4 x 4 True 4K HDMI Matrix Switch with Scaler

VM6404HB

User Manual

www.aten.com

EMC Information

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Warning: Operation of this equipment in a residential environment could cause radio interference.

Achtung: Der Gebrauch dieses Geräts in Wohnumgebung kann Funkstörungen verursachen.

KCC Statement

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RoHS

This product is RoHS compliant.

User Information

Online Registration

Be sure to register your product at our online support center:

International	http://eservice.aten.com

Telephone Support

For telephone support, call this number:

International	886-2-8692-6959
China	86-400-810-0-810
Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-888-999-ATEN ext 4988 1-949-428-1111

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

Package Contents

The VM6404HB package consists of:

- 1 VM6404HB 4 x 4 True 4K HDMI Matrix Switch with Scaler
- 1 Power Cord
- 1 IR Remote Control
- 1 IR Receiver
- 1 Mounting Kit
- 1 User Instructions*

Check to make sure that all the components are present and that nothing got damaged in shipping. If you encounter a problem, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit, and/or any of the devices connected to it.

* Features may have been added to the VM6404HB since this manual was published. Please visit our website to download the most up-to-date version.

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4. Browser Operation

Appendix

About this Manual

This User Manual is provided to help you get the most from your VM6404HB system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Chapter 1 Introduction, introduces you to the VM6404HB system. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2 Hardware Setup, describes how to set up your VM6404HB installation.

Chapter 3 Front Panel Configuration, explains the fundamental concepts involved in operating the VM6404HB at the local site via the front panel LCD display using pushbuttons.

Chapter 4 Browser Operation, provides a complete description of the VM6404HB's Browser Graphical User Interface (GUI), and how to use it to remotely configure and operate the VM6404HB.

Chapter 5 Mobile Control, introduces you to the Video Matrix Control app and provides details on its installation requirements.

Chapter 6 CLI Commands, provides a complete list of the serial control protocol commands used when utilizing the RS-232 Serial Port so that an extra source device can be utilized in the installation.

Appendix, which provides specifications and other technical information regarding the VM6404HB.

Conventions

This manual uses the following conventions:

`Monospaced`	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
♦	Bullet lists provide information, but do not involve sequential steps.
→	Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
⚠	Indicates critical information.

Product Information

For information about all ATEN products and how they can help you connect without limits, visit ATEN on the Web or contact an ATEN Authorized Reseller. Visit ATEN on the Web for a list of locations and telephone numbers:

International	http://www.aten.com
North America	http://www.aten-usa.com

Chapter 1
Introduction

Overview

True 4K Pro AV solutions with High Dynamic Range (HDR) technology is the trend of high-definition video that delivers the ultimate visual experience with exceptionally sharp and vibrant video quality. ATEN's VM6404HB True 4K HDMI Matrix Switch with Scaler is compatible with the latest True 4K video resolutions of 4096 x 2160 / 3840 x 2160@60Hz (4:4:4) and HDR, guaranteeing crystal-clear images across four displays.

The VM6404HB supports 4K@60Hz, HDMI, and HDCP 2.2 and features Seamless Switch™ that employs an FPGA matrix architecture that ensures continuous video streams, real-time control, and stable signal transmissions. With a built-in high-performance scaler, the VM6404HB easily converts various input resolutions into various output display resolutions, giving viewers the best video and picture quality across all displays. The switch integrates video wall functionality with an easy-to-use web GUI that lets you create 8 connection profiles that can be customized into different video wall layouts. You can also have mobile access to frequently used features such as switching of profile and AV inputs using the Video Matrix Control App.

The VM6404HB is an ideal solution for applications that require multiple HDMI displays with multiple HDMI sources to be conveniently set up – such as for stage presentations, digital classroom, video conference rooms, and any installation that requires real-time synchronization.

Features

- 4 x 4 HDMI input/output connections
- Multiple Control Methods – system management via front-panel pushbuttons, IR, RS-232 control, web GUI, and CLI commands
- True 4K Resolutions – handles uncompressed video resolutions up to 4096 x 2160 / 3840 x 2160@60Hz (4:4:4)
- 4K Scaler – features a 4K video scaler to convert input resolutions to the optimum display resolutions
- Seamless Switch™ – features close-to-zero second switching for continuous video streams, real-time switching, and stable signal transmissions[1]
- Video Wall – allows you to create custom video wall layouts via intuitive web GUI[2]
- True 4K EDID Expert – selects optimum EDID settings for smooth power-up, high-quality display, and use of the best resolutions across different screens
- FrameSync – prevents image tearing by synchronizing the scaler output frame rate to the input signal frame rate
- Audio-enabled – HDMI audio can be extracted to stereo audio
- HDMI (3D, Deep color, 4K); HDCP 2.2 compatible
- Consumer Electronics Control (CEC) support
- Supports free mobile control using the Video Matrix Control App
- ESD protection for HDMI
- Rack-mountable (1U design)

Note:

- When Seamless Switch™ is enabled, 3D, Deep Color, or interlace (i.e., 1080i) formats will not be supported. To use these formats, make sure to disable Seamless Switch™.
- Videos may not display within range when Seamless Switch™ or Video Wall is enabled, in which case please adjust the display settings on your device.

Required Devices and Accessories

Prepare the following devices and accessories before installing the VM6404HB.

- Up to 4 computers or AV devices equipped with an HDMI Type A output connector

Note: To connect a DVI source device, use a DVI-HDMI adapter.

- Display devices or receivers with an HDMI Type A input connector
- Cables
  - 1 HDMI cable for each source device
  - 1 HDMI cable for each display device
  - 1 Cat 5e cable
  - 1 RS-232 serial cable

Note: No cables are included in this package. We strongly recommend that you purchase high-quality cables of appropriate length since this will affect the quality of the audio and video display. Contact your dealer to purchase the correct cable sets.

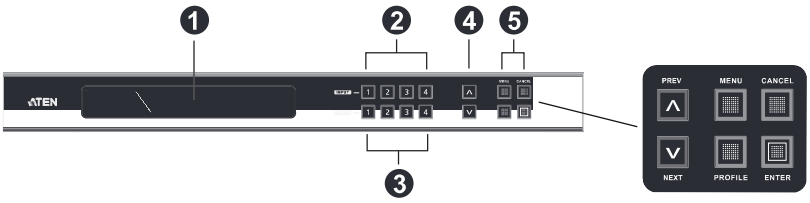
Supported Browsers

Use the recommended web browsers below to access the VM6404HB's web console.

OS	Java Version	Browser	Version
Windows 10_1903 x64	1.8.0_201 x64	Edge	44.18362.1.0
		Firefox	68.0 x64
		Chrome	75.0.3770.100 x64
		Opera	62.0.3331.43 x64
Windows 8.1 x32	1.8.0_201	IE	11
Windows 2019_1809 DataCenter x64	1.8.0_201 x64	IE	11 x64
Windows 2016 x64	1.8.0_201 x64	IE	11 x64
Windows 7 SP1 x64	1.8.0_201 x64	IE	11 x64
CentOS 7.5 x64 Kernel 4.18.11-1	1.8.0_201 x64	Firefox	60.7.2-1 x64
Ubuntu 18.04 x64 Kernel 4.19.041900rc3	1.8.0_201 x64	Chrome	75.0.3770.100-1 x64
Solaris 11.4 x64 5.11	1.8.0.181 x64	Firefox	52.9.0 x32
MAC 11.4	-	Safari	8
Windows 10 x64	1.8.0_201 x64	QQ	10.4.3587.400.
Windows 10 x64	1.8.0_201 x64	360	10.0.1508.0

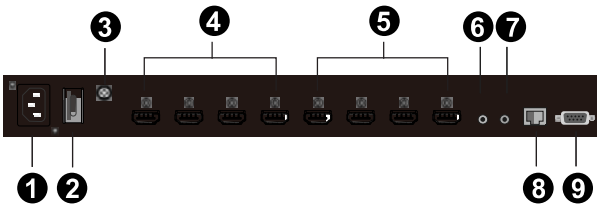
Components

Front View



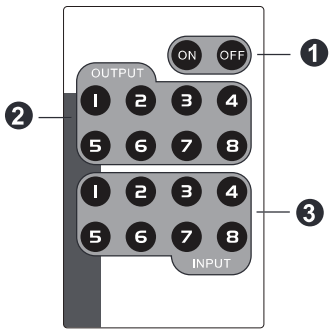
No.	Component	Description
1	LCD Display	The LCD Display gives a quick view of all port connections, and shows the various options for configuring and operating the VM6404HB. For full details, see *Main Screen*, page 12.
2	Input Pushbuttons	These pushbuttons refer to the HDMI Input ports found on the VM6404HB rear panel. Press to select the Input port. These pushbuttons may also correspond to menu options, connection profiles (P1–P4) and so on. **Note:** The **INPUT** (1–4) front panel pushbuttons have built-in LEDs that light to indicate they have been selected.
3	Output Pushbuttons	These pushbuttons refer to the HDMI Output ports found on the VM6404HB rear panel. Press to select the Output port. These pushbuttons may also correspond to connection profiles (P5–P8). **Note:** The **OUTPUT** (1–4) front panel pushbuttons have built-in LEDs that light to indicate they have been selected.
4	Prev / Next Pushbuttons	These pushbuttons allow you to cycle through the menu options on the LCD display.
5	Function Pushbuttons	The function pushbuttons (**MENU**, **PROFILE**, **ENTER** and **CANCEL**) are for navigating the LCD built-in configuration utility. For full details, see *Front Panel Pushbuttons*, **page 11**. **Note:** The **MENU** and **PROFILE** front panel pushbuttons have built-in LEDs that light to indicate they have been selected.

Rear View



No.	Component	Description
1	Power Socket	This is a standard 3-pin AC power socket. The power cord from an AC source plugs in here.
2	Power Switch	This is a standard rocker switch that powers the unit on and off.
3	Grounding Terminal	The grounding wire attaches here.
4	HDMI Output Ports	The cables from your HDMI display devices plug into these ports.
5	HDMI Input Ports	The cables from your HDMI source devices plug into these ports.
6	Stereo Audio Output	Connect an audio output device into this port.
7	IR Port	Connect the IR Receiver unit included with your product via this 3.5 mm Mini Stereo Jack.
8	Ethernet Port	In order to access the VM6404HB's Browser Graphical User Interface (GUI), the VM6404HB must be connected to your network. The cable that connects the VM6404HB to your LAN plugs in here. See *Cable Connection*, page 10, for further details.
9	RS-232 Serial Port	Connect a computer or high-end system controller via this serial port.

IR Remote Control



No.	Component	Description
1	Power ON/OFF	Use the **ON** and **OFF** pushbuttons to turn the Output displays on or off – by individual port, or all ports. (see *IR Remote Control Operation*, page 30)
2	Output Pushbuttons 1–4	Press **Output** display pushbuttons 1–4 to select the Output display you want to configure (see *IR Remote Control Operation*, page 30).
3	Input Pushbuttons 1–4	Press **Input** source pushbuttons 1–4 to select the Input source you want to display on a selected output (see *IR Remote Control Operation*, page 30).

Note: The Input and Output pushbuttons 5–8 are not functional.

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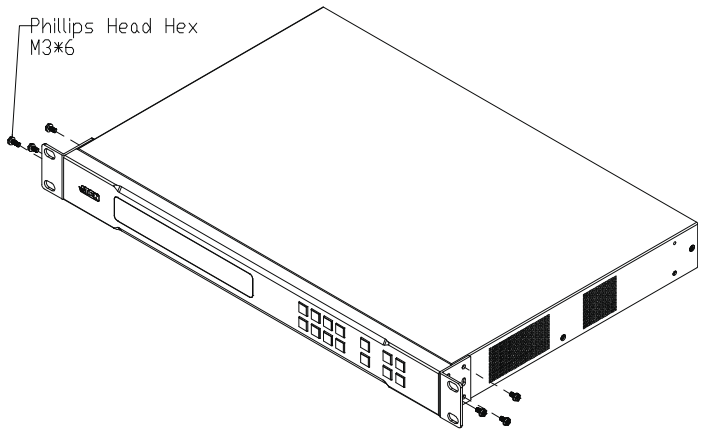
Chapter 2
Hardware Setup

1. Important safety information regarding the placement of this device is provided on page 113. Please review it before proceeding.
2. Make sure that the power to all devices connected to the installation are turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

Rack Mounting

The VM6404HB can be mounted in a 19” (1U) system rack. For the most convenient front panel pushbutton configuration and operation at the local site, mount the unit at the front of the rack, as follows:

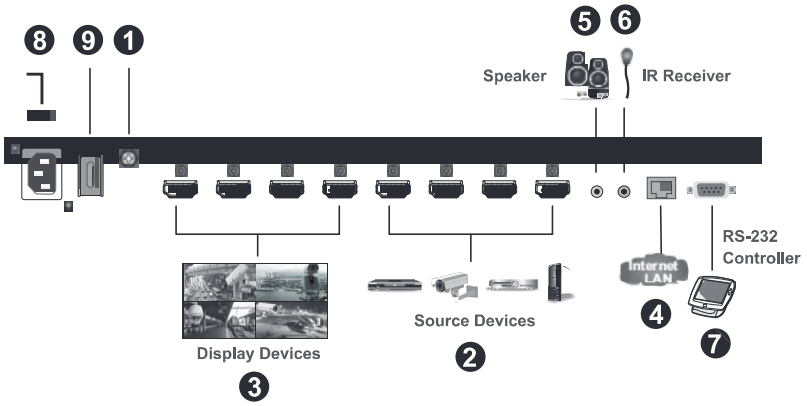
1. Use the six M3 x 6 Phillips head hex screws supplied with the Mounting Kit to secure the rack mounting brackets onto the front of the unit.



2. Position the unit in the front of the rack and align the holes in the mounting brackets with the holes in the rack.
3. Screw the mounting brackets to the rack.

Cable Connection

Follow the steps below to safely connect the required devices to the VM6404HB.



1. Use a grounding wire to ground the unit by connecting one end of the wire to the grounding terminal, and the other end to a suitable grounded object. Also make sure to properly ground all devices in the installation.

   Note: Do not omit this step. Proper grounding helps prevent damage to the unit from surges or static electricity.

2. Connect up to 4 HDMI-enabled video sources to the **HDMI Input** ports.
3. Connect up to 4 HDMI-enabled display devices to the **HDMI Output** ports.
4. To access system settings via the web GUI or to remotely control the VM6404HB using the Mobile Control App, use an Ethernet cable to connect the Ethernet port of the unit to a network switch.
5. (Optional) To extract HDMI audio, connect a speaker to the Stereo Audio Out port.
6. (Optional) To operate the VM6404HB using an IR remote control, connect the supplied IR receiver to the IR Receiver Port.
7. (Optional) To configure the unit's settings via an RS-232 interface, connect a hardware or software controller to the RS-232 Serial Port.
8. Plug the power cord to the Power Socket.
9. Put the Power Switch to **ON**.
10. Power on all the connected devices.

Chapter 3
Front Panel Configuration

Overview

This chapter provides detailed information on operating the VM6404HB using the panel pushbuttons and IR remote controller.

Front Panel Pushbuttons

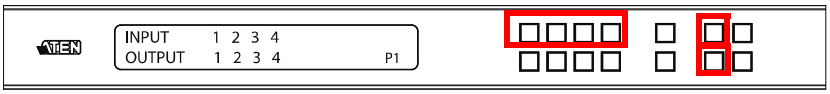
The front panel features an LCD display and pushbuttons for convenient operation locally. This allows users to perform operations such as selecting which source shows on which display, viewing the system network settings, configuring the serial port, setting the EDID Mode / CEC / OSD / Output Status, selecting security settings, and loading/saving profiles.

Note the following front panel pushbutton functions:

- Use the **MENU** pushbutton to access the Menu page options: IP Setting, Serial Port Setting, Operation Mode, Security Mode, Save to a Profile, Play the Profile Schedule. For more information, see *LCD Menu Organization*, page 14
- Use the **PROFILE** pushbutton to switch between connection profiles which have been created via the web GUI. Pressing this pushbutton for longer than 3 seconds displays the Save to a Profile page (see *Saving a Profile*, page 27).
- Use the **CANCEL** pushbutton to go back to a previous page, return to the Main Screen, stop or exit an operation.
- Use the **ENTER** pushbutton to select options and confirm operations.
- Use the **INPUT (1-4) / OUTPUT (1-4)** pushbuttons to select the Input/ Output port. These pushbuttons may also correspond to menu options, connection profiles, and so on.
- Use the **Prev** / **Next** pushbuttons to navigate the menus.

Main Screen

The Main Screen shows the Input ports (1-4) in the top row, which are tied to the Output ports shown in sequential order (1-4) at the bottom row.



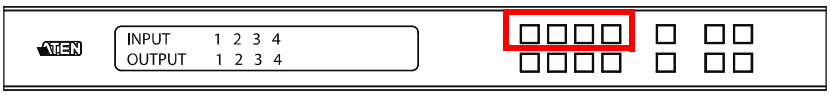
- The front panel pushbutton label corresponds to the **Input** ports (1-4) and **Output** ports (1-4) on the unit's rear panel.
- Use the **Menu** pushbutton to view the LCD Menu (see *LCD Menu Organization*, page 14).
- Use the **Profile** pushbutton to switch between profile connections (see *Profile List*, page 35).

Port Switching

From the Main Screen, users can configure the input-to-output port connections to associate an Input source device to an Output display.

Input Assignment

Use the Input pushbuttons to select the input you want to configure.



To assign an input to one or more output displays, do the following:

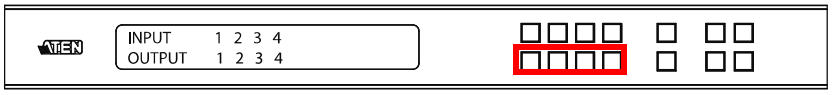
1. Press an Input pushbutton. The outputs already assigned with this input light blue.
2. To assign this input to more outputs, press the Output pushbutton. To de-select an output, press the pushbutton again.

Note:

- Input ports that are not assigned to any output will not be shown in the LCD screen.
- Pressing the **Cancel** pushbutton once stops the Input Port Selection operation and the LCD displays the active setting. Pressing the **Cancel** pushbutton again turns all LEDs off.
- After 10 seconds of inactivity, all the LEDs turn off.

Output Port Assignment

Use the Output pushbuttons to select the Output port you want to configure.



To assign an input to one output, do the following:

1. Press any Output pushbuttonn. The input assigned to this output lights yellow.
2. To assign another input to this output port, press the Input pushbutton. The pushbutton of the assigned input lights yellow.

   If an Output pushbutton is pressed a second time, it is deselected and the LED turns off.

To assign an input to multiple outputs, do the following:

1. Press the pushbuttons for the outputs to which you wish to assign a common input. These Output pushbuttons light blue.
2. Press an Input pushbutton to assign the input to the outputs you selected in step 1.

Note:

- To deselect an output, press the pushbutton again. The pushbutton dims.
- Pressing the **Cancel** pushbutton once stops the Output Port Selection operation and the LCD displays the active setting. Pressing the **Cancel** pushbutton again turns all LEDs off.
- After 10 seconds of inactivity, all the LEDs turn off.

LCD Menu Organization

The VM6404HB has a built-in configuration utility via the front panel LCD, which can be controlled by pressing the **MENU** and Input pushbuttons. User can cycle through the menu options, starting from IP Setting page, in the order shown in the table below:

LCD Menu				Options
IP Setting	IP Address			-
	Subnet Mask			-
	Gateway			-
Serial Port Setting	Baud Rate			9600 / **19200** / 38400 / 115200
Operation Mode	EDID			**Default** / Port1 / Remix / Customized
	CEC			On / **NA**
	OSD			**On** / NA
	Output Status	Video		**On** / NA
		Audio Extract	Audio Input	01-04
			Mute	On / **NA**
		Output Resolutions		01-04
Security Mode	Mode			**None**
				Password Enable
				Lock Screen
	Change Password	Old Password		-
		New Password		-
Save to a Profile	Save to a Profile No.			Input pushbutton: 01–04 output pushbutton: 05-08
Play/Stop the Profile Schedule				-
Break Output Group				-

Note: Default settings are indicated in bold.

Menu Pushbutton

Press the **MENU** pushbutton to switch between the Main Screen and LCD Menu page. When the Menu is active, the **MENU** pushbutton lights up:

From the Menu page:

- Press **1** to go to the IP Setting page (see *IP Settings*, page 15)
- Press **2** to go to the Serial Port Setting page (see *Serial Port Setting*, page 17)
- Press **Next** to go to the next page(s) for the sub-menu pages
- Press **Menu** to return to the Main Screen

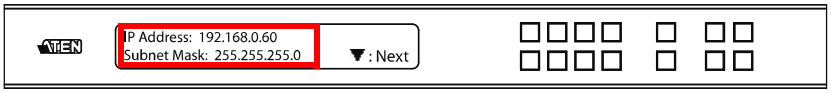
IP Settings

The IP Setting page displays the VM6404HB's IP configuration. These settings are read-only in the LCD Menu and can be configured via the Web GUI.

IP Address / Subnet Mask

To view the VM6404HB's IP address and Subnet Mask, do the following:

1. Press the **Menu** pushbutton, and then press **Input pushbutton 1** to see the IP Setting submenu. The IP address and Subnet Mask are then shown.



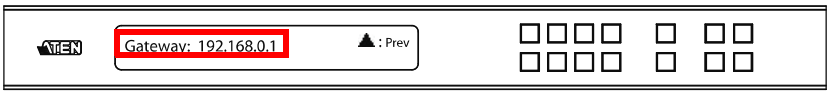
> **Note:** The VM6404HB's default IP address is 192.168.0.60. The default Subnet Mask is 255.255.255.0

2. Press **Next** to go to the next page.
3. Press **Menu** to return to the Menu page.
4. Press **Cancel** to return to the previous page without saving.

Gateway

To view the VM6404HB's gateway address, do the following:

1. Press the **Menu** pushbutton, press **Input pushbutton 1** to see the IP Setting submenu, then press **Next** to get to the next page. The gateway address displays.



Note: The default Gateway is 192.168.0.1.

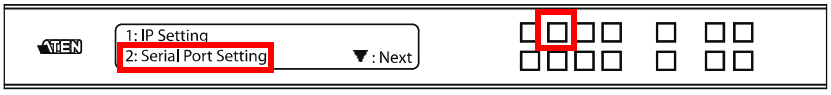
2. Press **Prev** to go to the previous page.
3. Press **Menu** to return to the Menu page.
4. Press **Cancel** to go back a level, return to the initial screen, or exit.

Serial Port Setting

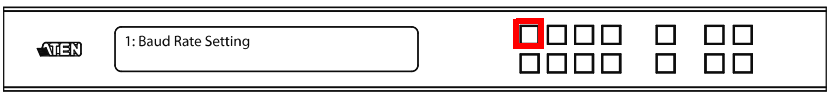
Baud Rate

To set the VM6404HB's baud rate, do the following:

1. Press the **Menu** pushbutton, and then press **Input pushbutton 2**.



2. Press **Input pushbutton 1** to select **Baud Rate Setting**.



3. Press **Menu** to return to the Menu page.
4. Press **Cancel** to go back a level, return to the initial screen, or exit.

Operation Mode

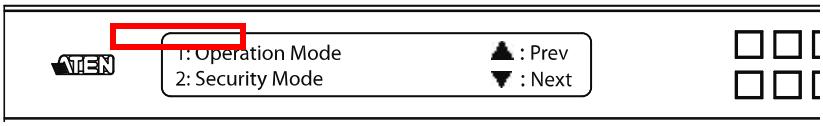
The EDID Mode, CEC, OSD and Output Status features can be configured from the Operation Mode page.

- **EDID Mode:** The EDID (Extended Display Identification Data) mode is used to have the VM6404HB automatically apply a preset EDID mode, which utilizes the best resolution across different monitors
- **CEC:** Consumer Electronics Control (CEC) allows interconnected HDMI devices to communicate and respond to one remote control
- **OSD:** Use this option to enable real-time port switching information for each port.
- **Output Status:** The Output Status shows whether the video/audio of an Output port is turned on or off and allows viewing and setting of the Output Resolution

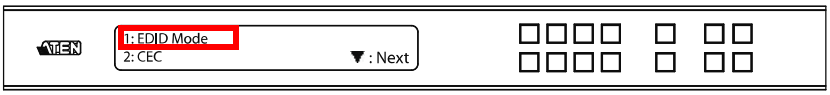
EDID Mode

To configure the EDID Mode, do the following:

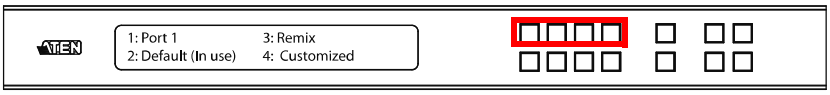
1. Press the **Menu** pushbutton, press **Next**, and then press **Input pushbutton 1**.



2. From the Operation Mode page, press **Input pushbutton 1**.



3. Press **Input pushbuttons 1–4** to make your selection.



EDID Mode options are:

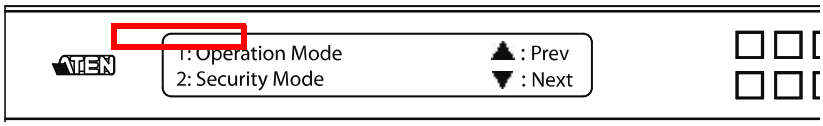
EDID Option	Description
1: Default	The default EDID is passed to all video sources.
2: Port 1	The EDID from port1 is passed to all video sources.
3: Remix	Uses the EDID of each connected display according to its connection when the VM6404HB is first powered on, or immediately after pressing 3 to select the Remix option.
4: Customized	This mode features an EDID Wizard that allows user-defined EDID configurations for optimum output. See *Customized EDID Parameters*, page 68.

4. Press **Menu** to return to the Menu page.
5. Press **Cancel** to go back a level, return to the initial screen, or exit.

CEC

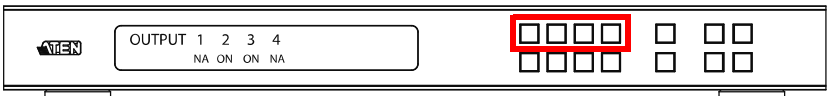
To configure the CEC setting, do the following:

1. Press the **Menu** pushbutton, press **Next**, and then press **Input pushbutton 1**.



2. From the Operation Mode page, press **Input pushbutton 2**:

3. Press **Input pushbuttons (1-4)** to enable (**ON**) or disable (**NA**) the CEC feature for the output port. If the port does not support CEC, an **NA** is shown.



Note: The default CEC setting is NA.

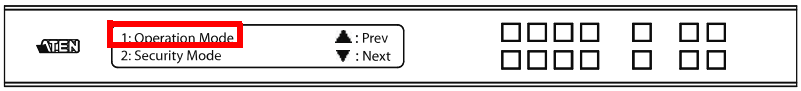
4. Press **Menu** to return to the Menu page.
5. Press **Cancel** to go back a level, return to the initial screen, or exit.

OSD

The On-Screen Display or OSD feature enables real-time port assignment information to be displayed on the output screen when the assigned input changes for the output.

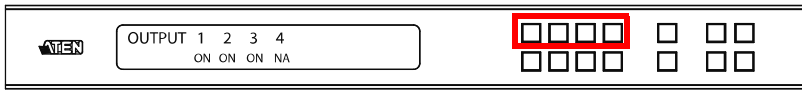
To configure the OSD setting for each output port, do the following:

1. Press the **Menu** pushbutton, press **Next**, and then press **Input pushbutton 1**.



2. From the Operation Mode page, **Next** to go to the next page, then press **Input pushbutton 1**:

3. Press input pushbuttons (1-4) to enable (**ON**) or disable (**NA**) the OSD feature for the output port.



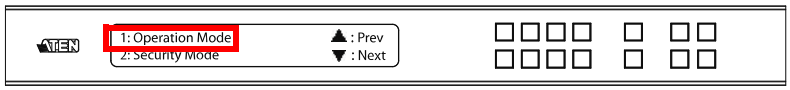
Note: The default OSD setting is On.

4. Press **Menu** to return to the Menu page.
5. Press **Cancel** to go back a level, return to the initial screen, or exit.

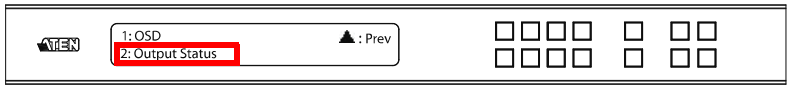
Video Outputs

To configure the **Output Status** settings for each output port, do the following:

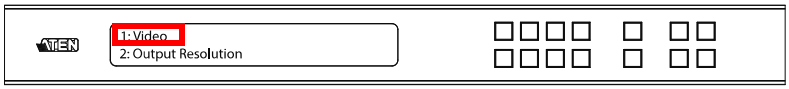
1. Press the **Menu** pushbutton, press **Next**, and then press **input pushbutton 1**.



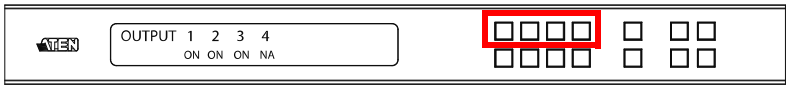
2. From the Operation Mode page, press **Next** to go to the next page, then press **Input pushbutton 2**:



3. From the Output Status page, press **Input pushbutton 1** to select **Video**.



4. Press **Input pushbuttons (1-4)** to enable (**ON**) or disable (**NA**) the video/audio of the output port.



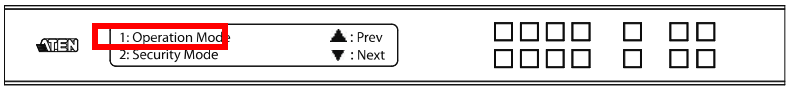
Note: The default Output Status setting is On.

5. Press **Menu** to return to the Menu page.
6. Press **Cancel** to go back a level, return to the initial screen, or exit.

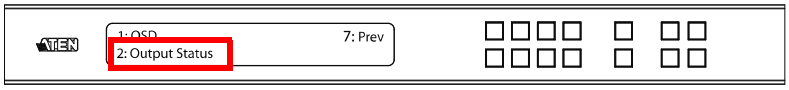
Audio Extract

To configure the audio extract settings, do the following:

1. Press the **Menu** pushbutton, press **Next**, and then press **Input pushbutton 1**.

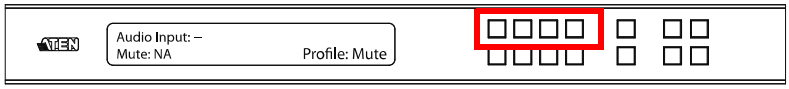


2. From the Operation Mode page, press **Next** to go to the next page, and then press **Input pushbutton 2**.



3. From the Output Status page, press **Input pushbutton 2** to select Audio Extract.

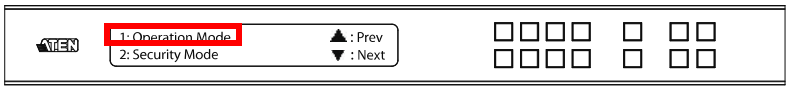
4. Press **Input pushbuttons (1-4)** to select an input port to the stereo audio output. To mute the audio, press the PROFILE pushbutton until it indicates ON.



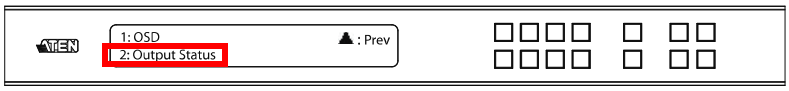
Output Resolutions

To configure the output resolution for each output port, do the following:

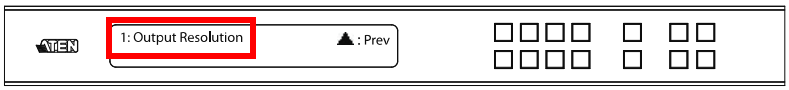
1. Press the **Menu** pushbutton, press **Next**, and then press **Input pushbutton 1**.



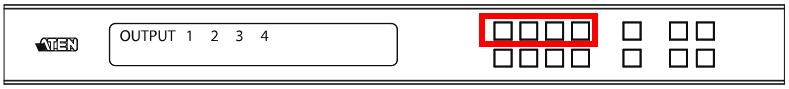
2. From the Operation Mode page, press **Next** to go to the next page, and then press **Input pushbutton 2**:



3. From the Output Status page, press **Next** and then press **Input pushbutton 1** to select an output resolution.



4. Press **Input pushbuttons (1-4)** to select an output port whose resolution will be changed.



5. The following resolution options are available:

560x360@60HZ	4096x2160@24HZ
720x576@50HZ	4096x2160@25HZ
768x480@60HZ	4096x2160@30HZ
800x600@60HZ	3840x2160@50HZ 4:2:0
1024x768@60HZ	3840x2160@60HZ 4:2:0
1280x720@50HZ(720p)	4096x2160@50HZ 4:2:0
1280x720@60HZ(720p)	4096x2160@60HZ 4:2:0
1920x1080@30HZ(1080p)	3840x2160@50HZ
1280x800@60HZ	3840x2160@60HZ

1280x1024@60HZ	4096x2160@50HZ
1366x768@60HZ	4096x2160@60HZ
1400x1050@60Hz	3840x2160@24HZ 4:2:2 12bit
1600x900@60HZ	3840x2160@25HZ 4:2:2 12bit
1600x1200@60HZ	3840x2160@30HZ 4:2:2 12bit
1920x1200@60HZ	3840x2160@50HZ 4:2:2 12bit
1920x1080@50HZ(1080p)	3840x2160@60HZ 4:2:2 12bit
1920x1080@60HZ(1080p)	4096x2160@24HZ 4:2:2 12bit
2560x1080@60HZ	4096x2160@25HZ 4:2:2 12bit
3440x1440@50HZ	4096x2160@30HZ 4:2:2 12bit
3840x2160@24HZ	4096x2160@50HZ 4:2:2 12bit
3840x2160@25HZ	4096x2160@60HZ 4:2:2 12bit
3840x2160@30HZ	-

6. Press **Menu** to return to the Menu page.
7. Press **Cancel** to return to the previous step without saving.

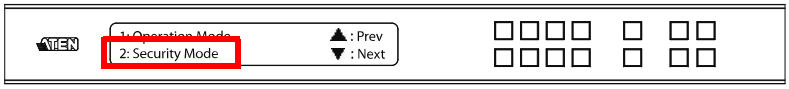
Security Mode

The Security Mode page allows users to manage the VM6404HB's security-related settings for accessing the front panel, including enabling LCD password authentication and changing the password.

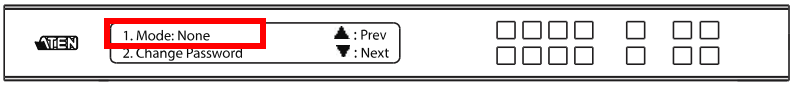
Mode

To configure the security mode setting:

1. Press the **Menu** pushbutton, press **Next**, and then press **Input pushbutton 2** to access the Security Mode page.



2. Press **Input pushbutton 1** in Security Mode.



3. In the Mode menu, the following options available:
   - To disable password authentication for the panel LCD, press **Input pushbutton 1**. To enable password authentication when the LCD times out or when the VM6404HB is powered on, press **Input pushbutton 2**.

Note:

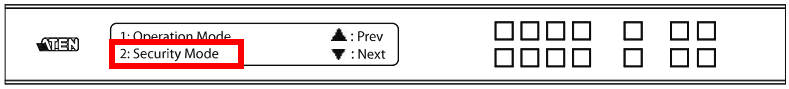
- The panel password can be any 4-digit combination between 1111 to 4444. The default password is **1234**.
- When password authentication is enabled, the LCD display times out after idling for 5 minutes.

- To enable a lock screen, press **Next** to navigate to the next page, and then press **Input pushbutton 1**. The menu will then return to the home screen. When Lock Screen is enabled, pressing any pushbutton from the home screen will trigger the following message: *Please press "Menu" to start.*

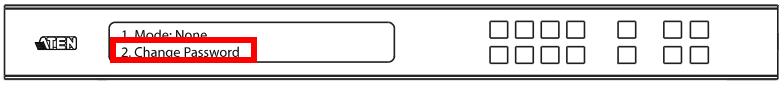
Changing the LCD Password

To configure the front panel password:

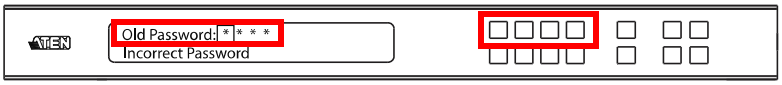
1. Press the **Menu** pushbutton, press **Next**, and then press **Input pushbutton 2** to access the Security Mode page.



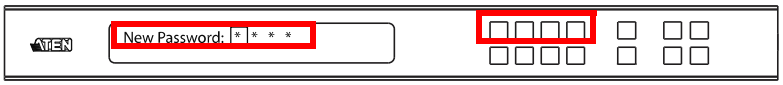
2. Press the **Input pushbutton 2**.



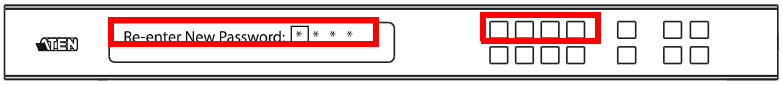
3. Follow the on-screen instructions to enter a new password.



4. In the New Password field, the cursor flashes at the first digit. Enter the new password using the Input pushbuttons: 1111–4444.



5. Re-enter the new password in the following screen. The new password is applied by the VM6404HB immediately.

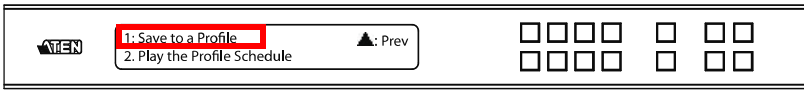


Saving a Profile

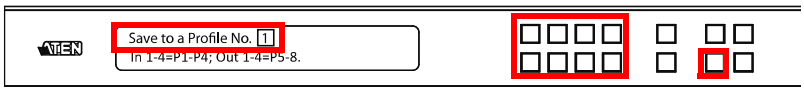
The VM6404HB allows users to store up to 8 connection profiles that can be recalled later. When a user loads a profile, the change is immediate and the profile number is shown on the lower right corner of the LCD screen.

To save a profile once the desired port connections are set, do the following:

1. Press the **Menu** pushbutton to access the Menu page, and then press **Next** to navigate to the next pages. Press **Input pushbutton 1** to open the Save to a Profile page.



2. On the page that opens, you are asked to give the profile a number. Use the Input and Output pushbuttons to select a profile number into which you want to save the configuration.



   - Input pushbuttons **1–4** correspond to Profile **P1** to **P4**
   - Output pushbuttons **1–4** correspond to Profile **P5** to **P8**

3. Press **Enter** to store the configuration – the LCD shows Profile Saved.
4. Press **Menu** to return to the Menu page,
5. Press **Cancel** to return to the previous step without saving.

Note: Access the Save to a Profile page quickly by pressing the **Profile** pushbutton for longer than 3 seconds.

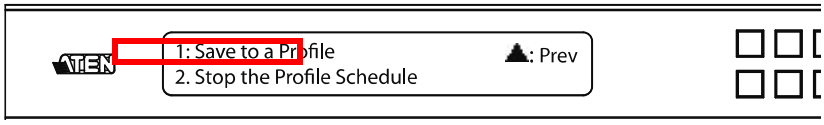
Playing/Stopping the Profile Schedule

The final option in the menu allows users to play or stop the selected profile schedule (to learn more about switching between connection profiles, see *Profile Configuration*, page 29).

To play or stop a profile, do the following:

1. Press the **Menu** pushbutton to access the Menu page, and then press **Next** twice to navigate to the next pages. Press **Input pushbutton 2** to play the selected profile schedule.

2. Press the **Menu** pushbutton to access the Menu page, then press **Next** twice to navigate to the next pages. Press **Input pushbutton 2** to stop the selected profile schedule.



Dissembling the Output Group

This option is available when two or more displays form a video wall to display a single input. When this function is enabled, the display will be changed to a splitter mode where each output of the video wall displays the assigned input on its own.

To enable this function:

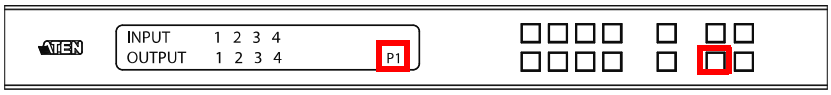
1. Press the **Menu** pushbutton to access the Menu page, and then press **Next three times**.

2. Press **Input pushbutton 1** to select Break Output Group. The currently displayed video wall is dissembled.

Profile Configuration

The **PROFILE** pushbutton lets users conveniently switch between connection profiles that have been added to the Profile List (see *Profile List*, page 35).

If a profile is in use, its profile number (P1-P8 or P1-P17) is shown on the lower right corner of the LCD display.



To apply a profile:

1. Press the **Profile** pushbutton. The available profile numbers light up.
2. Use the Input or Output pushbuttons to select a profile.
   - **Input pushbutton 1-4** correspond to Profile **P1** to **P4**
   - **Output pushbutton 1-4** correspond to Profile **P5** to **P8**

   The pushbutton for the currently applied profile flashes and the pushbuttons for other available profiles light up.

To configure a profile:

1. Configure the input-to-output connections. For details, see *Port Switching*, page 12.
2. Save the configure to an empty profile. For details, see *Saving a Profile*, page 27.

Note: You can also use the web GUI to configure profiles and set up profile schedules. For details, see *Creating a Profile*, page 36 and *Profile Scheduling*, page 51.

IR Remote Control Operation

The IR remote control (see page 7) included with the VM6404HB can be used to:

- change the input source of any output display
- power on/off individual output displays
- power on/off all output displays simultaneously

Before using the remote control, a user must first plug the IR Receiver into the rear panel of the VM6404H and place the receiver where the IR signal can be reached (see *IR Remote Control*, page 7).

Switching the Input

To change the input source of an output display using the remote control, do the following:

1. Press the **Output** port button (**1-4**) that you want to change.
2. Within 2 seconds press the **Input** port button (**1-4**) you want the output port to display.

   Note: For the change to occur the input number must be pressed within 2 seconds of pressing the output number.

3. Repeat steps 1-2 to change additional ports.

Turning the Outputs on/off

To turn an output on/off using the remote control, do the following:

1. Press the **Output** port button (**1-4**) you want to turn off.
2. Within 2 seconds press the **ON** or **OFF** button on the remote control.

   Note: If the **ON** or **OFF** button is pressed *after* 2 seconds of pressing the output port number, all the displays are powered on or off instead of just the intended output port.

3. Repeat steps 1-2 to turn the output back on/off.

Turning All Outputs on/off

To have all output displays turned on or off, regardless of the current power statuses, press the **ON** or **OFF** button on the remote control.

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Chapter 4
Browser Operation

Overview

The VM6404HB can be configured over a standard TCP/IP connection via its built-in Graphical User Interface (GUI). Because it can be accessed from anywhere over a network or the Internet, operators can easily log in via web browser. Security is ensured by password protection and user-configurable time-out. The VM6404HB supports three levels of remote users with various privileges, and up to 16 users can log into the GUI at one time. For full details, see the sections that follow.

Login

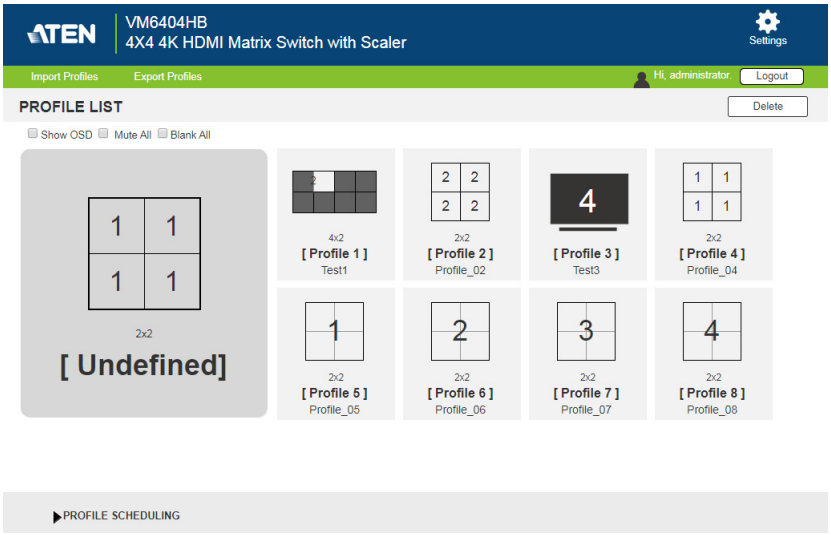
Use the following default settings to access the web interface.

Parameter	Default Setting
System Web GUI	http://192.168.0.60
Login username	administrator
Login password	password

If a Security Alert dialog box appears, accept the certificate – it can be trusted. Due to network security concerns, the system will guide you to modify the login password upon first login.

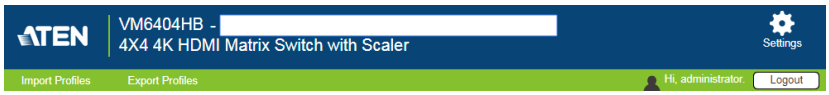
Main Page

The Main Page opens to the **Profile List**. This is where you configure the input to output connections by creating profiles. The page is divided into three parts: the *Menu Bar*, *Profile List*, and *Profile Scheduling*.



Menu Bar

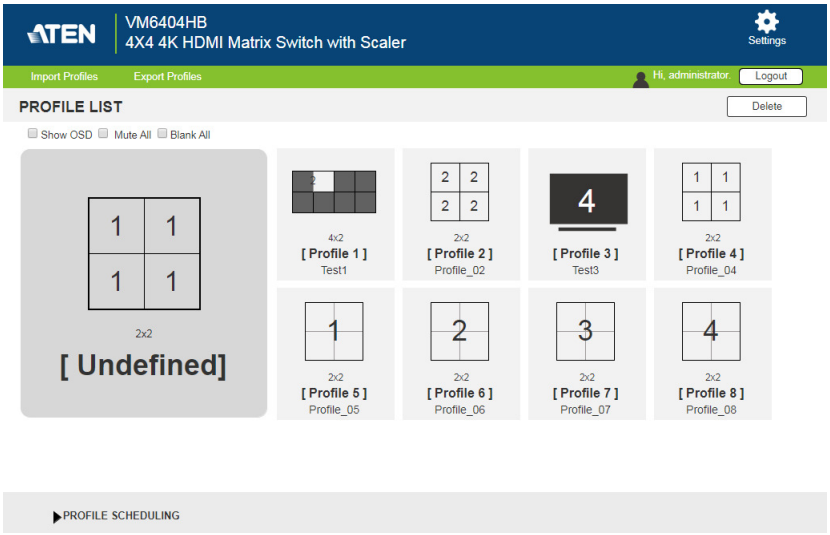
The Menu Bar provides the following controls:



Control	Description
Settings	Click to access the system settings. For details, see *System Settings*, page 56.
Profile List	Click to access settings on adding or editing profile adding/editing, profile import/export, and profile scheduling. For details, see *Profile List*, page 35.
Logout	Click to log out of the VM6404HB web GUI.

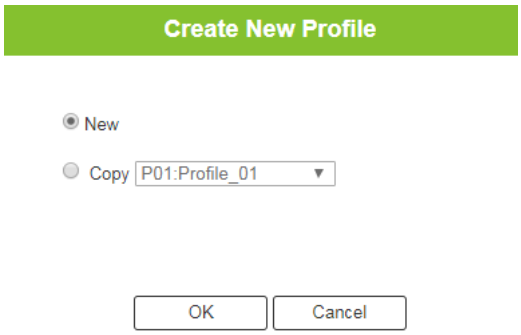
Profile List

The *Profile List* lets you configure the input to output port connections by creating profiles to use. You can store up to 8 profiles that can be switched using the unit's front panel pushbuttons or via the web GUI.

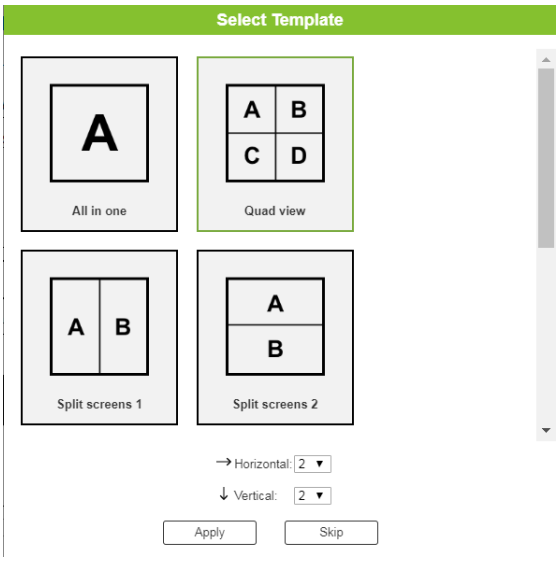


Creating a Profile

1. From the Profile List, click an empty profile icon. This window appears.

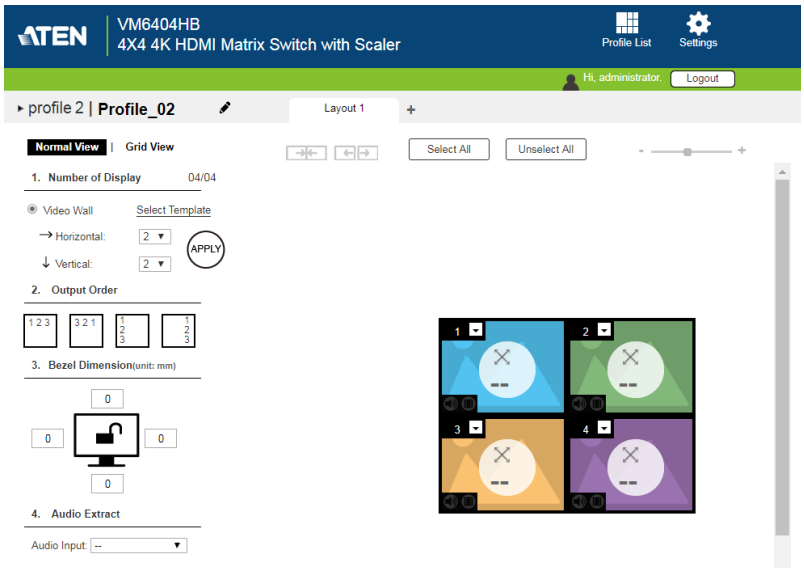


2. Select an option.
   - **New:** Create a new profile by configuring the number of horizontal and vertical displays and selecting a template.



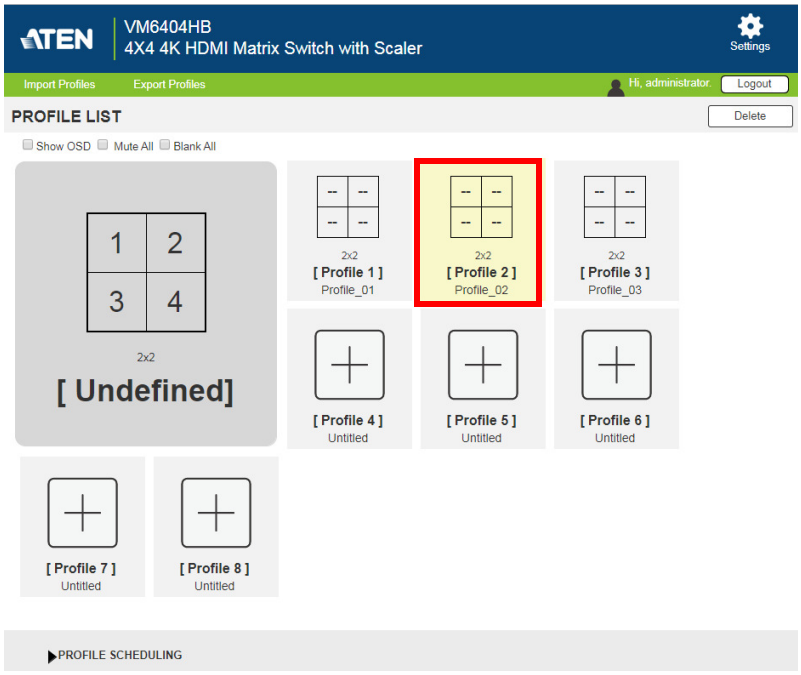
   - **Copy:** Use a pre-existing profile by selecting from the drop-down list.

3. Click **Apply**. The profile settings appear.



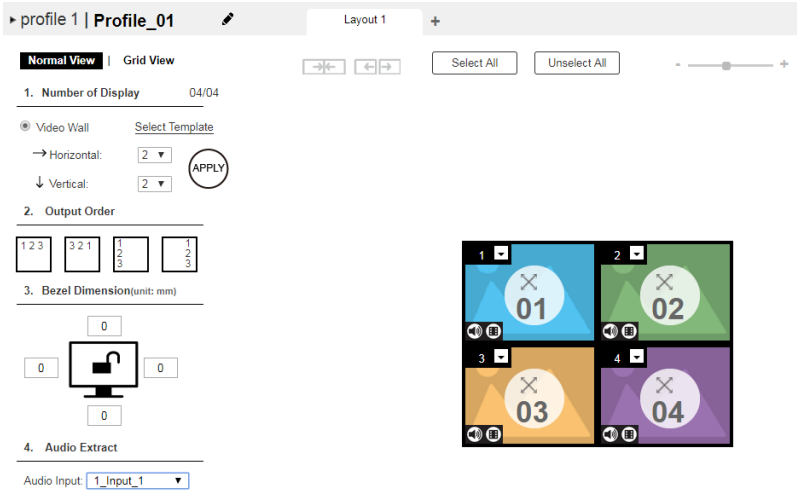
4. Configure the profile as needed. For details, see *Editing a Profile*, page 38.

5. Click **Save**. This profile is added to the Profile List.

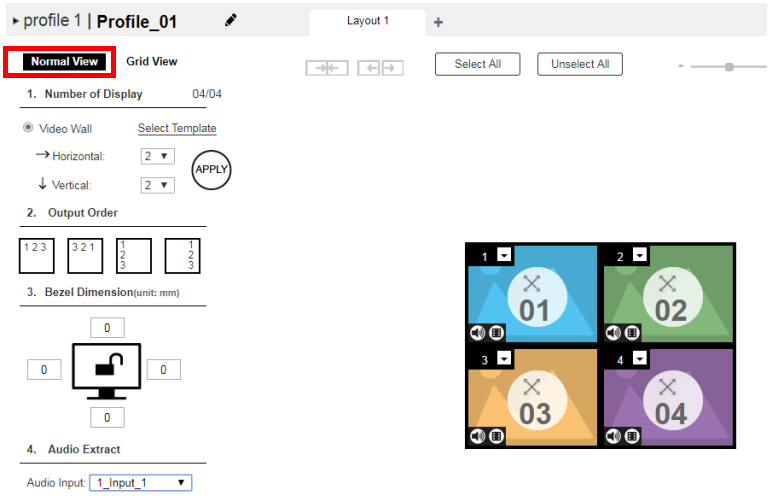


Editing a Profile

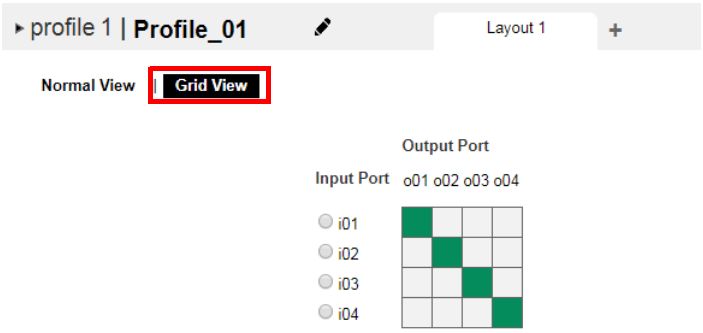
1. Click a profile from the Profile List, and then click **Edit**. This screen appears.



2. Choose one of the following editing views.
   - **Normal View:** Under normal view, a profile is configured via a preview and drop-down lists and also provides configuration fields for number of monitors and bezel dimensions. For detailed information, see *Editing a Profile in Normal View*, **page 40**.



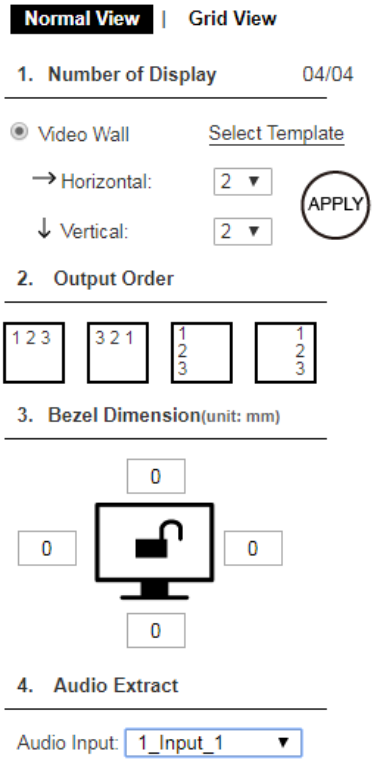
- **Grid View:** Under grid view, the audio and video outputs are assigned by mapping the audio/video input on the vertical axis to the audio/video output on a horizontal axis. For detailed information, see *Editing a Profile in Grid View*, **page 46**.



3. (Optional) Click **Test** to apply your configuration without saving it.
4. To save your configuration, click **Save & Apply**, **Save**, or **Save As**.

Editing a Profile in Normal View

Profile Layout Settings

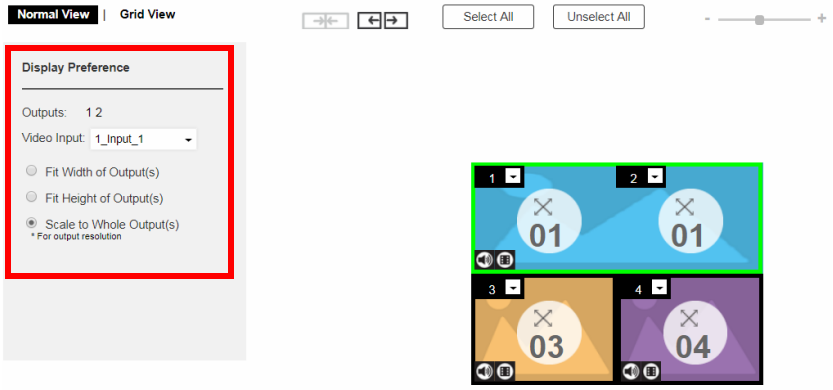


Control	Description
Number of Displays	Use the following controls to configure the layout type and the number of displays. ◆ **Video Wall**: Select this option for displays that are tiled together, where multiple monitors form one large screen – in various arrangements. ◆ **Select Template**: Click to open a window that allows you to select a predefined video wall layout. ◆ **Horizontal** / **Vertical**: Use these drop-down lists to select the number of displays that make up the video wall (a maximum of 64 are supported). Match this to the physical layout of the displays. **Note:** Click **Apply** to save the changes. A preview of the profile is shown on the right of the screen.
Output Order	Click any of the listed options to automatically assign output ports.

Control	Description
Bezel Dimension	Use the four boxes to increase/decrease the frame size for each active display.
Monitor Lock / Unlock 	Click the monitor icon to **Lock** the (4) bezel settings, so that when one size is changed they all change. Click the monitor icon to **Unlock** the (4) bezel settings, so that each size can be set independently.
Audio Extract	Select an audio input for the audio output device connected to the Stereo Audio Port of the VM6404HB.

Display Preferences

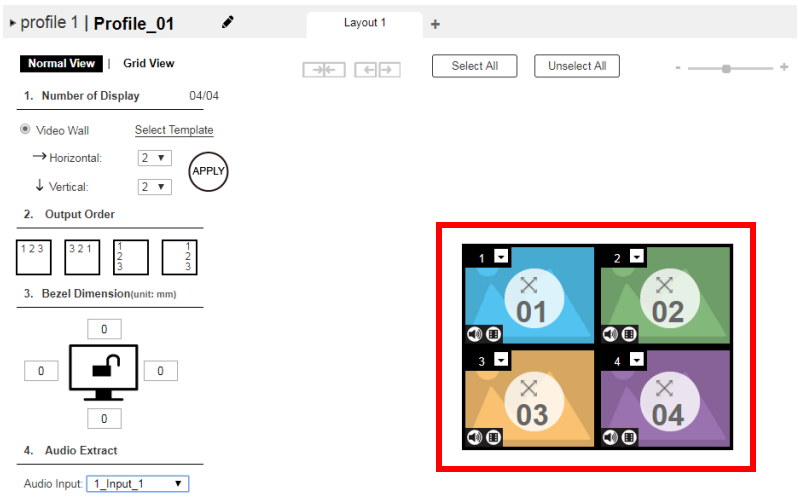
To configure the display preferences for one or more displays, click the display(s) in the preview, the Display Preference settings appear. Configure the settings as required.



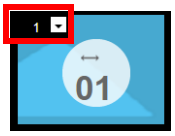
Option	Description
Output	Indicates the select display(s).
Video Input	Click to select a video source for the output(s). The chosen video source (port number) is indicated at the center of the output(s) in the preview.
Radio Button	◆ **Fit Width of Output(s)**: fits the video to the width of the display. ◆ **Fit Height of Output(s)**: fits the video to the height of the display. ◆ **Scale to Whole Output(s)**: fits the video on the entire display.

Video Wall Settings

Each icon represents an output port and the connected display. Use the icons to create independent or grouped outputs. An independent output displays video on a single monitor. A set of grouped outputs displays video across multiple monitors as one large screen.

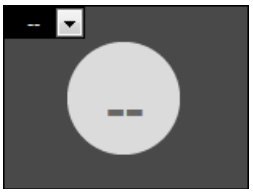


- Click an icon to configure the video input and display ratio from the *Display Preference* menu (see *Display Preferences*, page 41).
- Click multiple icons to Group Outputs (see *Grouping*, page 44).
- Click **Select All** to select all outputs.
- Click **Unselect All** to unselect all outputs.
- Use the drop-down list to define the video output.



- Use the slider bar to zoom in and out of the display layout.
- On the *Top Bar* click:
  - to rename the profile
  - + to add another layout to the profile
  - to configure audio outputs

Null Input

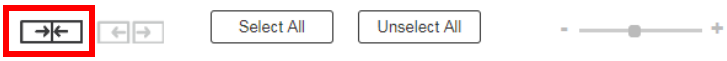


Option	Description
Null Icon	Click Null Input icons to highlight icons in green and use the Display Preferences menu to set the video options (see *Display Preferences*, page 41)**.** Select a **single** icon to set the **Output** and **Video Input** for an independent display (see *Independent Output*, page 43). Select **multiple** icons and set the **Video Input** to group displays as one screen (see *Grouping*, page 44)**.** *You must first set the Output port for each icon***.**
Drop-Down Menu	Use the drop-down menu to select the Output port**.**

Independent Output

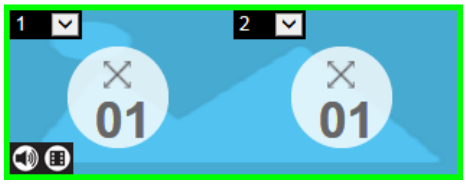
Option	Description
Independent	Independent Outputs are displays that have their own **Video Input** and **Output** selected. Independent Outputs: ◆ Display their own video ◆ Icons have their own color and Video Input Select an Independent Output and use the *Display Preferences* menu to select the **Video Input** (see page 41).
Drop-down Menu	Use the drop-down menu (top-right corner) to select the Output port.
Mute / Video 	Click the **speaker** icon to mute the audio on/off. Click the **video** icon to turn the video off/on.

Grouping



Option	Description
Grouping	Click the output icons you wish to group as one screen. The selected icons are highlighted in green. Click →|← to group the selected displays into one screen. Use the **Display Preferences** menu to select the video input for the group. Each output icon in the Group will appear with the same video Input number and icon color.
Ungroup	Select a group and click ← → to ungroup the displays.

Group



Option	Description
Group	A **Group** (of Outputs) shares the same **Video Input** and displays the video together as one large screen. A Group of Outputs: ◆ Displays video across multiple monitors to form one screen ◆ Icons have the same color and Video Input number. ◆ Select a Group and use the *Display Preferences* menu to select the **Video Input**. ◆ To group outputs see *Grouping*, page 44.
Mute / Video 	Click the **speaker** icon to mute the audio on/off. Click the **video** icon to turn the video off/on.

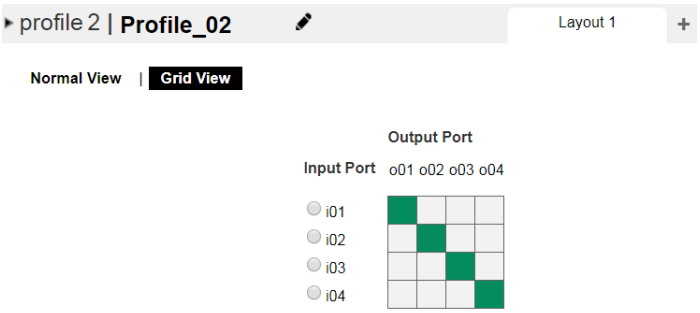
Video Wall Example

This example shows a video wall with 4 displays.

- This video wall has 1 group and 2 independent displays.
- Each group and independent output has a unique color.
- The blue group will show video Input 01 across the two displays as one large screen.
- The independent displays will show video from their assigned video input 03 and 04.

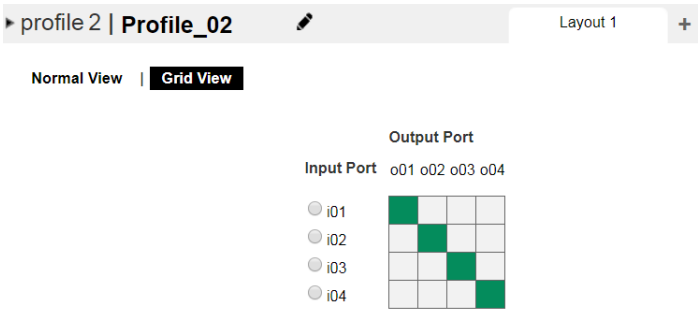
Editing a Profile in Grid View

In a grid view, the audio/video inputs are assigned by mapping the audio/video input on the vertical axis to the audio/video output on the horizontal axis.



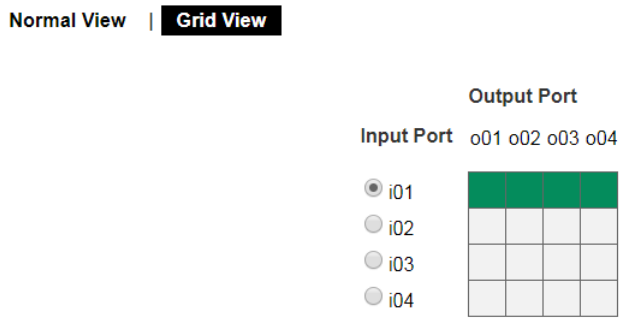
Example 1

In the following illustration, input 01 is assigned to output 01, and input 02 to output 02, and so forth.



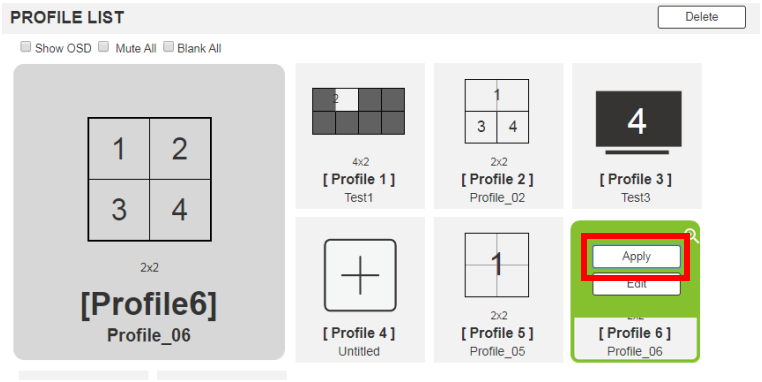
Example 2

To assign the same input for all outputs, click the input from the vertical axis. In the following illustration, all output ports are assigned with input 01.

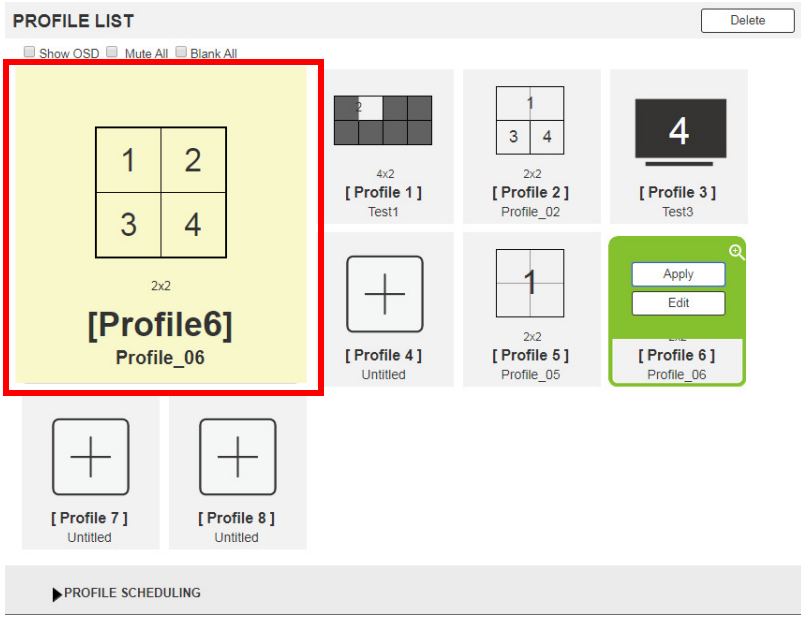


Playing a Profile

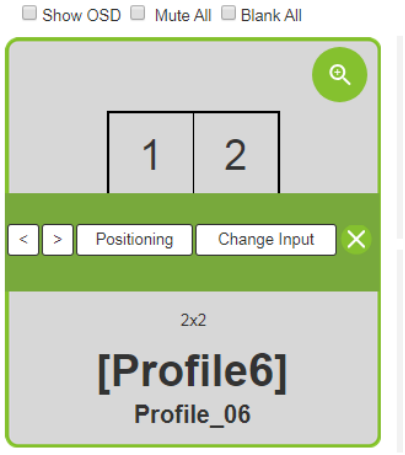
1. Click the profile you wish to apply and then click **Apply.**



2. The profile is immediately applied to the outputs and appears in the Play window.



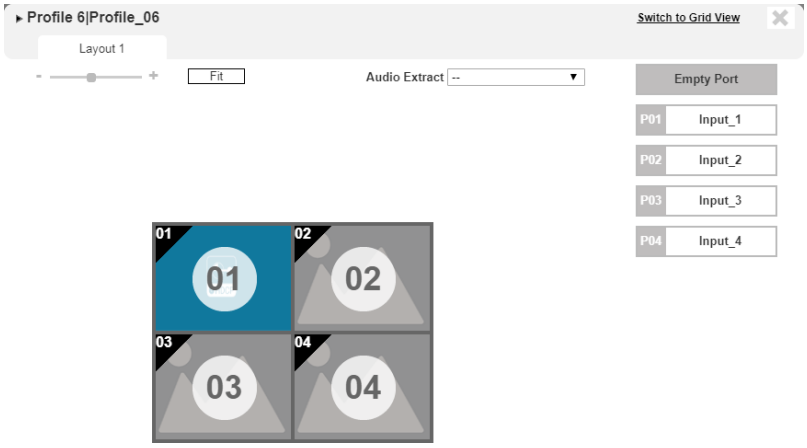
3. To adjust the played profile, click on the Play window. The following controls appear.



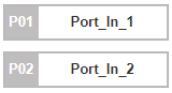
Option	Description
Show OSD	Check **Show OSD** to show the current connection status via OSD. When **Show OSD** is unchecked, the OSD will disappear.
Mute All	Check **Mute All** to mute the audio for all ports.
Blank All	Check **Blank All** to turn off the video to all displays.
	Click this icon to show a source assignment for this profile.
On Sequence	**On Sequence** appears when a profile schedule is playing.
<	Click < to go back to the previous profile in the sequence, when Profile Scheduling is in use. Only available with *On Sequence*.
>	Click > to advance to the next profile in the sequence, when Profile Scheduling is in use. Only available with *On Sequence*.
Positioning	Click **Positioning** to open a window that allows you to adjust the image position on each display. For Video Wall profiles, you can also set the Bezel Dimension, which is the frame thickness between each display.
Change Input	Click **Change Input** to change the input for single and grouped outputs, as explained on the next page.
	Click this icon to delete the profile.

Input Assignment

Use the Change Input page to see a preview of the input assignments for the profile, allows you to change the inputs and view a live stream of each input. To access this page, click **Change Input** from the Play Window (see *Input Assignment*, page 49).

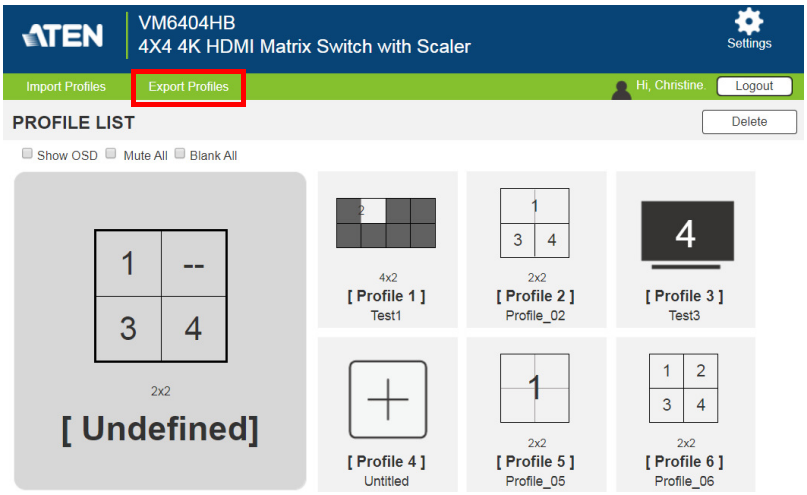


The following controls are available on the Change Input page.

Option	Description
	Click “-” or “+” to zoom out or zoom in the layout.
	Click to fit the layout screen to the default view.
	Drag from the Port List on the right side and drop on any display of the layout to set/change the input source.
	Use the drop-down menu to select the input source for audio extraction to stereo audio output.
Switch to Grid View	Click to switch the layout view to **Grid View**.
	Click to exit the Change Input window.

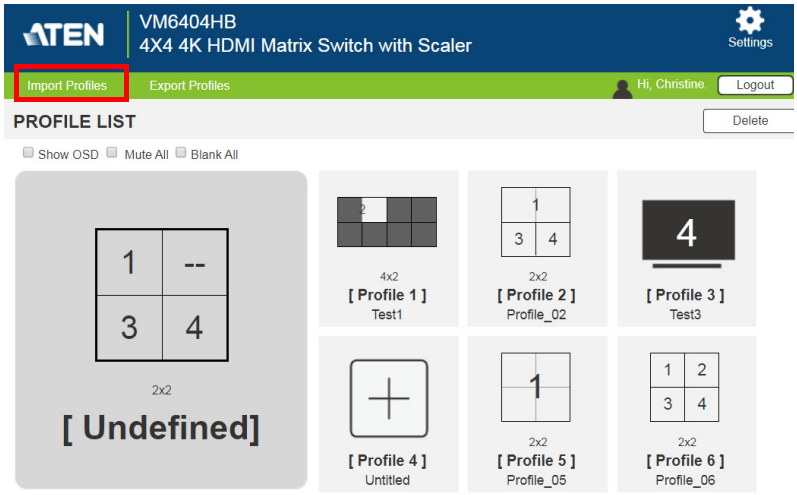
Importing/Exporting a Profile

To export the VM6404HB's connection profiles, click **Export Profiles**. A configuration file starts downloading.



To import connection profiles to the VM6404HB, do the following:

1. Click **Import Profiles**.



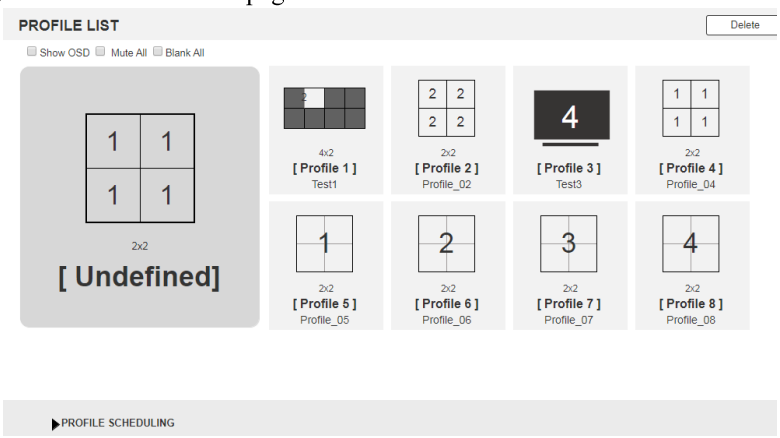
2. Browse the configuration file and click **Open**.

Note: Importing a connection profile database will overwrite the current profiles.

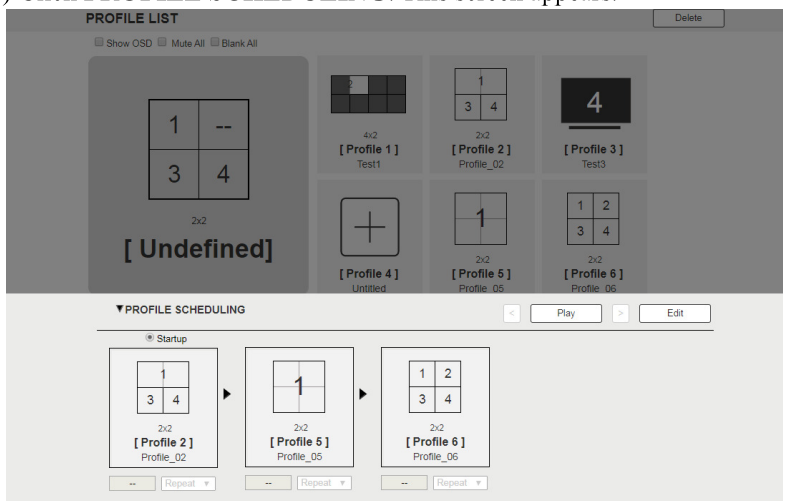
Profile Scheduling

To play profiles on schedules, follow the steps below.

1. Configure the profiles you need. For details, see *Creating a Profile*, page 36.
2. Configure profile schedules. For details, see *Creating the Profile Schedule*, page 52.
3. Enable profile scheduling.
   a) Go to the Profile List page.



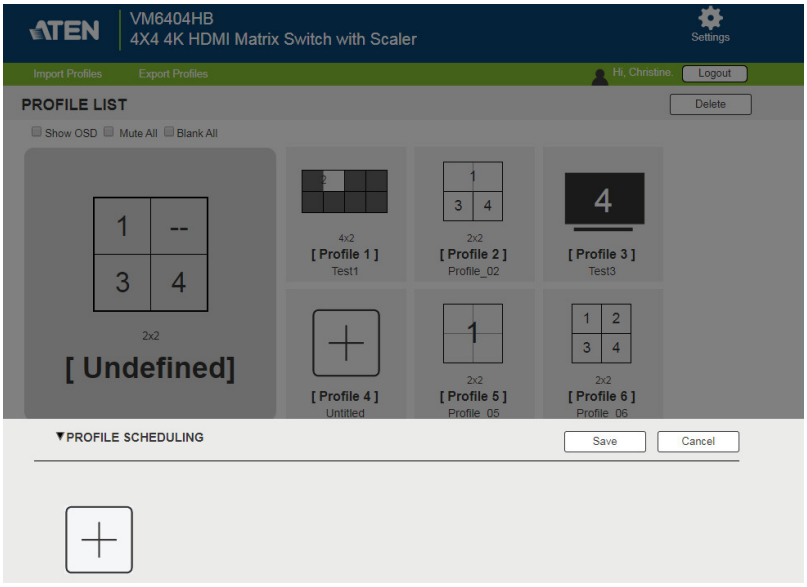
   b) Click **PROFILE SCHEDULING**. This screen appears.



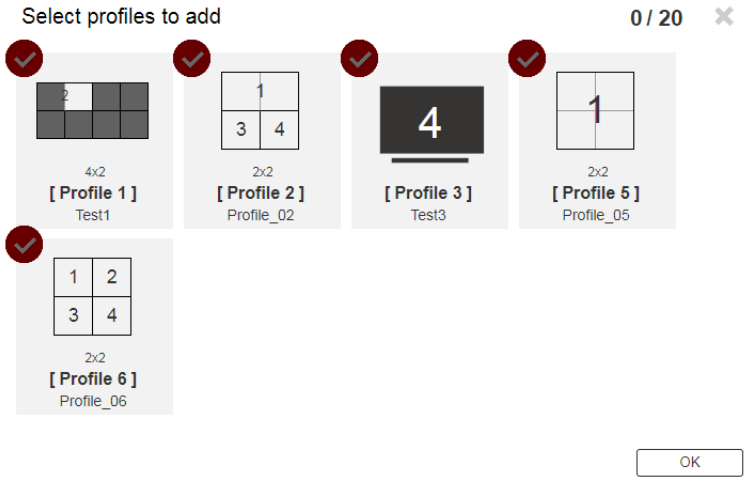
   c) Click **Play**.

Creating the Profile Schedule

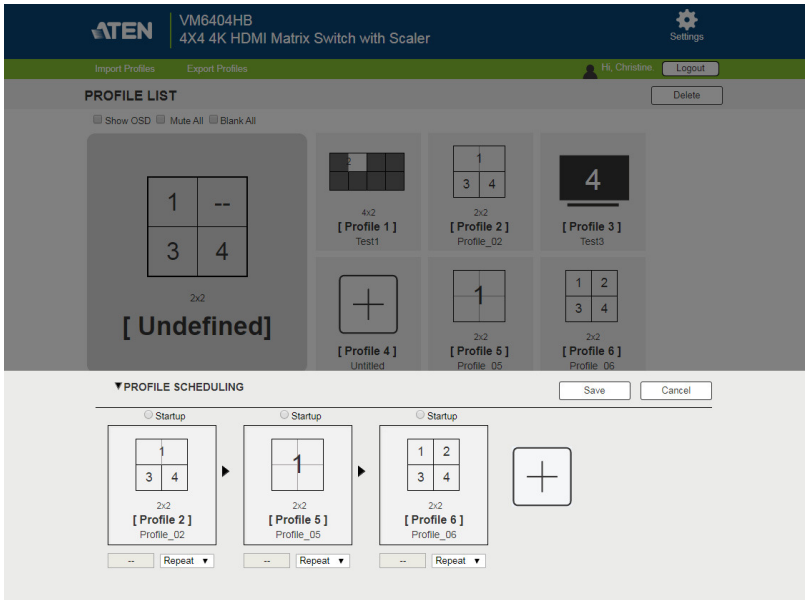
1. From the Profile List page, click **PROFILE SCHEDULING**. This screen appears.



2. Click [+] to add a new schedule. This screen appears.



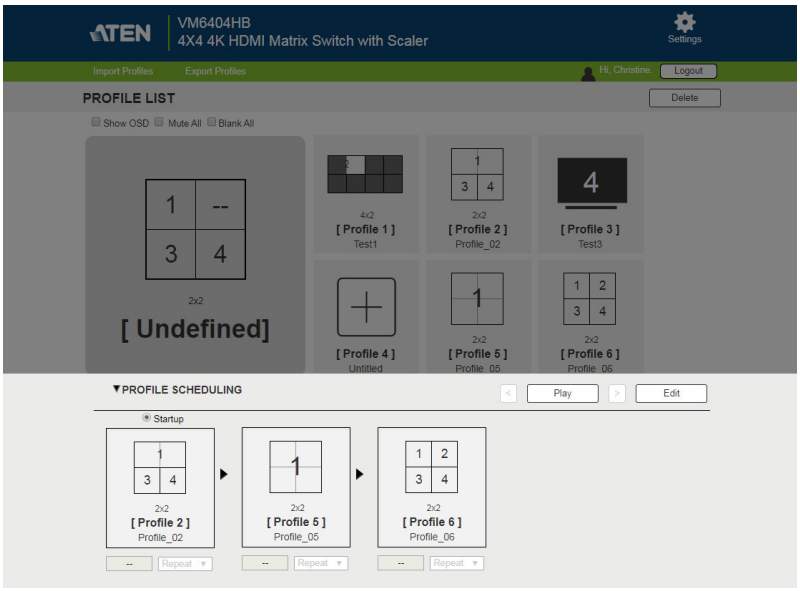
3. Click to select profiles to add into the schedule and then click **OK**. The selected profiles appear in the schedule.



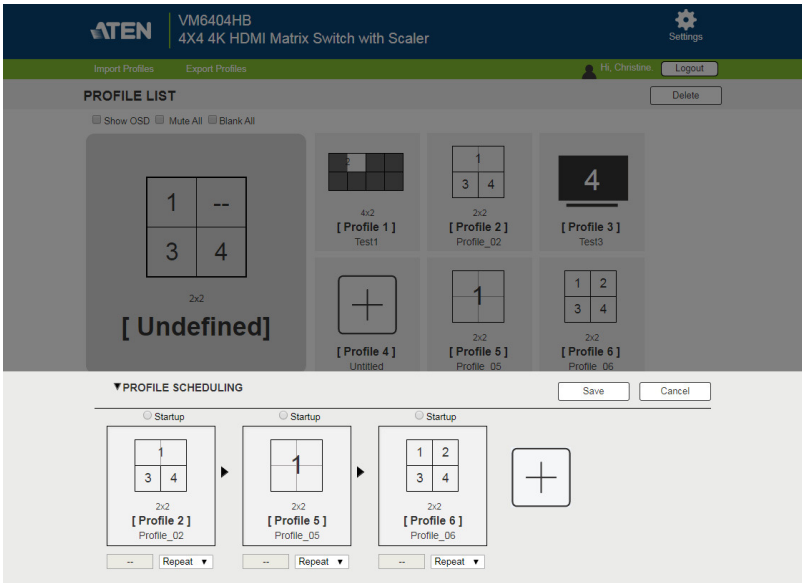
4. Configure the profile schedule as needed. For details, see *Editing the Profile Schedule*, page 54.

Editing the Profile Schedule

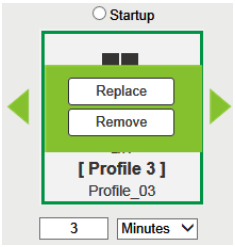
1. On the Profile List page, click **PROFILE SCHEDULING**. This screen appears.



2. Click **Edit**. This page appears.



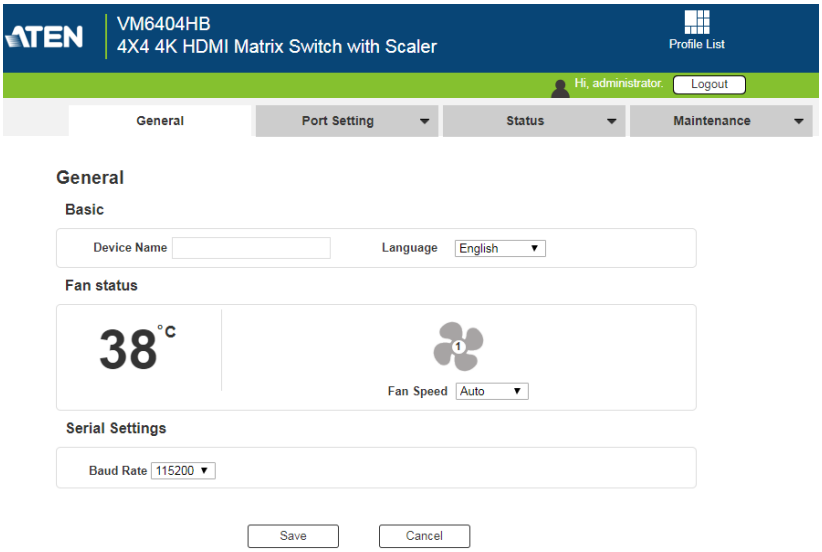
3. Configure the sequence, play duration of the added profiles using the following controls.

Option	Description
	◆ Select **Startup** to set a profile as the starting point each time the schedule is played. ◆ Click **Replace** to replace the selected profile with another profile. ◆ Click **Remove** to delete the profile from the schedule. ◆ Use **< >** to change the profile's position in the schedule. ◆ Use the drop-down list to set the duration that the profile is played.
	Use the drop-down menu to select the duration (Hours, Minutes, or Seconds) and enter the amount of time for the profile to play. After the time expires, the schedule switches to the next profile. Use **Repeat** to stop switching between schedules and stay on the currently selected profile. If **Repeat** isn't used, the schedule will loop back to the first profile. If **Repeat** is used, a specific number of hours, minutes and seconds cannot be set and later profiles will not be played.
	Click to play profile schedule.
	Click to edit profile schedule.
	Click to stop profile schedule.
	Click to change to next or previous profile when a profile schedule is playing.

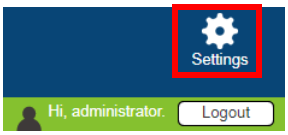
System Settings

Overview

The setting pages allow you to configure the VM6404HB's system settings.



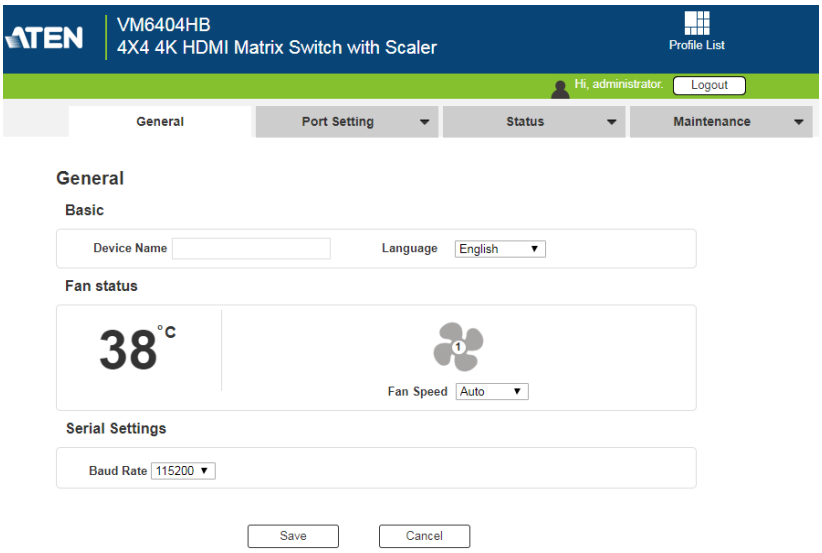
If your Web GUI is not showing these setting, click the **Settings** icon from the top-right corner in the web interface.



The table below provides an overview of the available settings for each tab.

Tab	Supported Functions	Detailed Information
General	◆ Configure the device name. ◆ Select the interface language. ◆ Monitor the VM6404HB's fan. temperature and configure the fan speed. ◆ Configure the baud rate for serial communications.	For more information, see *General*, page 58.
Port Settings	◆ Configure the OSD and CEC port settings. ◆ Configure the HDCP key for input and output ports. ◆ Configure the Seamless Switch™ settings. ◆ Name the input and output ports. ◆ Select EDID modes.	For more information, see *Port Settings*, page 59.
Status	◆ View statuses of the sources connected to the VM6404HB and enable/disable FrameSync. ◆ View system information such as network settings, firmware version, and the settings for audio/video assignment, volume, CEC, audio mode settings, and more.	For more information, see *Status*, page 78.
Maintenance	◆ Upgrade system firmware. ◆ Back up or restore the VM6404HB's configuration. ◆ Reset the unit to system default settings. ◆ Add, edit, or remove user accounts. ◆ Configure the system network settings.	See *Maintenance*, page 80.

General



Basics

- **Device Name:** Type to name your Modular Matrix Switch.
- **Language:** Click to select a language for the web interface.

Fan Status

- **Fan speed:** Click to select a fan speed.
- Temperature and fan icons: Indicates the internal temperature and status of the cooling fans. The fan icons rotate to indicate they are working.

Note: If the fans have stopped working or are switched off, they will appear as follows. The fan module will then need to be replaced or reset.

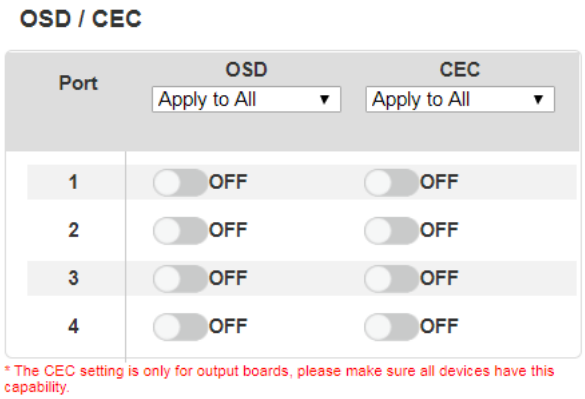
Serial Settings

- **Baud rate**: Defines the baud rate for the RS-232 serial port.

Port Settings

OSD/CEC

The OSD/CEC page lets users view and set OSD and CEC settings for all ports.



- **OSD**: Sets the default OSD option for the port. When OSD is on, real-time text updates appear on the display for 10 seconds when configuration and port changes are made to its output.
  - Use the drop-down menu to apply options to all ports, or ON/OFF button to enable/disable the OSD for each port.
- **CEC**: Consumer Electronics Control (CEC) allows interconnected HDMI devices to communicate and respond to one remote control.
  - Use the drop-down menu to apply options to all ports, or On/Off button to enable/disable CEC for a port.

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HDCP

The *HDCP* page lets users view and set HDCP key settings between input and output ports for digital copy protection and to ensure Seamless Switch™ functionality between different devices. This is an Administrator and Advanced User only function.

Input

Here users can select whether port capability is HDCP 2.2, HDCP 1.4 or non-HDCP enabled, either individually or by applying one setting to all ports.

Connection

Here users can find a visual display of connection paths between inputs and outputs. When selecting an input, its path is displayed in green.

Output

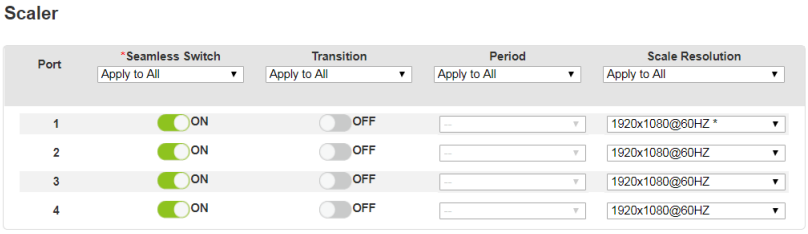
Here users can define whether or not HDCP settings are fixed, either by individual port or by applying one setting to all ports. By prearranging and fixing keys, this setting ensures that Seamless Switch™ is possible even when switching between HDCP and non-HDCP enabled devices.

HDCP Check

The HDCP Check button (upper-right corner) allows you to check the HDCP capability of the connected displays at one time. The analyses are indicated in the brackets after the Fix HDCP check box for each port.

Scaler

The Video settings page allows you to set Seamless Switch™ options which determine how a display performs when the Input port is changed.



Note:

When Seamless Switch™ is enabled:

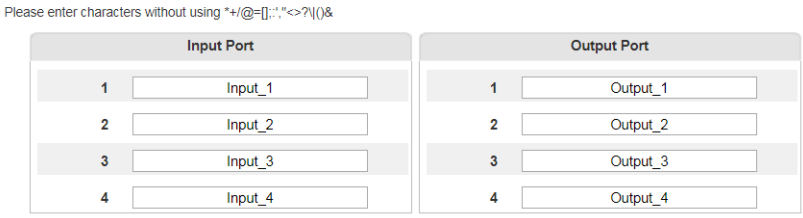
- The *Transition*, *Period* and *Scale Resolution* options can be enabled.
- Video outputs will not display 3D, Deep Color, or interlace (i.e., 1080i) resolutions correctly. To use these features, first disable Seamless Switch™.
- Videos may not display within range (fit on the screen), in which case, make sure to adjust the display settings on your device.

Enable Seamless Switch™ to remove the video distortion and delay seen when an input port is switched. Use the drop-down menu to apply options to all ports, or the On/Off button to enable/disable Seamless Switch™ per port. With Seamless Switch™ enabled, the following options are made available:

- **Transition**: Allows you to fade the video display when the Input port is changed. Use the period option to set the fade speed.
  - Use the drop-down menu to apply options to all ports, or On/Off button to enable/disable Transition per port.
- **Period**: Sets the fade speed for the Transition option.
  - Use the drop-down menu to apply an option (*Slow*, *Normal*, or *Fast*) to all ports, or lower drop-down menus to apply options per port.
- **Scale Resolution**: Forces the port to scale the video displayed to the selected resolution.
  - Use the top drop-down menu to apply an option to all ports, or lower drop-down menus to apply options per port.

Port Name

The *Port Name* page lets users name the Input and Output ports for easy identification.

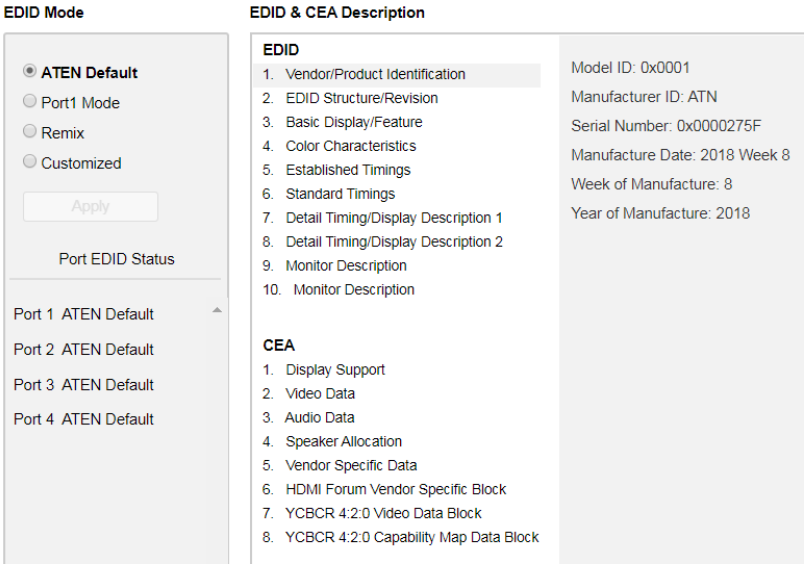


- To name an Input/Output port, enter a descriptive name of up to 16 characters (including 0-9, a-z, A-Z, _, -) in the corresponding field.
- To change an Input/Output port's name, enter another value and click **Save.**

Note: The Input and Output port names can be the same.

EDID Settings

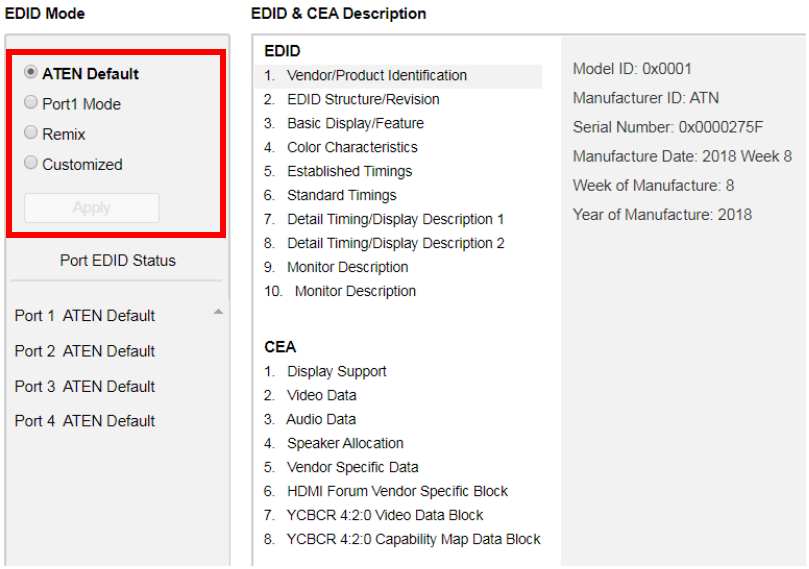
Extended Display Identification Data (EDID) is a data format that contains a display's basic information and is used to communicate with the video source/ system. Use the EDID Setting page to select or customize the EDID that provides optimum resolutions for the displays.



Note: The EDID Mode can also be selected via the Front Panel pushbuttons – see *Operation Mode*, page 18.

EDID Mode

In the left panel of the page, users can select a pre-configured EDID Mode using the **EDID Mode** radio buttons.



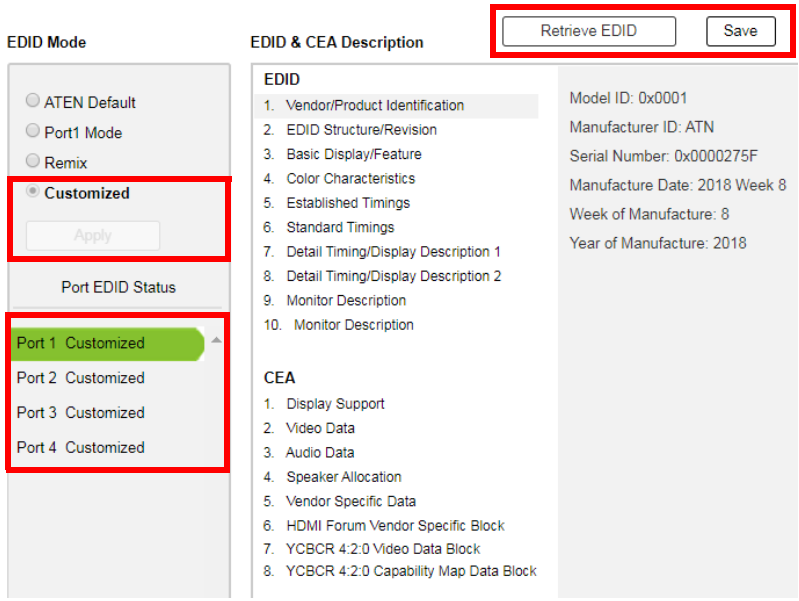
Select the EDID Mode to use and click **Apply**. The VM6404HB uses the settings configured for that EDID mode.

Options are:

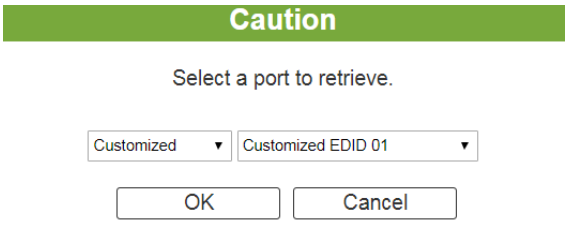
- **ATEN Default**: All ports' EDID is the same as the hardware default EDID.
- **Port 1 Mode**: All ports' EDID is the same as Port1's EDID.
- **Remix**: All ports' EDID uses the best display resolution.
- **Customized**: See Customized Mode, see page 63.

Customized Mode

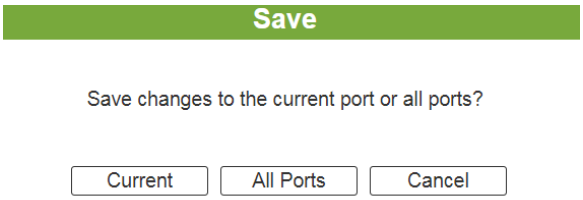
Use the **Customized** mode to automatically retrieve and save the EDID of a connected monitor/display device to an input source port.



- In the left panel, select **Customized** from the EDID Mode section and click **Apply**.
- **Port EDID Status**: Select the input source port to which you want to store the EDID configuration.
- **Retrieve EDID**: Click this button to retrieve the EDID of a selected port. Select a port using the pop-up screen.

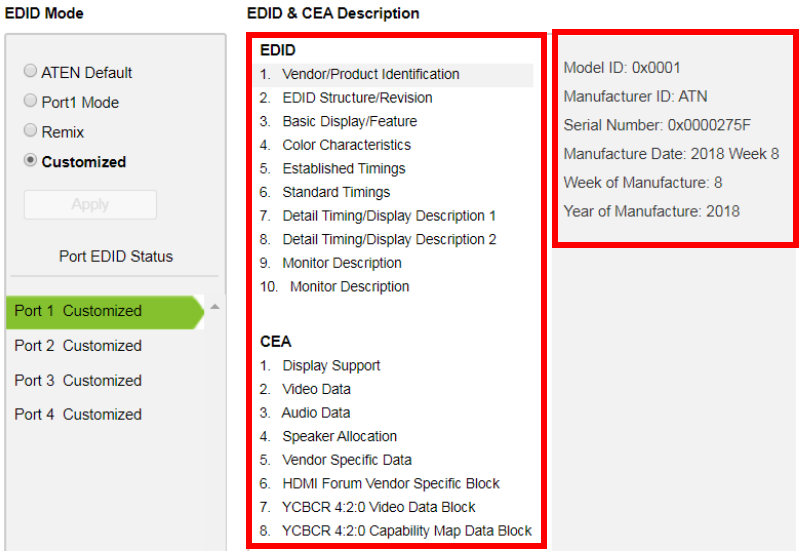


- The right panel displays a summary of the acquired EDID settings that you can edit. Click **Save** and select the configuration for the **Current Port** or **All Ports** for the duration of the session.



EDID & CEA Description

The middle panel of the screen lets users view and configure the EDID or the CEA mode.



- From the middle column, click the option that you want to view and/or edit. There are two categories: **EDID** (Extended Display Identification Data) and **CEA** (Consumer Electronics Association).
- When you select the menu items on the middle column, the current settings for the selected EDID appear on the right column. Some of the screens are read-only.
- For more information, see *EDID Settings*, page 63.

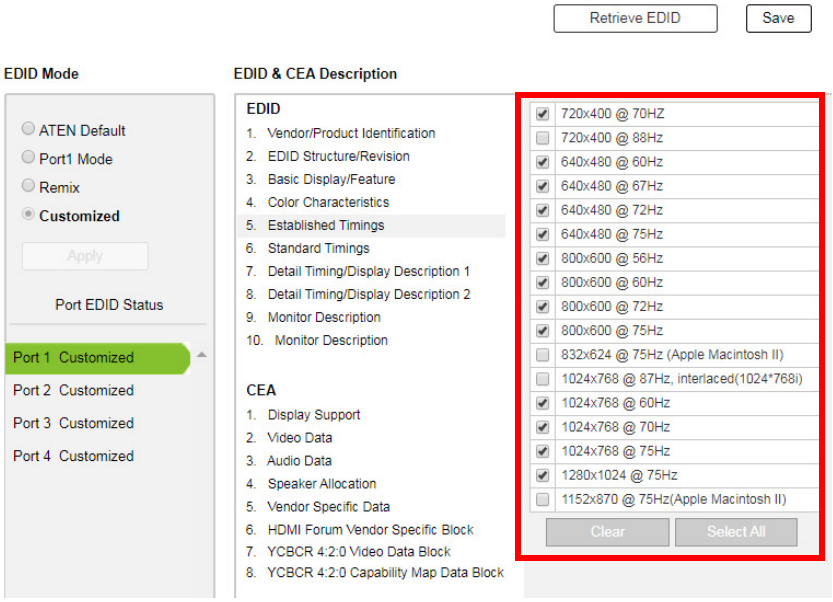
Customized EDID Parameters

The EDID structure is comprised of 128 bytes in total – each heading shown in the left column corresponds to a specific number of bytes.

The pages for the pre-configured EDID Modes (Port 1, Default and Remix) cannot be edited. The pages for the Customized EDID, which can be edited, are discussed in the proceeding sections:

Established Timings

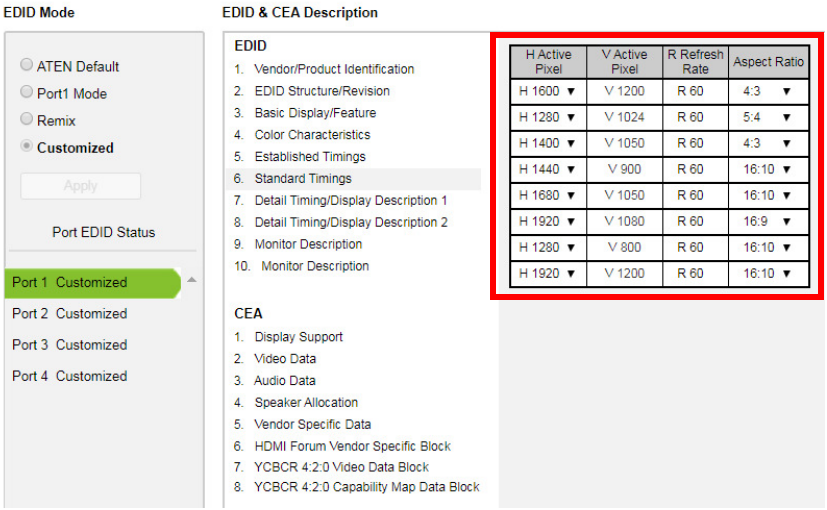
This page lists video resolutions/timings that display devices can support.



- Select the resolution(s) you want to use for the attached monitor/ display device.
- Click **Clear All** to unselect all the items.
- Click **Select All** to check all the items.
- Click **Save** to apply the changes.

Standard Timings

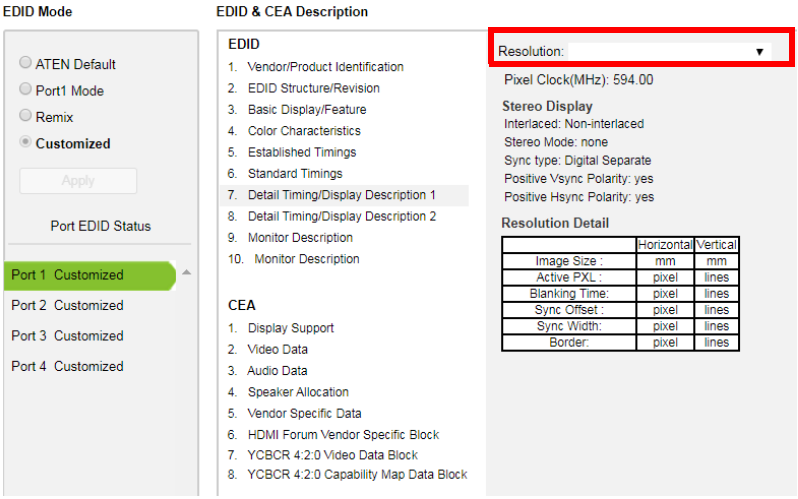
This page shows eight resolutions/timings that display devices can support in addition to those listed in the Established Timings page.



- Select the *H Active Pixel* from the drop-down menu.
- Select the *Aspect Ratio* from the drop-down menu.
- Click **Save** to apply the changes.

Detail Timing / Display Description

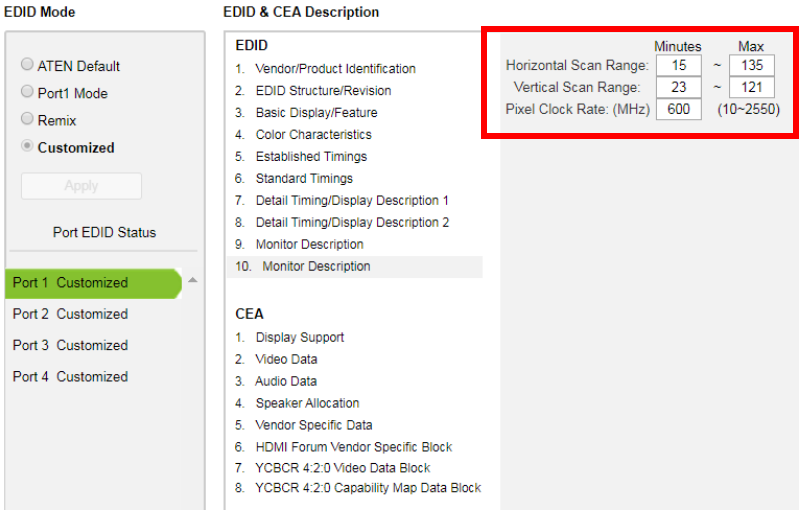
This screen gives more video resolution options, and provides resolution/ timing details.



In the drop down menu, choose a resolution with values that fit the attached monitor/display device and click **Save**.

Monitor Description

This screen lets you specify the viewing specifications, namely horizontal and vertical scan ranges and pixel clock rate, of your monitor/display device.



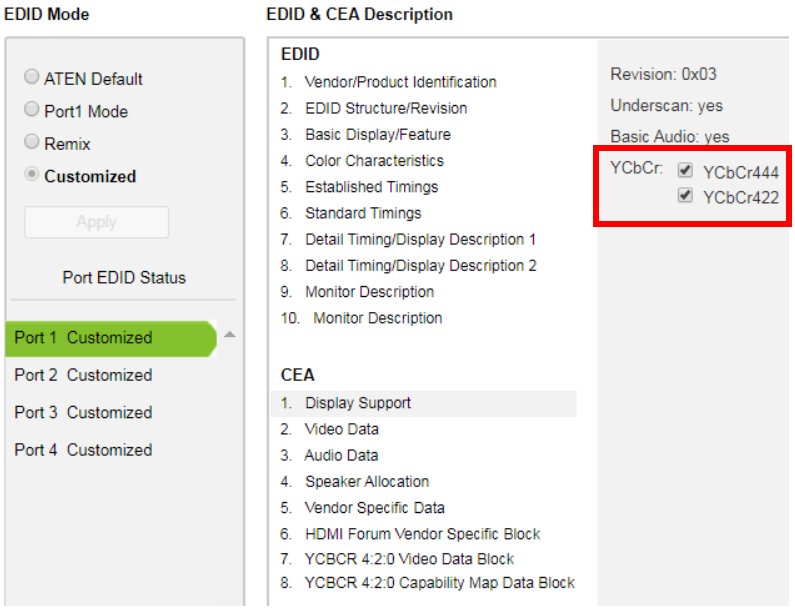
Enter the values that correspond to your device and click **Save** to apply the changes.

CEA Settings

CEA is an extension data of the EDID structure, which further extends the standard definitions of EDID to support advanced features of monitors/display devices.

Display Support

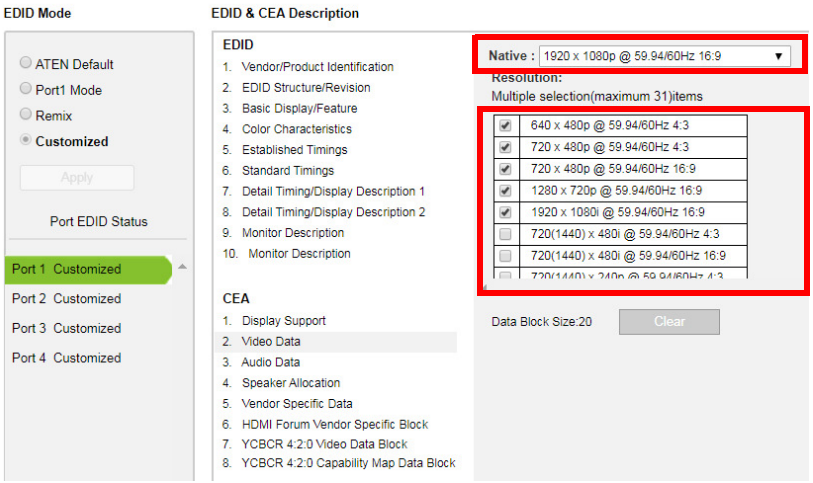
This screen describes the display's basic digital components.



Select the YCbCr mode applicable to your display and click **Save**.

Video Data

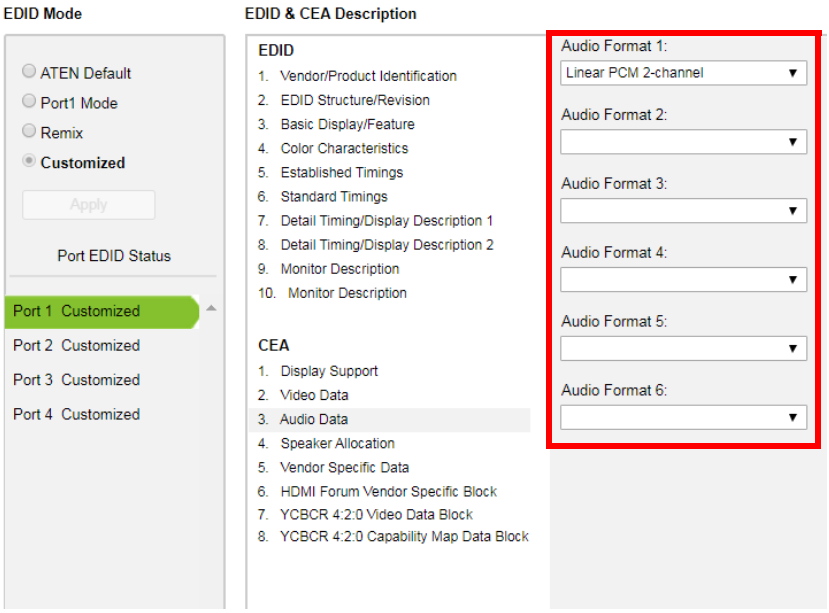
This screen lists additional video resolution/timing displays that may be supported by other devices, other than PC monitors (for example, 1080i).



- Select the native resolution of the attached display device.
- Select the resolutions that work with the attached monitor/display device.
- Click **Clear All** to deselect all the items.
- Click **Save** to apply the changes.

Audio Data

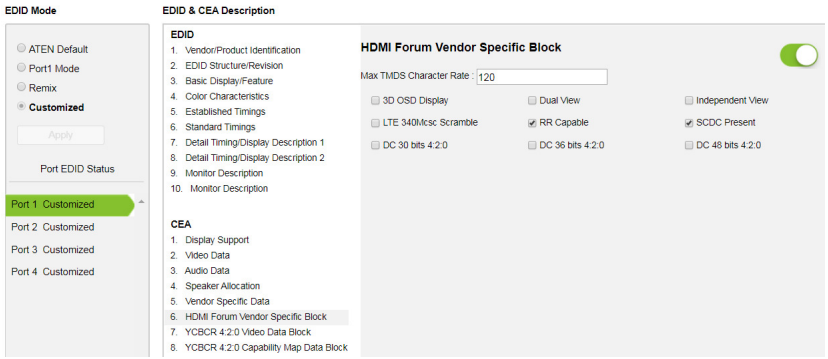
This screen lets you select advanced audio configurations for your device.



Use the drop down menu to select the **Audio Format** (1~6) applicable to your audio output device, and click **Save** to apply the changes.

HDMI Forum Vendor Specific Block

This screen shows the display device's supported video parameters. Use the toggle button to enable or disable this function.

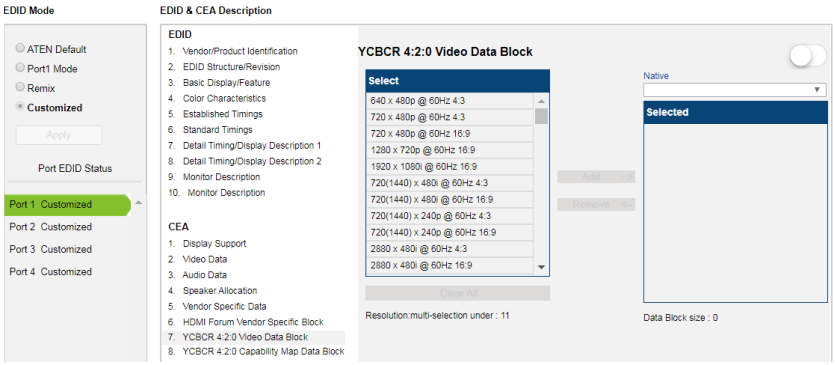


- **3D OSD Disparity:** Select this option to have Sink support receiving 3D OSD Disparity Indication in the HF-VSIF.
- **Dual View:** Select this option to have Sink support receiving 3D Dual View in the HF-VSIF.
- **Independent View:** Select this option to have Sink support receiving 3D Independent View in the HF-VSIF.
- **LTE 340Mcsc Scramble:** Select this option to have Sink support scrambling for TMDS Character Rates at or below 340 Mcsc.
- **RR Capable:** Select this option to have Sink initiate an SCDC Read Request.
- **SCDC Present:** Select this option to have Sink support SCDC functionality.
- **DC 30bit 420:** Select this option to have Sink support 10-bits/component Deep Color 4:2:0 Pixel Encoding.
- **DC 36bit 420:** Select this option to have Sink support 12-bits/component Deep Color 4:2:0 Pixel Encoding.
- **DC 48bit 420:** Select this option to have Sink support 16-bits/component Deep Color 4:2:0 Pixel Encoding.

Use the drop down menu to select the **Audio Format** (1~6) applicable to your audio output device, and click **Save** to apply the changes.

YCBCR 4:2:0 Video Data Block

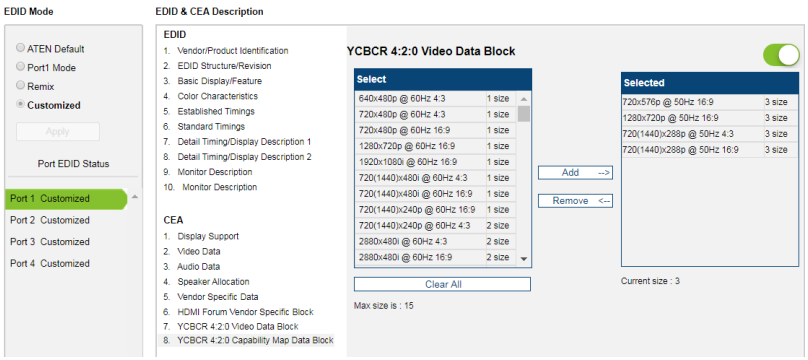
Use this page to configure a list of supported YCBCR 4:2:0 video resolutions and select one to be applied. Use the toggle button at the top-right to enable or disable this feature.



- To add a supported resolution, click an item in the Select column, and then click **Add**.
- Use the drop down menu **Native** to adjust the supported resolution of the display.

YCBCR 4:2:0 Compatibility Map Data Block

Use this page to configure a list of supported video resolutions for YCBCR 4:2:0 Compatibility Map Data Block and select one to be applied. Use the toggle button at the top-right to enable or disable this feature.

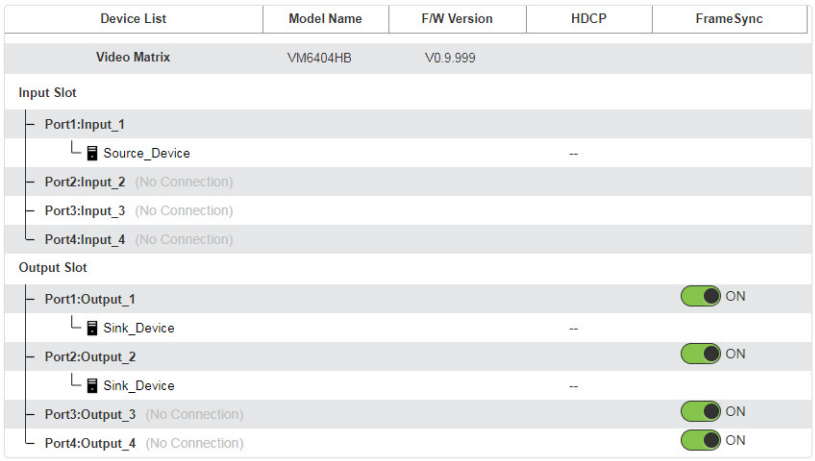


- To add a supported resolution, click an item in the Select column, and then click **Add**.
- Use the drop down menu Native to adjust the supported resolution of the display.

Status

Connections

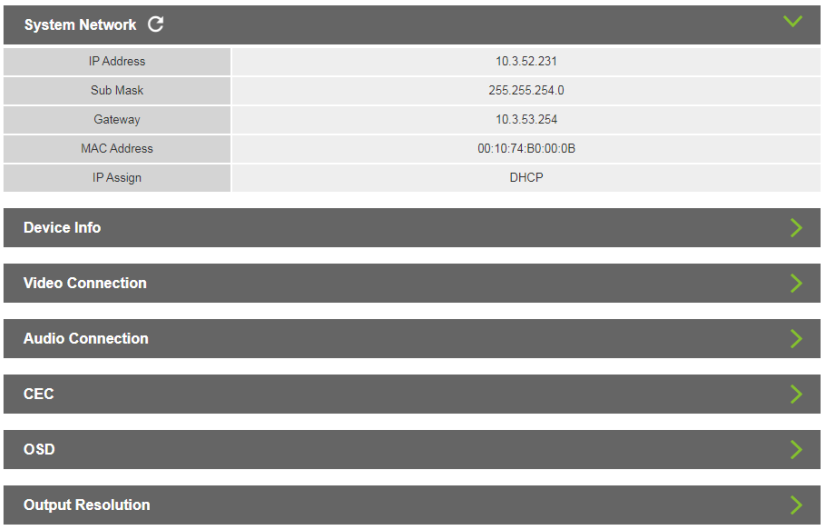
The connections tab provides a status summary of the connection status, hardware version, HDCP setting of the input and output devices installed to the VM6404HB, and also allows you to enable FrameSync to prevent image tearing on a video wall.



System Information

Use this page to look up system settings, including network settings, firmware version, video/audio input assignments, output audio volumes, CED/OSD settings, and output resolutions.

Hint: Click  to view details and  to refresh the system.

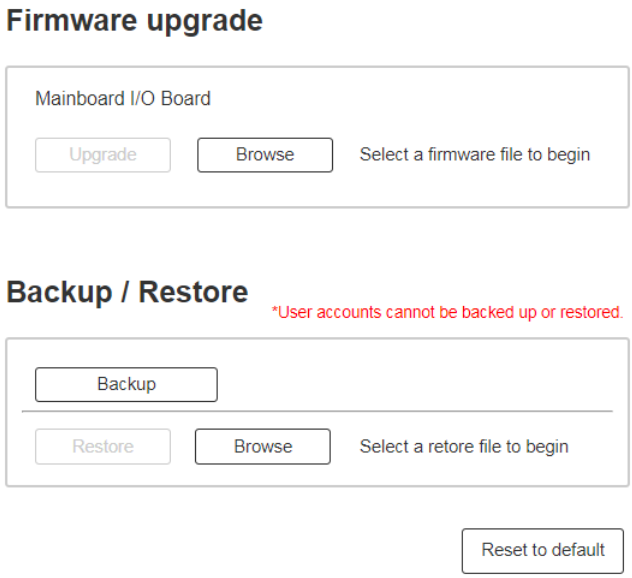


Maintenance

System Setup

Use the System Setup page to:

- Upgrade the VM6404HB's mainboard, its streaming board, and any installed I/O boards.
- Back up or restore the VM6404HB's settings. Note that account settings cannot be backed up or restored.
- Load system default settings to the VM6404HB.



System Upgrades

To upgrade the VM6404HB's firmware, do the following:

1. Download the firmware package from ATEN's official website.
2. In the VM6404HB web interface, go to **Maintenance** > **System Setup** > **Firmware Upgrade**, click **Browse** to locate the firmware upgrade package.
3. Click **Upgrade** to begin the upgrade.

Note: After updating the firmware, it's recommended that you clear your web browser's cache and then close and reopen the web browser. This will ensure the GUI refreshes and functions properly.

System Backup

To back up the VM6404HB's system settings, click **Backup**. A configuration file will then begin downloading.

To restore the VM6404HB's system settings, do the following:

1. Use the **Browse** button to locate the configuration file. Make sure you have the correct file saved on your PC.
2. Click **Restore** to begin the restoration procedure.

Note: User accounts cannot be backed up or restored.

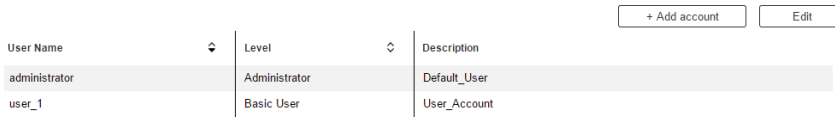
Restoring Default Settings

To reset the VM6404HB to its default settings, click the **reset to default** button on the far right.

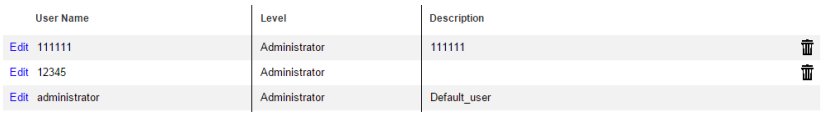
User Account

The *User Account* page lets you add, edit, or delete users and change the password for accessing the VM6404HB's GUI.

Note: This is an Administrator only function.



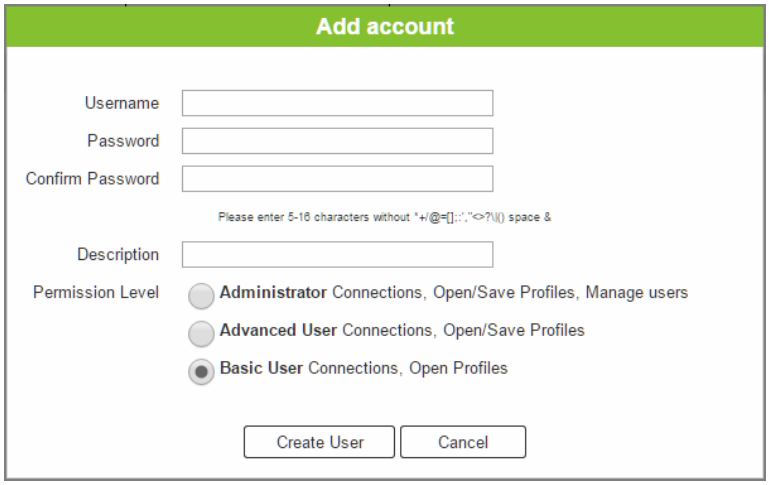
- **Add account** – Click the *Add account* button to add another user to the list. The VM6404HB supports up to 32 users and up to 16 concurrent logins (see page 83 for more details).
- **Edit** – Click the *Edit* button to change user information. This option allows an Administrator to edit individual accounts.



- **Edit** – Rename the user account, set the password, add a description, and set the user's permission level (see page 83 for more details).
- **Delete** – Removes the user account.
- The default username and password are: administrator/password.

Adding an User Account

Use the **Add Account** button to create a user account, set the user's password, add a description, and set the user's permission level (see *Permission Level*, page 84) when accessing the VM6404HB's GUI.



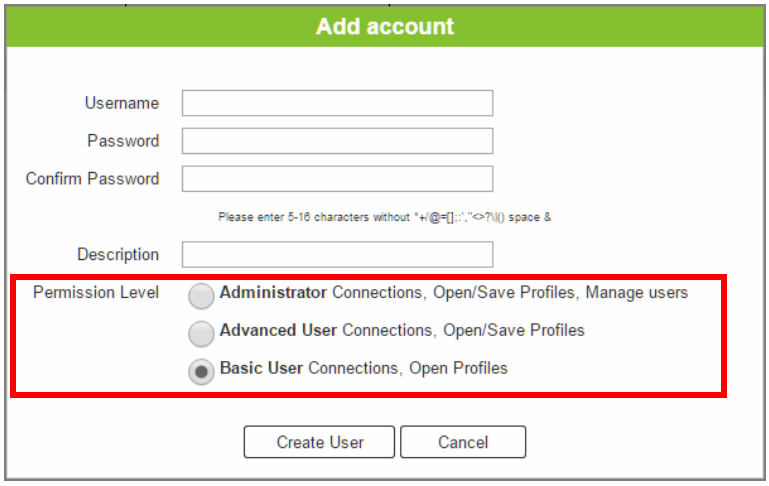
- Fill in a username or edit an existing one.
- Enter a password and re-type the password to confirm.

Note: Usernames and passwords are case-sensitive and must be 5–16 alphanumeric characters (excluding ***+/@=[];:',"<>?\|() &** or **space**).

- Add or edit the description for the user.
- Select the permission level that you want to grant the user (see *Permission Level*, page 84).
- Click **Create User** to save the data.
- Click **Cancel** to discard the changes and exit.
- If a user is logged into the VM6404HB's GUI, their user settings cannot be edited, and the fields in this screen are grayed out.

Permission Level

At the bottom of the New/Edit User page is the permission section, which is used to set a user's permission level.

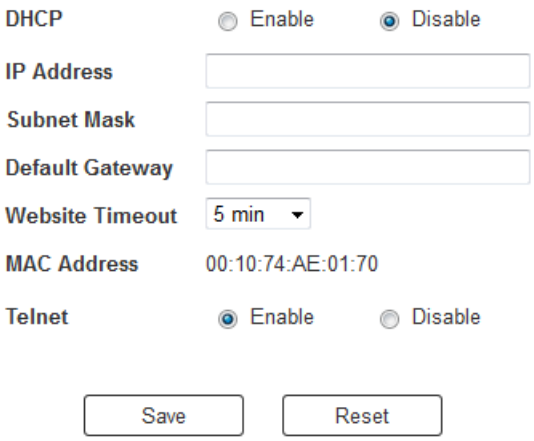


The three available permission levels are as follows:

- **Administrator** – this level provides full access and control of the VM6404HB, in addition to full User Management privileges.
- **Advanced User** – this level provides full access and control with no User Management privileges.
- **Basic User** – this level only provides basic functions (connections and open profiles).

Network

The *Network* page lets you configure the VM6404HB's IP settings for connecting to it via the web GUI, and enable/disable Telnet.



Enable DHCP to allow the DHCP server to assign an IP address to the VM6404HB. Select **Disable** to enter your own static IP address settings for the device.

Click **Reset** to use the following default values:

- IP Address – **192.168.0.60**
- Subnet Mask – **255.255.255.0**
- Default Gateway – **192.168.0.1**
- Website Timeout* – N/A, 5, 10, 30, 60 minutes
- Telnet Configuration enabled (checked)

Enter the values, then click **Save**. Changes may take a few seconds and after refreshing the page automatically redirects you to the IP address specified.

Note: This option controls how long an inactive web connection stays logged into the VM6404HB. Any changes will take effect immediately. The default setting is 5 minutes.

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Chapter 5
Mobile Control

Overview

The VM6404HB supports Video Matrix Control App, a free mobile app that allows you to switch profiles, audio inputs and video inputs, and also reminds you when any new firmware is available, all through a local area network to which the target VM6404HB is connected. This mobile application is especially useful for profile and AV source switching when you do not have access to the VM6404HB's front panel or the web interface.

The Video Matrix Control App

Requirements

- The Video Matrix Control App supports the following operating systems:

Mobile Operating System	Supported Versions
iOS	10.2.1 or later
Android	7.0 or later

- The VM6404HB needs to be connected to a local area network via the Ethernet port.

Installation and Connections

To install the Video Matrix Control App on a mobile device, do the following:

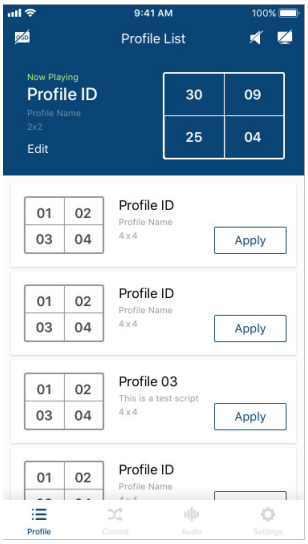
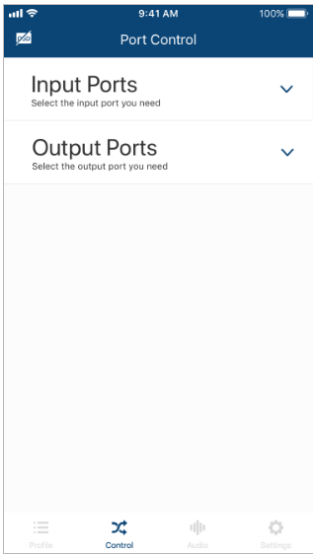
1. From the mobile device, tap the **App Store** or **Google Play** icon.
2. In the search box, type “Video Matrix Control App”.
3. Tap Video Matrix Control App and then download and install the app.
4. Tap the app icon.
5. Follow the on-screen instructions to connect to the target VM6404HB device by scanning the network, selecting from connection history, or specifying the device IP address and password.

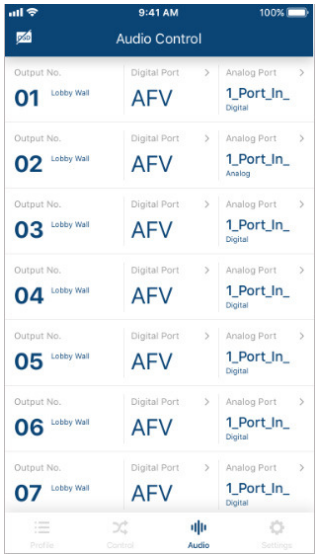
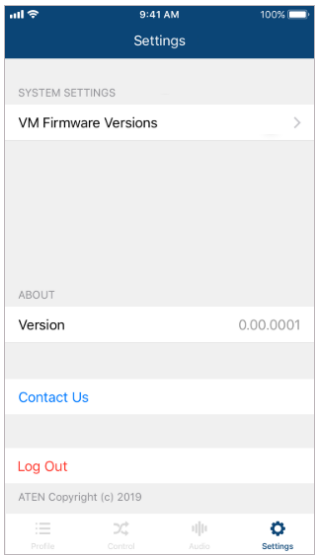
Note:

- The Video Matrix Control App is designed to control one VM6404HB device at a time.
- If you cannot find the VM6404HB device, make sure that the VM6404HB is connected to LAN and that the app is connected to the same LAN and then try again.

The Control Interface

The functions in the Video Matrix Control App are categorized into four tabs – **Profile**, **Control**, **Audio**, and **Settings**. See the table below for an overview of each tab.

Control Interface	Description
	In the **Profile** tab, you can switch profiles for display or change the video input for the profile that is playing. **Note:** ◆ The Video Matrix Control App can not be used to create profiles. Before using the app, make sure to create the profiles you need via the web interface. For details, see *Playing a Profile*, page 47. ◆ Any configuration change made to a profile via Video Matrix Control App is only effective while the profile is being played and will not be saved to the VM6404HB unit. ◆ Previews of input assignment, as indicated by input numbers in the control interface on the left, are not supported for VM0404HB, VM0808HA, and VM0808HB.
	In the **Control** tab, you can instantly switch video inputs for each of the output.

Control Interface	Description
	In the **Audio** tab, you can specify the audio input for each digital output of the VM6404HB and the audio input to be extracted and played for the stereo audio output. **Note:** The fields available in this tab may vary for the connected device.
	In the **Settings** tab, you can look up notification for system firmware upgrades, the current app version, and technical support contact, or log out of the app.

Chapter 6
CLI Commands

Overview

The VM6404HB can be configured and controlled via RS-232 or Telnet commands when connected to a host computer or other device, such as a control system. This chapter provides information on how to connect to the VM6404HB via RS-232/Telnet and command syntax.

Connecting to the Matrix Switch via Telnet

To establish a Telnet session with the VM6404HB, do the following:

1. Connect a host computer or control system to a shared network with the VM6404HB.
2. Open a command-line interpreter program from your computer.
3. In the command-line interpreter, type the VM6404HB's IP address in the following way:

   ```
   telnet [IP address]:23
   ```

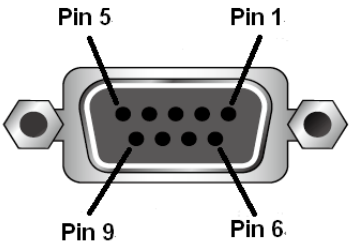
4. Press **Enter**. The login screen appears.
5. At the login prompt, type the login username and password for the VM6404HB.
6. When a session is established with the VM6404HB, you can control and configure the VM6404HB via RS-232 commands. For more information on commands, see *Commands*, page 93

Note: If a user logs in using a username that is already in session, the newest login takes effect and the previous session will be replaced.

Connecting to the Matrix Switch via RS-232

You can control and operate the VM6404HB using a high-end controller or PC. To connect to the VM6404HB via RS-232, do the following:

1. Connect the RS-232 serial port on the VM6404HB to the RS-232 serial port on your computer using a 9-wire straight cable, with only pin 2 to pin 2, pin 3 to pin 3, and pin 5 to pin 5 connected.



Pin	Description
1	Not connected
2	RXD
3	TXD
4	Not connected
5	GND
6	Not connected
7	Not connected
8	Not connected
9	Not connected

2. The controller's serial port should be configured as follows:

RS-232 Protocol	
Baud Rate	19200
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

3. When a session is established with the VM6404HB, you can control and configure the VM6404HB via RS-232 commands. For more information on commands, see *Commands*, page 93.

Command Verification

After entering a command, a verification message appears at the end of the command line as follows:

- **Command OK** - indicates that the command is correct and successfully performed by the switch
- **Command incorrect -** indicates that the command has the wrong format and/or values.

Commands

After connecting to the VM6404HB via Telnet or RS-232, you can operate the system using the following commands.

Switch Port Command

The Switch Port command allows you to switch ports on the VM6404HB.

The formula for the Switch command is as follows.

Command + Input + Number + Output + Number + Control + [Enter]

1. For example, to switch input port 02 to output port 04, type:
   sw i02 o04 [Enter]
2. To switch output port 04 to the next port, type:
   sw o04 + **[Enter]**
3. To turn off video output on port 03, type:
   sw o03 off [Enter]
4. To switch audio from input port 06 to stereo audio output, type:
   sw i06 console audio [Enter]

The following tables show the possible values for the **Switch Port** command:

Command	Description
sw	Switch command

Input Command	Description
i	Input command

Port number	Description
xx	01~04 or 01~08 port

Output Command	Description
o	Output command

Port number	Description
yy	01~04 or 01~09 port
*	All output ports

Group	Description
normal	default HDMI audio outputs
console audio	Switch the audio to the stereo audio output port.

Control	Description
on	Turn on the display
off	Turn off the display
+	Next Port
-	Previous Port

Note: 1. By default, input port 01 is tied to output port 01; input port 02 is tied to output port 02; and so on until port 04 (i.e., o01 i01, o02 i02).

2. Each command string can be separated with a space.

3. The **Port Number** can be skipped, and the default value will be used.

4. The **Group** can be skipped, and the default value (normal; HDMI audio output) will be used.

The following table lists the available Switch Port commands:

Command	Input Command	Input Port	Output Command	Output Port	Group	Control	Enter	Description
sw	i	xx	o	yy *	normal console audio		[Enter]	Switch Input Port xx to Output Port yy (xx:01~04 or 01~08; yy:01~04 or 01~09, *)
sw			o	yy *		on off	[Enter]	Turn on Output Port yy Turn off Output Port yy (yy:01~04 or 01~09, *)
sw			o	yy *	normal console audio	+ -	[Enter]	Switch Output port yy to next Output port. Switch Output port yy to previous Output port. (yy:01~04 or 01~09, *)

EDID Mode Command

Extended Display Identification Data (EDID) is a data that contains a display's basic information and is used to communicate with the video source.

The formula for the EDID command is as follows:

Command + Control + [Enter]

For example, to use the Port1 EDID mode, type:

edid port1 [enter]

The following tables show the possible values for the **EDID** command:

Command	Description
edid	EDID Mode command

Control	Description
port1	Implement the EDID of the connected display to Port 1, and pass it to the video source.
remix	Implement the EDID of each connected display according to its connection when the VM6404HB is first powered on, or immediately after selecting the Remix option.
default	Implements ATEN's default EDID. (default)
custom	Implements the customized mode as set in the EDID system settings. (*EDID Settings*, page 63)

Note: Each command string can be separated with a space.

The following table lists the available EDID commands:

Command	Control	Enter	Description
edid	port1	[Enter]	The EDID from Port 1 is passed to the video source.
edid	remix	[Enter]	The VM6404HB implements the EDID of each connected display according to its connection when the VM6404HB is first powered on, or immediately after selecting the Remix option.
edid	default	[Enter]	ATEN's default EDID is passed to the video source.
edit	custom	[Enter]	Implements the customized mode.

Mute Command

Mute allows you to enable or disable an output port(s) audio.

The formula for the Mute command is as follows:

Command + Output + Number + Control + [Enter]

For example, to mute the audio coming from output port 1, type:

mute o01 on [enter]

The following tables show the possible values for the **Mute** command:

Command	Description
mute	Mute command

Output Command	Description
o	Output command

Port number	Description
yy	01~04 or 01~09 port (default is 01)
*	All output ports

Group	Description
normal	Mute the default HDMI audio outputs.
console	Mute the stereo audio output.

Control	Description
on	Mute on; audio from HDMI output port is disabled
off	Mute off; audio output enabled (default)

Note: 1. Each command string can be separated with a space.

2. Skip the output port command to mute or enable the audio of all output ports.
3. The **Group** can be skipped, and the default value (normal; HDMI audio output) will be used.

The following table lists the available Mute commands:

Command	Output Command	Port Number	Group	Control	Enter	Description
mute	o	yy *	normal console	on	[Enter]	Audio on for output port yy (yy:01~04 or 01~09, *)
mute	o	yy *	normal console	off	[Enter]	Audio off for output port yy (default) (yy:01~04 or 01~09, *)

CEC Command

Consumer Electronics Control (CEC) allows interconnected HDMI devices to communicate with and respond to the same remote control.

The formula for the CEC command is as follows:

Command + Output + Number + Control + [Enter]

For example, to enable the CEC function on output port 1, type:

cec o01 on [enter]

The following tables show the possible values for the **CEC** command:

Command	Description
cec	CEC command

Output Command	Description
o	Output command

Port number	Description
yy	01~04 or 01~09 port (default is 01)
*	All output ports

Control	Description
off	Disable CEC (default)
on	Enable CEC

Note: Each command string can be separated with a space.

The following table lists the available CEC commands:

Command	Output Port	Control	Enter	Description
cec	yy *	off	[Enter]	CEC off for output port yy (default) (yy:01~04 or 01~09, *)
cec	yy *	on	[Enter]	CEC on for output port yy (yy:01~04 or 01~09, *)

Scaling Command

The Scaling command allows you to set a resolution for scaling the display connected to an output port.

The formula for the Scaling command is as follows:

Command + Output + Number 1 + Horizontal Resolution + Number 2 + Vertical Resolution + Number 3 + Frequency + Number 4 + Control + [Enter]

1. For example, to turn scaling off for output port 02, type:

   scaling o02 off [Enter]

2. To set the scaling for output port 04 to 1920x1080@60Hz, type:

   scaling o04 1080p [Enter]

3. To set the scaling for all output ports to the connected display's native resolution, type:

   scaling o* native [Enter]

The following tables show the possible values for the **Scaling** command:

Command	Description
scaling	Scaling command

Output	Description
o	Output command

Port Number	Description
yy	01~04 or 01~09 port
*	All output ports

Horizontal Resolution	Description
hor	Horizontal resolution command for scaling

Resolution Number	Description
hhhh	Horizontal resolution

Vertical Resolution	Description
ver	Vertical resolution command for scaling

Resolution Number	Description
vvvv	Vertical resolution

Frequency	Description
freq	Frequency command for scaling

Frequency Number	Description
fff	Frequency resolution

Control	Description
off	Turn off the scaling function (by pass mode)
native	Map display's native resolution for scaling (default)

Note: 1. Each command string can be separated with a space.

2. The **Port Number** command string can be skipped, and the default value will be used.

The following table lists the available Scaling commands:

Command	Output	Port Number	Horizontal Resolution	Number	Vertical Resolution	Number	Frequency	Number	Control	Enter	Description
scaling	o	yy *							off	[Enter]	Turn off scaling for port yy (by pass mode) yy:01~04, 01~09, or *
scaling	o	yy *							native	[Enter]	Enable display's native resolution for scaling on output port yy (default) yy:01~04, 01~09, or *

Command	Output	Port Number	Horizontal Resolution	Number	Vertical Resolution	Number	Frequency	Number	Control	Enter	Description
scaling	o	yy *	hor	1920	ver	1080	freq	60		[Enter]	Scale output port yy to 1920x1080@60Hz yy:01~04, 01~09, or *
scaling	o	yy *	hor	1280	ver	720	freq	60		[Enter]	Scale output port yy to 1280x720@60Hz yy:01~04, 01~09, or *
scaling	o	yy *	hor	1920	ver	1200	freq	60		[Enter]	Scale output port yy to 1920x1200@60Hz yy:01~04, 01~09, or *
scaling	o	yy *	hor	1600	ver	1200	freq	60		[Enter]	Scale output port yy to 1600x1200@60Hz yy:01~04, 01~09, or *
scaling	o	yy *	hor	1400	ver	1050	freq	60		[Enter]	Scale output port yy to1400x1050@60Hz yy:01~04, 01~09, or *
scaling	o	yy *	hor	1280	ver	1024	freq	60		[Enter]	Scale output port yy to 1280x1024@60Hz yy:01~04, 01~09, or *
scaling	o	yy *	hor	1024	ver	768	freq	60		[Enter]	Scale output port yy to 1024x768@60Hz yy:01~04, 01~09, or *

Command	Output	Port Number	Horizontal Resolution	Number	Vertical Resolution	Number	Frequency	Number	Control	Enter	Description
scaling	o	yy *	hor	1280	ver	800	freq	60		[Enter]	Scale output port yy to 1280x800@60Hz yy:01~04, 01~09, or *
scaling	o	yy *	hor	720	ver	576	freq	50		[Enter]	Scale output port yy to 720x576@50Hz yy:01~04, 01~09, or *
scaling	o	yy *	hor	1600	ver	900	freq	60		[Enter]	Scale output port yy to 1600x900@60Hz yy:01~04, 01~09, or *

FrameSync Command

The FrameSync command allows you enable or disable the Frame Synchronization function for the VM6404HB.

The formula for the Scaling command is as follows:

Command + Control + [Enter]

For example, to enable the Frame Synchronization function, type:

frsync on [Enter]

The following tables show the possible values for the **FrameSync** command:

Command	Description
frsync	Frame Synchronization command

Control	Description
off	Turn off the FrameSync
on	Turn on the FrameSync

Note: Each command string can be separated with a space.

The following table lists the available FrameSync commands:

Command	Control	Enter	Description
frsync	off	[Enter]	Turn off the Frame Synchronization function
frsync	on	[Enter]	Turn on the Frame Synchronization function

Fan Speed Command

The Fan Speed command allows you to set the internal fan speed that cools the VM6404HB.

To set the fan speed, use the following command:

Command + Control + [Enter]

For example, to set the fan to low speed, type:

fan low [Enter]

The following tables show the possible values for the **Fan Speed** command:

Command	Description
fan	Fan Speed Command

Control	Description
low	Set internal fan to low speed (default)
mid	Set internal fan to normal speed
high	Set internal fan to high speed

Note: Each command string can be separated with a space.

The following table lists the available Fan Speed commands:

Command	Control	Enter	Description
fan	low	[Enter]	Sets fan speed to low
fan	mid	[Enter]	Sets fan speed to normal
fan	high	[Enter]	Sets fan speed to high

Echo Command

The Echo function updates the RS-232 controller when operations are made via the front panel pushbuttons, web browser, or telnet. The changes echo back to the RS-232 controller to keep the settings in sync with the device.

The formula for the Echo command is as follows:

Command + Control + [Enter]

For example, to enable the echo feature, type:

echo on [Enter]

The following tables show the possible values for the **Echo** command:

Command	Description
echo	Echo command

Control	Description
on	Turns Echo function on
off	Turns Echo function off (default)

Note: Each command string can be separated with a space.

The following table lists the available Echo commands:

Command	Control	Enter	Description
echo	on	[Enter]	Turn on Echo function
echo	off	[Enter]	Turn off Echo function

Black Screen Command

The Black Screen command turns a display screen black when no source signal is detected. This prevents the display from showing the default blue or other color used when no source signal is detected.

The formula for the Black Screen command is as follows:

Command + Control + [Enter]

For example, to enable the Black Screen function, type:

blackscreen on [Enter]

The following tables show the possible values for the **Black Screen** command:

Command	Description
blackscreen	Black Screen command

Control	Description
on	Turns Black Screen function on (default)
off	Turns Black Screen function off

Note: Each command string can be separated with a space.

The following table lists the available Black Screen commands:

Command	Control	Enter	Description
blackscreen	on	[Enter]	Turn on Black Screen function
blackscreen	off	[Enter]	Turn off Black Screen function

Read Command

The Read command allows you to view the current configuration, firmware and other information about the device.

The formula for the Read command is as follows:

Command + [Enter]

To view information about the device, type:

read [Enter]

The following table shows the possible values for the **Read** command:

Command	Description
read	Read command

Note: Each command string can be separated with a space.

The following table lists the available Read commands:

Command	Enter	Description
read	[Enter]	View information about the device

Reset Command

The Reset command allows you to reset the VM6404HB to the default factory settings.

The formula for the Reset command is as follows:

Command + [Enter]

The following tables show the possible values for the **Reset** command:

Command	Description
reset	Reset command

Note: Each command string can be separated with a space.

The following table lists the available Reset commands:

Command	Enter	Description
reset	[Enter]	Resets the device settings

Baud Rate Command

The Baud Rate command allows you to set the RS-232 data rate for the VM6404HB to use.

The formula for the Baud Rate command is as follows:

Command + Control + [Enter]

For example, to set 38400 as the baud rate, type:

baud 38400 [Enter]

The following tables show the possible values for the **Baud Rate** command:

Command	Description
baud	Sets the RS-232 baud rate

Control	Description
9600	Use 9600 baud rate
19200	Use 19200 baud rate (default)
38400	Use 38400 baud rate
115200	Use 115200 baud rate

Note: Each command string can be separated with a space.

The following table lists the available Baud Rate commands:

Command	Control	Enter	Description
baud	9600 / 19200 / 38400 / 115200	[Enter]	Sets the RS-232 baud rate

Save/Load Profile Command

The Save/Load Profile command allows you to save and load connection profiles. Saving profiles will save the connections currently in use.

The formula for the Save/Load Profile command is as follows:

Command + Profile + Number + Control + [Enter]

For example, to save the current connection configuration to profile 02, type:

profile f 02 save [Enter]

The following tables show the possible values for the **Save/Load Profile** commands:

Command	Description
profile	Save / Load profile

Profile	Description
f	Profile command

Profile Number	Description
yy	01~08 (default is 01)

Control	Description
save	Save the connection configuration
load	Load a saved profile

Note: Each command string can be separated with a space.

The following table lists the available Save/Load Profile commands:

Command	Profile	Profile Number	Control	Enter	Description
profile	f	yy *	save	[Enter]	Save the connections as profile yy. (yy:01~08 or 01~17, *)
profile	f	yy *	load	[Enter]	Load profile yy. (yy:01~08 or 01~17, *)

OSD Command

To enable or disable the On-Screen Display (OSD) for displays, use the following command:

Command + Output + Number + Control + [Enter]

1. For example, to enable the OSD for output 04, type:
   osd o04 on [Enter]
2. For example, to disable the OSD for all outputs, type:
   osd o* off [Enter]

The following tables show the possible values for the **OSD** command:

Command	Description
osd	OSD command

Output	Description
o	Output port command

Number	Description
yy	Output port: 01~04 (default is 01)
*	All output ports

Control	Description
on	Enable OSD function
off	Disable OSD function (default)

Note: Each command string should be separated with a space.

The following table lists the available OSD commands:

Command	Output Command	Output Port	Control	Enter	Description
osd	o	yy *	on	[Enter]	OSD on for output yy yy:01~04/09, *
osd	o	yy *	off	[Enter]	OSD off for output yy (default) yy:01~04/09, *

Alert Command

To trigger a warning when issues arise for a specific input port, use the following command:

Command + Input + Number + Control + [Enter]

For example, to enable the basic Alert function for input port 1, type:

alert i01 m1 [enter]

The following tables show the possible values for the **Alert** command:

Command	Description
alert	Alert command

Input	Description
i	Input command

Port number	Description
yy	01~04 or 01~08 port

Control	Description
off	Disable Alert (default)
m1	Show basic Alert (flashing border)
m2	Show detailed Alert (flashing border and port information)

Note: Each command string can be separated with a space.

The following table lists the available Alert commands:

Command	Input Command	Input Port	Control	Enter	Description
alert	i	yy	off	[Enter]	Alert off for input port yy (yy:01~04 or 01~08)
alert	i	yy	m1	[Enter]	Basic Alert on for input port yy (yy:01~04 or 01~08)
alert	i	yy	m2	[Enter]	Detailed Alert on for input port yy (yy:01~04 or 01~08)

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Appendix

Safety Instructions

General

- Read all of these instructions. Save them for future reference.
- Follow all warnings and instructions marked on the device.
- This product is for indoor use only.
- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.
- Do not use the device near water.
- Do not place the device near, or over, radiators or heat registers.
- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.
- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.
- Never spill liquid of any kind on the device.
- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- The device is designed for IT power distribution systems with 230V phase-to-phase voltage.
- To prevent damage to your installation it is important that all devices are properly grounded.
- The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.
- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

- If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or un-interruptible power supply (UPS).
- Position system cables and power cables carefully; Be sure that nothing rests on any cables.
- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.
- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.
- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
  - The power cord or plug has become damaged or frayed.
  - Liquid has been spilled into the device.
  - The device has been exposed to rain or water.
  - The device has been dropped, or the cabinet has been damaged.
  - The device exhibits a distinct change in performance, indicating a need for service.
  - The device does not operate normally when the operating instructions are followed.
- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- Avoid circuit overloads. Before connecting equipment to a circuit, know the power supply's limit and never exceed it. Always review the electrical specifications of a circuit to ensure that you are not creating a dangerous condition or that one does not already exist. Circuit overloads can cause a fire and destroy equipment.

Rack Mounting

- Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.
- Always load the rack from the bottom up, and load the heaviest item in the rack first.
- Make sure that the rack is level and stable before extending a device from the rack.
- Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.
- Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.
- Ensure that proper airflow is provided to devices in the rack.
- Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer.
- Do not step on or stand on any device when servicing other devices in a rack.

Technical Support

International

- For online technical support – including troubleshooting, documentation, and software updates: **http://eservice.aten.com**
- For telephone support, see *Telephone Support*, page iii:

North America

Email Support		support@aten-usa.com
Online Technical Support	Troubleshooting Documentation Software Updates	http://www.aten-usa.com/support
Telephone Support		1-488-999-ATEN ext 4988

When you contact us, please have the following information ready beforehand:

- Product model number, serial number, and date of purchase.
- Your computer configuration, including operating system, revision level, expansion cards, and software.
- Any error messages displayed at the time the error occurred.
- The sequence of operations that led up to the error.
- Any other information you feel may be of help.

Specifications

Video Input		
Interface		4 x HDMI Type A Female (Black)
Impedance		100 Ω
Max. Distance		3.0 m
Video Output		
Interface		4 x HDMI Type A Female (Black)
Impedance		100 Ω
Max. Distance		3.0 m
Video		
Max. Data Rate		18 Gbps (6.0 Gbps per Lane)
Max. Pixel Clock		600 MHz
Compliance		HDMI (3D, Deep Color, 4K) HDCP 2.2 Compatible Consumer Electronics Control (CEC)
Max. Resolution		Up to 4096 x 2160 / 3840 x 2160 @ 60Hz (4:4:4)
Max. Distance		Up to 3 m
Audio		
Output		1 x Mini Stereo Jack Female (Green)
Control		
RS-232	Connector	1 x DB-9 Female (Black)
	Baud rate	19200
	Data Bits	8
	Stop Bits	1
	Parity	No
	Flow Control	No
IR		1 x Mini Stereo Jack Female (Black)
Ethernet		1 x RJ-45 Female
EDID Settings		
EDID Mode: Default / Port 1 / Remix / Customized EDID Wizard Support		

Power	
Connector	1 x 3-Prong AC Socket
Max. Power Input Rating	100-240 VAC;50-60Hz;1.0A
Consumption	AC110V: 43.7W; AC220V: 43.1W
Environment	
Operating Temperature	0–40ºC
Storage Temperature	-20–60ºC
Humidity	0–80% RH, Non-condensing
Physical Properties	
Housing	Metal
Weight	3.52 kg
Dimensions (L x W x H)	43.24 x 26.23 x 4.40 cm

Limited Warranty

ATEN warrants its hardware in the country of purchase against flaws in materials and workmanship for a Warranty Period of two [2] years (warranty period may vary in certain regions/countries) commencing on the date of original purchase. This warranty period includes the LCD panel of ATEN LCD KVM switches. Select products are warranted for an additional year (see *A+ Warranty* for further details). Cables and accessories are not covered by the Standard Warranty.

What is covered by the Limited Hardware Warranty
ATEN will provide a repair service, without charge, during the Warranty Period. If a product is detective, ATEN will, at its discretion, have the option to (1) repair said product with new or repaired components, or (2) replace the entire product with an identical product or with a similar product which fulfills the same function as the defective product. Replaced products assume the warranty of the original product for the remaining period or a period of 90 days, whichever is longer. When the products or components are replaced, the replacing articles shall become customer property and the replaced articles shall become the property of ATEN.

To learn more about our warranty policies, please visit our website:
http://www.aten.com/global/en/legal/policies/warranty-policy/