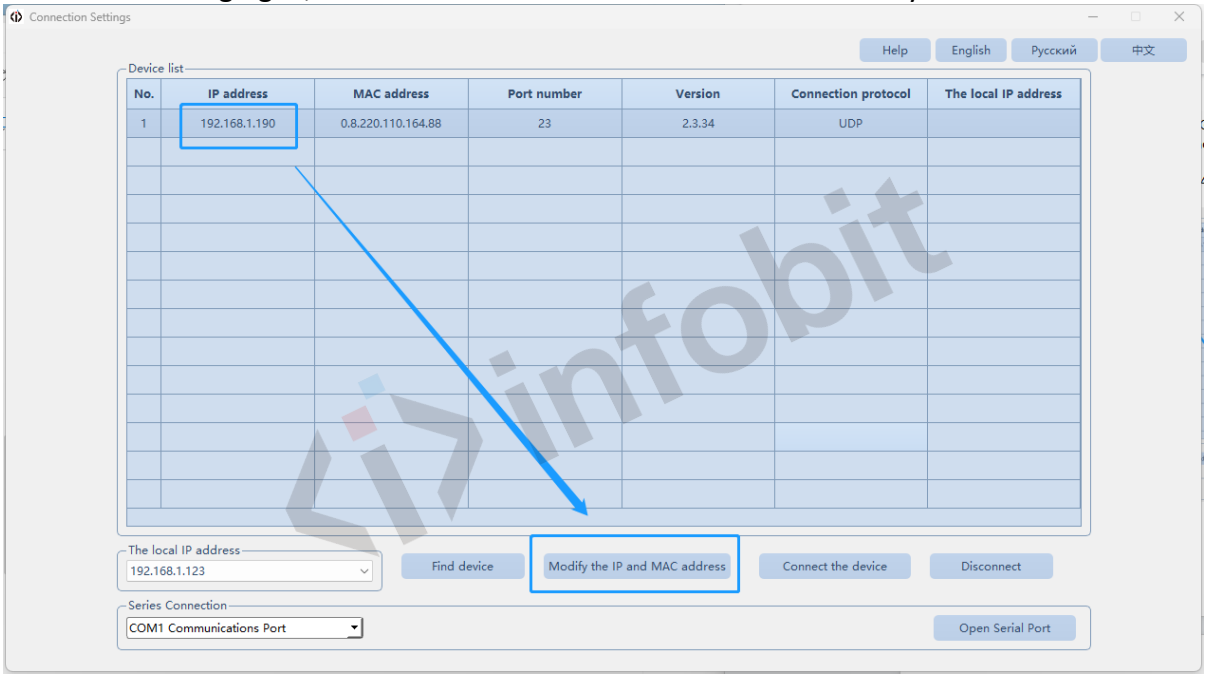


Enter the IP address to be 192.168.1.xx.

Then Click the drop-down list of the “Select the PC IP” menu, click “Refresh”.

5- Find device
Click “Find device”, wait for about 3s, the detected iWall 409R Gen2 will be listed in the “Device list” row.

6- Modify the IP and MAC address
Used for changing the iWall 409R Gen2 IP address. To modify this, user shall select iWall 409R Gen2 in the above list and then click “Connect the device” to get the connection done. See below picture:
Note: After changing IP, the iWall 409R Gen2 must be reboot manually.



7- Connect the device.
Select iWall 409R Gen2 in the above list and then click “Connect the device” to get the connection done.

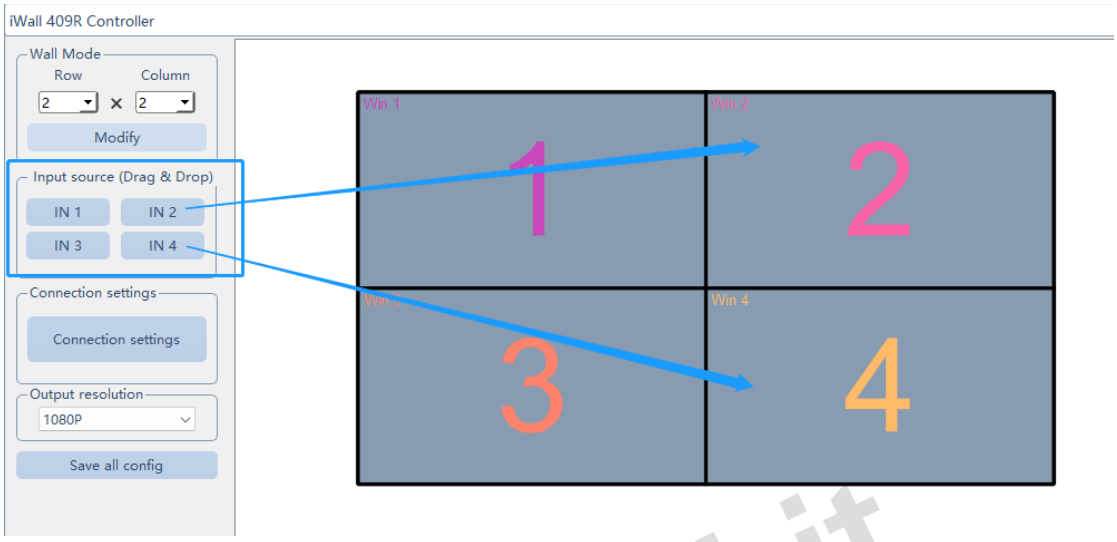
8- Disconnect
To disconnect the PC to the iWall 409R Gen2.

9- Serial connection
Showing the list of COM communications ports, select the right one.

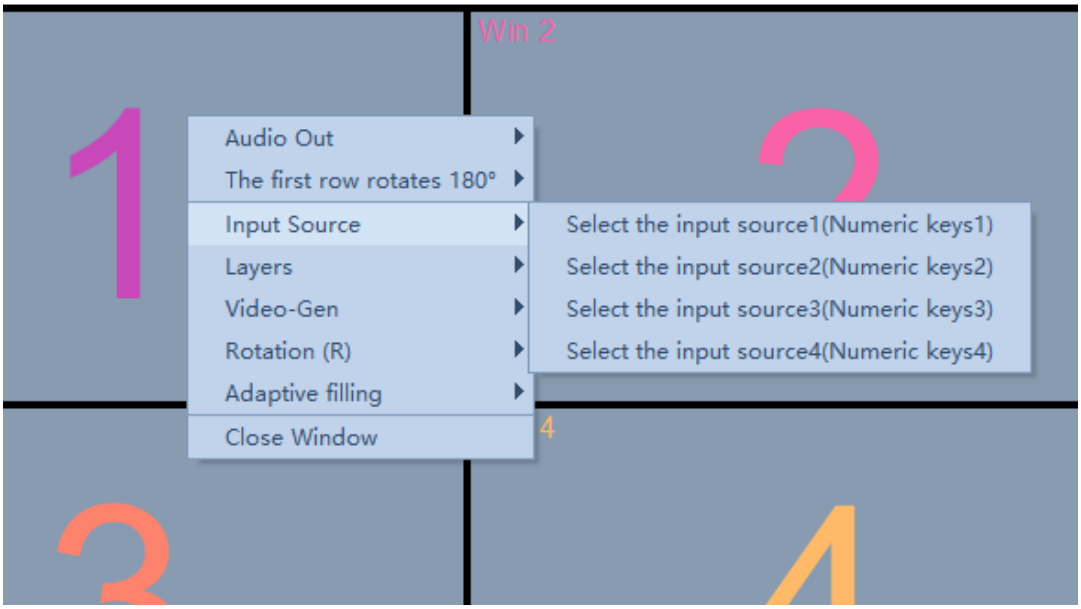
10- Open serial port
Click this button to establish the RS232 connection to the iWall 409R Gen2.

9.3 Select Input sources

1- Select IN1/2/3/4 in the input source column, drag-and-drop it to the corresponding window to complete the selection and switching of the input sources. See below picture:



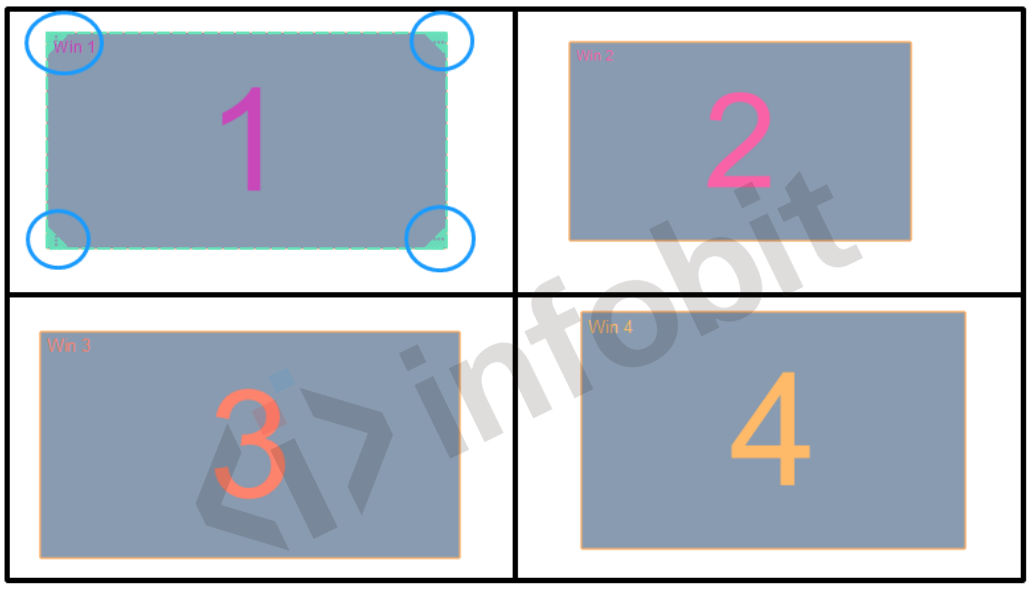
2- Select the window, right-click the mouse, under the Input source to select input 1/2/3/4. See below picture:



3- You can also use the keyboard numbers 1/2/3/4 to complete the switching of signal sources after selecting the window.

9.4 Window adjustment

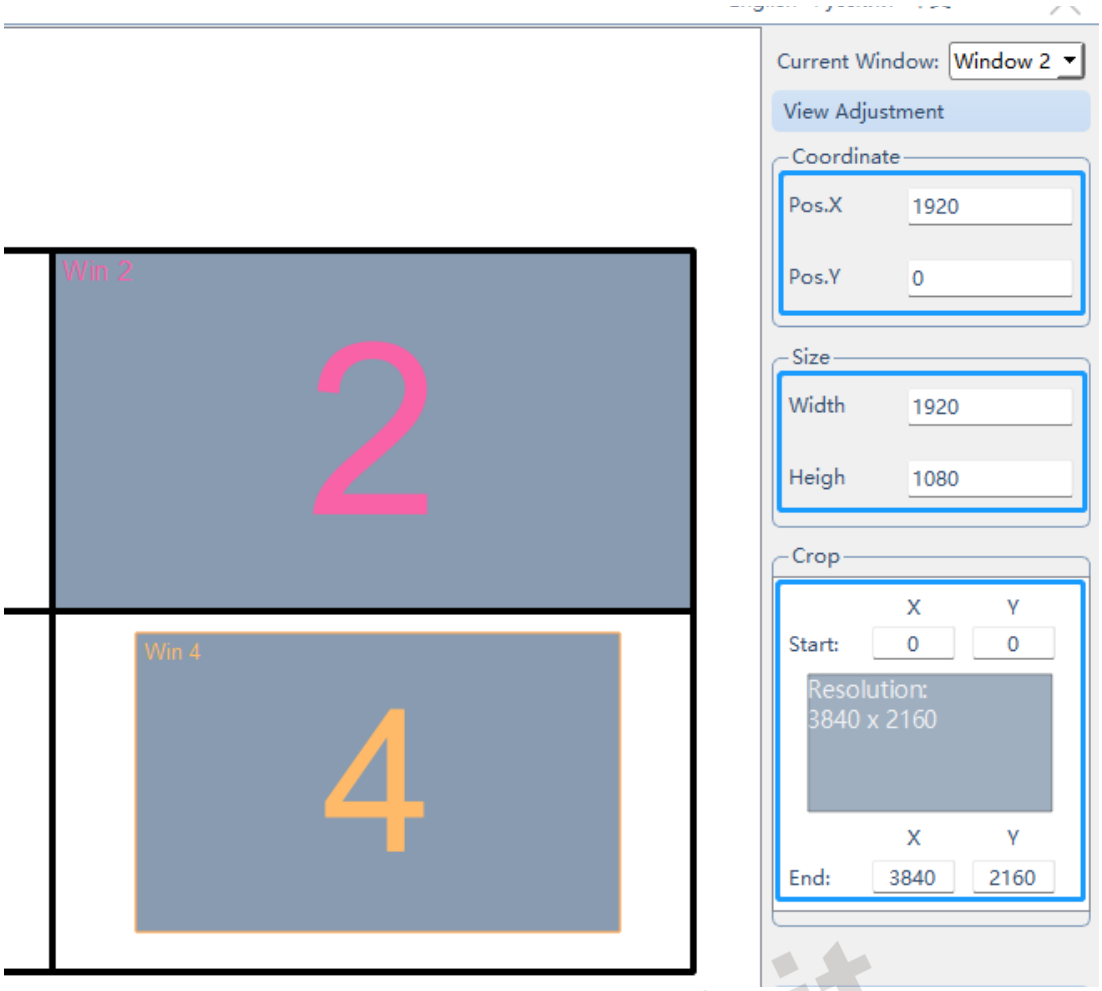
1- Select the window and drag the four corners of with the mouse to adjust the size and position. See below picture:



2- Select the window that needs to be adjusted. The upper left corner of the window is the original point. Enter the coordinates X & Y to adjust the window position.

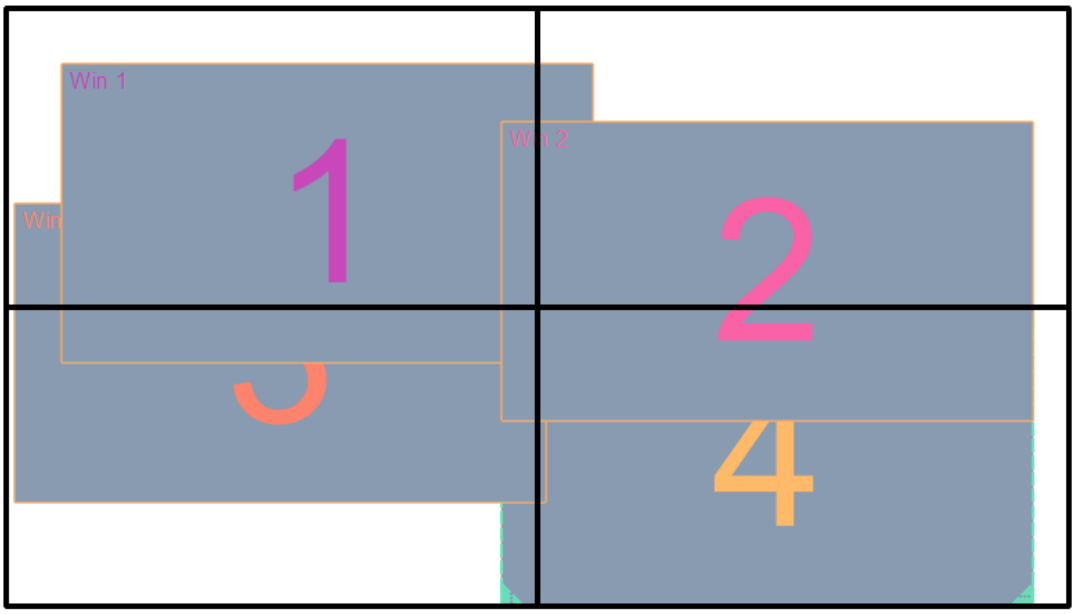
3- In the size column, enter the number of width and to adjust the size of the window.

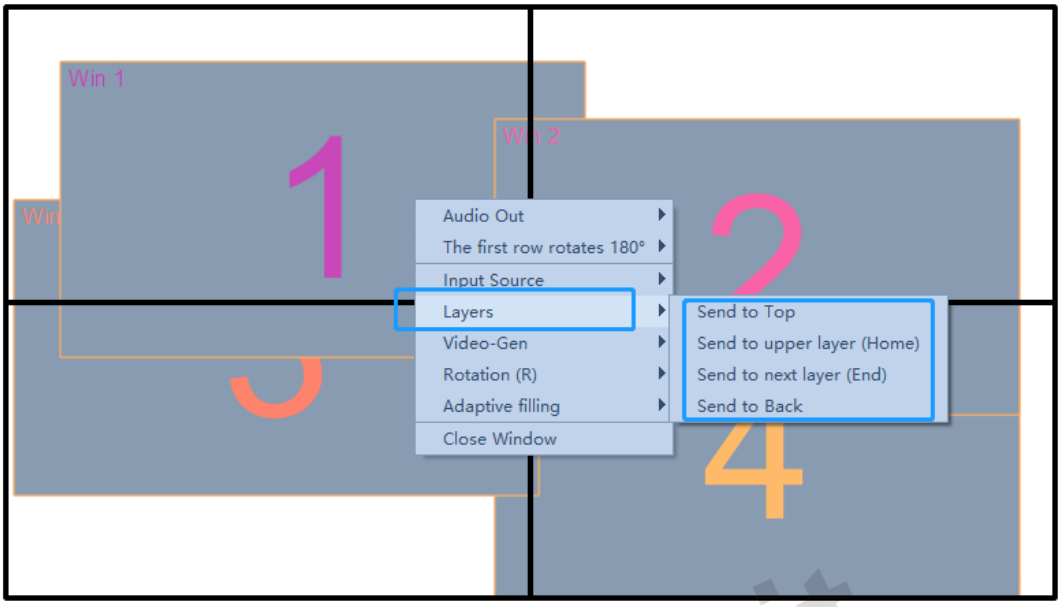
4- In the cropping bar, the resolution showing in the box is the input resolution of the current window. Enter the starting and ending XY coordinates, or drag the mouse to the size of the red box to complete cropping. See below picture:



5- Layers settings

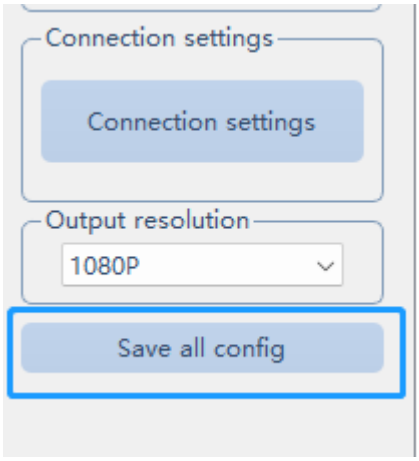
Use mouse to drag-and-drop to move the video windows in the videowall canvas area to setup layers overlay. Right-click to setup layers priorities. See below pictures:





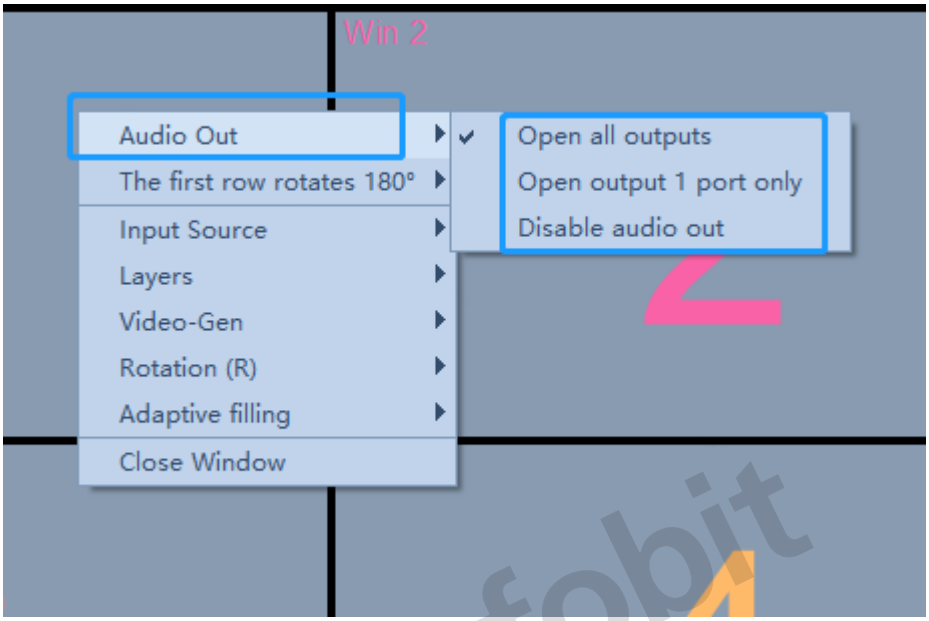
9.5 Save all config

Before disconnecting, click "*Save all config*" to save all settings data. After reconnecting, the control PC will read the saved configuration automatically.



9.6 Audio channel

Right-click on the video window area, to setup audio out channel, see below picture:



1- Open all outputs
Enable all HDMI outputs (HDMI out #1 to 9) with embeded audio.

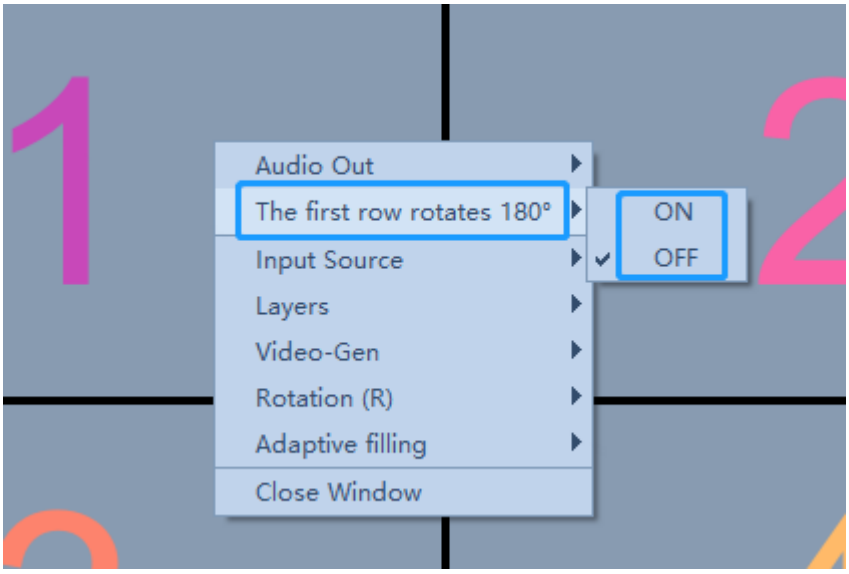
2- Open output 1 port only
Enable only HDMI out #1 with embeded audio.

3- Diable audio out
Disable all HDMI outputs (HDMI out #1 to 9) embeded audio.

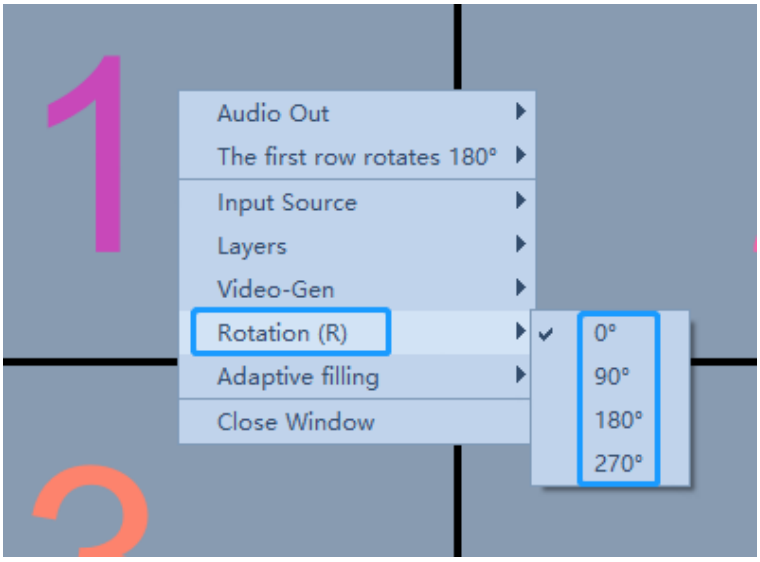
9.7 Image rotation

1- Rotate the top row of the videowall as 180°
Right-click on the video window area, then click “The first row rotates 180°”, see below picture:

This used for upside-down installation of TV display with different bezel edges or pending projectors.

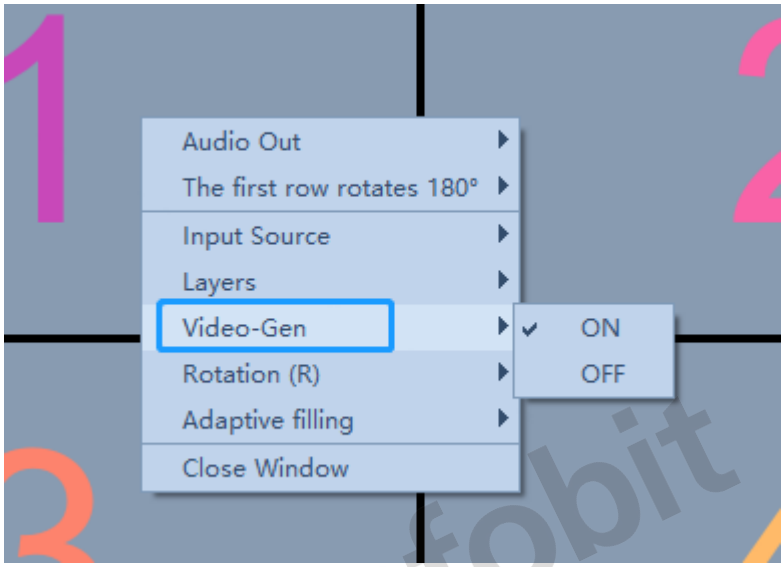


2- Setup rotation for each video image.
Right-click on the video window area, then click “Rotation”, see below picture:
It supports 90, 180 and 270 rotation, it is used for portrait videowall application, for example LED or digital signage LCD wall.



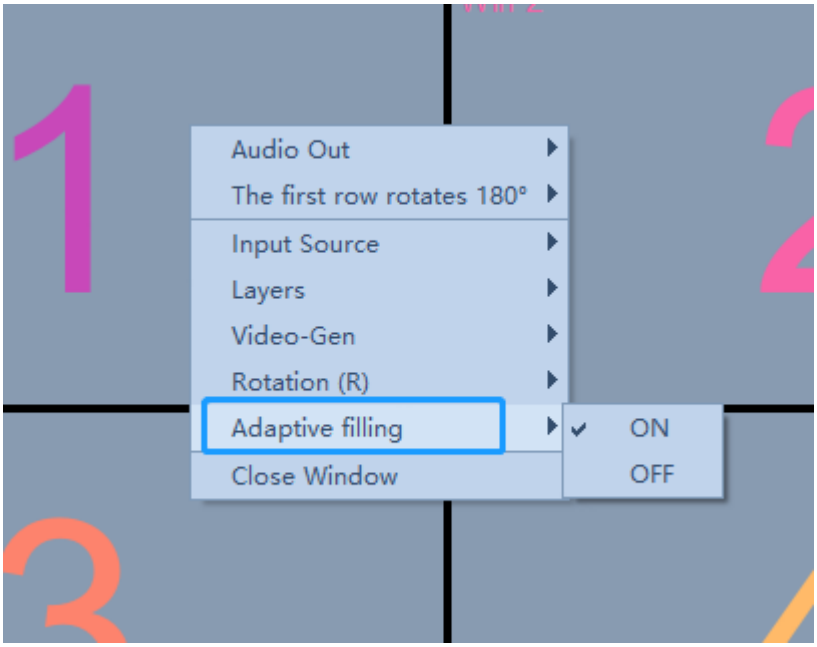
9.8 Video Gen Mode

Enable or disable Video-Gen mode, when it is ON. It will auto detect if there is valid input source, if no valid source then it will not output this input channel.



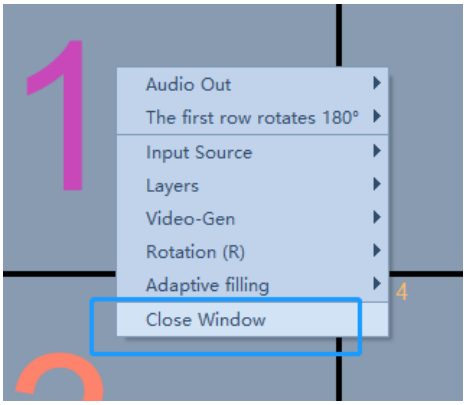
9.9 Adaptive filling

Enable or disable the automatic adaptive features of the video windows. This function is invalid now, it is reserved in future version.



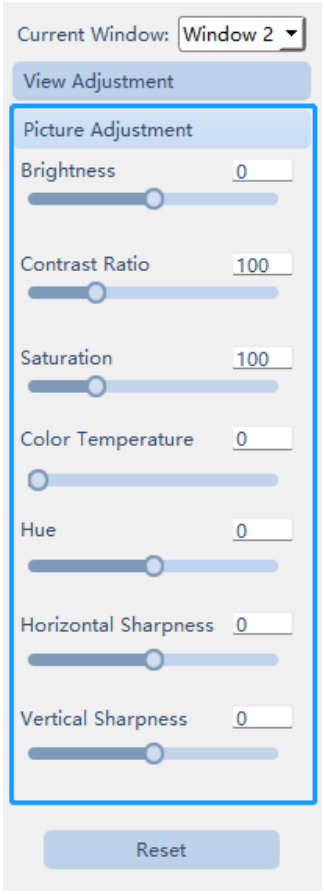
9.10 Close Window

To close the video window, click “Close Window”. It can be enabled by right-click to “Open window”.

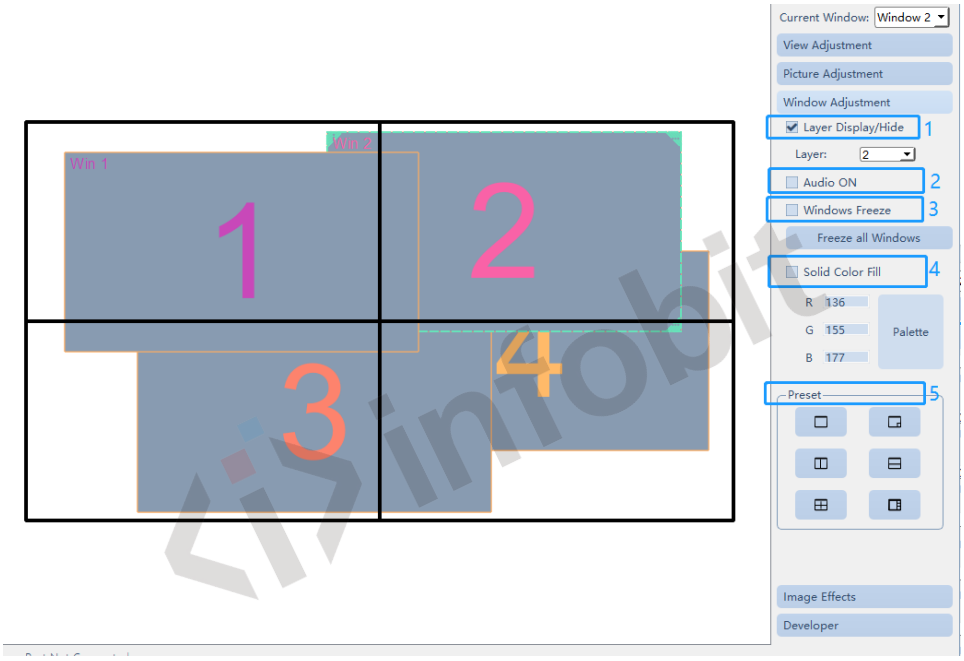


9.11 Picture Adjustment

User can adjust the brightness, contrast ratio, saturation, color temperature, hue and sharpness properties.



9.12 Windows Adjustment



1- Layer Display/ Hide

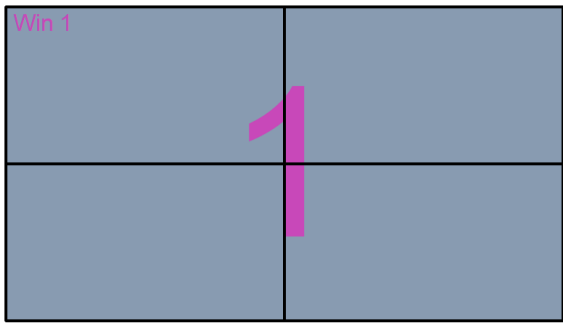
Select the layer, check the box to display or hide this layer video.

2- Audio ON
To turn ON/OFF the audio of this selected video source.

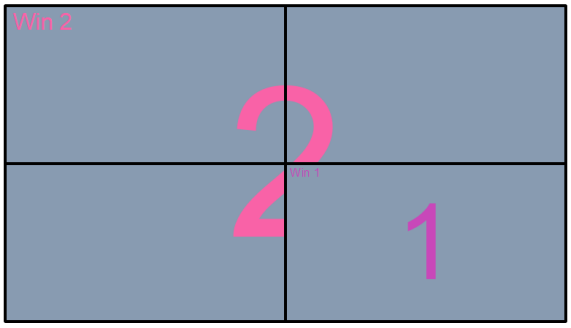
3- Windows Freeze
To freeze or unfreeze the video windows positons.

4- Solid Color Fill
Use to setup color pattern so the display can show dedicated color when there is no signal or input lost.

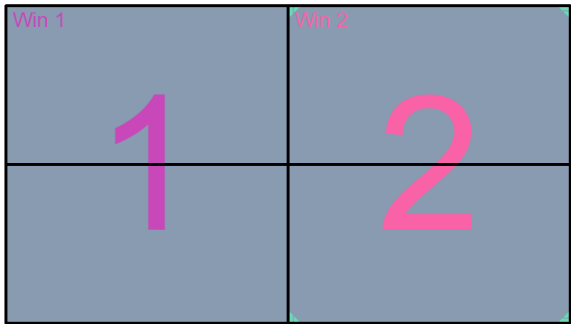
5- Preset
It is built-in shortcut video windows presets. See below pictures.



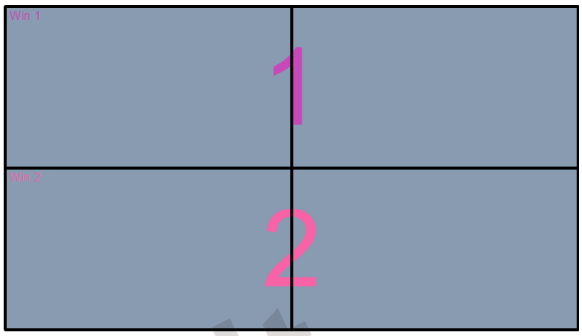
Single image mode



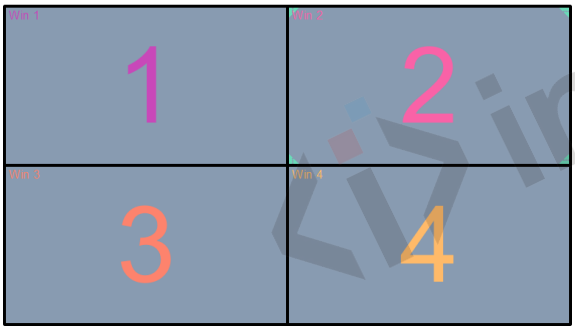
Dual-image mode (picture in picture)



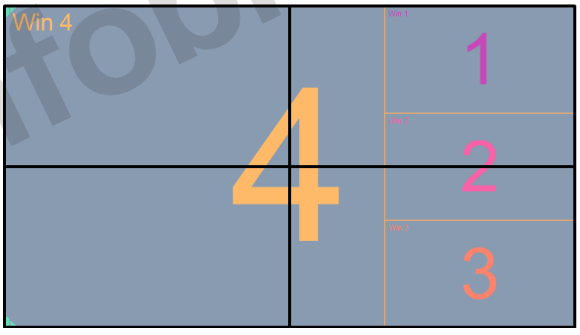
Dual-image (Left-to-Right side by side)



Dual-image (Top-to-Down side by side)

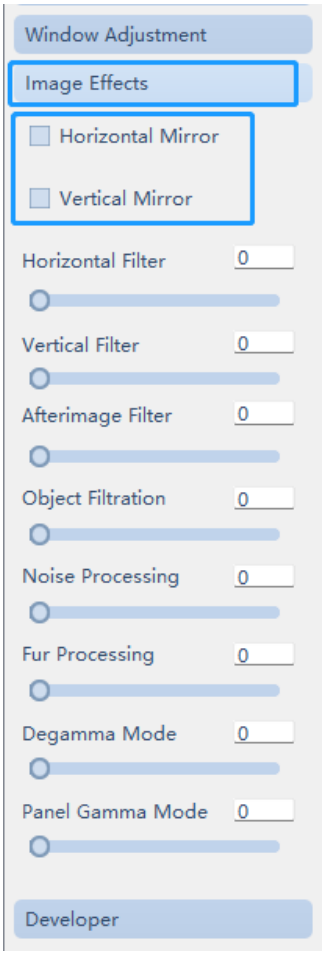


Quad-image mode (Mosaic)



Quad-image mode (Picture in Picture)

9.13 Image Effects



User can setup image effects like “Horizontal Mirror”, “Vertical Mirror” and more image parameters.

9.14 Developer

1- Developer
Including “De-interlace’ and more developer tools.

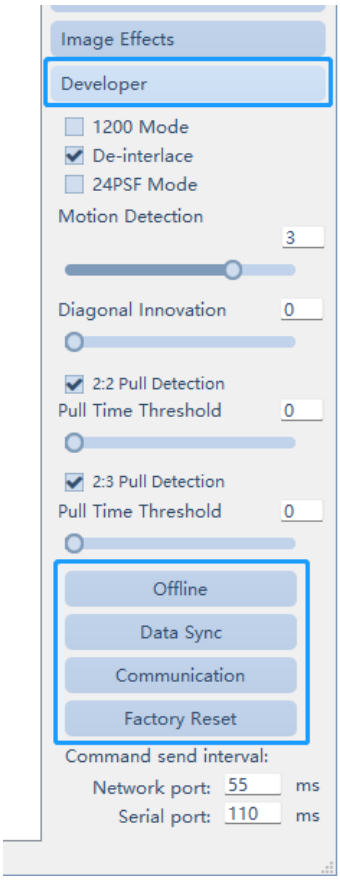
2- Offline
Disconnect the PC software with the iWall 409R Gen2, used for software demo.

3- Data Sync
Read the saved configuration data.

4- Communication
Check the communication log.

5- Factory Reset
Reset the iWall 409R Gen2 to factory settings.

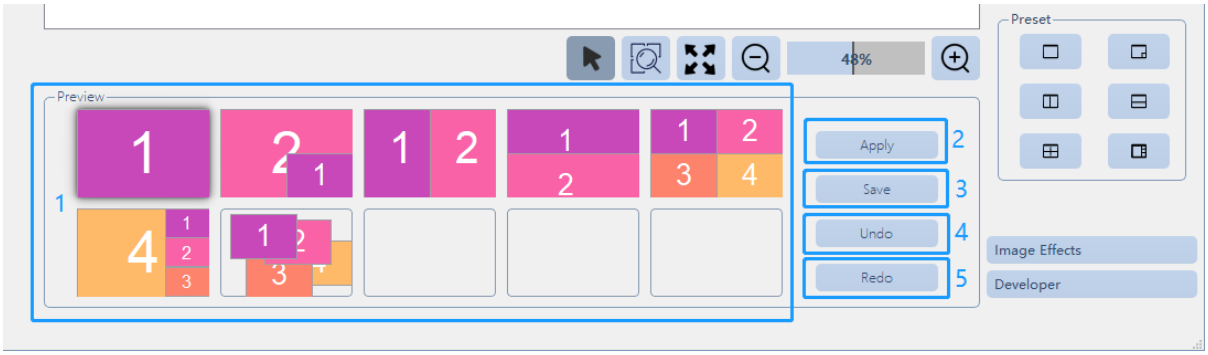
6- Command send intervals.
Setup command sending delays intervals.



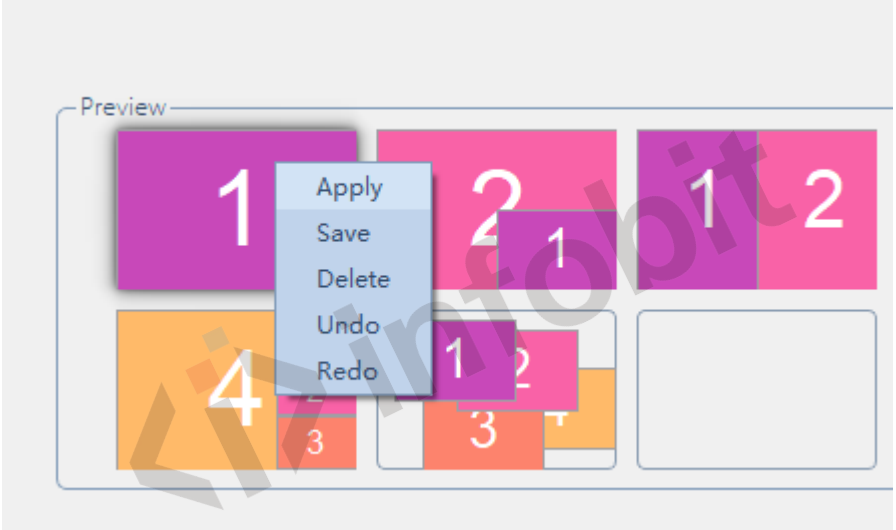
10. Canvas control

10-1 Select the video windows layer and move the position.
10-2 Select the canvas and move the position.
10-3 Fit the size of the canvas.
10-4 Zoom out the canvas.
10-5 Adjust the canvas zooming degree.
10-6 Zoom in the canvas.

11. Presets

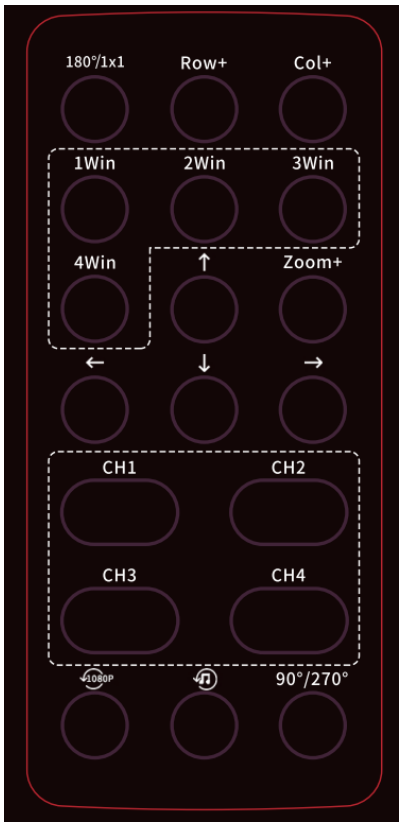


11-1 It supports up to 10x layout presets preview.
11-2 Select one preset, click “Apply” to recall this preset.
11-3 After changing layouts, click “Save” to save the new preset.
11-4 After changing presets layouts, click “Undo” to cancel one step operation.
11-5 After changing presets layouts, click “Redo” to resume one step operation.



Right click on the preset, user also can apply, save, delete, undo and redo the controlling of the preset settings.

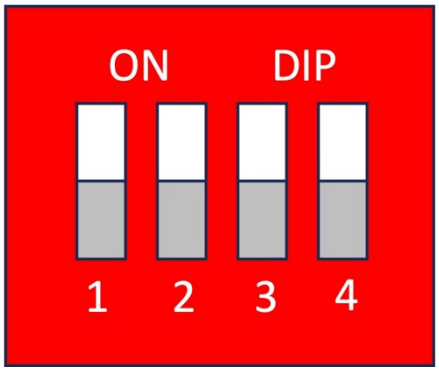
12. IR Remote



Buttons	Functions
180°/1x1	180°: Rotate the output as 180 degrees 1x1: Single display mode, all display show the same source.
row+	Setup videowall rows: 1-9
Col+	Setup videowall Cols: 1-9
1Win	Single-image mode
2Win	Dual-image mode
3Win	Three-image mode
4Win	Quad-image mode
↑	Window moving up
←	Window moving left

↓	Window moving down
→	Window moving right
ZOOM+	Zoom
CH1	Select the CH1 input source
CH2	Select the CH2 input source
CH3	Select the CH3 input source
CH4	Select the CH4 input source
90°/270°	Rote the selected channel as 90°/270°
	Switch output resolution between 1080P and 1200P
	Enable or disable the audio of the selected channel

13. DIP Switch



1	Reserved
2	DIP to upper for 6-10s, then DIP to down side. Then rebooth the iWall 409R to clear the data.
3	Down: Enable loopout; Up: Disable looput.
4	Down: UDP direct connection; UP: Enable DHCP.

Note: Must reboot the iWall 409R Gen2 after changing the DIP switch.

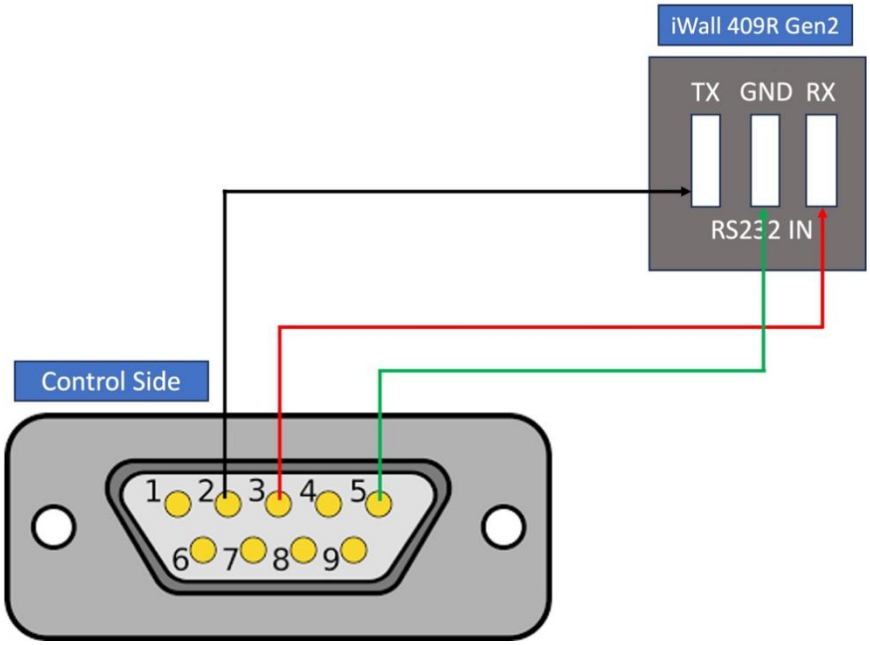
14. Keyboard control

Keyboard	Functions
⬆️	Move window up 10 pixels
⬇️	Move window down 10 pixels
⬅️	Move window left 10 pixels
➡️	Move window right 10 pixels
Page UP	Zoom in window 1%
Page Down	Zoom out window 1%
Home	Send window to upper layer
End	Send window to next layer
TAB	Switch to select window 1➡️2➡️3➡️4➡️1
R	Rotate 90° anticlockwise
1	Switch input #1
2	Switch input #2
3	Switch input #3
4	Switch input #4

15. RS232 Connection

Baud rate: 115200
Bit: 8
Stop: 1
Check: 1

The RS232 connection as below:



Connect the control device like PC, Central control, touch panel or other console to the RS232 IN at the iWall 409R Gen2, via the serial cable.

16. RS232 Control Command List

1st Stage	Ch	2nd Stage	Branch	3rd Stage	4th Stage	5th Crc8	Adjust Range (Base 10)	Usable	1st+2nd+3rd +4th+5th
00	CH1	01	X	Parameter_H	Parameter_L	Check	0~4095	Enable	000100006B
		02	Y	Parameter_H	Parameter_L	Check	0~4095	Enable	00020000D6
		03	W	Parameter_H	Parameter_L	Check	0~4095	Enable	000307805F
		04	H	Parameter_H	Parameter_L	Check	0~4095	Enable	0004043857
		05	H start	Parameter_H	Parameter_L	Check	0~image_HW[ch]	Enable	00050001C7
		06	V start	Parameter_H	Parameter_L	Check	0~image_VW[ch]	Enable	000600017A
		07	H end	Parameter_H	Parameter_L	Check	0~image_HW[ch]	Enable	00070EFF33
		08	V end	Parameter_H	Parameter_L	Check	0~image_VW[ch]	Enable	00080870AE
		09	Format	insignificance	Color_format	Check	Read only	Disable	
		0A	Contrast	insignificance	Parameter	Check	0~40	Enable	000A0065BB
		0B	Luminance	Parameter_H	Parameter_L	Check	0~1024	Enable	000B0401BF
		0C	H_acuity	insignificance	Parameter	Check	0~20	Enable	000C000BCB
		0D	V_acuity	insignificance	Parameter	Check	0~20	Enable	000D000BA0
		0E	Hue	insignificance	Parameter	Check	0~40	Enable	000E006619
		0F	Phase	insignificance	Parameter	Check	0~180	Enable	000F00BD7D
		10	Temperature	insignificance	Parameter	Check	0~1	Enable	00100001A5
		11	Enhance	insignificance	Parameter	Check	0~4	Enable	00110000C9
		12	Attenuation	insignificance	Parameter	Check	0~4	Enable	0012000173
		13	H_mirror	insignificance	Parameter	Check	0~1	Enable	0013000118
		14	V_mirror	insignificance	Parameter	Check	0~1	Enable	001400010E
		15	H_Nr	insignificance	Parameter	Check	0~3	Enable	0015000165
		16	V_Nr	insignificance	Parameter	Check	0~3	Enable	00160000DF
		17	Temporal_Nr	insignificance	Parameter	Check	0~3	Enable	00170000B4
		18	Block_Nr	insignificance	Parameter	Check	0~3	Enable	00180000F3
		19	Mosquito_Nr	insignificance	Parameter	Check	0~3	Enable	001900019F

		1A	Combing_Nr	insignificance	Parameter	Check	0~3	Enable	001A000025
		1B	Deinterlace	insignificance	Parameter	Check	0~1	Disable	
		1C	Enable 2:2PD	insignificance	Parameter	Check	0~1	Disable	
		1D	2:2PD time	insignificance	Parameter	Check	0~15	Disable	
		1E	Enable 2:3PD	insignificance	Parameter	Check	0~1	Disable	
		1F	2:3PD time	insignificance	Parameter	Check	0~15	Disable	
		20	Sensitivity	insignificance	Parameter	Check	0~4	Disable	
		21	D_Correction	insignificance	Parameter	Check	0~1	Disable	
		22	24 PSF Mode	insignificance	Parameter	Check	0~1	Disable	
		23	B_Correction	insignificance	Parameter	Check	0~3	Disable	
		24	G_Correction	insignificance	Parameter	Check	0~3	Disable	
		25	R_Correction	insignificance	Parameter	Check	0~3	Disable	
		26	Window_R	insignificance	Parameter	Check	0~255	Enable	002600AA61
		27	Window_G	insignificance	Parameter	Check	0~255	Enable	002700FFA6
		28	Window_B	insignificance	Parameter	Check	0~255	Enable	0028000012
		29	Void					Ignore	
1 st Stage	Ch	2 nd Stage	Branch	3 rd Stage	4 th Stage	5 th Crc8	Adjust Range(Base 10)	Usable	1st+2nd+3rd +4th+5th
00	CH1	2A	Window_Fill	insignificance	Parameter	Check	0~1	Enable	002A0000C4
		2B	Window_On	insignificance	Parameter	Check	0~1	Enable	002B0000AF
		2C	Freeze	insignificance	Parameter	Check	0~1	Enable	002C0001BE
		2D	Singal(physics)	insignificance	Parameter	Check	0~4	Enable	002D0001D5
		2E	Audio(physics)	insignificance	Parameter	Check	0~4	Enable	002E000168
		2F	Void					Ignore	
		30	H_displace	Parameter_H	Parameter_L	Check	-50~2047	Disable	
		31	V_displace	Parameter_H	Parameter_L	Check	-10~2047	Disable	
		32	90 rot	insignificance	Parameter	Check	0~1	Enable	0032000130
		33	Void					Ignore	
		34	270 rot	insignificance	Parameter	Check	0~1	Enable	003400014D
		35	Void					Ignore	
		36	Void					Ignore	
		37	Auto_scale	insignificance	Parameter	Check	0~1	Enable	00370000F7
01	CH2	01	X	Parameter_H	Parameter_L	Check	0~4095	Enable	010107809F
		02	Y	Parameter_H	Parameter_L	Check	0~4095	Enable	01020001C7
		03	W	Parameter_H	Parameter_L	Check	0~4095	Enable	0103078049
		04	H	Parameter_H	Parameter_L	Check	0~4095	Enable	0104043841
		05	H start	Parameter_H	Parameter_L	Check	0~image_HW[ch]	Enable	0105000CF2
		06	V start	Parameter_H	Parameter_L	Check	0~image_VW[ch]	Enable	0106000679
		07	H end	Parameter_H	Parameter_L	Check	0~image_HW[ch]	Enable	01070EFF25
		08	V end	Parameter_H	Parameter_L	Check	0~image_VW[ch]	Enable	0108086FE5
		09	Format	insignificance	Color_format	Check	Read only	Disable	
		0A	Contrast	insignificance	Parameter	Check	0~40	Enable	010A0070C6
		0B	Luminance	Parameter_H	Parameter_L	Check	0~1024	Enable	010B02DAD8
		0C	H_acuity	insignificance	Parameter	Check	0~20	Enable	010C000ADA
		0D	V_acuity	insignificance	Parameter	Check	0~20	Enable	010D000BB6
		0E	Hue	insignificance	Parameter	Check	0~40	Enable	010E007364
		0F	Phase	insignificance	Parameter	Check	0~180	Enable	010F0085C3
		10	Temperature	insignificance	Parameter	Check	0~1	Enable	01100001B3
		11	Enhance	insignificance	Parameter	Check	0~4	Enable	01110000DF
		12	Attenuation	insignificance	Parameter	Check	0~4	Enable	011200036B
		13	H_mirror	insignificance	Parameter	Check	0~1	Enable	0113000009
		14	V_mirror	insignificance	Parameter	Check	0~1	Enable	011400001F
		15	H_Nr	insignificance	Parameter	Check	0~3	Enable	0115000173
		16	V_Nr	insignificance	Parameter	Check	0~3	Enable	01160000C9
		17	Temporal_Nr	insignificance	Parameter	Check	0~3	Enable	01170000A2
		18	Block_Nr	insignificance	Parameter	Check	0~3	Enable	01180000E5
		19	Mosquito_Nr	insignificance	Parameter	Check	0~3	Enable	0119000280
		1A	Combing_Nr	insignificance	Parameter	Check	0~3	Enable	001A00023D
		1B	Deinterlace	insignificance	Parameter	Check	0~1	Disable	
1 st Stage	Ch	2 nd Stage	Branch	3 rd Stage	4 th Stage	5 th Crc8	Adjust Range(Base 10)	Usable	1st+2nd+3rd +4th+5th
01	CH2	1C	Enable 2:2PD	insignificance	Parameter	Check	0~1	Disable	
		1D	2:2PD time	insignificance	Parameter	Check	0~15	Disable	
		1E	Enable 2:3PD	insignificance	Parameter	Check	0~1	Disable	
		1F	2:3PD time	insignificance	Parameter	Check	0~15	Disable	
		20	Sensitivity	insignificance	Parameter	Check	0~4	Disable	
		21	D_Correction	insignificance	Parameter	Check	0~1	Disable	
		22	24 PSF Mode	insignificance	Parameter	Check	0~1	Disable	
		23	B_Correction	insignificance	Parameter	Check	0~3	Disable	

		24	G_Correction	insignificance	Parameter	Check	0~3	Disable	
		25	R_Correction	insignificance	Parameter	Check	0~3	Disable	
		26	Window_R	insignificance	Parameter	Check	0~255	Enable	012600AA77
		27	Window_G	insignificance	Parameter	Check	0~255	Enable	012700695B
		28	Window_B	insignificance	Parameter	Check	0~255	Enable	012800FFF7
		29	Void					Ignore	
		2A	Window_Fill	insignificance	Parameter	Check	0~1	Enable	012A0001D5
		2B	Window_On	insignificance	Parameter	Check	0~1	Enable	012B0001BE
		2C	Freeze	insignificance	Parameter	Check	0~1	Enable	012C0000AF
		2D	Singal(physics)	insignificance	Parameter	Check	0~4	Enable	012D0003CD
		2E	Audio(physics)	insignificance	Parameter	Check	0~4	Enable	012E00017E
		2F	Void					Ignore	
		30	H_displace	Parameter_H	Parameter_L	Check	-50~2047	Disable	
		31	V_displace	Parameter_H	Parameter_L	Check	-10~2047	Disable	
		32	90 rot	insignificance	Parameter	Check	0~1	Enable	0132000126
		33	Void					Ignore	
		34	270 rot	insignificance	Parameter	Check	0~1	Enable	013400015B
		35	Void					Ignore	
		36	Void					Ignore	
		37	Auto_scale	insignificance	Parameter	Check	0~1	Enable	01370001E6
02	CH3	01	X	Parameter_H	Parameter_L	Check	0~4095	Enable	02010195B0
		02	Y	Parameter_H	Parameter_L	Check	0~4095	Enable	0202008C57
		03	W	Parameter_H	Parameter_L	Check	0~4095	Enable	0203078073
		04	H	Parameter_H	Parameter_L	Check	0~4095	Enable	020404387B
		05	H start	Parameter_H	Parameter_L	Check	0~image_HW[ch]	Enable	02050000EC
		06	V start	Parameter_H	Parameter_L	Check	0~image_VW[ch]	Enable	0206000051
		07	H end	Parameter_H	Parameter_L	Check	0~image_HW[ch]	Enable	02070F00F9
		08	V end	Parameter_H	Parameter_L	Check	0~image_VW[ch]	Enable	0208087082
		09	Format	insignificance	Color_format	Check	Read only	Disable	
		0A	Contrast	insignificance	Parameter	Check	0~40	Enable	020A00843E
		0B	Luminance	Parameter_H	Parameter_L	Check	0~1024	Enable	020B038D55
		0C	H_acuity	insignificance	Parameter	Check	0~20	Enable	020C000AE0
		0D	V_acuity	insignificance	Parameter	Check	0~20	Enable	020D0014D1
1 st Stage	Ch	2 nd Stage	Branch	3 rd Stage	4 th Stage	5 th Crc8	Adjust Range(Base 10)	Usable	1st+2nd+3rd +4th+5th
02	CH3	0E	Hue	insignificance	Parameter	Check	0~40	Enable	020E00879C
		0F	Phase	insignificance	Parameter	Check	0~180	Enable	020F00DA63
		10	Temperature	insignificance	Parameter	Check	0~1	Enable	0210000189
		11	Enhance	insignificance	Parameter	Check	0~4	Enable	02110003EC
		12	Attenuation	insignificance	Parameter	Check	0~4	Enable	021200015F
		13	H_mirror	insignificance	Parameter	Check	0~1	Enable	0213000134
		14	V_mirror	insignificance	Parameter	Check	0~1	Enable	0214000125
		15	H_Nr	insignificance	Parameter	Check	0~3	Enable	0215000240
		16	V_Nr	insignificance	Parameter	Check	0~3	Enable	02160001F4
		17	Temporal_Nr	insignificance	Parameter	Check	0~3	Enable	021700019F
		18	Block_Nr	insignificance	Parameter	Check	0~3	Enable	02180002D1
		19	Mosquito_Nr	insignificance	Parameter	Check	0~3	Enable	02190002BA
		1A	Combing_Nr	insignificance	Parameter	Check	0~3	Enable	021A000207
		1B	Deinterlace	insignificance	Parameter	Check	0~1	Disable	
		1C	Enable 2:2PD	insignificance	Parameter	Check	0~1	Disable	
		1D	2:2PD time	insignificance	Parameter	Check	0~15	Disable	
		1E	Enable 2:3PD	insignificance	Parameter	Check	0~1	Disable	
		1F	2:3PD time	insignificance	Parameter	Check	0~15	Disable	
		20	Sensitivity	insignificance	Parameter	Check	0~4	Disable	
		21	D_Correction	insignificance	Parameter	Check	0~1	Disable	
		22	24 PSF Mode	insignificance	Parameter	Check	0~1	Disable	
		23	B_Correction	insignificance	Parameter	Check	0~3	Disable	
		24	G_Correction	insignificance	Parameter	Check	0~3	Disable	
		25	R_Correction	insignificance	Parameter	Check	0~3	Disable	
		26	Window_R	insignificance	Parameter	Check	0~255	Enable	022600BE21
		27	Window_G	insignificance	Parameter	Check	0~255	Enable	022700E9E8
		28	Window_B	insignificance	Parameter	Check	0~255	Enable	022800003E
		29	Void					Ignore	
		2A	Window_Fill	insignificance	Parameter	Check	0~1	Enable	022A0000E8
		2B	Window_On	insignificance	Parameter	Check	0~1	Enable	022B000184
		2C	Freeze	insignificance	Parameter	Check	0~1	Enable	022C000192
		2D	Singal(physics)	insignificance	Parameter	Check	0~4	Enable	022D0001F9
		2E	Audio(physics)	insignificance	Parameter	Check	0~4	Enable	022E000144

		2F	Void					Ignore	
		30	H_displace	Parameter_H	Parameter_L	Check	-50~2047	Disable	
		31	V_displace	Parameter_H	Parameter_L	Check	-10~2047	Disable	
		32	90 rot	insignificance	Parameter	Check	0~1	Enable	023200011C
		33	Void					Ignore	
		34	270 rot	insignificance	Parameter	Check	0~1	Enable	0234000066
		35	Void					Ignore	
		36	Void					Ignore	
1 st Stage	Ch	2 nd Stage	Branch	3 rd Stage	4 th Stage	5 th Crc8	Adjust Range(Base 10)	Usable	1st+2nd+3rd +4th+5th
02	CH3	37	Auto_scale	insignificance	Parameter	Check	0~1	Enable	02370000DB
03	CH4	01	X	Parameter_H	Parameter_L	Check	0~4095	Enable	03010780B3
		02	Y	Parameter_H	Parameter_L	Check	0~4095	Enable	0302043810
		03	W	Parameter_H	Parameter_L	Check	0~4095	Enable	0303074914
		04	H	Parameter_H	Parameter_L	Check	0~4095	Enable	030404420C
		05	H start	Parameter_H	Parameter_L	Check	0~image_HW[ch]	Enable	03050000FA
		06	V start	Parameter_H	Parameter_L	Check	0~image_VW[ch]	Enable	0306000047
		07	H end	Parameter_H	Parameter_L	Check	0~image_HW[ch]	Enable	03070F00EF
		08	V end	Parameter_H	Parameter_L	Check	0~image_VW[ch]	Enable	0308087094
		09	Format	insignificance	Color_format	Check	Read only	Disable	
		0A	Contrast	insignificance	Parameter	Check	0~40	Enable	030A00A2DA
		0B	Luminance	Parameter_H	Parameter_L	Check	0~1024	Enable	030B02F32B
		0C	H_acuity	insignificance	Parameter	Check	0~20	Enable	030C0008F8
		0D	V_acuity	insignificance	Parameter	Check	0~20	Enable	030D0002A5
		0E	Hue	insignificance	Parameter	Check	0~40	Enable	030E008EB5
		0F	Phase	insignificance	Parameter	Check	0~180	Enable	030F007C0E
		10	Temperature	insignificance	Parameter	Check	0~1	Enable	0310000098
		11	Enhance	insignificance	Parameter	Check	0~4	Enable	03110002FD
		12	Attenuation	insignificance	Parameter	Check	0~4	Enable	0312000149
		13	H_mirror	insignificance	Parameter	Check	0~1	Enable	0313000122
		14	V_mirror	insignificance	Parameter	Check	0~1	Enable	0314000134
		15	H_Nr	insignificance	Parameter	Check	0~3	Enable	0315000256
		16	V_Nr	insignificance	Parameter	Check	0~3	Enable	03160001E2
		17	Temporal_Nr	insignificance	Parameter	Check	0~3	Enable	0317000280
		18	Block_Nr	insignificance	Parameter	Check	0~3	Enable	03180001CE
		19	Mosquito_Nr	insignificance	Parameter	Check	0~3	Enable	03190000A2
		1A	Combing_Nr	insignificance	Parameter	Check	0~3	Enable	031A000118
		1B	Deinterlace	insignificance	Parameter	Check	0~1	Disable	
		1C	Enable 2:2PD	insignificance	Parameter	Check	0~1	Disable	
		1D	2:2PD time	insignificance	Parameter	Check	0~15	Disable	
		1E	Enable 2:3PD	insignificance	Parameter	Check	0~1	Disable	
		1F	2:3PD time	insignificance	Parameter	Check	0~15	Disable	
		20	Sensitivity	insignificance	Parameter	Check	0~4	Disable	
		21	D_Correction	insignificance	Parameter	Check	0~1	Disable	
		22	24 PSF Mode	insignificance	Parameter	Check	0~1	Disable	
		23	B_Correction	insignificance	Parameter	Check	0~3	Disable	
		24	G_Correction	insignificance	Parameter	Check	0~3	Disable	
		25	R_Correction	insignificance	Parameter	Check	0~3	Disable	
		26	Window_R	insignificance	Parameter	Check	0~255	Enable	0326008FA0
		27	Window_G	insignificance	Parameter	Check	0~255	Enable	032700D44D
		28	Window_B	insignificance	Parameter	Check	0~255	Enable	032800E9B9
1 st Stage	Ch	2 nd Stage	Branch	3 rd Stage	4 th Stage	5 th Crc8	Adjust Range(Base 10)	Usable	1st+2nd+3rd +4th+5th
03	CH4	29	Void					Ignore	
		2A	Window_Fill	insignificance	Parameter	Check	0~1	Enable	032A0001F9
		2B	Window_On	insignificance	Parameter	Check	0~1	Enable	032B000192
		2C	Freeze	insignificance	Parameter	Check	0~1	Enable	032C000083
		2D	Singal(physics)	insignificance	Parameter	Check	0~4	Enable	032D0000E8
		2E	Audio(physics)	insignificance	Parameter	Check	0~4	Enable	032E000055
		2F	Void					Ignore	
		30	H_displace	Parameter_H	Parameter_L	Check	-50~2047	Disable	
		31	V_displace	Parameter_H	Parameter_L	Check	-10~2047	Disable	
		32	90 rot	insignificance	Parameter	Check	0~1	Enable	033200010A
		33	Void					Ignore	
		34	270 rot	insignificance	Parameter	Check	0~1	Enable	0334000070
		35	Void					Ignore	
		36	Void					Ignore	
		37	Auto_scale	insignificance	Parameter	Check	0~1	Enable	03370001CA

04	Config	01	Backdrop_G	Parameter_H	Parameter_L	Check	0~255	Disable	
		02	Backdrop_B	Parameter_H	Parameter_L	Check	0~255	Disable	
		03	Backdrop_R	Parameter_H	Parameter_L	Check	0~255	Disable	
		04	Preset 1	insignificance	insignificance	Check	Void	Enable	04040000F3
		05	Preset 2	insignificance	insignificance	Check	Void	Enable	0405000098
		06	Preset 3	insignificance	insignificance	Check	Void	Enable	0406000025
		07	Preset 4	insignificance	insignificance	Check	Void	Enable	040700004E
		08	Preset 5	insignificance	insignificance	Check	Void	Disable	
		09	Void					Ignore	
		0A	Void					Ignore	
		0B	Protection	insignificance	insignificance	Check	Void	Disable	
		0C	Drop out 1	insignificance	Parameter	Check	0~1	Enable	040C0000A2
		0D	Drop out all	insignificance	Parameter	Check	0~1	Enable	040D0000C9
		0E	Drop out mute	insignificance	Parameter	Check	0~1	Enable	040E000173
		0F	Video GEN	insignificance	Parameter	Check	0~1	Enable	040F000118
		10	Overlay level	Parameter_H	Parameter_L	Check	*0246(ch*2)	Enable	04106024F3
		11	DHCP	insignificance	Parameter	Check	0~1	Astrict	
		12	Preset 6	insignificance	insignificance	Check	Void	Enable	041200002C
		13	Preset 7	insignificance	insignificance	Check	Void	Enable	0413000047
		14	Save	insignificance	insignificance	Check	Void	Enable	0414000051
		15	head rotation	insignificance	Parameter	Check	0~1	Enable	041500003A
		...	Void					Ignore	
		20	Scence	insignificance	Parameter	Check	0~3	Disable	
05	Config	...	Void	Save it for 418Pro				Ignore	
06	Out 1	01	Splice	insignificance	Parameter	Check	0~16	Enable	0601000A29
07	Out 2	01	Splice	Save it for 418Pro				Ignore	
08	Dev	...	Void					Ignore	
		07	Reset	insignificance	insignificance	Check	Void	Astrict	