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## HT-RANGER

BYOD Presentation Switcher

### API Command List

Version: V1.0.2

Note: This document is suitable for FSC610-000 software V1.0.8 or later



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# 1 Introduction

The following sections include a list of API commands and examples of what each of the API commands do.

## 1.1 Preparation

This section takes a third-party control device such as Telnet on Windows 7. You may also use other control devices.

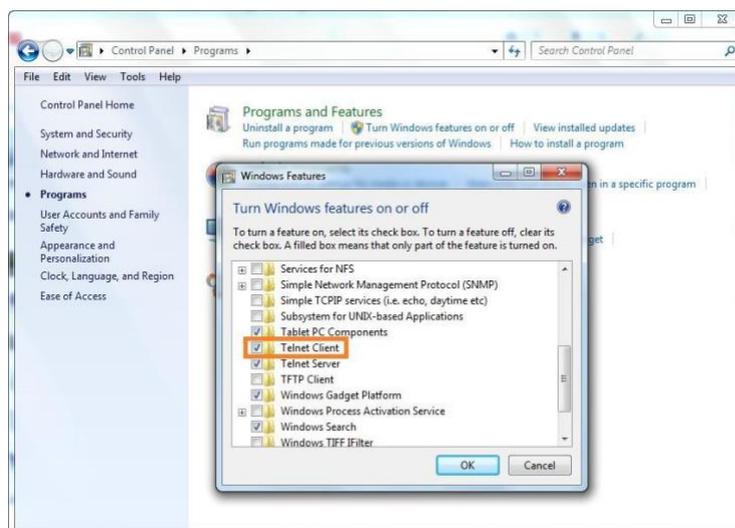
### 1.1.1 Setting IP Address in Your Computer

To connect to and communicate with the AT-RANGER, the controlling device needs to be on the same network. If needed, change the IP address on your PC to be in the same IP range and same subnet as the HT-RANGER. You can find out the IP address of the HT-RANGER by looking in the bottom right corner of the Guide Screen (you will need to connect the HT-RANGER to a display).

### 1.1.2 Enabling Telnet Client

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

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



## 1.2 Logging In via Command-line Interface

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



3. Enter **telnet 192.168.0.109 24** if the device's IP address is 192.168.0.109, and then press **Enter**. (The 24 on the end changes port communication from 23 to 24.)

```
E:\Users\Hornet>telnet 192.168.0.109 24
```

4. The device will display a **#** as the command prompt.

```
Welcome to HiLinux.  
None of nfsroot found in cmdline.  
^  
# _
```

Now, the device are ready to execute the CLI API command.

## 1.3 Introduction to Terminology

The terminology used in the API command's 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>BYOD Source</b>	AirPlay, Miracast are BYOD solutions, are named <b>BYOD (video) source</b> .
<b>Hardware Source</b>	The device has some hardware video input interfaces, such as HDMI, VGA or Type-C, they are named <b>hardware (video) source</b> .
<b>Software Source</b>	Certain devices can obtain and display the video content from a USB camera. These are named <b>software (video) source</b> . AirPlay Mirroring, and Miracast, are also called software source too.

## 1.4 API Commands Overview

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

- ✧ gbconfig: manages the configurations of the device
- ✧ gbcontrol: controls the device
- ✧ gblayout: adjusts the features related to screen layout
- ✧ gbscene: manages the scenes
- ✧ Event: message from the device to report that the device state changes

Every API command is supported by all models 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 interface is enabled
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 --preemption-mode	Configure whether enable preemption mode
gbconfig --wifi-mode	Configure the work mode of the Wi-Fi module
gbconfig --softap-router	Configure whether enable the soft router
gbconfig --edid	Configure the EDID of the input ports
gbconfig --usb-host	Configure the built-in USB switcher
gbconfig --standby-no-video	Configure whether to shut off the output video when the device enters in standby mode
gbconfig --show	Query the settings of a configuration item
gbconfig --help	Show a simple guide of gbconfig commands

## 1.4.2 gbcontrol Commands

Command	Description
<code>gbcontrol --reboot</code>	Reboot the device
<code>gbcontrol --reset-to-default</code>	Restore factory defaults
<code>gbcontrol --upgrade-firmware</code>	Upgrade the device's firmware
<code>gbcontrol --video-source</code>	Control the device to display a video source
<code>gbcontrol --audio-source</code>	Control the device to play the audio of the designated video source
<code>gbcontrol --stop-video</code>	Stop displaying a video source, do not change the screen layout.
<code>gbcontrol --sinkpower</code>	Turn the external display on or off
<code>gbcontrol --show-osd</code>	Show all OSD items for ten seconds
<code>gbcontrol --set-layout-video</code>	Set the screen layout and video sources at the same time
<code>gbcontrol --device-info</code>	Obtain the information about the device model and firmware version
<code>gbcontrol --switch-usb</code>	Switch the USB output
<code>gbcontrol --help</code>	Show a simple guide of gbconfig command

## 1.4.3 gblayout Commands

Command	Description
<code>gblayout --start-video</code>	Start to display a video source, the screen layout will be changed automatically.
<code>gblayout --stop-video</code>	Stop displaying a video source, the screen layout will be changed automatically.
<code>gblayout --list</code>	List all screen layouts in the device
<code>gblayout --show</code>	Query the detail of a screen layout
<code>gblayout --set</code>	Designate the current screen layout
<code>gblayout --get</code>	Query the information related to the current screen layout
<code>gblayout --set-sequence</code>	Designate the screen layout sequence
<code>gblayout --get-sequence</code>	Query the screen layout sequence
<code>gblayout --auto</code>	Configure 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 DeviceName</code>
<b>Response</b>	The device name will change to <i>DeviceName</i> .
<b>Description</b>	Configure the device's name. The new name will appear on the top-right corner of the screen once the operation is successful. By default, the device name is the same as the device's model. <b>Note:</b> The device name must be 1~20 characters in length, furthermore, it must include only letters, numbers and two special character ('_' and '-').

**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   Timing }</code>
<b>Response</b>	The device will change its output resolution as the command designates or automatically.
<b>Description</b>	If you assign "auto" as the command, the device will select a best resolution according to the display's EDID. The list of all available timings is below:  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 By default, this configuration is set to "auto".

**Example:**

To use 1080P@60 resolution: Command:

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

**Response:**

The output resolution will change to 1080P@60Hz.

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

<b>Command</b>	<code>gbconfig --auto-switch-source { y   n   toggle } [ runtimeonly ]</code>
<b>Response</b>	The automatic switching feature will be enabled or disabled according to the command
<b>Description</b>	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, manual switching is required. The command "toggle" means to toggle this configuration. 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. For BYOD video sources, automatic switching feature works always, namely, this configuration does not work for BYOD video source. By default, automatic switching is enabled.

#### 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 until the HT-RANGER reboots or goes into standby mode.

### 2.1.4 gbconfig --lan-info

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

	By default, the mode is set to DHCP.
--	--------------------------------------

**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 be updated.

## 2.1.5 gbconfig --hdcv-enable

<b>Command</b>	gbconfig --hdcv-enable { y   n }
<b>Response</b>	The HDCP feature of the HDMI out interface will be enabled or disabled
<b>Description</b>	Configure whether the HDCP feature of HDMI out interface is enabled. If it is enabled, HDCP 1.4 will be used on the HDMI out interface. If this feature is disabled, the output content will not be protected by HDCP. By default, the HDCP feature of the HDMI out interface is enabled.

**Example:**

To disable the HDCP feature:

**Command:**

```
gbconfig --hdcv-enable n
```

**Response:**

The HDCP feature will be disabled.

## 2.1.6 gbconfig --auto-standby-time

<b>Command</b>	gbconfig --auto-standby-time <i>timeout</i>
<b>Response</b>	The new standby setting will be saved to the time entered. The HT-RANGER will re-start the timer of the automatic standby and the the countdown prompt will disappear if it is already being displayed on the screen or the HT-RANGER will be awakened if already in standby mode.
<b>Description</b>	Configure the timeout of the automatic standby (sleep) feature. The argument TimeOut must be an integer in units of minutes. If timeout is set to zero, the automatic standby mode will be disabled. By default, the timeout is set to 1 (1 minute of no connectivity before the countdown timer turns on to go into standby mode)

**Example 1:**

To change the timeout to 3 minutes:

**Command:**

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

**Response:**

The command string is saved, and the time is set to 3 minutes.

**Example 2:**

To disable automatic standby:

**Command:**

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

Response:

The HT-RANGER will not go into standby mode.

## 2.1.7 gbconfig --sinkpower-mode

<b>Command</b>	gbconfig --sinkpower-mode { cec   none }
<b>Response</b>	The settings will be saved.
<b>Description</b>	The HT-RANGER can turn on/off the external display using CEC commands. Setting to "cec" turns on this feature; setting to "none" disables the feature., By default, this configuration is set to CEC.

**Example:**

To control the display by CEC approach: Command:

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

Response:

The settings is saved and enables CEC commands.

## 2.1.8 gbconfig --special-sink

<b>Command</b>	gbconfig --special-sink <i>TimeOut</i>
<b>Response</b>	The settings will be saved.
<b>Description</b>	If enabled the HT-RANGER uses CEC instructions to turn the display on or off when in standby mode. Some displays and projectors (depending on the model or manufacturer) require some time between commands to execute properly. For example, if a display will ignore a received command while currently executing a different command. Because of this the HT-RANGER must avoid sending CEC commands to the display too quickly. As a solution, this configuration is designed to change the minimal interval between two subsequent on/off instructions from the HT-RANGER to the display. The units are in seconds and the available range is between [0,200]. By default, the timeout is 8 (8 seconds between commands)

**Example:**

To change the timeout to 2 minutes:

Command:

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

Response:

The updated setting is saved and the timeout is set to 2 minutes.

## 2.1.9 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 parts of the command are supported:	
	1. <i>VideoName</i> is the name of the video source the user wants to display. The available video sources are listed below:	
	<b>Video Name</b>	<b>Comment</b>
	HDMI	HDMI input
	USB-C	USB-C input
	GUIDE, NULL	Guide screen
	Airplay1, Airplay2	Up to 2 Airplay Mirroring sources
Miracast1, Miracast2	Up to 2 Miracast sources	
	For this argument, case is ignored.	
	2. <i>WinNo</i> means window number, when dual screen layout is used, this part of the command is used to designate the window (view) where the video source will be displayed. This part of the command is optional; without it the device will display the video source in full screen mode.	

**Example 1:**

To display HDMI input with full screen mode Command:

```
gbconfig --source-select hdmi
```

**Example 2:**

To display USB-C input in the 2nd window (view)

Command:

```
gbconfig --source-select usb-c 2
```

## 2.1.10 gbconfig --media-source

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

### 2.1.10.1 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, the alias will be modified according to the current command.	
	2. <i>Alias</i> is a friendly name which can make a user remember the video source more easily. To avoid any errors the modified alias must not use the following formats:	
	<b>#</b>	<b>Details</b>
	1	Any predefined video name, such as HDMI, USB-C
	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:**

To use Classroom as the alias of HDMI input: Command:

```
gbconfig --media-source alias HDMI Classroom
```

### 2.1.10.2 Show video sources list

<b>Command</b>	<code>gbconfig --media-source list [<i>VideoName</i> ]</code>
<b>Response</b>	The HT-RANGER prints the information of a video source or a list of all video sources.
<b>Description</b>	The output information by the HT-RANGER contains the video name and its alias (If an HDMI or USB-C video source has no alias, that source will not be shown in the list).

**Example:**

Command:

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

Response:

```
HDMI Classroom
```

### 2.1.10.3 Delete video source

<b>Command</b>	<code>gbconfig --media-source del { <i>VideoName</i>   all }</code>
<b>Response</b>	The alias of the designated video source is deleted
<b>Description</b>	The <i>VideoName</i> portion of the command is the name of the video source whose alias is to be deleted.

**Example:**

To delete the alias of HDMI:

Command:

```
gbconfig --media-source del HDMI
```

### 2.1.11 gbconfig --input-state

<b>Command</b>	gbconfig --input-state [ VideoName ]
<b>Response</b>	The detailed state of the video source is shown.
<b>Description</b>	Queries the detailed state of a video source. If the video source is entered in the command the response is the state of the video source. If the video source name is omitted, the HT-RANGER will display the detailed state information of all video sources. If the source signal is valid, the timing and format information will also be shown:  YUV444, YUV422, RGB888, MJPEG, H.264 or H.265.

#### Example 1:

The queried video source has no valid signal Command:

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

Response:

```
NoSignal
```

#### Example 2:

The queried video source has a valid signal Command:

```
gbconfig --input-state usb-c
```

Response:

```
1920x1080P@30 YUV444
```

#### Example 3:

Query all video sources Command:

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

Response:

```
HDMI 1920x1080P@30 YUV444
```

```
USB-C NoSignal
```

### 2.1.12 gbconfig --audio-select

<b>Command</b>	gbconfig --audio-select VideoName
<b>Response</b>	The device plays the audio of the designated video source.
<b>Description</b>	Control the HT-RANGER to play the audio of the desired video source. By default, the HT-RANGER switches the audio automatically, playing the audio of the video source that has been added most recently.  This command can designate the desired audio source. Once this command is sent, the auto-switching for audio is disabled, and the HT-RANGER will play the designated audio permanently unless the audio becomes unavailable.

**Example 1:**

To play HDMI's audio Command:

```
gbconfig -source-select hdmi
```

**Example 2:**

To query this configuration when the HDMI audio is played automatically Command:

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

## 2.1.13 gbconfig --access-code

<b>Command</b>	<code>gbconfig --access-code [ AccessCode   Auto ]</code>
<b>Response</b>	When a BYOD video source tries to connect to the HT-RANGER, the user will be prompted to input the access code on their device. If the user cannot provide the correct access code, the connecting request will be rejected.
<b>Description</b>	Configures the access code of the software source. The <code>AccessCode</code> command must be 4 digits. If the argument <code>Auto</code> is used (case ignored), the device generates a new access code when it switches to the Guide Screen. If this API is called without any argument, the access code will be clear and the need for an access code will be disabled. By default, the access code is left blank.

**Example:**

To use 1234 as the access code Command:

```
gbconfig --access-code 1234
```

Response:

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

## 2.1.14 gbconfig --softap-password

<b>Command</b>	<code>gbconfig --softap-password [ Password ]</code>
<b>Response</b>	The soft AP uses the desired password.
<b>Description</b>	This command configures the password of the soft AP. The password must be 8~20 characters in length, and must include only letters, numbers and two special characters ('_' and '-'). By default, the soft AP password is <b>12345678</b> .

**Example:**

To use the password 99998888:

Command:

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

Response:

The soft AP will use 99998888 as the password.

### 2.1.15 gbconfig --softap-enable

<b>Command</b>	gbconfig --softap-enable { y   n }
<b>Response</b>	The soft AP is enabled or disabled.
<b>Description</b>	<p>Configure whether the Soft AP is enabled. The command “y” means to enable the soft AP and vice versa. By default, the soft AP is enabled.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. The performance of the soft AP is limited and therefore it is suggested to install a standalone Wi-Fi AP.</li> </ol>

**Example:**

To disable soft AP:

Command:

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

Response:

The soft AP will be disabled.

### 2.1.16 gbconfig --byod-enable

<b>Command</b>	gbconfig --byod-enable { y   n } [ runtimeonly ]
<b>Response</b>	The AirPlay Mirroring and Miracast feature is enabled or disabled
<b>Description</b>	<p>Configure whether BYOD is enabled or not. With the first part of the command, “y” means to enable BYOD and vice versa. The second part of the command “runtimeonly” is optional and will make the command work while the HT-RANGER is running. In this case, when the HT-RANGER either reboots or goes into standby mode, the HT-RANGER will revert to the prior setting.. 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. By default, BYOD is enabled.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. This command only affects AirPlay Mirroring and Miracast.</li> </ol>

**Example 1:**

To disable BYOD:

Command:

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

Response:

BYOD will be disabled.

**Example 2:**

BYOD is enabled, but the desire is to to disable it temporarily:

Command:

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

Response:

BYOD will be disabled. After the HT-RANGER reboots or goes into standby mode, BYOD will be enabled again.

## 2.1.17 gbconfig --preemption-mode

<b>Command</b>	<code>gbconfig --preemption-mode [ y   n ]</code>
<b>Response</b>	The device's preemption mode is enabled or disabled.
<b>Description</b>	<p>If both sides of a dual window is displaying a video source and a new video source is connected, the HT-RANGER will replace the 'oldest' video source with this 'new' video source, and the old video source's window is be "preempted". This is called preemption mode.</p> <p>This API command can disable preemption mode, which means that the newest video source will not be displayed unless an existing video source is manually disconnected.</p> <p>BYOD is similar when the maximum simultaneous BYOD connections have been reached. If preemption-mode is enabled the newest BYOD connection will essentially kick out the oldest; however with preemption-mode disabled the new connection will not be possible.</p> <p>By default, the preemption mode is enabled.</p>

**Example:**

To disable preemption mode: Command:

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

Response:

The preemption mode is disabled.

## 2.1.18 gbconfig --wifi-mode

<b>Command</b>	<code>gbconfig --wifi-mode { 2   5 } { Channel   auto }</code>						
<b>Response</b>	The mode of the Wi-Fi module changes to the desired channel or to auto.						
<b>Description</b>	<p>With this command the radio band and channel used by the Wi-Fi module can be configured. The first part of the command designates the band: 2 means 2.4G and 5 means 5G. The second part of the command <i>Channel</i> designates the channel, and the value ranges depend on the selected band:</p> <table border="1"> <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 Wi-Fi module will choose the best channel automatically. This configuration will affect both the soft AP and the Miracast. By 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.

## 2.1.19 gbconfig --edid

<b>Command</b>	<code>gbconfig --edid [ VideoName { EdidFile   PassThrough }]</code>
<b>Response</b>	The desired EDID of the designated input port will change after the HT-RANGER reboots.
<b>Description</b>	<p>The first part of the command designates the video source EDID to be changed. The second part of the command is the name of the EDID file stored in the HT-RANGER. The command PassThrough copies the EDID from the connected display to the 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 the second part of the command is left blank, the HT-RANGER will print the EDID information of all input ports.</p> <p>By 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><b>Note:</b>  The HT-RANGER needs to reboot for the EDID change to take place.</p>

**Example 1:**

To change the HDMI EDID to 1080p:

Command:

```
gbconfig --edit hdmi "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 -s edid
```

Response:

```
HDMI HDMI 4K@30Hz, Audio 2CH PCM
USB-C HDMI 1080p@60Hz, Audio 2CH PCM
```

## 2.1.20 gbconfig --softap-router

<b>Command</b>	<code>gbconfig --softap-router { y   n }</code>
<b>Response</b>	The soft router is enabled or disabled.
<b>Description</b>	<p>With the soft AP enabled, the HT-RANGER can launch a built-in NAT module which enables a connected device to access the LAN/WAN through the device's LAN port.</p> <p>By default, the soft router is enabled.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. In order to enable soft router the soft AP must be enabled.</li> <li>2. The DNS server is essential to access the WAN. If a static IP address is used, ensure a valid DNS server is entered.</li> </ol>

**Example:**

To disable soft router:

Command:

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

Response:

The soft router will be disabled.

## 2.1.21 gbconfig --usb-host

<b>Command</b>	<code>gbconfig --usb-host { <i>UsbOutputPort</i>   auto1   auto2 }</code>
<b>Response</b>	The built-in USB switcher controls the output according to the configured behavior mode.
<b>Description</b>	<p>On the rear panel of the HT-RANGER, there are two USB type-A interfaces as the inputs into the USB switcher in the HT-RANGER. This USB switcher can control the output between two options: the main SoC chip and the USB-C port on the rear panel. For this command, the device supports several different values (and corresponding behavior modes):</p> <ol style="list-style-type: none"> <li>1. Fixed</li> </ol> <p>The output is connected to a certain target constantly. With this mode, the argument <i>UsbOutputPort</i> has two optional values: <b>1</b> and <b>3</b> matching the main SoC</p>

---

chip and the USB-C port respectively

2. Automatic 1

The output is connected to the USB-C port when the USB-C video source is valid, no matter the USB-C video source is shown or not. All other times the output is connected to the main SoC chip. The value **auto1** of the command is used to designate this mode. With this mode, the return of the -s querying will be marked 'auto1'.

3. Automatic 2

The output is connected to the USB-C port when the HT-RANGER shows the video source of the USB-C port in full screen mode, no matter the USB-C port has valid signal or not. All other times the output is connected to the main SoC chip. The value **auto2** of the argument is used to designate this mode. With this mode, the return of the -s querying will be marked 'auto2'.

**Note:**

The USB port on the front panel is connected to the main SoC chip instead of USB switcher. It is not controlled by this command.

---

**Example 1:**

To switch to the USB-C port Command:

```
gbconfig --usb-host 3
```

Response:

The output of the built-in switcher is connected to the USB-C port on the rear panel.

**Example 2:**

To query this configuration in automatic mode 2

Command:

```
gbconfig -s usb-host
```

Response:

```
1 auto2
```

## 2.1.22 gbconfig --standby-no-vdieo

<b>Command</b>	<code>gbconfig --standby-no-video {y   n }</code>
<b>Response</b>	The new configuration is saved.
<b>Description</b>	<p>This command allows configuration to shut off the output video when the device enters in standby mode. If this configuration is enabled, the HT-RANGER will shut off the output video when the HT-RANGER goes into standby mode automatically. The command <b>gbcontrol --sinkpower-off</b> requires the display be turned off manually. If enabled, when the HT-RANGER exits from the standby mode, the HT-RANGER will restore the output video too. By default, this configuration is disabled.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. This command affects all video output interfaces of the HT-RANGER.</li> </ol>

**Example:**

To enable the configuration: Command:

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

Response:

The configuration is enabled.

## 2.1.23 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>	This command queries the settings of any configuration item. For some configuration items, such as LAN-info, the query will return the actual state information too.

**Example 1:**

To query the device name with the factory default:

Command:

```
gbconfig -s name
```

Response:

```
FSC610
```

**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 htcp-enable
```

Response:

```
{ y htcp 1.4 | n }
```

The response has two fields, the first one is the configuration of the HDCP output and the second one is the actual working 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*
- If no video source is displayed  
*Guide*
- Only one video source is displayed  
*HDMI*
- Two or more video sources are displayed  
*HDMI 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.

## 2.1.24 gbconfig --help

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

## 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 will start the reboot process.

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

<b>Command</b>	gbcontrol --reset-to-default
<b>Response</b>	The HT-RANGER will reboot to recovery mode to restore factory defaults, and then reboot again for normal usage.
<b>Description</b>	This command restores the HT-RANGER to 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 command part of <i>OtaPackagePath</i> is the 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 HT-RANGER reboots to the recovery mode and then uses the OTA package /cache/update.zip to upgrade the 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 to section 2.1.9 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 to section 2.1.12 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 and prints a list of all connected video sources.
<b>Description</b>	This command stops displaying video from the designed source.

**Example:**

To stop HDMI when HDMI and USB-C are displayed

**Command:**

```
gbcontrol --stop-video HDMI
```

**Response:**

```
HDMI 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 mode. At the same time it also sends the CEC instruction On or Off through the CEC channel of the HDMI out interface.
<b>Description</b>	This command will have the HT-RANGER go into or get out of standby mode manually and will control the connected display at the same time.

**Example:**

To make the HT-RANGER go into standby

mode: Command:

```
gbcontrol --sinkpower off
```

Response:

The HT-RANGER goes into standby mode.

## 2.2.8 gbcontrol --show-osd

<b>Command</b>	<code>gbcontrol --show-osd</code>
<b>Response</b>	The HT-RANGER displays the OSD for ten seconds.
<b>Description</b>	This command displays the OSD for ten seconds. This allows users to see the OSD for access code or soft AP password when video is displayed. After 10 seconds the OSD will disappear.

**Example:**

Command:

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

Response:

The device displays the OSD for ten seconds.

## 2.2.9 gbcontrol --set-layout-video

<b>Command</b>	<code>gbcontrol --set-Layout-video LayoutNo [ VideoName1 [ VideoName2 [...]]]</code>
<b>Response</b>	The HT-RANGER switches to the designated screen layout and displays the designated videos sources respectively.
<b>Description</b>	<p>This command switches the screen layout and video sources within one command, which essentially equals the combination of a <code>gblayout --set</code> command and a series <code>gbcontrol --video-source</code> commands. The following includes additional details:</p> <ol style="list-style-type: none"> <li>1. The command <code>LayoutNo</code> is the screen layout the user desires to use. <ul style="list-style-type: none"> <li>➤ If the HT-RANGER has automatic screen layout enabled, only the designated screen layout can be used.</li> <li>➤ If the HT-RANGER has automatic screen layout disabled, any desired screen layout is available.</li> </ul> </li> <li>2. The second and subsequent parts of the command are optional, and they function to designate the video sources in order. <ul style="list-style-type: none"> <li>➤ If no video source is designated, all windows will be blank. If the keyword "null" is used as the video name, the corresponding window will be blank.</li> <li>➤ If the quantity of the video sources is less than the quantity of the windows in the screen layout, the rest of the windows will be blank.</li> </ul> </li> </ol>

**Example 1:**

Command:

```
gbcontrol --set-layout-video 0x103 hdmi null USB-C
```

Response:

The device switches to the screen layout whose number is 0x102, and displays HDMI and USB-C in the first and second window.

## 2.2.10 gbcontrol --device-info

<b>Command</b>	gbcontrol --device-info
<b>Response</b>	The HT-RANGER prints its model and firmware version.
<b>Description</b>	This command is used to obtain the information about the device model and firmware version.

**Example:**

Command:

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

Response:

```
FSC610-000
V1.0.2
```

## 2.2.11 gbcontrol --switch-usb

<b>Command</b>	gbcontrol --switch-usb <i>UsbOutputPort</i>
<b>Response</b>	All USB signals are routed to the designated usb host port.
<b>Description</b>	Configure the built-in USB switcher. This command is a variant of the command gbconfig --usb-host, the only difference is that this command does not support automatic modes. Please refer section 2.1.21 for details.

## 2.2.12 gbcontrol --help

<b>Command</b>	gbcontrol { --help   -h }
<b>Response</b>	A simple description of all gbcontrol commands are shown.
<b>Description</b>	Shows a simple guide of all gbcontrol commands.

## 2.3 gblayout Commands

### 2.3.1 gblayout --start-video

<b>Command</b>	<code>gblayout --start-video VideoName</code>
<b>Response</b>	The HT-RANGER starts to display the designated video source and prints a list of the all displayed video sources.
<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 being displayed already, the HT-RANGER does not make any changes.</li><li>➤ If there is no available window (view) which can be used to display the video source, the HT-RANGER switches to a dualscreen layout, then displays the video source.</li><li>➤ If there is neither a free window nor a screen layout having more windows, the HT-RANGER stops displaying the “oldest” video source and displays the “newest” video source.</li></ul> <p><b>Note:</b> If the automatic screen layout is disabled in the HT-RANGER this command does not work. Please refer the section related to the <b>gblayout --auto</b> command to get more details.</p>

**Example:**

To start to display USB-C when HDMI is displayed:

**Command:**

```
gblayout --start-video USB-C
```

**Response:**

```
HDMI USB-C
```

### 2.3.2 gblayout --stop-video

<b>Command</b>	<code>gblayout --stop-video { VideoName   WinNo }</code>
<b>Response</b>	The HT-RANGER stops displaying the designated video and prints a list of the all connected video sources.
<b>Description</b>	<p>The reverse operation of the command is <code>gblayout --start-video</code>.</p> <p><b>Note:</b> If the automatic screen layout of the HT-RANGER is disabled, this command will not work. Please refer the section related to the <b>gblayout --auto</b> command to get more details.</p>

**Example:**

To stop USB-C when HDMI and USB-C are displayed

**Command:**

```
gblayout --stop-video USB-C
```

**Response:**

*HDMI1*

### 2.3.3 gblayout --list

<b>Command</b>	gblayout --list
<b>Response</b>	The HT-RANGER outputs a list of every possible layout with its corresponding number and name.
<b>Description</b>	The command lists all screen layouts in the device.

**Example:**

To list all screen layouts

**Command:**

*gblayout --list*

**Response:**

```
Layout #      Name:
0x100         layout0
0x101         layout1
```

### 2.3.4 gblayout --show

<b>Command</b>	gblayout --show <i>LayoutNo</i>
<b>Response</b>	The HT-RANGER outputs the details of the screen layout.
<b>Description</b>	This command queries the detail of a screen layout. The HT-RANGER 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 second part of the command, <i>LayoutNo</i> , 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

```

### 2.3.5 gblayout --set

<b>Command</b>	gblayout --set <i>LayoutNo</i>
<b>Response</b>	The HT-RANGER starts using the designated screen layout.
<b>Description</b>	Designate the current screen layout. The command <i>LayoutNo</i> is the number of the layout.

**Example:**

To use the layout 0x0101:

**Command:**

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

**Response:**

The HT-RANGER starts using the layout number 0x0101 as the current screen layout.

### 2.3.6 gblayout --get

<b>Command</b>	gblayout --get [ detail ]
<b>Response</b>	The HT-RANGER outputs the information about the current screen layout.
<b>Description</b>	<p>This command queries the information related to the current screen layout. The second part of the command, detail, lets the HT-RANGER know to output the details:</p> <ul style="list-style-type: none"> <li>➤ If this part of the command is not used, the HT-RANGER prints the number of the current screen layout and the quantity of the windows. The word <b>auto</b> is included in this information if the HT-RANGER is enabled to change the screen layout automatically.</li> <li>➤ If this part of the command is used, the HT-RANGER prints the position and size of every window and the video source displayed in the window.</li> </ul>

**Example 1:**

To query the information of the current screen layout and the HT-RANGER 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]
```

## 2.3.7 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>	This command is used to designate the screen layout sequence, which with the HT-RANGER, is either full screen or dual view.

**Example 1:**

The below command disables the multiview feature Command:

```
gblayout --set-sequence 0x0100
```

**Example 2:**

The below command enables the multiview feature with up to dual view. Command:

```
gblayout --set-sequence 0x0100 0x101
```

## 2.3.8 gblayout --get-sequence

<b>Command</b>	<code>gblayout --get-sequence</code>
<b>Response</b>	The HT-RANGER outputs the screen layout sequence.
<b>Description</b>	This command queries the screen layout sequence and the HT-RANGER prints the numbers of all layouts in the sequence.

### Example:

To get the screen layout sequence:

Command:

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

Response:

```
[0x0100] [0x0101]
```

## 2.3.9 gblayout --auto

<b>Command</b>	<code>gblayout --auto { y   n } [ runtimeonly ]</code>
<b>Response</b>	The HT-RANGER is enabled or disabled to change the screen layout automatically.
<b>Description</b>	<p>This command allows the configuration of automatic screen layout. The auto screen layout feature is enabled as the default and this command can modify that.</p> <ul style="list-style-type: none"><li>➤ Enabled</li></ul> <p>The HT-RANGER 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.</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 are based on the requirement that the device changes the screen layout automatically. The <b>gblayout --set</b> command still works.</p> <p>The first part of the command <code>y</code> or <code>n</code> means enabled or disabled, respectively. If the that part of the command is omitted, <code>y</code> is selected as default.</p> <p>The second part of the command “runtimeonly” is optional, and temporarily sets the change. When this command is sent, the change will not be saved to the file system, and once the HT-RANGER reboots or goes into standby mode, the device will reload this configuration from the file system.</p>

### Example:

To disable the device to change the screen layout automatically

Command:

```
gblayout --auto n
```

## 2.3.10 gblayout --help

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

## 2.4 Event Commands

Event commands are not API commands that can be sent by the controller. These are messages sent by the HT-RANGER to announce that a certain state of the device has changed.

### 2.4.1 [Event] VideoSource

<b>Command</b>	[Event] VideoSource <i>VideoName</i> { NoSignal   { <i>VideoTiming</i> { YUV444   YUV422   RGB888   MJPEG   H.264   H.265 } }
<b>Description</b>	This message means that the state of one video source has changed and has two parts to it. The first is the name of the video source with the changed state. The second part varies on the new state: <ul style="list-style-type: none"><li>➤ If the video source has lost signal, a word <b>NoSignal</b> is used as the second argument.</li><li>➤ If the video source is connected, the second and third parts provide the timing and format respectively.</li></ul>

#### Example 1:

HDMI lost signal:

#### Message:

*[Event] VideoSource HDMI NoSignal*

#### Example 2:

4K@30 RGB888 video detected on HDMI:

#### Message:

*[Event] VideoSource HDMI 3840x2160P@30 RGB888I*

### 2.4.2 [Event] WorkMode

<b>Command</b>	[Event] WorkMode { Normal   Sleep }
<b>Description</b>	This message means that the HT-RANGER's work mode has changed.

**Example:**

The HT-RANGER went into standby mode.

**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 and includes the layout ID and its name.

**Example:**

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

**Message:**

*[Event] Layout 0x101 Layout101*

### **3 Appendix**

No appendix items at this release.

## 4 FAQ

### 4.1 Disable or Enable Multiview

#### 4.1.1 Overview

Most BYOD products support Multiview feature which enables multiple persons to wirelessly display their screens to a display at the same time. As the default configuration, the multiview feature is enabled, the device will switch to Multiview layout once it detects more than one projected device. However, the user may not want to share the screen with other devices and may want their content shown in full screen. This chapter will provide a guide to accomplish this.

#### 4.1.2 Operation

The detailed steps are below:

1. Log into the telnet server of the HT-RANGER
2. Type the command "gblayout -get-sequence" to get the current screen layout sequence. The HT-RANGER will return [0x100][0x101][0x102]
3. To disable the Multiview feature, type the command "gblayout -set-sequence 0x100"
4. To enable the Multiview feature, type the command "gblayout -set-sequence 0x100 0x101 0x102" (Note: the three hexadecimal parts of the enable command are taken from the feedback of the HT-RANGER round in step 2.)