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**ALFATRON ELECTRONICS GmbH GERMANY**

# **Alfatron SMW42S API Commands Guide**

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## 1.1 Preparation

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

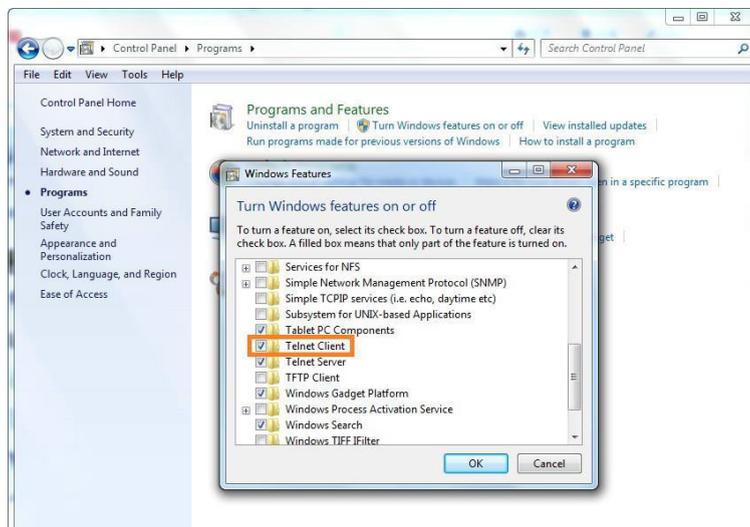
### Telnet Port Number

Connection Type	Telnet
Port Number	24
Username	root
Password	<blank>

### 1.1.1 Enabling Telnet Client

Before logging in to IP controller via the 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.

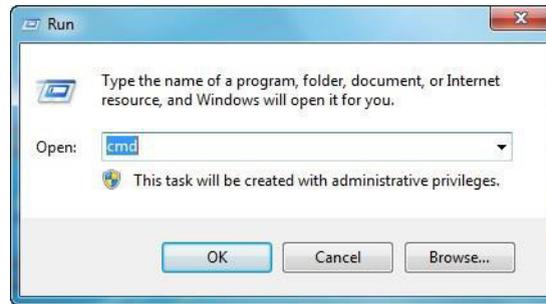
1. Choose **Start > Control Panel > Programs** (Windows 7) or **Start > Windows System > Control Panel > Programs** (Windows 10).
2. In **Programs and Features** area box, click **Turn Windows features on or off**.
3. In **Windows Features** dialog box, select **Telnet Client** check box.



## 1.2 Logging In to Device via Command-line Interface

1. Choose **Start > Run**.

- In the **Run** dialog box, enter **cmd** then click **OK**.



- Enter **telnet 192.168.5.94 24** if the device IP address is 192.168.5.94, and then press **Enter**.

```
C:\Temp>telnet 192.168.5.94 24
```

- The device prompt for user name, please input **root**, then press **Enter**.

```
(none) login: root
```

- The device prompt for a password, currently it has no password, just press **Enter**.

```
(none) login: root
Password:
Welcome to HiLinux.
^ # |
```

### 1.3 Introduction to Terminology

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

Terminology	Description
<b>Device</b>	The unit being controlled.
<b>Airplay Mirroring</b>	A screen mirroring approach developed by Apple, it is supported by many Apple devices, such as Macbook, iPad and iPhone. In this document, we use Airplay as its abbreviation.
<b>Miracast</b>	A screen mirroring approach developed by Wi-Fi alliance, it is supported by all Android devices and Windows PC.
<b>GBCast</b>	Grandbeing proprietary screen mirroring approach with a sender software.
<b>BYOD Source</b>	Airplay, Miracast and GBCast are BYOD solutions, they are named <b>BYOD (video ) source</b> .
<b>Hardware Source</b>	A SMW42S has for hardware video input interfaces: HDMI1, HDMI2, HDMI3 and HDMI4, they are named <b>hardware (video) source</b> .
<b>Software Source</b>	Obtain and display the video content from a USB camera or Grandbeing IPAV H.264 encoder, we named them <b>software (video) source</b> . For the BYOD source supported, they are called software source too.

## 1.4 API Commands Overview

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

- ✧ gbconfig: manage the configurations of the device
- ✧ gbcontrol: control the device to do something
- ✧ gblayout: adjust the features related to screen layout
- ✧ event: unsolicited message to report that the device state changes

Every API command is supported unless there is special comment in the context.

### 1.4.1 gbconfig Commands

Commands	Description
gbconfig --name	Configure the device's name
gbconfig --output-resolution	Configure the resolution of the HDMI out interfaces
gbconfig --auto-switch-source	Configure the automatic switching feature.
gbconfig --lan-info	Configure the wired Ethernet settings
gbconfig --hdcp-enable	Configure whether the HDCP feature of HDMI out the interface is enabled
gbconfig --rs232-param	Configure the RS232 communication settings used to control the external display
gbconfig --rs232-hex-cmd-enable	Configure whether to set the commands used to control the external display with hexadecimal format
gbconfig --rs232-sinkpoweron-cmd	Configure the RS232 command string used to turn on the external display
gbconfig --rs232-sinkpoweroff-cmd	Configure the RS232 command string used to turn off the external display
gbconfig --auto-standby-time	Configure the timeout of the automatic standby feature
gbconfig --sinkpower-mode	Configure the mode by which the device turn on/off the external display
gbconfig --special-sink	Configure the settings for special sink
gbconfig --source-select	Control the device to display a video source
gbconfig --input-state	Query the details of the video source(s)
gbconfig --media-source	Manage the video sources
gbconfig --audio-select	Control the device to play the audio of the designated video source
gbconfig --access-code	Configure the access code of BYOD video source

gbconfig --softap-password	Configure the password of the soft AP
gbconfig --show	Query the settings of a configuration item
gbconfig --help	Show a simple guide of gbconfig command

## 1.4.2 gbcontrol Commands

Command	Description
gbcontrol --reboot	Reboot the device
gbcontrol --reset-to-default	Restore factory defaults
gbcontrol --upgrade-firmware	Upgrade the device's firmware
gbcontrol --serial	Transparent RS232 communication
gbcontrol --video-source	Control the device to display a video source
gbcontrol --audio-source	Control the device to play the audio of the designated video source
gbcontrol --stop-video	Stop displaying a video source, do not change the screen layout.
gbcontrol --sinkpower	Turn the external display on or off
gbcontrol --show-osd	Show all OSD items for ten seconds
gbcontrol --help	Show a simple guide of gbconfig command

## 1.4.3 gblayout Commands

Command	Description
gblayout --start-video	Start to display a video source, the screen the layout will be changed automatically.
gblayout --stop-video	Stop displaying a video source, the screen the layout will be changed automatically.
gblayout --add	Add a screen layout for the device
gblayout --del	Delete a screen layout from the device
gblayout --list	List all screen layouts in the device
gblayout --show	Query the detail of a screen layout
gblayout --set	Designate the current screen layout
gblayout --get	Query the information related to the current screen layout
gblayout --set-sequence	Designate the screen layout sequence
gblayout --get-sequence	Query the screen layout sequence
gblayout --auto	Config whether the device change the screen layout automatically
gblayout --help	Show a simple guide of gblayout command

## 1.4.4 Event Commands

Commands	Description
[Event] VideoSource	The state of one video source has changed
[Event] WorkMode	The device work mode has changed
[Event] Layout	The screen layout has changed

## 2 Command Sets

### 2.1 gbconfig Commands

#### 2.1.1 gbconfig --name

<b>Command</b>	<code>gbconfig --name <i>DeviceName</i></code>
<b>Response</b>	The device name will change to <i>DeviceName</i> .
<b>Description</b>	<p>Configure the device's name. As a prompt, the new name will appear on the top-right corner of the screen if the operation is successful.</p> <p>As the factory default, the device name is ALF-SMW42S.</p> <p><b>Note:</b></p> <p>The device name must be 1~20 characters in length, furthermore, it must include only letters, numbers and two special character ('_' and '-').</p>

#### Example:

To change the name to MeetingRoom:

#### Command:

```
gbconfig --name MeetingRoom
```

#### Response:

The device name will change to MeetingRoom.

#### 2.1.2 gbconfig --output-resolution

<b>Command</b>	<code>gbconfig --output-resolution { auto   <i>Timing</i> }</code>
<b>Response</b>	The device will change its output resolution as the command designates or automatically.
<b>Description</b>	<p>If you assign "auto" as the argument, the device will select a best resolution according to the display's EDID. The list of all available timings is below:</p> <p>3840x2160P@60 3840x2160P@50 3840x2160P@30 3840x2160P@25 3840x2160P@24 1920x1080P@60 1920x1080P@50 1920x1080P@30</p>

1920x1080P@25	1920x1080P@24	1680x1050P@60	1600x1200P@60
1440x900P@60	1366x768P@60	1280x1024P@60	1280x720P@60
1280x720P@50	1024x768P@60	800x600P@60	720x480P@60
640x480P@60	The factory default is auto.		

**Example:**

To use 4K@60 resolution:

Command:

```
gbconfig --output-resolution 3840x2160P@60
```

Response:

The output resolution will change to 3840x2160P@60Hz.

### 2.1.3 gbconfig --auto-switch-source

<b>Command</b>	<code>gbconfig --auto-switch-source { y   n   toggle }</code>
<b>Response</b>	The automatic switching feature will be enabled or disabled according to the command
<b>Description</b>	<p>Configure the automatic switching feature. If it is enabled, when a video source becomes valid or invalid, the device will start or stop displaying this video source automatically. If this feature is disabled, the above mechanism doesn't work. The argument "toggle" means to toggle this configuration.</p> <p>For BYOD video sources, automatic switching feature works always, namely, this configuration does work for BYOD video source.</p> <p>As the factory default, automatic switching is enabled. Whenever the device boots or enters stand by mode, it restores to enabled too.</p>

**Example:**

To disable automatic switching:

Command:

```
gbconfig --auto-switch-source n
```

Response:

The automatic switching feature will be disabled.

### 2.1.4 gbconfig --lan-info

<b>Command</b>	<code>gbconfig --lan-info {dhcp   static <i>ipaddr netmask gateway</i>}</code>
<b>Response</b>	The settings of the wired Ethernet will be changed.
<b>Description</b>	<p>The device supports two modes to obtain IP settings: DHCP and static. As a prompt, the new IP address will appear on the bottom-right corner of the screen if the operation is successful.</p> <p>As the factory default, DHCP mode is used.</p>

**Example:**

To use 192.168.1.88/24 as IP address and 192.168.1.1 as default gateway: Command:

```
Gbconfig --lan-info static 192.168.1.88 255.255.255.0 192.168.1.1
```

Response:

The IP address will change.

## 2.1.5 gbconfig --hdcpc-enable

<b>Command</b>	<code>gbconfig --hdcpc-enable { y   n }</code>
<b>Response</b>	The HDCPC feature of the HDMI out interface will be enabled or disabled
<b>Description</b>	Configure whether the HDCPC feature of HDMI out interface is enabled. If it is enabled, HDCPC 2.2 will be used on the HDMI out interface when the connected display support HDCPC 2.2, or else HDCPC 1.4 will be used. If this feature is disabled, the output content will not be protected by HDCPC. As the factory default, HDCPC feature of the HDMI out interface is enabled.

### Example:

To disable the HDCPC feature:

**Command:**

```
gbconfig --hdcpc-enable n
```

**Response:**

The HDCPC feature will be disabled.

## 2.1.6 gbconfig --rs232-param

<b>Command</b>	<code>gbconfig --rs232-param RS232Settings</code>
<b>Response</b>	The settings will be saved.
<b>Description</b>	The device can send a command string through the built-in RS232 port when it wants to turn the external display on or off. This command is used to configure the communication settings of the RS232 port. The argument RS232Settings must have the format similar to 9600-8n1. As the factory default, 9600-8n1 is used.

### Example:

To use 115200-8n1 as the communication settings: Command:

```
gbconfig --rs232-param 115200-8n1
```

Response:

The new settings are saved.

## 2.1.7 gbconfig --rs232-hex-cmd-enable

<b>Command</b>	<code>gbconfig --rs232-hex-cmd-enable { y   n }</code>
<b>Response</b>	The setting will be saved.
<b>Description</b>	<p>The device can send a command string through the built-in RS232 port when it wants to turn the external display on or off. The user can designate these two command strings separately. The command string can be designated with two formats: printable or hexadecimal. This command tells the device which format will be used.</p> <p>As the factory default, the hexadecimal format is used.</p>

### Example:

To use printable string: Command:

```
gbconfig --rs232-hex-cmd-enable n
```

Response:

The command change to use printable string.

## 2.1.8 gbconfig --rs232-sinkpoweron-cmd

<b>Command</b>	<code>gbconfig --rs232-sinkpoweron-cmd <i>PowerOnCmd</i></code>
<b>Response</b>	The string will be saved.
<b>Description</b>	<p>Configure the command string used to turn on the external display through RS232 port. The format of the argument <i>PowerOnCmd</i> is related to the configuration <code>--rs232-hex-cmd-enable</code> which has been mentioned in the previous chapter:</p> <ol style="list-style-type: none"> <li>If the hexadecimal format is designated, <i>PowerOnCmd</i> must be a hexadecimal string such as 0123456789ABCDEF.</li> <li>If the printable format is designated, <i>PowerOnCmd</i> must be a printable string. The <i>PowerOnCmd</i> can't contain space.</li> </ol> <p>As the factory default, the command string is not configured.</p>

### Example 1:

To designate hexadecimal string 50 6F 77 65 72 20 4F 6E: Command:

```
gbconfig --rs232-sinkpoweron-cmd 506F776572204F6E
```

Response:

The command string is saved.

### Example 2:

To designate printable string PowerOn: Command:

```
gbconfig --rs232-sinkpoweron-cmd PowerOn
```

Response:

The command string is saved.

## 2.1.9 gbconfig --rs232-sinkpoweroff-cmd

<b>Command</b>	<code>gbconfig --rs232-sinkpoweroff-cmd <i>PowerOffCmd</i></code>
<b>Response</b>	The string will be saved.
<b>Description</b>	Configure the command string used to turn off the external display through RS232 port. To get the requirements for the format of the argument <code>PowerOffCmd</code> , please refer to the previous chapter. As the factory default, the command string is not configured.

### Example 1:

To designate hexadecimal string 50 6F 77 65 72 20 4F 66 66:

Command:

```
gbconfig --rs232-sinkpoweroff-cmd 506F776572204F6666
```

Response:

The command string is saved.

### Example 2:

To designate printable string `PowerOff`:

Command:

```
gbconfig --rs232-sinkpoweroff-cmd PowerOff
```

Response:

The command string is saved.

## 2.1.10 gbconfig --auto-standby-time

<b>Command</b>	<code>gbconfig --auto-standby-time <i>TimeOut</i></code>
<b>Response</b>	The new setting will be saved. The device will re-start the timer of the automatic standby. If the countdown prompt is already displayed on the screen, it will disappear. If the device is already in standby mode, it will be waken up.
<b>Description</b>	Configure the timeout of the automatic standby (sleep) feature. The argument <code>TimeOut</code> must be a decimal number whose unit is minute. If <code>TimeOut</code> is zero, the automatic standby mechanism will be disabled. As the factory default, the timeout is 1.

### Example 1:

To change the timeout to 3 minutes: Command:

```
gbconfig --auto-standby-time 3
```

Response:

The command string is saved.

**Example 2:**

To disable automatic standby:

Command:

```
gbconfig --auto-standby-time 0
```

Response:

The device will never sleep.

### 2.1.11 gbconfig --sinkpower-mode

<b>Command</b>	<code>gbconfig --sinkpower-mode { cec   rs232   both }</code>
<b>Response</b>	The settings will be saved.
<b>Description</b>	<p>The device can turn on/off the external display by two approaches:</p> <ol style="list-style-type: none"> <li>1. CEC Use the CEC message to control the display</li> <li>2. RS232 Send an RS232 message to control the display Accordingly, there are three modes to control the external display:</li> </ol> <ol style="list-style-type: none"> <li>1. cec Use CEC message</li> <li>2. rs232 Use RS232 message</li> <li>3. both Send CEC and RS232 messages simultaneously</li> </ol> <p>This configuration is designed to choose one from the above three modes. As the factory default, this configuration is set to both.</p>

**Example:**

To control the display by CEC approach only:

Command:

```
gbconfig --sinkpower-mode cec
```

Response:

The settings are saved and take effect immediately.

### 2.1.12 gbconfig --special-sink

<b>Command</b>	<code>gbconfig --special-sink <i>TimeOut</i></code>
<b>Response</b>	The settings will be saved.
<b>Description</b>	<p>In general, to implement the standby feature, it uses CEC instructions to turn the display on or off. Most of the display must use some time to execute the CEC instruction, during the period, any new CEC instruction will be ignored. The above situation means that we must avoid sending CEC instructions to the display too frequently. Especially, if a project is used as the display, to project the bulb, the minimal interval between two sequent on/off instructions is very long (dozens of seconds).</p> <p>As a solution, this configuration is designed to change the minimal the interval between two sequent on/off instructions to the</p>

display (maybe a TV or a project). Its unit is second and the valid range is [0,200].  
As the factory default, the timeout is 8.

**Example:**

To change the timeout to 2 minutes:

Command:

```
gbconfig --special-sink 120
```

Response:

The settings are saved and takes effect immediately.

### 2.1.13 gbconfig --source-select

<b>Command</b>	gbconfig --source-select { <i>VideoName</i> } [ <i>WinNo</i> ]										
<b>Response</b>	The device displays the video source with the designated mode.										
<b>Description</b>	Control the device to display a video source. Two arguments are supported:										
	1. <i>VideoName</i> is the name of the video source the user want to display, the list of the available video sources is below:										
	<table border="1"> <thead> <tr> <th>Video Name</th> <th>Comment</th> </tr> </thead> <tbody> <tr> <td>HDMI1, HDMI2, HDMI3, HDMI4</td> <td>4 HDMI input interfaces</td> </tr> <tr> <td>GUIDE, NULL</td> <td>Guide screen</td> </tr> <tr> <td>USBCamera</td> <td>USB Camera</td> </tr> <tr> <td>IPAV01, IPAV02, ..., IPAV16</td> <td>16 IPAV video sources</td> </tr> </tbody> </table>	Video Name	Comment	HDMI1, HDMI2, HDMI3, HDMI4	4 HDMI input interfaces	GUIDE, NULL	Guide screen	USBCamera	USB Camera	IPAV01, IPAV02, ..., IPAV16	16 IPAV video sources
	Video Name	Comment									
	HDMI1, HDMI2, HDMI3, HDMI4	4 HDMI input interfaces									
	GUIDE, NULL	Guide screen									
USBCamera	USB Camera										
IPAV01, IPAV02, ..., IPAV16	16 IPAV video sources										
For this argument, case is ignored.											
2. <i>WinNo</i> means window number, when multiview screen layout is used, this argument is used to designate the window (view) where the video source will be displayed. This argument is optional, if it is omitted, the device will display the video source with full screen mode.											

**Example 1:**

To display HDMI1 with full screen mode Command:

```
gbconfig --source-select hdmi1
```

**Example 2:**

To display HDMI2 in the 2nd window (view)

Command:

```
gbconfig --source-select hdmi2 2
```

### 2.1.14 gbconfig --media-source

This command is used to manage the video source, it has several different formats.

**2.1.14.1 Assign or modify alias of video source**

<b>Command</b>	<code>gbconfig --media-source alias <i>VideoName Alias</i></code>	
<b>Response</b>	The alias of the designated video source will be saved or updated.	
<b>Description</b>	Assign or modify the alias of a video source. Two arguments are supported:	
	1. <i>VideoName</i> is the name of the video source whose alias will be configured. If <i>VideoName</i> points a video source which has an existing alias, its alias will be modified according the current command.	
	2. <i>Alias</i> is a friendly name which can make a user remember the video source more easily. To avoid confusion, a legal alias must not use the following formats:	
	<b>#</b>	<b>Details</b>
	1	Any predefined video name, such as HDMI1, IPAV01...
	2	A decimal number
	3	A hexadecimal number starting with "0x" or "0X"
	4	A string starting with a minus sign ("-")
5	Containing any space (" ")	
6	The string "All" (case ignored)	
7	An asterisk ("*")	

**Example 1:**

To use Classroom as the alias of HDMI1:

Command:

```
gbconfig --media-source alias HDMI1 Classroom
```

**Example 2:**

To use Teacher as the alias of USB Camera:

Command:

```
gbconfig --media-source alias USBCamera Teacher
```

**2.1.14.2 Configure IPAV video source**

<b>Command</b>	<code>gbconfig --media-source ipav <i>SrcNo TxMac</i> [-enable { y   n }] [ <i>Alias</i> ]</code>
<b>Response</b>	The configuration of the IPAV video source will be saved or updated.
<b>Description</b>	Configure an IPAV video source. Three arguments are supported:
	1. <i>SrcNo</i> is the number of the IPAV video source to be configured, the available range is 1-16, namely, IPAV01 to IPAV16. If <i>SrnNo</i> points an IPAV video source which is configured already, its configuration will be updated with the information in the current command.
	2. <i>TxMac</i> is the MAC address of the transmitter from which the device receive the IPAV stream data, the format is XX:XX:XX:XX:XX:XX.
	3. The argument (-enable) means whether the IPAV video source is enabled. For a disabled IPAV video source, its configuration ( <i>SrcNo</i> , <i>TxMac</i> ) is stored but the device does not receive its stream. This argument is optional, if it is omitted, the video source is enabled.
	4. <i>Alias</i> is the alias of the IPAV video source

As the factory default, no IPAV video source is configured.

**Example 1:**

To assign the TX 341B00FFABCD to IPAV02:

Command:

```
gbconfig --media-source ipav 2 34:1B:00:FF:AB:CD
```

**Example 2:**

To assign the TX 341B00FFAB01 to IPAV11 with disabled state: Command:

```
gbconfig --media-source ipav 11 34:1B:00:FF:AB:01 -enable n
```

**Example 3:**

To assign the TX 341B00FFAB88 to IPAV16 with the alias SonyDVD: Command:

```
gbconfig --media-source ipav 16 34:1B:00:FF:AB:88 -enable y SonyDVD
```

**2.1.14.3 Enable or disable IPAV video source**

<b>Command</b>	<code>gbconfig --media-source { enable   disable } <i>VideoName</i></code>
<b>Response</b>	The state of the IPAV video source is updated according to the command.
<b>Description</b>	Two arguments are supported: <ol style="list-style-type: none"> <li>1. The first one indicates the intent of the command..</li> <li>2. <i>VideoName</i> is the name of the IPAV video source, it must be configured already, namely, its TX MAC address has been assigned.</li> </ol>

**Example:**

To disable IPAV02:

Command:

```
gbconfig --media-source disable ipav02
```

**2.1.14.4 Show video sources list**

<b>Command</b>	<code>gbconfig --media-source list [<i>VideoName</i> ]</code>
<b>Response</b>	The device prints the information of a video source or a list of all video sources
<b>Description</b>	The output information by the device contains: <ol style="list-style-type: none"> <li>1. The video name and its alias (If a HDMI or USB camear video source has no alias, it will not be shown in the list)</li> <li>2. The IPAV video name, TX MAC address, enabled state and alias, only configured (having valid TX MAC address) IPAV video sources are shown in the list.</li> </ol> <p>If the optional argument is designated, the output information does not contain video name.</p>

**Example:**

Command:

```
gbconfig --media-source list
```

Response:

```

HDMI1  Classroom
IPAV0  34:1B:00:FF:AB:C  enabled  test
      2  D
IPAV1  34:1B:00:FF:AB:8  enabled  SamsunDV
      6  8  D

```

#### 2.1.14.5 Delete video source

<b>Command</b>	<code>gbconfig --media-source del { VideoName   all }</code>
<b>Response</b>	The designated video source is deleted
<b>Description</b>	<p>The only argument is the name of the video source to be delete, if the argument is all, it means to delete all video sources.</p> <p>The actual “delete” operation depends on the type of the video source:</p> <ol style="list-style-type: none"> <li>For HDMI or USB camera, its alias will be deleted.</li> <li>For IPAV video source, its TX MAC address, namely, it becomes not configured.</li> </ol>

#### Example:

To delete the alias of HDMI1:

Command:

```
gbconfig --media-source del HDMI1
```

To delete IPAV11:

Command:

```
gbconfig --media-source del ipav11
```

To delete all video sources:

Command:

```
gbconfig --media-source del all
```

## 2.1.15 gbconfig --input-state

<b>Command</b>	<code>gbconfig --input-state [ VideoName ]</code>
<b>Response</b>	The detailed state of the video source is shown.
<b>Description</b>	<p>Query the detailed state of a video source. The only argument is the name of a video source. If the argument is omitted, the device will display the detailed state information of all video sources.</p> <p>If a video source has a valid signal, then its timing and format information will be shown. The valid format will be YUV444, YUV422, RGB888, MJPEG, H.264 or H.265.</p>

#### Example 1:

The queried video source has no valid signal

Command:

```
gbconfig --input-state hdmi2
```

Response:

```
NoSignal
```

#### Example 2:

The queried video source has a valid signal

Command:

```
gbconfig --input-state hdmi1
```

Response:

```
3840x2160P@30 YUV444
```

### Example 3:

Queried all video sources

Command:

```
gbconfig --input-state
```

Response:

```
HDMI1 3840x2160P@30 YUV444
```

```
HDMI2 NoSignal
```

```
HDMI3 1920x1080P@60 YUV422
```

```
HDMI4 NoSignal
```

```
IPAV01 1920x1080P@60 H.264
```

...

## 2.1.16 gbconfig --audio-select

<b>Command</b>	gbconfig --audio-select { <i>VideoName</i> }
<b>Response</b>	The device plays the audio of the designated video source.
<b>Description</b>	Control the device to play the audio of the designated video source. When the output screen content change, the device always plays the audio of the video source which is touched / added most recently. This command can instruct the device to play the audio of any designated video source. The argument <i>VideoName</i> is the video source whose audio to be played.

### Example:

To play HDMI's audio Command:

```
gbconfig --source-select hdmi1
```

## 2.1.17 gbconfig --access-code

<b>Command</b>	gbconfig --access-code [ <i>AccessCode</i>   Auto ]
<b>Response</b>	When a BYOD video source tries to connect to the FSC600-000, the user will be prompted to input the access code on his device. If the user can't provide the correct access code, the connecting request will be rejected.
<b>Description</b>	Configures the access code of software source. For the argument <i>AccessCode</i> , it must be 4 digits. If the argument Auto is used (case ignored), the device generates a new access code when it switch to the guide screen. If this API is called without any argument, the access code

	<p>will be clear and the access code mechanism will be disabled. As the factory default, no access code is designated.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>This API is supported by FSC600-000 only.</li> </ol>
--	--

**Example:**

To use 1234 as the access code Command:

```
Gbconfig --access-code 1234
```

Response:

The access code mechanism is enabled and 1234 is used as the access code.

## 2.1.18 gbconfig --softap-password

<b>Command</b>	gbconfig --softap-password [ <i>Password</i> ]
<b>Response</b>	The soft AP uses the only argument as its password.
<b>Description</b>	<p>Configures the password of the soft AP. The password must consist of 8 characters at least. If it is left blank, it means no password.</p> <p>As the factory default, the soft AP password is 12345678.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>This API is supported.</li> </ol>

**Example:**

To use the password 99998888: Command:

```
gbconfig --softap-password 99998888
```

Response:

The soft AP will use 99998888 as its password.

## 2.1.19 gbconfig --show

<b>Command</b>	gbconfig {--show   -s } { name   output-resolution   plug-detect   lan-info   hdcp-enable   rs232-param   rs232-hex-cmd-enable   rs232-sinkpoweron-cmd   rs232-sinkpoweroff-cmd   auto-standby-time   sinkpower-mode   special-sink   source-select }
<b>Response</b>	The current settings of the designated configuration item.
<b>Description</b>	Query the settings of a configuration item. For some configuration items, such as lan-info, it will return the actual state information too.

**Example 1:**

To query the device name with the factory default: Command:

```
gbconfig -s name
```

Response:

*MS330***Example 2:**

To query wired Ethernet settings and state:

Command:

```
gbconfig -s lan-info
```

Response:

- If DHCP mode works:

```
dhcp 192.168.0.105 255.255.240.0 192.168.2.1 192.168.3.1 192.168.3.2 202.96.134.33
```

The contents following “dhcp” are state information whose format is IPAddress NetMask Gateway [Dns1 [Dns2 [Dns3...]]].

- If DHCP mode failed:

```
dhcp Fail
```

- If Static mode works:

```
static 192.168.1.88 255.255.255.0 192.168.1.1
```

The contents following “static” are static settings whose format is the same as the command `gbconfig --lan-info`.

**Example 3:**

To query configuration and actual state of the HDCP output:

Command:

```
gbconfig -s hdcp-enable
```

Response:

```
{ y { hdcp 1.4 | hdcp 2.2 } | n }
```

The response has two fields, the first one is the configuration of the HDCP output and the second one is the actual work state of the HDCP output.

**Example 4:**

To query the list of all displayed video sources:

Command:

```
gbconfig -s source-select
```

Response:

- Standby mode

```
Standby
```

- None video source is displayed

```
Guide
```

- Only one video source is displayed

```
HDMI2
```

The response is the name of the displayed video source

- Two or more video sources are displayed

```
HDMI2 null HDMI1 IPAV02 NULL ...
```

The video name is shown in order of the window where the video source is displayed, **NULL** means the corresponding window is not used by any video source.

## 2.1.20 gbconfig --byod-enable

<b>Command</b>	gbconfig --byod-enable { y   n } [ runtimeonly ]
<b>Response</b>	The Airplay Mirroring and Miracast sink feature is enabled or disabled (maybe temporarily).
<b>Description</b>	<p>Configure whether the BYOD sink is enabled.</p> <p>With the first argument, “y” means to enable the BYOD sink and vice versa.</p> <p>The second argument “runtimeonly” is optional, its occurrence means the change is temporary. Namely, the change will not be saved to the file system, after reboots or transitions to standby mode, the device will reload this configuration from the file system.</p> <p>As the factory default, the BYOD sink is enabled.</p> <p><b>Note:</b></p>

1. This API is only supported by the following models: ALF-SMW42s
2. Currently, this command just affects Airplay Mirroring and Miracast sink.

**Example 1:**

To disable the BYOD sink:

Command:

```
gbconfig --byod-enable n
```

Response:

The BYOD sink will be disabled.

**Example 2:**

Currently, BYOD sink is enabled, to disable it temporarily:

Command:

```
gbconfig --byod-enable n runtimeonly
```

Response:

The BYOD sink will be disabled. After reboots or transitions to standby mode, it will be enabled again.

### 2.1.21 gbconfig --analog-audio-latency

<b>Command</b>	<code>gbconfig --analog-audio-latency { Latency }</code>
<b>Response</b>	The latency of the analog audio output is adjusted according to the only argument.
<b>Description</b>	Configure the latency of analog audio output, its unit is millisecond. The argument must be an integer multiple of 20 and within the range [0, 200]. As the factory default, the latency is 40ms.

**Example:**

To alter the latency as 80ms:

Command:

```
gbconfig --analog-audio-latency 80
```

Response:

The latency will be set as 80ms.

### 2.1.22 gbconfig --duplicated-dualoutput

<b>Command</b>	<code>gbconfig --duplicated-dualoutput { y   n }</code>
<b>Response</b>	The policy of the secondary HDMI output changes accordingly.

<b>Description</b>	<p>Configure the policy of the secondary HDMI output. ALF-SMW42 has two HDMI outputs, the secondary HDMI output supports two working modes:</p> <ul style="list-style-type: none"> <li>➤ Duplication Always duplicates the content of the primary HDMI output</li> <li>➤ Matrix Always displays one video source with full screen mode.</li> </ul> <p>This command configures whether the secondary HDMI output works in duplication mode.</p> <ol style="list-style-type: none"> <li>Every time the device boots or transitions to standby mode, the secondary HDMI output restores to duplication mode.</li> </ol>
	<ol style="list-style-type: none"> <li>If duplication mode is disabled, it means the secondary output switches to matrix mode.</li> </ol> <p>The power-on default is duplication mode.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>This API is only supported by the following models: Alf-SMW42S</li> </ol>

**Example:**

To use matrix mode:

Command:

```
gbconfig --duplicated-dualoutput n
```

Response:

The secondary output switches to matrix mode.

## 2.1.23 gbconfig --secondary-resolution

<b>Command</b>	gbconfig --secondary-resolution { auto   <i>Timing</i> }																
<b>Response</b>	The resolution of the secondary HDMI output changes as the command designates or automatically.																
<b>Description</b>	<p>If you assign "auto" as the argument, the device will select a best resolution for the secondary HDMI output. The list of all available timings is below:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>1920x1080P@60</td> <td>1920x1080P@50</td> <td>1920x1080P@30</td> <td>1920x1080P@25</td> </tr> <tr> <td>1920x1080P@24</td> <td>1680x1050P@60</td> <td>1600x1200P@60</td> <td>1440x900P@60</td> </tr> <tr> <td>1366x768P@60</td> <td>1280x1024P@60</td> <td>1280x720P@60</td> <td>1280x720P@50</td> </tr> <tr> <td>1024x768P@60</td> <td>800x600P@60</td> <td>720x480P@60</td> <td>640x480P@60</td> </tr> </table> <p>The factory default is auto.</p> <p><b>Note:</b></p>	1920x1080P@60	1920x1080P@50	1920x1080P@30	1920x1080P@25	1920x1080P@24	1680x1050P@60	1600x1200P@60	1440x900P@60	1366x768P@60	1280x1024P@60	1280x720P@60	1280x720P@50	1024x768P@60	800x600P@60	720x480P@60	640x480P@60
1920x1080P@60	1920x1080P@50	1920x1080P@30	1920x1080P@25														
1920x1080P@24	1680x1050P@60	1600x1200P@60	1440x900P@60														
1366x768P@60	1280x1024P@60	1280x720P@60	1280x720P@50														
1024x768P@60	800x600P@60	720x480P@60	640x480P@60														

**Example:**

To use 1080p@60

resolution:

Command:

```
gbconfig --secondary-resolution 1920x1080P@60
```

Response:

The output resolution of the secondary HDMI output will change to 1920x1080P@60Hz.

## 2.1.24 gbconfig --secondary-output

<b>Command</b>	<code>gbconfig --secondary-output { VideoName }</code>
<b>Response</b>	If the secondary HDMI output works in matrix mode, it will display the designated video source.
<b>Description</b>	Configure the displayed video source of the secondary HDMI output. <ol style="list-style-type: none"> <li>To get more details about the parameter <i>VideoName</i>, please refer the chapter 2.1.13 <i>gbconfig --source-select</i>.</li> <li>If the secondary HDMI output works in duplication mode, the command will be rejected and the device will print the following message:  <b>Duplication mode, same as the primary output.</b></li> </ol>

### Example:

To display VGA on the secondary HDMI output:

Command:

```
gbconfig --secondary-output vga
```

Response:

The secondary HDMI output displays the content of the VGA input.

## 2.1.25 gbconfig --auto-ctl-rx

<b>Command</b>	<code>gbconfig --auto-ctl-rx [ y   n ]</code>
<b>Response</b>	The device will control the paired receivers automatically or not.
<b>Description</b>	Configure whether control the paired receivers automatically. Currently, if the configuration is enabled, the device will turn on all displays (connected to the paired receivers) automatically when the device reboots or exits from standby mode. As the factory default, the configuration is enabled. <b>Note:</b>

### Example 1:

To disable the configuration:

Command:

```
gbconfig --auto-ctl-rx n
```

Response:

The device will not control the paired receivers.

## 2.1.26 gbconfig --show

<b>Command</b>	<code>gbconfig {--show   -s } { name   output-resolution   plug-detect   lan-info   hdcp-enable   rs232-param   rs232-hex-cmd-enable   rs232-sinkpoweron-cmd   rs232-sinkpoweroff-cmd   auto-standby-time   sinkpower-mode   special-sink   source-select }</code>
<b>Response</b>	The current settings of the designated configuration item.
<b>Description</b>	Query the settings of a configuration item. Mostly, this command can be used to query the settings of every item configured by a <code>gbconfig</code> command. For some configuration items, such as <code>lan-info</code> , it will return the actual state information too.

### Example 1:

To query the device name with the factory default:

Command:

```
gbconfig -s name
```

Response:

```
ALF-SMw42S
```

### Example 2:

To query wired Ethernet settings and state:

Command:

```
gbconfig -s lan-info
```

Response:

- If DHCP mode works:

```
dhcp 192.168.0.105 255.255.240.0 192.168.2.1 192.168.3.1 192.168.3.2 202.96.134.33
```

The contents following “dhcp” are state information whose format is IPAddress NetMask Gateway [Dns1 [Dns2 [Dns3...]]].

- If DHCP mode failed:

```
dhcp Fail
```

- If Static mode works:

```
static 192.168.1.88 255.255.255.0 192.168.1.1
```

The contents following “static” are static settings whose format is the same as the command `gbconfig --lan-info`.

### Example 3:

To query configuration and actual state of the HDCP output:

Command:

```
gbconfig -s hdcp-enable
```

Response:

```
{ y { hdcp 1.4 | hdcp 2.2 } | n }
```

The response has two fields, the first one is the configuration of the HDCP output and the second one is the actual work state of the HDCP output.

### Example 4:

To query the list of all displayed video sources:

Command:

```
gbconfig -s source-select
```

Response:

- Standby mode  
*Standby*
- None video source is displayed  
*Guide*
- Only one video source is displayed  
*HDMI2*

The response is the name of the displayed video source

- Two or more video sources are displayed  
*HDMI2 null HDMI1 IPAV02 NULL ...*

The video name is shown in order of the window where the video source is displayed, **NULL** means the corresponding.window is not used by any video source.

## 2.1.27 gbconfig --help

<b>Command</b>	<code>gbconfig { --help   -h }</code>
<b>Response</b>	A simple description of the gbconfig command is shown.
<b>Description</b>	Show a simple guide of gbconfig command

## 2.2 gbcontrol Commands

### 2.2.1 gbcontrol --reboot

<b>Command</b>	gbcontrol --reboot
<b>Response</b>	The device will reboot.
<b>Description</b>	Reboot the device manually

**Example:**

Command:

```
gbcontrol --reboot
```

Response:

The device start to reboot.

### 2.2.2 gbcontrol --reset-to-default

<b>Command</b>	gbcontrol --reset-to-default
<b>Response</b>	The device will reboot to recovery mode to restore factory defaults, then reboot again for normal usage.
<b>Description</b>	This command make the device restore its factory defaults.

**Example:**

Command:

```
gbcontrol --reset-to-default
```

Response:

The device will start to restore all factory defaults.

### 2.2.3 gbcontrol --upgrade-firmware

<b>Command</b>	gbcontrol --upgrade-firmware <i>OtaPackagePath</i>
<b>Response</b>	The device will reboot to the recovery mode to install the designated OTA package. After the installation completes, it will reboot again.
<b>Description</b>	Upgrade the device's firmware with the OTA package. The argument <i>OtaPackagePath</i> is the absolute path of the OTA package.  <b>Note:</b>  This command is designed for internal use mainly, the OTA package must be copied into the device's local storage before this command is invoked.

**Example:**

To use the /cache/update.zip for upgrading:

Command:

```
gbcontrol --upgrade-firmware /cache/update.zip
```

Response:

The device reboots to the recovery mode, then use the OTA package /cache/update.zip to upgrade its firmware.

## 2.2.4 gbcontrol --video-source

<b>Command</b>	<code>gbcontrol --video-source { VideoName } [ WinNo ]</code>
<b>Response</b>	The device displays the video source with the designated mode.
<b>Description</b>	This command is equivalent to the command <code>gbconfig --source-select</code> , please refer the chapter 2.1.13 for details.

## 2.2.5 gbcontrol --audio-source

<b>Command</b>	<code>gbcontrol --audio-source { VideoName }</code>
<b>Response</b>	The device plays the audio of the designated video source.
<b>Description</b>	This command is equivalent to the command <code>gbconfig --audio-select</code> , please refer the chapter 2.1.16 for details.

## 2.2.6 gbcontrol --stop-video

<b>Command</b>	<code>gbcontrol --stop-video { VideoName   WinNo }</code>
<b>Response</b>	The device stops displaying the designated video, then prints a list of the video sources which are displayed.
<b>Description</b>	Stop displaying a video source, do not change the screen layout. Except the video name, a window number can be used as the argument too, it means the window used by the video to be stopped.

**Example:**

To stop HDMI2 when HDMI1 and HDMI2 are displayed

**Command:**

```
gbcontrol --stop-video HDMI2
```

**Response:**

```
HDMI1 NULL
```

## 2.2.7 gbcontrol --sinkpower

<b>Command</b>	<code>gbcontrol --sinkpower { on   off }</code>
<b>Response</b>	The device switches to or escapes from standby (sleep) state. Meanwhile, it sends: <ul style="list-style-type: none"> <li>➤ The CEC instruction On or Off through the CEC channel of the HDMI</li> </ul>

	<p>out interface.</p> <ul style="list-style-type: none"> <li>➤ The corresponding RS232 command through the built-in RS232 port.</li> </ul>
<b>Description</b>	Make the device to or escape from standby (sleep) state manually, control the external display at the same time.

**Example:**

To make the device start sleeping: Command:

```
gbcontrol --sinkpower off
```

Response:

The device transition to standby state.

## 2.2.8 gbcontrol --show-osd

<b>Command</b>	<code>gbcontrol --show-osd</code>
<b>Response</b>	The device shows all OSD items for ten seconds.
<b>Description</b>	Show all OSD items for ten seconds. Most of the time, OSD items are invisible, this command make them visible so that the users can see relevant information such as access code, soft AP password... after ten seconds, they will disappear again.

**Example:**

Command:

```
gbcontrol --show-osd
```

Response:

The device shows all OSD items for ten seconds.

## 2.2.9 gbcontrol --serial

<b>Command</b>	<code>control --serial [-b param] [-r { on   off }] [-h { on   off }] [-t <i>timeout</i>]</code> <i>command string</i>
<b>Response</b>	Response <i>size</i> [xx xx xx xx...]
<b>Description</b>	<p>Send a command string through the RS232 port and receive the response data. The details of the parameters are below:</p> <ol style="list-style-type: none"> <li>1. <code>-b param</code> is used to set the RS232 port work mode which contains baud rate, data bits, parity and stop bits. By default, 9600-8n1 is used.</li> <li>2. <code>-r { on   off }</code> is used to set whether to add a carriage return at the end of the command string. The default is off.</li> <li>3. <code>-h { on   off }</code> is used to set whether to send the command string in hexadecimal format. The default is off. So the command string are sent by their printable ASCII format. If the value is on, command string will be interpret as hexadecimal characters.</li> <li>4. <code>-t <i>timeout</i></code> is used to designate the timeout in which this command will return. When the command returns, all data received from the</li> </ol>

RS232 port will be print as hexadecimal format. The unit is mini-second and its default is 0, it means that no response data will be received.

5. *command string* is the data to be sent.
6. *size* is the size of the response data received before the command returns.

**Example 1:**

Command:

```
control --serial Hello
```

Response:

```
Response 0
```

Comment:

Configure the RS232 port as 9600-8n1 mode, send the string "Hello" and return immediately.

**Example 2:**

Command:

```
control --serial -b 115200-8n1 -h on -t 500 67 65 74 20 73 74 61 74 65
```

Response:

```
Response 4 67 6F 6F 64
```

Comment:

Configure the RS232 port as 115200-8n1 mode, send the string "67 65 74 20 73 74 61 74 65", then keep receiving the response data for 500ms. During the waiting period, the peripheral returns four byte "67 6F 6F 64".

## 2.2.10 gbcontrol --help

<b>Command</b>	<code>gbcontrol { --help   -h }</code>
<b>Response</b>	A simple description of the gbcontrol command is shown.
<b>Description</b>	Show a simple guide of gbcontrol command

## 2.3 gblayout Commands

### 2.3.1 gblayout --start-video

<b>Command</b>	<code>gblayout --start-video VideoName</code>
<b>Response</b>	The device starts to display the designated video source, then prints a list of the video sources which are displayed.
<b>Description</b>	<p>Start to display a video source. Some details are below:</p> <ul style="list-style-type: none"> <li>➤ If the video source is displayed already, the device does nothing.</li> <li>➤ If there is no free window (view) which can be use to display the video source, the device switches to a screen layout which has more</li> </ul>

	<p>windows firstly, then start to display the video source.</p> <p>➤ If there is neither free window nor screen layout having more windows, the device stops displaying the “oldest” video source so to get a free window for the video source.</p> <p><b>Note:</b></p> <p>If the device is disabled to change the screen layout automatically, this command does not work. Please refer the chapter related to the <b>gblayout -auto</b> command to get more details.</p>
--	--

**Example:**

To start to display HDMI2 when HDMI1 is displayed:

**Command:**

```
gblayout --start-video hdm2
```

**Response:**

```
HDMI1 HDMI2
```

### 2.3.2 gblayout --stop-video

<b>Command</b>	gblayout --stop-video { <i>VideoName</i>   <i>WinNo</i> }
<b>Response</b>	The device stops displaying the designated video, then prints a list of the video sources which are displayed.
<b>Description</b>	<p>The reverse operation of the command gblayout --start-video.</p> <p><b>Note:</b></p> <p>If the device is disabled to change the screen layout automatically, this command does not work. Please refer the chapter related to the <b>gblayout --auto</b> command to get more details.</p>

**Example:**

To stop HDMI2 when HDMI1 and HDMI2 are displayed

**Command:**

```
gblayout --stop-video HDMI2
```

**Response:**

```
HDMI1
```

### 2.3.3 gblayout --add

<b>Command</b>	gblayout --add [ -no <i>LayoutNo</i> ] [ -main <i>MainWin</i> ] <i>WinNum</i> <i>Win1X</i> <i>Win1Y</i> <i>Win1W</i> <i>Win1H</i> [ <i>Win2X</i> <i>Win2Y</i> <i>Win2W</i> <i>Win2H</i> [ <i>Win3X</i> <i>Win3Y</i> <i>Win3W</i> <i>Win3H</i> ] ]...
<b>Response</b>	The device name will change to <i>DeviceName</i> .
<b>Description</b>	Add a screen layout for the device. This command may have many arguments:

1. `-no LayoutNo` is optional to designate the number of the added layout. Only the lowest byte of *LayoutNo* is meaningful, the device always use 0x02 as the high byte of the number of a screen layout which is added by a user manually.
2. `-main MainWin` is optional to designate the number the main window. A layout has one main window at most. For a layout with a main windows, the device always display the newest video source in the main window when the device decides how to use the windows of the layout (for examples, auto switching or `gblayout --start-video` command invoked).
3. *WinNum* is the quantity of the added layout
4. *Win1X Win1Y Win1W Win1H* are the X-position, Y-position, width and height of the first window. These arguments use a virtual coordinate where the screen resolution is always 16000x9000 so make them independent of the actual screen resolution.
5. [*Win2X Win2Y Win2W Win2H [Win3X Win3Y Win3W Win3H]*...] are used to designate the position and size of the 2<sup>nd</sup> window, 3<sup>rd</sup> window and so on.

**Note:**

The device will assign a name to the layout automatically, this mechanism is reserved for the future extension. Currently, please ignore every layout's name.

If an existing layout is designated by this command, the configuration of the layout will be updated. But the current screen layout, namely, the layout is used currently, can not be updated.

**Example 1:**

To add a layout whose number is 0x203 and only one windows whose scale is one percent of the screen is in the middle of the screen:

**Command:**

```
gblayout --add -no 3 1 4000 2250 8000 4500
```

**Example 2:**

To add a layout which has two windows and the left one is the main window:

**Command:**

```
gblayout --add --no 0x204 -main 1 2 0 2250 8000 4500 12000 2250 8000 4500
```

## 2.3.4 gblayout --del

<b>Command</b>	<code>gblayout --del <i>LayoutNo</i></code>
<b>Response</b>	The designated screen layout is deleted.
<b>Description</b>	Delete a screen layout from the device, the argument is the number of the layout to be deleted.

**Note:**

The current screen layout can not be deleted.  
The built-in preset screen layout (the high byte of its number is 0x01) can not be deleted.

**Example:**

To delete the layout whose number is 0x202:

**Command:**

```
gblayout --del 0x202
```

## 2.3.5 gblayout --list

<b>Command</b>	<code>gblayout --list</code>
<b>Response</b>	The device outputs a list of every layout together with its number and name.
<b>Description</b>	List all screen layouts in the device.

**Example:**

To list all screen layouts

**Command:**

```
gblayout --list
```

**Response:**

```
Layout #      Name:
0x100        layout0
0x101        layout1
0x102        layout2
0x103        layout3
0x104        layout4
```

## 2.3.6 gblayout --show

<b>Command</b>	<code>gblayout --show <i>LayoutNo</i></code>
<b>Response</b>	The device outputs the details of the screen layout.
<b>Description</b>	Query the detail of a screen layout. The device will print the number, name, quantity of windows, position and size of every window, an asterisk ("*") is the mark of the main window (if designated). The argument is the number of the layout.

**Example 1:**

To query the detail of a layout having only one window:

**Command:**

```
gblayout --show 0x100
```

**Response:**

```

Layout #: 0x0100      Name:layout0  1
windows 1      0      0      9000

```

**Example 2:**

To query the detail of a layout having main windows:

**Command:**

```
gblayout --show 0x202
```

**Response:**

```

Layout #: 0x0202      Name:LeftRight 2 windows
1*      0      2250      8000      4500
2      12000      2250      8000      4500

```

### 2.3.7 gblayout --set

<b>Command</b>	gblayout --set <i>LayoutNo</i>
<b>Response</b>	The device name starts using the designated screen layout.
<b>Description</b>	Designate the current screen layout. The argument <i>LayoutNo</i> is the number of the layout. In common, this command can only designate a screen layout in the screen layout sequence unless the device is disabled to change the screen layout automatically. Please refer the chapter related to the <b>gblayout --auto</b> command to get more details.

**Example:**

To use the layout 0x0101:

**Command:**

```
gblayout --set 0x101
```

**Response:**

The device device starts using the layout whose number is 0x0101 as the current screen layout.

### 2.3.8 gblayout --get

<b>Command</b>	gblayout --get [detail]
<b>Response</b>	The device outputs the information about the current screen layout.
<b>Description</b>	Query the information related to the current screen layout. The existence of the optional argument detail tells the device whether to output details: <ul style="list-style-type: none"> <li>➤ If this argument is not used, the device just prints the number of the current screen layout and the quantity of the windows. A word <b>auto</b> follows the these information if the device is enabled to change the screen layout automatically.</li> </ul>

- If the argument detail is used, except the above information, the device prints the position and size of every window and the video source displayed in the window.

**Example 1:**

To query the brief of the current screen layout and the device is enabled to change the screen layout automatically:

**Command:**

```
gblayout --get
```

**Response:**

```
Layout #: 0x0101      2 windows      auto
```

**Example 2:**

To query the details of the current screen layout:

**Command:**

```
gblayout --get detail
```

**Response:**

```
Layout #: 0x0101      Name:layout1      2 windows
1      0      2250      8000      4500      [HDMI1]
2      8000      2250      8000      4500      [HDMI2]
```

## 2.3.9 gblayout --set-sequence

<b>Command</b>	<code>gblayout --set-sequence <i>Layout1No</i> [<i>Layout2No</i> [ <i>Layout3No</i> ] ]...</code>
<b>Response</b>	The screen layout sequence is updated according to the command
<b>Description</b>	<p>Designate the screen layout sequence.</p> <p>Sometimes, the variation of the quantity of the video source displayed simultaneously makes the device switch to another screen layout. However, if two or more layouts have the same quantity of windows, the device may meet confusion, it cannot decide which layout is the correct one it can switch to.</p> <p>The object of screen layout sequence is to remove the above confusion. There may be multiple screen layouts in the sequence, but each layout has the different quantity of windows from any other layout. When the device wants to switch the screen layout, it chooses the objective layout from the screen layout sequence only.</p> <p>The arguments are a series of layout numbers.</p> <p><b>Note:</b></p> <p>If <code>gblayout --del</code> command delete a screen layout in the sequence, this layout will be removed from the sequence too.</p>

**Example:**

To set the sequence consisting of 3 layouts

**Command:**

```
gblayout --set-sequence 0x0100 0x0101 0x0103
```

## 2.3.10 gblayout --get-sequence

<b>Command</b>	gblayout --get-sequence
<b>Response</b>	The device outputs the screen layout sequence.
<b>Description</b>	Query the screen layout sequence, the device prints the numbers of all layouts in the sequence.

**Example:**

To get the screen layout sequence:

**Command:**

```
gblayout --get-sequence
```

**Response:**

```
[0x0100] [0x0101] [0x0102] [0x0103] [0x0104]
```

## 2.3.11 gblayout --auto

<b>Command</b>	gblayout --auto [ y   n ]
<b>Response</b>	The device is enabled or disabled to change the screen layout automatically.
<b>Description</b>	<p>Config whether the device change the screen layout automatically.</p> <p>As the device supports multiview, according to the quantity of the video signals being displayed simultaneously, it can change the screen layout automatically. This feature is enabled as the default and this command can alter it, a certain behavior varies on it too:</p> <ul style="list-style-type: none"> <li>➤ Enabled</li> </ul> <p>The device will change the screen layout automatically, at the same time, The <b>gblayout --set</b> command can be used to change the screen layout manually, however, this command can only designate a screen layout in the screen layout sequence.</p> <ul style="list-style-type: none"> <li>➤ Disabled</li> </ul> <p>The device never changes the screen layout automatically. The <b>gblayout --start-video</b> and <b>gblayout --stop-video</b> commands do not work because these two commands base on the feature that the device changes the screen layout automatically. The <b>gblayout --set</b> command still works, furthermore, now it can designate any screen layout whether or not it is in the screen layout sequence.</p> <p>Every time the device is powered on or waken from standby status, this feature is enabled.</p> <p>The argument y or n means enabled or disabled respectively. If the argument is omitted, it means y.</p>

**Example:**

To disable the device to change the screen layout automatically

**Command:**

```
gblayout --auto n
```

## 2.3.12 gblayout --help

<b>Command</b>	<code>gblayout { --help   -h }</code>
<b>Response</b>	A simple description of the gblayout command is shown.
<b>Description</b>	Show a simple guide of gblayout command

## 2.4 Event Commands

This is not a common API command because it can not be invoked by the controller. In fact, it is an unsolicited message sent by the device to announce that a certain state of the device has changed.

### 2.4.1 [Event] VideoSource

<b>Command</b>	<code>[Event] VideoSource <i>VideoName</i> { NoSignal   { <i>VideoTiming</i> { YUV444   YUV422   RGB888   MJPEG   H.264   H.265 } }</code>
<b>Description</b>	<p>This message means that the state of one video source has changed. It has at least two arguments. The first is the name of the video source whose state has changed. The rest arguments vary on the new state:</p> <ul style="list-style-type: none"> <li>➤ If the video source lost signal, a word <b>NoSignal</b> is used as the second argument.</li> <li>➤ If the video source became valid, the second and third seconds provide the timing and format respectively.</li> </ul>

**Example 1:**

HDMI1 lost signal:

**Message:**

```
[Event] VideoSource HDMI1 NoSignal
```

**Example 2:**

4K@30 RGB888 video detected on HDMI2:

**Message:**

```
[Event] VideoSource HDMI2 3840x2160P@30 RGB888I
```

## 2.4.2 [Event] WorkMode

<b>Command</b>	[Event] WorkMode { Normal   Sleep }
<b>Description</b>	This message means that the device work mode has changed. The only argument is the new state.

**Example:**

The device transitioned to standby state.

**Message:**

*[Event] WorkMode Sleep*

## 2.4.3 [Event] Layout

<b>Command</b>	[Event] Layout { LayoutNo } { LayoutName }
<b>Description</b>	This message means that the screen layout has changed, the arguments are the layout ID and its name.

**Example:**

The current screen layout attributes: ID - 0x101, name – Layout101

**Message:**

*[Event] Layout 0x101 Layout10*