

VidcasterIP

Virtual Video Matrix

API Commands for IP Controller

DATA-TRONIX®

Version: V1.0.1

Note: This document is suitable for API V1.4 & Service
V5.0.5

Contents

1	Introduction.....	3
1.1	Preparation.....	3
1.1.1	Setting IP Address in Your Computer.....	3
1.1.2	Enabling Telnet Client.....	3
1.2	Logging In to IP Controller via Command-line Interface	4
1.3	Introduction to Terminology	5
1.4	API Commands Overview	5
1.4.1	config Commands	5
1.4.2	matrix Commands.....	6
1.4.3	source Commands	6
1.4.4	vw Commands	7
1.4.5	mv Commands	7
1.4.6	serial Commands	7
1.4.7	notify Commands.....	7
2	Command Sets.....	8
2.1	config Commands.....	8
2.1.1	config set ip4addr	8
2.1.2	config set ip4addr2	8
2.1.3	config set webloginpasswd.....	9
2.1.4	config set restorefactory	9
2.1.5	config set reboot.....	9
2.1.6	config set device alias	10
2.1.7	config set device remove.....	10
2.1.8	config set device ip	11
2.1.9	config set device reboot	11
2.1.10	config set device restorefactory	12
2.1.11	config set device info	13
2.1.12	config set device cec standby	13
2.1.13	config set device cec onetouchplay.....	14
2.1.14	config get version	14
2.1.15	config get devicelist	15

2.1.16	config get ipsetting	15
2.1.17	config get ipsetting2	16
2.1.18	config get name	16
2.1.19	config get device info.....	17
2.1.20	config get devicejsonstring	19
2.2	matrix Commands	20
2.2.1	matrix set	20
2.2.2	matrix get.....	21
2.3	source Commands.....	22
2.3.1	source set.....	22
2.3.2	source get	22
2.4	vw Commands	23
2.4.1	vw add	23
2.4.2	vw rm	23
2.4.3	vw rm vwname rx	24
2.4.4	vw add position.....	24
2.4.5	vw add layout	25
2.4.6	vw change rx tx.....	25
2.4.7	vw change vw-name tx.....	26
2.4.8	vw bezelgap	26
2.4.9	vw get	27
2.4.10	mv get	28
2.4.11	mv set	28
2.4.12	serial	28
2.5	notify Commands	30
2.5.1	notify endpoint	30
2.5.2	notify serialinfo.....	30
3	Appendix.....	31
3.1	Device Info.....	31
4	FAQ.....	33

1 Introduction

IP controller has two Ethernet ports LAN(AV) port and LAN(C) port. It listens at TCP port 23 on the two ports, through which you can control and manage IP matrix.

1.1 Preparation

This section takes a third party control device windows 7 as an example. You may also use other control devices.

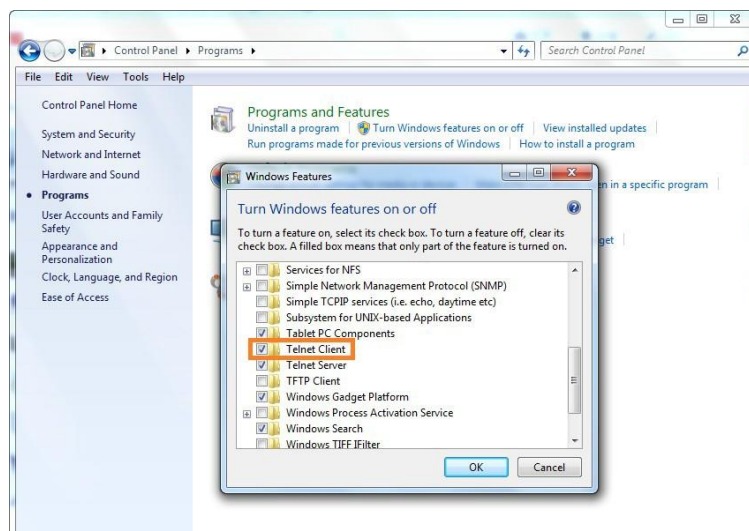
1.1.1 Setting IP Address in Your Computer

Before logging in to IP controller via command-line interface, make sure that your computer and IP controller are on the same subnet. If 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

1.1.2 Enabling Telnet Client

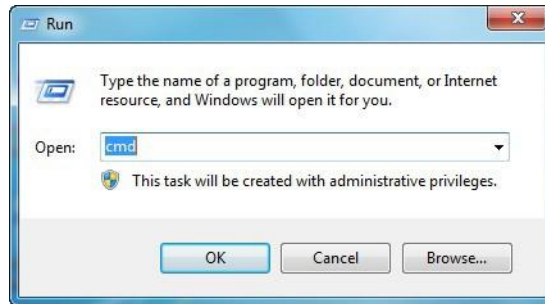
Before logging in to IP controller via command-line interface, make sure that **Telnet Client** is enabled. By default, **Telnet Client** is disabled in Windows 7. To turn on **Telnet Client**, do as follows.

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

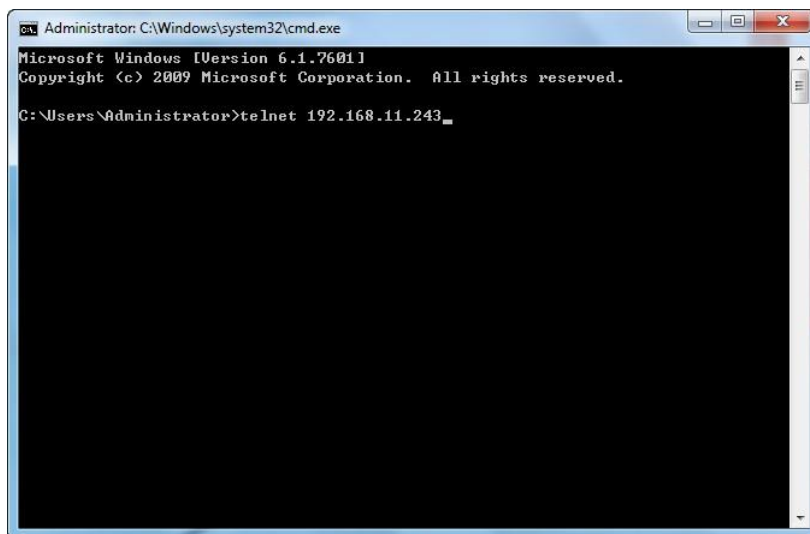


1.2 Logging into the IP Controller via Command-line Interface

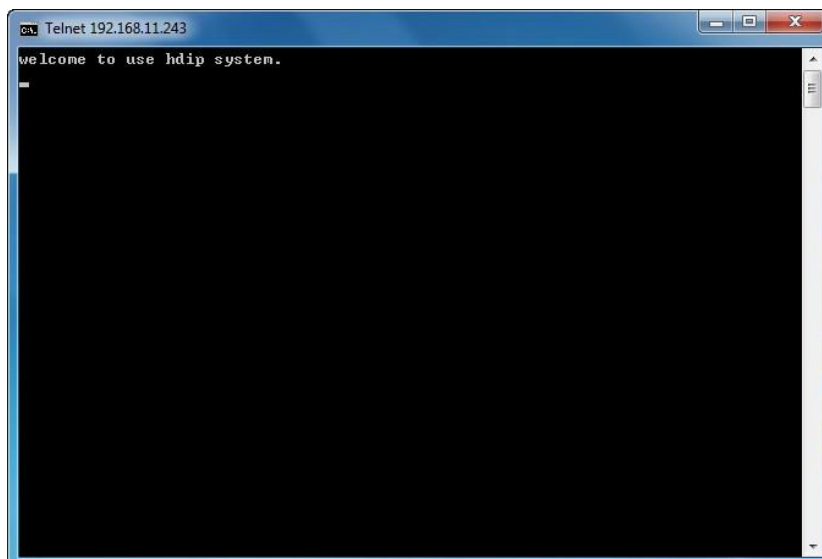
1. Choose **Start > Run**.
2. In the **Run** dialog box, enter **cmd** then click **OK**.



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



4. Enter API commands in the following screen to control and manage IP matrix.



1.3 Introduction to Terminology

The terminology used in API command description is listed as follows.

Terminology	Description
Device	TX, RX, a presentation switcher, a recording server controlled and managed by IP controller.
Online	Device is working properly and can be controlled by IP controller.
Offline	Device cannot be controlled by IP controller for a reason such as power failure.
Device Name	A fixed name given by factory defaults with a format "Device type-MAC address", for example IPE2000-341B22FFFFB3.
Alias	A name given manually for easy management. It can be changed using any characters or strings except some special ones. For more information, see 2.1.6 config set device alias.

1.4 API Commands Overview

API commands of IP controller are mainly classified into the following types.

- config: manages and configures IP controller and devices
- matrix: controls the switching of TX and RX or obtains matrix information
- source: obtains or selects source input in TX
- vw: configures and manages video wall
- mv: configures and manages multi-view
- serial: sends commands to 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.

1.4.1 config Commands

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

1. config set Commands

Commands	Description
config set ip4addr	Configures network settings in LAN(AV) port

	for communicating with devices
config set ip4addr2	Configures network settings in LAN(C) port for communicating with a third party control device such as a PC
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

1.4.4 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

1.4.5 mv Commands

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

1.4.6 serial Commands

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

1.4.7 notify Commands

Command	Description
notify endpoint	IP controller positively informs a third party control device that devices just got online or offline when devices' online or offline status changes.
notify serialinfo	IP controller positively informs a third party control device such as a computer about the 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 IP address, subnet mask and gateway in LAN(AV) port. You can set two or three of them at the same time or only one each time.• LAN(AV) port only supports Static IP mode. After network settings are configured, it automatically reboots for the settings to take effect.

Example:

If you want to set LAN(AV) port's IP address as 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 third party control device such as a PC.</p> <p>Note:</p> <ul style="list-style-type: none">• This command is used to set IP address, subnet mask and gateway in LAN(C) port. You can set two or three of them at the same time or only one each time.• LAN(C) port only supports Static IP mode. After network settings are configured, it automatically reboots for the settings to take effect.

Example:

If you want to set 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:

If you want to 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 now
Description	Resets IP controller to factory defaults. When it is restored to factory defaults, 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:

If you want to reboot IP 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 device name.
- Alias can be used in other commands to replace its 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 set IPD2000-341B22FFFFB3's alias as MYDVD:

Command:

config set device alias IPD2000-341B22FFFFB3 MYDVD

Response:

IPD2000-341B22FFFFB3's alias is MYDVD

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 EX363-AABBCCEEDDFF and IPD1000-1234567890AB:

Command:

```
config set device remove EX363-AABBCCEEDDFF IPD1000-1234567890AB
```

Response:

the following device's record will be removed:

EX363-AABBCCEEDDFF

IPD1000-1234567890AB

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}</code> <code>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 at one time. ● 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 IPD500-341B22800BCD to AutoIP and IPD500-341B22800BCA 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 IPD500-341B22800BCD autoip, IPD500-341B22800BCA static 169.254.5.253
255.255.0.0 169.254.1.253
```

Response:

Devices's ipsetting will change to:

IPD500-341B22800BCD autoip

IPD500-341B22800BCA static 169.254.5.253 255.255.0.0 169.254.1.253

2.1.9 config set device reboot

Command	<code>config set device reboot hostname1 hostname2...</code>
----------------	--

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 EX383-341B22FFFFB3 and EX383-341B22FFFFB4:

Command:

config set device reboot EX383-341B22FFFFB3 EX383-341B22FFFFB4

Response:

the following device will reboot now:

EX383-341B22FFFFB3

EX383-341B22FFFFB4

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</i> <i>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 EX383-341B22FFFFB3 and EX383-341B22FFFFB4 to factory defaults:

Command:

config set device restorefactory EX383-341B22FFFFB3 EX383-341B22FFFFB4

Response:

the following device will restore to factory setting now:

EX383-341B22FFFFB3

EX383-341B22FFFFB4

2.1.11 config set device info

Command	config set device info <i>key1=value1 [key2=value2...] hostname1 hostname2...</i>
Response	config set device info <i>key1=value1 key2=value2 key3=value3 key4=value4 hostname1 hostname2...</i>
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. For more information, see 3.1 Device Info section.

Example:

If you want to set EX143-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
EX143-AABBCCDDEEFF
```

Response:

```
config set device info mic_volume=20 audio.mic1.gain=12 audio.lineout1.volume=20
EX143-AABBCCDDEEFF
```

2.1.12 config set device cec standby

Command	config set device cec standby <i>hostname1 hostname2...</i>
Response	config set device cec standby <i>hostname1 hostname2...</i>
Description	<p>Makes one or multiple display devices connected to 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 RX to send a CEC command to make one or multiple display devices enter standby mode.● You can just use one command to make multiple display devices enter standby mode.● Display devices must support CEC.

Example:

If you want a display device connected to RX EX373-AABBCCDDEEFF enter standby mode:

Command:

```
config set device cec standby EX373-AABBCCDDEEFF
```

Response:

```
config set device cec standby EX373-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>Wakes up one or multiple display devices connected to RX.</p> <p>Note:</p> <ul style="list-style-type: none">● hostname1 and hostname2 are device names.● This command is used to control RX to send a CEC command to wake up one or multiple display devices.● You can just use one command to wake up multiple display devices.● Display devices must support CEC.

Example:

If you want to wake up a display device connected to RX EX373-AABBCCDDEEFF:

Command:

```
config set device ceconetouchplay EX373-AABBCCDDEEFF
```

Response:

```
config set device ceconetouchplay EX373-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 IP controller version information, which can be used for troubleshooting.● IP controller version information contains API version, web console version and service version

Example:

If you want to obtain IP controller version information:

Command:

```
config get version
```

Response:

```
API version: v1.2
```

```
System version: v3.0.2 (v1.5.4)
```

Note:

v1.2 is API version. v3.0.2 is web console version. v1.5.4 is service version.

2.1.15 config get devicelist

Command	config get devicelist
Response	devicelist is <i>hostname1 hostname2...</i>
Description	Obtains 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 EX363-341B228000BC EX373-341B22800490
```

Note:

The current online devices are EX363-341B228000BC and EX373-341B22800490.

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 in 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 in 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 { <i>alias</i> <i>hostname</i> }
Response	hostname'alias is xxxx
Description	Obtains device name or its alias. Note: <ul style="list-style-type: none">• You can use a device name to obtain its alias or vice versa.• alias is device alias. hostname is device name.• If you use a device name to obtain its alias which is not set, response is "NULL".• If config get name is used without parameters, response is all device names and their aliases.

Example 1:

If you want to obtain IPE200-341B22430115's alias:

Command:

```
config get name IPE200-341B22430115
```

Response:

```
IPE200-341B22430115's alias is testIPE
```

Example 2:

If you want to obtain IPE200-341B22430225's alias which is not set:

Command:

```
config get name IPE200-341B22430225
```

Response:

```
IPE200-341B22430225's alias is NULL
```

Example 3:

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

Command:

```
config get name
```

Response:

```
IPE200-341B22430115's alias is testIPE
```

```
IPE200-341B22430225's alias is NULL
```

2.1.19 config get device info

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.</p> <p>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 IPE3000-341B22F32001's working parameters:

Command:

```
config get device info IPE3000-341B22F32001
```

Response:

```
devices json info:
```

```

{
  "devices":
  [
    {
      "name": "IPE3000-341B22F32001",
      "version": "v2.5.8",
      "ip_mode": "dhcp",
      "ip4addr": "169.254.107.239",
      "netmask": "255.255.0.0",
      "mac": "34:1b:22:f3:20:01",
      "gateway": " ",
      "hdcp": false,
      "sourcein": "hdmi",
      "enc_rc_mode": "vbr",
      "profile": "hp",
      "cbr_avg_bitrate": 10000,
      "vbr_max_bitrate": 20000,
      "vbr_min_qp": 0,
      "vbr_max_qp": 25,
      "fixqp_iqp": 25,
      "fixqp_pqp": 25,
      "enc_gop": 60,
      "enc_fps": 60,
      "transport_type": "raw"
    }
  ]
}

```

Example 2:

If you want to obtain IPD1000-341B228007BD's working parameters:

Command:

```
config get device info IPD1000-341B228007BD
```

Response:

```

devices json info:
{
  "devices":
  [
    {
      "name": "IPD1000-341B228007BD",
      "version": "v2.5.6",
      "ip_mode": "autoip",
      "ip4addr": "169.254.5.173",
      "netmask": "255.255.0.0",
      "mac": "34:1b:22:80:07:bd",
      "gateway": " ",
      "hdcp": false,

```

```

        "sourcein":"null",
        "audio":
        [
            {
                "name":"lineout1",
                "mute":false
            }
        ]
    }
}

```

2.1.20 config get devicejsonstring

Command	config get devicejsonstring
Response	<pre> device json string: [{ "trueName":"xxxxxx", "deviceType":"Transmitter Receiver", "online":true false, "aliasName":"xxxx" }, ...] </pre>
Description	<p>Obtains all device basic information.</p> <p>Note:</p> <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:
[
  {
    "trueName":"EX141-341B22800790",
    "deviceType":"Receiver",
    "online":false,
    "aliasName":"Test1"
  }
]

```

```

    },
    {
        "trueName":"EX141-341B22800DE1",
        "deviceType":"Receiver",
        "online":false,
        "aliasName":"Test2"
    }
]

```

2.2 matrix Commands

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 some RX which are switched to this 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, this command is used to switch to another TX but will not clear video wall settings. If a RX in video wall displays a certain position of TX1's video, after this RX is 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, this command is used to switch to another TX for full-screen displaying.

Example1:

If you want RX EX373L-341B22800316 and EX373-341B22800309 to be switched to TX IPE1000-341B22FFFC1, RX EX373-341B22800319 to TX IPE1000-341B22FFFC2, and RX IPD1000-341B2280031A to TX IPE1000-341B22FFFC3:

Command:

```
matrix set IPE1000-341B22FFFC1 EX373L-341B22800316 EX373-341B22800309,
IPE1000-341B22FFFC2 EX373-341B22800319, IPE1000-341B22FFFC3IPD1000-341B2280031A
```

Response:

```
matrix set IPE1000-341B22FFFC1 EX373L-341B22800316 EX373-341B22800309,
IPE1000-341B22FFFC2 EX373-341B22800319, IPE1000-341B22FFFC3IPD1000-341B2280031A
```

Example2:

If you want RX EX373L-341B22800316 to stop decoding video:

Command:

```
matrix set NULL EX373L-341B22800316
```

Response:

```
matrix set NULL EX373L-341B22800316
```

2.2.2 matrix get

Command	matrix get
Response	matrix information: TX1 RX1 TX2 RX3 TX2 RX4 ...
Description	Obtains TX played by RX in matrix. Note: <ul style="list-style-type: none">● For video wall, the response contains RX and its linked TX but does include video wall information. If you want to obtain video wall information, you can use vw command.● If TX is NULL, RX does not decode video. "NULL" is not case sensitive.● Response does not include RX which supports multi-view.

Example:

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

Command:

```
matrix get
```

Response:

```
matrix information:  
IPE200-341B2243011A IPD500-341B22800BCD  
IPE200-341B2243011A IPD500-341B22800BCE  
IPE200-341B2243011A IPD500-341B22800BCA  
null IPD500-341B22800BC6
```

Note:

The response indicates that IPD500-341B22800BCD, IPD500-341B22800BCE, and IPD500-341B22800BCA all play IPE200-341B2243011A, and that IPD500-341B22800BC6 does not decode video.

2.3 source Commands

2.3.1 source set

Command	source set <i>tx-name source-name</i>
Response	set <i>tx-name</i> 's source to <i>source-name</i>
Description	Selects TX's input port.

Note:

- This command is used to select an input port for TX if it has multiple input ports.
- **tx-name** is TX name. **source-name** is TX input port name and is not case sensitive. Different TX has different input ports, for example IPE3000 has input ports hdmi and vga.

TX Type	Input Ports Available
IPE3000	hdmi, vga

- This command cannot be used to choose from different signal types of one input port. For example, IPE2000's DVI input port has five signal types such as HDMI and VGA, which can be chosen using DIP switch but cannot be controlled using this command.

Example:

If you want to set TX IPE3000-341B22430115's input port to HDMI:

Command:

```
source set IPE3000-341B22430115 hdmi
```

Response:

```
set IPE3000-341B22430115's source to hdmi
```

2.3.2 source get

Command	source get <i>tx-name</i>
Response	source info: <i>tx-name source-name</i>
Description	Obtains TX's current input port. Note: <ul style="list-style-type: none">• tx-name is TX name. source-name is TX input port name and is not case sensitive.• If TX only has one input port, this command can also be used to obtain its input port.• This command will feedback input ports numbered in sequence such as hdmi1 and vga1 whether TX has one or multiple input ports. The caller should decide whether the number is ignored according the hardware feature of TX.• If TX has one input port with multiple signal types, this command can only feedback its current input port but cannot tell which signal type is chosen.

Example:

If you want to obtain TX IPE3000-341B22430115's current input port:

Command:

```
source get IPE3000-341B22430115
```

Response:

```
source info: IPE3000-341B22430115 hdmi1
```

2.4 vw Commands

2.4.1 vw add

Command	<code>vw add vw-name n m TX</code>
Response	videowall item <i>vw-name</i> create and assign <i>TX</i> to it
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 in IP controller but does not change devices' working status, for example devices still work as they were.

Example:

If you want to create a 2 x 2 video wall configuration **vwtest1** and assign TX IPE200-341B2243011A:

Command:

```
vw add vwtest1 2 2 IPE200-341B2243011A
```

Response:

```
videowall item vwtest1 create and assign IPE200-341B2243011A to it
```

2.4.2 vw rm

Command	<code>vw rm vw-name</code>
Response	videowall item <i>vw-name</i> removed
Description	<p>Removes a video wall configuration.</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 IP controller but does not change devices' working status. If the current video wall is removed using this command, RX in this video wall still plays its previous picture.

Example:

If you want to remove a video wall configuration **vwtest1**:

Command:

```
vw rm vwtest1
```

Response:

```
videowall item vwtest1 removed
```

2.4.3 vw rm vwname rx

Command	vw rm <i>vw-name rx1 rx2...</i>
Response	videowall config change: remove <i>rx1 rx2...</i> from <i>vw-name</i>
Description	Removes one or multiple RX from video wall. If RX is removed, it displays an entire picture of TX.

Example:

If you want to remove RX IPD500-341B22800BCE and IPD500-341B22800BCA from video wall **vwtest1**:

Command:

```
vw rm vwtest1 IPD500-341B22800BCE IPD500-341B22800BCA
```

Response:

```
videowall config change: remove IPD500-341B22800BCE IPD500-341B22800BCA from vwtest1
```

2.4.4 vw add position

Command	vw add <i>vw-name RX1 x1 y1 RX2 x2 y2...</i>
Response	videowall item <i>vw-name</i> configuration added: <i>RX1 x1 y1</i> <i>RX2 x2 y2</i> ...
Description	Adds RX to a video wall configuration. Once this command is executed, RX will play video wall. Note: <ul style="list-style-type: none"> ● vw-name is video wall name. ● Parameters contain segments like RX1 x1 y1 RX2 x2 y2. Every segment starts with RX and is followed by its position like 1 2, adding this RX to the first row and second column of video wall. Segments x1, y1, x2, y2 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 IPD500-341B22800BC6 1 2 IPD500-341B22800BCE 2 1  
IPD500-341B22800BCA 2 2
```

Response:

videowall item vwtest2 configuration added:

IPD500-341B22800BCD 1 1

IPD500-341B22800BC6 1 2

IPD500-341B22800BCE 2 1

IPD500-341B22800BCA 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"><tr><td>RX11</td><td>RX12</td><td>...</td><td>RX1m</td></tr><tr><td>RX21</td><td>RX22</td><td>...</td><td>RX2m</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	...	RX1m	RX21	RX22	...	RX2m	⋮	⋮	⋮	⋮	RXn1	RXn2	...	RXnm
RX11	RX12	...	RX1m														
RX21	RX22	...	RX2m														
⋮	⋮	⋮	⋮														
RXn1	RXn2	...	RXnm														

Example:

If you want to create a 2 x 2 video wall configuration **vwtest3** which contains one TX IPE200-341B22430115 and four RX IPD500-341B22800BCD, IPD500-341B22800BC6, IPD500-341B22800BCE and IPD500-341B22800BCA:

Command:

```
vw add vwtest3 layout 2 2 IPE200-341B22430115 IPD500-341B22800BCD IPD500-341B22800BC6  
IPD500-341B22800BCE IPD500-341B22800BCA
```

Response:

```
videowall vwtest3 layout 2*2 IPE200-341B22430115 IPD500-341B22800BCD IPD500-341B22800BC6  
IPD500-341B22800BCE IPD500-341B22800BCA
```

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 play its entire picture.</p> <p>Note:</p> <p>If TX is "NULL", RX will not decode video. "NULL" is not case</p>

sensitive.

Example:

If you want to remove RX IPD500-341B22800BCA from video wall and switch this RX to TX IPE200-341B22430115 to play its entire picture:

Command:

```
vw change IPD500-341B22800BCA IPE200-341B22430115
```

Response:

```
videowall config clear: IPD500-341B22800BCA and connect to IPE200-341B22430115
```

2.4.7 vw change vw-name tx

Command	vw change <i>vw-name</i> TX
Response	videowall <i>vw-name</i> tx connect to <i>txhostname</i>
Description	Switches to another source for video wall. When this command is executed, video wall will play this TX. Note: <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 IPE200-341B22430115 for video wall **vwtest2**:

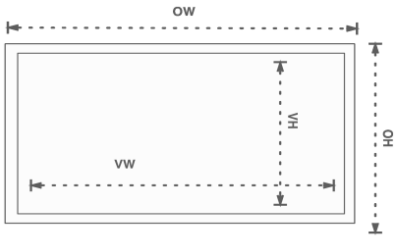
Command:

```
vw change vwtest2 IPE200-341B22430115
```

Response:

```
videowall vwtest2 tx connect to IPE200-341B22430115
```

2.4.8 vw bezelgap

Command	vw bezelgap <i>vw-name</i> ow oh vw vh
Response	videowall <i>vw-name</i> 's bezelgap: xx xx xx xx
Description	Sets bezel compensation parameters. RX will trim video based on these parameters for bezel compensation, reducing the overall visual distortion of video wall. However, small parts of the video will be lost due to trimming. <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.  <p>UNIT: 0.1mm</p>

- 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 **vwtest5**:

Command:

```
vw bezelgap vwtest5 8200 4700 8000 4500
```

Response:

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

2.4.9 vw get

Command	vw get
Response	<p>Video wall information:</p> <p><i>vw-name1 tx1</i></p> <p>Row 1: <i>Rx1-11 Rx1-12</i></p> <p>Row 2: <i>Rx1-21 Rx1-22</i></p> <p>...</p> <p><i>vw-name2 tx2</i></p> <p>Row 1: <i>Rx2-11 Rx2-12</i></p> <p>Row 2: <i>Rx2-21 Rx2-22</i></p> <p>...</p>
Description	<p>Obtains a list of all video walls.</p> <p>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: RX1 TX1 TX2... TXn RX2 TX3 TX4...TXm ...
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:  
EX383-341B22FFFFB3 IPE1000-341B22FFFC2 IPE2000-341B22FFCBC2
```

Note:

It means RX EX383-341B22FFFFB3 is playing TX IPE1000-341B22FFFC2 and IPE2000-341B22FFCBC2.

2.4.11 mv set

Command	mv set RX TX1 TX2... TXn
Response	RX TX1 TX2...TXn
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 EX383-341B22FFFFB3 to decode TX IPE1000-341B22FFFC2 and IPE2000-341B22FFCBC2 in multi-view:

Command:

```
mv set EX383-341B22FFFFB3 IPE1000-341B22FFFC2 IPE2000-341B22FFCBC2
```

Response:

```
EX383-341B22FFFFB3 IPE1000-341B22FFFC2 IPE2000-341B22FFCBC2
```

2.4.12 serial

Command	serial [-b param] [-r {on off}] [-h {on off}] "command-string" hostname1 hostname2...
Response	serial command received: serial -b param -r {on off} -h {on off} "command-string" hostname1

	<i>hostname2...</i>
Description	<p>Sends commands to peripheral devices via serial ports of the devices</p> <p>Note:</p> <ul style="list-style-type: none"> ● command-string is a command, excluding double quotation marks. ● -b param is used to set serial working mode which contains 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 set whether to add a carriage return in the end of this command then send it to a peripheral device. 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 set whether 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 "47 6F 6F 64" which means that a command "Good" 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 IPD500-341B22800BCD and IPD500-341B22800BCE 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" IPD500-341B22800BCD IPD500-341B22800BCE
```

Response:

```
serial command received:
```

```
serial -b 115200-8n1 -r on -h on "AB 12 FD" IPD500-341B22800BCD IPD500-341B22800BCE
```

2.5 notify Commands

notify commands are positively sent to a third party control device such as a PC from IP controller. Other commands are sent from a third party control device, and then 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 {+ -} hostname1 hostname2... {- +} hostnameM hostnameN...</code>
Description	Positively informs a third party control device that devices just got online or offline when devices' online or offline status changes. Note: " +" indicates that devices just got online. "- " indicates that devices just got offline.

Example:

IP controller informs a third party control device that IPE201-341B22800BB0 just got online.

```
notify endpoint + IPE201-341B22800BB0
```

2.5.2 notify serialinfo

Command	<code>notify serialinfo hostname {hex ascii} infolen:\r\ninfo\r\n</code>
Description	Positively informs a third party control device about the data received in a device's serial port. Note: <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.

Example1:

EX373-341B228007CB'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 EX373-341B228007CB hex 56:
```

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

Example2:

IPD500-341B22800BCA's serial port receives five characters "12345":

```
notify serialinfo IPD500-341B22800BCA ascii 5:
12345
```

3 Appendix

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	Input port. For more information, see source commands.	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. Data rate of IPE3000 is less than or equal to 40960.	
vbr_max_bitrate	VBR encoding maximum rate. Unit is kbps. Data rate of IPE1000/IPE2000 is less than or equal to 30720. Data rate of IPE3000 is less than or equal to 40960.	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 IP 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 a computer. Despite IP controller checked command format basically, the response isn't the actual execution result. It means that IP controller may return normal response even if errors occur in execution. Therefore, a third party control device should not use the response as the basis to judge whether a command is executed successfully, and should use the right query commands to get the system's running status to make right judgment.

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

A: By default, TX/RX runs in AutoIP mode. You can use API command **config set device ip** to 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** to do this. For example if you want assign alias **mydvd** to TX EX363-002C8D123456, use **config set device alias EX363-002C8D123456 mydvd**

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.

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: It looks like to create a video wall I would use the command "add vw-name". Once a video wall is created, how do I turn it on and off? I should be able to create multiple video wall configurations and then recall a configuration? Is this possible? I would like to use the PC software to create a video wall configuration and then save the configuration as a video wall name. I would then send a telnet command to recall a video wall name. This command could be "set vw-name".

A: Except vw add and vw rm, other commands of vw are effective instantly. (The screen would change based on the commands). To create and store multiple video-wall configuration, or recall the configuration effective, would be depending on your 3-rd party software. Any 3-rd party software could recall a specific configuration, based on this API protocol and repeat corresponding add commands.

Q: How can I create a 2 x 2 video wall?

A: Before you use video wall, you'd better assign an alias to each device for easy management. For example, if you have 4 TX and 4 RX, do as follows.

```
config set device alias IPE1000-AAAAAAAAAAAA pc1
config set device alias IPE1000-BBBBBBBBBBBBBB pc2
config set device alias IPE1000-CCCCCCCCCCCC dvd
config set device alias IPE1000-DDDDDDDDDD stb
config set device alias IPD1000-EEEEEEEEEEEEEE TopLeft
config set device alias IPD1000-FFFFFFFFFFFFFF TopRight
config set device alias IPD1000-GGGGGGGGGGGG BottomLeft
config set device alias IPD1000-HHHHHHHHHHHH BottomRight
```

You can use two methods to create a 2 x 2 video wall:

Method 1:

1. Use **vw add vw1 2 2 pc1**. This command is used to create a video wall **vw1** with two rows and two columns and assign TX **pc1**.
2. Use **vw add vw1 TopLeft 1 1 TopRight 1 2 BottomLeft 2 1 BottomRight 2 2**. This command is used to add RX to video wall **vw1** and assign their positions. Once this command is executed, RX will play video wall.

Method 2:

Use **vw add vw1 layout 2 2 pc1 TopLeft TopRight BottomLeft BottomRight**. This command is a easier way to add a video wall. It just needs one line of command.