

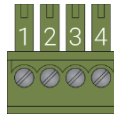


SW-540-TX-W API Commands

Connection Information

RS232

Baud rate:	9600
Data Bits:	8bits
Parity:	None
Stop Bits:	1bit
Flow Control:	None



	WyreStorm Connector		3rd Party Device
Pin 1	12V DC Out	No Connection	Reserved
Pin 2	TX (Transmit)	---> To --->	RX (Receive)
Pin 3	RX (Receive)	---> To --->	TX (Transmit)
Pin 4	G (Ground)	---> To --->	G (Ground)

Telnet

Port 23

Username: admin

Password: <none>

Telnet TLS

Port 24

Username: admin

Password: wyrestorm

Note: Telnet TLS is disabled by default. Enable TLS from the switcher's web interface.

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 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 --softap-enable	Configure whether the Soft AP is enabled
gbconfig --byod-enable	Configure whether the BYOD sink is enabled
gbconfig --analog-audio-latency	Configure the latency of analog audio output
gbconfig --duplicated-dualoutput	Configure the policy of the secondary HDMI output
gbconfig --secondary-resolution	Configure the resolution of the secondary HDMI output
gbconfig --secondary-output	Configure the displayed video source of the secondary HDMI output
gbconfig --preemption-mode	Configure whether enable preemption mode
gbconfig --wifi-mode	Configure the work mode of the Wi-Fi module
gbconfig --typec-switch	Configure whether the USB Type-C port is included in the automatic USB switching

	mechanism
gbconfig --softap-router	Configure whether enable the soft router
gbconfig --edid	Configure the EDID of the input ports
gbconfig --cec-cmd	Configure the CEC commands
gbconfig --standby-no-video	Configure whether to shut off the output video when the device enters in standby mode
gbconfig --telnet-over-tls	Configure whether Telnet over TLS is enabled
gbconfig --https	Configure whether HTTPS is enabled
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 --set-layout-video	Set the screen layout and video sources at the same time
gbcontrol --device-info	Obtain the information about the device model and firmware version
gbcontrol --switch-usb	Switch the USB output
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 layout will be changed automatically.
gblayout --stop-video	Stop displaying a video source, the screen 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

Command	Description
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 gbscene Commands

Command	Description
gbscene --add	Add a scene for the device
gbscene --del	Delete a scene from the device
gbscene --list	List all scenes in the device
gbscene --show	Query the detail of a scene
gbscene --apply	Apply a scene

1.4.5 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
[Event] Button	A button on the front panel is pressed

2 Command Sets

2.1 gbconfig Commands

2.1.1 gbconfig --name

Command	gbconfig --name <i>DeviceName</i>
Response	The device name will change to <i>DeviceName</i> .
Description	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. As the factory default, the device name is the same as the device's model.

	<p>Note:</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

Command	gbconfig --output-resolution { auto <i>Timing</i> }
Response	The device will change its output resolution as the command designates or automatically.
Description	<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> <pre>3840x2160P@60 3840x2160P@50 3840x2160P@30 3840x2160P@25 3840x2160P@24 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</pre> <p>As the factory default, this configuration is set auto.</p>

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

Command	gbconfig --auto-switch-source { y n toggle } [runtimeonly]
Response	The automatic switching feature will be enabled or disabled according to the command
Description	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

	<p>configuration.</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 transfers to standby mode, the device will reload this configuration from the file system.</p> <p>For BYOD video sources, automatic switching feature works always, namely, this configuration does not work for BYOD video source.</p> <p>As the factory default, automatic switching is enabled.</p>
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Example 1:

To disable automatic switching:

Command:

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

Response:

The automatic switching feature will be disabled.

Example 2:

Currently, automatic switching is enabled, to disable it temporarily::

Command:

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

Response:

The automatic switching feature will be disabled. After reboots or tansitions to standby mode, it will be enabled again.

2.1.4 gbconfig --lan-info

Command	<code>gbconfig --lan-info { dhcp static <i>ipaddr netmask gateway</i> [<i>DNS</i>]}</code>
Response	The settings of the wired Ethernet will changed.
Description	<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 --hdcp-enable

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

Example:

To disable the HDCP feature:

Command:

```
gbconfig --hdcp-enable n
```

Response:

The HDCP feature will be disabled.

2.1.6 gbconfig --rs232-param

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

Example:

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

Command:

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

Response:

The new settings is saved.

2.1.7 gbconfig --rs232-hex-cmd-enable

Command	<code>gbconfig --rs232-hex-cmd-enable { y n }</code>
Response	The setting will be saved.
Description	The device can send a command string through the built-in RS232 port when it want 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.

	As the factory default, hexadecimal format is used.
--	-----------------------------------------------------

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

Command	gbconfig --rs232-sinkpoweron-cmd <i>PowerOnCmd</i>
Response	The string will be saved.
Description	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: <ol style="list-style-type: none">1. If hexadecimal format is designated, <i>PowerOnCmd</i> must be a hexadecimal string such as 0123456789ABCDEF.2. If printable format is designated, <i>PowerOnCmd</i> must be a printable string. The <i>PowerOnCmd</i> can't contain space. As the factory default, the command string is not configured.

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

Command	gbconfig --rs232-sinkpoweroff-cmd <i>PowerOffCmd</i>
Response	The string will be saved.
Description	Configure the command string used to turn off the external display

	through RS232 port. To get the requirements for the format of the argument PowerOffCmd, please refer 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

Command	gbconfig --auto-standby-time <i>TimeOut</i>
Response	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.
Description	Configure the timeout of the automatic standby (sleep) feature. The argument TimeOut must be a decimal number whose unit is minute. If TimeOut 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

Command	<code>gbconfig --sinkpower-mode { cec rs232 both }</code>
Response	The settings will be saved.
Description	<p>The device can turn on/off the external display by two approaches:</p> <ol style="list-style-type: none">1. CEC Use the CEC message to control the display2. RS232 Send a RS232 message to control the display <p>Accordingly, there are three modes to control the external display:</p> <ol style="list-style-type: none">1. cec Use CEC message2. rs232 Use RS232 message3. both Send CEC and RS232 messages simultaneously <p>This configuration is designed to choose one from the above three modes.</p> <p>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 is saved and takes effect immediately.

2.1.12 gbconfig --special-sink

Command	<code>gbconfig --special-sink <i>TimeOut</i></code>
Response	The settings will be saved.
Description	<p>In general, to implement standby feature, the device 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 the device must avoid sending CEC instructions to the display too frequently. Especially, if a project is used as the display, to protect 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 interval between two sequent on/off instructions from the device to the display (maybe a TV or a project). Its unit is second and the valid range is [0,200].</p> <p>As the factory default, the timeout is 8.</p> <p>Note:</p> <ol style="list-style-type: none">1. This configuration works only for the unsolicited instructions sent by the device itself so to guarantee the automatic standby mechanism. Regarding the relevant instructions invoked from CLI or Web, this configuration does not work, the controller/user must handle the relevant interval by himself.

Example:

To change the timeout to 2 minutes:

Command:

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

Response:

The settings is saved and takes effect immediately.

2.1.13 gbconfig --source-select

Command	gbconfig --source-select <i>VideoName</i> [<i>WinNo</i>]										
Response	The device displays the video source with the designated mode.										
Description	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 availabe 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>Airplay1, Airplay2, Airplay3, Airplay4</td><td>Up to 4 Airplay Mirroring sources</td></tr><tr><td>Miracast1, Miracast2, Miracast3, Miracast4</td><td>Up to 4 Miracast sources</td></tr></tbody></table>	Video Name	Comment	HDMI1, HDMI2, HDMI3, HDMI4	4 HDMI input interfaces	GUIDE, NULL	Guide screen	Airplay1, Airplay2, Airplay3, Airplay4	Up to 4 Airplay Mirroring sources	Miracast1, Miracast2, Miracast3, Miracast4	Up to 4 Miracast sources
	Video Name	Comment									
	HDMI1, HDMI2, HDMI3, HDMI4	4 HDMI input interfaces									
	GUIDE, NULL	Guide screen									
	Airplay1, Airplay2, Airplay3, Airplay4	Up to 4 Airplay Mirroring sources									
Miracast1, Miracast2, Miracast3, Miracast4	Up to 4 Miracast sources										
For this argument, case is ignored.											
Not all names mentioned in the above chart are supported by every model, please contact the vendor to obtain the relevant information exactly.											
2. <i>WinNo</i> means window number, when multiview scen layout is used, this argument is used to designate the window (view) where the viedo source will be displayed. This argument is optional, if it is omitted, the device will 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

Command	<code>gbconfig --media-source alias <i>VideoName</i> <i>Alias</i></code>																
Response	The alias of the designated video source will be saved or updated.																
Description	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:																
	<table border="1"> <thead> <tr> <th>#</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Any predefined video name, such as HDMI1, IPAV01...</td> </tr> <tr> <td>2</td> <td>A decimal number</td> </tr> <tr> <td>3</td> <td>A hexadecimal number starting with "0x" or "0X"</td> </tr> <tr> <td>4</td> <td>A string starting with a minus sign ("-")</td> </tr> <tr> <td>5</td> <td>Containing any space (" ")</td> </tr> <tr> <td>6</td> <td>The string "All" (case ignored)</td> </tr> <tr> <td>7</td> <td>An asterisk ("*")</td> </tr> </tbody> </table>	#	Details	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 ("*")
	#	Details															
	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 Show video sources list

Command	<code>gbconfig --media-source list [<i>VideoName</i>]</code>
Response	The device prints the information of a video source or a list of all video sources
Description	The output information by the device contains:
	1. The video name and its alias (If a HDMI or USB camera video source has no alias, it will not be shown in the list) If the optional argument is designated, the output information does not contain video name.

Example:

Command:

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

Response:

```
HDMI1 Classroom  
IPAV02 34:1B:00:FF:AB:CD enabled test
```

2.1.14.3 Delete video source

Command	<code>gbconfig --media-source del { VideoName all }</code>
Response	The designated video source is deleted
Description	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. The actual "delete" operation depends on the type of the video source: 1. For HDMI or USB camera, its alias will be deleted.

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

Command	<code>gbconfig --input-state [VideoName]</code>
Response	The detailed state of the video source is shown.
Description	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. 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.

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

Command	gbconfig --audio-select <i>VideoName</i>
Response	The device plays the audio of the designated video source.
Description	Control the device to play the audio of the designated video source. As the default, the device switches the audio automatically, it 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. Once this command is invoked, the auto-switching for audio is disabled, the device will play the designated audio permanently unless the audio becomes unavailable. The argument <i>VideoName</i> is the video source whose audio to be played.

Example 1:

To play HDMI's audio

Command:

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

Example 2:

To query this configuration when the HDMI1 audio is played automatically

Command:

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

Command:

```
HDMI1 auto
```

2.1.17 gbconfig --access-code

Command	gbconfig --access-code [<i>AccessCode</i> Auto]
Response	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.
Description	Configures the access code of software source. For the argument <i>AccessCode</i> , it must be 4 digits. If the argument <i>Auto</i> 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 will be clear and the access code mechanism will be disabled. As the factory default, no access code is designated.

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

Command	<code>gbconfig --softap-password [Password]</code>
Response	The soft AP uses the only argument as its password.
Description	Configures the password of the soft AP. The password must be 8~20 characters in length, furthermore, it must include only letters, numbers and two special character ('_' and '-'). As the factory default, the soft AP password is 12345678.

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 --softap-enable

Command	<code>gbconfig --softap-enable { y n }</code>
Response	The soft AP is enabled or disabled.
Description	Configure whether the Soft AP is enabled. The argument "y" means to enable the soft AP and vice versa. As the factory default, the soft AP is enabled. Note: <ol style="list-style-type: none"> The performance of the soft AP is limited, we suggest to deploy a standalone Wi-Fi AP to archive better experience.

Example:

To disable soft AP:

Command:

```
gbconfig --softap-enable n
```

Response:

The soft AP will be disabled.

2.1.20 gbconfig --byod-enable

Command	gbconfig --byod-enable { y n } [runtimeonly]
Response	The Airplay Mirroring and Miracast sink feature is enabled or disabled (maybe temporarily).
Description	<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 transfers 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>Note:</p> <ol style="list-style-type: none">1. Currently, this command just affect Airplay Mirroring, Miracast and GBCast 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 transisitons to standby mode, it will be enabled again.

2.1.21 gbconfig --analog-audio-latency

Command	gbconfig --analog-audio-latency { Latency }
Response	The latency of the analog audio output is ajusted according to the only argument.
Description	Configure the latency of analog auido output, its unit is minisecond. The

	argument must be a 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

Command	gbconfig --duplicated-dualoutput { y n } [runtimeonly]
Response	The policy of the secondary HDMI output changes accordingly.
Description	<p>Configure the policy of the secondary HDMI output. MS330-P12 has two HDMI outputs, the secondary HDMI output supports two word modes:</p> <ul style="list-style-type: none"> ➤ Duplication Always duplicates the content of the primary HDMI output ➤ Matrix Always displays one video source with full screen mode. <p>This command configures whether the secondary HDMI output works in duplication mode. If duplication mode is disabled, it means the secondary output switches to matrix mode.</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 transfers to standby mode, the device will reload this configuration from the file system.</p> <p>The power-on default is duplication mode.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. This API is only supported by the following models: MS330-A01.

Example:

To use matrix mode:

Command:

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

Response:

The secondary output switches to matrix mode.

2.1.23 gbconfig --secondary-resolution

Command	gbconfig --secondary-resolution { auto <i>Timing</i> }
Response	The resolution of the secondary HDMI output changes as the command designates or automatically.

Description	<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> <p>1920x1080P@60 1920x1080P@50 1920x1080P@30 1920x1080P@25 1920x1080P@24 1680x1050P@60 1440x900P@60 1366x768P@60 1280x1024P@60 1280x720P@60 1280x720P@50 1024x768P@60 800x600P@60 720x480P@60 640x480P@60</p> <p>The factory default is auto.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. This API is only supported by the following models: MS330-A01.
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

Command	gbconfig --secondary-output { <i>VideoName</i> }
Response	If the secondary HDMI output works in matrix mode, it will display the designated video source.
Description	<p>Configure the displayed video source of the secondary HDMI output.</p> <ol style="list-style-type: none"> 1. To get more details about the argument <i>VideoName</i>, Please refer the chapter 2.1.13 <i>gbconfig --source-select</i>. 2. If the secondary HDMI output works in duplication mode, the command will be rejected and the device will print the following message: Duplication mode, same as the primary output. <p>Note:</p> <ol style="list-style-type: none"> 1. This API is only supported by the following models: MS330-A01.

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 --preemption-mode

Command	gbconfig --preemption-mode [y n]
Response	The device's preemption mode is enabled or disabled.
Description	<p>Configure whether enable preemption mode.</p> <p>When a new video source changes valid, if every window is occupied by a video source and there is not a layout which has more windows, the device will choose a windows and replace the 'old' video source with the 'new' video source, namely, the old video source's windows is be preempted.</p> <p>The above strategy is called preemption mode. This API can disable preemption mode. With the scenario described in the previous chapter, if preemption mode is disabled, the new video videos source will not be shown.</p> <p>Besides, the quantity of the simultaneous BYOD connections is limited too, if a 'new' BYOD request occurs when this quantity is maximum already, the device will kick off an 'old' BYOD connection so to accept the 'new' request. On the opposite side, the device will reject the 'new' request simply if preemption mode is disabled.</p> <p>As the factory default, the preemption mode is enabled.</p>

Example:

To disable preemption mode:

Command:

```
gbconfig --preemption-mod n
```

Response:

The preemption mode is disabled.

2.1.26 gbconfig --wifi-mode

Command	gbconfig --wifi-mode { 2 5 } { <i>Channel</i> auto }						
Response	The work mode of the Wi-Fi module changes accordingly.						
Description	<p>Configure the work mode of the Wi-Fi module.</p> <p>Configure the radio band and channel used by the Wi-Fi module. The first argument designates the band, 2 means 2.4G and 5 means 5G. The second argument <i>Channel</i> designates the channel, its values range varies on the band:</p> <table border="1" data-bbox="437 1753 1307 1883"> <thead> <tr> <th>Band</th> <th>Values Range of Channel</th> </tr> </thead> <tbody> <tr> <td>2.4G</td> <td>1-11, auto</td> </tr> <tr> <td>5G</td> <td>36, 40, 44, 48, 149, 153, 157, 161, auto</td> </tr> </tbody> </table> <p>The value auto means the device choose a best channel automatically.</p> <p>This configuration affect both the soft AP and the Miracast.</p> <p>As the factory default, the device uses 5G band and selects a channel automatically.</p>	Band	Values Range of Channel	2.4G	1-11, auto	5G	36, 40, 44, 48, 149, 153, 157, 161, auto
Band	Values Range of Channel						
2.4G	1-11, auto						
5G	36, 40, 44, 48, 149, 153, 157, 161, auto						

Example:

To use 2.4G band, channel 1:

Command:

```
gbconfig --wifi-mode 1 1
```

Response:

The Wi-Fi module starts using 2.4G band and channel 1.

2.1.27 gbconfig --typec-switch

Command	gbconfig --typec-switch [y n]
Response	The Type-C port is included or excluded in the automatic USB switch mechanism.
Description	<p>Configure whether the USB Type-C port is included in the automatic USB switching mechanism.</p> <p>The device with a built-in USB switcher can switch its USB signal to different USB HOST port automatically. When a USB HOST port is connected with a valid USB HOST signal, the device will switch to this USB HOST port automatically. This principle is suitable for the USB Type-C port too.</p> <p>Sometimes the user wants to use the USB Type-C port as a video source only and the USB HOST channel in the USB Type-C port does not matter. This configuration is designed to handle this situation -- When this configuration is disabled, the automatic USB switching mechanism ignores the USB Type-C port. A computer connected to the USB Type-C port does not make the device switch the USB signal to the USB Type-C port.</p> <p>As the factory default, the feature is enabled.</p> <p>Note:</p> <ol style="list-style-type: none">1. This API is only supported by the following models: MS330-A01.

Example:

To exclude USB Type-C port in the automatic USB switching mechanism:

Command:

```
gbconfig --typec-switch n
```

Response:

The Type-C port is excluded in the automatic USB switch mechanism.

2.1.28 gbconfig --edid

Command	gbconfig --edid [VideoName { EdidFile PassThrough }]
Response	The EDID of the designated input port will change after the device reboots.
Description	Configure the EDID of the input ports. The first argument designates the video source whose EDID will be changed. The second argument is the

	<p>name of the EDID (file) stored in the device internally. The keyword PassThrough means copy from the display connected to the primary video output port.</p> <p>The device contains three EDID files as follows: HDMI 720P@60 HZ, Audio 2CH PCM HDMI 1080P@60Hz, Audio 2CH PCM HDMI 4K@30Hz, Audio 2CH PCM</p> <p>If none argument is designated, the device will print the EDID information of all input ports.</p> <p>As the default, HDMI 4K@30Hz, Audio 2CH PCM is used for HDMI and Type-C input, HDMI 1080P@60Hz, Audio 2CH PCM is used for VGA input.</p> <p>Note:</p> <p style="padding-left: 40px;">The change will take effect after the device reboots.</p>
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Example 1:

To change the HDMI1 EDID to 1080p:

Command:

```
gbconfig --edit hdmi1 "HDMI 1080p@60Hz, Audio 2CH PCM"
```

Response:

```
Please reboot the device to make the change take effect.
```

Example 2:

To query the current EDID configurations:

Command:

```
gbconfig --edid
```

Response:

```
HDMI1 HDMI 4K@30Hz, Audio 2CH PCM  

HDMI2 HDMI 1080p@60Hz, Audio 2CH PCM  

HDMI3 HDMI 1080p@30Hz, Audio 2CH PCM  

HDMI4 HDMI PassThrough
```

2.1.29 gbconfig --softap-router

Command	<code>gbconfig --softap-router { y n }</code>
Response	The soft router is enabled or disabled.
Description	<p>Configure whether enable the soft router. Basing on the soft AP, the device can launch a built in NAT module with which a device connected to the soft AP can access the LAN/WAN through the device’s LAN port.</p> <p>As the factory default, the soft router is enabled.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. The soft router feature bases on soft AP, if you want to enable soft router, please make sure enable soft AP together. 2. The DNS server is essential to access WAN, if static IP is used,

please make sure designate a valid DNS server.

Example:

To disable soft router:

Command:

```
gbconfig --softap-router n
```

Response:

The soft router will be disabled.

2.1.30 **gbconfig --cec-cmd**

Command	<code>gbconfig -- cec-cmd { on off } <i>CmdStr</i></code>
Response	The CEC message on/off is changed.
Description	<p>Configure the CEC commands. Basing on the system configuration, device state and user operation, the device may send message to the connected display to turn on/off the display. Most of the time, the default command strings work well, however, sometimes the connected display is too special to cooperate with the default command strings. This command enables the user to replace the default command strings with the customized command strings.</p> <p>The first argument designates the CEC command to be changed. The second argument is the new command string (not case sensitive) which must be hexadecimal format without '0x' pre-fix or space.</p> <p>As the factory default, the 'on' command is 4004 and the 'off' command is ff36.</p>

Example:

To change the 'on' command to 0x4F 0x4E:

Command:

```
gbconfig --cec-cmd on 4f4e
```

Response:

The CEC message for 'on' command is changed.

2.1.31 **gbconfig --standby-no-vdieo**

Command	<code>gbconfig --standby-no-video { y n }</code>
Response	The new configuration is saved.
Description	<p>Configure whether to shut off the output video when the device enters in standby mode. If this configuration is enabled, the device will shut off the output video when The device enters in the standby mode automatically or the command gbcontrol --sinkpower-off is invoked manually. When the device exits from the standby mode, the device will restore the output video too.</p> <p>As the factory default, this configuration is disabled.</p>

Note:

1. This command affect all video output interfaces of the device.

Example:

To enable the configuration:

Command:

```
gbconfig --standby-no-video y
```

Response:

The configuration is enabled.

2.1.32 gbconfig --telnet-over-tls

Command	gbconfig --telnet-over-tls { y n }
Response	The new configuration is saved.
Description	Configure whether Telnet over TLS is enabled. The controller can call the CLI API with Telnet protocol. As an option, the Telnet session can be protected by the TLS mechanism. If the configuration is disabled, the Telnet service runs on the TCP port 23. If the configuration is enabled, the secured Telnet service runs on the TCP port 24. As the factory default, this configuration is disabled.

Example:

To enable the configuration:

Command:

```
gbconfig --telnet-over-tls y
```

Response:

The configuration is enabled.

2.1.33 gbconfig --https

Command	gbconfig --https { y n }
Response	The new configuration is saved.
Description	Configure whether HTTPS is enabled. The device can provide WebUI with HTTP or HTTPS protocol. If the configuration is disabled, the HTTP service runs on the TCP port 80. If the configuration is enabled, the HTTPS service runs on the TCP port 443. As the factory default, this configuration is disabled.

Example:

To enable the configuration:

Command:

```
gbconfig --standby-no-vide y
```

Response:

The configuration is enabled.

2.1.34 gbconfig --show

Command	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 }
Response	The current settings of the designated configuration item.
Description	Query the settings of a configuration item. Mostly, this command can be used to query the settings of every item configured by a gbconfig command. 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.

2.1.35 **gbconfig --help**

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

2.2 gbcontrol Commands

2.2.1 gbcontrol --reboot

Command	gbcontrol --reboot
Response	The device will reboot.
Description	Reboot the device manually

Example:

Command:

```
gbcontrol --reboot
```

Response:

The device start to reboot.

2.2.2 gbcontrol --reset-to-default

Command	gbcontrol --reset-to-default
Response	The device will reboot to recovery mode to restore factory defaults, then reboot again for normal usage.
Description	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

Command	gbcontrol --upgrade-firmware <i>OtaPackagePath</i>
Response	The device will reboot to the recovery mode to install the designated OTA package. After the installation completes, it will reboot again.
Description	Upgrade the device's firmware with the OTA package. The argument <i>OtaPackagePath</i> is the absolute path of the OTA package. Note: 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

Command	<code>gbcontrol --video-source <i>VideoName</i> [<i>WinNo</i>]</code>
Response	The device displays the video source with the designated mode.
Description	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

Command	<code>gbcontrol --audio-source <i>VideoName</i></code>
Response	The device plays the audio of the designated video source.
Description	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

Command	<code>gbcontrol --stop-video { <i>VideoName</i> <i>WinNo</i> }</code>
Response	The device stops displaying the designated video, then prints a list of the video sources which are displayed.
Description	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

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

	<p>out interface.</p> <ul style="list-style-type: none"> ➤ The corresponding RS232 command through the built-in RS232 port.
Description	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

Command	gbcontrol --show-osd
Response	The device shows all OSD items for ten seconds.
Description	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 --set-layout-video

Command	gbcontrol --set-Layout-video <i>LayoutNo</i> [<i>VideoName1</i> [<i>VideoName2</i> [...]]]
Response	The device switches to the designated screen layout and displays the designated videos sources respectively.
Description	<p>This command implements an approach to switch the screen layout and video sources within one command. The final effect equals a gblayout --set command and a series gbcontrol --video-source commands. Here are more details:</p> <ol style="list-style-type: none"> 1. The argument <i>LayoutNo</i> is the screen layout the user want to use. <ul style="list-style-type: none"> ➤ If the device is enabled to change the screen layout automatically, only a screen layout belonging to the current screen layout sequence can be used. ➤ If the device is disabled to change the screen layout automatically, any screen layout is available. 2. The second and subsequent arguments are optional, their functions

	<p>are to designate the video sources in order.</p> <ul style="list-style-type: none"> ➤ If none video source is designated, all windows will be blank. ➤ If the keyword "null" is used as video name, the corresponding window will be blank. ➤ If the quantity of the video sources is less than the quantity of the windows in the screen layout, the rest windows will be blank.
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Example 1:

Command:

```
gbcontrol --set-layout-video 0x103 hdmi1 null hdmi2
```

Response:

The device switches to the screen layout whose number is 0x103, meanwhile, it displays HDMI1 and HDMI2 in the first and third window, the rest windows are blank.

2.2.1 gbcontrol --device-info

Command	gbcontrol --device-info
Response	The device prints its model and firmware version.
Description	Obtain the information about the device model and firmware version.

Example:

Command:

```
gbcontrol --device-info
```

Response:

```
MS330-000
V1.4.2
```

2.2.2 gbcontrol --switch-usb

Command	gbcontrol --switch-usb <i>UsbOutputPort</i>
Response	All USB signals are routed to the designated usb host port.
Description	<p>Switch the USB output. On the real panel, the device has a built-in USB switcher and there are three destination ports: HOST1, HOST2 and TypeC. The acceptable range of the argument is [1, 3] matching the above port respectively.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. The USB port on the front panel is connected to the main processor instead of USB switcher. It is not controlled by this command. 2. This API is only supported by the following models: MS330-A01.

Example:

To switch to the HOST2

Command:

`gbcontrol --switch-usb 2`

Response:

All USB signals will be routed to the HOST2 port.

2.2.3 gbcontrol --serial

Command	<code>gbcontrol --serial [-b param] [-r { on off }] [-h { on off }] [-t timeout] command string</code>
Response	Response size [xx xx xx xx...]
Description	<p>Send a command string through the RS232 port and receive the response data. The details of the arguments are below:</p> <ol style="list-style-type: none">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.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.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.4. <code>-t timeout</code> is used to designate the timeout in which this command will return. When the command returns, all data received from the 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. <code>command string</code> is the data to be sent.6. <code>size</code> is the size of the response data received before the command returns.

Example 1:

Command:

`gbcontrol --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".

2.2.4 gbcontrol --help

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

2.3 gblayout Commands

2.3.1 gblayout --start-video

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

Example:

To start to display HDMI2 when HDMI1 is displayed:

Command:

```
gblayout --start-video hdmi2
```

Response:

```
HDMI1 HDMI2
```

2.3.2 gblayout --stop-video

Command	gblayout --stop-video { <i>VideoName</i> <i>WinNo</i> }
Response	The device stops displaying the designated video, then prints a list of the video sources which are displayed.

Description	<p>The reverse operation of the command <code>gblayout --start-video</code>.</p> <p>Note:</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 <code>gblayout --auto</code> 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

Command	<pre>gblayout --add [-no <i>LayoutNo</i>] [-main <i>MainWin</i>]<i>WinNum Win1X Win1Y Win1W Win1H [Win2X Win2Y Win2W Win2H [Win3X Win3Y Win3W Win3H]]...</i></pre>
Response	The screen layout is added or modified.
Description	<p>Add a screen layout for the device. This command may have many arguments:</p> <ol style="list-style-type: none"> 1. <code>-no <i>LayoutNo</i></code> is optional to designate the number of the added layout. Only the lowest byte of <i>LayoutNo</i> 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. <code>-main <i>MainWin</i></code> 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 <code>gblayout --start-video</code> command invoked). 3. <i>WinNum</i> is the quantity of the added layout 4. <i>Win1X Win1Y Win1W Win1H</i> 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. [<i>Win2X Win2Y Win2W Win2H [Win3X Win3Y Win3W Win3H]]...</i> are used to designate the position and size of the 2nd window, 3rd window and so on. <p>Note:</p> <p>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.</p> <p>If an existing layout is designated by this command, the</p>

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

Command	<code>gblayout --del <i>LayoutNo</i></code>
Response	The designated screen layout is deleted.
Description	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 screen layout referred by at least one scene 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

Command	<code>gblayout --list</code>
Response	The device outputs a list of every layout together with its number and name.
Description	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

Command	<code>gblayout --show <i>LayoutNo</i></code>
Response	The device outputs the details of the screen layout.
Description	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      16000  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

Command	<code>gblayout --set <i>LayoutNo</i></code>
Response	The device starts using the designated screen layout.
Description	Designate the current screen layout. The argument <i>LayoutNo</i> is the number of the layout.

Example:

To use the layout 0x0101:

Command:

```
gblayout --set 0x0101
```

Response:

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

2.3.8 gblayout --get

Command	<code>gblayout --get [detail]</code>
Response	The device outputs the information about the current screen layout.
Description	<p>Query the information related to the current screen layout. The existence of the optional argument detail tells the device whether to output details:</p> <ul style="list-style-type: none">➤ 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 auto follows the these information if the device is enabled to change the screen layout automatically.➤ 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

Command	<code>gblayout --set-sequence <i>Layout1No</i> [<i>Layout2No</i> [<i>Layout3No</i>]]</code> ...
----------------	--------------------------------------------------------------------------------------------------

Response	The screen layout sequence is updated according to the command
Description	<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 can not decide which layout is the correct one it can switch to.</p> <p>The object of screen layout sequence is to eliminate the above confusion.</p> <p>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>Note:</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

Command	<code>gblayout --get-sequence</code>
Response	The device outputs the screen layout sequence.
Description	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

Command	<code>gblayout --auto { y n } [runtimeonly]</code>
Response	The device is enabled or disabled to change the screen layout automatically.
Description	Configure whether the device change the screen layout automatically. 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:

➤ Enabled

The device will change the screen layout automatically, at the same time, The **gblayout --set** command can be used to change the screen layout manually.

➤ Disabled

The device never changes the screen layout automatically. The **gblayout --start-video** and **gblayout --stop-video** commands do not work because these two commands base on the feature that the device changes the screen layout automatically. The **gblayout --set** command still works.

The first argument y or n means enabled or disabled respectively. If the argument is omitted, it means y.

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 transfers to standby mode, the device will reload this configuration from the file system.

Example:

To disable the device to change the screen layout automatically

Command:

```
gblayout --auto n
```

2.3.12 gblayout --help

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

2.4 gbscene Commands

2.4.1 gbscene --add

Command	gbscene --add <i>SceneName</i> <i>LayoutNo</i> <i>VideoName1</i> [<i>VideoName2</i> [<i>VideoName3</i>]]...
Response	The scene is added or modified.
Description	Add a scene for the device. A scene amounts to a pre-configured arguments set for a gbcontrol --set-layout-video command. This command may have many arguments: 1. <i>SceneName</i> is the name of the scene which is case insensitive. If it

	<p>is the same as an existing scene, it means to modify the existing scene.</p> <ol style="list-style-type: none"> 2. <i>LayoutNo</i> is the number of the screen layout used for the scene. . 3. The rest arguments are used to designate the video sources in order. <ul style="list-style-type: none"> ➤ At least one video source must be designated, the subsequent arguments are optional. ➤ If the keyword "null" is used as video name, the corresponding window will be blank. 3. If the quantity of the video sources is less than the quantity of the windows of the designated screen layout, the rest windows will be blank.
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Example:

Command:

gbscene --add Scene1 0x204 null hdmi2

Response:

A new scene named Scene1 is added, it use the screen layout whose number is 0x204, the first window is blank, the second window is used for HDMI2.

2.4.2 gbscene --del

Command	<i>gbscene --del SceneName</i>
Response	The designated scene is deleted.
Description	Delete a scene from the device.

Example:

To delete the scene named Scene2:

Command:

gbscene --del Scene2

2.4.3 gbscene --list

Command	<i>gbscene --list</i>
Response	The device outputs a list of all scenes.
Description	List all scenes in the device.

Example:

To list all scenes

Command:

gbscene --list

Response:

Single

Side by Side

2 x 2

Main + 3

Main + 6

2.4.4 gbscene --show

Command	<code>gbscene --show SceneName</code>
Response	The device outputs the details of the scene.
Description	Query the detail of a scene. Except its name, the device will print the screen layout number, name, quantity of windows, and a series video names in order.

Example:

To query the detail of the scene named 2 x 2:

Command:

```
gbscene --show "2 x 2"
```

Response:

```
Scene Name: 2 x 2  
Layout #: 0x0101      Name: layout1      2 windows  
hdmi1  
hdmi2
```

2.4.5 gbscene --apply

Command	<code>gbscene --apply SceneName</code>
Response	The device switch to the screen layout designed for the scene and displays the videos sources respectively.
Description	Apply a scene. The argument <i>SceneName</i> is the name of the scene.

Example:

To use the layout 2 x 2 of the previous example:

Command:

```
gbscene --apply "2 x 2"
```

Response:

The device starts using the layout designate in the scene 2 x 2, and display hdmi1 and hdmi2 in order.

2.5 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.

2.5.1 [Event] VideoSource

Command	[Event] VideoSource <i>VideoName</i> { NoSignal { <i>VideoTiming</i> { YUV444 YUV422 RGB888 MJPEG H.264 H.265 } }
Description	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: <ul style="list-style-type: none">➤ If the video source lost signal, a word NoSignal is used as the second argument.➤ If the video source became valid, the second and third arguments provide the timing and format respectively.

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

2.5.2 [Event] WorkMode

Command	[Event] WorkMode { Normal Sleep }
Description	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

2.5.3 [Event] Layout

Command	[Event] Layout { <i>LayoutNo</i> } { <i>LayoutName</i> }
Description	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 Layout101

2.5.4 [Event] Button

Command	[Event] Button { <i>ButtonName</i> } { Press LongPress }
Description	This message reports a certain button on the front panel is pressed. The first argument is the button name same as its silkscreen text, the second argument means whether short press (Press) or long press (LongPress).

Example:

The HDMI1 button is pressed

Message:

[Event] Button HDMI1 Press