



PB9700 4K Over IP

AV Matrix/VideoWall/IP KVM

User Guide

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I. PB9700 models:

Model	PB9700-SE	PB9700-RE	PB9700DNT-SE	PB9700DNT-RE
Sender/Receiver	4K Sender	4K Receiver	4K Sender	4K Receiver
Video In/Out	4K60Hz 4:4:4 HDMI In (Dolby Vision, HLG, HDR 10, HDR+) 4Kx2K60Hz DP Alt. Mode (USB C) In (HLG, HDR10)	4K60Hz 4:4:4 HDMI Out (Dolby Vision, HLG, HDR 10, HDR+)	4K60Hz 4:4:4 HDMI In (Dolby Vision, HLG, HDR 10, HDR+) 4Kx2K60Hz DP Alt. Mode (USB C) In (HLG, HDR10)	4K60Hz 4:4:4 HDMI Out
Audio Over IP	AES67 2x2, LPCM only, Up to 96Khz, Discovery by SAP	AES67 2x2, LPCM only, Up to 96Khz, Discovery by SAP	Dante/AES67 2x2, LPCM only, Up to 96Khz	Dante/AES67 2x2, LPCM only, Up to 96Khz
Max. Audio Format	7.2 ch LPCM/Dolby ATMOS/DTS X			
Audio Connector	3.6mm Line In/Line Out S/PDIF Out (ARC, 5.1 Dolby Digital) HDMI In (eARC/ARC Out, 7.1ch)	3.6mm Line In(Unicast Only)/Speaker Out S/PDIF In (ARC, 5.1 Dolby Digital) HDMI Out (eARC/ARC In, 7.1 ch)	3.6mm Line In/Line Out, S/PDIF Out (ARC, 5.1 Dolby Digital) HDMI In (eARC/ARC Out, 7.1 ch))	3.6mm Line In(Unicast Only)/Speaker Out S/PDIF In (ARC, 5.1 Dolby Digital) HDMI Out (eARC/ARC In, 7.1 ch))
RS232 Connector	DB15 x 1	DB15 x 1	DB15 x 1	DB15 x 1
IR Connector	IR Emitter Jack x 1 IR Receiver Jack x1	IR Emitter Jack x 1 IR Receiver Jack x1	IR Emitter Jack x 1 IR Receiver Jack x1	IR Emitter Jack x 1 IR Receiver Jack x1
USB Connector	USB Type C x 1 (DP Alt. Mode + USB Link)	USB 2.0: Type A x 1, Type C x 1 USB 1.1: Type A x 2	USB Type C x 1 (DP Alt. Mode + USB Link)	USB 2.0: Type A x 1, Type C x 1 USB 1.1: Type A x 2

II. Ethernet Switch Setting

1. Please select Layer 2/3 managed/smart switch to work with Aavara 4K Over IP.
2. Enable **IGMP Snooping (Version 2)**, and all sender/receivers are in **same VLAN group**.
3. Enable **JumboFrame (at least 8Kb)** on all ethernet switches.
4. Enable IGMP Querier on major switch and disable Fast Leave on all switches, if multiple ethernet switches installed.
Be sure network bandwidth between switches is enough for video network, it can use Fiber connection or set **802.3ad Port Trunking/Link Aggregation** to increase bandwidth between switches.
5. If Ethernet switch is also used for other service like PC network or Voice Over IP:
 - Set different VLAN groups to divide different network service.
 - For RJ45 ports or Fiber ports used for other services, set **IGMP Blocked (HP switch)** or **Multicast Forward Forbidden (Cisco switch)**, to avoid video streaming data affect.
6. Be sure to save above setting before reboot ethernet switch.

III. PB9700 Hardware Installation

1. Connect all Senders and Receivers to Gigabit Switch by Cat5e/6 cables and connect to video source and TV/Display with HDMI cables.
2. [optional] Connect IR emitter cables & IR Receiver cables to Sender/Receiver's IR Emitter/Receiver Jack. IR emitter cable to IR emitter jack, IR receiver cable to IR receiver jack. And point IR emitter head of IR emitter cable to device IR receiver window, IR receiver head of IR receiver cable to IR remote location and keep clear line of sight in between.
3. [optional] Connect RS232 cables between PC/controller to Senders, TV/Displays to Receivers.
4. [optional] Connect USB cables between PC/server to Senders and plug USB Keyboard/Mouse or other USB devices to Receiver's USB port.
5. Plug-in DC power adapter to all Senders and Receivers. Units power on.
If PoE switch or PoE injector connected, then no need to plug-in DC power adapter.
6. Power on all Video Sources and start playing video.

IV. Integrate with 3rd Party Controller

PB9700 supports the following major 3rd party controllers' integration:

- Control 4, AMX, Crestron, Extron, RTI, Elan g!, QSC, Neets and more.

Aavara provides controller driver that allows 3rd part controller to control Aavara HDMI Over IP sender and receiver by IP command directly.

Please check Aavara representative or your distributor for 3rd party driver and user instruction.

Once use Web interface Setup then Dip Switch setting will be ignored!

V. IP Setting, Web Configuration & Control

V.A. To Know IP address of Aavara HDMI Over IP Sender and Receiver

Aavara HDMI Over IP sender and receiver has factory default IP within 169.254.xxx.xxx C class range, and netmask 255.255.0.0, IP address of each HDMI Over IP unit can be found by following way:

Unit IP Show on Screen OSD:

1. To set up a sender connect to a receiver by Cat5e cables (can be with or without Ethernet switch in between).
2. receivers connect to a TV or Display with a HDMI cable.
3. Power on Sender, Receiver and TV/Display.
4. On right bottom of screen, it will show:
 - Local IP Receiver IP address
 - Remote IP Sender IP address
5. Then, please connect the sender to a PC/Notebook RJ45 port with a Cat5e cable and power on.
6. To set PC/Notebook RJ45 port IP configuration as follow:
 - IP address: 169.254.0.100 (or any IP within 169.254.xxx.xxx range)
 - Netmask: 255.255.0.0

Or

Finding unit and IP in Bonjour Browser

Software Required:

1. **Apple Bonjour SDK** free download from Apple SDK web site, if you are using MS windows OS PC/NB, Apple MacPro or MacBook, then it doesn't need it, it already built-in OS X.
 - can download from Apple developer web site.
2. **Bonjour Browser** for easily finding out all senders and receivers on network.
 - Just google and download from Internet.

1. To set PC/Notebook RJ45 port IP configuration as follow:
 - IP address: 169.254.0.100 (or any IP within 169.254.xxx.xxx range)
 - Netmask: 255.255.0.0
2. Setup all Cat5e cable connection between PC/Notebook, sender, receiver and Ethernet switch, then power on.
3. [optional] Install Apple Bonjour SDK on your MS Windows PC/Notebook.
4. Launch Bonjour Browser and check HTTP service section. All Aavara HDMI Over IP sender and receiver can be found at following domain name:

- Sender	Aavara-gateway0000.local	0000 represent video channel number
- Receiver	Aavara-clientAAAAAAAAAAAA	AAAAAAAAAAAA represent MAC address of receiver.

V.B. Launch AV Master Control Web page.

[http://\[unit ip\]/cfg.html](http://[unit ip]/cfg.html) Unit configuration web page (needed only when you want to change unit IP)

[http://\[unit ip\]/index.html](http://[unit ip]/index.html) Aavara AV Master /Control web page

V.C. Change IP address of Sender and Receiver

User: adm Log Out

System VideoWall **Network** Functions

IP Setup

IP Mode: Auto IP DHCP **Static**

IP Address: 192.168.0.86

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.0.1

Apply

Aavara HDMI Over IP sender and receiver has factory default IP within 169.254.xxx.xxx C class range, and netmask 255.255.0.0. Recommend setting static IP to each box to know which one is which one on network. IP address of each HDMI Over IP unit can be changed by following way:

1. Launch Web browser with following URL, the Unit Web page will show:

`http://[unit ip]/cfg.html`

2. Change IP Mode to Static

- IP Address: Please assign an IP with correct format. (Ensure all boxes' IP are at same C or D class range).

- Subnet Mask: 255.255.0.0 or based on proper ethernet network planning.

- Default Gateway: Only if needed, please refer to gateway setting on Router.

3. Click Apply Button to save new setting, but the unit need to be rebooted to get new setting effect.

4. Click System Tab → Utilities → Click Reboot button, reboot.

User: adm Log Out

System **VideoWall** Network Functions

▶ Version Information:

▶ Update Firmware:

▼ Utilities:

Commands

Factory Default Reboot

VI. Aavara AV Master Web Interface

Aavara AV Master Web interface, built-in in every Aavara HDMI Over IP unit, is one-webpage setup and control entire HDMI Over IP AV Matrix and Video Wall. It will only need to configure and operate Aavara AV Master Web Interface on One unit then that unit will become master control unit of entire system, usually recommend using first sender, then all rest of units just take order.

To Connect Aavara AV Master Web Interface via PC/Tablet, connect to same ethernet Switch/Wifi AP with following IP setting:

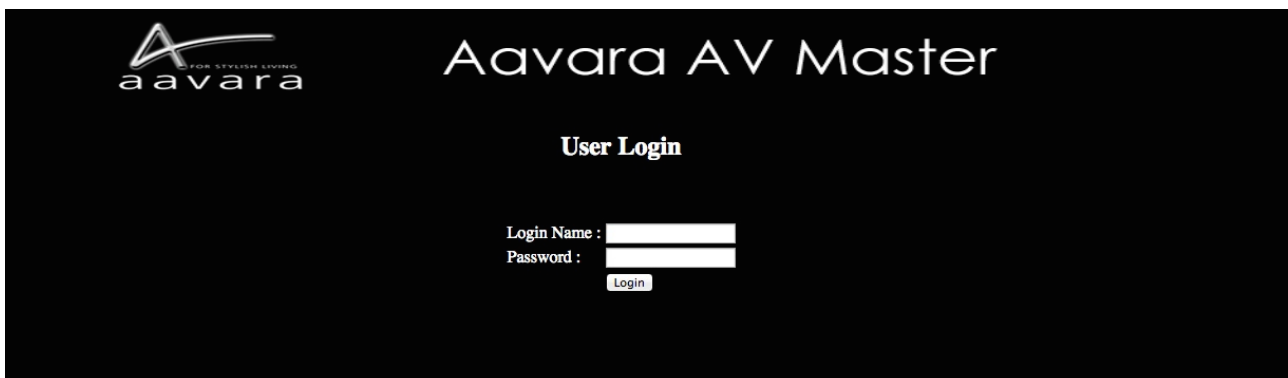
- IP address: any no conflict IP within same C or D class IP range with all senders and receivers.
- Netmask: 255.255.0.0 or value base network configuration that allow all units can see each other.
Factory default IP range is 169.254.xxx.xxx netmask 255.255.0.0
Or, same static IP range had been set on boxes.
- Web browser: recommend Google Chrome, Firefox, Safari

Launch Web browser with following URL (domain name of sender at channel 0, default sender setting):

<http://aavara-gateway0000.local>

VI.A. User Login

Every time launch web browser and Aavara AV Master Web page will ask user to login.



System Default Login name and Password (Can be revised or deleted later at User Management Tab) with Administrator authorization.

Login name: adm
Password: adm

After Login, on right top corner, it will show Login User info and Logout button.

User with **Administrator** authorization will see both AV Matrix/VideoWall/Control Operation and All Setup functions.



User with **Operator** authorization will see AV Matrix/VideoWall Operation functions only.



Only User with **Administrator** Authorization allows to access unit configuration cfg.html



Access other units' web page other than master control unit, will redirect web page/URL to master control unit's web page.

Once User Session expired, AV Master Web Interface will ask user to login again.

VI.B. Setup within AV Master Web Interface

Click on Setup Tab on first time installation and configuration change later, wait few seconds, AV Master will scan and list all Senders and Receivers. Please configure all parameters for Senders and Receivers, detail at table below, according to installation & operation requirement. All settings will store in this Sender or Receiver only and later operation should connect to this Sender/Receiver's web page only.

If any USB or RS232 setting changed, the unit will need to be rebooted to get new setting effect.

For Device Control Command code setup, need to do by CSV file uploading way as next section showed.

Video Source / Sender Setup:

Channel	IP	Group	Codename	USB	Reset EDID	Max. Bit Rate	AoIP Enable	Audio Input Select	Device Control ID	RS232 Mode	RS232 Baudrate
1	169.254.0.11	Movie	Media Player	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Auto	N/A	Auto Detect	0	Pass-Thru	115200
2	169.254.0.12	Sport	Blu Ray Player	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Auto	N/A	Auto Detect	0	Pass-Thru	115200

Display / Receiver Setup:

ID	IP	Group	Codename	USB	HDR 3D Surround	Video Output Format	Video Rotation	AoIP Enable	Audio Output Select	Device Control ID	RS232 Mode	RS232 Baudrate
1	169.254.0.21	Residential	Living Room TV	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Auto Detect	0	N/A	Native	0	Pass-Thru	115200
2	169.254.0.22	Commercial	Signage Display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Auto Detect	0	N/A	Native	0	Pass-Thru	115200

Video Source/Sender:

Field	Description
Channel	Range 1 ~ 9999, Auto assign or manual change, each sender must have Unique Channel Number assign. No two or more Senders got same channel number.
IP	IP Address (Auto assign, or go Unit cfg.html for static IP assign)
Group	Sender's Group name for further management requirement.
Codename	Sender's Codename / Video Source name for further operation required.
USB	Enable (checked) / Disable (unchecked) USB pass-thru
Reset EDID	Reset Sender EDID table to factory default
Max. bit rate	Set Maximum Bit rate on video streaming for bandwidth control. Video quality will drop if choose smaller max. bit rate
AoIP Enable	N/A(Aavara Audio over IP only), AES67 or Dante(selected Models only).
Audio Input Select	Select Audio Source from HDMI or Analog Audio Input
Device Control ID	Match Device ID in Device Control CSV File (control by CEC(HDMI)/IR/RS232)
RS232 Mode	IP Command Rs232 command issue by IP command Pass-Thru RS232 command pass-thru between sender and receiver rs232 ports
RS232 Baudrate	Assign RS232 Baudrate , range 115,200 ~ 300 bps

Display/Receiver:

Field	Description
ID	Auto or Manual Assign, Each Receiver must have Unique ID Number assign. No two or more Receivers got same ID number.
IP	IP Address (Auto assign, or go Unit cfg.html for static IP assign)
Group	Receiver's Group name for further management requirement.
Codename	Receiver's Codename / Display name for further operation required.
USB	Enable (checked) / Disable (uncheck) USB pass-thru
HDR/3D/Surround	Enable (checked) / Disable (uncheck) EDID Copy function from Display and pass to Sender for supporting HDR, 3D and Surround Sound output (LPCM/Dolby/DTS), on need to be base.
Video Format	- AutoDetect: Auto detect TV/Display's EDID and output recommend video format. - Pass-Thru: Same as Video Input at Sender side - Fixed HDMI format 2160p60Hz ~ 576p50Hz, 480p60Hz. Fixed DVI format 1920x1200@60Hz , 1440x900@60Hz and more.
Video Rotate	Video Rotate 0, 90, 90 stretch, 180, 270 degree, vertical/horizontal mirror
Device Control ID	Match Device ID in Device Control CSV File (control by CEC(HDMI)/IR/RS232)
RS232 Mode	IP Command Rs232 command issue by IP command Pass-Thru RS232 command pass-thru between sender and receiver rs232 ports
RS232 Baudrate	Assign RS232 Baudrate , range 115,200 ~ 300 bps

Notice!

1. Please wait for few sec. AV Master will search all senders and receivers on network.
2. Each Sender must be assigned a unique video channel (CH) number, NOT to let two senders with same number.

3. Group name and Codename can use English, French, Latin, German, Chinese and Japanese fonts, but it won't be able to show on OSD. Use underscores instead of spaces for the Group name and Codename fields.
4. If USB & RS232 setting changed, the unit will auto reboot to get new settings effect.
5. If any of HDMI device connected to Sender or Receiver does not support 3D or Multichannel audio, recommend to keep 3D Video & Surround option off to speed up video channel switching and maximum EDID compatibility.

VI.C. Setup & Backup by CSV files

Setup by CSV Files

1. Please set static IP on every each unit, at each unit' cfg.html, refer IP setting section for more details.
2. Login user with Administrator authorization.
3. Refer following CSV files detail to plan and edit in Spreadsheet application. Then, save at CSV file format (divide field by a comma.)
4. Upload CSV files one by one.
5. Press button Updating all other units. This step will take long time to update if large scale matrix/VideoWall installed, please be patient.
6. Reboot all units after CSV files uploaded and all units updated.

Backup by CSV Files

1. Click Backup Current Setting Button. AV Master will collect all setting and convert into CSV files. Web Page will show Sender/Receiver/Control Download CSV file URLs.
2. Click the URL to download current CSV files.

Replace AV Master Master Control Unit

1. Get a new unit of sender or receiver.
2. Change IP setting to be same as the old Master Control Unit, refer IP setting section for more details.
3. Upload Sender/Receiver/Device Control CSV Files
4. The unit is ready to replace the old Master Control Unit.



The screenshot displays the Aavara AV Master web interface. At the top, the Aavara logo and 'Aavara AV Master' title are visible. The user is logged in as 'Administrator adm'. A navigation menu includes options like Multicast, Drag N Drop Matrix, Matrix, Multicast Group, Videowall, Device Control, Setup, Setup & Backup by CSV (highlighted), and Videowall Setup. Below the menu, the 'Setup & Backup by CSV Files' section is active. It contains two main steps: 'Step 1: Upload Setup CSV Files and Update this Box Only.' and 'Step 2: Update Setting to All Outher Senders and Receivers.' Step 1 includes three file selection fields for Sender, Receiver, and Device Control CSV files, each with a 'Choose File' button and an 'Upload' button. Step 2 includes 'Update All Senders' and 'Update All Receivers' buttons. Below this, the 'Backup Current Setting to CSV Files' section has a 'Create CSV Files' button.

Sender CSV File Format & Parameter Description

Don't change field sequence. First row field name can be changed. Use comma to divide field when saving CSV file.

Field / Parameter	Description	Parameter Value
IP	Sender IP	ie. 169.254.8.105 192.168.1.25
Channel	Assign unique channel number, don't duplicate.	1 ~ 9999
Group	Sender Group name	English, German, French, Latin, Chinese, Japanese, _
Codename	Sender Codename	English, German, French, Latin, Chinese, Japanese, _
Enable/Disable USB Pass-Thru	USB Pass-Thru between Sender and Receiver	y/n only (Lower letters only) y : disable USB Pass-thru n : enable USB Pass-thru
Max. Bit Rate	Max. bit rate of video streaming from Sender	Parameter value options: auto : auto, max. 850Mbps 200M : max.200Mbps 150M : max.150Mbps 100M : max.100Mbps 50M : max. 50Mbps 10M : max. 10Mbps 5M : max. 5Mbps
Dante/AES67 AoIP Enable	Enable or Disable Dante/AES67 AoIP function	Parameter value options: none : Disable AoIP dante : Enable Dante AoIP aes67 : Enable AES67 AoIP
Audio Input Select	Select audio input on sender for audio streaming	Parameter value options: hdmi : HDMI audio analog : analog audio auto : auto select HDMI/analog(analog first) aoip : Dante or AES67 AoIP In
Device Control ID	To match Device ID in Device Control CSV File	Number must be same as Device ID in Device Control CSV File
RS232 mode	IP Command Pass-Thru between sender and Receiver	Parameter value options: y : IP Command n : Pass-Thru
RS232 baudrate	RS232 baudrate setting	Parameter value options: 115200/57600/38400/28800/19200/14400/9600/4800/2400/1200/600/300

Receiver CSV File Format & Parameter Description

Don't change field sequence. First row field name can be changed. Use comma to divide field when saving CSV file.

Field / Parameter	Description	Parameter Value
IP	Receiver IP	ie. 169.254.8.105 192.168.1.25
ID	Receiver ID, No duplicate	Number only, start form 1
Group	Receiver Group name	English, German, French, Latin, Chinese, Japanese, _
Codename	Receiver Codename	English, German, French, Latin, Chinese, Japanese, _
Video channel	Video channel	Number only, start from 1
Audio channel	Audio channel	Number only, start from 1
Video channel	USB channel	Number only, start from 1
RS232 channel	RS232 channel (RS232 mode must be set Pass-Thru)	Number only, start from 1
IR channel	IR channel	Number only, start from 1
Output Video Format	Assign Receiver HDMI output video format	Parameter value options: auto_detect : Auto detect TV/Display EDID pass-thru : same as HDMI input at sender 0 : same as HDMI input at sender (pass-thru) 2160p30 : 2160p30Hz 2160p25 : 2160p25Hz 2160p24_VIC_103 : 2160p24Hz VIC 103 2160p24_VIC_98 : 2160p24Hz VIC 98 2160p24_VIC_93 : 2160p24Hz VIC 93 1080p60 : 1080p60Hz 1080p50 : 1080p50Hz 1080p24_VIC_72 : 1080p24Hz VIC 72 1080p24_VIC_32 : 1080p24Hz VIC 32 1080i60 : 1080i60Hz 1080i50 : 1080i50Hz 720p60 : 720p60Hz 576p50 : 576p50Hz 480p60 : 480p60Hz 1920x1200 : 1920x1200@60Hz 1920x1080 : 1920x1080@60Hz 1680x1050 : 1680x1050@60Hz 1440x900 : 1440x900@60Hz 1400x1050 : 1440x1050@60Hz 1366x768 : 1366x768@60Hz 800x600 : 800x600@60Hz
Dante/AES67 AoIP Enable	Enable or Disable Dante/AES67 AoIP function	Parameter value options: none : Disable AoIP dante : Enable Dante AoIP aes67 : Enable AES67 AoIP
Audio Output Select	Receiver's HDMI/analog audio output select from Aavara sender or AoIP stream	Parameter value options: native : Audio from Aavara Sender aoip : Audio from Dante / AES67 AoIP
Enable/Disable USB Pass-Thru	USB Pass-Thru between Sender and Receiver	y/n only (Lower letters only) y : disable USB Pass-thru n : enable USB Pass-thru
Device Control ID	To match Device ID in Device Control	Number must be matching Device ID in

	CSV File	Device Control CSV File
RS232 mode	IP Command Pass-Thru between sender and Receiver	Parameter value options: y : IP Command n : Pass-Thru
RS232 baudrate	RS232 baudrate setting	Parameter value options: 115200/57600/38400/28800/19200/14400/9600/4800/2400/1200/600/300
Video Rotate/Stretch	Video Rotate, Mirror & whether need to stretch when rotate at 90 ⁰ /270 ⁰ .	Parameter value options: 0 : Not Rotate 1 : Horizontal Mirror 2 : Vertical Mirror 3 : 180 ⁰ Rotate 4 : 90 ⁰ Rotate, Vertical Mirror, No Stretch 5 : 90 ⁰ Rotate, No Stretch 6 : 270 ⁰ Rotate 7 : 90 ⁰ Rotate, Vertical Mirror, Stretch 8 : 90 ⁰ Rotate, Stretch 9 : 270 ⁰ Rotate, Stretch
vw_row	Total row of VideoWall	Number only, start from 1
vw_column	Total column of VideoWall	Number only, start from 1
vw_pos_row	This Display/Receiver's row position in VideoWall	Number only, start from 1
vw_pos_column	This Display/Receiver's column position in VideoWall	Number only, start from 1
vw_OW	Display outter dim. width unit: mm	Number only, start from 1
vw_OH	Display outter dim. height unit: mm	Number only, start from 1
vw_VW	Display viewable area dim. width unit: mm	Number only, start from 1
vw_VH	Display viewable area dim. height unit: mm	Number only, start from 1

Device Control CSV File Format & Parameter Description

Don't change field sequence. First row field name can be changed. Use comma to divide field when saving CSV file.

Field / Parameter	Description	Parameter Value
Device Control ID	Device Control ID for match with Device Control ID in Sender/Receiver CSV file or Setup Tab in AV Master.	Number Only, start from 1
Codename	Device Codename	English, German, French, Latin, Chinese, Japanese, _
command_type	Way to Control the Device	Parameter value options: cec : HDMI CEC ir : IR rs232_hex : RS232 command in HEX code rs232_ascii : RS232 command in Ascii code
power_on_name	Power On Command Codename	English, German, French, Latin, Chinese, Japanese, _
power_on_cmd	Power On Command	Base on the way to control, and input control command code.
power_off_name	Power Off Command Codename	English, German, French, Latin, Chinese, Japanese, _
power_off_cmd	Power Off Command	Base on the way to control, and input control command code.
cmd1_name	Command 1 codename	English, German, French, Latin, Chinese, Japanese, _
cmd1_cmd	Command 1 command code	Base on the way to control, and input control command code.
cmd2_name	Command 2 codename	English, German, French, Latin, Chinese, Japanese, _
cmd2_cmd	Command 2 command code	Base on the way to control, and input control command code.
cmd3_name	Command 3 codename	English, German, French, Latin, Chinese, Japanese, _
cmd3_cmd	Command 3 command code	Base on the way to control, and input control command code.
cmd4_name	Command 4 codename	English, German, French, Latin, Chinese, Japanese, _
cmd4_cmd	Command 4 command code	Base on the way to control, and input control command code.
cmd5_name	Command 5 codename	English, German, French, Latin, Chinese, Japanese, _
cmd5_cmd	Command 5 command code	Base on the way to control, and input control command code.
cmd6_name	Command 6 codename	English, German, French, Latin, Chinese, Japanese, _
cmd6_cmd	Command 6 command code	Base on the way to control, and input control command code.
cmd7_name	Command 7 codename	English, German, French, Latin, Chinese, Japanese, _
cmd7_cmd	Command 7 command code	Base on the way to control, and input control

		command code.
cmd8_name	Command 8 codename	English, German, French, Latin, Chinese, Japanese, _
cmd8_cmd	Command 8 command code	Base on the way to control, and input control command code.
cmd9_name	Command 9 codename	English, German, French, Latin, Chinese, Japanese, _
cmd9_cmd	Command 9 command code	Base on the way to control, and input control command code.
cmd10_name	Command 10 codename	English, German, French, Latin, Chinese, Japanese, _
cmd10_cmd	Command 10 command code	Base on the way to control, and input control command code.

RS232 HEX code format:

HEX code format can be any one of below:

- FF010204
- FF 01 02 04
- 0xFF 0x01 0x02 0x04
- 0XFF 0X01 0X02 0X04

IR HEX code format:

PRONTO HEX format. Please refer Device IR Learning section for more details.

CEC Preset Commands and Commands in CEC Frame format

Preset CEC Command List:

Video Source		TV/Display	
Command	Description	Command	Description
wake_up	Video Source Device Wake UP	power_on_tv	Display Power On
standby	Video Source Device Standby	power_off_tv	Display Power Off
up	Up		
down	Down		
left	Left		
right	Right		
select_button	Select		
exit	Exit		
root_menu	Root Menu		
play	Play		
stop	Stop		
pause	Pause		
mute	Mute		
volume_up	Volume Up		
volume_down	Volume Down		

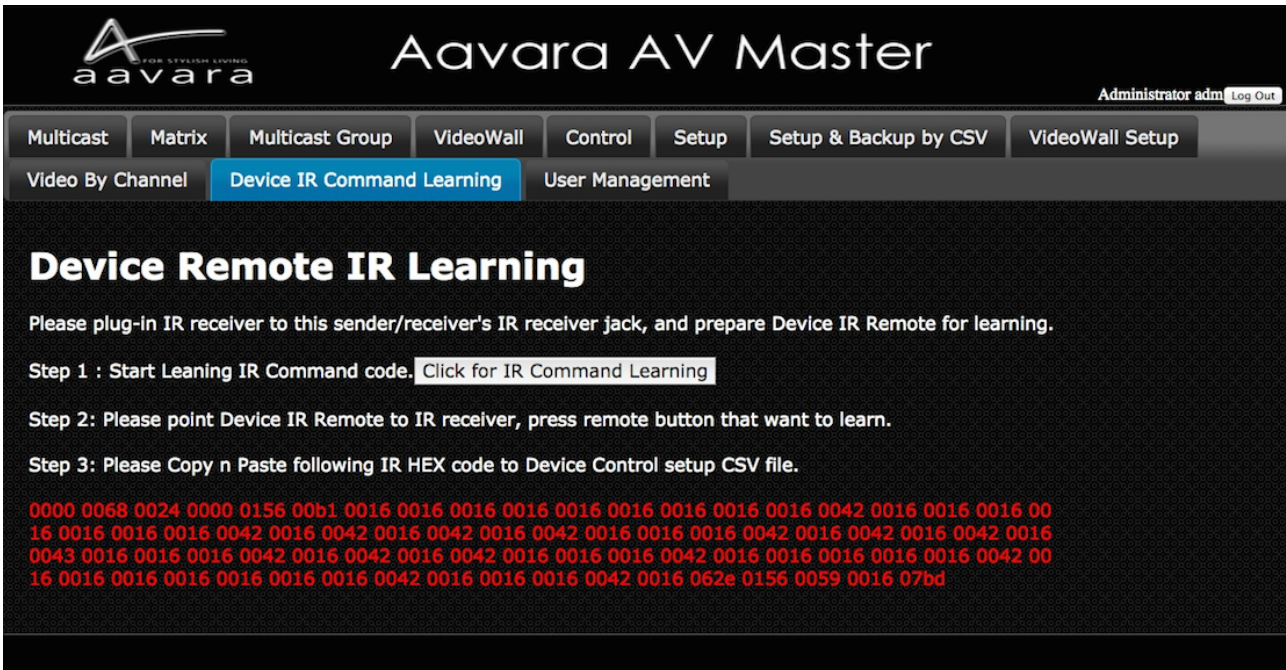
If the command you preferred is not in above preset list, you can use CEC Frame in command code field.

CEC Frame format ie. 0F:86:10:00 or FF:36

For CEC Frame detail, please check CEC O Matic web site, <http://www.cec-o-matic.com>.

VI.D. Device IR Command Learning

Aavara AV Master Web control can learn Device IR command code, so it can copy n paste into Device Control CSV file.



The screenshot shows the Aavara AV Master web interface. At the top, there is a navigation menu with tabs for Multicast, Matrix, Multicast Group, VideoWall, Control, Setup, Setup & Backup by CSV, and VideoWall Setup. Below this is a sub-menu with Video By Channel, Device IR Command Learning (highlighted), and User Management. The main content area is titled "Device Remote IR Learning" and contains the following instructions:

Please plug-in IR receiver to this sender/receiver's IR receiver jack, and prepare Device IR Remote for learning.

Step 1 : Start Learning IR Command code. [Click for IR Command Learning](#)

Step 2: Please point Device IR Remote to IR receiver, press remote button that want to learn.

Step 3: Please Copy n Paste following IR HEX code to Device Control setup CSV file.

```
0000 0068 0024 0000 0156 00b1 0016 0016 0016 0016 0016 0016 0016 0016 0016 0042 0016 0016 0016 0016 0016 0016 0042 0016 0042 0016 0042 0016 0016 0016 0042 0016 0042 0016 0042 0016 0016 0016 0016 0016 0042 0016 0016 0016 0042 0016 062e 0156 0059 0016 07bd
```

- Step 1: Ensure IR Receiver cable had plug into AV Master Master Control unit's IR Receiver jack. And, have Device IR remote on hand ready for IR code learning.
- Step 2: Please point device's IR remote to IR receiver and press remote button to which you like to learn IR code from.
Then, IR HEX code (PRONTO format) will show below in red.
- Step 3: Copy n Paste IR HEX code (in red) to the cell of Device Control CSV file for further upload and operation.

VI.E. Multicast

1. Select a video source/sender.
2. Select Service that you like to switch (Audio, Video, IR, RS232, USB. Multiple choices).
3. Select Display/Receiver that you like to switch (Multiple choices).
4. Click Apply Button

Video Source Selection:
 Movie Sport

CH 1 Media_Player CH 2 Star_TV

All Service Video &Audio Video Audio IR RS232 USB

TV/Display (Multiple Selection):
 Residential Commercial

Switch	ID	Video	Group	Codename	Video Channel	Audio Channel	IR Channel	RS232 Channel	USB Channel
<input type="checkbox"/>	1		Residential	Living_Room_TV	1	1	1	1	1
<input type="checkbox"/>	2		Commercial	Signage_Display	2	2	2	2	2

VI.F. Drag N Drop Matrix

- Drag Video Source snapshot video icon and drop on target display's snapshot video icon with cursor or fingertip to switch target display video output channel.

Video Source

CH: 1 Media Player CH: 2 Blu Ray Player

Display

CH: 1 Living Room TV CH: 2 Signage Display

VI.G. Matrix

- Select Service that you like to switch (Audio, Video, IR, RS232, or USB).

Once Selected, Matrix will refresh to show current routing status.

- Click Switch Button on the cell to match the row of Receiver that you like to switch to the column of target Sender.

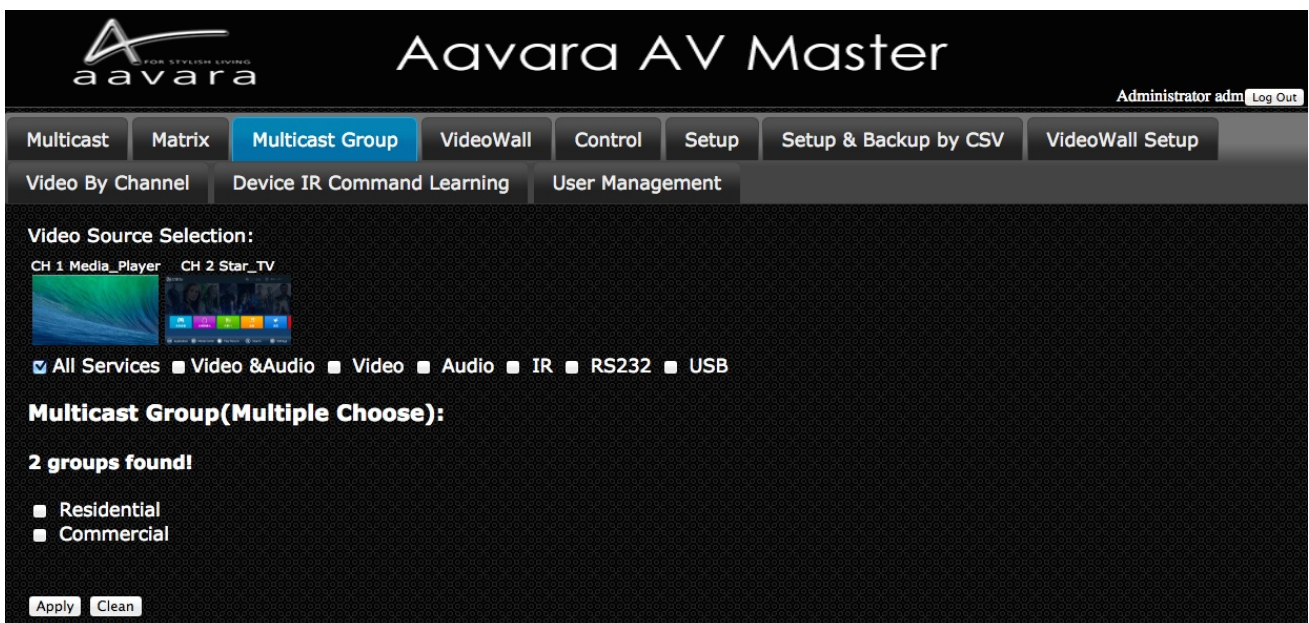


VI.H. Multicast Group

1. Select a video source/sender.

2. Select Service that you like to switch (Audio, Video, IR, RS232, USB. Multiple choices).

3. Select Receiver Group that you like to switch (Multiple choices) and Click Apply button.



VI.I. VideoWall Setup

Step 1 VideoWall Layout / Bezel & Gap Compensation

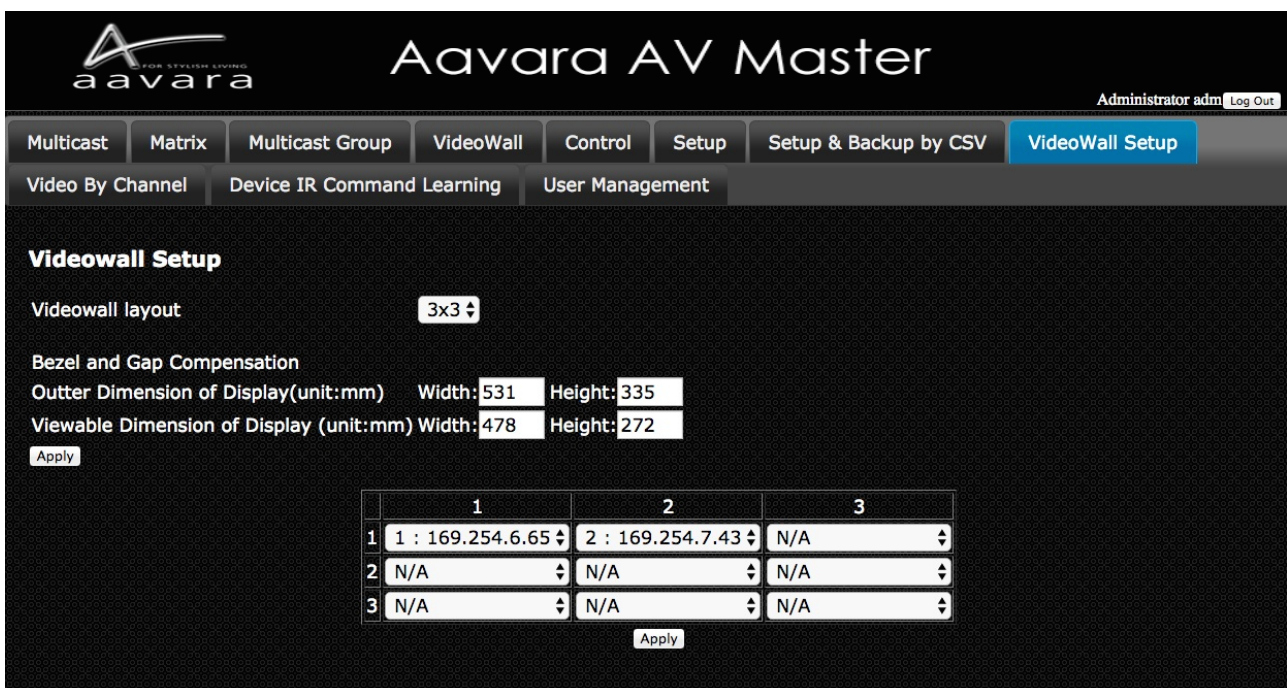
1. Select VideoWall layout from 2x2, 3x3, 3x4, 4x4, ..., 9x9.
2. Input Outer and Viewable area dimension of display for Bezel & Gap compensation. (Unit: mm)

Step 2 Display Position at VideoWall Matching

Once Click on Apply Button of VideoWall layout configuration, a table will show up as VideoWall layout, select right receiver in every cell of table which matched row and column display actual position. For position on VideoWall which has no display, then select N/A.

After all displays/receivers in video wall being located, Click Apply button.

ViewWall Tab will change based on VideoWall layout input and ready to operate.



The screenshot shows the Aavara AV Master web interface. The top navigation bar includes tabs for Multicast, Matrix, Multicast Group, VideoWall, Control, Setup, Setup & Backup by CSV, and VideoWall Setup (which is active). Below the navigation bar, there are sub-tabs for Video By Channel, Device IR Command Learning, and User Management. The main content area is titled "Videowall Setup" and contains the following configuration options:

- Videowall layout: 3x3
- Bezel and Gap Compensation:
 - Outer Dimension of Display(unit:mm) Width: 531 Height: 335
 - Viewable Dimension of Display (unit:mm) Width: 478 Height: 272
- An "Apply" button is located below the dimensions.

Below the configuration options, a table displays the VideoWall layout configuration:

	1	2	3
1	1 : 169.254.6.65	2 : 169.254.7.43	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A

An "Apply" button is located below the table.

VI.J. VideoWall

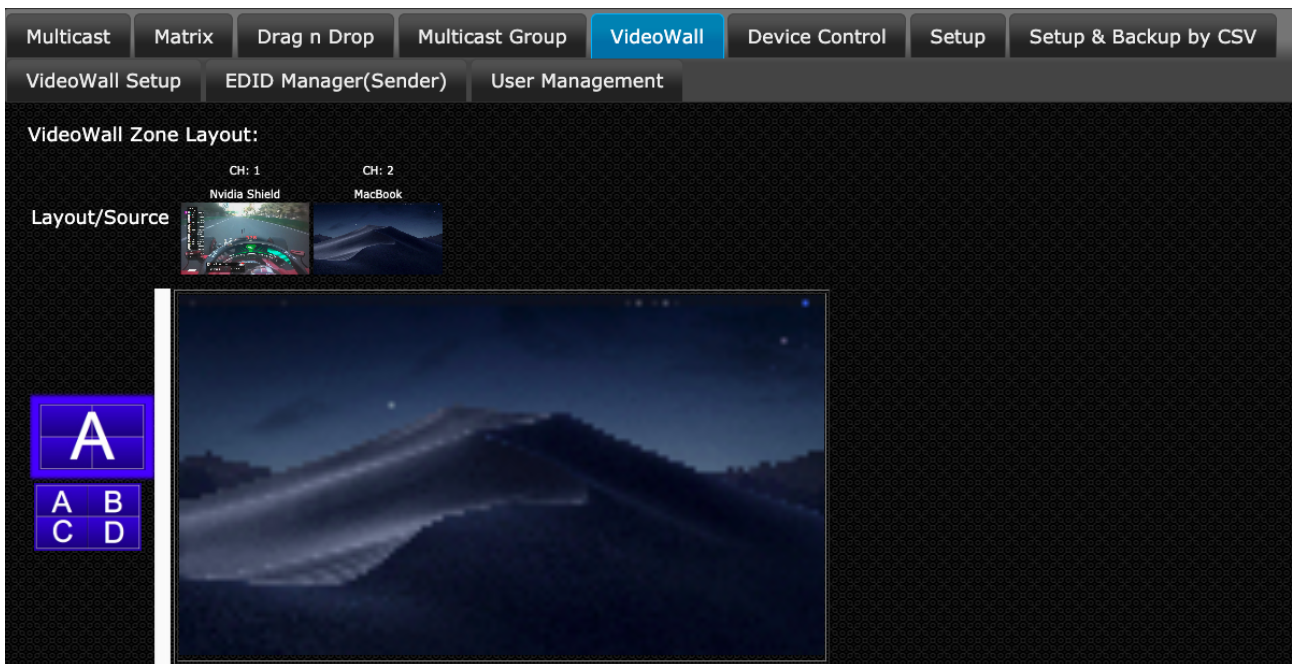
Once ViewWall Setup completed in VW Setup Tab, VideoWall Tab will show right VideoWall layout selection.

1. Select one of VideoWall Zone Layout selection at left column of table.

Left cell of Table will show the VideoWall Zone Layout selected.

2. Click one of snapshot image of Video channel at top row and drag to the VideoWall zone that you like to show.

VideoWall will show layout and video channel you selected.



VI.K. Control

Aavara AV Master Web can control external devices like TV/Display/Projector & Video Source Device by CEC(via HDMI connection), RS232 and IR. Please edit and upload Device Control CSV file and set Device Control ID to each sender and receiver, AV Master will bring in all control command buttons of that device.

Click on the button of control action wanted, control command will send out to target external device immediately.

The screenshot shows the Aavara AV Master web interface. At the top, there is a navigation menu with tabs: Multicast, Matrix, Multicast Group, VideoWall, **Control**, Setup, Setup & Backup by CSV, and VideoWall Setup. Below this is a sub-menu with: Video By Channel, Device IR Command Learning, and User Management. The main content area is titled "Video Source Control" and features two buttons: "All Video Source Power On" (green) and "All Video Source Power Off" (red). Below these are two tables of control actions for different video sources.

Video Source	Control Action
1 Media_Player Movie 美海迪播放機 _HiMedia	開機_Power_ON (green), 關機_Power_Off (red), 音量+_Vol_Up, 音量-_Vol_Down, OK, 返回_Exit, 上_Up, 下_Down, 左_Left, 右_Right, 播放_暫停_Play_Pause, 主頁_Root_Menu
2 Star_TV Sport Nvidia_Shield	Wake_Up (green), Standby (red), Up, Down, Left, Right, Play, Pause, Select, Mute, Volume_Up, Volume_Down

Below the "Video Source Control" section is the "TV/Display Control" section, which also has two buttons: "All TV/Display Power On" (green) and "All TV/Display Power Off" (red).

VI.L. User Management

User Management Tab

User Management

3 Users Found!

Add User

Status	User ID	Login Name	User Name	Password	Authorization
Active	1	adm	adm	no_Change_Here	Administrartor
Active	2	nick	Nick_Hsu	no_Change_Here	Operator
Active	3	david	大衛王	no_Change_Here	Operator

Apply

Add User

Press Add User button to add more user info.

Field	Description
Status	3 User Status: 1. Active this user can login and use. 2. Suspend this user can't login and use, but user info will keep in system. 3. Delete Delete this user, and user info will erase.
User ID	Every User need to assign a ID, no duplicate.
Login Name	Use for login, English and number letters only.
User Name	Use for identify user. Can use English, German, French, Latin, Chinese, Japanese, _
Password	User Password, English & number only. Once real password input and updated, it will not show on web again. Every time User Management table refresh, it will show "no_Change_Here". As long as "no_Change_Here" not change, password will not change.
Authorization	Two User Authorization: - Administrator can access all operation and setup functions. - Operator can access all operation functions only.

Notice! If many senders and receivers installed, once click Apply button, user info updating will take some time, please wait for user info update completed.