



USER MANUAL

MODEL:

KDS-7-MNGR
4K AVoIP Manager



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Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment.
- Review the contents of this user manual.



Go to www.kramerav.com/downloads/KDS-7-MNGR to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).
- Do not secure the cables in tight bundles or roll the slack into tight coils.
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality.
- Position your Kramer **KDS-7-MNGR** away from moisture, excessive sunlight and dust.

Safety Instructions



Caution:

- This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.
- For products with relay terminals and GPIO ports, please refer to the permitted rating for an external connection, located next to the terminal or in the User Manual.
- There are no operator serviceable parts inside the unit.



Warning:

- Use only the power cord that is supplied with the unit.
- To ensure continuous risk protection, replace fuses only according to the rating specified on the product label which is located on the bottom of the unit.

Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at www.kramerav.com/quality/environment.

Overview

Congratulations on purchasing your Kramer **KDS-7-MNGR 4K AVoIP Manager**.

KDS-7-MNGR is the solution for configuration and management of **KDS-7** deployments within the same network. Simply install the unit into the same local network as the extenders (encoders and decoders) to easily define and configure channel routing selections (including video, audio, and a variety of control interface types) using the embedded web pages.

Additionally, this unit supports controlling and configuring the matrix, video wall, and KVM modes of connected **KDS-7** devices as well as device grouping and group operations.

The settings of all connected encoder/decoder units, including IP configuration, compatibility settings, and extender status are clearly displayed and easily updated.

KDS-7-MNGR provides outstanding end-user experience, robust security, and is ideal for large-scale deployment and operation.

Outstanding End-user Experience

- Instant Auto-discovery and status with preview.
- Access via remote Web UI or by using a local monitor with a USB keyboard and mouse.

Robust Security

- Enterprise IT-grade security – 802.1x and HTTPS/TLS.
- Security certification – OWASP Top 10 certificate.
- Can be deployed in the same LAN used for AV data streaming or in a separate LAN.

Efficient Large-Scale Deployment and Operation

- Highly scalable – manages up to 999 channels.
- Configuration of virtual video matrix, KVM, and video walls.
- Configuration of Device Grouping, Preset Definition, and Activation via UI or APIs.
- FW configuration – For a single device or a group of devices.
- Simple Planning and Rollout – Cost-effective from day one.
- Full product range for any site and any application.

Advanced and User-friendly Operation

- Convenient and Comprehensive Control – Control the unit using intuitive embedded web pages, Protocol 3000 API commands via Ethernet, or front panel LCD and navigation buttons.
- PoE Support – Powered with PoE connection from PoE switch.
- Keyboard and Mouse Roaming.
- Control Gateway - Through P3K or special TCP connection, users can control/communicate with IR, RS-232, or CEC to the connected devices.

Typical Applications

KDS-7-MNGR is ideal for the following typical applications:

- Real-time essential installations such as command and control rooms.
- Large scale AV content sharing installations using existing wires and infrastructure in corporate offices and government applications.
- AV distribution systems with one or more sources and multiple displays in schools, universities, and public venues.
- AV installations where low latency KM/KVM capabilities are required.

Controlling your **KDS-7-MNGR**

Control your **KDS-7-MNGR** directly via Navigation buttons, or via:

- The Ethernet using built-in user-friendly web pages.
- Protocol commands.

Defining KDS-7-MNGR 4K AVoIP Manager

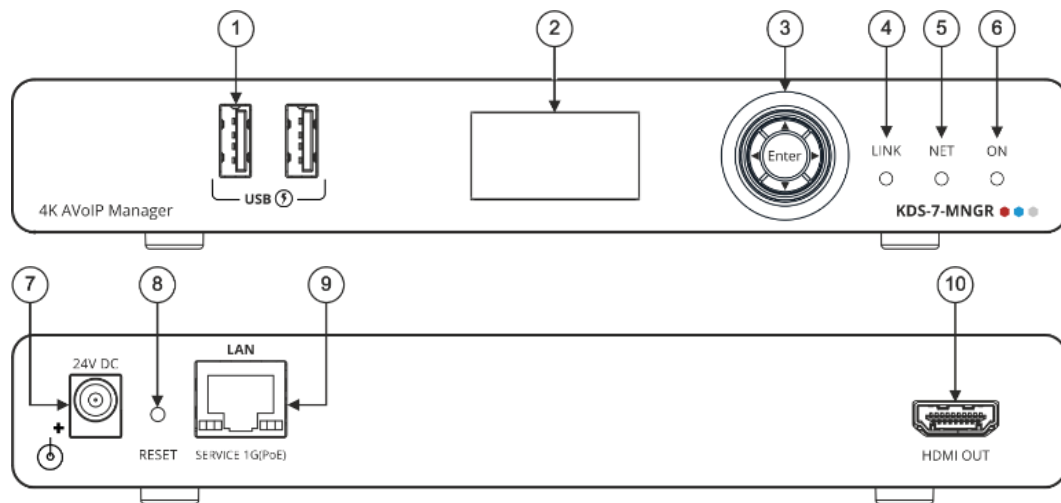


Figure 1: KDS-7-MNGR 4K AVoIP Manager

#	Feature	Function	
①	USB Type A Charging Ports	Connect to a keyboard and mouse to control the units via UI using a display connected to the unit via HDMI output port.	
②	LCD Display	Use for device information and configuration.	
③	Menu Navigation Button	◀	Press to return to the previous menu.
		▲	Press to move up to the next configuration parameter.
		▶	Press to go to the next menu.
		▼	Press to move down to the next configuration parameter.
		Enter	Press to accept changes.
④	LINK LED	See Understanding LED Functionality on page 9.	
⑤	NET LED		
⑥	ON LED		
⑦	24V/5A DC Connector	Plug the 24V DC power adapter into the unit and connect it to an AC wall outlet for power. (Optional, not required if the unit is powered via PoE).	
⑧	RESET Recessed Button	Press and hold for about 20 seconds, until all LEDs flash, to reset the device to its factory default values.	
⑨	LAN Port	Connect directly, or through a network switch, to your PC/ laptop to control the unit via Web GUI/Telnet.	
⑩	HDMI OUT Port	Connect to a display to control the unit directly.	

Mounting KDS-7-MNGR

This section provides instructions for mounting **KDS-7-MNGR**. Before installing, verify that the environment is within the recommended range:



- Operation temperature – 0° to 40°C (32 to 104°F).
- Storage temperature – -40° to +70°C (-40 to +158°F).
- Humidity – 10% to 90%, RHL non-condensing.

**Caution:**

- Mount **KDS-7-MNGR** before connecting any cables or power.

**Warning:**

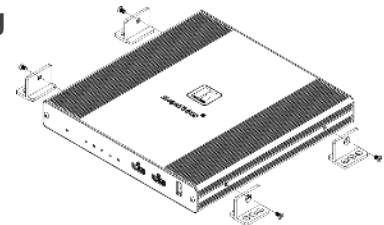
- Ensure that the environment (e.g., maximum ambient temperature & air flow) is compatible for the device.
- Avoid uneven mechanical loading.
- Appropriate consideration of equipment nameplate ratings should be used for avoiding overloading of the circuits.
- Reliable earthing of rack-mounted equipment should be maintained.
- Maximum mounting height for the device is 2 meters.

Mount KDS-7-MNGR in a rack:

- Use the recommended rack adapter
(see www.kramerav.com/product/KDS-7-MNGR).

Mount KDS-7-MNGR on a surface using one of the following methods:

- Attach the rubber feet and place the unit on a flat surface.
- Fasten 2 brackets (included) on each side of the unit and attach it to a flat surface. For more information go to www.kramerav.com/downloads/KDS-7-MNGR.



Connecting KDS-7-MNGR



By-default, the device uses PoE for powering the device. Optionally, you can separately purchase a power adapter to connect to the product and plug into the mains electricity.

Always switch off the power to each device before connecting it to your **KDS-7-MNGR**. After connecting your devices, connect their power and then switch on the power to each device.

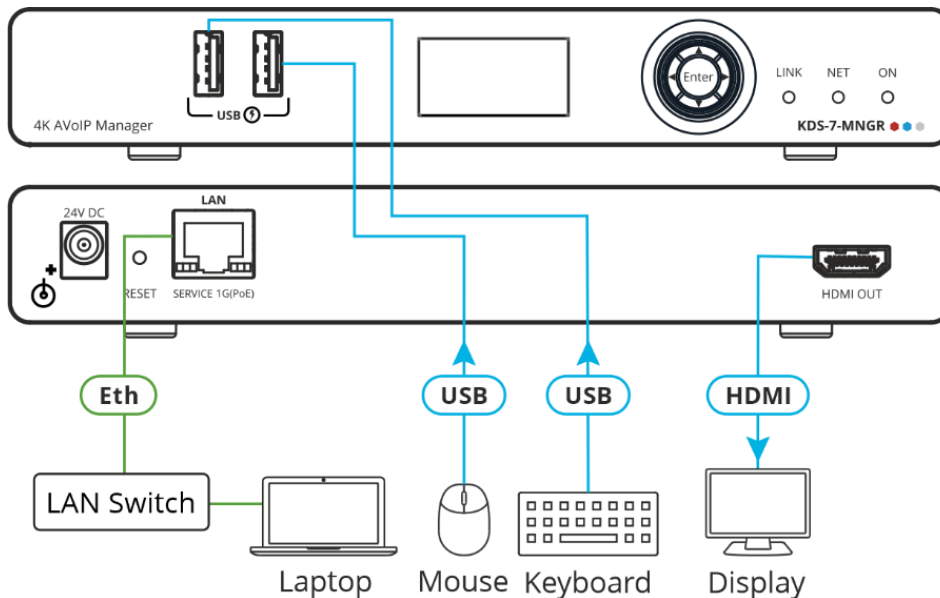


Figure 2: Connecting the KDS-7-MNGR

To connect KDS-7-MNGR as illustrated in the example in Figure 2:

1. Connect the LAN RJ-45 port (9) to the LAN switch.
2. Connect the HDMI OUT connector (10) to an HDMI acceptor (for example, a display).
3. Connect a mouse and a keyboard to the two USB type A ports (1).

Understanding LED Functionality

KDS-7-MNGR LEDs function as follows:

LED	Color	Definition
LINK LED	Lights Green	A link is established between KDS-7-MNGR and the TV and is transmitting A/V signals.
NET LED	Off	No IP address is acquired.
	Lights green	A valid IP address has been acquired.
	Flashes Green very fast (for 60sec)	A device identification command is sent (Flag me).
	Lights Yellow	Device falls back to default IP address.
	Lights Red	Security is blocking IP access.
ON LED	Flashes Red	On fallback address acquiring, device 'ON' LED flashes continuously in slow 0.5/10sec cadence
	Lights Green	When power is on.
	Flashes Green Slowly	Device is in standby mode.
	Flashes green fast	FW is downloaded in the background.
	Flashes Green very fast (for 60sec)	A device identification command is sent (Flag me).
	Lights Yellow	Device falls back to default IP address.
	Lights Red	Security is blocking IP access.
After a reboot, all LEDs light for 3 seconds then return to their normal LED display mode.		

Operating KDS-7-MNGR

This section describes the following actions:

- [Configuring the Network Switch](#) on page 10.
- [Using Menu Navigation Buttons](#) on page 10.
- [Operating via Ethernet](#) on page 12.

Configuring the Network Switch

Before setting the system, make sure that your AV over IP network switch meets the following minimum requirements:

- Jumbo Frames – On. (at least 8000 bytes).
- IGMP Snooping – On.
- IGMP Querier – On.
- IGMP Immediate/Fast Leave – On.
- Unregistered Multicast Filtering – On.

Using Menu Navigation Buttons

Connect the device to the 24V DC power adapter and connect the adapter to the mains electricity. The ON LED lights green, and the LINK LED flashes (indicating that no streaming activity is detected).

Use the navigation button to easily view and set basic device parameters via the Device menu, appearing on the device LCD display (2), see:

- [Using KDS-7-MNGR Navigation Buttons](#) on page 11.

Use the Navigation buttons (3) / Use the:

- Down arrow – to move to the previous configuration parameter.
- Up arrow – to move to the next configuration parameter.
- Left arrow – to return to the previous menu.
- Right arrow – to go to the next menu.
- Enter button – accept and save the change.

Using KDS-7-MNGR Navigation Buttons

Defining Device Status

View the device parameters.

To view device parameters:

1. Press the Enter or right arrow to access the device status (DEV STATUS) menu.
2. Press the up or down arrows to view the following information:
 - LAN STATUS, including IP address, Subnet mask and Gateway address
 - HDMI STATUS, including video output resolution.
 - Device internal TEMPERATURE (°C).

Device status is viewed.

Viewing Device Information

Displays the device information.

To view device parameters:

1. Press the left or right arrows to access the device status menu.
2. Press the up or down arrows to view the device firmware and hardware information:
 - Firmware version (FW).
 - Bootloader information (BL).
 - Hardware version (HW).

Device information is viewed.

Operating via Ethernet

This section describes the following actions:

- [Allocating the IP Address via LCD screen menu](#) on page 12.
- [Accessing the Web UI](#) on page 12.
- [Connecting Ethernet Port Directly to a PC](#) on page 13.
- [Connecting the Ethernet Port to a Network Hub or Switch](#) on page 15.
- [Configuring Ethernet Port](#) on page 15.

Allocating the IP Address via LCD screen menu

KDS-7-MNGR IP default static addresses is: 192.168.1.39 By default, DHCP is enabled, and assigns an IP address to the device. If DHCP Server is not available, for example, in case a device is connected directly to the laptop, that device gets the default IP address. If these IP address is already in use, the system searches for a random unique IP in the range of 192.168.X.Y. the allocated IP address can be identified using the LCD screen menu.

By default, **KDS-7-MNGR** is DHCP-enabled. This section describes how to operate via the Ethernet and access the IP address when DHCP is enabled and when a static IP address is used.

You can connect to **KDS-7-MNGR** via Ethernet using either of the following methods:

- When DHCP is enabled (see, for example, [Manager Settings > Network](#) on page 51).

When using a static IP Address (DHCP is disabled):

- Directly to the PC using a crossover cable (see [Connecting Ethernet Port Directly to a PC](#) on page 13).
- Via a network hub, switch, or router, (using a static IP address) using a straight-through cable (see [Connecting the Ethernet Port to a Network Hub](#) on page 15).

Accessing the Web UI

By default, IP setting is DHCP.

To access the Web UI, perform the following:

1. Connect the LAN port of the device to a local area network.
Make sure that there is a DHCP server in the Network so that the device can obtain a valid IP address.
2. Connect your PC to the same network as the device.
3. Enter the device's IP address in the browser and press Enter, the Login window opens.

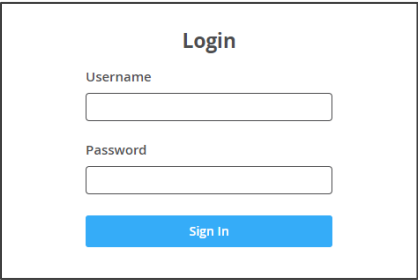




Figure 3: Login Window


 The allocated IP address can be checked using LCD screen menu.

4. Input username and password (default username/password: admin/admin) and click **Sign In** to enter the main page of web UI.

 See Defining User Management on page 57 for defining new users.

Connecting Ethernet Port Directly to a PC

You can connect the Ethernet port of **KDS-7-MNGR** directly to the Ethernet port on your PC using a crossover cable with RJ-45 connectors.

 This type of connection is recommended for identifying **KDS-7-MNGR** with the factory configured default IP address.

After connecting **KDS-7-MNGR** to the Ethernet port, configure your PC as follows:

1. Click **Start > Settings > Network and internet**.
2. Click the down arrow to right of the network adapter to open the network adapter details.

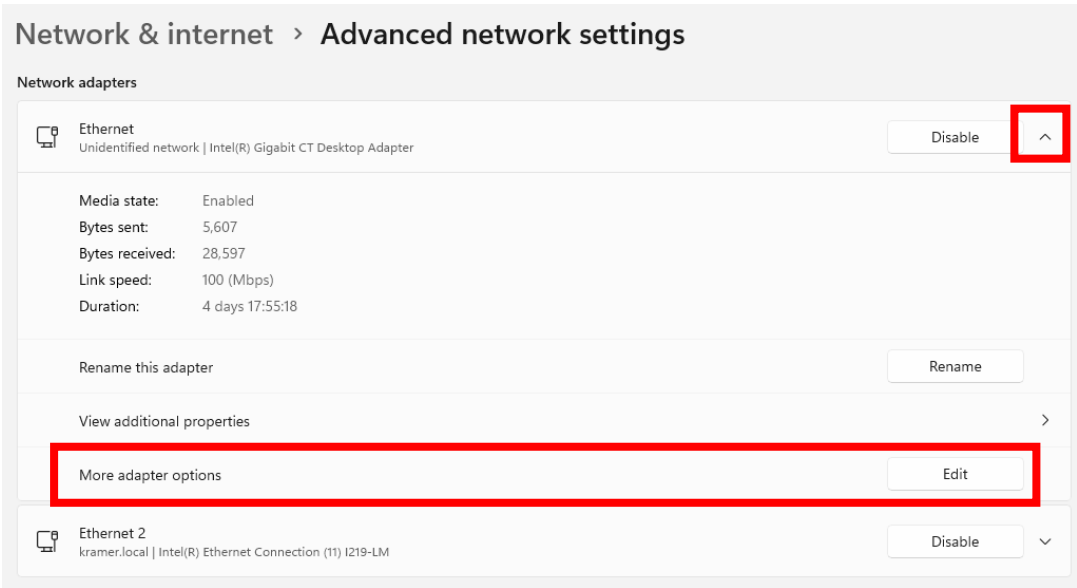


Figure 4: Network adapter details

- In the **More adapter options** row, click **Edit**. The **Ethernet Properties** window for the selected network adapter appears as shown below.

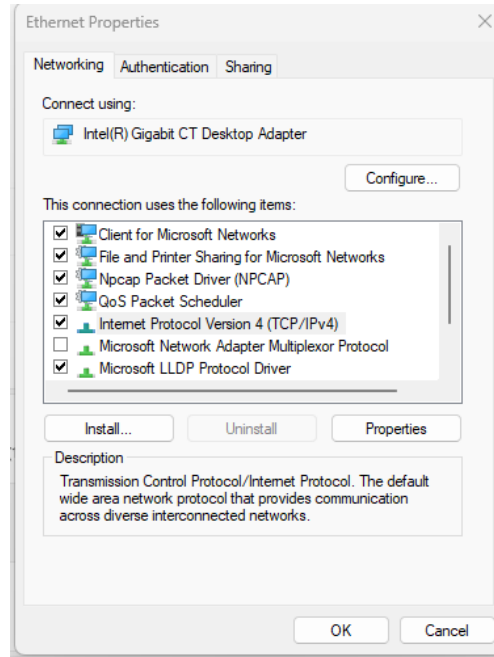


Figure 5: Ethernet Properties Window

- Highlight **Internet Protocol Version 4 (TCP/IPv4)**.
- Click **Properties**. The Internet Protocol Properties window appears as shown below.

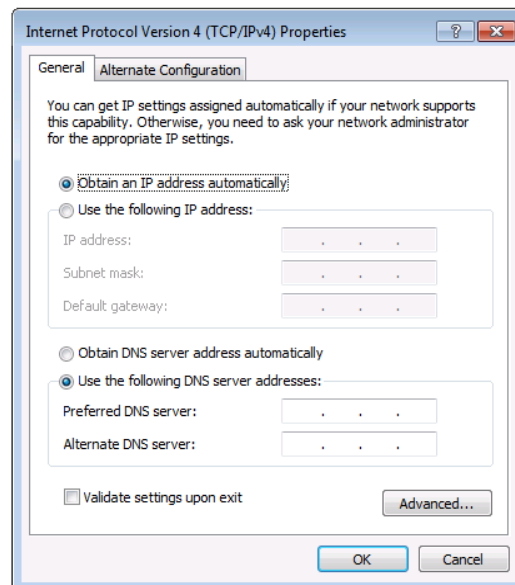


Figure 6: Internet Protocol Version 4 Properties Window

- Select **Use the following IP Address** for static IP addressing and fill in the details as shown in Figure 7.
For TCP/IPv4 you can use any IP address in the range 192.168.1.1 to 192.168.1.255 (excluding 192.168.1.39) that is provided by your IT department.

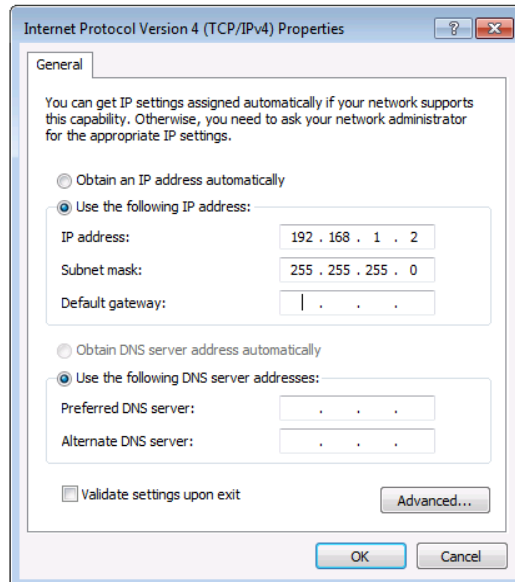


Figure 7: Internet Protocol Properties Window

6. Click **OK**.
7. Click **Close**.

Connecting the Ethernet Port to a Network Hub or Switch

You can connect the Ethernet port of **KDS-7-MNGR** to the Ethernet port on a network hub using an RJ-45 cable.

Configuring Ethernet Port


You can set the Ethernet parameters via the embedded web pages.

Controlling KDS-7-MNGR: The Embedded Web Pages

KDS-7-MNGR and can be operated remotely using the embedded web pages. The web pages are accessed using a Web browser and an Ethernet connection.

To Browse the KDS-7-MNGR Web Pages:

1. Type the IP address of the device in the address bar of an internet browser connected to the same network as the KDS-7-MNGR. For example, the default IP number:

 The Login window appears:

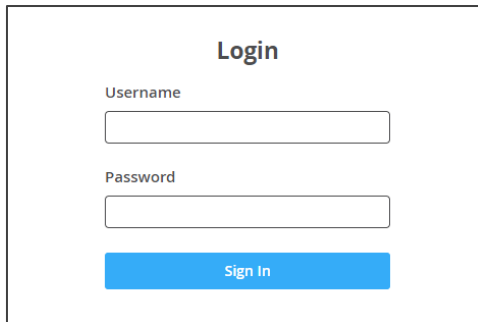


Figure 8: Login Window

2. Enter the Username and Password (admin/admin, by default).
KDS-7-MNGR page appears (the AV Routing tab in the Main page).

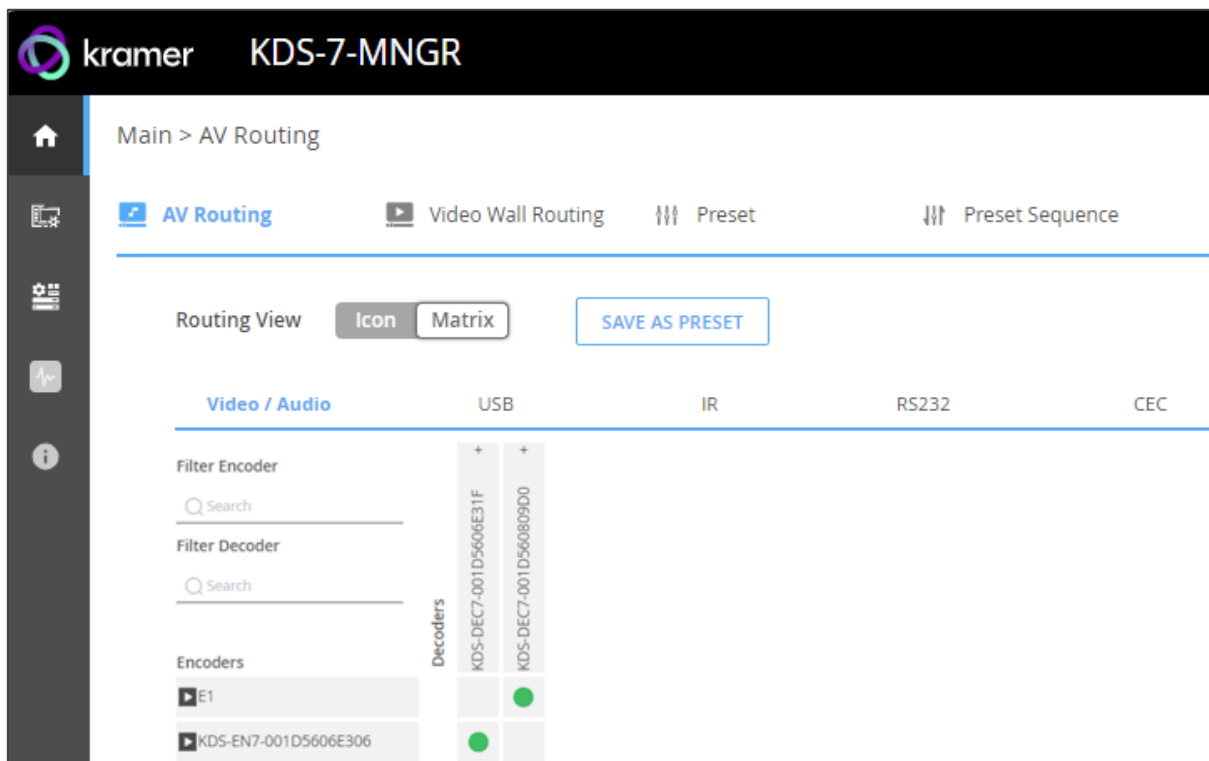


Figure 9: Controller Application Page with Navigation List on Left

8. Click the tabs on the left side of the screen to access the relevant web page.

Main page

Set the **KDS-7-MNGR** AV routing parameters.

Introduction and presets

1. In the Navigation pane, Select **Main > AV Routing**. The AV Routing page appears (see [Figure 9](#)).
2. In **Routing View** click **Matrix** (default) to view the system as a matrix (see [Figure 9](#)) and **Icon** to see each encoder/decoder as an icon.
3. Click **SAVE AS PRESET**: to save this setting as a preset.

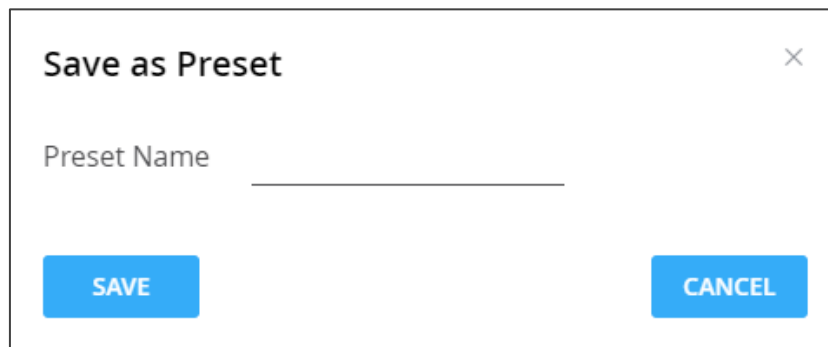



Figure 10: Saving a Preset

Enter the preset name and then click **SAVE**.



A/V routing is saved as a preset for **KDS-7-MNGR**. the **Preset** tab lists the presets. Preset name is alphanumeric and can include hyphens and underscores within the name.

4. Under Encoder/Decoder Filters, enter the name of an encoder or decoder, to find a specific device from the device list.
5. Click  next to an encoder to watch a preview of the streaming.

Routing parameters are defined.

Icon vs Matrix routing view

KDS-7-MNGR enables routing AV signals as well as USB, IR, RS-232 and CEC signals.



If routing view is set to Icon: All signals are routed together by dragging and dropping an encoder icon to a decoder.

If routing view is set to Matrix: Select each signal separately.

KDS-7-MNGR enables routing and managing the signals as follows:

- [Main page > Video / Audio routing](#) on page 19.
- [USB routing](#) on page 20.
- [IR routing](#) on page 21.
- [RS-232 routing](#) on page 22.
- [CEC routing](#) on page 23.
- [Main page > Video Wall Routing](#) on page 24.
- [Main page > Preset management](#) on page 26.
- [Main page > Preset Sequence](#) on page 27.

Main page > Video / Audio routing

To route a signal from an encoder to a decoder:

1. Open **Main > AV Routing** and select the Video/Audio signal tab.
2. Check the cross-point between an encoder and decoder to pass both audio and video from the encoder. Or
Click **+** to separate the signal into video and audio and check a separate cross-point for each.

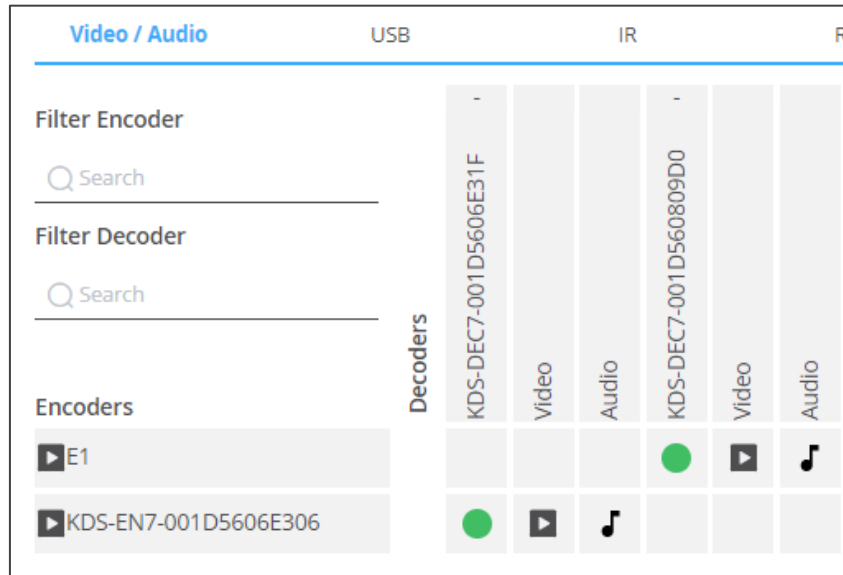


Figure 11: Separating Video and Audio Signals

3. If required, split the audio and video sources (for example, the E1 decoder streams the video, and the other decoder streams the audio).

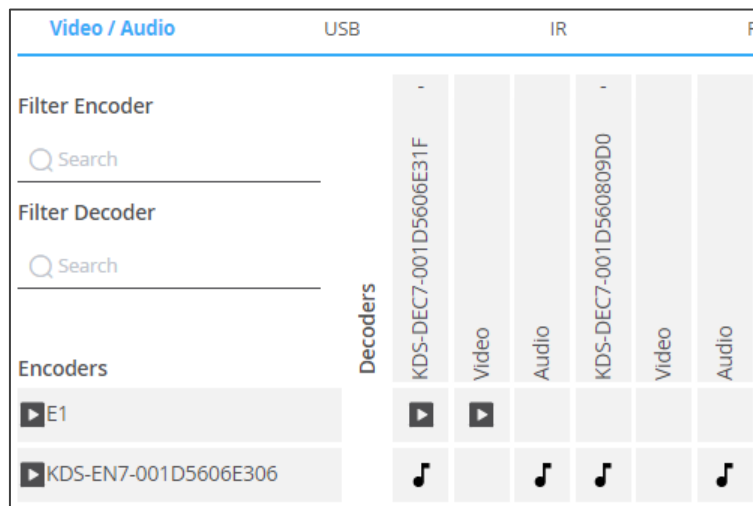


Figure 12: Streaming Audio and Video from Separate Sources

4. To set the audio direction between the devices, go to **Device Management > Devices** and select the **Control** tab.

USB routing

To route a USB signal, perform the following actions.

- [Configuring KVM Settings](#) on the decoders on page 20.
- [Routing the USB Signal](#) on page 20.

Configuring KVM Settings on the decoders

Configure each decoder to enable passing a USB signal between decoders and encoders

1. Access the [decoder UI](#).
2. Open **Main > AV Routing** and open the **KVM Combiner** tab.
3. Enable **Optimized for KVM**.

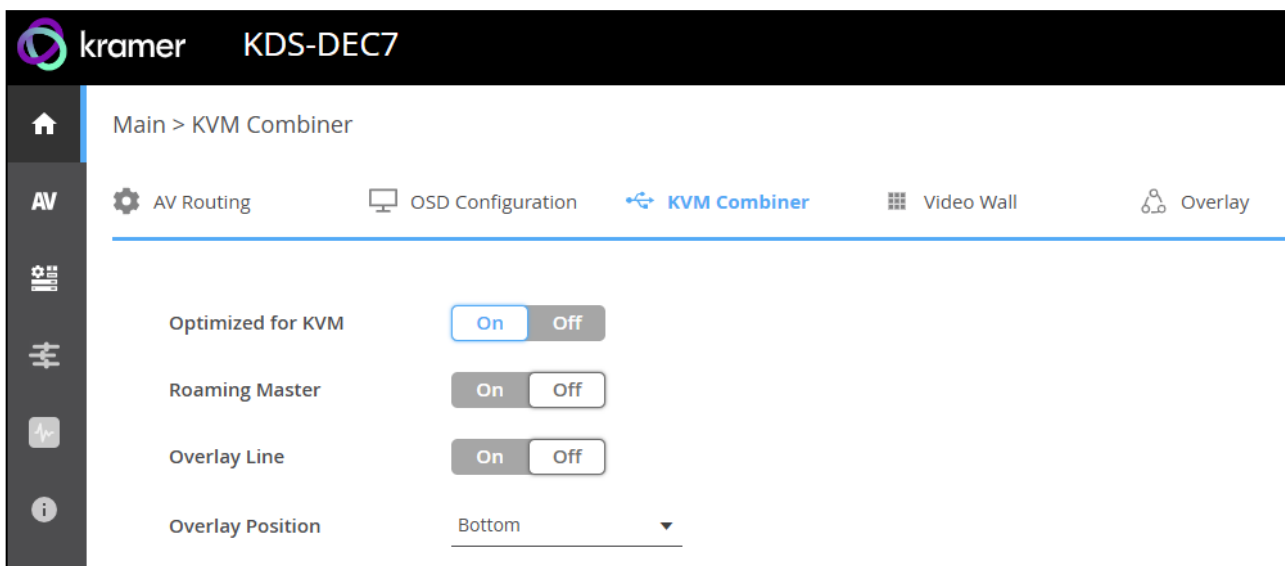


Figure 13: KDS-DEC (decoder) – KVM Combiner Tab



In **USB Emulation mode**, you can use only a keyboard and mouse, smart boards, and storage devices on the decoder.

Routing the USB Signal

To route **USB signals from a decoder to the encoder**:

1. In the KDS-7-MNGR, open **Main > AV Routing** and select the **USB** tab.
2. Check the cross-point between the encoder and decoder.

The USB signal is routed from the decoder to the encoder.

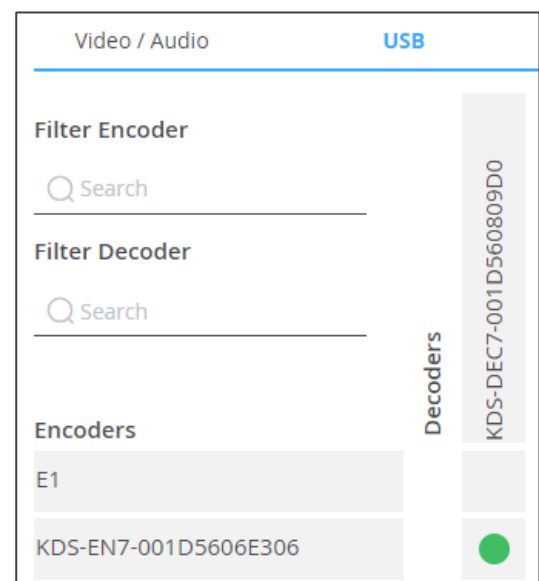


Figure 14: Switching a USB Signal

IR routing

Before routing an IR signal make sure that you properly connect IR emitters and receivers to the encoders and decoders in the system. For example, in the following setup the encoder IR direction is In and the Decoder direction is Out.

Make sure that IR signals are also enabled on the encoder and decoder devices.

Note: IR signals can also be sent from the KDS-7-MNGR to online encoders and decoders.

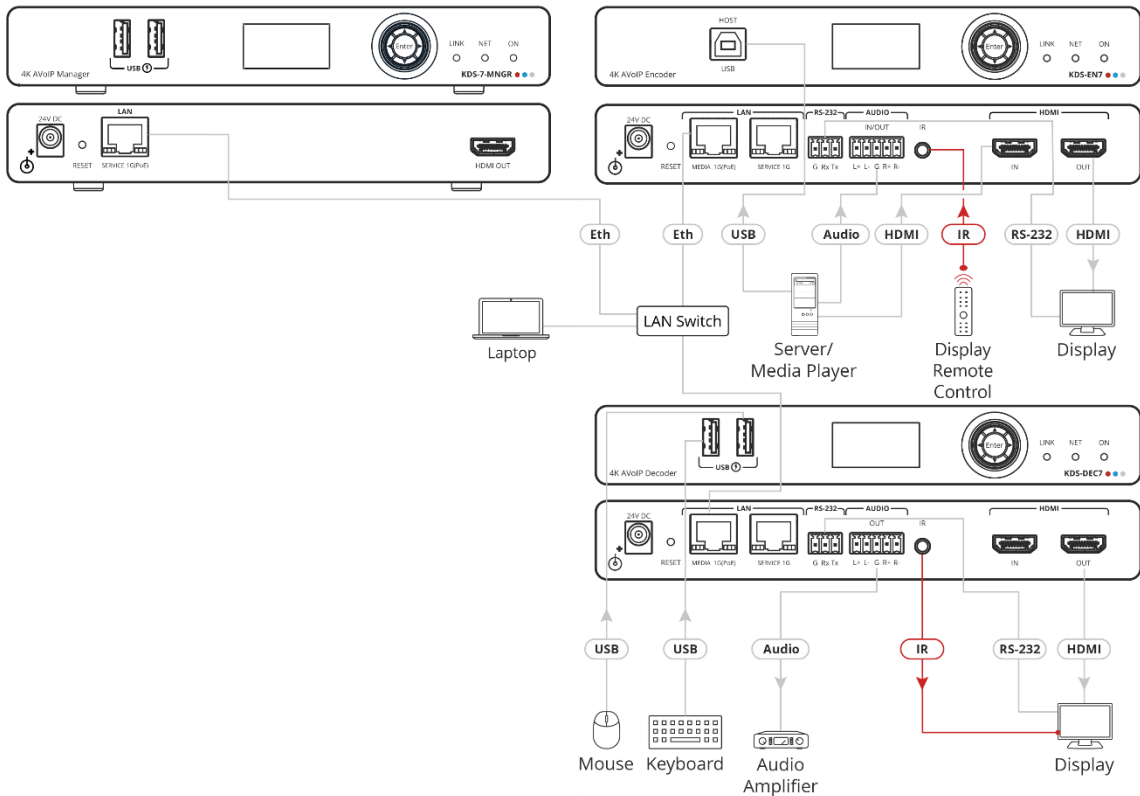


Figure 15: IR Signal Routing

Routing the IR Signal

To route the IR signal:

1. Open **Main > AV Routing** and select the **IR** tab.
2. Check the cross-point between the encoder and the decoder.

A green circle indicates that the IR signal is routed between the encoder and the decoder.

To set the IR signal direction, select **Device Management > Devices** and then select the **Control** sub-tab.

- To send IR commands from KDS-7-MNGR to an encoder or decoder, open **Device Management > Gateway** and select an (active) device to receive the commands.

Video / Audio	USB	IR
Filter Encoder		
Q Search		
Filter Decoder		
Q Search		
		Decoders
		KDS-DEC7-001D5606E31F
		KDS-DEC7-001D560809D0
Encoders		
E1		●
KDS-EN7-001D5606E306	●	

Figure 16: Routing an IR Signal

RS-232 routing

Before routing an RS-232 signal, connect RS-232 devices to the Decoder Encoder ports as required.

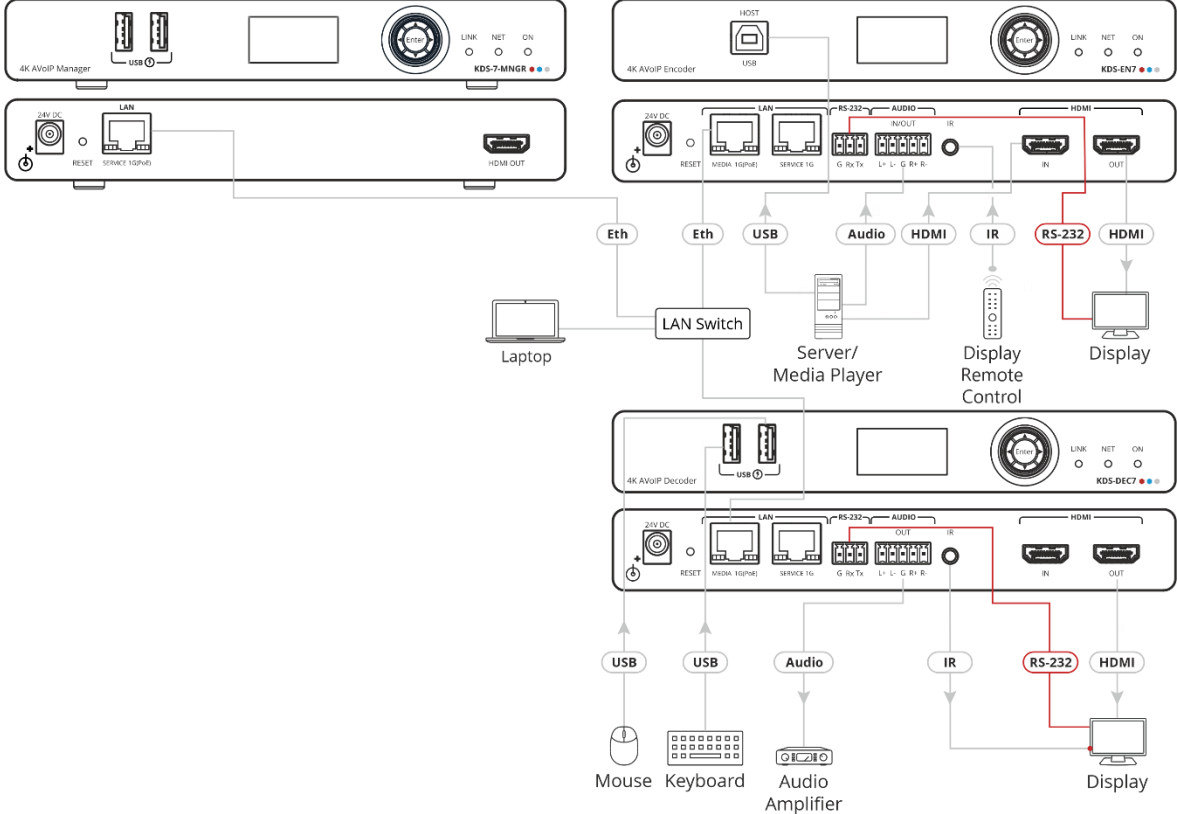


Figure 17: RS-232 Signal Routing

Since the RS-232 ports on the encoders and decoders are set to RS-232 Gateway by default, you need to change their settings on the devices themselves before routing RS-232 signals between encoders and decoders.

Note: RS-232 signals can also be sent from KDS-7-MNGR to online encoders and decoders.

Routing the RS-232 Signal

To route a signal from an encoder to a decoder:

1. Open **Main > AV Routing** and select the RS-232 signal tab.

Video / Audio	USB	IR	RS232
Filter Encoder Q Search			
Filter Decoder Q Search			
Encoders	Decoders		
E1 KDS-EN7-001D5606E306	KDS-DEC7-001D5606E31F	KDS-DEC7-001D560809D0	<div style="display: flex; justify-content: space-around;"> ● ● </div>

2. Check the cross-point between the encoder and the decoder.
A green circle indicates that the RS-232 signal is routed from the encoder to the decoder.

- To set the RS-232 parameters, select **Device Management > Devices** and then select the **Control** sub-tab.
- To send RS-232 commands from KDS-7-MNGR to an encoder or decoder, open **Device Management > Gateway** and select an (active) device to receive the command.

CEC routing

Before routing CEC signals between encoders and decoders you need to disable the CEC gateway on the encoders and decoders.

Routing the CEC Signal

To route a signal from an encoder to a decoder:

- 1. In the **Main > AV Routing** page, select the **CEC** tab.
- 2. Check the cross-point between the encoder and the decoder.

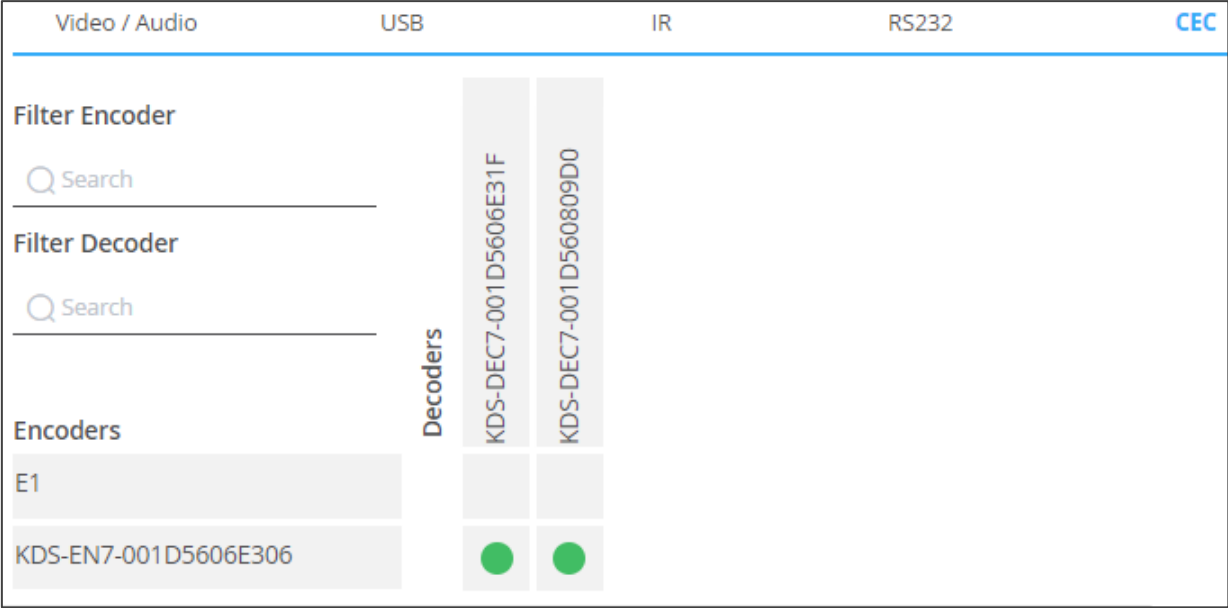


Figure 18: Routing an RS-232 Signal

A green circle indicates that the CEC signal is routed between the encoder and the decoder.

- To send CEC commands from KDS-7-MNGR to an encoder or a decoder, open **Device Management > Gateway** and select the (active) devices to receive the CEC command.

Main page > Video Wall Routing

Stages of creating a video wall:

1. **Define the video wall and select its decoders** in [Device Management > Video Walls](#) on page [38](#).
2. **Select the encoders** used by the video wall in **Main page > Video Wall Routing** (this page).

To route a signal or signals to a video wall:

1. Open **Main > Video Wall Routing**.

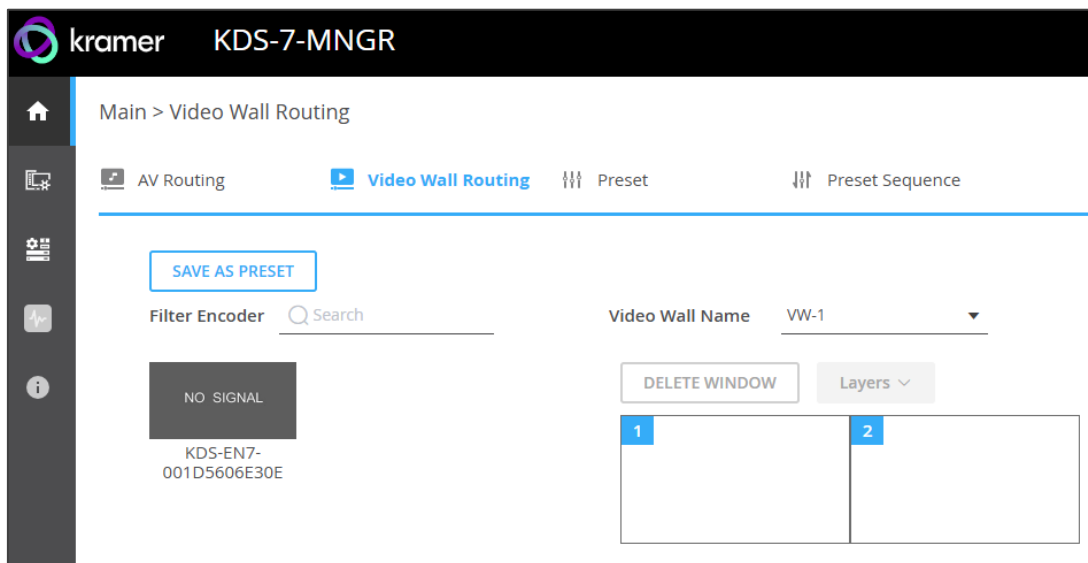


Figure 19: Main Page – Video Wall Routing Tab

2. Select the **Video Wall Name** from the drop-down on the right.
3. Drag the encoder that will stream to the video wall and drop it on the video wall image.

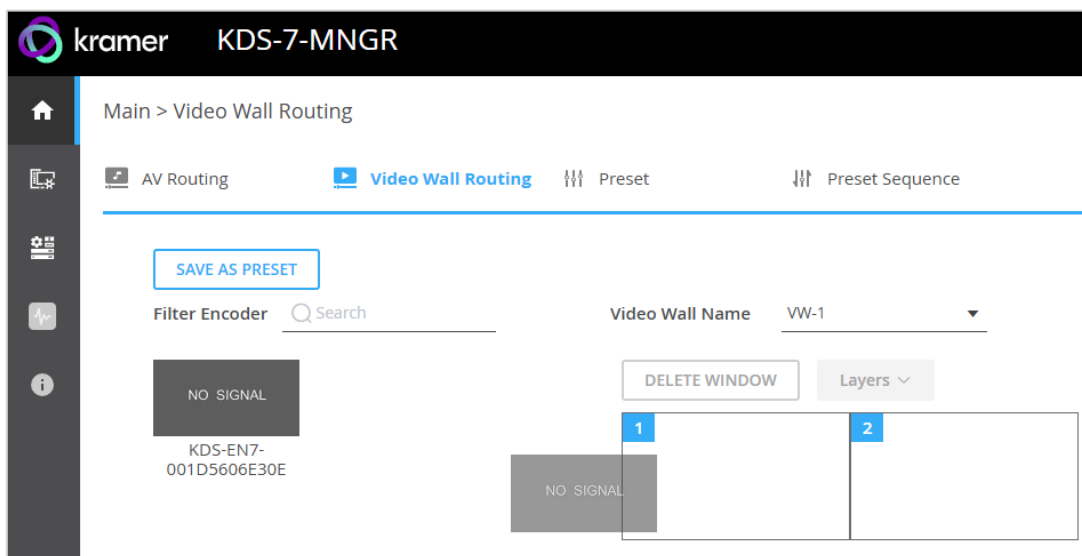


Figure 20: Dragging an Encoder Source

4. **Select and drag** the same encoder or a different encoder. In the example below, each screen (that is connected to a decoder) displays a different source.

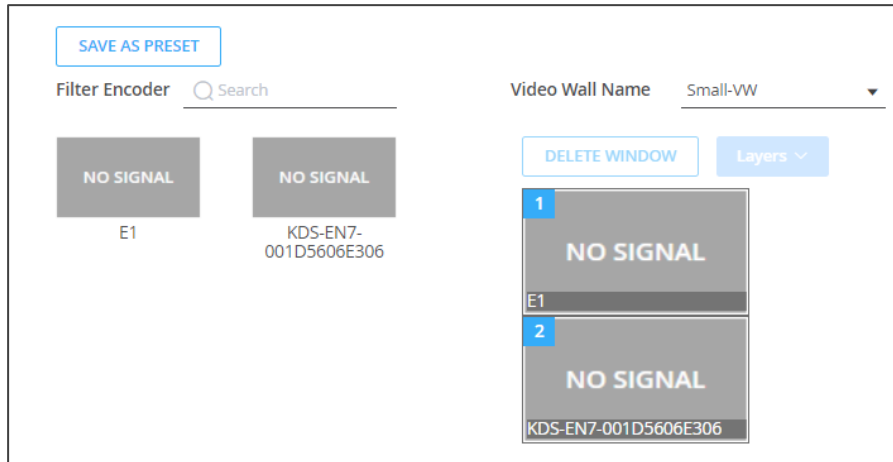


Figure 21: Video Wall Encoders Setting

5. **Stretch the encoder** (click it and then drag the handles) that is in the video wall window to sit the video wall to show one image stretched over multiple screens. In the example below, the E1 decoder is stretched over the video wall.

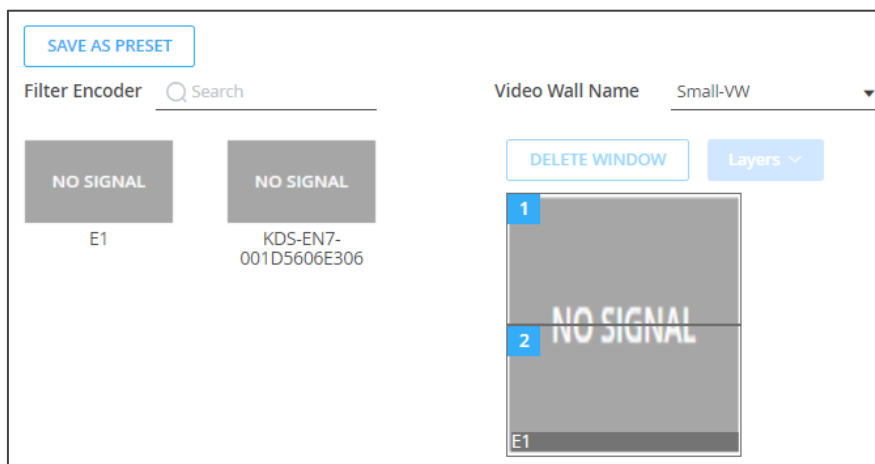


Figure 22: Video Wall – Stretching an Image Over the Video Wall

2. Additional options:

- **Filter Encoder** - Limits the encoder display.
 - **DELETE WINDOW** – Click a video wall window and click Delete Window to remove the encoder.
3. Use the Layers drop-down box to set the window layer:
- **Put to Top** – Place the selected window on the top (first) layer.
 - **Put to Bottom** – Place the selected window on the bottom (last) layer.
 - **Move Forward** – Move one layer up.
 - **Move Back** – Move one layer down.



You can tile overlay up to 256 windows on a video wall layout.

4. Click **SAVE AS PRESET**. The preset is saved to the **Main>Preset** tab.

Main page > Preset management

The Presets tab lists the AV and Video Wall routing presets.

To manage the presets:

1. In the Navigation pane, Select **Device Management > Preset**. The Preset tab appears.

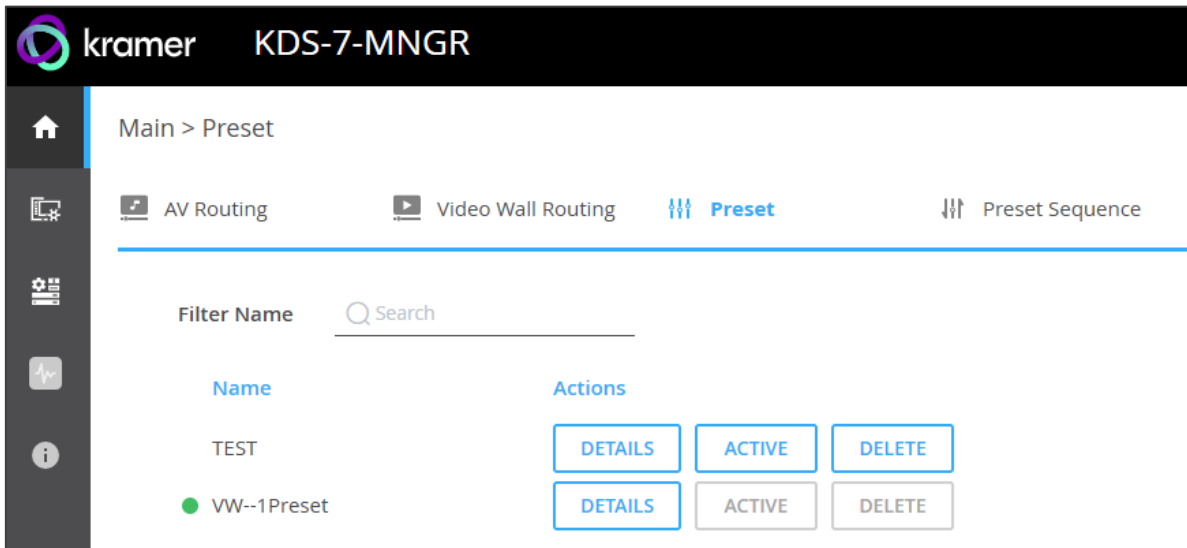


Figure 23: The Video Wall Tab

2. Perform the following actions:
 - Click **DETAILS** to view the preset details (details saved in JSON format).
 - Click **ACTIVE** to apply the preset. Active presets have a green circle next to their name.
 - Click **DELETE** to delete the preset.

Presets are managed.

Main page > Preset Sequence

Add a list of presets (as actions) to create a preset sequence list to carry out.

To configure and run a preset sequence:

1. Select **Main > Preset Sequence**. The Preset tab appears.

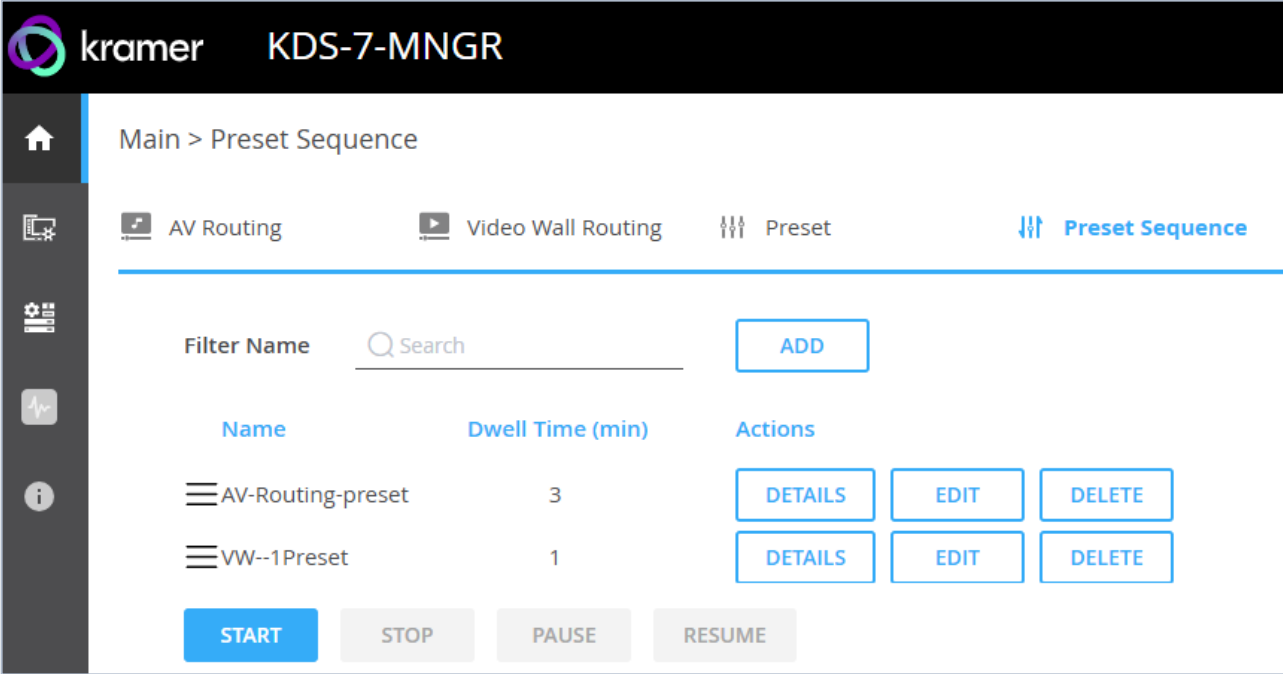


Figure 24: Preset Sequence Page

2. Click **ADD** or enter a preset name to open the drop-down preset list.

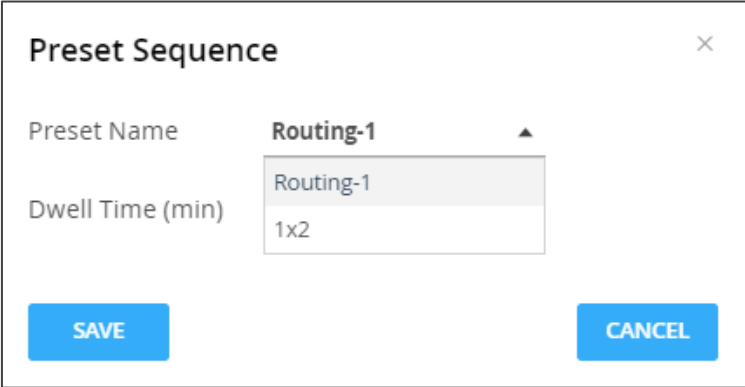


Figure 25: Preset Sequence Window

3. Select the preset from the list and set the Dwell Time (run time) in minutes.
4. Click **SAVE**.

5. In the same way add more presets to the list as needed.

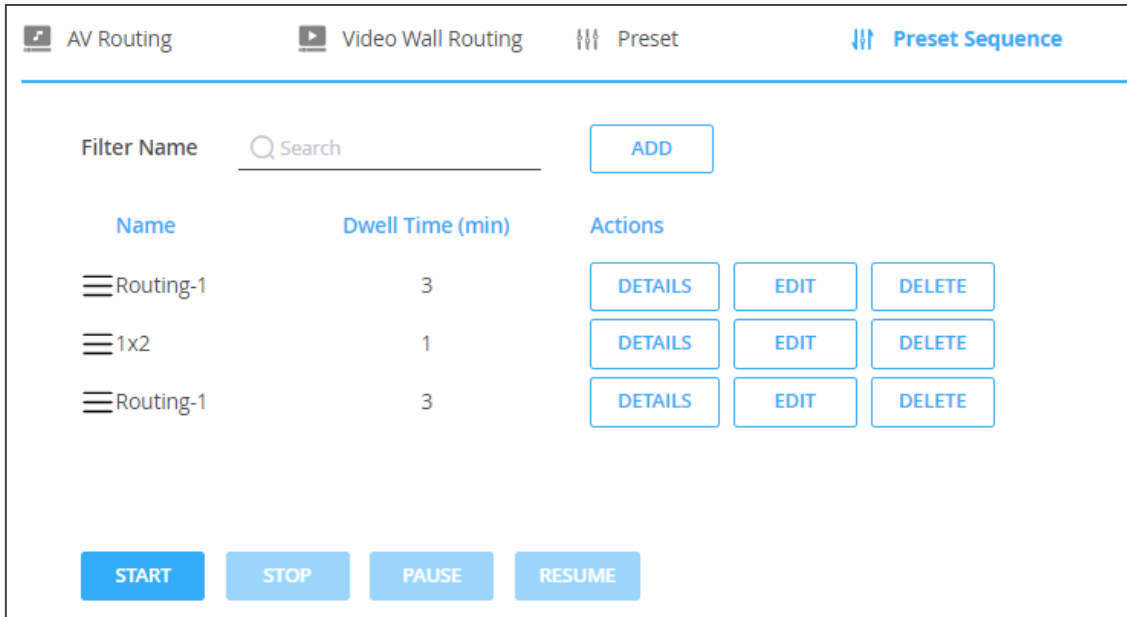


Figure 26: Preset Sequence List

6. For each Preset you can:

- Click **DETAILS** to view the preset setup.
- Click **EDIT** to replace the preset with a different one or change the run time.
- Click **DELETE** to delete the preset from the list

7. Manage the preset sequence:

- Click **START** to run the preset sequence.
- Click **STOP** to stop the sequence.
- Click **PAUSE** to pause the preset sequence.
- Click **RESUME** to resume the preset sequence.

The preset sequence is configured.

Device Management

KDS-7-MNGR enables performing the following actions:


- [Device Management > Devices](#) on page [29](#).
- [Device Management > Groups](#) on page [36](#).
- [Device Management > Video Walls](#) on page [38](#).
- [Device Management > KVM /USB](#) on page [43](#).
- [Device Management > Gateway \(RS-232, IR, CEC\)](#) on page [45](#).

Device Management > Devices

The **Devices** tab manages the individual encoders and decoders in the system, enabling the following actions:

- [Status \(of a device\)](#) on page [30](#).
- [Network settings](#) on page [31](#).
- [HDMI management](#) on page [32](#).
- [Firmware management](#) on page [33](#).
- [Control \(audio, IR, RS-232 signal management\)](#) on page [34](#).

Status (of a device)

 A green indication light next to a device, indicates that a device is online.

To view and manage devices' status:

1. In the Navigation pane, Select **Device Management > Devices**. The **Status** tab opens.

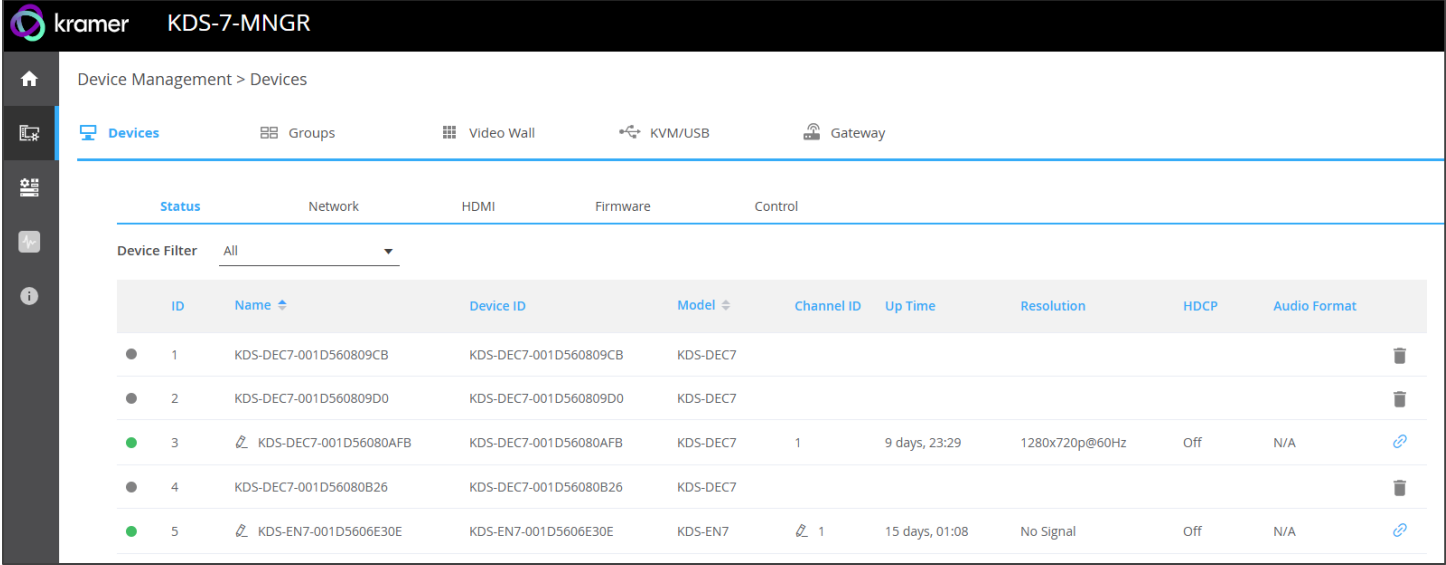





Figure 27: Device Status Page

2. The Status tab lists the devices defined in the Manager and shows a green circle next to those that are online. If the device is online, the list shows channel being used, the up time, resolution, HDCP status and audio format.

The following options are available for online devices:

-  Click this icon on the right, to open the device's embedded management web pages
-  Click this icon in the Name column, to change the name of the device.
-  Click this icon in the Channel ID column, to change the channel used by the device.

Devices status is managed.

Network settings

Manage the Network parameters of the connected encoders/decoders in the system



A green indication light next to a device, indicates that a device is online and connected to KDS-7-MNGR.

To Manage Network Parameters:

1. Select **Device Management > Devices** and then select the **Network** tab.

Device Management > Devices

Devices Groups Video Wall KVM/USB Gateway

Status **Network** HDMI Firmware Control

Device Filter All Service Filter Stream

ID	Name	Model	MAC Address	Port	802.1Q	VLAN Tag	CoS	DSCP	DHCP	IP Address	Mask Address	Gateway Address	DNS Address
				Media	Off	2	0	0	On				
<input type="checkbox"/>	1	KDS-DEC7-001D560809CB	KDS-DEC7	00-1D-56-08-09-CB	N/A	N/A	N/A	N/A	Off	N/A	N/A	N/A	0.0.0.0
<input type="checkbox"/>	2	KDS-DEC7-001D560809D0	KDS-DEC7	00-1D-56-08-09-D0	N/A	N/A	N/A	N/A	Off	N/A	N/A	N/A	0.0.0.0
<input type="checkbox"/>	3	KDS-DEC7-001D56080AFB	KDS-DEC7	00-1D-56-08-0A-FB	Media	Off	N/A	5	46	On	192.168.1.40	255.255.0.0	0.0.0.0
<input type="checkbox"/>	4	KDS-DEC7-001D56080B26	KDS-DEC7	00-1D-56-08-0B-26	N/A	N/A	N/A	N/A	Off	N/A	N/A	N/A	0.0.0.0
<input type="checkbox"/>	5	KDS-EN7-001D5606E30E	KDS-EN7	00-1D-56-06-E3-0E	Media	Off	N/A	5	46	On	192.168.1.39	255.255.0.0	0.0.0.0

APPLY

Figure 28: Network Tab

2. Mark checkboxes to make changes to devices.
3. Use the dropdown boxes to change the Port, 802.1Q and DHCP.
 - If 802.1Q is enabled, you can set VLAN tags, CoS and DSCP.
 - If DHCP is Off, you can define IP, Mask, Gateway and DNS addresses.

When disabling DHCP, define a static IP Address, Mask Address and Gateway Address for each port on the device.

4. After making changes, click **APPLY**.

Network parameters are managed.

HDMI management

Manage the HDMI signal on the encoders/decoders in the system.



A green indication light next to a device, indicates that a device is online.

To Manage HDMI Parameters:

1. Select **Device Management > Devices** and then select the **HDMI** tab.

Devices										
Groups										
Video Wall										
KVM/USB										
Gateway										
Status										
Network										
HDMI										
Firmware										
Control										
Filter: All										
ID	Name	HDCP Enable	HDMI Output	EDID	EDID Information			CEC		
			Pass Through		Preferred Timing	Max Timing	Audio			
<input type="checkbox"/>	1	E1	On	N/A	720P50_Dolby_DTS7.1_SDR.bin	No Signal	No Signal	N/A	N/A	
<input type="checkbox"/>	2	KDS-DEC7-001D5606E31F	N/A	Pass Through	<input type="button" value="SAVE"/>	1920x1080p@50Hz	3840x2160p@30Hz	LPCM	<input type="button" value="TV ON"/> <input type="button" value="TV OFF"/>	
<input type="checkbox"/>	3	KDS-DEC7-001D560809D0	N/A	Pass Through	<input type="button" value="SAVE"/>	1280x1024p@60Hz	1280x1024p@60Hz	N/A	<input type="button" value="TV ON"/> <input type="button" value="TV OFF"/>	
<input type="checkbox"/>	4	KDS-EN7-001D5606E306	On	N/A	default.bin	1920x1080p@50Hz	3840x2160p@30Hz	LPCM	N/A	
<input type="button" value="APPLY"/>										

Figure 29: HDMI Tab

2. Next to the device ID, mark the checkbox to make changes to a specific device. Only online devices (showing a green circle) can be updated.

- Use the **HDCP Enable** drop-down box to set HDCP status for each device.
- Use the **HDMI Output** drop-down box to set a decoder's output resolution.



When set to Pass Through, the output resolution is configured by the EDID of the encoder and the player's configuration.

- Use the **EDID** drop-down box to select any of the following EDID types:
 - Select Default to read the default EDID
 - Select an EDID from the list
 - Upload an EDID file to a selected encoder.

Click **APPLY** to make the changes.

3. In the **EDID** column click **SAVE** to save the EDID locally.
4. In the **CEC** columns, click **TV ON** or **TV OFF** (online decoders only) to switch on or off the display that is connected to that decoder (uses a CEC command).

HDMI signal is configured.

Firmware management

View and update the firmware on online devices. A green circle indicates that the device is online.

To upgrade the firmware:

1. Select **Device Management > Devices** and open the **Firmware** tab.

	Status	Network	HDMI	Firmware	Control		
Filter	All						
	ID	Name	Model	Update Date	Firmware	Status	Progress
<input type="checkbox"/>	1	E1	KDS-EN7	01-01-1970,18:20:31	v0.7.1	N/A	N/A
<input type="checkbox"/>	2	KDS-DEC7-001D5606E31F	KDS-DEC7	01-01-1970,00:01:49	v0.7.1	N/A	N/A
<input type="checkbox"/>	3	KDS-DEC7-001D560809D0	KDS-DEC7	01-01-1970,00:05:30	v0.7.1	N/A	N/A
<input type="checkbox"/>	4	KDS-EN7-001D5606E306	KDS-EN7	01-01-1970,00:02:01	v0.7.1	N/A	N/A

Figure 30: Firmware Tab

2. Mark the checkbox to make changes to a specific device.



You can only select online devices of the same model for firmware upgrades

3. Under Firmware, click **OPEN**.
4. Select and upload the firmware file.
5. Click **APPLY**.
6. View firmware status and upgrade. Firmware is complete when Progress reaches 100%
Firmware upgrade is complete.

Control (audio, IR, RS-232 signal management

Control device signals for online devices. A green circle indicates that a device is online.

To control audio, IR or RS-232 signals

1. In the Navigation pane, Select **Device Management > Devices**. Then select the **Control** sub-tab:

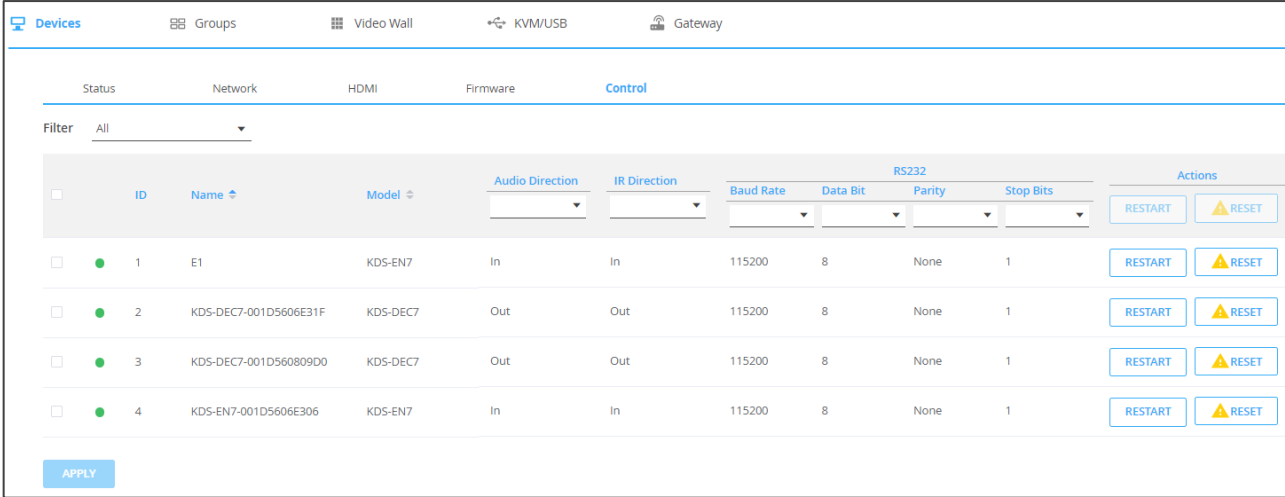
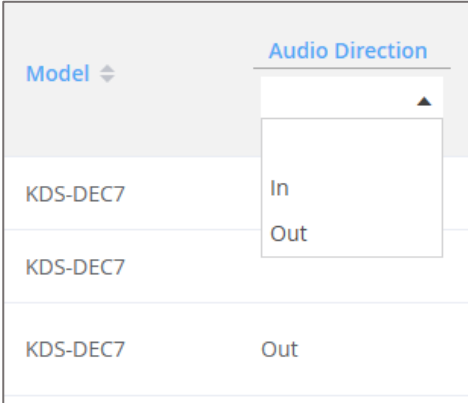


Figure 31: Control Tab

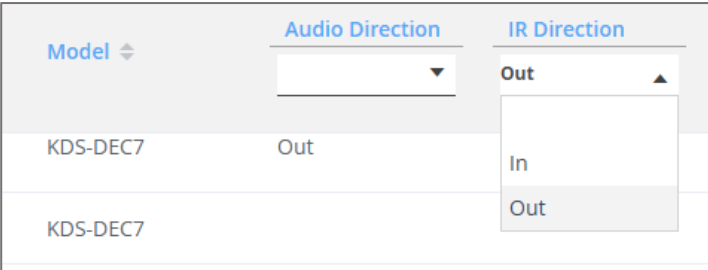
2. Next to the device ID, mark the **checkbox** to make changes (online devices only).



3. Open the **Audio Direction** drop-down box to define the direction of the audio port (note that this must be set on both the encoder AND the decoder).



4. Open the **IR Direction** drop-down box to define the IR signal as IR in or IR out (note that this must be set on both the encoder AND the decoder).



5. In the **RS-232** drop-downs, set the baud rate, data bit, parity and stop bits.

Model	Audio Direction	IR Direction	RS232			
			Baud Rate	Data Bit	Parity	Stop Bits
KDS-DEC7			115200			
KDS-DEC7			57600			
KDS-DEC7	Out	In	38400			
KDS-DEC7			19200	8	None	1
KDS-DEC7			9600			
KDS-DEC7			4800			
KDS-DEC7			2400			
KDS-EN7	In	In	1200	8	None	1

6. Remember to click **APPLY**.

To Restart/Reset devices

- Mark the checkboxes of devices you want to restart and click the **Restart** or **Reset** buttons in the at the top of the Actions columns.
- Click **Restart** or **Reset** in a specific row to restart/reset that device.

Model	Audio Direction	IR Direction	RS232				Actions	
			Baud Rate	Data Bit	Parity	Stop Bits	RESTART	RESET
KDS-DEC7								
KDS-DEC7								
KDS-DEC7	Out	In	115200	8	None	1	RESTART RESET	
KDS-DEC7								
KDS-EN7	In	In	115200	8	None	1	RESTART RESET	
AC KDS-SW3-EN7								

Device signals are managed.

Device Management > Groups

Create groups to manage encoders and decoders easily, for example, by routing a group of decoders to the same encoder.



- Only devices of the same type can be grouped. For example, encoder groups or decoder groups.
- You can assign a device to more than one group.
- If a device is assigned to a video wall, it cannot be assigned to a group.

To create a group:

1. Select **Device Management > Groups**; The Groups tab appears.

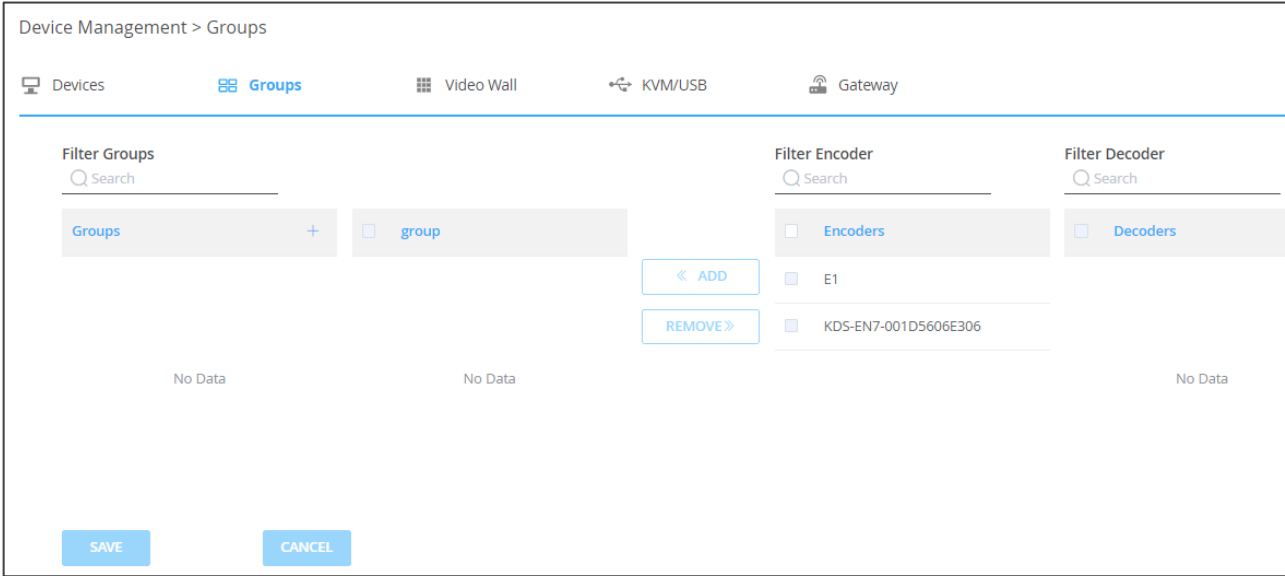


Figure 32: Groups Tab

2. Click **Groups +** to add a new group. The new group window appears.

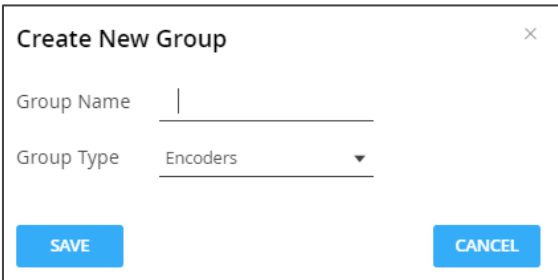


Figure 33: Creating a New Group

3. Enter the **Group Name**, set the **Group Type** and click **SAVE**.

4. Select the group and then check the encoders/decoders to add to the group.

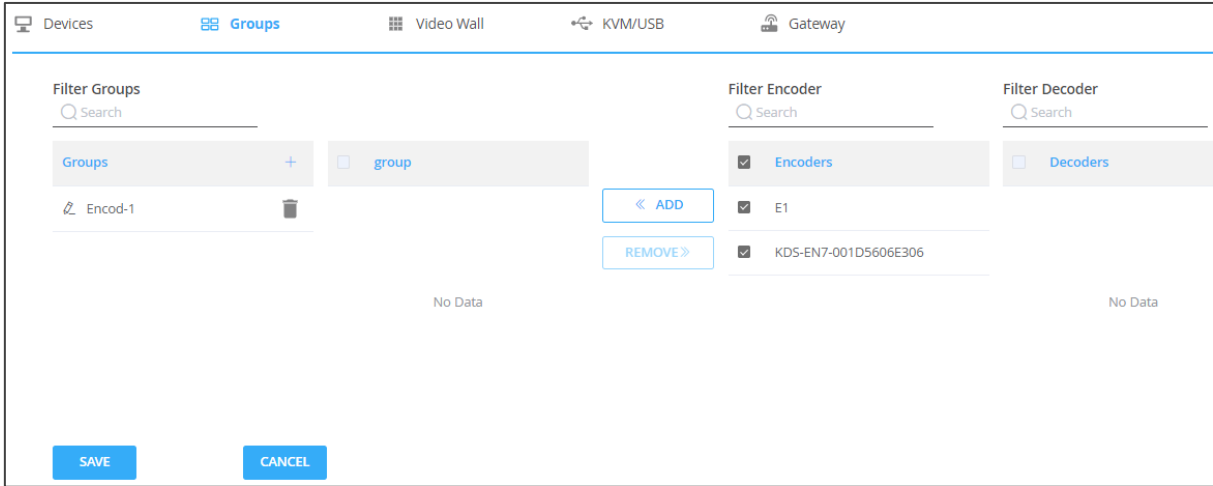


Figure 34: Creating Groups – Selecting Devices to Add to a Group

5. Click **ADD**. The devices are added to the group.

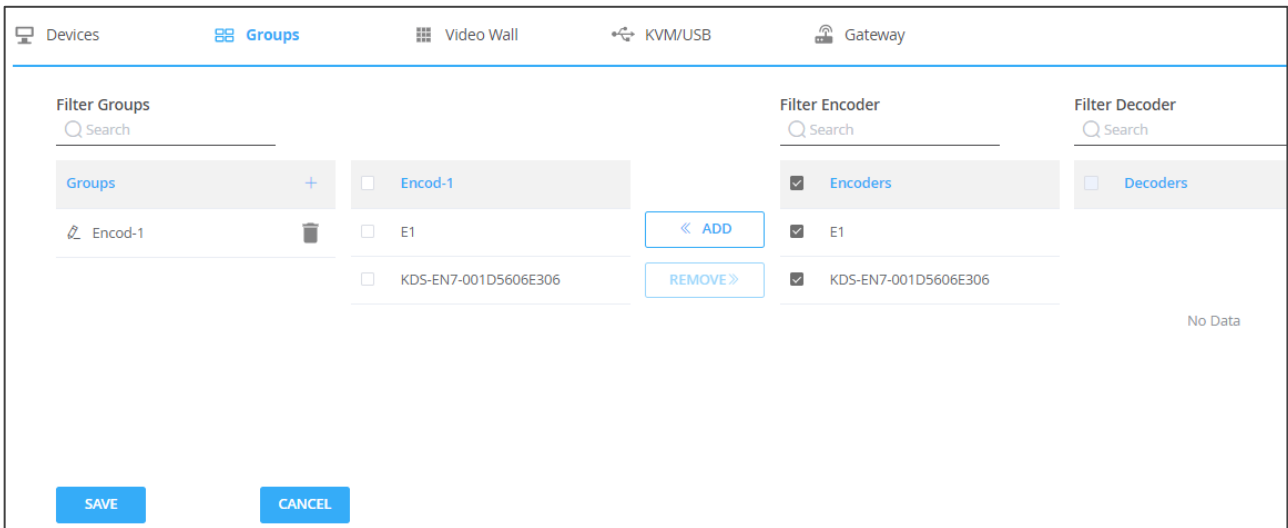


Figure 35: Encoders Group

6. Click **SAVE**. The group is saved.

7. Click **ADD**. The devices are added to the group.

A group is created.

Device Management > Video Walls

This screen creates video walls and associates decoders with screen locations in the video wall. The definitions assume that all displays are the same size.

To associate the decoders in the video wall with an encoder, go to **Main > Video Wall Routing**.

To create a video wall

1. Select **Device Management > Video Wall**, the Video Wall list is displayed.

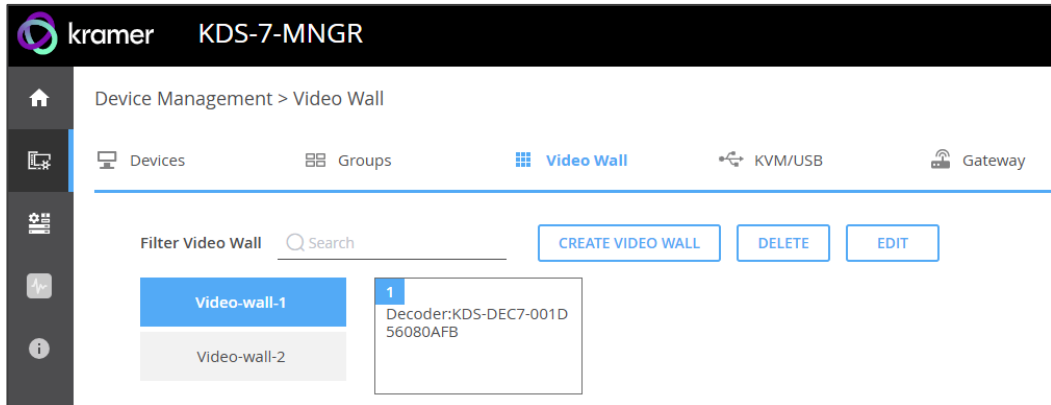
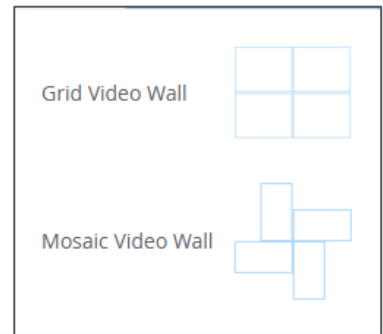


Figure 36: The Video Wall Tab

2. Click **CREATE VIDEO WALL**: You will be asked to choose between a **Grid Video Wall** and a **Mosaic Video Wall**:

- A grid is an orderly wall of equal size columns and equal size rows of displays.
- A mosaic is a freely associated set of displays, which can be set at different angles.



To create a grid video wall

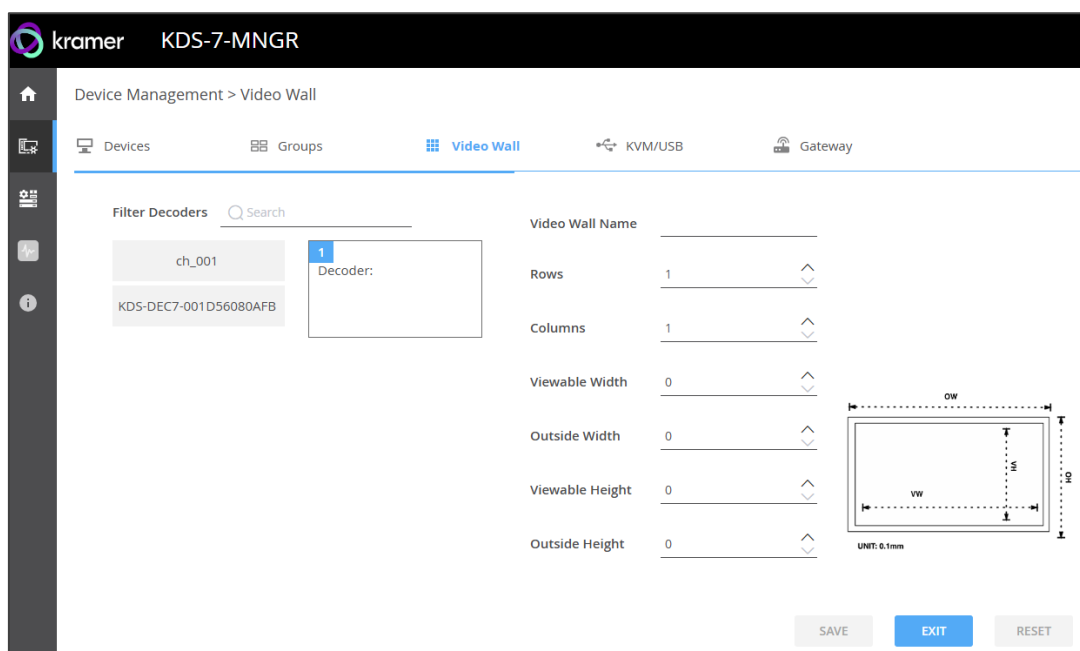


Figure 37: Configuring a Grid Video Wall

1. Set the following:

- Enter the video wall name (no spaces are allowed).
- Set the video wall's number of rows and columns. A separate online decoder will be required for each display.
- Enter the viewable width of the displays (VW).
- Enter the outside width of the displays (OW, width of the bezel).
- Enter the viewable height of the displays (VH).
- Enter the outside height of the displays (OH, height of the bezel).

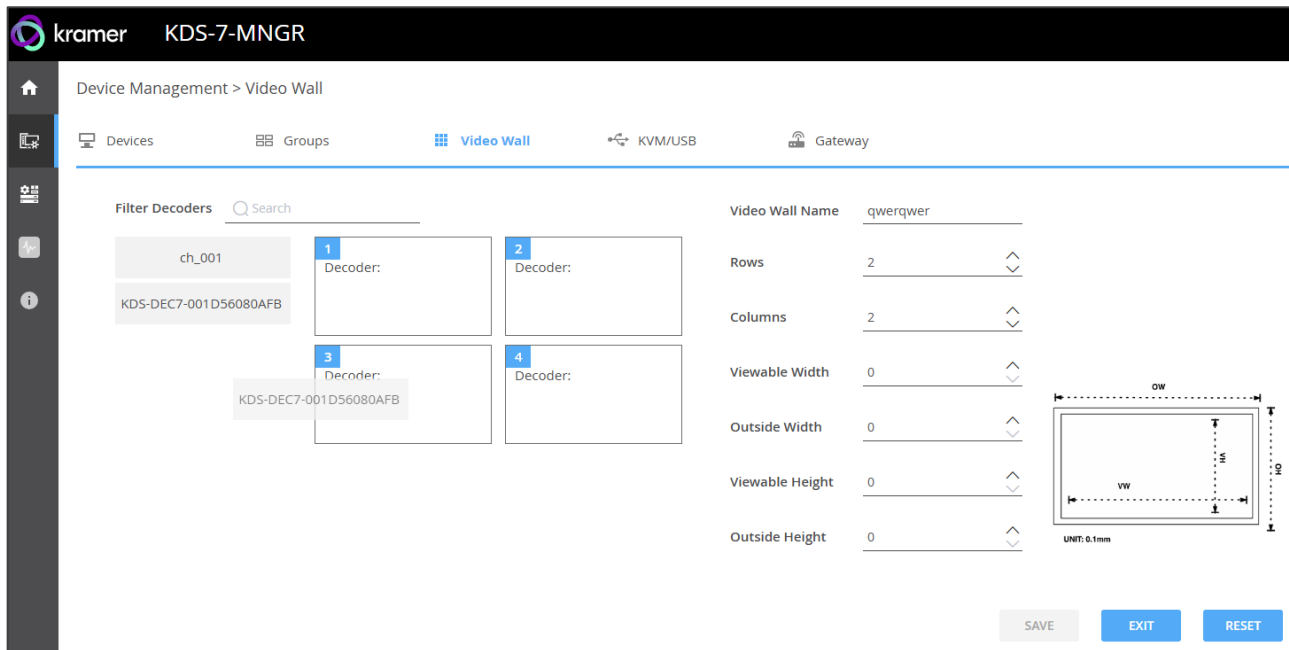


Figure 38: Video Wall Setup

2. Select one of the listed decoders (gray boxes on the left) and drag it onto one of the empty (it has a blue number) decoder boxes. The box represents a location in the video wall.

To remove a decoder from a box, highlight it and click the trash can.

- **Save** - The Video Wall can only be saved when the video wall has a name and all the boxes have decoders.
- **Exit** – Exits the video wall without saving any changes.
- **Reset** – Removes the edited changes.

3. Click **SAVE**. After saving a video wall:

- a. The video wall's name and structure cannot be edited.
- b. Decoders can be replaced by other decoders, but a box cannot be left with no decoder.
- c. The decoders in the video wall will need to be associated with an encoder in **Main > Video Wall Routing**.

4. Click EXIT to return to the video wall

To create a mosaic video wall

In a **Mosaic video wall**, display positions can be freely defined and do not have to be adjacent to each other. The video wall definitions assume that all displays are the same size.

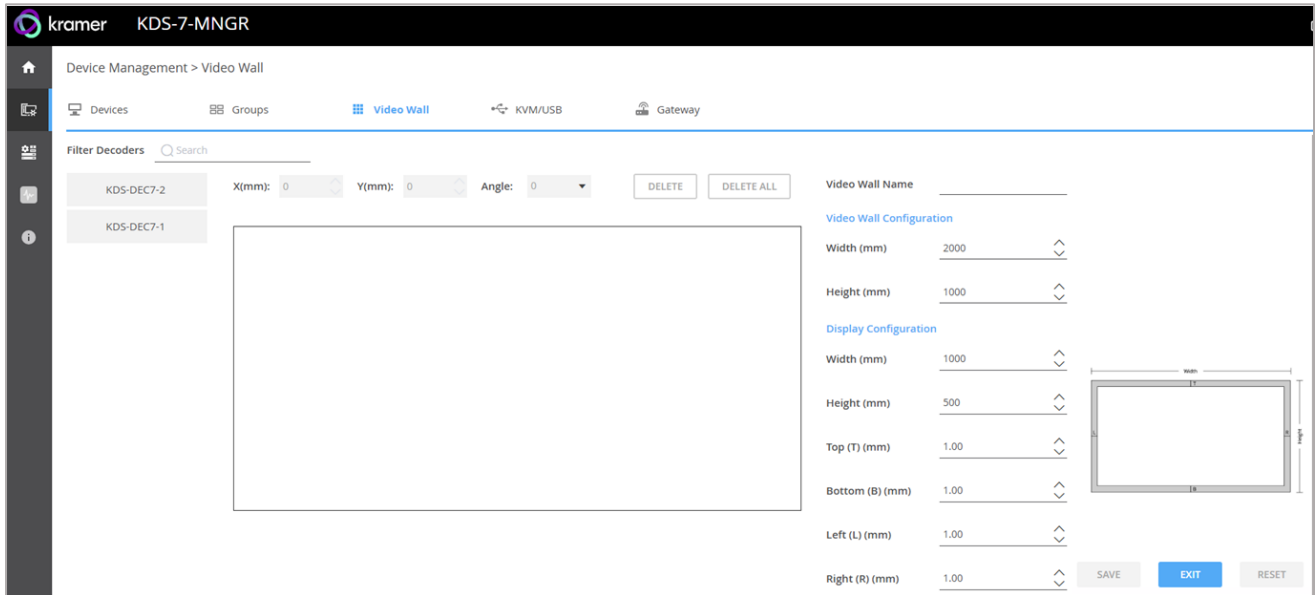


Figure 39: Mosaic Video Wall

1. Set the following:

- Enter the **Video Wall Name** (no spaces are allowed).
- Enter the **Video Wall Configuration** (width and height of the work area).
- Enter the **Display Configuration** (width and height). The space taken by a display in the work area will be adjusted according to the relative sizes of the work area and the display.

Top (T), bottom (B), left (L) and right (R) refer to the display's non-displaying bezel.

4. Select one of the listed decoders (gray boxes on the left in the image above) and drag it onto the video wall work area. A box will represent its location in the video wall.
 - a. The work area and display sizes can be adjusted after a display is dropped.
5. To move a display highlight it (it turns blue) and drag it.

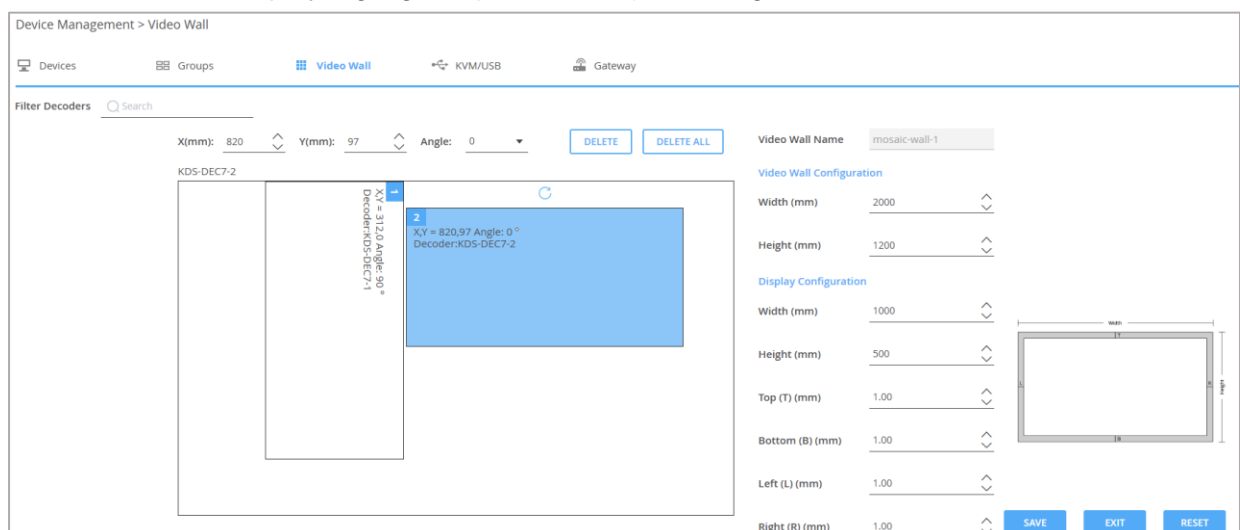


Figure 40: Mosaic video wall with selected screen

6. To delete a display, highlight it and click DELETE, or click DELETE ALL to remove all displays from the video wall work area.
7. Set the following above the work area:
 - The **Angle** of the display (0, 90, 180, 270).
 - The **X, Y** distance from the top left corner of the work area

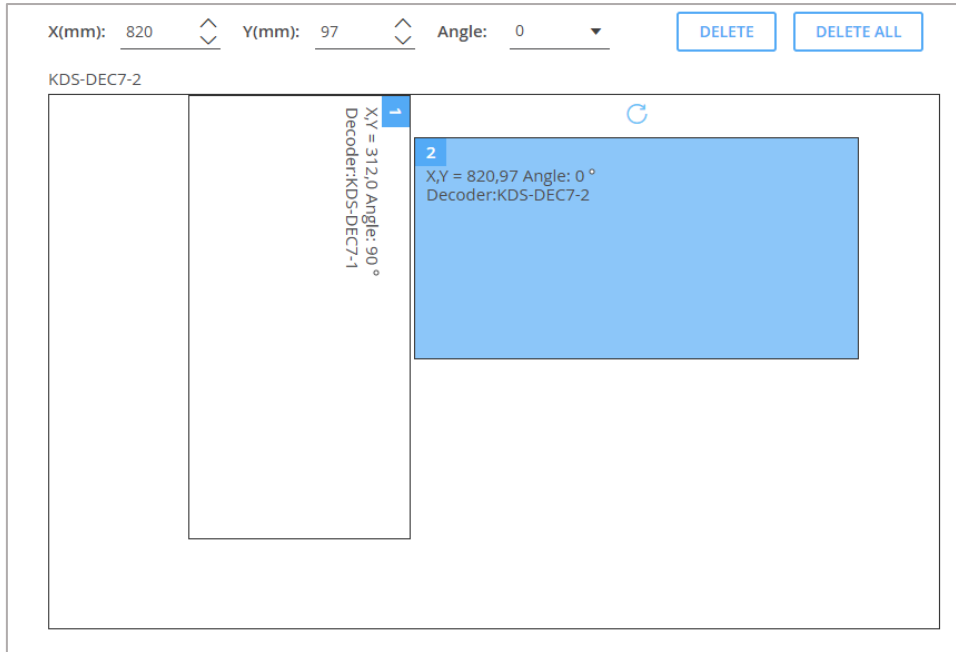


Figure 41: Configured Video Wall

8. Save the mosaic video wall.
 - **Save** - The Video Wall can only be saved when the video wall has a name and all the boxes have decoders.
 - **Exit** – Exits the video wall without saving any changes.
 - **Reset** – Removes the edited changes.
9. **After saving a video wall:**
 - a. The video wall's name cannot be edited.
 - b. The video wall's area and display locations CAN be edited.
 - c. Boxes (with their decoders) CAN be removed and replaced.
 - d. The decoders in the video wall will need to be associated with an encoder in **Main > Video Wall Routing**.

To edit or delete a video wall

- 1. Select **Device Management > Video Wall**, the Video Wall list is displayed.

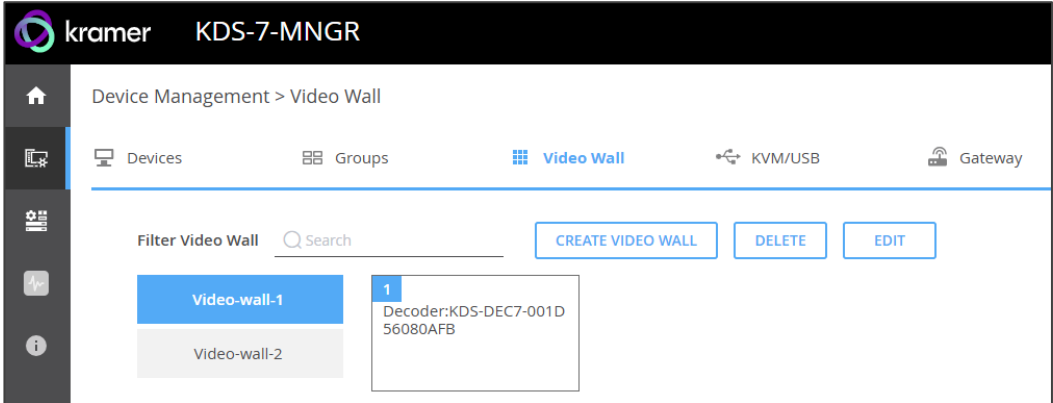


Figure 42: The Video Wall Tab

- 2. Select the video wall you want to edit or delete (it turns blue) and click DELETE or EDIT.

Device Management > KVM /USB

KVM configuration enables users to control multiple decoder screens with one set of keyboard and mouse.

To configure a KVM (to control 2 decoders, for example):

1. Select **Device Management > KVM/USB**. The KVM/USB tab appears.

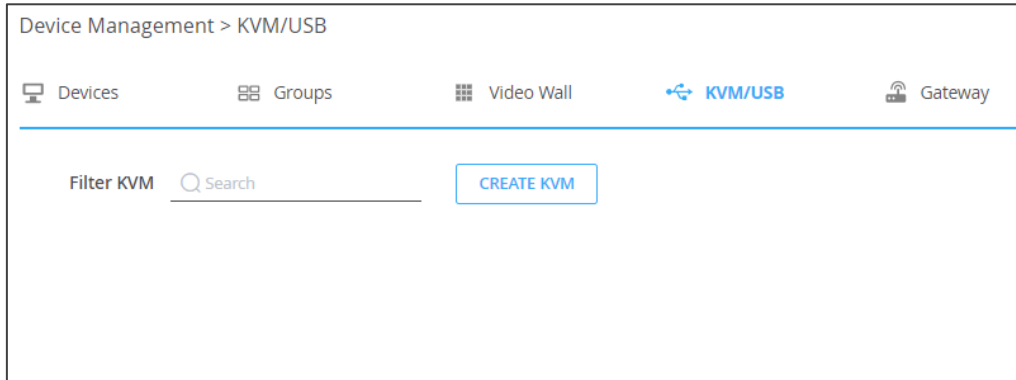


Figure 43: Device Management – KVM/USB Tab

2. Click **CREATE KVM**. KVM Group Name definition area appears.

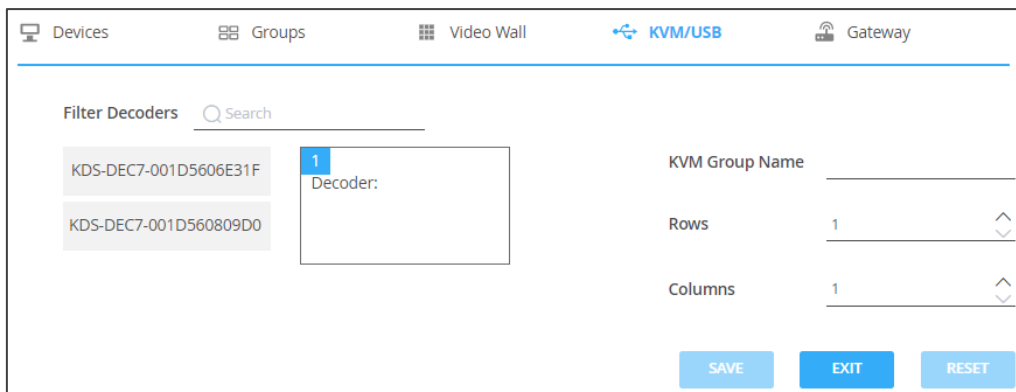


Figure 44: KVM/USB – Creating KVM Group Name

3. Enter the KVM group name (for example, KVM-1).
4. Set the number of rows and columns. For example, 1 row and 2 columns, indicating 2 displays side by side.

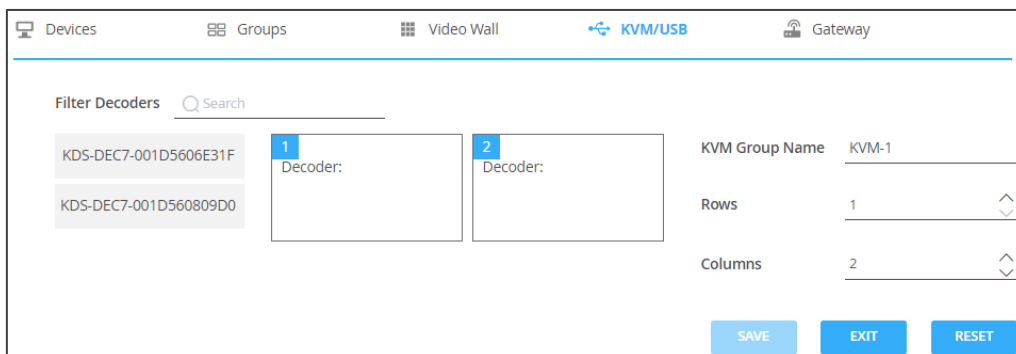


Figure 45: KVM/USB Page – setting the KVM Group.

5. Drag each decoder to its designated place.

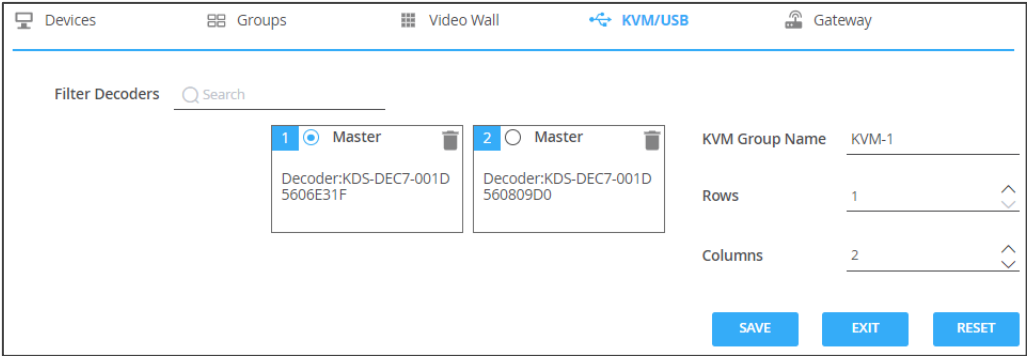


Figure 46: KVM/USB Page – Decoder Set in Place

- 6. Check the Master decoder to which the mouse and keyboard are connected.
 - 7. Click **SAVE**.
- KVM is configured.

Device Management > Gateway (RS-232, IR, CEC)

KDS-7-MNGR enables sending RS-232, IR and CEC commands to devices that are connected to encoders/decoders via RS-232, IR and CEC gateways.

To configure RS-232, IR and CEC gateways:

1. Connect any or all the following devices:
 - An RS-232 device to an RS-232 connector on an encoder/decoder.
 - An IR emitter and IR device.
 - For CEC: a CEC-enabled device, such as a CEC-enabled display.

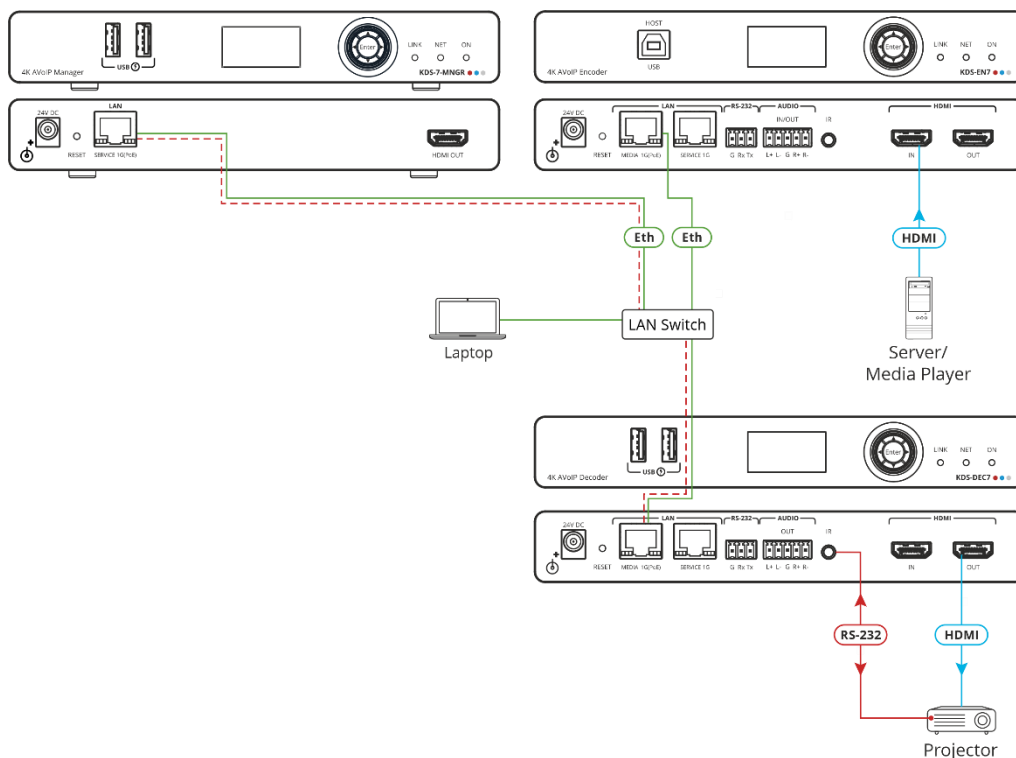


Figure 47: RS-232 Gateway Example

2. Check the following for each gateway:
 - For RS-232 Gateway: the RS-232 port is set to gateway on the encoder/decoder.
 - For IR Gateway: set IR port direction to IR out via **Device Management > Devices > Control > IR Direction**.
 - For CEC: the CEC gateway is enabled on the decoder.

3. Open the **Device Management > Gateway** tab.

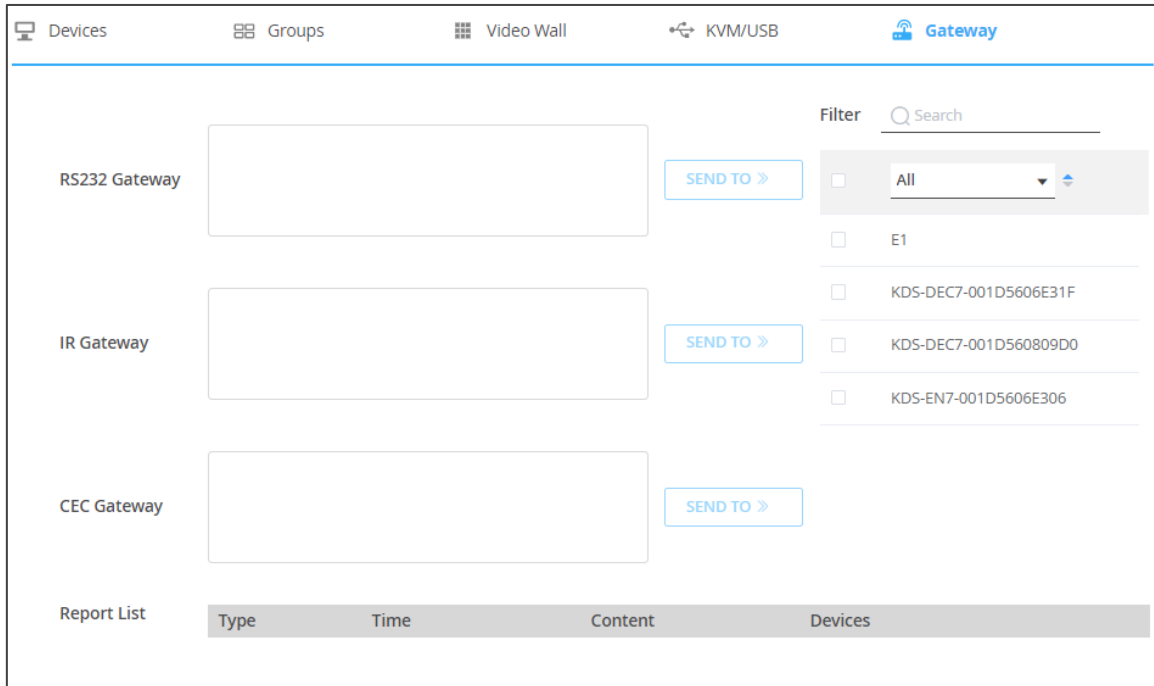


Figure 48: Gateway Tab

4. In the Filter area on the right, check the destination devices for the commands you want to send.
5. Enter a command next to a gateway.
For example, a command for powering the projector that is connected to the RS-232 port on the decoder (the projector “pwr_on” command, for example).
5. Click **SEND TO**.

The command is carried out immediately and listed in the report list.

Manager Settings > General

General settings enable viewing the device model name, MAC address, serial number and so on, and also define **KDS-7-MNGR** general settings.

To define **KDS-7-MNGR** general settings:

1. In the Navigation pane, Select **Manager Settings**. The General tab in the Manager Settings page appears.

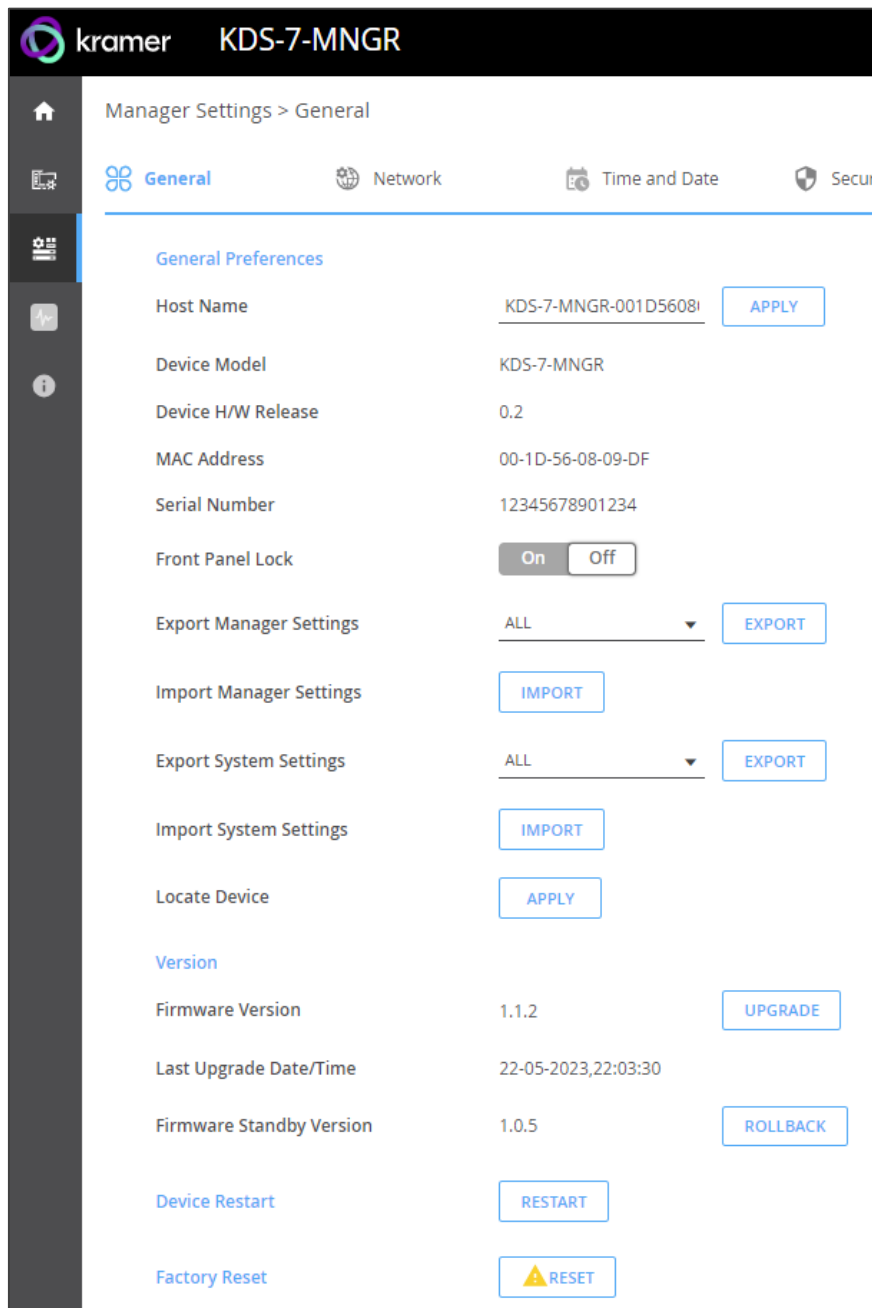


Figure 49: KDS-7-MNGR Manager Settings – General Page

2. Change the Host Name and then click **APPLY**.



By default, the host name includes the device model and the MAC address.

3. Perform the following actions:
 - [Locking/Unlocking the Front Panel](#) on page [48](#).
 - [Importing/Exporting Manager Settings](#) on page [48](#).
 - [Locating the Device](#) on page [49](#).
 - [Restarting or Resetting the Device](#) on page [50](#).

General settings are defined.

Locking/Unlocking the Front Panel

1. Select **Manager Settings**. The General tab in the Manager Settings page appears (see Figure 49).
2. Lock/Unlock the device front panel:
 - Click Off, to enable device control from the front panel via the LCD screen and the navigation buttons (see [Using Menu Navigation Buttons](#) on page [10](#)).
 - Click On, to disable device control via the navigation buttons.

Importing/Exporting Manager Settings

Import or export **KDS-7-MNGR** settings, including network settings, the time and date, security settings and the advanced diagnostics data. When selecting Without IP settings, Network settings are excluded.

To import or export the manager settings:

1. Open **Manager Settings > General**.
2. To **Import Manager Settings** or **Export Manager Settings**. This is for the KDS-7-MNGR device settings only:
 - **All** – Select all the Manager settings.
 - **Without IP** – Select all the Manager Settings, excluding the IP address.
3. To **Export System Settings** (settings related to connected devices) only:
 - **Groups** – Export the groups of encoders or decoders defined in the **Device Management > Groups**.
 - **Video Wall** – Export the video walls defined in **Device Management > Video Wall**.
 - **KVM** - Export the KVM groups defined in **Device Management > KVM/USB**.
 - **Presets** – Export the Presets defined in **Main > Preset**.
 - **Sequence** – Export a preset sequence defined in **Main > Preset Sequence**.
2. When importing, do the following (when exporting, go to the next step):
 - Click **IMPORT**. An Open file appears.
 - Select the file to import (settings.tar.gz).
 - Click **Open** to import the file.

- To export settings, click **EXPORT**. The settings file is created (settings.tar.gz).
The **KDS-7-MNGR** settings file is imported/exported.

Importing/Exporting Encoder/Decoder System Settings

Import or export the settings of the encoders and decoders in the system. you can import/export Video Wall Routing, Preset, Preset Sequence, Groups, Video Wall, and KVM/USB settings, or select a specific setting to import/export.

To import or export the system settings:

- In the Navigation pane, Select **Manager Settings**. The General tab in the Manager Settings page appears (see Figure 49).
- In the General Settings page, select the system setting types to import or export.
 - All** – Select all the settings.
 - Groups** – Select all the settings in the Groups page (see Device Management > Groups on page 36).
 - Video Wall** – Select all the video wall settings (see Device Management > Video Walls on page 38) and routing video walls (see Main page > Video Wall Routing on page 24).
 - KVM** – Select all the KVM/USB settings (see Device Management > KVM /USB on page 43).
 - Presets** – Select all the preset settings (see Main page > Preset management on page 26).
 - Sequence** – Select all the preset sequence settings (see Main page > Preset Sequence on page 27).
- When importing, do the following (when exporting, go to the next step):
 - Click **IMPORT**. An Open file appears.
 - Select the file to import (settings.tar.gz).
 - Click **Open** to import the file.
- To export settings, click **EXPORT**.
The settings file is created (settings.tar.gz).
The system settings file is imported/exported.

Locating the Device

Locate the specific device in the system.

To locate the device:

- In the Navigation pane, Select **Manager Settings**. The General tab in the Manager Settings page appears (see Figure 49).
- In the General Device Settings page, click **APPLY** next to Locate Device.
the located device NET and ON LEDs on the front panel flash for 60 seconds.

The device is located in the system.

Managing the Firmware

Upgrade the firmware, view the date of the last upgrade, or rollback to the previous firmware revision in case of a problem.



Click **ROLLBACK** to update to the previous FW version.



If the device firmware version is lower than 0.5.4, contact Kramer tech support team at support@kramerav.com or go to our Web site at k.kramerav.com/support/downloads.asp.

To upgrade the firmware:

1. Open the **Manager Settings > General** tab.
2. Next to **Firmware Version**, click **UPGRADE**. The Open window appears.
3. Select the firmware file and click **Open**. The firmware upgrade pop-up window appears. Wait for upgrade completion.
4. Once completed, refresh the web page and log-in.

Firmware upgrade is complete.

Restarting or Resetting the Device

Click **RESTART** to reboot the device and click **RESET** to restore device factory default settings.

Manager Settings > Network

Manage KDS-7-MNGR Network settings.

1. Open the **Manager Settings** and select the **Network** tab.

The screenshot shows the 'KDS-7-MNGR' web interface. The top navigation bar includes a home icon, a hamburger menu, and the breadcrumb 'Manager Settings > Network'. Below this is a secondary navigation bar with tabs for 'General', 'Network' (selected), 'Time and Date', 'Security', and 'Users'. The main content area is titled 'IP Settings' and contains a 'DHCP' toggle switch currently set to 'On'. Below the toggle are four input fields: 'IP Address' (192.168.1.42), 'Mask Address' (255.255.0.0), 'Gateway Address' (0.0.0.0), and 'DNS Address' (0.0.0.0). A section titled 'TCP/UDP Management' follows, with 'TCP Port' set to 5000 and 'UDP Port' set to 50000. At the bottom of the form are two buttons: 'SAVE' and 'CANCEL'.

Figure 50: Device Settings – General Page

2. Define the IP settings:

- **DHCP mode** – Set DHCP to **On** (default) or **Off**.
- **IP Address** – When DHCP mode is set to Off, the device uses a static **IP address**. By default, the device will try to secure 192.168.1.39. If that is unavailable it will seek the next available IP address in the 192.168.1.X range. You can enter an IP address of your choice, in which case you should also enter the mask, gateway and DNS addresses.

3. Define the **TCP** (default, 5000) and **UDP** (default, 50000) ports to be used.

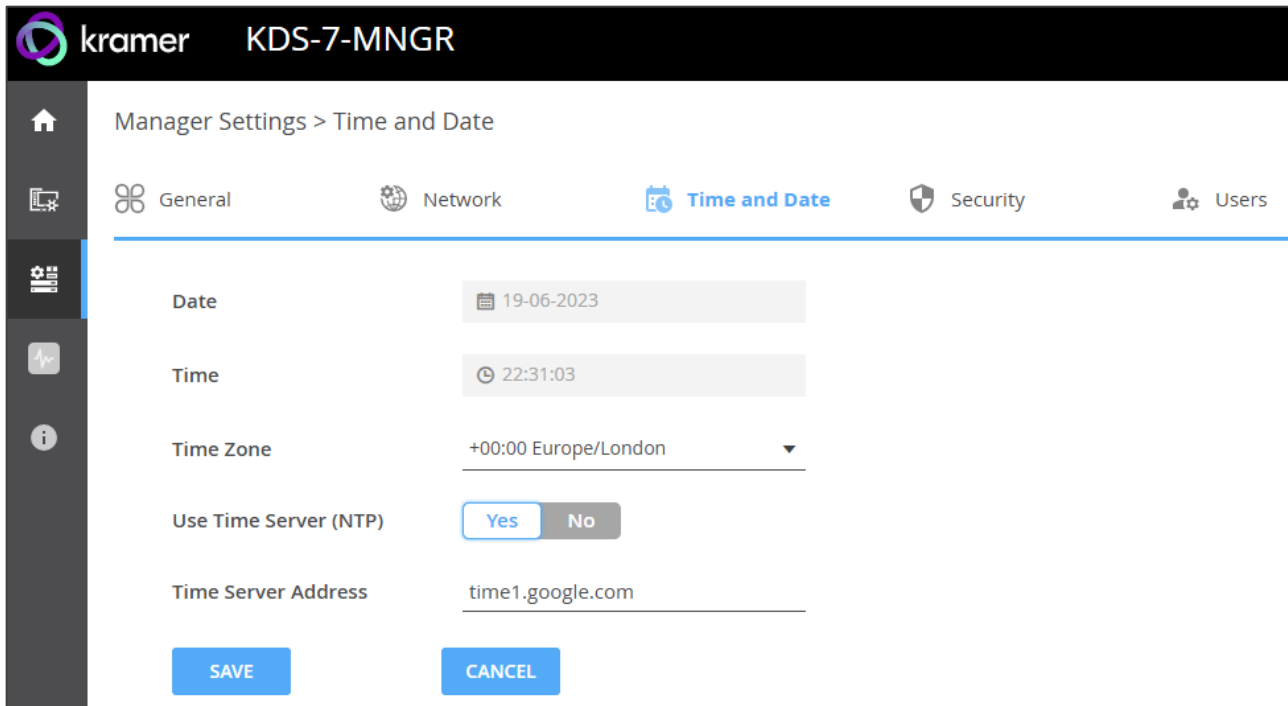
Network settings are defined.

Manager Settings > Time and Date

You can set the device time and date manually or Sync the device time and date to any server around the world.

To define KDS-7-MNGR Time and Date:

1. In the **Manager Settings**, select the **Time and Date** tab.



The screenshot shows the 'Manager Settings > Time and Date' page for a KDS-7-MNGR device. The page has a dark header with the 'kramer' logo and 'KDS-7-MNGR' text. Below the header is a navigation bar with tabs for 'General', 'Network', 'Time and Date' (selected), 'Security', and 'Users'. The main content area contains the following settings:

Date	<input type="text" value="19-06-2023"/>
Time	<input type="text" value="22:31:03"/>
Time Zone	<input type="text" value="+00:00 Europe/London"/>
Use Time Server (NTP)	<input checked="" type="radio"/> Yes <input type="radio"/> No
Time Server Address	<input type="text" value="time1.google.com"/>

At the bottom of the settings area are two buttons: 'SAVE' and 'CANCEL'.

Figure 51: Device Settings Page – Time and Date Tab

2. To use a Time Server, set **Use Time Server** to Yes.
3. In the **Time Server Address**, enter your time server's URL or IP address.
4. Click **SAVE**.

Time and date settings are defined.

Manager Settings > Security

Use the Security tab to prevent unauthorized access to LAN/WLAN Network.



Contact your IT administrator for the network access authentication.

Use the Security tab to configure 802.1x authentication on your KDS-7-MNGR. This prevents unauthorized access and uses HTTPS/TLS to establish an encrypted connection to an authenticated peer over the network.

This section describes the following actions:

- [Configuring HTTPS](#) on page [53](#).
- [Defining 802.1x Authentication](#) on page [54](#).



Contact your IT administrator for the network access authentication.

Configuring HTTPS

1. In the **Manager Settings**, select the **Security** tab.

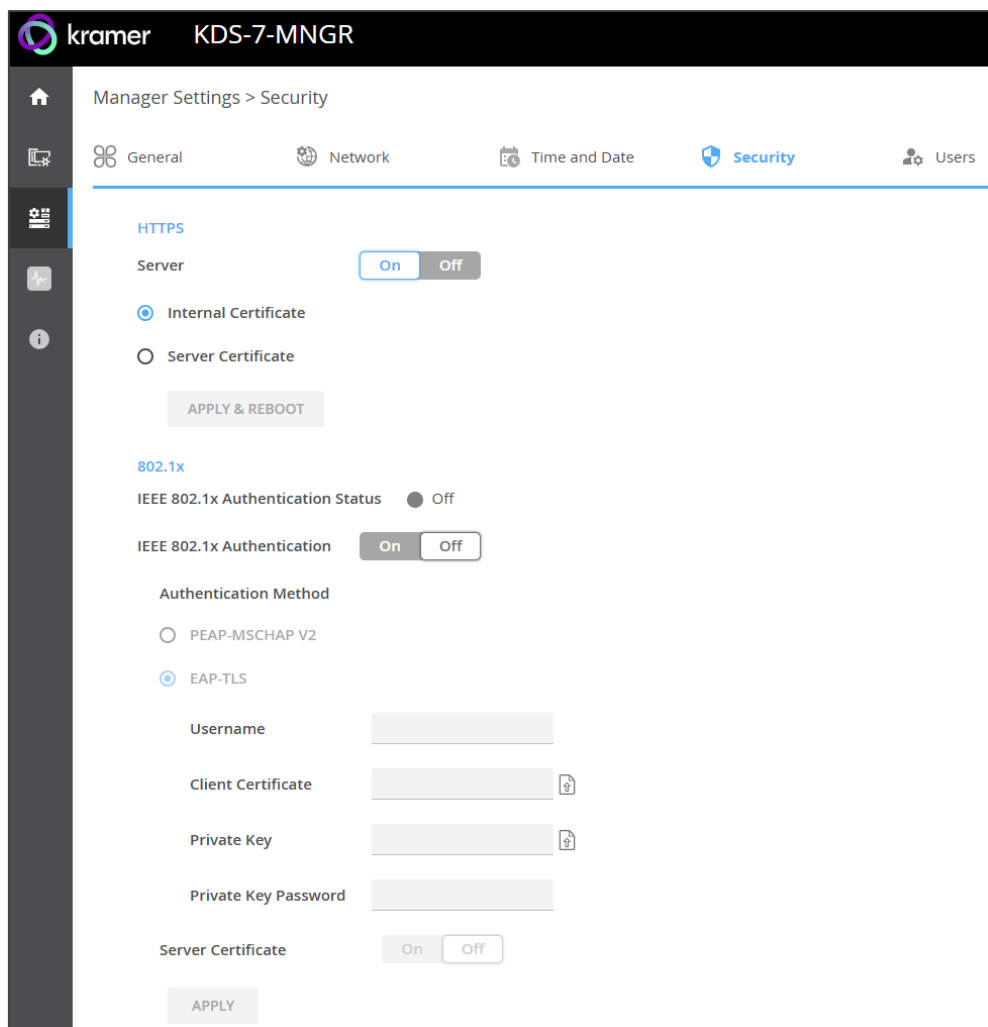



Figure 52: Device Settings – Security Tab

2. In **HTTPS**, set **Server ON** to enable HTTPS authentication service (default) or **Off** to disable HTTPS authentication.
2. When set to ON check one of the following settings:
 - **Internal Certificate** – To use the factory default certificate for authentication.
 - **Server Certificate** – To submit a certificate from the server for authentication, click  to upload the certificate. Enter the private key password (assigned by the IT administrator) and click **APPLY & REBOOT**.

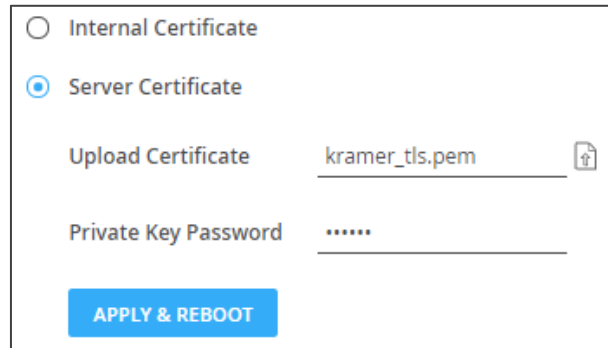


Figure 53: Security Tab – Server Certificate

3. Click **APPLY**; HTTPS is configured.

Defining 802.1x Authentication

To configure security:

1. In the **Manager Settings**, select the **Security** tab.
2. For 802.1x authentication, click **ON** to enable 802.1x authentication service. 802.1x supports authentication based on port and MAC address.
3. When set to ON check one of the following settings:
 - **PEAP-MSCHAP V2** – To use this authentication method, enter a Username (up to 24 alphanumeric characters, including “@”, “,”, “_” and “-” characters within the username) and Password (up to 24 ASCII characters):

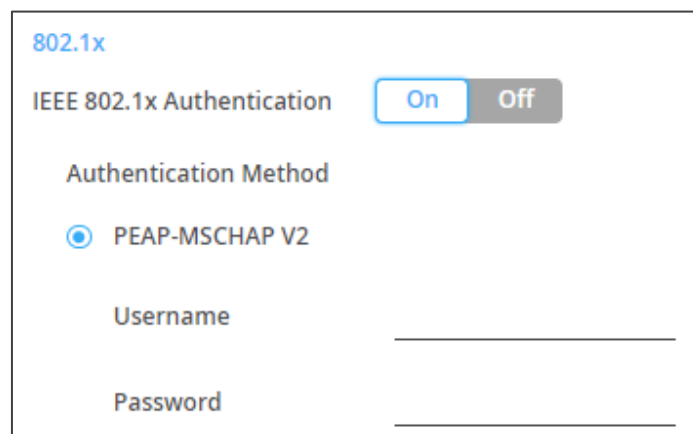

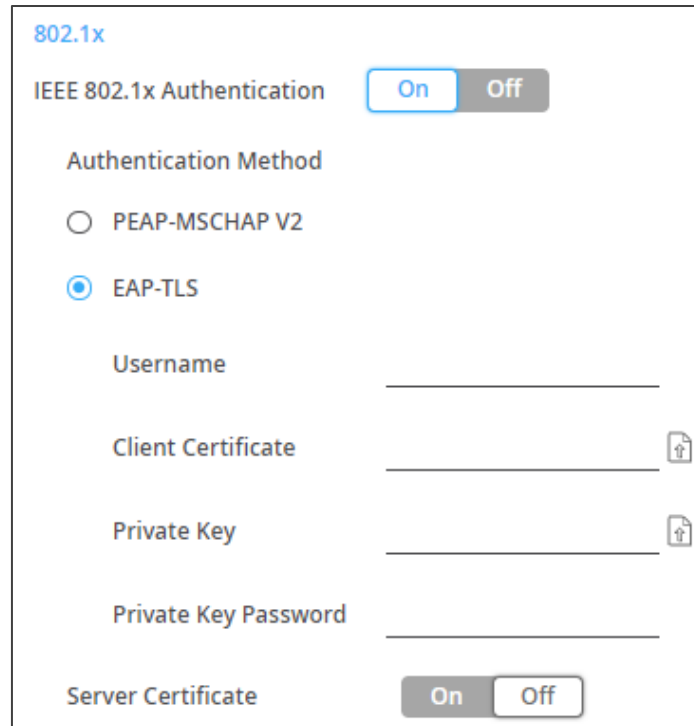


Figure 54: Security Tab – EAP-MSCHAP V2 Authentication

- **EAP-TLS** – To submit certificate from the server for authentication. To do so, enter the Username (up to 24 alphanumeric characters, including “@”, “,”, “_” and “-“ characters within the username), click  to upload the certificates and keys, and enter the private key password (assigned by IT administrator). Set Server Certificate **On**.



802.1x


IEEE 802.1x Authentication


Authentication Method

PEAP-MSCHAP V2

EAP-TLS

Username

Client Certificate 

Private Key 

Private Key Password

Server Certificate

Figure 55: EAP-TLS – Certificates and Password

4. Click **APPLY**.

Security is configured.

Manager Settings > Users

The Users tab enables activating device security and defining logon authentication details. When device security is on, web page access requires authentication upon initial landing on operation page. The default password is **admin**. By default, security is disabled.

Enabling User Access

1. In the **Device Settings**, select the **Users** tab.

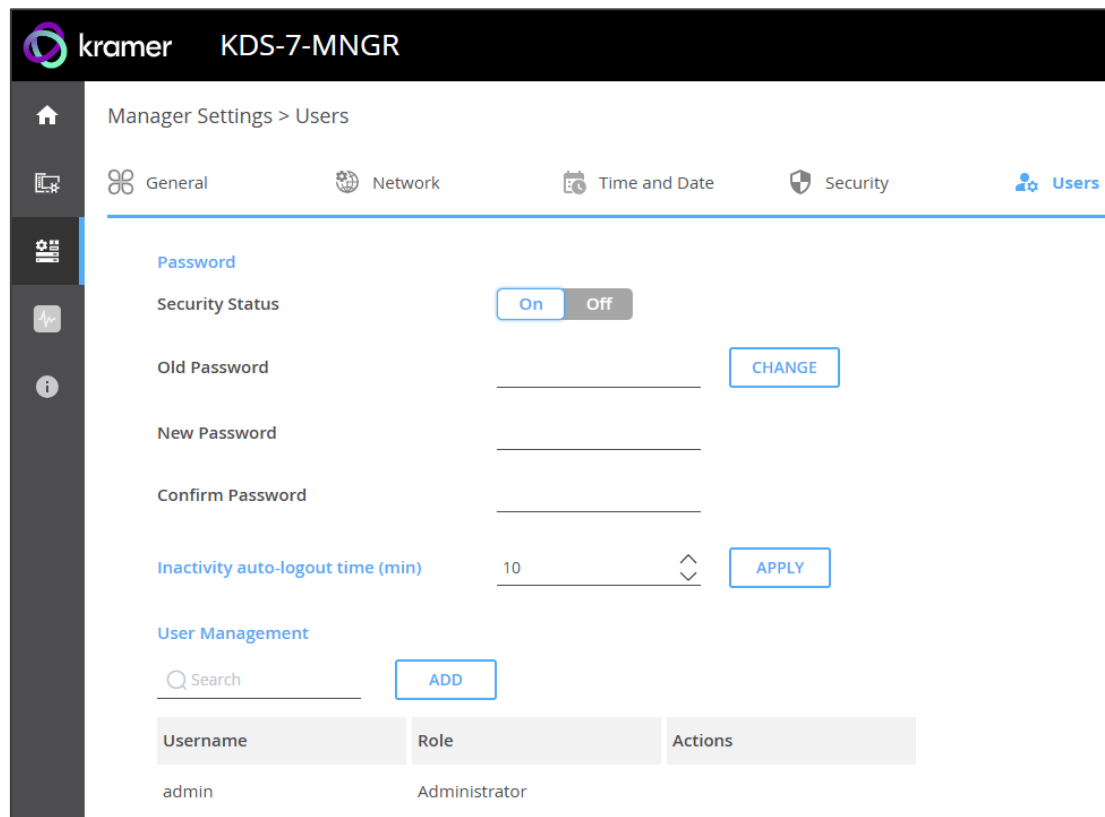


Figure 56: Device Settings – Users Tab

2. Click **On** next to **Security Status** to enable web page authentication (Off by default). The following message appears.

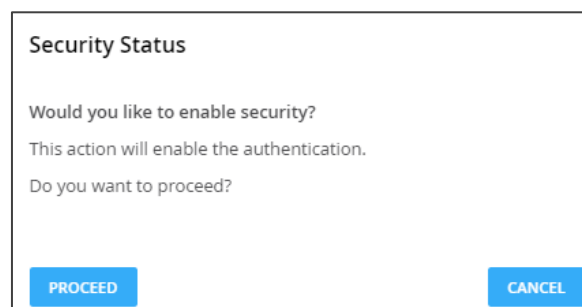


Figure 57: Security Tab – Security Status

4. Set the Inactivity auto-logout time (default is 10 minutes).
4. Click **PROCEED**. You will need to login (default user password: admin/admin) and the KDS-7-MNR will open on the Main page.

Security is enabled and access requires authentication.

Changing the Password

1. In the **Manager Settings**, select the Users tab.

The screenshot shows a 'Password' section with a 'Security Status' toggle set to 'On'. Below it are three input fields: 'Old Password', 'New Password', and 'Confirm Password'. A blue 'CHANGE' button is positioned to the right of the 'Old Password' field.

Figure 58: Device Settings – Users Tab

2. Enter the **Old Password**.
3. Enter the **New Password** (8 to 24 characters, including at least one uppercase and one lowercase letter, one number and one symbol, without spaces or commas) and **Confirm Password**.
4. Click **CHANGE**; the password has changed.

Defining User Management

As an administrator you can authorize access to device management for different users. Three types of user **roles** can be defined:

- **Administrator** - Has full access to all the **KDS-7-MNGR** web pages. This is the default user "admin". No additional administrators can be added. The administrator can add users and remove them.
- **Configurator** - Has full access to all the **KDS-7-MNGR** web pages, excluding User Management.
- **Operator** - Has access to AV and video wall routing, preset and preset sequence control, and viewing the device status.

Adding a User

You can add multiple Operator and Configurator users to the system.


1. In the **Manager Settings**, select the **Users** tab.
2. Under **User Management**, click **ADD**, the New User window appears.
3. Enter a user name (for example, Config-1).

Figure 59: User Management – Adding a New User

The 'New User' form has the following fields: Username (Jon), Role (Operator), New Password (masked), and Confirm Password (masked). A red error message is shown below the New Password field: "8 to 24 characters, including at least one number, one symbol without spaces or commas, one uppercase letter and one lowercase letter". There are 'SAVE' and 'CANCEL' buttons at the bottom.

2. Select the **Role** (for example Configurator).
3. Enter the **New Password** (8 to 24 characters, including at least one number, one

symbol without spaces or commas, one uppercase letter and one lowercase letter).

 The new defined user can access the embedded webpages with this password which was defined by the admin.

4. Click **SAVE**. The user is added to the user list.

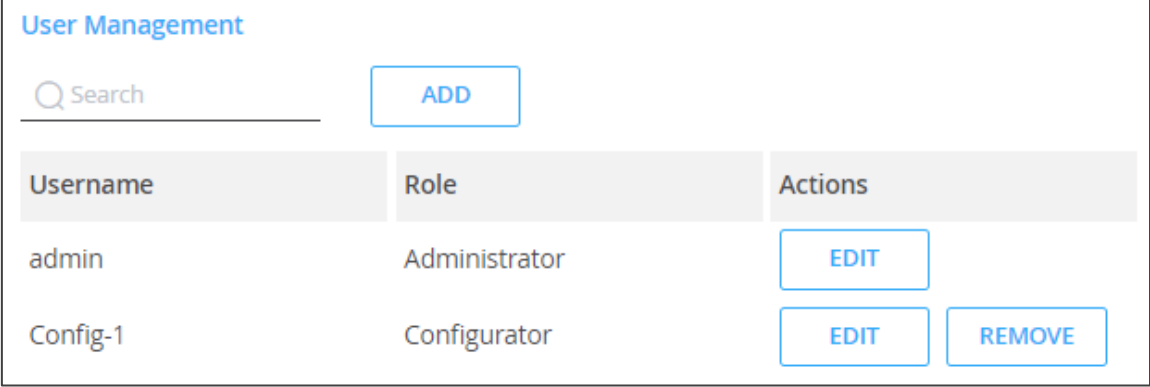


Figure 60: User Management – Users List

Diagnostics > Status

To view device status:

1. In the Navigation pane, click **Diagnostics**. The Status tab appears.

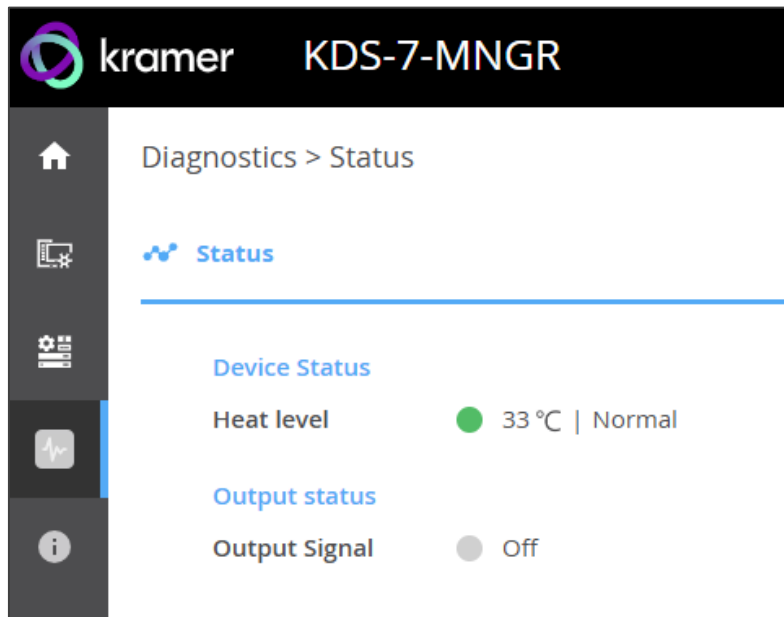


Figure 61: Diagnostics Page – Status Tab

2. View the Device Status:
 - **Active**, for normal operation (green indication).
 - **Standby**, when device is powered Off, booting or in standby mode (yellow indication).
3. View Output status:
 - **On**, when an output is transmitting a signal (green indication).
 - **Off**, when an output has no signal output (gray indication).

Device status is viewed.

About

View the web page hardware release, firmware version and Kramer Electronics Ltd details in the About page.

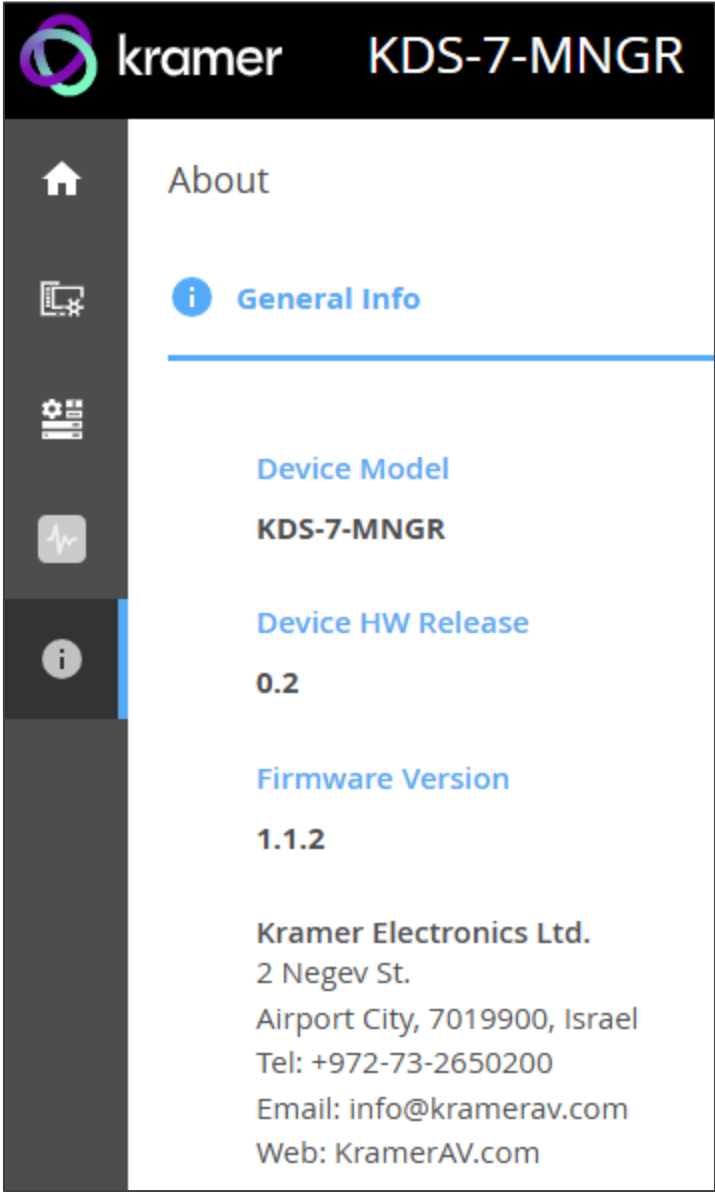


Figure 62: About Page

Technical Specifications

Outputs	1 HDMI	On a female HDMI connector
Ports	1 Ethernet	On an RJ-45 connector
	2 USB	On a USB-B
User Interface	Indicators	LINK, NET and ON LEDs, front panel LCD Display
	Rear Panel	Restart and factory reset button
	Controls	Embedded web pages, P3K API commands via Ethernet, front panel navigation buttons
Power	PoE	37V to 57V, max power 13W
	Optional Power Supply	24V DC, 5A
Environmental Conditions	Operating Temperature	0° to +45°C (32° to 113°F)
	Storage Temperature	-20° to +70°C (-4° to 158°F)
	Humidity	10% to 90%, RHL non-condensing
Regulatory Compliance	Safety	CE, FCC
	Environmental	RoHs, WEEE
Enclosure	Size	Mega Tool Deep
	Type	Aluminum
	Cooling	Convection Ventilation
Dimensions	Net Dimensions (W, D, H)	19cm x 14.5cm x 2.8cm (7.5" x 5.7" x 1.1")
	Shipping Dimensions (W, D, H)	31cm x 18cm x 7.6cm (12.2" x 7.09" x 2.99")
Weight	Net Weight	0.7kg (1.54lbs) approx.
	Shipping Weight	0.9kg (2lbs) approx.
Specifications are subject to change without notice at www.kramerav.com		

Default Communication Parameters

P3K	
Example (Set lock front panel to on):	#LOCK-FP 1
Ethernet	
To reset the IP settings to the factory reset values go to: Menu->Setup -> Factory Reset-> press Enter to confirm	
DHCP	Default
IP Address:	192.168.1.39
Subnet mask:	255.255.255.0
Default gateway:	192.168.1.254
TCP Port #:	5000
UDP Port #:	50000
Default username:	admin
Default password:	admin
Full Factory Reset	
Embedded web pages	Device Settings > General > RESET
Protocol 3000	Use "#FACTORY" command and use "#RESET" to restore the factory default values.

Embedded Web Page Default Values

Page	Tab	Fields	Editable Field	Exportable Field	Default Values
Main	AV Routing	Routing View	Yes	Yes	Matrix
Device Management	Devices	Filter	Yes	Yes	All
Manager Settings	General	Host Name	Yes	Yes	KDS-7-MNGR-xxxxxxxxxxxx ("xxxxxxxxxxxx" is the device MAC address)
		Front Panel Lock	Yes	Yes	Off
	Network	DHCP	Yes	Yes	On
		TCP Port	Yes	Yes	5,000
		UDP Port	Yes	Yes	50,000
	Time and Date	Time Server	Yes	Yes	No
		Timezone	Yes	Yes	+00:00 GMT
	Security	HTTPS Server	Yes	Yes	On; Internal Certificate
		IEE 802.1x Authentication Status	Yes	Yes	Off
		IEE 802.1x Authentication	Yes	Yes	Off
Users	Security Status	Yes	Yes	Off	
	Inactivity auto-logout time	Yes	Yes	10	

Protocol 3000

Kramer devices can be operated using Kramer Protocol 3000 commands sent via serial or Ethernet ports.

Understanding Protocol 3000

Protocol 3000 commands are a sequence of ASCII letters, structured according to the following.

- **Command format:**

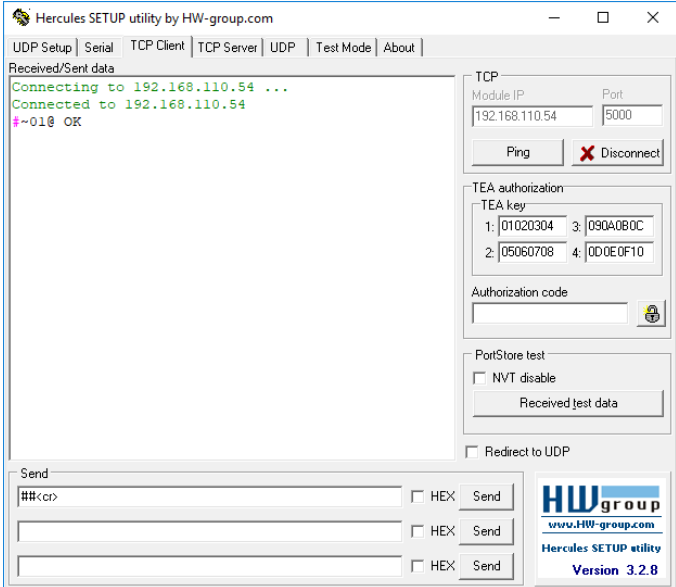
Prefix	Command Name	Constant (Space)	Parameter(s)	Suffix
#	Command	_	Parameter	<CR>

- **Feedback format:**

Prefix	Device ID	Constant	Command Name	Parameter(s)	Suffix
~	nn	@	Command	Parameter	<CR><LF>

- **Command parameters** – Multiple parameters must be separated by a comma (,). In addition, multiple parameters can be grouped as a single parameter using brackets ([and]).
- **Parameters attributes** – Parameters may contain multiple attributes. Attributes are indicated with pointy brackets (<...>) and must be separated by a period (.).

The command framing varies according to how you interface with **KDS-7-MNGR**. The following figure displays how the # command is framed using terminal communication software (such as Hercules):



Protocol 3000 Commands

Function	Description	Syntax	Response	Parameters/ Attributes	Example
ADDUSER	Add a new user + Require LOGIN firstly even SECUR is Off + Only admin has the permission + Require LOGIN firstly	#ADDUSER <user_name>,<level>,<password><CR> >	~nn@ADDUSER <user_name>,<level>,<password><CR>	<user_name> - The specific username, alphanumeric, hyphen and underscore within 24 characters, hyphen and underscore can not at beginning or end <level> - User level - admin - config - operator <password> - Password, 8 to 24 characters (letters, numbers, and symbols without spaces or commas), at least including one number, one symbols without spaces or commas, one uppercase letter and one lowercase letter.	Add a configurator user (Bob): #ADDUSER Bob.config,Pass1234
BL-VERSION?	Get bootloader version	#BL-VERSION?<CR>	~nn@BL-VERSION <bootloader_version><CR><LF>	<bootloader_version> – XX.XX.XXXX where the digit groups are: major.minor.version	Get the BL version: #BL-VERSION?
CEC-NTFY-MODE	Set CEC notify work mode. NOTE: When it is disabled, all CEC message retrieval from CEC bus will not be reported to connected P3K clients.	#CEC-NTFY-MODE mode<CR>	~nn@CEC-NTFY-MODE mode<CR><LF>	mode: 1 - Enable notifications 0 - Disable notifications (DEFAULT)	Disable the CEC-NTFY report: #CEC-NTFY-MODE 0<CR>
CEC-NTFY-MODE?	Get CEC notify work mode. NOTE: When it is disabled, all CEC message retrieval from CEC bus will not be reported to connected P3K clients.	#CEC-NTFY-MODE?<CR>	~nn@CEC-NTFY-MODE mode<CR><LF>	mode: 1 - Enable notifications 0 - Disable notifications (DEFAULT)	Get the CEC-NTFY-MODE: #CEC-NTFY-MODE?<CR>
ETH-PORT	Set Ethernet port protocol. + If the port number you enter is already in use, an error is returned.	#ETH-PORT <port_type>,<port_id><CR>	~nn@ETH PORT <port_type>,<port_id><CR><LF> >	<port_type> - TCP/UDP <port_id> - When port_type = TCP: 5000-5099 When port_type = UDP: 50000-50999	Set the Ethernet port protocol for TCP to port 5001: #ETH-PORT TCP,5001
ETH-PORT?	Get Ethernet port protocol.	#ETH-PORT? <port_type><CR>	~nn@ETH PORT <port_type>,<port_id><CR><LF> >	<port_type> - TCP/UDP <port_id> - When port_type = TCP: 5000-5099 When port_type = UDP: 50000-50999	Get the Ethernet port protocol: #ETH-PORT? TCP
FACTORY	Reset device to factory default configuration. + This command deletes all user data from the device. The deletion can take some time. It does not trigger reset, it need another API 'RESET' for taking effect	#FACTORY<CR>	~nn@FACTORY ok<CR><LF>	N/A	Reset the device to factory default configuration: #FACTORY
HTTP-AUTH-ENABLE	Start/stop HTTP/HTTPS communication security. NOTE: The HTTP/HTTPS permission works only if security is enabled with the "HTTP-AUTH-ENABLE" command.	#HTTP-AUTH-ENABLE security_state,password<CR>	~nn@HTTP-AUTH-ENABLE security_state<CR><LF>	security_state – Security state 0 – OFF (disables security) 1 – ON (enables security) password – password in uencode64 format, only if the password is valid, AUTH will be disabled otherwise reject the request. NOTE: It is only required when the security_stat is 0 for disabling the security.	Enable the permission system: #HTTP-AUTH-ENABLE_0,dGVzdA==
HTTP-AUTH-ENABLE?	Get HTTP/HTTPS security state.	#HTTP-AUTH-ENABLE?<CR>	~nn@HTTP-AUTH-ENABLE security_state<CR><LF>	security_state – Security state 0 – OFF (disables security) 1 – ON (enables security)	Get security state: #HTTP-AUTH-ENABLE?

Function	Description	Syntax	Response	Parameters/ Attributes	Example
HTTP-PASSWD	Set password for HTTP user login. The default password is "admin". + Require LOGIN firstly even SECUR is Off + Only admin can change other user's password	#HTTP-PASSWD_<user>,password<CR>	~nn@HTTP-PASSWD user,password<CR><LF>	user – user name of login to set. password – Password for the user, in uencode64 format. 8 to 24 characters (letters, numbers, and symbols without spaces or commas), at least including one number, one symbols without spaces or commas, one uppercase letter and one lowercase letter.	Set the password for the admin protocol permission level to test: #HTTP-PASSWD_admin,dGVzdA==
HTTP-ADDUSER	Add a new user + Require LOGIN firstly even SECUR is Off + Only admin has the permission	#HTTP-ADDUSER <user_name>,<level>,<password><CR> >	~nn@HTTP-ADDUSER <user_name>,<level>,<password><CR>	<user_name> - The specific username, alphanumeric, hyphen and underscore within 24 characters, hyphen and underscore can not at beginning or end, and can not be 'admin' <level> - User level - admin - config - operator <password> - Password for the user, in uencode64 format. 8 to 24 characters (letters, numbers, and symbols without spaces or commas), at least including one number, one symbols without spaces or commas, one uppercase letter and one lowercase letter.	#HTTP-ADDUSER bob,config,dGVzdA==
HTTP-RMUSER	Remove an user + Require LOGIN firstly even SECUR is Off + Only admin has the permission	#HTTP-RMUSER_<user_name><CR>	~nn@HTTP-RMUSER <user_name><CR>	<user_name> - The specific username, alphanumeric, hyphen and underscore within 24 characters, hyphen and underscore can not at beginning or end	#HTTP-RMUSER_bob
HW-TEMP?	Get temperature of a specific region of the hardware. + The Get command is not available for all parts of the hardware, and is device specific.	#HW-TEMP? <region_id>,<mode><CR>	~nn@HW-TEMP <region_id>,<temperature><CR><LF>	<region_id> - ID of the region for which to get the temperature 0 - First CPU <mode> - 0 - Celsius 1 - Fahrenheit <temperature> - Temperature of the HW region, rounded down to the closest integer	Get the device temperature in Celsius: #HW-TEMP? 0,0
HW-VERSION?	Get hardware version	#HW-VERSION? <CR>	~nn@HW-VERSION <hardware_version><CR><LF>	hardware_version – XX.XX.XXXX where the digit groups are: major.minor.version	Get the hardware version: #HW-VERSION?
IDV	Set visual indication from device. + Using this command, some devices can light a sequence of buttons or LEDs to allow identification of a specific device from similar devices.	#IDV<CR>	~nn@IDV ok<CR><LF>	N/A	Identify the device: #IDV
KDS-802-1X-AUTH-STATE?	Get authentication status of IEEE 802.1X	#KDS-802-1X-AUTH-STATE? netw_id<CR>	~nn@ KDS-802-1X-AUTH-STATE_netw_id, mode<CR><LF>	netw_id – Network ID–the device network interface (if there are more than one): 0 – Media Port, KDS-7-MNGR not support 1 – Service Port mode –authentication status of IEEE 802.1X 0 – off 1 – authentication success 2 – authentication failed 3 – authentication ongoing	Get media port authentication status of IEEE 802.1X #KDS-802-1X-AUTH-STATE? 1<CR>
KDS-DEV-CEC-SND	Send CEC command to specific device	#KDS-DEV-CEC-SND <device_id>,<port_index>,<sn_id>,<cmd_name>,<cec_len>,<cec_command><CR>	~nn@KDS-DEV-CEC-SND <device_id>,<port_index>,<sn_id>,<cmd_name>,<cec_len>,<cec_command><CR><LF>	<device_id> - ID of device <port_id> - 1 to n (machine dependent) <sn_id> - The sequence number ID <cmd_name> - Command name <cmd_len> - How many bytes should send <cec_command> - Hex string	Send a CEC command to a device #KDS-DEV-CEC-SND KDS-DEC7-001D56080B53,1,1,1,2,4004

Function	Description	Syntax	Response	Parameters/ Attributes	Example
KDS-DEV-CHANNEL	Set specific KDS encoder channel id.	#KSD-DEV-CHANNEL <device_id>,<channel_id><CR>	~nn@KSD-DEV-CHANNEL <device_id>,<channel_id><CR> <LF>	<device_id> - ID of device as set in Status (of a device) on page 30). <channel_id> - Number that indicates the specific input 1-999	Set the KDS-EN7 channel to 1: #KSD-DEV-CHANNEL KDS-EN7-001D56080B53,1
KDS-DEV-FACTORY	Reset specific KDS device to factory default configuration. + This command deletes all user data from the device. The deletion can take some time. +It does not trigger reset, it need another API 'RESET' for taking effect	#KDS-DEV-FACTORY <device_id> <group_name><CR>	~nn@KDS-DEV-FACTORY <device_id> <group_name><CR> ><LF>	<device_id> - Hostname of device <group_name> - The name of a preconfigured group	Reset a specific KDS-DEC7 device to its default parameters: #KDS-DEV-FACTORY KDS-DEC7-001D56080B53 ALLDECS
KDS-DEV-IR-SND	Send IR command to specific KDS7 device	#KDS-DEV-IR-SND <device_id>,<ir_index>,<sn_id>,<cmd_name>,<repeat_amount>,<total_packages>,<package_id>,<pronto_command...><CR>	~nn@KDS-DEV-IR-SND <device_id>,<ir_index>,<sn_id>,<cmd_name>,<repeat_amount>,<total_packages>,<package_id>,<pronto_command...><CR><LF>	<device_id> - ID of device (the default hostname) <ir_index> - 1 to n (machine dependent) <sn_id> - The sequence number ID <cmd_name> - Command name <repeat_amount> - Of times the IR command is transmitted <total_packages> - Number of messages the original command was divided into <package_id> - Chunk serial number (only valid when Total_packages >1) <pronto_command> - Pronto format command (in HEX format, no leading zeros, no '0x' prefix)	Send an IR command to a specific KDS-DEC7 device: #KDS-DEV-IR-SND KDS-DEC7-001D56080B53,1,1,1,1,1,1,4004
KDS-DEV-NAME	Set specific KDS7 device's hostname.	#KDS-DEV-NAME <device_id>,<hostname><CR>	~nn@KDS-DEV-NAME <device_id>,<hostname><CR><LF>	<device_id> - ID of device, resolved name <hostname> - Hostname of device	Change the device name: #KDS-DEV-NAME KDS-DEC7-001D56080B53,DEC1
KDS-DEV-RESET	Reset specific KDS7 device.	#KDS-DEV-RESET <device_id> <group_name><CR>	~nn@KDS-DEV-RESET <device_id> <group_name><CR> ><LF>	<device_id> - ID of device <group_name> - The name of a preconfigured group.	Reset a device encoder or decoder in the system: #KDS-DEV-RESET KDS-DEC7-001D56080B53
KDS-DEV-UART-SND	Send UART command to specific device	#KDS-DEV-UART-SND <device_id>,<uart_index>,<sn_id>,<cmd_name>,<cmd_len>,<uart_command><CR>	~nn@KDS-DEV-UART-SND <device_id>,<com_id>,<sn_id>,<cmd_name>,<cmd_len>,<uart_command><CR><LF>	<device_id> - ID of device <com_id> - 1 to n (machine dependent) <sn_id> - The sequence number ID <cmd_name> - Command name <cmd_len> - How many bytes should send <uart_command> - Hex string	Send UART command to a specific KDS-DEC device: #KDS-DEV-UART-SND KDS-DEC7-001D56080B53,1,1,1,2,4004
KDS-PRESET-APPLY	Apply the specific preset	#KDS-PRESET-APPLY <preset_name><CR>	~nn@KDS-PRESET-APPLY <preset_name><CR><LF>	<preset_name> - Preset name	Set the vw_preset1 preset: #KDS-PRESET-APPLY vw_preset1
KDS-PRESET-SEQ-ACTION	Start/Stop/Pause/Resume the preset sequence	#KDS-PRESET-SEQ-ACTION <action><CR>	~nn@KDS-PRESET-SEQ-ACTION <action>,[sequence-number]<CR><LF>	<action> - Start Stop Pause Resume [sn-id] - (optional) the running preset is activated if the action state is 'start'	Manage a preset sequence: #KDS-PRESET-SEQ-ACTION start
KDS-PRESET-SEQ-ACTION?	Get the preset sequence states, and the run type <sn-id>	#KDS-PRESET-SEQ-ACTION?<CR>	~nn@KDS-PRESET-SEQ-ACTION <action>,[sn-id]<CR><LF>	<action> - Start stop pause resume [sn-id] - (optional) the running preset is activated if the action state is 'start'	Get the sequence preset state: #KDS-PRESET-SEQ-ACTION?
KDS-RESOL?	Get actual AV stream resolution	#KDS-RESOL? io_mode,io_index,is_native<CR>	~nn@KDS-RESOL? io_mode,io_index,is_native,resolution<CR><LF>	io_mode – Input/Output 0 – Input 1 – Output io_index – Number that indicates the specific input or output port: 1-N (N= the total number of input or output ports) is_native – Native resolution flag 0 – Off 1 – On resolution – Resolution index	Get the streaming resolution: #KDS-RESOL? 1,1,1,<CR>
KDS-ROUTE	Set the route relationship between encoder and decoders with specific signal type.	#KDS-ROUTE <signal_type>,[<encoder_device_id>,<decoder_device_id>,...],[...]<CR>	~nn@KDS-ROUTE <signal_type>,[<encoder_device_id>,<decoder_device_id>,...],[...]<CR><LF>	<signal_type> - Video, audio, usb, ir, rs232, cec, all <encoder_device_id> - Device id of encoder <decoder_device_id> - Device id of decoder	Set the video routing between a specific KDS-SW2-EN7 encoder to the decoders in the system: #KDS-ROUTE video,[KDS-SW2-EN7-001D5606E232,KDS-DEC7-001D56080B53]

Function	Description	Syntax	Response	Parameters/ Attributes	Example
KDS-ROUTE?	Get the route relationship between encoder and decoders with specific signal type.	#KDS-ROUTE? <signal_type><CR>	~nn@KDS-ROUTE <signal_type>.[<encoder_device_id>,<decoder_device_id>,<decoder_device_id>,...],[...]<CR><LF>	<signal_type> - Video, audio, usb, ir, rs232, cec, all <encoder_device_id> - Device id of encoder <decoder_device_id> - Device id of decoder	Get the video route from the encoders decoders in the system: #KDS-ROUTE? video
LOCK-FP	Lock the front panel.	#LOCK-FP <lock_mode><CR>	~nn@LOCK-FP <lock_mode><CR><LF>	<lock_mode> - 0 - Off 1 - On	Set lock front panel to on: #LOCK-FP 1
LOCK-FP?	Get the front panel lock state.	#LOCK-FP?<CR>	~nn@LOCK-FP <lock_mode><CR><LF>	<lock_mode> - 0 - Off 1 - On	Get lock front panel status: #LOCK-FP?
LOG-ACTION	Set event log configuration.	#LOG-ACTION <action>,<period><CR>	~nn@LOG-ACTION <action>,<period><CR><LF>	<action> - 1 - Start, start logging 2 - Pause, pause logging but keep log content 3 - Resume, resume the logging 4 - Reset, clear all current logs, keep logging <period> - Relevant for "start" 1 - Keep current 2 - Daily 3 - Weekly (default)	Set the events log state: #LOG-ACTION 1,3
LOG-ACTION?	Get events log configuration.	#LOG-ACTION?<CR>	~nn@LOG-ACTION <action>,<period><CR><LF>	<action> - One of 1 - Start, start logging 2 - Pause, pause logging but keep log content 3 - Resume, resume the logging 4 - Reset, clear all current logs, keep logging <period> - Relevant for "start" 1 - Keep current 2 - Daily 3 - Weekly (default)	Get the events log state: #LOG-ACTION?
LOGIN	Set protocol permission. + The permission system works only if security is enabled with the "SECUR" command. + LOGIN allows the user to run commands with an End User or Administrator permission level. + When the permission system is enabled, LOGIN enables running commands with the User or Administrator permission level When set, login must be performed upon each connection + It is not mandatory to enable the permission system in order to use the device + In each device, some connections allow logging in to different levels. Some do not work with security at all. Connection may logout after timeout.	#LOGIN <user_name>,<password>	~nn@LOGIN <user_name>,<password>	<user_name> - User name <password> - Password	Login: #LOGIN admin,admin
LOGIN?	Get current protocol permission level.	#LOGIN?<CR>	~nn@LOGIN <role><CR><LF>	<role> - Level of current permissions Administrator Configurator Operator	Get login state: #LOGIN?
LOGOUT-TIMEOUT	Set Inactivity auto-logout time in minutes	#LOGOUT-TIMEOUT <time><CR>	~nn@LOGOUT-TIMEOUT <time><CR><LF>	<time> - Minutes of logout time	Set log out time to 10 minutes: #LOGOUT-TIMEOUT 10
LOGOUT-TIMEOUT?	Get Inactivity auto-logout time in minutes	#LOGOUT-TIMEOUT?<CR>	~nn@LOGOUT-TIMEOUT <time><CR><LF>	<time> - Minutes of logout time	Get logout time: #LOGOUT-TIMEOUT?
MODEL?	Get device model.	#MODEL?<CR>	~nn@MODEL <model_name><CR><LF>	<model_name> - Model name	Get device model: #MODEL?

Function	Description	Syntax	Response	Parameters/ Attributes	Example
NAME	Set hostname. + The hostname is not the same as the model name. The hostname is used to identify a specific machine or a network in use (with DNS feature on).	#NAME <interface_id>,<host_name><CR>	~nn@NAME <interface_id>,<host_name><CR><LF>	<interface_id> - 0 - machine name <host_name> - String of up to 24 alpha-numeric chars (can include hyphen, underscore, not at the beginning or end)	Set host name to MNGR1: #NAME 0,MNGR1
NAME?	Get hostname	#NAME? <interface_id><CR>	~nn@NAME <interface_id>,<host_name><CR><LF>	<interface_id> - 0 - machine name <host_name> - String of up to 24 alpha-numeric chars (can include hyphen, underscore, not at the beginning or end)	Get host name: #NAME? 0
NET-CONFIG	Set a network configuration. + Parameters [DNS1] and [DNS2] are optional. + For Backward compatibility, the id parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port. + If the gateway address is not compliant to the subnet mask used for the host IP, the command will return an error. Subnet and gateway compliancy specified by RFC950.	#NET-CONFIG <netw_id>,<net_ip>,<subnet_mask>,<gateway>,[dns1],[dns2]<CR>	~nn@NET-CONFIG <netw_id>,<net_ip>,<subnet_mask>,<gateway>,[dns1],[dns2]<CR><LF>	<netw_id> - Network ID of the device network interface, counting is 0 based <net_ip> - Network IP <subnet_mask> - Subnet mask <gateway> - Gateway IP address [dns1] - (Optional) DNS IP address [dns2] - (Optional) DNS IP address	Set the device network parameters to IP address 192.168.1.100, net mask 255.255.255.0, and gateway 192.168.1.1: #NET-CONFIG 0,192.168.1.100,255.255.255.0,192.168.1.1
NET-CONFIG?	Get a network configuration.	#NET-CONFIG? <netw_id><CR>	~nn@NET-CONFIG <netw_id>,<net_ip>,<subnet_mask>,<gateway>,[dns1],[dns2]<CR><LF>	<netw_id> - Network ID of the device network interface, counting is 0 based <net_ip> - Network IP <subnet_mask> - Subnet mask <gateway> - Gateway IP address [dns1] - (Optional) DNS IP address [dns2] - (Optional) DNS IP address	Get network configuration: #NET-CONFIG? 0
NET-DHCP	Set DHCP mode. + Only 1 is relevant for the mode value. To disable DHCP, the user must configure a static IP address for the device. + Connecting Ethernet to devices with DHCP may take more time in some networks. + To connect with a randomly assigned IP by DHCP, specify the device DNS name (if available) using the NAME command. + For proper settings consult your network administrator. + For Backward compatibility, the id parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.	#NET-DHCP <netw_id>,<dhcp_state><CR>	~nn@NET-DHCP <netw_id>,<dhcp_state><CR><LF>	<netw_id> - Network ID of the device network interface, counting is 0 based <dhcp_state> - 1 - Try to use DHCP. (If unavailable, use the IP address set by the factory or the net-ip command). 2 - Use static IP settings	enable DHCP mode #NET-DHCP 0,1
NET-DHCP?	Get DHCP mode.	#NET-DHCP? <netw_id><CR>	~nn@NET-DHCP <netw_id>,<dhcp_state><CR><LF>	<netw_id> - Network ID of the device network interface, counting is 0 based <dhcp_state> - 1 - Try to use DHCP. (If unavailable, use the IP address set by the factory or the net-ip command). 2 - Use static IP settings	Get DHCP mode: #NET-DHCP? 0
NET-IP?	Get the IP address.	#NET-IP?<CR>	~nn@NET-IP <ip_address><CR><LF>	<ip_address> - Network IP	Get the IP address: #NET-IP?

Function	Description	Syntax	Response	Parameters/ Attributes	Example
NET-MAC?	Get the MAC address.	#NET-MAC? <net_id><CR>	~nn@NET-MAC <net_id>,<mac_address><CR><LF>	<net_id> - The device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3.... <mac_address> - Unique MAC address. Format: XX-XX-XX-XX-XX-XX where X is hex digit	Get the MAC address: #NET-MAC? 0
PASS	Set password for the specific user. + Require LOGIN firstly even SECUR is Off + Only admin can change other user's password	#PASS <user_name>,<password><CR>	~nn@PASS <user_name>,<password><CR>	<user_name> - The specific username, alphanumeric, hyphen and underscore within 24 characters, hyphen and underscore can not at beginning or end <password> - New password, 8 to 24 characters (letters, numbers, and symbols without spaces or commas), at least including one number, one symbols without spaces or commas, one uppercase letter and one lowercase letter.	Set the admin password to Pass1234: #PASS admin,Pass1234
PASS?	Get password of the specific user? + Require LOGIN firstly even SECUR is Off + Only admin can get other user's password	#PASS? <user_name><CR>	~nn@PASS <user_name>,<password><CR><LF>	<user_name> - The specific username, alphanumeric, hyphen and underscore within 24 characters, hyphen and underscore can not at beginning or end <password> - Current password	Get the admin password: #PASS? admin
RESET	Reset device.	#RESET<CR>	~nn@RESET ok<CR><LF>	N/A	Reset the device: #RESET
RMUSER	Remove a user + Require LOGIN firstly even SECUR is Off + Only admin has the permission	#RMUSER_<user_name><CR>	~nn@RMUSER <user_name><CR>	<user_name> - The specific username, alphanumeric, hyphen and underscore within 24 characters, hyphen and underscore can not at beginning or end	#RMUSER_bob
ROLLBACK	Perform firmware rollback	#ROLLBACK<CR>	~nn@ROLLBACK ok<CR><LF>	N/A	Rollback to previous firmware: #ROLLBACK
SECUR	Start/stop security. + The permission system works only if security is enabled with the "SECUR" command.	#SECUR <security_state><CR>	~nn@SECUR <security_state><CR><LF>	<security_state> - 0 - Off (disables security) 1 - On (enables security)	Set device security to on #SECUR 1
SECUR?	Get current security state. The permission system works only if security is enabled with the "SECUR" command.	#SECUR?<CR>	~nn@SECUR <security_state><CR><LF>	<security_state> - 0 - Off (disables security) 1 - On (enables security)	Get device security: #SECUR?
SIGNALS-LIST?	Get signal ID list of this machine. + The response is returned in one line and terminated with<CR><LF>. + The response format lists signal IDs separated by commas.	#SIGNALS-LIST?<CR>	~nn@SIGNALS LIST [<direction_type>,<port_format>,<port_index>,<signal_type>,<index>,...]<CR><LF>	<direction_type> - Direction of the port: OUT - Output <port_format> - Type of signal on the port: HDMI <port_index> - The port number as printed on the front or rear panel <signal_type> - Signal ID attribute: VIDEO <index> - Indicates a specific channel number when there are multiple channels of the same type	Get signal list: #SIGNALS-LIST?
SN?	Get device serial number.	#SN?<CR>	~nn@SN <serial_num><CR><LF>	<serial_num> - 14 decimal digits, factory assigned	Get the device serial number: #SN?
STANDBY-VERSION?	Get standby firmware version number.	#STANDBY-VERSION?<CR>	~nn@STANDBY-VERSION <standby_version><CR><LF>	<firmware_version> - XX.XX.XXXX where the digit groups are: major.minor.build version	Get the device standby firmware version: #STANDBY-VERSION?
TIME	Set device time and date.	#TIME <day-of-week>,<date>,<time><CR>	~nn@TIME <day-of-week>,<date>,<time><CR><LF>	<day-of-week> - One of {SUN, MON, TUE, WED, THU, FRI, SAT} <date> - DD-MM-YYYY <time> - Hh:mm:ss	Set device time and date to 5:24:04 on Wednesday may 18 th 2022 #TIME WED,18-05-2022,05:24:04
TIME?	Get device time and date.	#TIME?<CR>	~nn@TIME <day-of-week>,<date>,<time><CR><LF>	<day-of-week> - One of {SUN, MON, TUE, WED, THU, FRI, SAT} <date> - DD-MM-YYYY <time> - Hh:mm:ss	Get device time and date: #TIME?

Function	Description	Syntax	Response	Parameters/ Attributes	Example
TIME-CITY	Set the time zone according to the city. + If the time server is configured, device time is automatically calculated (that it got from the time server) + 1 hour if daylight savings time is in effect. + TIME command sets the device time without considering these settings.	#TIME-CITY <city_name>,<dst_state><CR>	~nn@TIME-CITY <city_name>,<dst_state><CR><LF>	<city_name> - City name, See Appendix for details <dst_state> - Daylight saving time state 0 - No daylight saving time 1 - Enable daylight saving time	#TIME-CITY_London,1
TIME-CITY?	Get the city name of current setting. + If the time server is configured, device time is automatically calculated (that it got from the time server) + 1 hour if daylight savings time is in effect. + TIME command sets the device time without considering these settings.	#TIME-CITY?<CR>	~nn@TIME-CITY <city_name>,<dst_state><CR><LF>	<city_name> - City name, See Appendix for details <dst_state> - Daylight saving time state 0 - No daylight saving time 1 - Enable daylight saving time	TIME-CITY?
TIME-LOC	Set local time offset from UTC/GMT. + If the time server is configured, device time calculates by adding UTC_off to UTC time (that it got from the time server) + 1 hour if daylight savings time is in effect. + TIME command sets the device time without considering these settings.	#TIME-LOC <utc_off>,<dst_state><CR>	~nn@TIME-LOC <utc_off>,<dst_state><CR><LF>	<utc_off> - Offset of device time from UTC/GMT (without daylight time correction) <dst_state> - Daylight saving time state 0 - No daylight-saving time 1 - Daylight saving time	Set local time offset to 8 hours and no daylight-saving time: #TIME-LOC 8,0
TIME-LOC?	Get local time offset from UTC/GMT. + If the time server is configured, device time calculates by adding UTC_off to UTC time (that it got from the time server) + 1 hour if daylight savings time is in effect. + TIME command sets the device time without considering these settings.	#TIME-LOC?<CR>	~nn@TIME-LOC <utc_off>,<dst_state><CR><LF>	<utc_off> - Offset of device time from UTC/GMT (without daylight time correction) <dst_state> - Daylight saving time state 0 - No daylight saving time 1 - Daylight saving time	Get local time offset: TIME-LOC?
TIME-SRV	Set time server.	#TIME-SRV <mode>,<time-server-ip>,<sync_hour><CR>	~nn@TIME-SRV <mode>,<time-server-ip>,<sync_hour><CR><LF>	<mode> - 0 - Off 1 - On <time-server-ip> - Time server IP address <sync_hour> - Hour in day for time server sync <server_status> - 0 - Off 1 - On	Set time server 192.168.1.99 on and time sync to off: #TIME-SRV 1,192.168.1.99,0
TIME-SRV?	Get time server.	#TIME-SRV?<CR>	~nn@TIME-SRV <mode>,<time-server-ip>,<sync_hour><CR><LF>	<mode> - 0 - Off 1 - On <time-server-ip> - Time server IP address <sync_hour> - Hour in day for time server sync <server_status> - 0 - Off 1 - On	Get time server state: #TIME-SRV?
TIME-ZONE	Set the device time zone.	#TIME-ZONE_timezone_str<CR>	~nn@TIME-ZONE timezone_str<CR><LF>	timezone_str – A string that identifies the relevant time zone.	Set time zone to London, England: #TIME-ZONE_Europe/London<CR>
TIME-ZONE?	Get the device time zone.	#TIME-ZONE?<CR>	~nn@TIME-ZONE timezone_str<CR><LF>	timezone_str – A string that identifies the relevant time zone.	Get time zone: #TIME-ZONE? <CR>
VERSION?	Get firmware version number.	#VERSION?<CR>	~nn@VERSION<firmware_version><CR><LF>	<firmware_version> - XX.XX.XXXX where the digit groups are: major.minor.build version	Get firmware version: #VERSION?

Result and Error Codes

Syntax

In case of an error, the device responds with an error message. The error message syntax:

- **~NN@ERR XXX<CR><LF>** – when general error, no specific command
- **~NN@CMD ERR XXX<CR><LF>** – for specific command
- **NN** – machine number of device, default = 01
- **XXX** – error code

Error Codes

Error Name	Error Code	Description
P3K_NO_ERROR	0	No error
ERR_PROTOCOL_SYNTAX	1	Protocol syntax
ERR_COMMAND_NOT_AVAILABLE	2	Command not available
ERR_PARAMETER_OUT_OF_RANGE	3	Parameter out of range
ERR_UNAUTHORIZED_ACCESS	4	Unauthorized access
ERR_INTERNAL_FW_ERROR	5	Internal FW error
ERR_BUSY	6	Protocol busy
ERR_WRONG_CRC	7	Wrong CRC
ERR_TIMEDOUT	8	Timeout
ERR_RESERVED	9	(Reserved)
ERR_FW_NOT_ENOUGH_SPACE	10	Not enough space for data (firmware, FPGA...)
ERR_FS_NOT_ENOUGH_SPACE	11	Not enough space – file system
ERR_FS_FILE_NOT_EXISTS	12	File does not exist
ERR_FS_FILE_CANT_CREATED	13	File can't be created
ERR_FS_FILE_CANT_OPEN	14	File can't open
ERR_FEATURE_NOT_SUPPORTED	15	Feature is not supported
ERR_RESERVED_2	16	(Reserved)
ERR_RESERVED_3	17	(Reserved)
ERR_RESERVED_4	18	(Reserved)
ERR_RESERVED_5	19	(Reserved)
ERR_RESERVED_6	20	(Reserved)
ERR_PACKET_CRC	21	Packet CRC error
ERR_PACKET_MISSED	22	Packet number isn't expected (missing packet)
ERR_PACKET_SIZE	23	Packet size is wrong
ERR_RESERVED_7	24	(Reserved)
ERR_RESERVED_8	25	(Reserved)
ERR_RESERVED_9	26	(Reserved)
ERR_RESERVED_10	27	(Reserved)
ERR_RESERVED_11	28	(Reserved)
ERR_RESERVED_12	29	(Reserved)
ERR_EDID_CORRUPTED	30	EDID corrupted
ERR_NON_LISTED	31	Device specific errors
ERR_SAME_CRC	32	File has the same CRC – not changed
ERR_WRONG_MODE	33	Wrong operation mode
ERR_NOT_CONFIGURED	34	Device/chip was not initialized
ERR_RESOURCE_NOT_AVLIABLE	35	Device is not available
ERR_PERMISSION_DENIED	36	Permission denied



HDMI[™]
HIGH-DEFINITION MULTIMEDIA INTERFACE



P/N: 2900-301556



Rev: 4



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

For the latest information on our products and a list of Kramer distributors, visit our website where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

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