



## **QUICK STARTUP GUIDE**

### **IP MATRIX**

**V2.03-4 022017**

### Preface

Important Information and safeguards before installation

1. Do not expose the device outdoors in rain or humid environment;
2. Do not use the device in hot closed environments without proper ventilation;
3. Do not spray liquid into the device, or add foreign materials;
4. Avoid installation in areas with flammable, explosive or corrosive gases;
5. To prevent fire, do not use non approved power cables;
6. To ensure device safety, do not open or dismantle the unit or open cover under power;

★  
★  
★

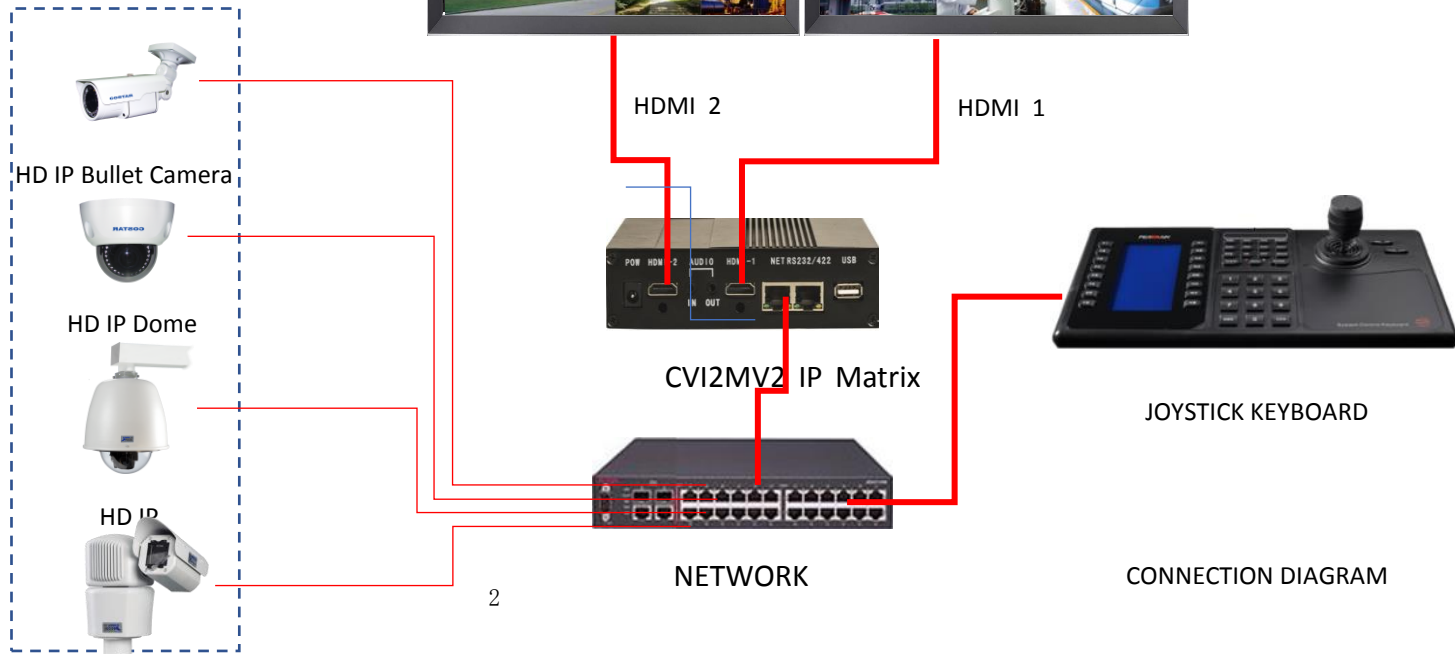


*NOTICE: Manufacturer reserves the right to amend or modify this information without prior notice. This material is protected under copywrite laws and cannot be copied, altered or modified without the express permission of the manufacturer.*

## QUICK STARTUP GUIDE

VIDEO STREAMS  
ONVIF / RTSP

VIDEO MONITORS



CONNECTION DIAGRAM

## **CONNECTIONS TO CAMERA NETWORK**

### **LAN SWITCH (NOT INCLUDED)**

- CONNECT IP MATRIX LAN PORT TO LAN SWITCH**
- CONNECT IP JOYSTICK KEYBOARD TO LAN SWITCH**
- IDENTIFY IP ADDRESS SCHEME**
- IDENTIFY SUBNET SCHEME**
- IDENTIFY GATEWAY IP ADDRESS**
- OBTAIN TWO STATIC (FREE) IP ADDRESSES**

## Understanding the keyboard

### Keyboard panel and its keys function

CVI-4500 keyboard controller diagram shows as followings:



The function of each key on the keyboard is shown below:

Keys	Functions descriptions
<b>F1~F8</b> <b>M1~M8</b>	real-time function button, display on the LCD screen
<b>0~9</b>	number
<b>WIN</b>	Window/screen selection
<b>CAM</b>	camera selection
<b>CLEAR</b>	Clear or cancel the input data value, cancel the operation
<b>MENU</b>	menu button
<b>ENTER</b>	Press for selection confirmation, Entering sub-menu and inputting IP address. This button also can input symbol “.”
<b>LOCK</b>	Unlock
<b>Joystick</b>	control the Pan-Tilt movements (up, down, right, left, top left, down left, top right, down right). control the movements of menu cursor (left, right, up, down)
<b>Joystick head zoom</b>	To control the zoom of the camera lens (rotate left or right)


**QUICK STARTUP GUIDE**

<b>NEAR</b>	zoom near
<b>FAR</b>	zoom far
<b>OPEN</b>	Iris open
<b>CLOSE</b>	Iris close
<b>SHOT</b>	Auxiliary button
<b>RUN</b>	Running/operating button
<b>STOP</b>	stop button
<b>MULT</b>	Multiplexer/splitting button
<b>PRESET</b>	preset button
<b>Power indicator</b>	blue indicator light is constant bright
<b>Communication indicator</b>	green indicator light is flicker

*⚡ Please do not push the joystick too hard or too fast as damage to the joystick mechanism may occur.*

KEYBOARD DEFAULT DEMO IP ADDRESS IS 192.168.0.81

User Login: After power is switched on you can see the image below

F1	<div>CVI4500</div> <hr/> <div>User 0</div> <div>Password _____</div> <div></div>	M1
F2		M2
F3		M3
F4		M4
F5		M5
F6		M6
F7		M7
F8		M8



On the Login interface, the user ID is from 0 to 255,

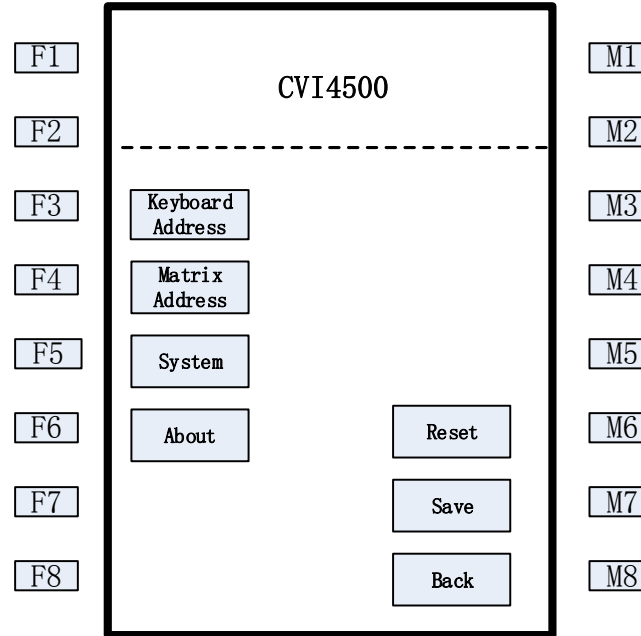
0 is administrator, is to set operation permission for the keyboard itself, from 1 to 255 are operators or standard users, which can control the HD Network Digital Matrix.

First time login, User name is 0 and no password. It allows you to enter the manager operation interface to set the parameters.

Operation steps: F4>0>ENTER>ENTER

### Keyboard IP Interface setting

After entering the administrator credentials, you can see the following display on the screen:



This interface can set some specific operation such as the keyboard address, Matrix address, system etc.

## Set Keyboard IP address

You need to set a static IP address (one of the two obtained from the IT department )

When ready press F3 on the keyboard, to press F3 to enter the “keyboard address” setting interface, as shown on the LCD screen display below:

	Keyboard Address		
F1			M 1
F2			M 2
F3	IP	192.168.6.198	M 3
F4	MASK	255.255.255.0	M 4
F5	GATE	192.168.6.1	M 5
F6			M 6
F7			M 7
F8		Back	M 8

The image above is the default setting of the keyboard controller.

You can set IP, MASK and GATEWAY as follows:

Press F3 to change the IP address;

For example: If you want to change the IP to 192.168.6.198, the operation steps:

F3>1>9>2>ENTER>1>6>8>ENTER>6>ENTER>1>9>8>ENTER

Press F4 to change the MASK address. The operation steps are the same as above;

Press F5 to change GATEWAY address. The operation steps are the same as above.

- *Remark: The “ENTER” button represents symbol “.”, when you set the IP, MASK, GATE. If you finish the input of number, the button represents the confirmation of the number you entered.*
- *The value of IP, MASK and GATE is set according to required parameters.*
- *The default IP address: 192.168.0.81. Subnet mask: 255.255.255.0. Gateway: 192.168.0.1. Source port: 1026. Destination port: 1026.*

*Attention: The keyboard's IP address and its HD Network Digital Matrix's IP address need to be in the same network segment, in the meantime, conflict of IP address needs to be avoided.*

## Set IP Matrix address

In the interface of keyboard setting,

Press F4 to enter the “matrix address” setting interface, it will display the following:

F1	<div style="text-align: center;"> <b>Matrix Address</b> </div> <hr style="border-top: 1px dashed black;"/> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px;">Port1</div> <div>1026</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px;">IP1</div> <div>192.168.6.17</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px;">Port2</div> <div>1026</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px;">IP2</div> <div>192.168.6.18</div> </div> <div style="text-align: right; margin-top: 20px;"> <div style="border: 1px solid black; padding: 2px;">Back</div> </div>		M 1
F2			M 2
F3			M 3
F4			M 4
F5			M 5
F6			M 6
F7			M 7
F8			M 8

Press F3 , to set the port 1 , default setting is 1026; Press F4 ,and input the IP1 address of the HD network digital matrix was controlled ;

Press F5 , to set the port 2 , default setting is 1026; Press F6 ,and input the IP2 address of the HD network digital matrix was controlled ;

This keyboard can control two HD network digital matrix at the same time;

Example: HD network digital matrix

Port: 1026

IP address: 192.168.6.220

Operating steps:

Port1: F3>1>0>2>6>ENTER

IP1: F4>1>9>2>ENTER>1>6>8>ENTER>6>ENTER  
>2>2>0>ENTER

After setting, Press M8 and choose “back”, then press M7 and choose “save”.

*Attention: Setting the matrix's IP address can be used for controlling the selected HD network digital, but not to be used it's own IP address.*

### 3.5 System setup

Press F5 will enter the “system” setting interface. The display will show as follows:

F1	System		M1
F2	-----		M2
F3	Password		M3
F4	Login	None	M4
F5			M5
F6			M6
F7			M7
F8		Back	M8

You can set up the password, to login to this page.

### **3.5.1 User's password**

Press F3 , allows you to enter the password settings which can set up the user's password .

EX: you can set user 0's password as 12345

Operating steps :

F3>0>ENTER>F4>1>2>3>4>5>ENTER

At the same way, you can set other user's password, after setting, please save and exit. Then when you login next time, it will be updated to the new password.

### **3.5.2 Set the way of login**

On the page of setting interface, press F5 to choose the way of login .

EX: set up the way of login as Local

Operation steps: F5>M6

After setting , please save and exit .

*Attention: The password for user 1 to 255 will be valid only when you set up the way of login as Local.*



On the page of the HD network digital matrix's WEB interface , you can accomplish the set of screen and windows layout, get the list of camera source , then you can control and operate the HD network digital matrix by the CVI-4500 keyboard.

When you use the keyboard for the first time, you will need to set up the keyboard controller 's IP address and gateway , input the IP and the port parameter of controlled HD network digital matrix, then save it .

After setting up the keyboard 's parameters, choose a user to log in , then enter the operation interface. You can perform all the functions listed below:

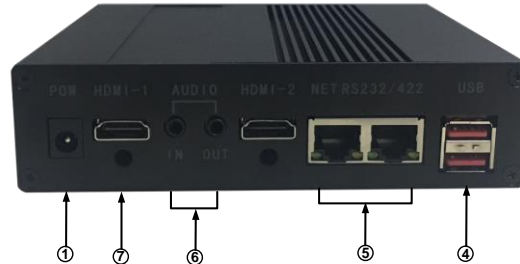
## Operation introduction

Function	Operation introduction
Split screen	N (screen No.) +MON+M (1/4/9/16) +MULTI
Split screen run	N (screen No.) +MON+M (salvo No.) + RUN
Split screen stop	N (screen No.) +MON+M (salvo No.) + STOP
Switch the video to the screens	N (screen No.) +MON+M (camera No.) +CAM
Group operation on screen	N (screen No.) +MON+M (group No.)+RUN
Stop screen groups	N (screen No.) +MON+M (group No.)+STOP
Video splicing	SHOT+MON+N (screen No. on matrix top left corner) +MON+M (screen No. on matrix bottom right corner) +MON
Exit the splicing	SHOT+WIN+N(WIN No.)+WIN
Preset Set	N+SHOT+PRESET

**QUICK STARTUP GUIDE**

Call preset	N+PRESET
PTZ control	Control the CAM PTZ by joystick
CAM 上切	FWD
CAM 下切	BWD
Lock the keyboard	SHOT+LOCK
Unlock the keyboard	LOCK
Attention: groups contain tour, salvo, screen cannot be split	

## Part II Matrix Setup



①	Power port & switch
②	NET cascade port (Reserved)
③	Alarm output port (Reserved)
④	USB 2.0 port
⑤	NET-LAN port, RS232/RS422 port (Reserved)
⑥	Audio in/out port (Reserved)
⑦	HDMI port

## IP address search

Locate the Software disk included in the package. Using the IP Config search tool “IpConfig.exe”, you should see the interface as shown in the following 3.1 figure:

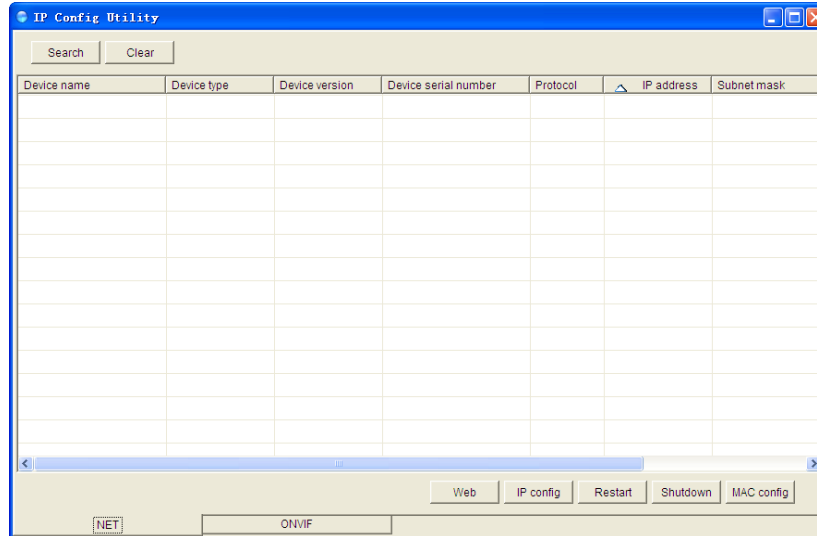


Fig 3.1 IP Config tool

[illegible]

21

Click “IP config” to set or modify the IP address, subnet mask, gateway, Enter the second Static IP address obtained from your IT department, then to click “OK” to confirm.

Default IP address set for this demo system is 192.168.0.80

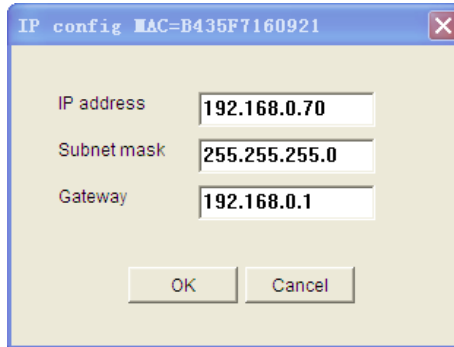


Fig 3.3 IP setup

## **Matrix configuration**

### **Log in to IP matrix configuration menu**

After starting the device, the system requires users to log in and allocate corresponding functions according to the user permission.

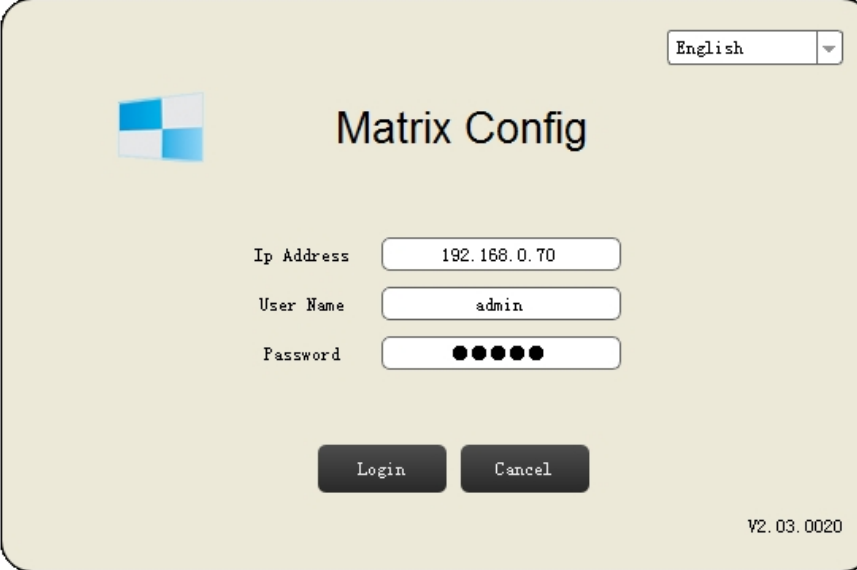
IP address: Use IpConfig.exe to find out the IP address.

Note: Default IP address is 192.168.0.80

Extract the ConfigTool.zip and run “MatrixConfig.exe”. Select English as the preferred language on the top right corner, then input User name and Password to log in the HD IP Matrix configuration interface.

(Default User name: admin Pwd: 12345





The image shows a login interface titled "Matrix Config". In the top right corner, there is a language selection dropdown menu currently set to "English". On the left side, there is a logo consisting of four squares in a 2x2 grid, with the top-left and bottom-right squares in blue and the top-right and bottom-left squares in white. The main title "Matrix Config" is centered at the top. Below the title, there are three input fields: "Ip Address" with the value "192.168.0.70", "User Name" with the value "admin", and "Password" with five black dots. At the bottom, there are two buttons: "Login" and "Cancel". In the bottom right corner, the version number "V2.03.0020" is displayed.

Fig 4.1 matrix configuration login interface

*Note: When mouse and keyboard connect to the matrix USB directly, mouse can invoke matrix configuration interface, and keyboard supports English, digital and underline input.*

When logged in successfully, configuration interface will be displayed as in fig. 4.2 below

(subject to equipment configuration ordered)

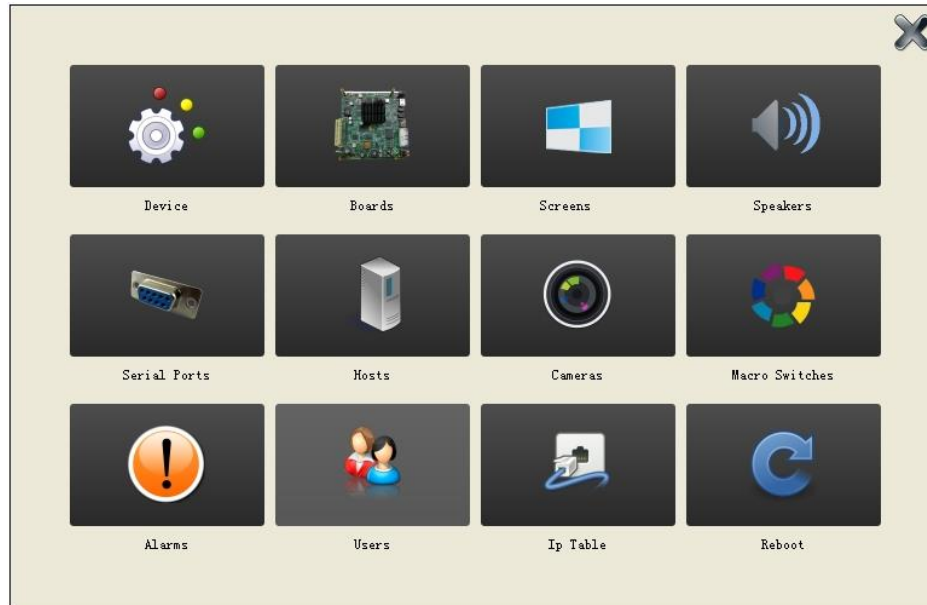


Fig 4.2 matrix configuration interface

**【Device】:** Check and set the equipped IP keyboard parameter, set the output code stream pattern and the OSD parameters.

**【Hosts】:** Check and set the access hosts parameter (stream media server and alarm gateway server)

**【Cameras】:** Check and set the access for IP cameras and RTSP devices

**【Screens】:** Check and set the output interface parameter

**【Macro Switches】:** Set patrol, group, split switch functions.

**【Alarms】:** Can realize link with networking alarm devices.

**【Users】:** Check and set the users' ID and password

**【IP Table】:** Check and set the IP address of every single internal board

**【Reboot】:** Reboot the matrix

## Camera Configuration

Click “Cameras” in the matrix configuration interface and come into cameras configuration

interface. The IP cameras (Onvif compliant) will be listed here. Fig 4.6 as below.



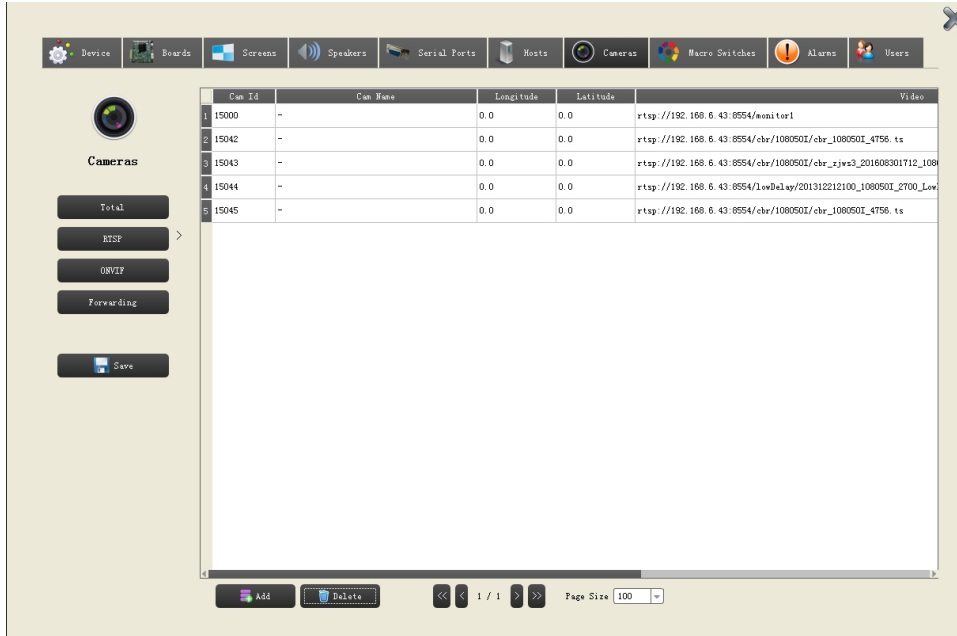
The screenshot displays the 'Cameras' configuration page. On the left sidebar, there is a 'Cameras' icon and a 'Total' button. The main area contains a table with the following columns: Cam ID, Cam Name, Longitude, Latitude, Connect, OSD1, and OSD2. The table lists 20 cameras, including various models like hik2018, hik2110, hik2070, hik2008, dahua118, and dahua209. The bottom of the interface features an 'Add' button, a 'Delete' button, and a 'Page Size' dropdown menu set to 100.

Cam ID	Cam Name	Longitude	Latitude	Connect	OSD1	OSD2
1	97 192.168.6.201 VideoSourceConfig	0.0	0.0	ONVIF	hik2018onvif	hik2018onvif
2	192.168.6.210 VideoSourceConfig_1	0.0	0.0	ONVIF	2108onvif	
3	192.168.6.211 VideoSourceConfig	0.0	0.0	ONVIF	hik2110onvif	hik2110onvif
4	PE-28ET220IT-A 192.168.6.207 VideoSourceConfig	0.0	0.0	ONVIF	hik2070onvif	hik2070onvif
5	192.168.6.212 VideoSourceConfig	0.0	0.0	ONVIF		
6	HIKVISION RS-28ET225-I 192.168.6.208 VideoSourceConfig	0.0	0.0	ONVIF	hik2008onvif	hik2008onvif
7	192.168.6.211 VideoSourceConfig	0.0	0.0	ONVIF		
8	Dahua 192.168.6.111 VideoSourceConfig_Channel1	0.0	0.0	ONVIF	dahua118onvif	dahua118onvif
9	192.168.6.111 VideoSourceConfig_Channel1	0.0	0.0	ONVIF		
10	ipcamera 192.168.6.2 vscname_ch0001	0.0	0.0	ONVIF	TD6_28onvif	TD6_28onvif
11	Dahua 192.168.6.112 VideoSourceConfig_Channel1	0.0	0.0	ONVIF		
12	192.168.6.204 VideoSourceConfig	0.0	0.0	ONVIF		
13	192.168.6.212 VideoSourceConfig	0.0	0.0	ONVIF		
14	Dahua 192.168.6.209 VideoSourceConfig...	0.0	0.0	ONVIF	dahua2098onvif	dahua2098onvif
15	dahua209	0.0	0.0	Forwarding	dahua2098WSP	dahua2098WSP
16	dahua111	0.0	0.0	Forwarding	dahua118WSP	dahua118WSP
17	dahua112	0.0	0.0	Forwarding	dahua112WSP	dahua112WSP
18	hik204	0.0	0.0	Forwarding	hik2040WSP	hik2040WSP
19	HIK207	0.0	0.0	Forwarding	hik2070WSP	hik2070WSP
20	HIK208	0.0	0.0	Forwarding	hik2008WSP	hik2008WSP

Fig 4.6 camera configuration

## RTSP Video Stream Configuration

Select “RTSP” to display the RTSP interface as below.



The screenshot displays the RTSP Video Stream Configuration interface. The top navigation bar includes tabs for Device, Boards, Screens, Speakers, Serial Ports, Hosts, Cameras, Macro Switches, Alarms, and Users. The left sidebar shows a 'Cameras' icon and a list of buttons: Total, RTSP, ONVIF, Forwarding, and Save. The main area contains a table with the following data:

Cam Id	Cam Name	Longitude	Latitude	Video
15000	-	0.0	0.0	rtsp://192.168.6.43:8554/monitor1
15042	-	0.0	0.0	rtsp://192.168.6.43:8554/chr/1080501/chr_1080501_4756.ts
15043	-	0.0	0.0	rtsp://192.168.6.43:8554/chr/1080501/chr_zjw3_201608301712_108
15044	-	0.0	0.0	rtsp://192.168.6.43:8554/lowDelay/201312212100_1080501_2700_Low
15045	-	0.0	0.0	rtsp://192.168.6.43:8554/chr/1080501/chr_1080501_4756.ts

At the bottom, there are buttons for 'Add' and 'Delete', and a pagination bar showing '1 / 1' and 'Page Size 100'.

Fig 4.7 RTSP List

Click “Add” to manually edit the camera name, RTSP address, etc.

If you wish to remove a device, select the camera in the list and click “Delete” to delete a camera.

After any configuration changes click “Save” to apply your changes.

## ONVIF configuration

Select “ONVIF” to display the ONVIF interface. Figure 4.8 as below.

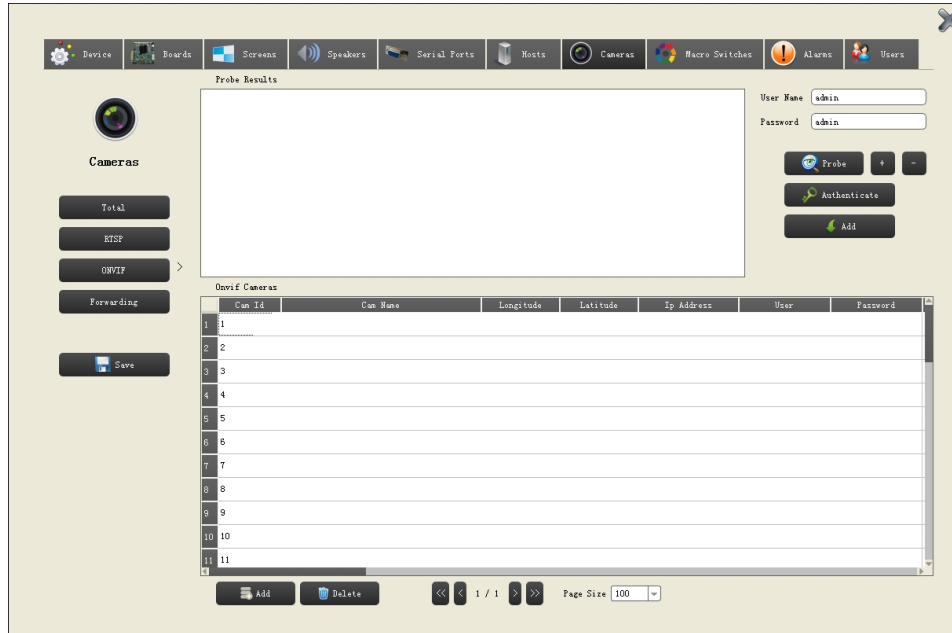


Fig 4.8 ONVIF List

Click on “Probe” to scan the LAN network matching the IP scheme of the matrix IP address.

Example: If the IP address of the Matrix is 192.168.0.70 the scan will discover any Onvif compliant cameras with the IP address 192.168.0.xxx

In the User name and password boxes enter the default user name and password for the admin account (assuming it is the same for all cameras). Otherwise you will have to enter each camera’s respective user name and password credentials to authenticate and add them to the list.

Following the network scan any ONVIF compliant cameras will be shown on the list. Click “Authenticate” and verify by scrolling to the right of the Probe Results window that the cameras show Success for Authentication. If they show Fail you need to enter the correct credentials and try again.

Select the verified cameras one by one or as a group (hold shift key down) and click “Add” to add them to the ONVIF list. Figure 4.9 shown as below.



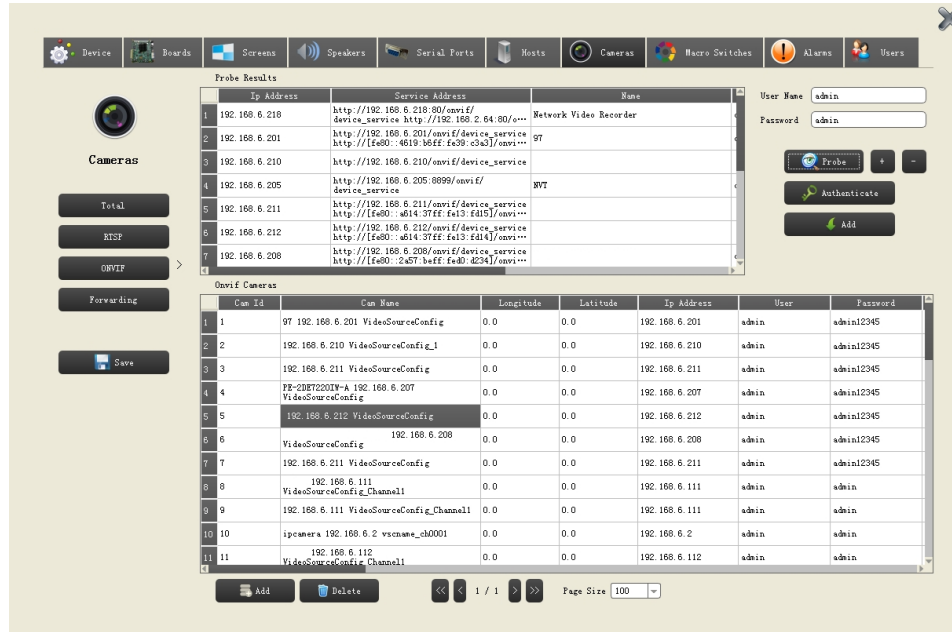


Fig 4.9 ONVIF access

Camera name, User name and Password can be modified when a camera is selected. Double Click on each field and enter the description or credentials.

Click “+” to manually add a camera configuration line, enter the camera IP address that needs authentication.

Click “-” to manually delete the selected camera configuration line.

*Note: Default User name and Password while authenticating is “admin”.*

## 4.5 Video Screen configuration

Click “Screens” in the matrix configuration interface and display the screen configuration interface. Figure 4.11 as shown below.

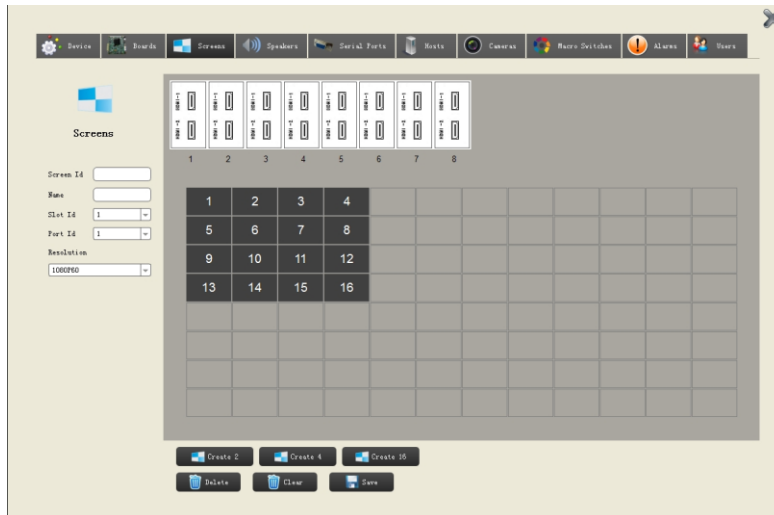


Fig 4.11 Screens configuration

The default configuration is a 4x4 display equal to 16 screen displays when entering the configuration menu. Click “Clear” to clear all screens or select one or some of them then click “Delete” to delete the selected ones.

Screens parameters will display show in the left side of your window.

Screen ID and Name can be set as needed.

Slot ID, Port ID and resolution will be also displayed here and default resolution is 1080P 60fps.

Resolution can be changed in the pull-down list.

Click any Screen ID, and it will dynamically link the HDMI output of the board and indicate the corresponding output port of current screen. Figure 4.12 as shown below.

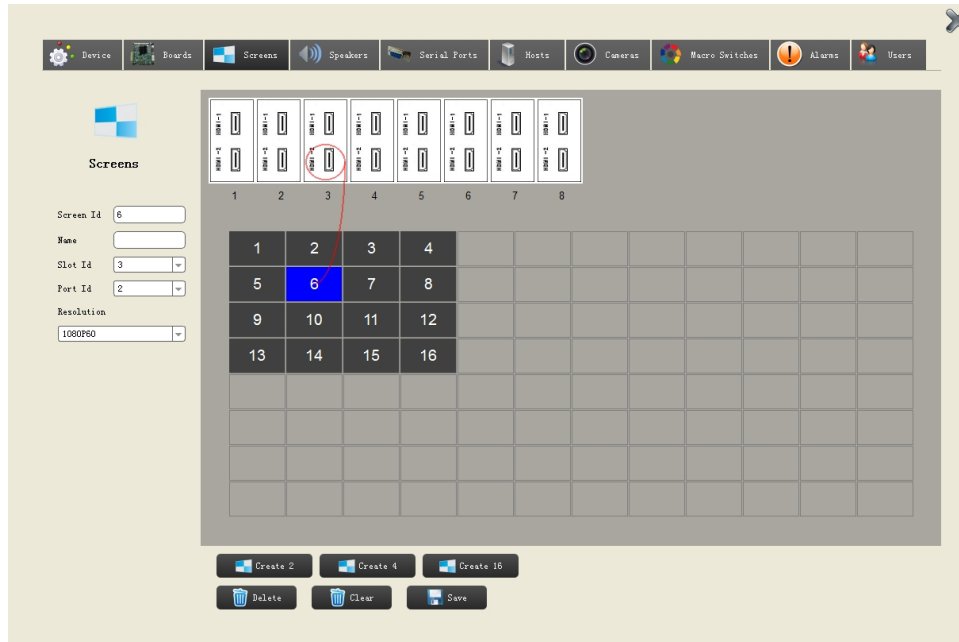


Fig 4.12 Screen link

For Operation of the Video wall via the PC interface please refer to PC Client User Manual .