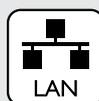




Control Your Video

VIDEO WALLS VIDEO PROCESSORS
VIDEO MATRIX SWITCHES
EXTENDERS SPLITTERS WIRELESS
CABLES & ACCESSORIES

IP Controller for the M-Series w/ 3rd Party Control Support API Commands



Model #:CTRLPRO-MIP

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I Introduction

The Avenview CTRLPRO-MIP IP Controller simply provides communication to the M Series IP Extenders (C6MXIP, C6MWIP, C6MVIP). Third party controllers such as Crestron, Control 4 etc..can communicate via Telnet and RS-232 commands to automate the switching of high definition video and high quality audio to multiple screens. This device can also be accessed from a WEB Browser and allow API control commands to your Avenview Video IP solution allowing connection by the following:- Two (2) Ethernet ports LAN(AV) port at IP 169.252.1.1 and LAN(C) port at IP 192.168.11.243. Communicates at TCP port 23 on the two ports, through which you can control and manage IP matrix and videowall applications.

I.1 Preparation

This section show an example of using a third party control device such as windows 7 PC.

I.1.1 Setting IP Address in your TCP/IP on a Computer

Before logging in to IP controller via command-line interface (CMD), make sure that your computer and IP controller are on the same subnet as your PC or controller. The default network settings in LAN(C) port of IP controller are 192.168.11.243/16, set your IP address in the 192.168.x.x range with a subnet mask of 255.255.0.0

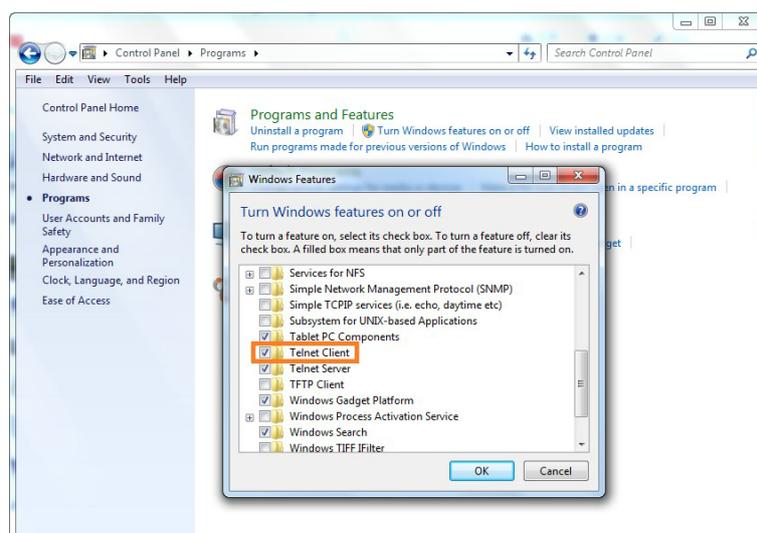
I.1.2 Enabling Telnet Client

Before logging in to IP controller via command-line interface (CMD) or Putty, make sure that **Telnet Client** is enabled or you can download the program from www.putty.org

By default, **Telnet Client** is disabled in Windows 7.

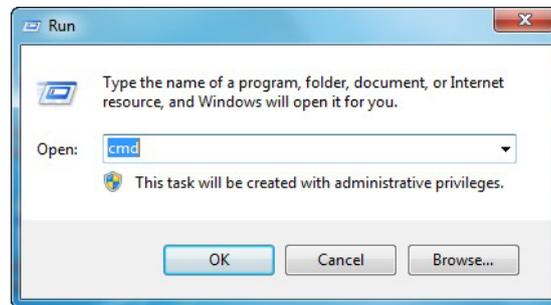
Please follow the instruction to enable the **Telnet Client** function:-

1. Choose **Start > Control Panel > Programs**.
2. In **Programs and Features**, click **Turn Windows features on or off**.
3. In **Windows Features** dialog box, select **Telnet Client** check box.

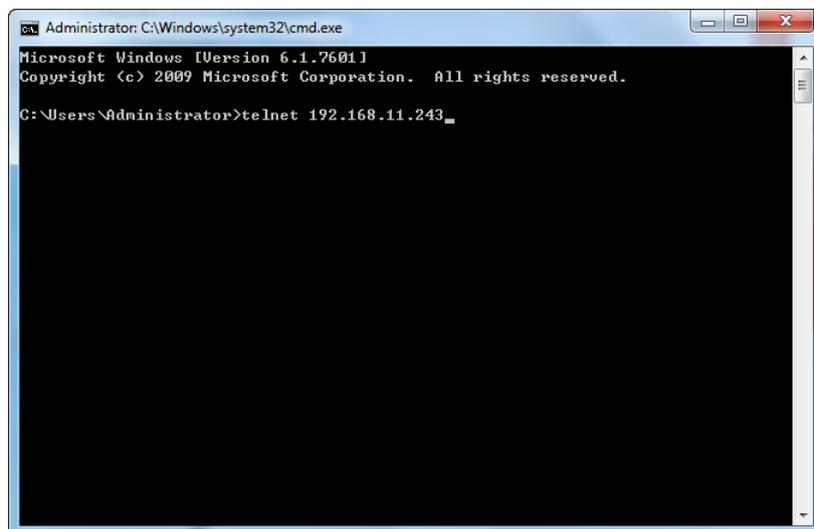


1.2 Login to CTRL-MIP Controller via Command-line Interface

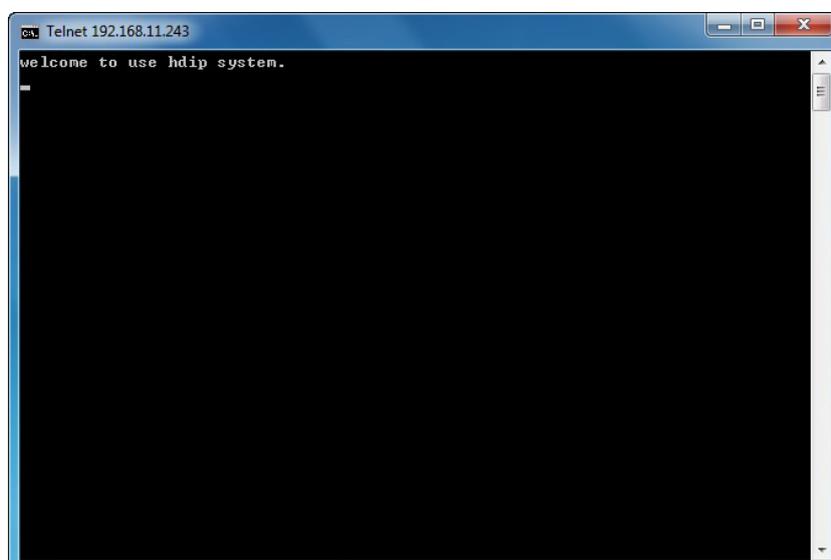
1. Choose **Start > Run**.
2. In the **Run** dialog box, enter **cmd** then click **OK**.



3. Enter **telnet 192.168.11.243** if LAN(C) port's IP address is 192.168.11.243, and then press **Enter**.



4. The welcome screen will appear as below ,
Please proceed to enter API commands from this document in the following screen to control and manage HDM-C6MIP-S AND HDM-C6IP-R on your network.



I.3 Common Terminology

The common terminology used in this API command is explained below:-

Terminology	Description
Device	TX, RX, a presentation switcher, 3rd Party controller which is controlled and managed by IP controller.
Online	Device is working properly and can be accessed and controlled by CTRLPRO-MIP controller.
Offline	Device cannot be controlled by CTRLPRO-MIP IP controller - such as power failure or not plugged into the network.
Device Name	The factory default naming convention "Device type-MAC address", for example IPE2000-341B22FFFFB3 Model # IPE2000 (IP=Type) (E= Encoder, TX) 341B22FFFFB3 = MAC address
Alias	The name given by the user/installer for easy management and identification. It can be changed using any characters or strings except some excluded characters. For more information, see 2.1.6 config set device alias.

I.4 API Commands Overview

API commands of CTRLPRO-MIP controller are mainly classified into the following types.

- config: manages and configures IP controller and devices
- matrix: controls the switching of Transmitter (TX) and Receiver (RX) or obtains matrix information
- source: device connected to the HDMI IN on the TX
- vw: means videowall - which configures and manages the created video wall
- mv: means multiview - which configures and manages the multiple multi-view inputs
- serial: sends RS232 commands to external peripheral devices via serial ports of the devices
- notify: positively informs a third party control device such as a PC about serial response and online status.

I.4.1 config Commands

config commands are mainly classified into two types **config set** and **config get** commands.

I. config set Commands

Commands	Description
config set ip4addr	Configures the TCP/IP network settings in LAN(AV) port to the user specific IP configuration to communicate with TX and RX.



config set ip4addr2	Configures network settings in LAN(C) port for communicating with PC/Laptop
config set webloginpasswd	Sets Web configuration page login password
config set restorefactory	Resets IP controller to factory defaults
config set reboot	Reboots IP controller
config set device alias	Renames a device
config set device remove	Removes a device record from IP controller
config set device ip	Configures device network settings
config set device reboot	Reboots a device
config set device restorefactory	Resets a device to factory defaults
config set device info	Changes device working parameters
config set device cec standby	Makes display devices connected to RX enter standby status
config set device cec onetouchplay	Wakes up display devices connected to RX

2. config get Commands

Commands	Description
config get version	Obtains IP controller version information
config get devicelist	Obtains an online device list
config get ipsetting	Obtains network settings in LAN(AV) port
config get ipsetting2	Obtains network settings in LAN(C) port
config get name	Obtains a device name or its alias
config get device info	Obtains device working parameters
config get devicejsonstring	Obtains all device basic information

1.4.2 matrix Commands

Command	Description
matrix set	Controls switching of TX and RX
matrix get	Obtains TX played by RX in matrix

1.4.3 source Commands

Command	Description
source set	Selects TX's input port
source get	Obtains TX's current input port



I.4.4 vw Commands

Command	Description
vw add	Creates video wall
vw rm	Removes video wall
vw rm vwname rx	Removes one or multiple RX from video wall
vw add position	Adds RX to video wall
vw add layout	Creates video wall and automatically applies the settings
vw change rx tx	Removes a certain RX from video wall
vw change vw-name tx	Changes to another source for video wall
vw bezelgap	Sets bezel compensation parameters
vw get	Obtains a list of all video walls

I.4.5 mv Commands

Command	Description
mv get	Obtains TX played by RX in multiview
mv set	Selects TX for RX in multi-view

I.4.6 serial Commands

Command	Description
serial	Sends commands to peripheral devices via serial ports of the devices

I.4.7 notify Commands

Command	Description
notify endpoint	CTRLPRO-MIP controller informs the third party control device - STATUS info if devices are online or offline. Also when devices online or offline status changes.
notify serialinfo	CTRLPRO-MIP IP controller informs the third party control device such as a PC/Laptop about the feedback data received in a device's serial port.



2 Command Sets

2.1 config Commands

2.1.1 config set ip4addr

Command	config set ip4addr xx.xx.xx.xx netmask xx.xx.xx.xx gateway xx.xx.xx.xx
Response	ip setting will change to: ipaddr xx.xx.xx.xx netmask xx.xx.xx.xx gateway xx.xx.xx.xx
Description	<p>Configures network settings in LAN(AV) port for communicating with devices</p> <p>Note:</p> <ul style="list-style-type: none">● This command is used to set TCP/IP settings IP address, subnet mask and gateway in LAN(AV) port.● LAN(AV) port only supports Static IP mode. After network settings are configured, it automatically reboots for the settings to take effect.

Example:

Change LAN(AV) port's IP address 169.254.1.254, subnet mask 255.255.0.0 and gateway 169.254.1.1:

Command: *config set ip4addr 169.254.1.254 netmask 255.255.0.0 gateway 169.254.1.1*

Response: *ip setting will change to: ipaddr 169.254.1.254 netmask 255.255.0.0 gateway 169.254.1.1*

2.1.2 config set ip4addr2

Command	config set ip4addr2 xx.xx.xx.xx netmask xx.xx.xx.xx gateway xx.xx.xx.xx
Response	ip setting2 will change to: ipaddr xx.xx.xx.xx netmask xx.xx.xx.xx gateway xx.xx.xx.xx
Description	<p>Configures network settings in LAN(C) port for communicating with a control device such as a PC/Laptop.</p> <p>Note:</p> <ul style="list-style-type: none">● This command is used to set TCP/IP settings IP address, subnet mask and gateway in LAN(C) port.● LAN(C) port only supports Static IP mode. After network settings are configured, it automatically reboots for the settings to take effect.



Example:

Change the LAN(C) port's IP address as 192.168.11.243, subnet mask 255.255.0.0 and gateway 192.168.11.1:

Command: *config set ip4addr2 192.168.11.243 netmask 255.255.0.0 gateway 192.168.11.1*

Response: *ip setting2 will change to: ipaddr 192.168.11.243 netmask 255.255.0.0 gateway 192.168.11.1*

2.1.3 config set webloginpasswd

Command	config set webloginpasswd xxxxxx
Response	password for web modified
Description	Sets Web configuration page login password. Please use the new one for next login.

Example:

Change login password to 123456:

Command: *config set webloginpasswd 123456*

Response: *password for web modified*

2.1.4 config set restorefactory

Command	config set restorefactory
Response	system will restore to factory settings
Description	Resets IP controller to factory defaults. When the unit is restored to factory default, it will automatically reboot for the settings to take effect.

Example:

If you want to reset IP controller to factory defaults:

Command: *config set restorefactory*

Response: *system will restore to factory settings now*

2.1.5 config set reboot

Command	config set reboot
Response	system will reboot now
Description	Reboots IP controller



Example:

To reboot the CTRLPRO-MIP controller:

Command: *config set reboot*

Response: *system will reboot now*

2.1.6 config set device alias

Command	config set device alias <i>hostname xxxx</i>
Response	hostname's alias is <i>xxxx</i>
Description	Renames device

Note:

- **hostname** is the device name.
- Alias can be used in other commands to replace its long device name.
- Alias should be different from others.
- Alias cannot contain the characters (exclude the double quotation marks) in the following table.
"NULL" is not case sensitive.

" " (space)	","	","	" "	"@"	"*"
"&"	"NULL"				

Example:

If you want to identify the Transmitter TX (Sender) IPE1000-341B22FFFFB3's alias as BLURAY:

Command: *config set device alias IPE1000-341B22FFFFB3 BLURAY*

Response: *IPD2000-341B22FFFFB3's alias is BLURAY*

2.1.7 config set device remove

Command	config set device remove <i>hostname1 hostname2...</i>
Response	The following device's record will be removed: <i>hostname1</i> <i>hostname2</i> ...
Description	Removes a device record from IP controller. Note: <ul style="list-style-type: none"> ● hostname1 and hostname2 are device names. ● You can remove one or multiple devices' records at one time. When a device's record is removed, it cannot be detected and controlled by IP controller. If you want to restore the removed online device, reboot it or IP controller. If you want to restore the removed offline device, reboot it.



Example:

If you want to remove the records of the TX or RX from the device list on the CTRLPRO-MIP - such as IPE2000-AABBCCEEDDFF and IPD2000-1234567890AB:

Command: *config set device remove IPE2000-AABBCCEEDDFF IPD2000-1234567890AB*

Response: *the following device's record will be removed :*

*IPE2000-AABBCCEEDDFF
IPD2000-1234567890AB*

2.1.8 config set device ip

Command	<code>config set device ip hostname1 {autoip/dhcp/static ip4addr netmask gateway}, hostname2 {autoip/dhcp/static ip4addr netmask gateway}...</code>
Response	Devices' ipsetting will change to: <code>hostname1 {autoip/dhcp/static ip4addr netmask gateway} hostname2 {autoip/dhcp/static ip4addr netmask gateway} ...</code>
Description	Configures device network settings. Note: <ul style="list-style-type: none">● hostname1 and hostname2 are device names.● Devices support AutoIP, DHCP and Static IP for network configuration. For Static IP, you need to set IP address, subnet mask and gateway at the same time.● You can use configure network settings for multiple devices simultaneously .● After network settings are configured, you must reboot the devices for the settings to take effect. This command will not restart devices.

Example:

If you want to set IPD2000-341B22800BCD to AutoIP and another unit

IPD2000-341B22800BCA to Static IP

(IP address 169.254.5.253, subnet mask 255.255.0.0, gateway 169.254.1.253):

Command:

config set device ip IPD2000-341B22800BCD autoip, IPD2000-341B22800BCA static 169.254.5.253 255.255.0.0 169.254.1.253

Response:

Devices's ipsetting will change to:

IPD2000-341B22800BCD autoip

IPD2000-341B22800BCA static 169.254.5.253 255.255.0.0 169.254.1.253



2.1.9 config set device reboot

Command	config set device reboot <i>hostname1 hostname2...</i>
Response	the following device will reboot now: <i>hostname1</i> <i>hostname2</i> ...
Description	Reboots one or multiple devices. Note: hostname1 and hostname2 are device names.

Example:

If you want to reboot IPD1000-341B22FFFFB3 and IPE1000-341B22FFFFB4:

Command: *config set device reboot IPD1000-341B22FFFFB3 IPE1000-341B22FFFFB4*

Response:

the following device will reboot now:

IPD1000-341B22FFFFB3

IPE1000-341B22FFFFB4

2.1.10 config set device restorefactory

Command	config set device restorefactory <i>hostname1 hostname2...</i>
Response	the following device will restore to factory setting now: <i>hostname1 hostname2</i> ...
Description	Resets one or multiple devices to factory defaults. After they are restored to factory defaults, devices will automatically reboot for the settings to take effect. Note: hostname1 and hostname2 are device names.

Example:

If you want to reset IPE1000-341B22FFFFB3 and IPD1000-341B22FFFFB4 to factory defaults:

Command: *config set device restorefactory IPE1000-341B22FFFFB3 IPD1000-341B22FFFFB4*

Response: *the following device will restore to factory setting now:*

EX383-341B22FFFFB3

EX383-341B22FFFFB4



2.1.11 config set device info

Command	<code>config set device info key1=value1 [key2=value2...] hostname1 hostname2...</code>
Response	<code>config set device info key1=value1 key2=value2 key3=value3 key4=value4 hostname1 hostname2...</code>
Description	<p>Changes a device's one or multiple working parameters in key=value format. You can change parameters for multiple devices at one time.</p> <p>Note:</p> <ul style="list-style-type: none"> ● hostname1 and hostname2 are device names. ● Key is parameter name and value is its value. <p>For more information, see 3.1 Device Info section.</p>

ONLY COMPATIBLE WITH CERTAIN MODELS

Example:

If you want to set IPE5000-AABBCCDDEEFF's **mic_volume** as 20, **audio.mic1.gain** 12 and **audio.lineout1.volume** 20:

Command: `config set device info mic_volume=20 audio.mic1.gain=12 audio.lineout1.volume=20 IPE5000-AABBCCDDEEFF`

Response: `config set device info mic_volume=20 audio.mic1.gain=12 audio.lineout1.volume=20
IPE5000-AABBCCDDEEFF`

2.1.12 config set device cec standby

Command	<code>config set device cec standby hostname1 hostname2...</code>
Response	<code>config set device cec standby hostname1 hostname2...</code>
Description	<p>Makes one or multiple display devices connected to HDM-C6MXIP-R RX enter standby status.</p> <p>Note:</p> <ul style="list-style-type: none"> ● hostname1 and hostname2 are device names. ● This command is used to control the HDM-C6MXIP-R RX to send a HDMI-CEC command to make one or multiple display devices enter standby mode. ● One command can make multiple display devices enter standby mode. ● Display devices must support CEC. Please see list of tested Brands/modles below: Samsung TV UA40JU6400JXXZ Samsung TV UA46C7000WF Samsung TV UN46D6500VF Samsung TV UA40HU5920J SHARP LCD-40 LX440A SONY TV KD-55X9000A SONY TV KLV-32EX400 SONY TV KDL-40RM10B SONY TV KDL-24EX520

Example:

A TV/Display device connected to RX IPD1000-AABBCCDDEEFF enter standby mode:

Command: `config set device cec standby IPD1000-AABBCCDDEEFF`

Response: `config set device cec standby IPD-AABBCCDDEEFF`



2.1.13 config set device cec onetouchplay

Command	config set device cec onetouchplay <i>hostname1 hostname2...</i>
Response	config set device cec onetouchplay <i>hostname1 hostname2...</i>
Description	<p>One or multiple displays become active when connected to HDM-C6MXIP-R RX.</p> <p>Note:</p> <ul style="list-style-type: none">● hostname1 and hostname2 are device names.● This command is used to control HDM-C6MXIP-R RX to send a CEC command to make one or multiple display devices active.● Use one command to wake up multiple display devices.● Display devices must support CEC. See list page 13

One Touch Play: the device will become active, when source playback starts.

Example:

If you want to wake up a display device connected to RX IPDI000-AABBCCDDEEFF:

Command: *config set device cec onetouchplay IPDI000-AABBCCDDEEFF*

Response: *config set device cec onetouchplay IPDI000-AABBCCDDEEFF*

2.1.14 config get version

Command	config get version
Response	API version: <i>v#.#</i> System version: <i>v#.#.# (v#.#.#)</i>
Description	<p>Obtains IP controller version information.</p> <p>Note:</p> <ul style="list-style-type: none">● This command is used to obtain CTRLPRO-MIP IP controller version information, which can be used for troubleshooting with Avenview support team.● IP controller version information contains API version, WEB console version and Firmware service version.

Example:

If you want to obtain IP controller version information:

Command: *config get version*

Response: *API version: v1.4*

System version: v5.0.2 (v5.0.2)

Note: v1.4 is API version. v5.0.2 is web console version. v5.0.2 is service version.



2.1.15 config get devicelist

Command	config get devicelist
Response	devicelist is <i>hostname1 hostname2...</i>
Description	Obtains all the TX and RX devices connected online device list. Note: <ul style="list-style-type: none">● hostname1 and hostname2 are device names.● This command is used to get all online device names.● If you want to obtain a list consisting of device types and offline devices, you can use config get devicejsonstring.

Example:

If you want to obtain online device list:

Command: *config get devicelist*

Response: *devicelist is IPE1000-34|B228000BC IPD1000-34|B22800490*

Note: The current online devices are IPE1000-34|B228000BC and IPD1000-34|B22800490.

2.1.16 config get ipsetting

Command	config get ipsetting
Response	ipsetting is:ip4addr <i>xx.xx.xx.xx</i> netmask <i>xx.xx.xx.xx</i> gateway <i>xx.xx.xx.xx</i>
Description	Obtains network settings that is configured on the LAN(AV) port.

Example:

If you want to obtain network settings in LAN(AV) port:

Command: *config get ipsetting*

Response: *ipsetting is:ip4addr 169.254.1.100 netmask 255.255.0.0 gateway 169.254.1.1*

Note: LAN(AV) port's IP address is 169.254.1.100, subnet mask is 255.255.0.0 and gateway is 169.254.1.1



2.1.17 config get ipsetting2

Command	config get ipsetting2
Response	ipsetting2 is:ip4addr xx.xx.xx.xx netmask xx.xx.xx.xx gateway xx.xx.xx.xx
Description	Obtains network settings configured on the LAN(C) port.

Example:

If you want to obtain network settings in LAN(C) port:

Command: *config get ipsetting2*

Response: *ipsetting2 is:ip4addr 192.168.11.223 netmask 255.255.0.0 gateway 192.168.11.1*

Note: LAN(C) port's IP address is 192.168.11.223, subnet mask is 255.255.0.0 and gateway is 192.168.11.1.

2.1.18 config get name

Command	config get name {alias/hostname}
Response	hostname'alias is xxxx
Description	<p>Obtains a device name or its alias by the MAC address sticker on the unit for record keeping or system building.</p> <p>Note:</p> <ul style="list-style-type: none">● You can use a device name to obtain its alias or vice versa.● alias is device user given alias name. hostname is factory device name.● If you use a device name to obtain its alias which is not set, the response is "NULL".● If config get name is used without parameters (hostname specific), the response will return all device names and their aliases.

Example 1:

If you want to obtain a specific IPE2000-341B22430115's alias:

Command: *config get name IPE2000-341B22430115*

Response: *IPE2000-341B22430115's alias is CABLETV*

Example 2:

If you want to obtain IPE2000-341B22430225's alias which is not set: **Command:** *config get name IPE200-341B22430225*

Response: *IPE2000-341B22430225's alias is NULL*

Example 3:

If you want to obtain all device names and their aliases:

Command: *config get name*

Response: *IPE2000-341B22430115's alias is CABLETV*
IPE2000-341B22430225's alias is NULL



Command	config get device info <i>hostname1 hostname2...</i>
Response	<pre> devices json info: { "devices": [{ "key11:"value11" "key12:"value12" ... }, { "key21:"value21" "key22:"value22" ... } ...] } </pre>
Description	<p>Obtains device working parameters in real time. Note:</p> <ul style="list-style-type: none"> ● hostname1 and hostname2 are device names. ● You can get one or multiple devices' working parameters at one time. ● It may take some time for IP controller to get device information. The developer must consider this factor when programming the caller's code. ● Working parameters use Key:Value format. Key is a parameter name and value is its value. For more information, see 3.1 Device Info section.

Example 1:

If you want to obtain IPE1000-341B22F32001's working parameters:

Command: *config get device info IPE1000-341B22F32001*

Response: *devices json info: cont'd on page 18*



```
{
  "devices":
  [
    {
      "name": "IPD1000-341B22801624",
      "version": "v2.7.3",
      "ip_mode": "autoip",
      "ip4addr": "169.254.2.236",
      "netmask": "255.255.0.0",
      "mac": "34:1b:22:80:16:24",
      "gateway": "",
      "hdcpc": true,
      "sourcein": "341B2280170F:hdmi00",
      "audio":
      {
        "name": "lineout1",
        "mute": false
      }
    }
  ]
}
```



2.1.20 config get devicejsonstring

Command	config get devicejsonstring
Response	device json string: [{ "aliasName": "", "deviceType": "Receiver", "ip": "xxx.xxx.x.xxx", "online": true, "trueName": "xxxx-xxxxxxx", "txName": "" }, ...]
Description	Obtains all device basic information. Note: <ul style="list-style-type: none">● You can obtain device name, alias, device type and online status.● In the response, trueName is device name, aliasName is device alias, deviceType is device type (TX is transmitter. RX is receiver), and online is online status. (true is online. false is offline.)

Example:

If you want to obtain all device basic information:

Command: *config get devicejsonstring*

Response:

```
device json
string: [
  {
    "aliasName": "",
    "deviceType": "Receiver",
    "ip": "169.254.2.236",
    "online": true,
    "trueName": "IPD1000-341B22801624",
    "txName": ""
  }
  {
    "aliasName": "",
    "deviceType": "Transmitter",
    "ip": "169.254.6.252",
    "online": true,
    "trueName":
    "IPE1000-341B228016F4"
  }
]
```



2.2.1 matrix set

Command	matrix set <i>TX1 RX1 RX2,TX2 RX3 RX4,...</i>
Response	matrix set <i>TX1 RX1 RX2,TX2 RX3 RX4,...</i>
Description	<ul style="list-style-type: none"> ● Controls the switching of RX to TX. ● Parameters are separated by commas such as segments TX1 RX1 RX2,TX2 RX3 RX4. Every segment starts with TX and is followed by the RX that is selected to show the source on that TX. If a segment starts with TX whose name is "NULL" the followed RX will not decode video. "NULL" is not case sensitive. ● For RX in video wall mode, this command can be used to switch to another TX but will not clear video wall settings. If the RX in video wall mode displays a certain position of TX1's video, then switched to TX2, RX will still display the same position of TX2's video. Other RX in video wall functions in the same way. ● For RX supporting multi-view mode, this command is used to switch to another TX for full-screen display.

Example1:

If you want RX IPD1000-341B22800316 and IPD1000-341B22800309 to be switched to TX IPE1000-341B22FFFC1, IPD1000-341B22800319 to TX IPE1000-341B22FFFC2, and RX IPD1000-341B2280031A to TX IPE1000-341B22FFFC3:

Command: *matrix set IPE1000-341B22FFFC1 IPD1000-341B22800316 IPD1000-341B22800309, IPE1000-341B22FFFC2 IPD-341B22800319, IPE1000-341B22FFFC3 IPD1000-341B2280031A*

Response: *matrix set IPE1000-341B22FFFC1 IPD1000-341B22800316 PD1000-341B22800309, IPE1000-341B22FFFC2 PD1000-341B22800319, IPE1000-341B22FFFC3 IPD1000-341B2280031A*

Example2:

If you want RX IPD1000-341B22800316 to stop decoding video:

Command: *matrix set NULL IPD1000-341B22800316*

Response: *matrix set NULL IPD-341B22800316*



Command	matrix get
Response	matrix information: TX1 RX1 TX2 RX3 TX2 RX4 ...
Description	Obtains the information for which TX is synced with each RX in matrix setup. Note: <ul style="list-style-type: none"> ● For video wall, the response contains all RX's that is linked to TX but does not include video wall information. If you want to obtain video wall information, you can use vw command. ● If TX is shown as NULL, RX does not decode video. "NULL" is not case sensitive. ● This code does not include RX which supports multi-view mode.

Example:

If you want to obtain which TX is synced to which RX in matrix mode :

Command: *matrix get*

Response: *matrix information:*
IPE1000-341B224301IA IPD1000-341B22800BCD
IPE1000-341B224301IA IPD1000-341B22800BCE
IPE1000-341B224301IA IPD1000-341B22800BCA
null IP1000-341B22800BC6

Note: *The response indicates that RX IPD1000-341B22800BCD, IPD1000-341B22800BCE, and IPD1000-341B22800BCA all are synced with TX IPE1000-341B224301IA, and that IPD1000-341B22800BC6 does not decode/show video.*



2.4.1 vw add

Command	<code>vw add vw-name n m TX</code>
Response	<code>videowall item vw-name create and assign TX to it</code>
Description	<p>Creates an n x m video wall configuration and assigns a TX.</p> <p>Note:</p> <ul style="list-style-type: none"> ' vw-name is video wall name and is different from others. ' n is the number of row, m is the number of column. ' This command is used to create records/scenes in the CTRLPRO-MIP controller but does not change the devices' working status.

Example:

If you want to create a 2x2 video wall configuration **vwdemo1** and assign TX IPE2000-341B2243011A:

Command: `vw add vwdemo1 2 2 IPE200-341B2243011A`

Response: `videowall item vwdemo1 create and assign IPE2000-341B2243011A`

2.4.2 vw rm

Command	<code>vw rm vw-name</code>
Response	<code>videowall item vw-name removed</code>
Description	<p>Removes a video wall configuration setup.</p> <p>Note:</p> <ul style="list-style-type: none"> ● vw-name is video wall name. ● This command is used to remove records of video wall configuration in CTRLPRO-VWIP controller but does not change the devices' current working status. <p>If the current video wall scene is removed using this command, all the RX in this video wall still plays its current layout and video.</p>

Example:

If you want to remove a video wall configuration **vwdemo1**:

Command: `vw rm vwdemo1`

Response: `videowall item vwdemo1 removed`



2.4.3 vw rm vwname rx

Command	<code>vw rm vw-name rx1 rx2...</code>
Response	videowall config change: remove <i>rx1 rx2...</i> from <i>vw-name</i>
Description	Removes one or multiple RX H.264 devices from video wall. If RX is removed, it displays the full screen video/picture of the sync TX.

Example:

If you want to remove RX IPD2000-341B22800BCE and IPD2000-341B22800BCA from video wall **vwdemo1**:

Command: `vw rm vwdemo1 IPD2000-341B22800BCE IPD2000-341B22800BCA`

Response: *videowall config change: remove IPD2000-341B22800BCE IPD2000-341B22800BCA from vwdemo1*

2.4.4 vw add position

Command	<code>vw add vw-name RX1 x1 y1 RX2 x2 y2...</code>
Response	videowall item vw-name configuration added: <i>RX1 x1 y1</i> <i>RX2 x2 y2</i> ...
Description	Adds RX H.264 device to a video wall configuration. Once this command is executed, the RX will play the segment of the video wall. Note: <ul style="list-style-type: none"> ● vw-name is video wall name. ● Parameters contain segments like <i>RX1 x1 y1 RX2 x2 y2</i>. Every segment starts with RX and is followed by its position like <i>1 2</i>, adding this RX to the first row and second column of video wall. Segments <i>x1, y1, x2, y2</i> start from 1.

Example:

If you want to add four RX to a video wall configuration **vwtest2**:

Command: `vw add vwtest2 IPD500-341B22800BCD 1 1`
`IPD2000-341B22800BC6 1 2`
`IPD2000-341B22800BCE 2 1`
`IPD2000-341B22800BCA 2 2`

Response:

videowall item vwtest2 configuration added:
IPD2000-341B22800BCD 1 1
IPD2000-341B22800BC6 1 2
IPD2000-341B22800BCE 2 1
IPD2000-341B22800BCA 2 2



2.4.5 vw add layout

Command	<code>vw add vw-name layout n m TX RX11 RX12 RX13 RX1m RX21 ... RXnm</code>																
Response	<code>videowall vw-name layout n*m TX RX11 RX12 RX13 RX1m RX21... RXnm</code>																
Description	<p>Creates an n x m video wall configuration, assigns TX and n x m RX to it. Once this command is executed, RX will play video wall.</p> <p>Note:</p> <ul style="list-style-type: none"> ● vw-name is video wall name. ● n is the number of row. m is the number of column. ● Parameters RX11 RX12 RX13 ... RX1m RX21 ... RXnm are RX and are automatically assigned positions in the video wall in order. <table border="1" style="margin-left: 40px;"> <tr> <td>RX11</td> <td>RX12</td> <td>...</td> <td>RX13</td> </tr> <tr> <td>RX21</td> <td>RX22</td> <td>...</td> <td>RX23</td> </tr> <tr> <td>⋮</td> <td>⋮</td> <td>⋮</td> <td>⋮</td> </tr> <tr> <td>RXn1</td> <td>RXn2</td> <td>...</td> <td>RXnm</td> </tr> </table>	RX11	RX12	...	RX13	RX21	RX22	...	RX23	⋮	⋮	⋮	⋮	RXn1	RXn2	...	RXnm
RX11	RX12	...	RX13														
RX21	RX22	...	RX23														
⋮	⋮	⋮	⋮														
RXn1	RXn2	...	RXnm														

Example:

If you want to create a 2 x 2 video wall configuration **vwdemo3** which contains one TX IPE2000-341B22430115 and four RX IPD2000-341B22800BCD, IPD2000-341B22800BC6, IPD2000-341B22800BCE and IPD2000-341B22800BCA:

Command: `vw add vwdemo3 layout 2 2 IPE2000-341B22430115 IPD2000-341B22800BCD IPD2000-341B22800BC6 IPD2000-341B22800BCE IPD2000-341B22800BCA`

Response: `videowall vwdemo3 layout 2*2 IPE2000-341B22430115 IPD2000-341B22800BCD IPD2000-341B22800BC6 IPD2000-341B22800BCE IPD2000-341B22800BCA`

2.4.6 vw change rx tx

Command	<code>vw change RX TX</code>
Response	<code>videowall config clear: rxhostname and connect to txhostname</code>
Description	<p>Removes one RX from video wall and switch this RX to another TX to stream in full screen mode.</p> <p>Note:</p> <p>If TX is "NULL", RX will not decode video. "NULL" is not case sensitive.</p>

Example:

If you want to remove the device RX IPD2000-341B22800BCA from the video wall and switch this RX to another TX IPE2000-341B22430115 to stream full screen mode:

Command: `vw change IPD2000-341B22800BCA IPE2000-322430115`

Response: `videowall config clear: IPD2000-341B22800BCA and connect to IPE2000-341B22430115`



2.4.7 vw change vw-name tx

Command	<code>vw change vw-name TX</code>
Response	<code>videowall vw-name tx connect to txhostname</code>
Description	<p>This command allow the controller/PC to switch source connected to TX for video wall. When this command is executed, video wall will play this selected sender (TX).</p> <p>Note:</p> <ul style="list-style-type: none"> ● vw-name is video wall name. ● If TX is "NULL", all RX will stop decoding video but video wall configuration does not change. "NULL" is not case sensitive.

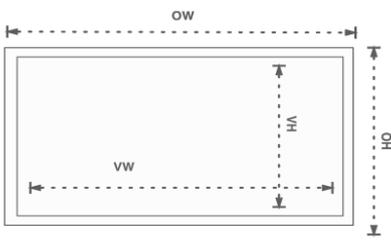
Example:

If you want to switch to TX IPE2000-34|B22430|I5 for video wall **vwdemo2**:

Command: `vw change vwdemo2 IPE2000-34|B22430|I5`

Response: `videowall vwdemo2 tx connect to IPE2000-34|B22430|I5`

2.4.8 vw bezelgap

Command	<code>vw bezelgap vw-name ow oh vw vh</code>
Response	<code>videowall vw-name's bezelgap: xx xx xx xx</code>
Description	<p>Sets bezel compensation parameters. These settings will crop the video on the RX based on these parameters for bezel compensation, reducing the overall visual distortion of video wall. However, small parts of the video will be cropped.</p> <ul style="list-style-type: none"> ● vw-name is video wall name. ● Units are in mm (0.1 mm). ● ow & oh= overall width & height of display device including the bezel. vw & vh = screen width & height.  <ul style="list-style-type: none"> ● By defaults, RX takes ow and vw, oh and vh as being the same, and bezel as zero.

Example:

If you want to set bezel compensation parameters with outside size 820 mm (**ow**) x 470 mm (**oh**) and screen size 800 mm (**vw**) x 450 mm (**vh**) in video wall **vwdemo5**:

Command: `vw bezelgap vwtest5 8200 4700 8000 4500`

Response: `videowall vwtest5's bezelgap: 8200 4700 8000 4500`



Command	vw get
Response	<p>Video wall information: vw-name1 tx1</p> <p>Row 1: Rx1-11 Rx1-12 Row 2: Rx1-21 Rx1-22 ...</p> <p>vw-name2 tx2</p> <p>Row 1: Rx2-11 Rx2-12 Row 2: Rx2-21 Rx2-22 ...</p>
Description	<p>Obtains a list of all video walls. Note:</p> <ul style="list-style-type: none"> ● vw-name1 and vw-name2 are video wall names. ● tx1 is TX name of video wall vw-name1. Rx1-11, Rx1-12, Rx1-21 and Rx1-22 are RX of video wall vw-name1. Numbers like "11" in Rx1-11 and "12" in Rx1-12 are RX's positions in video wall. Other TX and RX are similar.

Example:

If you want to obtain a list of all video walls:

Command: vw get

Response: *Video wall information:*
Vm1 IPE1000-341B22FFFC2
Row 1: EX373-341B22FFFD1
EX373-341B22800309 Row 2:
EX373-341B2280031A EX373-341B22800319 Vm2
MS500-341B22FFFC9
Row 1: EX373-341B2280031A
EX373-341B22800319 Row 2:
EX373-341B22FFFD1 EX373-341B22800309



2.4.10 mv get

Command	mv get
Response	mv information: <i>RX1</i> <i>TX1 TX2... TXn</i> <i>RX2</i> <i>TX3 TX4... TXm ...</i>
Description	Obtains TX played by RX in multiview. Note: Each row is a multi-view and starts with RX then is followed by several TX which encode video for this RX.

Example:

If you want to obtain TX played by RX in multiview:

Command: *mv get*

Response: *mv information:*

IPD2000-34|B22FFFFB3 IPE2000-34|B22FFFC2 IPE2000-34|B22FFC2

Note: It means RX IPD2000-34|B22FFFFB3 is streaming video from TX
IPE2000-34|B22FFHDC2
IPE2000-34|B22FFC2.

2.4.11 mv set

Command	mv set <i>RX TX1 TX2... TXn</i>
Response	<i>RX TX1 TX2... TXn</i>
Description	Selects TX for RX in multi-view. The number of TX is less than or equal to 16.

Example:

If you want to set RX IPD2000-34|B22FFFFB3 to decode TX IPE2000-34|B22FFHDC2 and IPE2000-34|B22FFC2 in multi-view:

Command: *mv set IPD2000-34|B22FFFFB3 IPE2000-34|B22FFFC2 IPE2000-34|B22FFC2*

Response: *IPD2000-34|B22FFFFB3 IPE2000-34|B22FFFC2 IPE2000-34|B22FFC2*



Command	<code>serial [-b param] [-r {on/off}] [-h {on/off}] "command-string" hostname1 hostname2...</code>
Response	serial command received: <code>serial -b param -r {on/off} -h {on/off} "command-string" hostname1 hostname2...</code>
Description	<p>Sends commands to any peripheral device via serial ports of the H.264 devices</p> <p>Note:</p> <ul style="list-style-type: none"> ● command-string is a RS-232/command, double quotation marks is to state the command string stated here within the command line. ● -b param is used to set serial parameters baud rate, data bits, parity and stop bits. By default, it's 115200-8n1. (Baud rate is 115200 bps, data bits are 8 bits, parity is "none", stop bits is "1".) ● -r {on off} is used to add a carriage return in the end of this command some devices require either off or on to execute the command. By default, value is "on". So a carriage return is automatically added in the end and sent to a peripheral device. ● -h {on off} is used to send commands in hexadecimal format. By default, value is "off". So commands are sent using their printable ASCII format and will be passed through to a peripheral device. When value is "on", commands need to be manually converted to their equivalent hexadecimal characters and replace command-string. In this case, spaces between adjacent hexadecimal characters are needed such as -h on "50 31 0D" which means that a command "PI" Power On will be sent to a peripheral device. ● hostname1 hostname2 are device names whose serial ports are used to send commands to peripheral devices connected to them. You can set multiple devices names at one time.

Example1:

If you want the serial port in IPE2000-341B22FFCBC2 to send characters "KA WE 4E CC" to a peripheral device in a default mode (**param** is 115200-8n1 and command uses printable ASCII format) and add a carriage return in the end of this command:

Command: `serial -b 115200-8n1 -r on "KA WE 4E CC" IPE2000-341B22FFCBC2`

Response: *serial command received:*

serial -b 115200-8n1 -r on "KA WE 4E CC" IPE2000-341B22FFCBC2

Example2:

If you want serial ports in IPD1000-341B22800BCD and IPD1000-341B22800BCE to send "AB 12 FD" in hexadecimal format to peripheral devices in a default mode (**param** is 115200-8n1) and add a carriage return in the end of this command:

Command: `serial -b 115200-8n1 -r on -h on "AB 12 FD" IPD1000-341B22800BCD IPD1000-341B22800BCE`

Response: *serial command received:*

serial -b 115200-8n1 -r on -h on "AB 12 FD" IPD1000-341B22800BCD IPD1000-341B22800BCE



2.5 notify Commands

notify commands are sent to a third party control device such as Crestron/Control4/PC from the CTRLPRO-MIP controller. When other commands are sent from the third party control device the IP controller executes them and gives response to the control device. The commands in this section have no requests and responses.

2.5.1 notify endpoint

Command	<code>notify endpoint {+/-} hostname/ hostname2... {-/+} hostnameM hostnameN...</code>
Description	<p>Notifies a third party control device that device status is online or offline when device's online or offline status changes.</p> <p>Note:</p> <p>"+" indicates that device status is online. "-" indicates that device status changed to offline.</p>

Example:

IP controller informs a third party control device that IPE2000-34|B22800BB0 status changed to online.

notify endpoint + IPE2000-34|B22800BB0

2.5.2 notify serialinfo

Command	<code>notify serialinfo hostname {hex/ascii} infolen:\r\ninfo\r\n</code>
Description	<p>Positively informs a third party control device about the data received in a device's serial port.</p> <p>Note:</p> <ul style="list-style-type: none">● hostname is a device name which has received data.● hex is hexadecimal format while ascii is ASCII format. They cannot be used in the same time. For more information, see 2.4.12 serial section.● infolen is the length of info. Unit is byte. info is the actual data received. For ASCII data, infolen is the number of actual data bytes received. For hexadecimal data, (infolen + 1)/3 is the number of actual data bytes received.● \r and \n are escape characters, meaning a carriage return and a line feed respectively.

Example 1:

IPD1000-34|B228007CB's serial port receives 19 bytes which are hexadecimal characters "68 65 6C 11 6C 6F 11 22 33 44 00 55 66 77 99 AA CC DD FF": (infolen is "56".)

notify serialinfo EX373-34|B228007CB hex 56:

68 65 6C 11 6C 6F 11 22 33 44 00 55 66 77 99 AA CC DD FF

Example 2:

IPD2000-34|B22800BCA's serial port receives five characters "12345":

notify serialinfo IPD500-34|B22800BCA ascii 5:

12345



3.1 Device Info

config set device info and **config get device info** send data in **key-value** format, **key** is parameter and **value** is its value. The following table lists the parameters supported by devices and their value ranges. All parameters can be changed, unless otherwise stated.

Parameters	Description	Devices Supported
name	Device name. Read only. Format is "Device type-MAC address" such as IPE2000-341B22FFFFB3	All devices
version	Device software version. Read only. Format is v#.#. # such as v2.5.6	All devices
mac	Device MAC address. Read only.	All devices
ip_mode	IP address obtain method. <ul style="list-style-type: none"> ● autoip: AutoIP ● static: Static IP ● dhcp: DHCP 	All devices
ip4addr	IPv4 address. When ip_mode is static, IPv4 address can be changed.	All devices
netmask	IPv4 subnet mask. When ip_mode is static, IPv4 subnet mask can be changed.	All devices
gateway	IPv4 gateway. When ip_mode is static, IPv4 gateway can be changed.	All devices
sourcein	n/a	Tx
enc_rc_mode	Data rate control method. cbr is CBR mode. vbr is VBR mode. fixqp is Fixed QP mode.	Tx
profile	Encoding profile. bp is base profile. mp is main profile. hp is high profile.	Tx
cbr_avg_bitrate	CBR coding average rate. Unit is kbps. Data rate of	Tx



Parameters	Description	Devices Supported
	IPE1000/IPE2000 is less than or equal to 30720.	
vbr_max_bitrate	VBR encoding maximum rate. Unit is kbps. Data rate of IPE1000/IPE2000 is less than or equal to 30720.	Tx
vbr_min_gp	VBR minimum quantification parameters. Range is [0, 51].	Tx
vbr_max_gp	VBR maximum quantification parameters. Range is [0, 51].	Tx
fixqp_iqp	FixQP encoding mode I-frame quantification parameters. Range is [0,51].	Tx
fixqp_ppp	FixQP encoding mode P-frame quantification parameters. Range is [0, 51].	Tx
enc_gop	GOP size. Range is [1, 65535]. There is one I-frame in a specific range.	Tx
enc_fps	Frames per second. Range is [1, 60].	Tx
transport_type	Streaming media encapsulation format. raw is private format. ts is MPEG-2 TS format.	Tx
audio.name	Audio interface name. Read-only. Names like linein1, linein2, lineout1 and lineout2 are related to device hardware configuration.	All devices
audio.mute	Audio interface mute status. true is "mute". false is "unmute". For example, audio.lineout1.mute=true.	Rx



4 FAQ

Q: If errors occur when executing commands, what response CTRLPRO-MIP controller will give?

A: In fact, responses returned by IP controller are nearly a confirmation of API commands sent from a third party control device such as Crestron/Control 4. The IP controller will check the command format, the response isn't the actual execution result. It means that IP controller may return same response even if errors occur in execution. Therefore, a third party control device should not use the response to whether a command is executed successfully or not. The programmer should use the right query commands to get the system's running status query command result.

Q: How can I set IP mode of TX/RX?

A: By default, TX/RX is in AutoIP mode. The API command **config set device ip** can change their IP mode to DHCP or Static IP. For more information, see 2.1.8 config set device ip. If you want to obtain TX/RX's IP mode, you can use API command **config get device info**.

Q: How can I assign friendly names (alias) to TX or RX?

A: You can use API command **config set device alias**.

For example if you want assign alias **cabletv** to TX IPD1000-002C8D123456,

Command:*config set device alias IPD1000-002C8D123456 cabletv*

Q: When I send API commands, how do I specify TX and RX?

A: By alias or hostname (device name). Alias and hostname are unique to that device.

Q: What standard do the API commands use?

A: API commands are printable ASCII characters and are terminated with a <CR>, meaning a carriage return and a line feed must be followed in the end of a command.

Q: To create a video wall use the command "add vw-name".

A: Many videowalls scenes can be created, and it can be labelled to identify each videowall example **vwallone**.

Q: Can I recall a configuration?

A: In the PC software many video walls scenes can be configured and then save the configuration as a video wall name. Through telnet command you can recall a video wall by its name. This command **"set vw-name"**.

A: Other commands can be used such as **vw add** and **vw rm**, more commands of vw see section 2.4.

(The screen would change based on these commands).

To create and store multiple video-wall configuration, or recall the configuration effective, would be depending on your 3-rd party software and the commands sent as listed in this document.

Any 3-rd party software could recall a specific configuration, based on this API protocol and repeat commands.



Q: How to create a 2 x 2 video wall?

A: Before you create a command for video wall, it is simpler to assign an alias to each device for easy management. For example, if you have 4 TX and 4 RX, follow the below.

Transmitters

config set device alias IPE1000-AAAAAAAAAAAA cabletv
config set device alias IPE1000-BBBBBBBBBBBBBB bluray
config set device alias IPE1000-CCCCCCCCCCCCCC laptop
config set device alias IPE1000-DDDDDDDDDDDD appletv

Receivers

config set device alias IPD1000-EEEEEEEEEEEEEEE TopLeft
config set device alias IPD1000-FFFFFFFFFFFFFFF TopRight
config set device alias IPD1000-GGGGGGGGGGGG BottomLeft
config set device alias IPD1000-HHHHHHHHHHHH BottomRight

2 other methods can be used to create a 2 x 2 video wall:

Method 1:

Step 1. Use **vw add vwI 2 2 appletv**.

This command is used to create a video wall name **vwI** with two rows and two columns and assign TX **appletv**.

Step 2. Use **vw add vwI TopLeft 1 1 TopRight 1 2 BottomLeft 2 1 BottomRight 2 2**.

This command is used to add the 4 RX to the video wall **vwI** just created in step 1 and assign their positions.

Once this command is executed, all the assigned RX devices will play in video wall mode.

Method 2:

Use **vw add vwI layout 2 2 appletv TopLeft TopRight BottomLeft BottomRight**.

This command quicker to add a video wall. Only requires one line of command for 3rd Party control systems and testing demo units.



5. INSTALLATION REFERENCE LOG

HDM-C6MXIP-S			
TX#	IP ADDRESS	ALIAS	ADDITIONAL INFO
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			



HDM-C6MXIP-R

TX#	IP ADDRESS	ALIAS	ADDITIONAL INFO
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
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19			
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26			
27			
28			
29			
30			
31			
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HDM-C6MXIP-R

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Notes



Avenview Warranty Certificate

AVENVIEW CORP. ("Avenview") warrants Avenview-branded product(s) contained in the original packaging against defects in materials and workmanship when used normally in accordance with Avenview's enclosed manual guidelines for a period of THREE (3) YEARS from the date of original retail purchase - Warranty Period. Avenview's published guidelines include but are not limited to information contained in technical specifications, user manuals and service communications.

LABOR: During the Warranty Period of THREE (3) YEARS, Avenview will repair or replace the product(s) at no cost using new or used parts equivalent to novel performance and reliability if the product(s) is determined to have abide by Avenview's published guidelines. Cost of Labor applicable to product(s) after Warranty Period. For labor costs, please contact support@avenview.com.

PARTS: During the Warranty Period of THREE (3) YEARS, Avenview will supply new or rebuilt replacements in exchange for defective parts of the product(s) at no cost if the product(s) is determined to have abide by Avenview's published guidelines. Cost of Parts applicable to product(s) after Warranty Period. For part(s) costs, please contact support@avenview.com.

To obtain Warranty: (a) proof of purchase in the form of a bill of sale or receipted invoice reflecting that the registered product(s) is within warranty period must be presented to obtain warranty service; (b) product(s) must be registered at time of purchase. Failure to do so will result in applicable parts and labor charges. Returning product(s) must be shipped in Avenview's original packaging or in packaging pertaining equal degree of protection to Avenview's. Both Avenview and purchaser are responsible for freight charges and brokerages when shipping the product(s) to the receiver.

NOT COVERED BY THIS WARRANTY

This warranty does not apply to any non-Avenview branded product(s); non-registered Avenview product(s). This warranty does not apply: (a) to cosmetic damage, including but not limited to scratches, dents and broken cords; (b) to damage caused by use with another product; (c) to damage caused by accident, abuse, misuse, liquid contact, fire, earthquake or other external cause; (d) to damage caused by operating the Avenview product(s) outside Avenview's manuals or guidelines; (e) to damage caused by service performed by anyone who is not a representative of Avenview or an Avenview authorized personnel; (f) to defects caused by normal wear and tear or otherwise due to the normal aging of the Avenview product(s), or (g) if any serial number has been removed or defaced from the Avenview product(s).

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